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## ESTIMATE USER GUIDE

# PROJECT COST MANAGEMENT

INEIGHT 



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Release 19.2  
Last Updated: 21 September 2021



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# INTRODUCTION

## Course Description

This course covers the concepts and functionality you need to know in order to use the InEight Estimate software successfully. As a result, you will be able to build cost estimates and bid proposals with precision and efficiency.

## Course Objectives

As a result of this course, you will be able to use the InEight Estimate software to:

- Construct and modify cost estimates
- Calculate profit and finalize bid proposals

## How to Use this Manual

This training manual serves as the working guide during the *E101 Essentials of Project Modeling and Estimating* instructor-led course. The first seven lessons of this document follow a natural progression of putting an estimate together, from set up of a project to finalization of a bid. The remaining lessons cover additional functionality that will help you build and review your project estimate more effectively.

## Lessons

The following lessons are covered in this course:



Course Lessons	
Lesson	Topic
Lesson 1	Estimating Core Concepts
Lesson 2	General Navigation
Lesson 3	Library Setup
Lesson 4	Project Setup
Lesson 5	Estimate Direct Costs
Lesson 6	Estimate Indirect Costs
Lesson 7	Finalize the Estimate

## Lesson Format

This manual is designed to be a “hands on” learning guide. As such, each lesson is organized into sections:

Section	Description
Objectives	Specify what you will learn in each lesson.
Topics	Organize the subject matter, with explanations of key concepts and terms.
Step by Steps	Walk you through the “mechanics” of how to perform specific functions in the software. For each step by step, you will use the Training Job that comes pre-loaded in the InEight Estimate Estimating software.
Exercises	Allow you to practice and reinforce what you learn. For each exercise, you will use the Training Job that comes pre-loaded in the InEight Estimate Estimating software.
Review	Asks you questions to check what you have learned within each lesson.

## Call-Outs

Throughout the document, you will also find important call-out banners.

### TIP

Tips are for important notes and information you want to remember.

### NOTE

Notes are for critical information you need to know.



## Ongoing Use

This manual is also designed to be a comprehensive reference guide you can use outside of the classroom and revisit as needed. Each lesson is compartmentalized so that you can refer back to each lesson as needed.



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# LESSON 1 – ESTIMATING CORE CONCEPTS

**Lesson Duration: 30 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Explain the estimating process in InEight Estimate
- Explain key terms and concepts

## Lesson Topics

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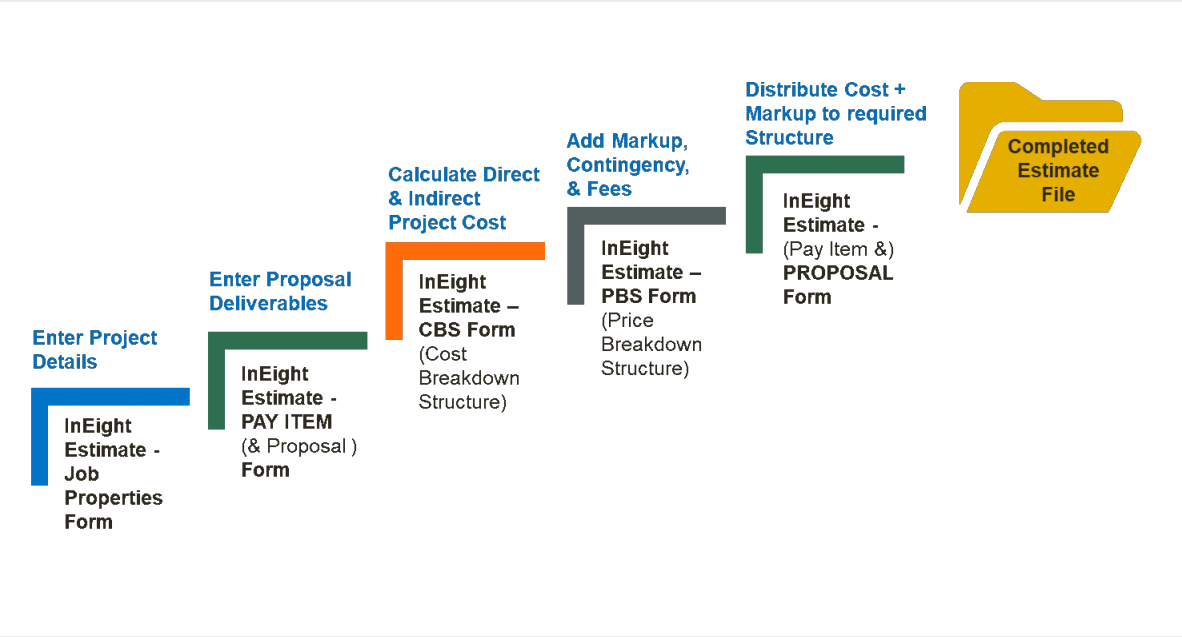


# 1.1 OVERVIEW OF THE ESTIMATING PROCESS

The estimating process typically progresses through the following five steps. If you are an Owner you may not take part in all five of these steps, but may instead do a few in an iterative process as you progress through stage gate approval phases.

1. Enter project details.
2. Enter proposal deliverables.
3. Calculate Direct & Indirect Project Cost.
4. Add Markup, Contingency, & Fees.
5. Distribute Cost + Markup to required structure.

The below table displays how these five steps correspond with specific forms in InEight Estimate:



Note the forms used in InEight Estimate to accomplish the steps above:

- Job Properties
- Pay Item & Proposal
- CBS (Cost Breakdown Structure)
- PBS (Price Breakdown Structure)



The rest of this section walks you through an overview of each step in the process and its corresponding form in InEight Estimate.

## Step 1 – Enter Project Details

When you decide to estimate a new project, the first step is to create a new estimate and set it up with the general project details. In InEight Estimate, you'll enter basic information and project specific settings in the Job Properties form from the Setup tab.

The Job Properties form is organized into tabs to help you keep track of all the basic information and settings for the project. It begins with the Overview tab. You will move from left to right entering your project specific information and adjusting any settings that differ from the default.

The screenshot shows the InEight Estimate software interface. The top menu bar includes File, Setup, Estimate, Quote, Price, Execution, System, and Integrations. Below the menu is a toolbar with icons for Job Properties, Foundation Setup Data, Pay Item & Proposal, Bid Wizard, Resource Rates, Labor, Equipment, Materials, Resource Assemblies, Cost Item Assemblies, Standard Tables, and Reports. The main window displays the 'Cost Breakdown Structure (CBS) Register' and the 'Job Properties' form. The 'Job Properties' form has a tabbed interface with the following tabs: Overview, Security, Cover Sheet, Cost Basis, Minority Setup, Fuel Cost, Job Tracking, Job Folder Tags, Competitors, Pricing, Schedule, Cash Flow, and Equipment. The 'Overview' tab is currently selected. It contains the following fields:

- Identification:**
  - Location: I-10 MP 100 to MP 120
  - City: Phoenix
  - County: Maricopa
  - Country: United States
  - State: Arizona
  - Latitude: 0.00000
  - Longitude: 0.00000
  - Type: Highway and General Engineering
  - Engineer: Example Engineer -- Fred Jones
  - Owner: Example Owner -- Jerry Slate
  - Architect: Example Architect -- Robert Frost
  - Contract Duration: 160
  - Time Measure: Contract Days
  - Forecast Start: 6/11/2019
  - Forecast Finish: 11/20/2019
  - Duration: 162
- Proposal:**
  - Bid Date: 12/23/2013
  - Bid Time: 10:00:00 PM
  - Estimator: Example Prime Contractor 1 -- Tom Cross
  - Bid Location: Engineer's Office
  - Owners Estimate: \$6,000,000.00
  - Opening Type: Public
  - Proposal Type: Unit Price
  - Plan Holders: 5
  - Liquidated Damages: \$1,000.00
  - Liq. Damages Per: Day
  - RFQ Contact: Example Prime Contractor 1 -- Tom Cross

At the bottom of the form, there are 'OK' and 'Cancel' buttons. The status bar at the very bottom shows 'As-Entered Currency', 'As-Entered Units', 'v19.1 HD\_19.1\_QA2016', 'Training Job', and 'Accrued Costs OFF'.

## Step 2 – Enter Proposal Deliverables

For Contractors who are submitting a proposal to a client, this step enables you to enter the client provided deliverables clients are requesting pricing for. Most Owners will skip this step unless there is a need to track various funding sources or prepare for internal or external company billing.

In InEight Estimate this list of items is recorded in the Pay Item & Proposal Register on the Setup tab.



- Notice that your pay items have no pricing when first entered because you have yet to figure out costs. You will come back to this form later in the process to distribute your costs and markup.

Pay Item & Proposal Register				
<b>Proposal Recap - Training Job</b>				X
	Current	Target	Forecast	Variance
Price:	<b>\$6,569,735.00</b>	\$6,569,736.28	\$6,577,223.80	\$1.28 <b>ADD</b>
Markup:	\$984,118.34	\$984,119.62	\$1,041,388.54	\$57,268.92 <b>CUT</b>
Margin%:	14.98	14.98	15.83	\$66,039.81 <b>CUT</b>

Description

- Price
  - Distribution
  - Markup
    - Profit (Markup)

Pricing is now spread to pay items

Drag columns here to group

	Position Code	Pay Item Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Currency	Unit Price (current)	Total Price (current)
→	<b>1</b>	<b>200</b>	SITEWORK & ROADWAY				U.S. Dollar		\$3,402,
+ 1.1	641 0100	Mobilization	1.00	1.00	Lump Sum	U.S. Dollar	\$395,600.00	\$395,	
+ 1.2	201 0102	Clearing & Grubbing	10.00	10.00	Acre	U.S. Dollar	\$5,900.00	\$59,	
+ 1.3	202 0183	Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	U.S. Dollar	\$5.50	\$275,	
+ 1.4	303 5912	Aggregate Base	40,000.00	45,000.00	Ton	U.S. Dollar	\$26.50	\$1,060,	
+ 1.5	303 4263	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	U.S. Dollar	\$42.45	\$1,613,	
	<b>2</b>	<b>400</b>	WATER & SEWER				U.S. Dollar		\$718,
+ 2.1	413(B) 0464	36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet	U.S. Dollar	\$97.45	\$97,	
+ 2.2	800 0220	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet	U.S. Dollar	\$29.50	\$354,	

### Step 3 – Calculate Direct & Indirect Project Cost

Once you've set up your estimate, you will perform take-offs and cost analysis to determine the total estimated cost to complete the entire scope of work.

The **Cost Breakdown Structure (CBS) Register** is the main form where you will do your cost estimating.

- It is the hierarchy of work activities that make up the estimate
- Each row in the CBS represents a work activity and is called a cost item



**Training Job - Estimate**

File Setup Estimate Quote Price Execution System Integrations Actions More Actions

Print New Copy Split Cost Item Assembly  
 Preview Delete Paste Toggle Suspended Subordinate Cost Item Subordinate Assembly  
 Export to Excel Cut Fill Down Indent Dependent Cost Item  
 Print Edit Insert View

**Job Properties** **Cost Breakdown Structure (CBS) Register**

Drag columns here to group Find: [Search For...] Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Allocated
→	<b>JOB</b>		20.00	Mile	\$293,095.93	\$5,861,918.63	
+	<b>Prime Bond</b>	PRIME BOND	1.00	Lump Sum	\$47,069.88	\$47,069.88	
+	<b>Price % Add-On</b>	PRICE % ADD-ON	1.00	Lump Sum	\$294,928.95	\$294,928.95	
+	<b>Job Financing</b>	FINANCE EXPENSE	1.00	Lump Sum	\$0.00	\$0.00	
+	<b>Indirect Cost Escalation</b>	INDIRECT COST ESCAL...	1.00	Lump Sum	\$0.00	\$0.00	
+	<b>Direct Cost Escalation</b>	DIRECT COST ESCALAT...	1.00	Lump Sum	\$18,837.35	\$18,837.35	
+	<b>Indirect Cost Add-On</b>	INDIRECT COST ADD-ON	1.00	Lump Sum	\$0.00	\$0.00	
+	<b>Job Management &amp; Equipment</b>	JOB MANAGEMENT & E...	1.00	Lump Sum	\$157,096.28	\$157,096.28	
+	<b>General Expense</b>	GENERAL EXPENSE	1.00	Lump Sum	\$4,200.00	\$4,200.00	
+	<b>Direct Cost Add-On</b>	DIRECT COST ADD-ON	1.00	Lump Sum	\$104,301.10	\$104,301.10	
+	<b>1 Mobilization</b>	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51	
+	<b>2 Clearing &amp; Grubbing</b>	201 0102	10.00	Acre	\$3,918.50	\$39,184.97	
+	<b>3 Unclassified Excavation</b>	202 0183	50,000.00	Cubic Yard	\$4.68	\$233,915.81	
+	<b>3.1 Excavation</b>	3.1	50,000.00	Cubic Yard	\$3.00	\$149,922.88	
+	<b>3.2 Embankment</b>	3.2	50,000.00	Cubic Yard	\$1.68	\$83,992.94	
+	<b>4 Aggregate Base</b>	303 5912	45,000.00	Ton	\$15.40	\$692,928.99	
+	<b>4.1 Furnish &amp; Haul Base Material</b>	4.1	45,000.00	Ton	\$11.54	\$519,513.30	
+	<b>4.2 Finegrade Subgrade</b>	4.2	400,000.00	Square Yard	\$0.19	\$75,848.36	
+	<b>4.3 Install Aggregate Base</b>	4.3	45,000.00	Ton	\$13.17	\$593,567.33	
	106					\$5,861,918.63	

## Step 4 – Add Markup, Contingency, & Fees

Once you have estimated all project costs, you may need to add markup, contingency or other fees and define the job's profit in the Price Breakdown Structure form.

**Price Breakdown Structure**

Description	Cost	% of Target
▼ Price Breakdown Structure		
▼ Target Price	\$6,553,97...	100.00
▼ Target Profit	\$642,821.40	9.81
▼ Direct Cost Markup	\$628,520.02	9.59
▼ Indirect Cost Markup	\$14,301.37	0.22
▼ Total Cost	\$5,911,15...	90.19
▼ Indirect Cost	\$646,863.68	9.87
▼ Business Overhead	\$360,836.18	5.51
▼ Prime Bond	\$47,069.88	0.72
▼ Price % Add-On	\$294,928.95	4.50
▼ Job Financing	\$0.00	0.00
▼ Indirect Cost E...	\$0.00	0.00
▼ Direct Cost Esc...	\$18,837.35	0.29
▼ Indirect Cost A...	\$0.00	0.00
▼ Unassigned Bu...	\$0.00	0.00
▼ Job Overhead	\$286,027.50	4.36
▼ Job Manage...	\$157,096.28	2.40
▼ General Expense	\$4,200.00	0.06
▼ Direct Cost Ad...	\$104,301.10	1.59
▼ Unassigned Jo...	\$20,430.12	0.31
▼ Direct Cost	\$5,264,29...	80.32
▼ Unassigned Direct ...	\$1,000.00	0.02
▼ Assigned Direct Co...	\$5,263,29...	80.31



## Step 5 – Distribute Cost + Markup to required Structure

You now have a target price or total estimated value that you can spread to your required project deliverables, back in the Pay Item & Proposal form. InEight Estimate has tools within this form to help automatically distribute your cost, overhead and all markups to the listed items.

**Pay Item & Proposal Register**

**Proposal Recap - Training Job**

	Current	Target	Forecast	Variance	
Price:	<b>\$6,455,450.00</b>	\$6,553,976.75	\$6,462,850.00	\$98,526.75	<b>ADD</b>
Profit:	\$544,294.64	\$642,821.40	\$604,568.97	\$38,252.43	<b>ADD</b>
Margin%:	8.43	9.81	9.35	\$32,502.50	<b>ADD</b>

**Item Recap - 641 0100 Mobilization**

	Balanced Unit	Current Unit
<b>Price:</b>	\$18,300.00	<b>\$386,800.00</b>
<b>Profit:</b>	\$2,049.63	\$370,501.39
<b>Total Cost:</b>	\$16,298.61	\$16,298.61
Business Overhead:	\$840.31	
Job Overhead:	\$3,546.52	
Unassigned Direct Cost:	\$2.26	
Assigned Direct Cost:	\$11,909.51	

Drag columns here to group

Find: 
 Saved views:

Pay Item Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Currency	Unit Price (current)	Total Price (current)	Unit Price (balanced)	Total Price (balanced)
→ + 641 0100	Mobilization	1.00	1.00	Lump Sum	U.S. Dollar	\$386,800.00	\$386,800.00	\$18,300.00	\$18,300.00
+ 201 0102	Clearing & Grubbing	10.00	10.00	Acre	U.S. Dollar	\$6,120.00	\$61,200.00	\$5,867.33	\$58,673.33
+ 202 0183	Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	U.S. Dollar	\$8.50	\$425,000.00	\$6.31	\$315,500.00
+ 303 5912	Aggregate Base	40,000.00				\$22.00	\$880,000.00	\$19.47	\$778,800.00
+ 303 4263	Asphalt Concrete Hot Mix Type A	38,000.00				\$35.00	\$1,330,000.00	\$52.28	\$1,986,640.00
+ 413(B) 0464	36 Inch RCP Culvert Class III	1,000.00				\$100.00	\$100,000.00	\$87.19	\$87,190.00
+ 800 0220	10 Inch PVC Force Main (SDR21)	12,000.00		Linear Feet	U.S. Dollar	\$28.00	\$336,000.00	\$29.82	\$357,840.00
+ 800 0330	24 Inch PVC Gravity Sewer (SDR35)	3,000.00		Linear Feet	U.S. Dollar	\$64.00	\$192,000.00	\$64.13	\$192,390.00
+ 800 0400	4 Foot Diameter Manhole	16.00	16.00	Each	U.S. Dollar	\$4,500.00	\$72,000.00	\$4,579.64	\$73,274.24
							\$6,455,450.00		\$6,553,981.40

## 1.2 KEY CONCEPTS AND TERMS

To help you get started in InEight Estimate, you should know a few key terms:

- Job Folder
- Library
- Form
- Cost Item
- Pay Item
- Resource
- Assembly



## 1.2.1 Job Folder

**Job folders** hold all the information for an individual project estimate. It is possible to import master data into a job folder, but when you work in a job folder it is independent, meaning any activity performed in that folder will not affect any other jobs and will not affect the library.

### TIP

When moving back and forth between jobs, make sure to always double-check that you are in the right job.

## 1.2.2 Library

The Library is a storehouse for master data, such as:

- Labor, equipment, and material unit cost rates
- Standard account codes
- Units of measure

When you create a new job from scratch, default data and settings copy from the Library into your new job folder, except for the resource rates. Multiple list of resource rates can be maintained in the library so you must select which rates to populate a new estimate with. Four tag fields are available to filter the resource rates you bring into an estimate from the master library. For example, you may select a subset of your labor rates based on the geographical location of the project.

## 1.2.3 Form

Any screen you open in InEight Estimate is considered a Form. There are three types of forms: Standard, Register, and Record forms.

**Standard Forms** resemble typical data entry forms with fields available to fill in key project information. They also may contain radio buttons or checkboxes to define settings for the job.

The screenshot displays the 'Job Properties' form with the following components highlighted:

- Entry Fields:** Includes input fields for 'Work Hours per Shift' (8.00), 'Pay Hours per Shift' (8.00), 'Shifts per Day' (1.00), and 'Days per Week' (5.00).
- Checkboxes:** Includes checkboxes for 'Lock Cost Items to Pay Items' (checked), 'Activate PBS Changes Log', 'Activate Quantity Checking', and 'Maintain CBS Structure at Level' (0).
- Radio buttons:** Includes radio buttons for 'Change UM / Man-Hour' (selected) and 'Change Days'.
- Tabs:** A row of tabs at the top: Overview, Security, Cover Sheet, Cost Basis, Minority Setup, Fuel Cost, Job Tracking, Job Folder Tags, Competitors, Pricing, Schedule, Cash Flow, and Equipment.



**TIP**

InEight Estimate uses tabs to group and organize entry fields and settings in a logical way, so that the information is easy to access.

**Register Forms** have a grid format of rows and columns, giving it a spreadsheet look and feel. Register forms allow you to see information for multiple items at once. The Cost Breakdown Structure (CBS) Register is an example of a register form.

Cost Breakdown Structure (CBS) Register								
Drag columns here to group			Find: [Search For...]		Saved views: Standard View			
CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Allocated	
+ 1	Mobilization	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51	<input type="checkbox"/>	▲
+ 2	Clearing & Grubbing	201 0102	10.00	Acre	\$3,918.50	\$39,184.97	<input type="checkbox"/>	
3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard	\$4.54	\$226,856.16	<input type="checkbox"/>	
+ 3.1	Excavation	3.1	50,000.00	Cubic Yard	\$2.86	\$142,863.22	<input type="checkbox"/>	
+ 3.2	Embankment	3.2	50,000.00	Cubic Yard	\$1.68	\$83,992.94	<input type="checkbox"/>	
4	Aggregate Base	303	1,000.00	Ton	\$15.40	\$692,928.99	<input type="checkbox"/>	
+ 4.1	Furnish & Haul Base Material	4.1	1,000.00	Ton	\$11.54	\$519,513.30	<input type="checkbox"/>	
+ 4.2	Finegrade Subgrade	4.2	1,000.00	Square Yard	\$0.19	\$75,848.36	<input type="checkbox"/>	
4.3	Install Aggregate Base	4.3	1,000.00	Ton	\$2.17	\$97,567.33	<input type="checkbox"/>	
+ 4.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton	\$1.63	\$73,460.92	<input type="checkbox"/>	
+ 4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard	\$0.06	\$24,106.42	<input type="checkbox"/>	
5	Asphalt Concrete Hot Mix Type A	303 4263	35,000.00	Ton	\$42.62	\$1,491,580.59	<input type="checkbox"/>	
+ 5.1	Furnish & Haul Hot Mix	5.1	35,000.00	Ton	\$39.27	\$1,374,562.54	<input type="checkbox"/>	
+ 5.2	Install Hot Mix Type A	5.2	35,000.00	Ton	\$3.34	\$117,018.05	<input type="checkbox"/>	
6	36 Inch RCP Culvert Class III	413(B) 0464	1,024.00	Linear Feet	\$67.54	\$69,159.49	<input type="checkbox"/>	
+ 6.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet	\$33.48	\$34,286.70	<input type="checkbox"/>	
+ 6.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard	\$4.51	\$8,379.59	<input type="checkbox"/>	
+ 6.3	Install RCP Pipe	6.3	1,024.00	Linear Feet	\$11.74	\$12,017.60	<input type="checkbox"/>	

View multiple items at once

In a register form, you can open a **Record** for individual items you want to drill into.

**TIP**

The Tab key is the best way to move among fields in InEight Estimate (instead of the Enter key).

The below figure displays a Cost Item Record accessed by double clicking on that item on the Cost Breakdown Structure (CBS) Register.



**Cost Breakdown Structure (CBS) Register**
**Cost Item Record**

CBS Code: Optional Code: Description: Forecast (T/O) Qty: Unit of Measure:

4

303 5912

AggregateBase

45,000.00

Ton

4.1

4.1

Furnish & Haul Base Material

45,000.00

Ton

PI Assignment: PI Line Number: PI Description: Cost Segment:

303 5912

40

AggregateBase

Direct Cost

Cost Item Summary
Detail : \$11.54
Plug : \$0.00

Drag columns here to group Find: [Search For...] Saved views: Previous View

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Qua
+ 1	LT1		Teamster			
+ 2	ETDT		Dump Truck			
+ 3	MBR		Aggregate Base Rock	45,500.00	5.00	

Record focuses on 1 item

## 1.2.4 Cost Item

**Cost items** are the individual cost-related activities that make up the project. Cost items are organized into a hierarchy in the Cost Breakdown Structure (CBS) Register. Each row in the CBS is considered a cost item.

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost
+ 1	<b>Mobilization</b>	641 0100	1.00	Lump Sum	\$11,909.51
+ 2	<b>Clearing &amp; Grubbing</b>	201 0102	10.00	Acre	\$3,918.50
+ 3	<b>Unclassified Excavation</b>	202 0183	50,000.00	Cubic Yard	\$4.68
+ 3.1	Excavation	3.1	50,000.00	Cubic Yard	\$3.00
+ 3.2	Embankment	3.2	50,000.00	Cubic Yard	\$1.68
+ 4	<b>Aggregate Base</b>	303 5912	45,000.00	Ton	\$15.40
+ 4.1	Furnish & Haul Base Material	4.1	45,000.00	Ton	\$11.54
+ 4.2	Finegrade Subgrade	4.2	400,000.00	Square Yard	\$0.19
+ 4.3	Install Aggregate Base	4.3	45,000.00	Ton	\$2.17
+ 4.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton	\$1.63
+ 4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard	\$0.06

## 1.2.5 Pay Item

Pay items typically represent the owner required deliverables a contractor must submit pricing for. Pay items are used to distribute the cost calculated in the Cost Breakdown Structure, with all markup, including any fees or contingencies calculated in the Price Breakdown Structure. This allows the total



estimate value to be distributed to a structure that is different than the CBS. Pay Items are predominantly used by contractors to prepare a bid sheet. Owners may use pay items to identify funding sources or for various reporting needs.

	Position Code	Pay Item Number	Description	Pay Quantity	Forecast (T/O) Quantity
→	<b>1</b>	<b>200</b>	SITEWORK & ROADWAY		
	+ 1.1	641 0100	Mobilization	1.00	
	+ 1.2	201 0102	Clearing & Grubbing	10.00	
	+ 1.3	202 0183	Unclassified Excavation	50,000.00	50,000.00
	+ 1.4	303 5912	Aggregate Base	40,000.00	45,000.00
	+ 1.5	303 4263	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00
	<b>2</b>	<b>400</b>	WATER & SEWER		
	+ 2.1	413(B) 0464	36 Inch RCP Culvert Class III	1,000.00	1,000.00
	+ 2.2	800 0220	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00

## 1.2.6 Resource

**Resources** are the building blocks of a detailed cost estimate.

Resources are the people, equipment, material, and supplies needed to complete the project.

Resources are employed to cost items to develop an estimate, and are organized into seven categories or types:

1. Labor
2. Construction Equipment
3. Rented Construction Equipment
4. Installed Equipment
5. Installed Materials
6. Supplies
7. Unique



## 1.2.7 Resource Assembly

A **Resource Assembly** is a group of resources that are often used together. For example, for civil work, you may group together an operator foreman, operator, and laborer, along with a loader and excavator. When estimating, you can employ this assembly which includes all of the pre-selected resources.

Resource Assembly Register												
Drag columns here to group												
Code	Description	Resource File Description	Quantity	Unit of Measure	Unit Cost	Total Cost	Currency	Organizational Category	Geographic Area			
- CCONC	Concrete Crew	Standard Assembly File	1.00	Hour	\$375.03	\$375.03	U.S. Dollar	Concrete				
→	Row Number	Resource Code	Description	Quantity	Unit of Measure	Unit Cost	Currency	Cost Driver	Resource File Description	Organizational Category	Geographic Area	Wage Zone
	1	LC2	Carpenter Journeyman	2.00	Each	\$28.92	U.S. Dollar	CI Dura...	Standard Labor Rate File	Carpenter	Southwest	Wage Zon...
	2	LF2	Finisher	1.00	Each	\$28.07	U.S. Dollar	CI Dura...	Standard Labor Rate File	Finisher - Conc...	Southwest	Wage Zon...
	3	LIW 1	Iron Worker	1.00	Each	\$35.55	U.S. Dollar	CI Dura...	Standard Labor Rate File	Iron Worker	Southwest	Wage Zon...
	4	LL2	Laborer	1.00	Each	\$26.37	U.S. Dollar	CI Dura...	Standard Labor Rate File	Laborer	Southwest	Wage Zon...
	5	ECRHC	Hydraulic Crane 25 Ton	1.00	Each	\$117.60	U.S. Dollar	CI Dura...	Standard Equipment Rate...	Crane		
	6	LC1	Carpenter Apprentice	1.00	Each	\$27.48	U.S. Dollar	CI Dura...	Standard Labor Rate File	Carpenter	Southwest	Wage Zon...
	7	LO2	Operator Class 2	1.00	Each	\$28.07	U.S. Dollar	CI Dura...	Standard Labor Rate File	Operator	Southwest	Wage Zon...
	8	ETFT	Flatbed Truck	1.00	Each	\$22.60	U.S. Dollar	CI Dura...	Standard Equipment Rate...	Truck		
	9	LC3	Carpenter Foreman	1.00	Each	\$31.47	U.S. Dollar	CI Dura...	Standard Labor Rate File	Carpenter	Southwest	Wage Zon...
+ CGRADE	Grading Crew	Standard Assembly File	1.00	Hour	\$234.73	\$234.73	U.S. Dollar	Earthwork				
+ CMAINT	Equipment Maintenance	Standard Assembly File	1.00	Each	\$73.60	\$73.60	U.S. Dollar	Mechanic				
+ CPAVE	Paving Crew	Standard Assembly File	1.00	Hour	\$476.24	\$476.24	U.S. Dollar	Asphalt				

## 1.2.8 Cost Item Assembly

A **Cost Item Assembly** is a predefined group of cost items that has cost based on estimator inputs to a set of questions. Cost item assemblies provide parameter-driven estimating and can also refer to reference tables. They allow companies to create intelligent construction systems to automatically estimate various scopes of work, based upon a user providing specification and dimension variables.

Cost Item Assembly Register										
Drag columns here to group										
Code	Description	Assembly File Description	Default Quantity	Default Unit of Measure	Default Unit Cost	Default Total Cost	Default Currency	Organizational Category	Geographic Area	
RW01	Standard Retaining Wall Assembly	Standard Cost It...	20.00	Cubic Yard	\$424.67	\$8,493.38	U.S. Dollar	Concrete		
TEST	TEST		1.00	Each	\$0.00	\$0.00	U.S. Dollar			
TEST - DRS	Test Cost Item Assembly - Ductbank	Standard Cost It...	1.00	Each	\$0.00	\$0.00	U.S. Dollar	Concrete	Northeast	
TEST DS	Test Cost Item Assembly - Ductbank	Standard Cost It...	1.00	Each	\$0.00	\$0.00	U.S. Dollar	Excavator	Southwest	



## Lesson 1 Review

1. Which InEight Estimate form is used to enter basic information about the job as well as define our cost basis?
  - a. Pay Item & Proposal
  - b. Job Properties
  - c. Library
  - d. Job Folder

---
2. All default data and settings copy from the Library into your new job folder *except*:
  - a. Labor rates
  - b. Equipment rates
  - c. Material rates
  - d. All of the above

---
3. These are considered the “building blocks” of the job – you employ them to cost items to develop your estimate.
  - a. Assemblies
  - b. Pay Items
  - c. Resources
  - d. Forms

---

## Lesson 1 Summary

As a result of this lesson, you can:

- Explain the estimating process in InEight Estimate
- Explain key terms and concepts



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# LESSON 2 – GENERAL NAVIGATION

**Lesson Duration: 45 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Navigate the InEight Estimate system interface
- Navigate system settings
- Manage columns in InEight Estimate registers

## Lesson Topics

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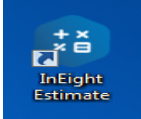


## 2.1 GENERAL NAVIGATION

This section explores the layout of InEight Estimate.

### Step by Step — Launch InEight Estimate

1. From the Windows desktop, locate the **InEight Estimate shortcut** icon.



2. Double click on the icon, or right click and select Open.

#### TIP

If you can't find the InEight Estimate shortcut icon, you can also launch InEight Estimate from the Windows Start menu.

### 2.1.1 Backstage View

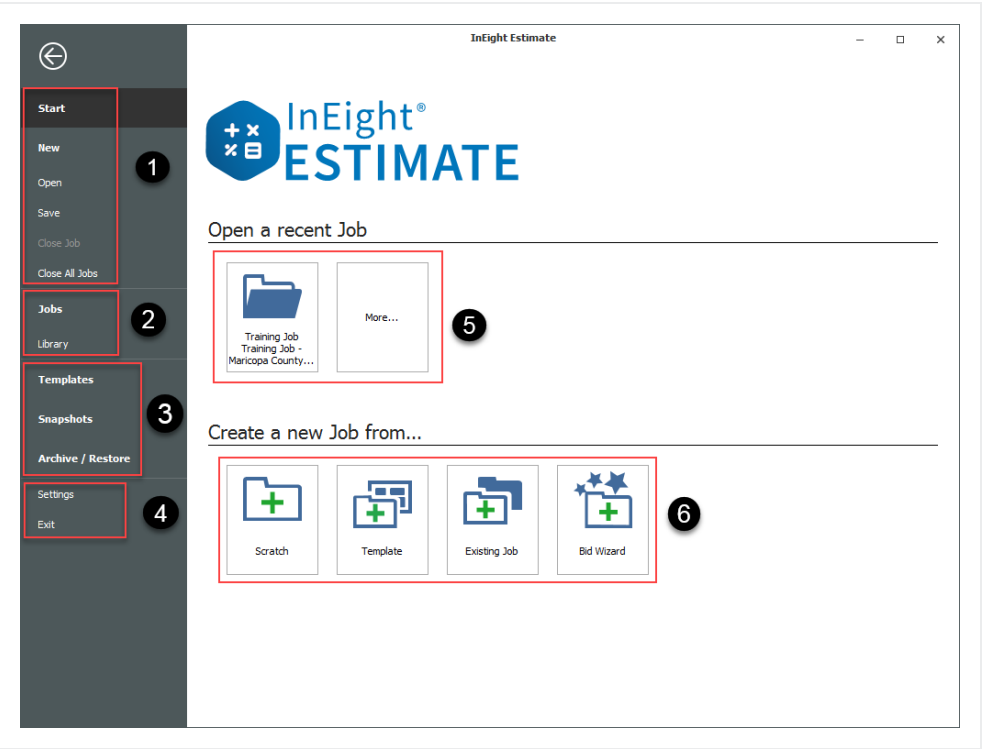
InEight Estimate opens to the Backstage view. You can also get to the Backstage view from other tabs, by selecting the File tab.

Section	Description
Section 1	From the Start page you have the option to create, open or save a project, or close all jobs that are open.
Section 2	You access the Library or open the Jobs page to go to the Job Register, Compare Jobs, delete a job, or do a Primavera Batch Sync.
Section 3	<ul style="list-style-type: none"><li>• Templates allows you to create Job templates.</li><li>• You can create job snapshots or access previously created snapshots in the Snapshot Register.</li><li>• You can also archive or back up and restore job folders.</li></ul>
Section 4	Settings allows you to customize options such as General settings, Account Code settings, Timesheet Warehouse settings, Licenses and Currency settings.
Section 5	From the Open a recent Job section of the Start page, you can open the Training job or



Section	Description
	click More to open your list of jobs.
Section 6	You have the option of creating a new job from scratch, a template, from an existing job, or using the Bid Wizard.

2.1.2 Overview – Backstage View



2.1.2.1 Archive / Restore

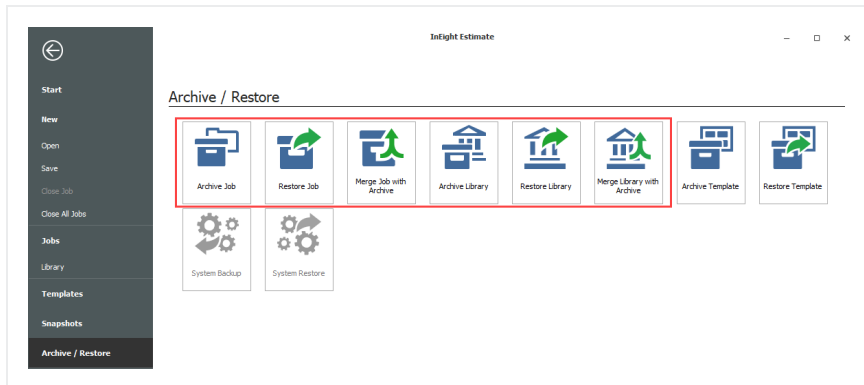
From the Backstage View, you can back up and restore your jobs using the Archive/Restore feature.

Step by Step — Archive and Restore a Job

- 1. Click **File** to open the Backstage View.
- 2. Select **Archive / Restore**.



- Several options appear for archiving and restoring your jobs and library



3. Select **Archive Job**.

- The Job Register appears

4. Select the **Training Job**, then click **OK**.

5. When prompted to include attachments, click **Yes**.

- The Save As window appears

6. Browse to where you want to save the job, then click **Save**.

7. To restore the job, select **Restore Job Archive** from the Archive / Restore page of the Backstage View.

8. Browse to the archived job and select it.

9. Click **Open**.

- If the job already exists, a prompt will appear asking if you want to overwrite it
  - To overwrite it, select **Yes**
  - If you select **No**, you will be prompted to save it under a new Job Code

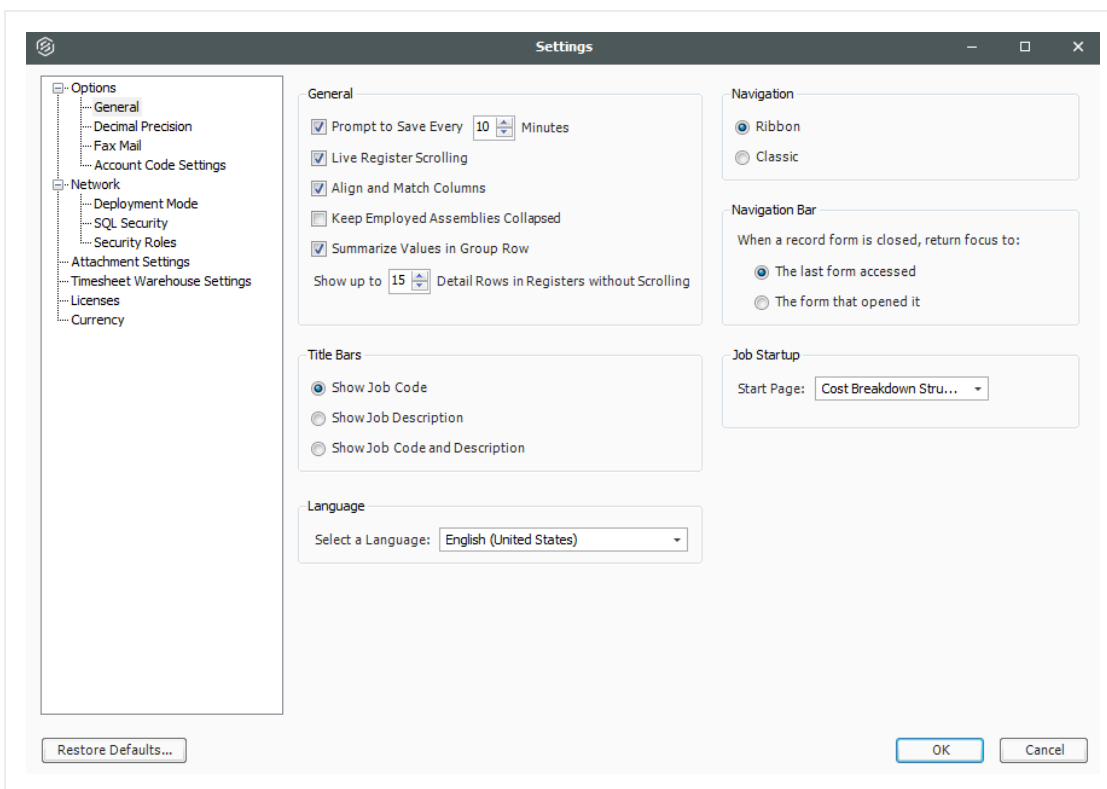
### 2.1.2.2 Settings

From the **Settings** in the Backstage view, you can adjust some system settings:

- General Settings
- Default Job Start page
- Decimal Precision
- Currency



- Account Code Settings



### 2.1.2.3 Prompt to Save

An important setting to visit in the Tools menu is **Prompt to Save**. InEight Estimate does not automatically save your work. Instead, it will prompt you to save as often as you specify in the general settings.

### 2.1.2.4 Decimal Precision

The **Decimal Precision** setting is also helpful. This is where you can specify the way your numbers display in the system. For example, you may want your costs to display to the hundredth decimal place (2), and your quantities to display as whole numbers with nothing to the right of the decimal (0).

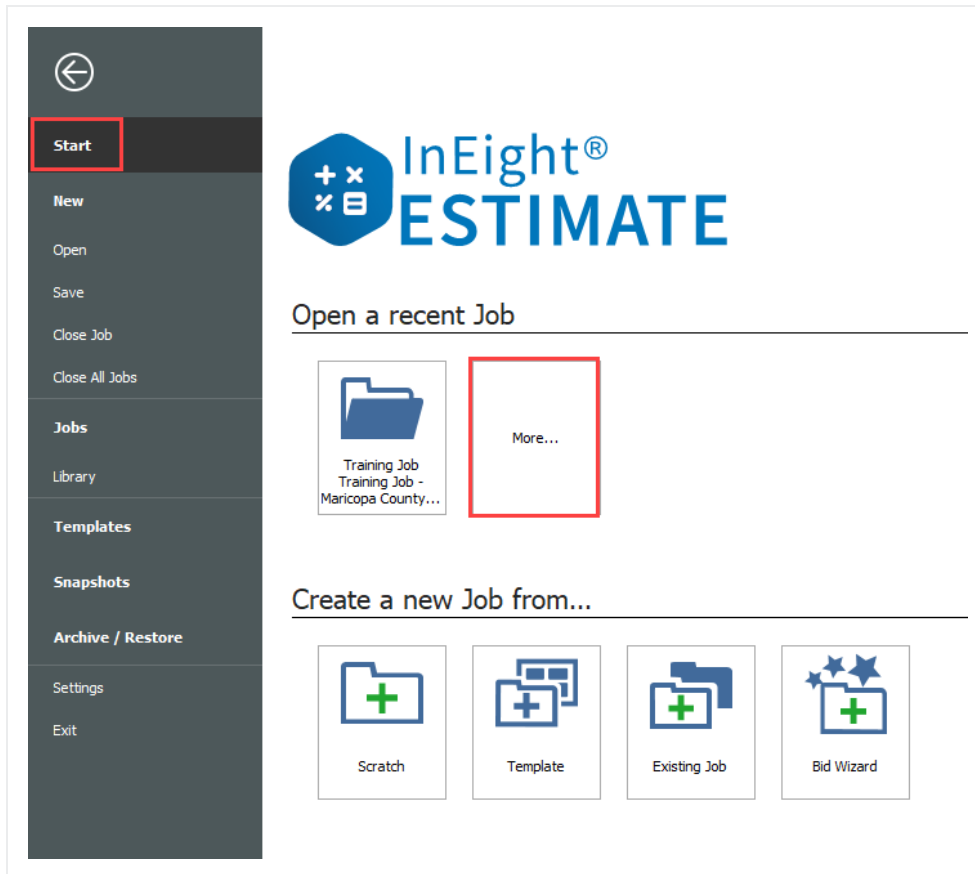
#### TIP

Changing decimal precision does not affect the way your numbers are calculated.



## 2.1.3 Open a Job Folder

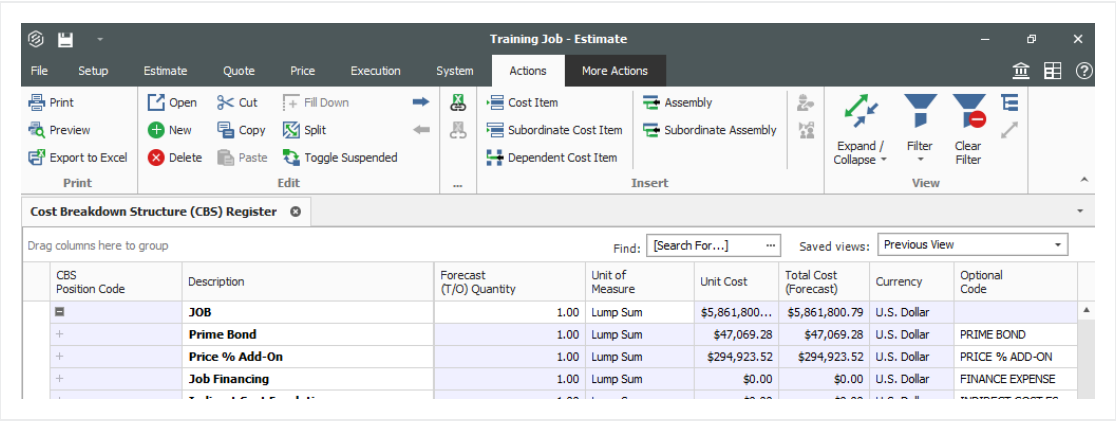
From the Backstage view, you can open a job folder by selecting **Start**. This opens the Start page, where if you see your job, simply click on it to open it. If it's not showing, click on **More...** and select the job from the Job Register. The Job Register is the form that lists all of your existing job folders so you can select the one you need.



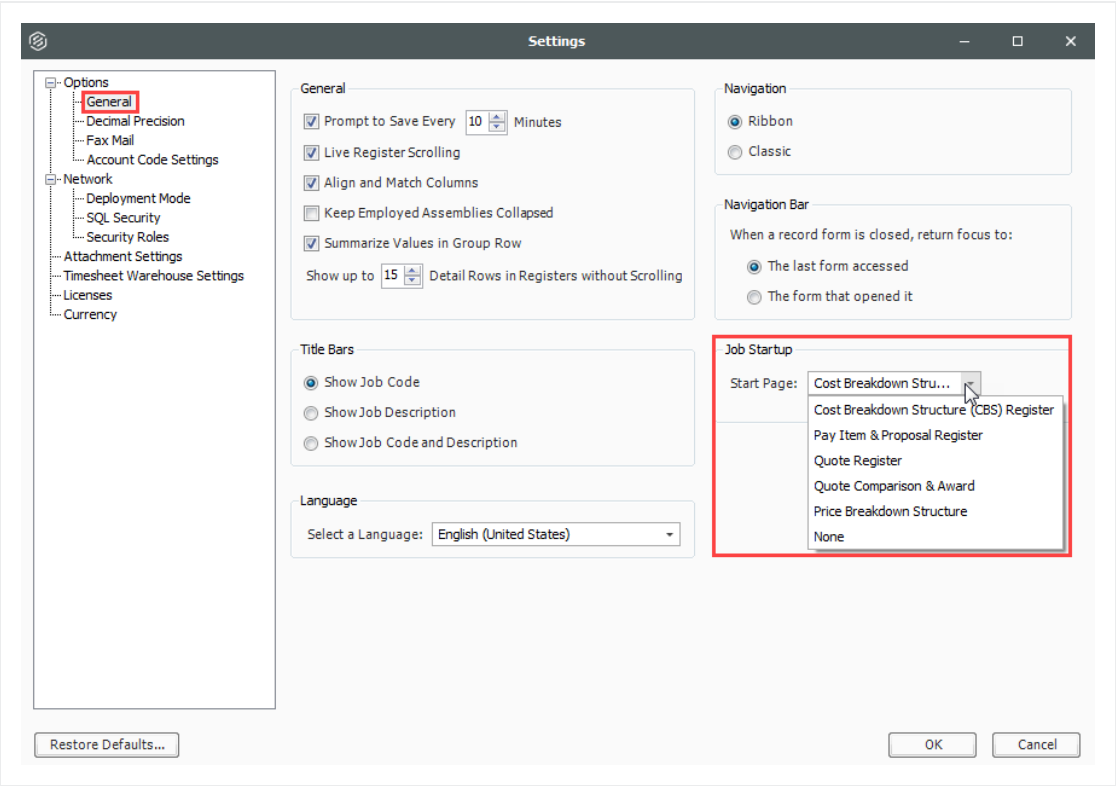
### Step by Step — Open a Job Folder

1. From the Backstage view, under the **Open a recent Job** section, double click on your **job**.
2. The job folder opens by default to the Cost Breakdown Structure Register.





You can change the default form that opens when you start up a job. From the Backstage view, click on **Settings** to change the Job Startup > Start Page settings.

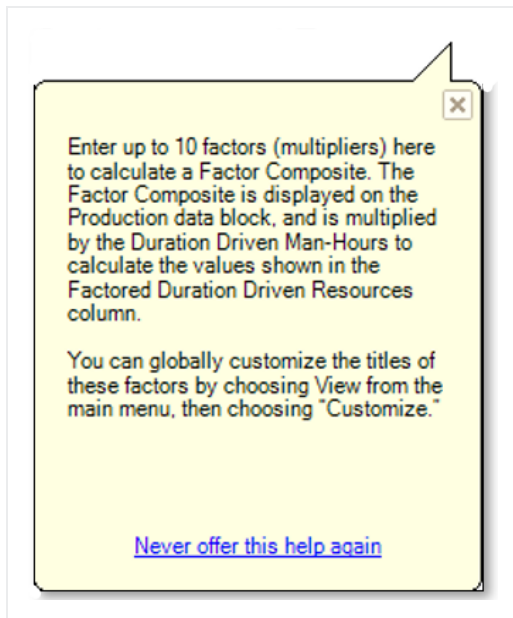


### 2.1.4 Help Bubbles

Help bubbles appear at various times in InEight Estimate, including the first time you open InEight Estimate. These messages contain important information to clarify key functions in the system.

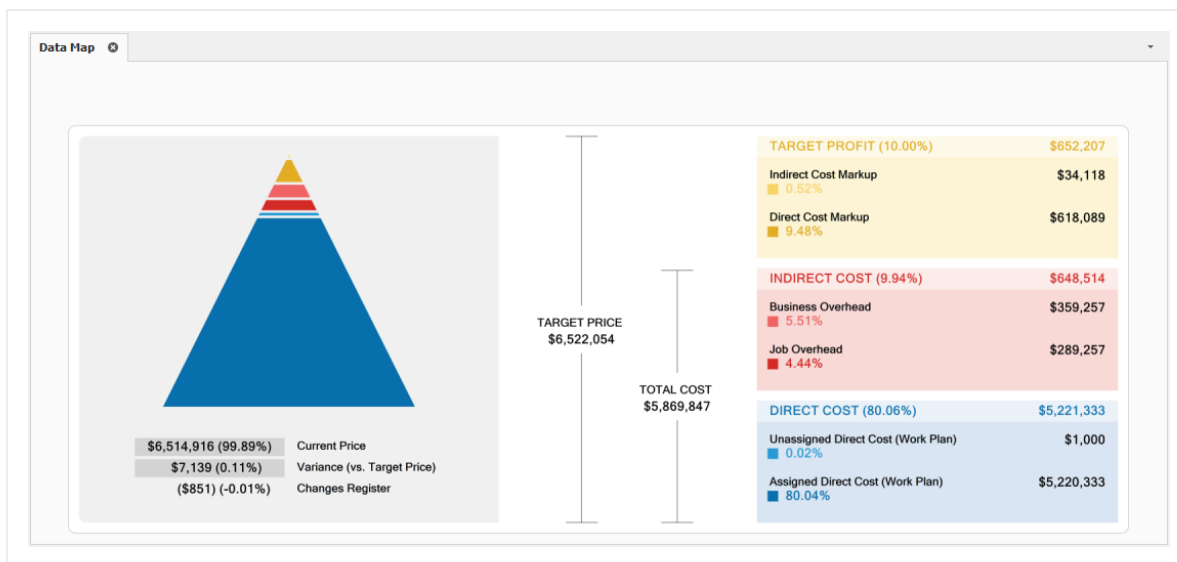


You can dismiss the message until the next time by closing it with the X in the corner or dismiss it permanently by clicking the **Never offer this help again** link.



## 2.1.5 Data Map

Found in the Price tab, the Data Map is a great way to view a high level summary of your estimate and can be accessed at any time during the estimating process. You can see totals of direct costs, indirect costs, profit, and overall bid price.

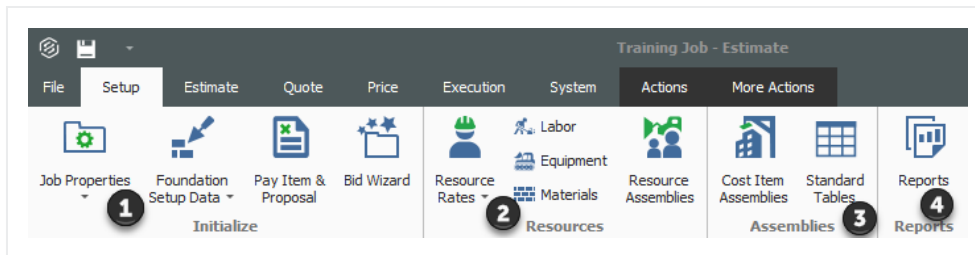




## 2.1.6 InEight Estimate Layout

The layout of InEight Estimate is workflow based. You will move from left to right on the tabs as you enter your data for the project and work on developing your estimate.

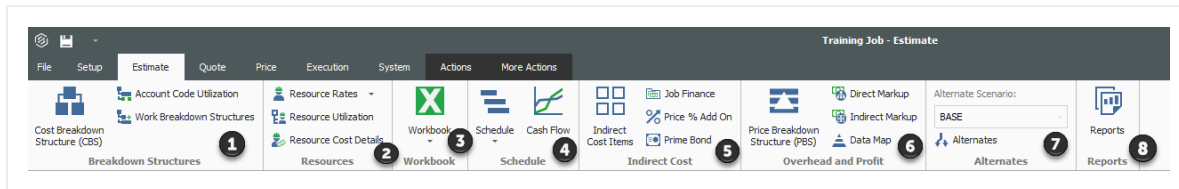
## 2.1.7 Overview - Setup Tab



Section		Description
1	Initialize	From the initialize section, you can access the following registers. Job Properties is where you enter the basic project details. Foundation Setup Data is where you populate all account codes and validated fields. The Pay item & Proposal Register provides an alternate structure to distribute estimated values. Bid Wizard helps automate the process of setting up estimates by copying information that already exists in other jobs.
2	Resources	In the Resources section, Resource Rates opens the Resource Rate Register, where detail costs for labor, equipment and material is stored. The Resource Assemblies opens the Resource Assembly Register, where you create a combination of resources as an assembly and reuse it as needed in multiple cost items.
3	Assemblies	You can create a Cost Item Assembly to automatically estimate different scopes of work based on input values. Standard tables – allow you to create tables of reference data that can be accessed in any cost item assembly.
4	Reports	The Reports section is available from any tab. Depending on the tab you access it from will bring you to reports specific to that tabs data. Here you will find reports on resources such as Resources Changes, Resource Utilization, and Resource Cost Details.



## 2.1.8 Overview – Estimate Tab

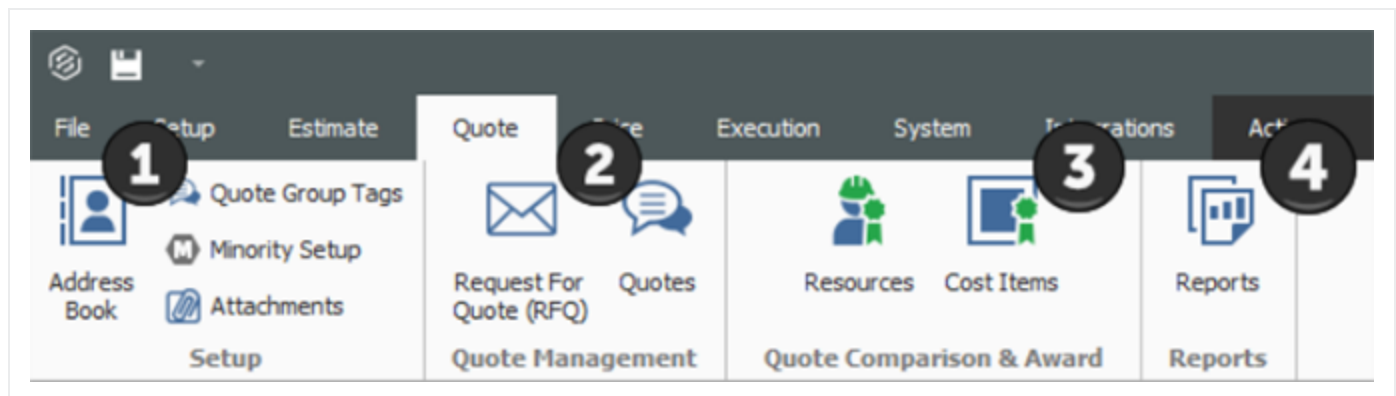


Section		Description
1	Breakdown Structures	From the Breakdown Structures section in the Estimate tab you can access the Cost Breakdown Structure (CBS) Register, Account Code Utilization Register, and Work Breakdown Structures (WBS) Register.
2	Resources	Resource Rate Register is where you create or modify the rate charged for labor, material and equipment resources. Different views of the Resource Rate register such as Resource Utilization and Resource Cost Details are available from the Resources section.
3	Excel Workbook	InEight Estimate's integration with Microsoft Excel is a two-way integration that allows you to update register fields in Estimate with data contained in an Excel workbook, and update Excel cells with data contained in a register field in Estimate. This is where you open the embed excel workbook which is maintained as part of the estimate job folder and where you perform the sync functions to send values back and forth.
4	Schedule	From the Schedule icon, you can access bi-directional integration with Microsoft Project and Oracle Primavera. The Cash Flow graph displays the projected cash flow of your project, along with the job financing expense, individual cost category costs and resource utilization.
5	Indirect Cost Items	Indirect Cost Items filters the CBS register to display cost items that contain overhead costs that are not directly associated with any particular deliverable items. Clicking on % Price Add on or Prime Bond opens up these individual records.
6	Overhead and Profit	Price Breakdown Structure (PBS) Register is a visual run-down of the costs and profit that make up your Target Price. You can access the Direct and Indirect Markup records or see totals of direct costs, indirect costs, profit and overall bid price summarized in a Data Map.



Section		Description
7	Alternates	Alternates are used to define alternate scenarios in order to assess the impact of those scenarios.
8	Reports	From the Reports section, you can run reports on CBS Summary, CBS Details, CBS Outline, CBS Estimate Summary, CBS Currency Comparison.

### 2.1.9 Overview – Quote Tab

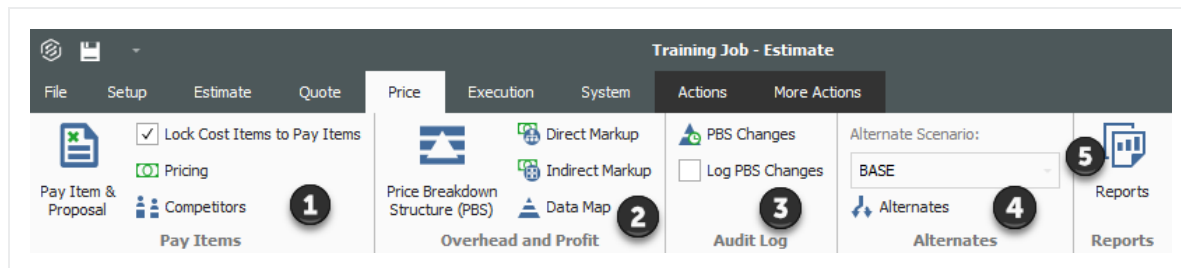


Section		Description
1	Setup	Quotes are organized using Address book, Quote Group Tags, Minority Setup and attachments in the Setup section. Address book stores and maintains all information pertaining to subcontractors, vendors, architects/engineers, etc. that you work with regularly. The Minority Setup tab within Job Properties stores information about the agency that authorizes the status of Minority Enterprises along with their different types. You can use Quote Group Tags to group together multiple resources or cost items that will be sent in a single request for quote package to solicited contractors or vendors..
2	Quote Management	Quote Management allows you to access the Requests for Quote (RFQs) register and Quotes. Request for Quotes (RFQs) are invitations to sellers, requesting that they submit pricing to provide services, equipment or material based on the line items and resources included in your estimate. The Quote Register stores all of the quote responses you receive for that job.
3	Quote	The Quote Comparison & Award section allows you to perform comparative



Section		Description
	Comparison & Award	analysis across all the quotes you've received. You can view a comparison of submitted pricing by resources or cost items.
4	Reports	From the Reports section in Quotes you can run reports on Quote Summary, Quote Record, Compare & Award, and Minority Participation.

## 2.1.10 Overview – Price Tab

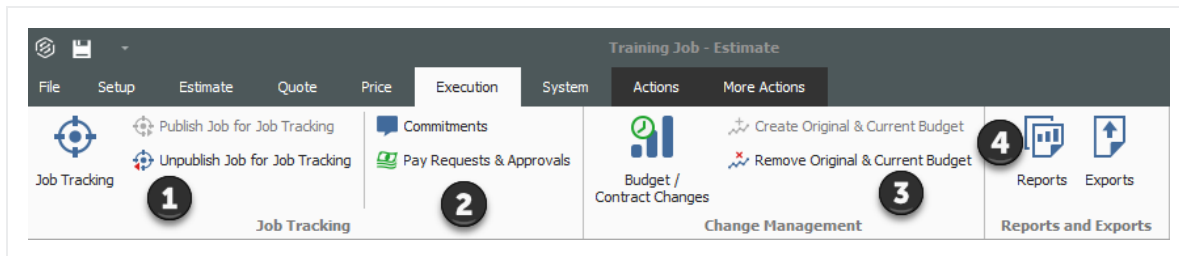


Section		Description
1	Pay Items	From the Pay Items section you can lock Cost items to Pay items and access the Pay item & Proposal register. Under Pricing in Job Properties, you can set up how the tool is calculates profit and spreads pricing to your pay items. You can also access Competitor's bid information in Job Properties..
2	Overhead and Profit	The Price Breakdown Structure (PBS) Register is a visual run-down of the costs and profit that make up your Target Price. You can access the Direct and Indirect Markup records or see totals of direct costs, indirect costs, profit and overall bid price summarized in a Data Map.
3	Audit Log	You can access the PBS Changes register (which logs any changes that effect the Target Price) and turn on/off logging PBS changes..
4	Alternates	Alternates are used to define alternate scenarios in order to assess the impact of those scenarios on the total estimate value.
5	Reports	From the Reports section in the Price tab, you can generate reports for Standard Proposal, DOT Proposal, Pay Item Summary, Pay Item Currency Comparison, Pay Item Price Breakdown.



### 2.1.11 Overview – Execution Tab

The Execution Tab is for Customers who are utilizing the Job Tracking functionality within InEight Estimate. InEight Control users can disregard this tab.

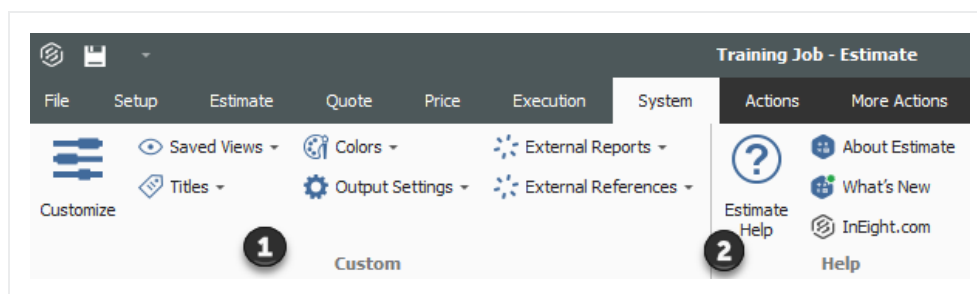


Section	Description
1 Job Tracking	You can customize the titles and colors for different fields. You can export and import saved Views, Titles, Colors and Output Settings. You can customize reports generated by Estimate using External reports. External References allows you to open external programs with Estimate.
2 Overhead & Profit	Commitments tracks how much of the current budget has been committed for expenditure. Pay Requests and Approvals automatically calculates earned revenue to provide the data you need to bill your client, as well as approve invoices from your suppliers and subcontractors.
3 Change Management	Budget/Contract Changes is the only way to change current budget or add a pay item after the project has been released for execution and the Original Budget locked. Create Original & Current Budget sets the original and current budget for the project. These should be equal when you initially create it (at the beginning of project execution). Current budget is the only thing that can change after



Section		Description
		execution. Remove Original & Current Budget removes original and current budget values.
4	Reports and Exports	From the Reports icon, you can run multiple reports on the project. Exports can export budget file, schedule, and timesheet to many different formats.

## 2.1.12 Overview - System Tab



Section		Description
1	Custom	You can customize the titles and colors for different fields. You can export and import saved Views, Titles, Colors and Output Settings. You can customize reports generated by Estimate using External reports. External References allows you to open external programs with Estimate.
2	Help	You can access a comprehensive help system from the Help menu. You can get information about the Estimate Version and all new updates about the different versions.

## 2.1.13 Library

Click on the Library icon and the Library opens in its own window.



Users with sufficient security can access master information available in the Library.



**TIP**

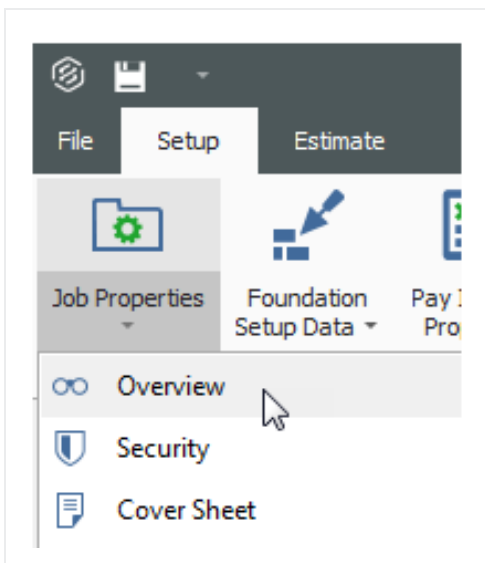
*The Library is covered in greater detail in "3.1 Library Overview" on page 85*

## 2.1.14 Open Forms

The following steps assume you already opened the Training Job.

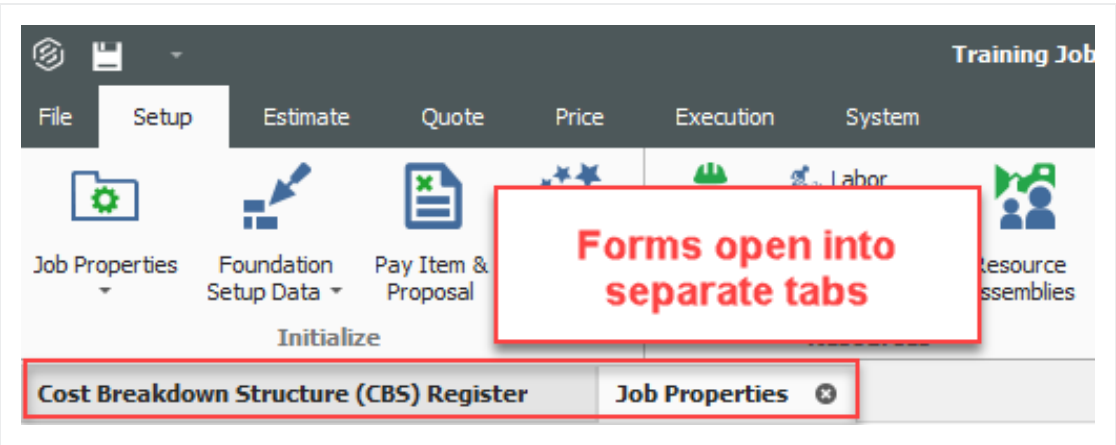
### Step by Step — Open Forms

1. Click on the **Setup** tab.
2. In the Initialize section of the Setup tab, click on the **drop-down menu** for Job Properties.
3. Select **Overview** to open the Job Properties form.

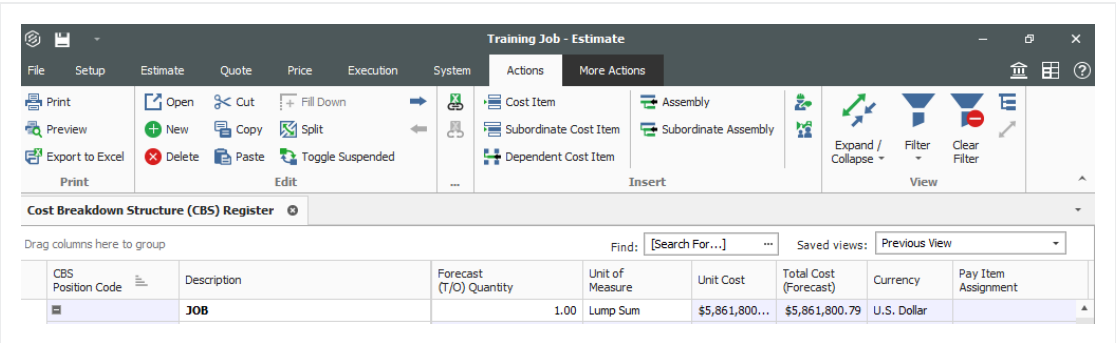




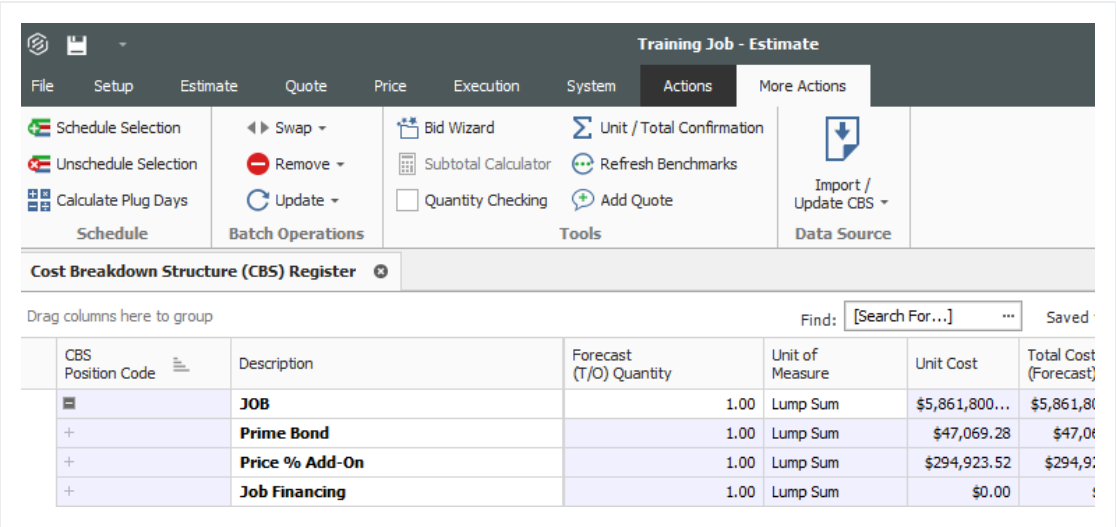
- Notice that each form opens in its own tab within the active job folder



- You can tab between these forms as you are working in InEight Estimate
- Once you are in a register, the Actions and More Actions tabs are available to you. The options available are contextual to that register







# 2.2 SYSTEM SETTINGS

From the Backstage View, you can access system settings. System settings contain options and settings that effect the entire InEight Estimate system. These settings include:

- General settings (options)
- Network settings
- Attachment settings
- Licensing information and settings
- Currency settings

The following step by step walks you through configuring general settings (options).

## Step by Step — Decimal Precision

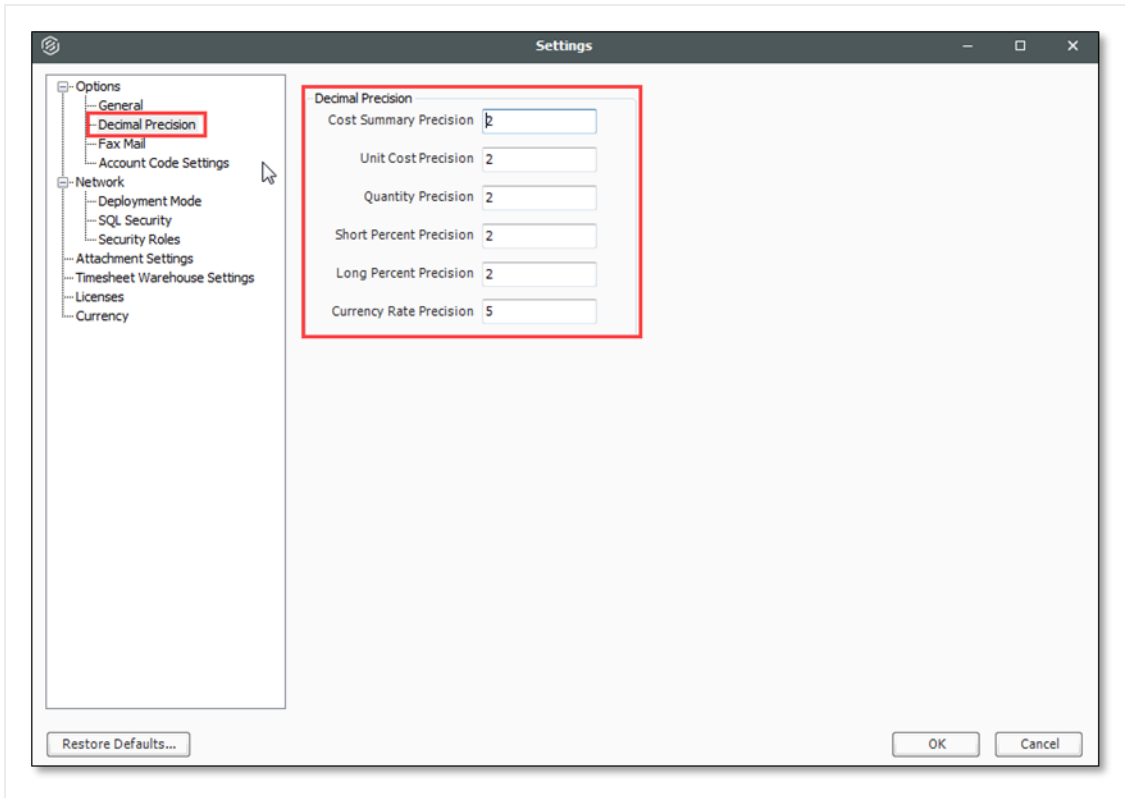
1. With InEight Estimate open, click on the **File** tab to go to the Backstage view.
2. Select **Settings**.
3. Select **General** under Options in the node tree on the left.
4. To activate Prompt to Save, select the **Prompt to Save** checkbox.



5. Select how often you want to be prompted (in minutes).
6. Select **Decimal Precision** in the tree on the left.
7. Review the default settings.

**TIP**

Units of Measure will default to English, and Currency will default to U.S. Dollar.



## 2.3 COLUMNS

Within each register, you can move, sort, filter and group your columns to view the information the way you need to see it.

### 2.3.1 Move Columns

You can move columns by selecting a column header and using drag-and-drop. If there are columns on the register that you don't use, you can hide and unhide them from view, as needed.



Step by Step — Move Columns

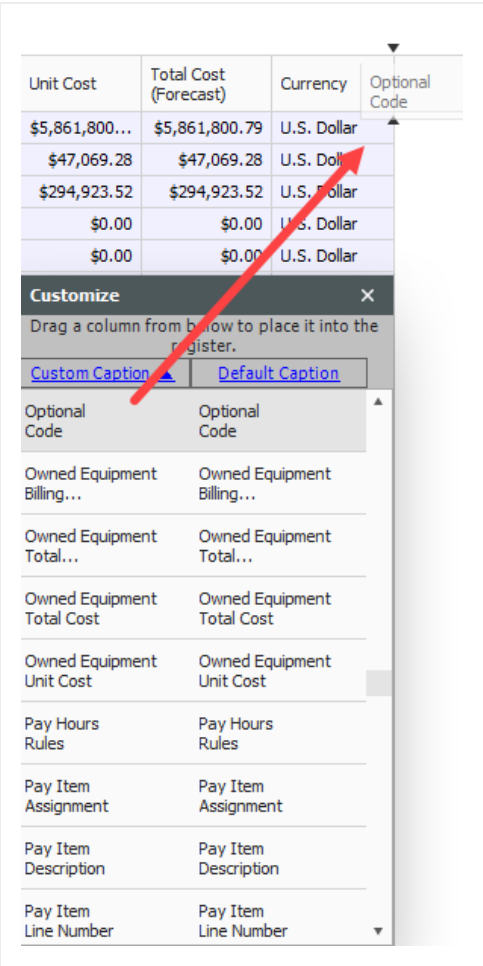
- 1. In the CBS, click on the **Currency** column header and drag the column to the left, dropping it to the right of the Description column.
- 2. Hide the **Optional Code** column by dragging the Optional Code column header down until a black X appears, then let go.



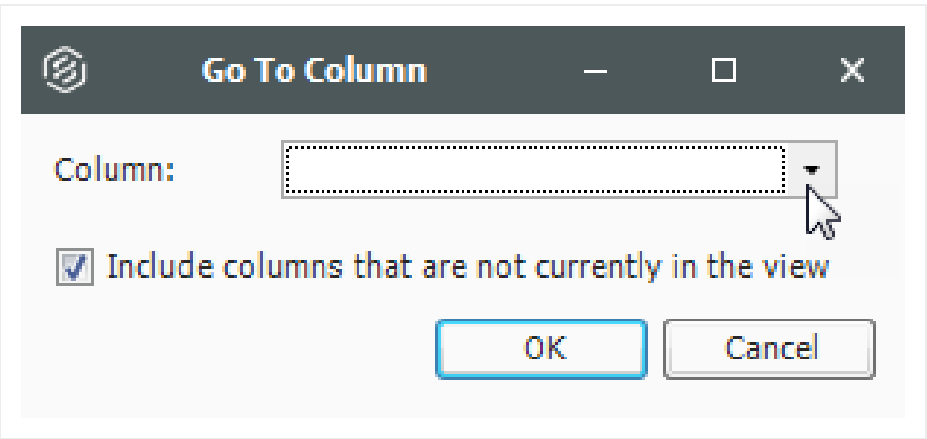
Currency	Optional Code
U.S. Dollar	
U.S. Dollar	PRIME BOND
U.S. Dollar	PRICE % ADD-ON
U.S. Dollar	FINANCE EXPENSE
U.S. Dollar	INDIRECT COST ES...
U.S. Dollar	DIRECT COST ESC...
U.S. Dollar	Optional Code INDIRECT COST A...
U.S. Dollar	JOB MANAGEMENT...
U.S. Dollar	GENERAL EXPENSE
U.S. Dollar	DIRECT COST ADD...
U.S. Dollar	641 0100
U.S. Dollar	201 0102
U.S. Dollar	202 0183
U.S. Dollar	3.1

- The Optional Code is now hidden from view
  - To unhide a column, right click on any column header and select **Column Chooser**; a Customization window appears, which contains all the hidden columns in that register
3. Find the **column** you want to unhide and drag-and-drop it to the location where you want it to go.





- You can also unhide a column using the Go To Column feature
4. Right click on a **column** header and select **Go To Column**.
  5. Click on the **drop-down menu** and select the column you want to unhide.





6. Click **OK**.

## 2.3.2 Sort and Filter Columns

You can sort and filter your columns to drill down to specific information.

### Step by Step — Sort Columns

You can sort on any column by clicking once on the column header.

1. In the CBS Register, click on the **Total Cost (Forecast)** column to sort the column in ascending order (e.g., 1 to 10, A to Z).
2. Click the **Total Cost (Forecast)** column a second time to sort in descending order (e.g., 10 to 1, Z to A).

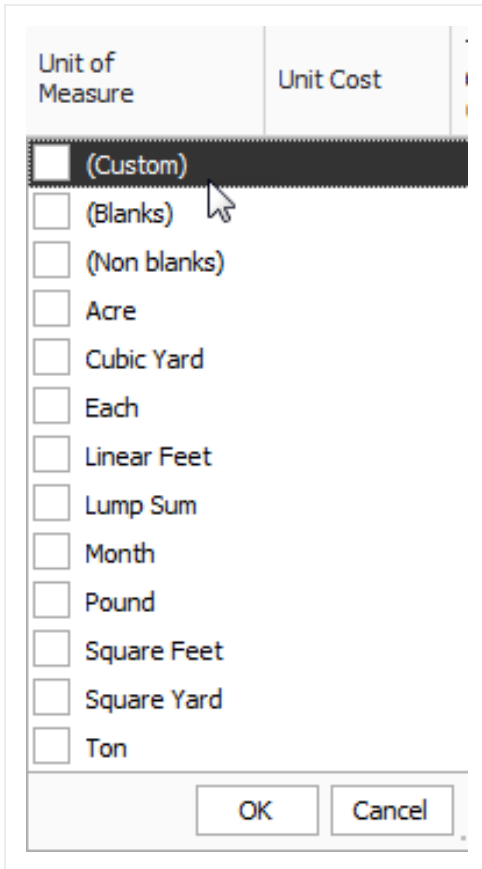
#### TIP

Use Ctrl-click to unsort a column and reset it to its original state.

### Step by Step — Filter Columns

1. In the CBS, hover over the **Unit of Measure** column header for the filter icon to appear.
2. Click on the **filter** icon in the Unit of Measure column to select a filter value.
  - From the filter list, you can select any of the values defined for that column or you can use one of the predefined values (Custom, Blanks, Non blanks).





The screenshot shows a dialog box for selecting a unit of measure. It has two columns: 'Unit of Measure' and 'Unit Cost'. The 'Unit of Measure' column contains a list of options, each with a checkbox. The first option, '(Custom)', is highlighted with a mouse cursor. The other options are: (Blanks), (Non blanks), Acre, Cubic Yard, Each, Linear Feet, Lump Sum, Month, Pound, Square Feet, Square Yard, and Ton. At the bottom of the dialog box are 'OK' and 'Cancel' buttons.

Unit of Measure	Unit Cost
<input checked="" type="checkbox"/> (Custom)	
<input type="checkbox"/> (Blanks)	
<input type="checkbox"/> (Non blanks)	
<input type="checkbox"/> Acre	
<input type="checkbox"/> Cubic Yard	
<input type="checkbox"/> Each	
<input type="checkbox"/> Linear Feet	
<input type="checkbox"/> Lump Sum	
<input type="checkbox"/> Month	
<input type="checkbox"/> Pound	
<input type="checkbox"/> Square Feet	
<input type="checkbox"/> Square Yard	
<input type="checkbox"/> Ton	

OK Cancel

3. Make your selection, then click **OK**.
4. To clear the filter, click on the **red X** at the bottom of the form or click on the filter icon on the header of the column you filtered and select **(All)**, then click **OK**.

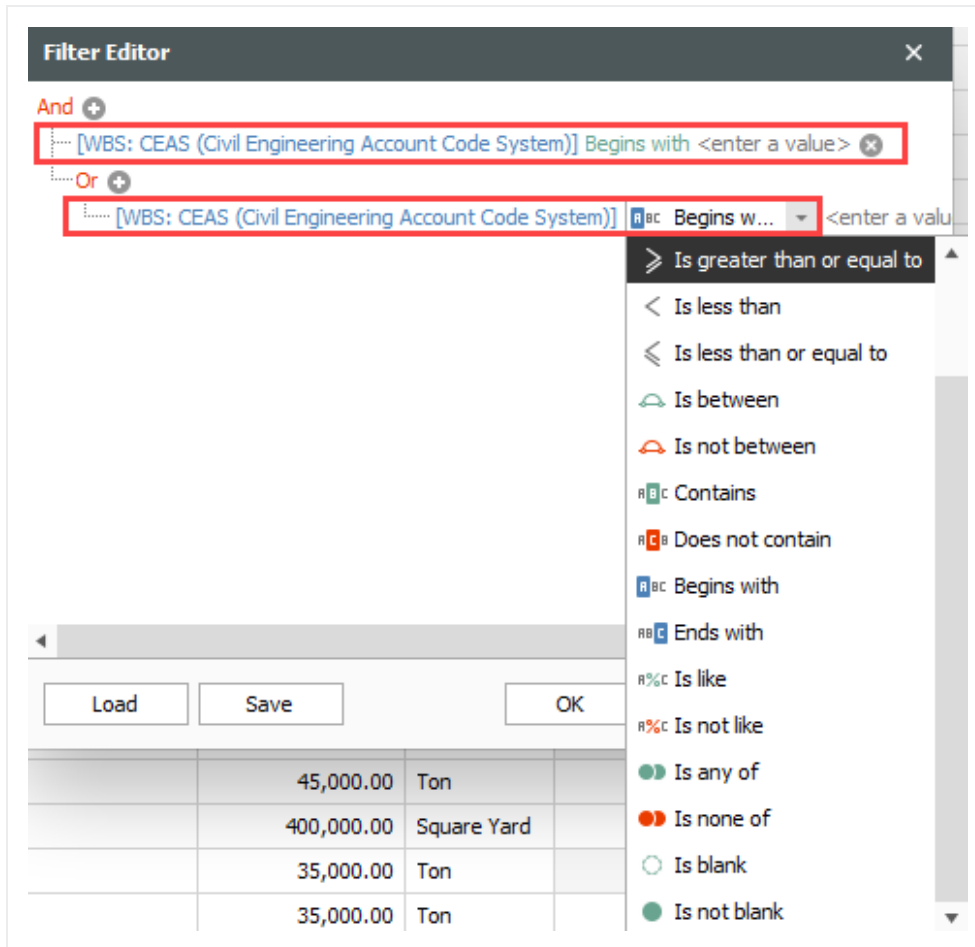
### 2.3.2.1 Filter Editor Overview

The Filter Editor displays conditions and groups as a tree branching system.

The Filter Editor grouping feature allows you to increase the amount of *And/Or* statements that originated from the first selected And statement. When you add a new Group, a new Condition is automatically added to that Group.

With each additional Condition statement, you will need to select an operator and a value in order for your customized filter to take effect on your chosen column. Many new operators have been added to this version as shown in the screenshot below:

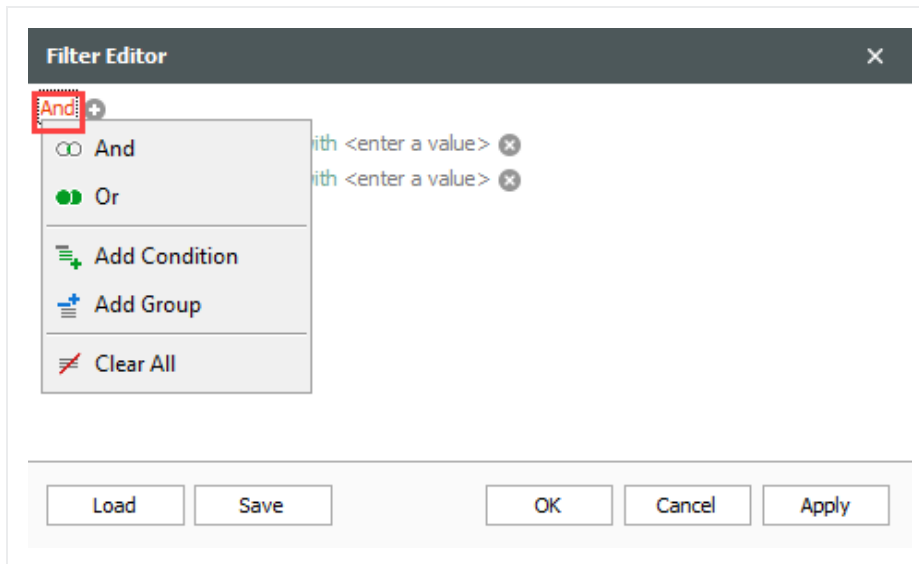




## Step by Step — Filter Editor

1. In the CBS, hover over the **Unit of Measure** column header for the filter icon to appear.
2. Click the **filter** icon in the Unit of Measure column to select a filter value.
3. Select the **Filter Editor** button. The Filter Editor data box appears.
  - By default, an **And** statement is created with a **Begins with** operator and a blank value.
4. Select your preferred operator and then enter in your preferred value.
5. To add additional *And/Or* statements, select the word **And** in the top left corner. A drop down appears.





6. Choose which *And/Or* statement to add and then select the **preferred operator**.
7. Enter in your **preferred value** to complete your additional statement.
8. Select the **X** to delete a single statement.
9. Select the **And** statement in the top left corner to begin clearing all *And/Or* statements.
10. From the drop down, select the option **Clear All**.
11. Once done, select **Apply** and then click **OK**.

### 2.3.3 Group Columns

Sometimes you may want to organize your information into groups. Instead of filtering your information down to one value (e.g., unit of measure = Ton), you can look at your information with a separate group for each value (e.g., a group for Tons, a group for Cubic Feet, etc.).

#### Step by Step — Group Columns

1. From the CBS register, group the Unit of Measure column by dragging it into the grouping area (where it says “Drag columns here to group”).



Cost Breakdown Structure (CBS) Register

Drag columns here to group

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
JOB		1.00	Lump Sum
+	Prime Bond	1.00	Lump Sum
+	Price % Add-On	1.00	Lump Sum
+	Job Financing	1.00	Lump Sum

- Notice that the cost items in the register are now grouped together by their units of measure, and each group of cost items is subtotalled by costs, hours, quantities, etc.

Cost Breakdown Structure (CBS) Register

Unit of Measure

Unit of Measure	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit Cost	Total Cost (Forecast)
Acre	1			10.00		\$39,184.97
Cubic Yard	19			117,865.76		\$498,571.36
Each	29			59.00		\$1,684,854.23
LF	1			2,083.95		\$0.00
Linear Feet	11			30,248.00		\$459,303.91
Lump Sum	23			22.00		\$667,772.98
Mile	1			0.00		\$0.00
Month	2			2.00		\$10,000.00
Pound	3			60,000.00		\$44,408.30
Square Feet	9			136,300.00		\$276,594.95
Square Yard	2			800,000.00		\$99,954.78
Ton	8			160,000.00		\$2,034,391.05

2. To ungroup, right click in the grouping area and select **Clear Grouping**

- The column returns to its original location

TIP

You can group by more than one column to have multiple grouping levels.

2.3.4 Saved Views

Once you have set up a view the way you like it, you can save the view so you won't have to configure it again later. InEight Estimate also comes with some pre-built views to help you organize the screen the way you want to see it.

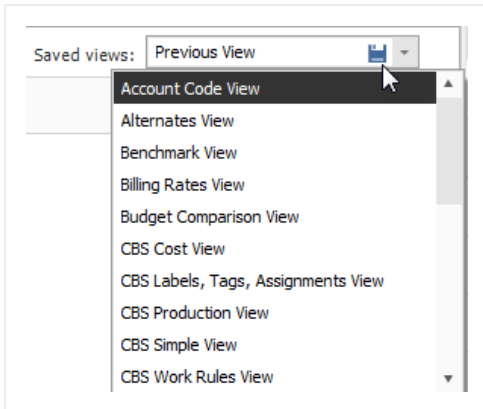
Views are accessed from the **Saved Views** menu in the top right portion of a register.

The following steps assume you have made changes to your register view and want to save it for future use.

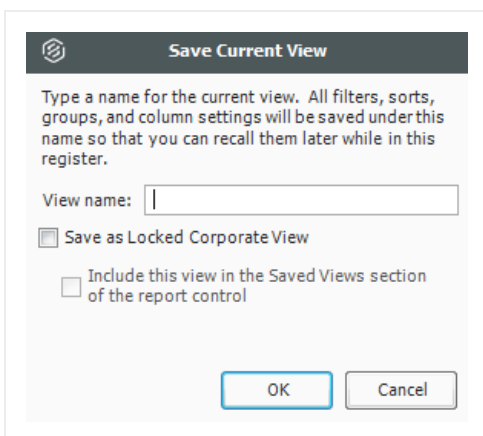


## Step by Step — Create a Saved View

1. In the CBS register, click on the **Saved Views** drop-down menu and the Save disc icon appears.



2. Click on the **Save disc** icon.
  - The Save Current View window appears



3. Enter the **View Name**, then select **OK**.
  - The new view displays in the drop-down menu

**TIP**

Saved views are user-specific; you will only see your own saved views when you are logged in.



## Lesson 2 Review

1. The \_\_\_\_\_ is a great way to get a summary view of your bid. You can see totals of direct costs, indirect costs, profit and the overall bid price.
  - a. Job Folder
  - b. Data Map
  - c. System tab
  - d. Resource Rate Register

---
2. You can group by more than one column to have multiple grouping levels.
  1. True
  2. False

---
3. Display settings for Units of Measure, Currency, and Colors can be adjusted from the \_\_\_\_\_ tab.
  - a. Setup
  - b. Estimate
  - c. System
  - d. Help

---

## Lesson 2 Summary

As a result of this lesson, you can:

- Navigate the InEight Estimate system interface
- Navigate system settings
- Manage columns in InEight Estimate registers



# LESSON 3 – LIBRARY SETUP

**Lesson Duration:** 60 minutes

## Lesson Objectives

After completing this lesson, you will be able to use the following forms and explain their purpose:

- Library Job Properties
- Library Foundation Setup Data Register
- Library Resource Rate Register
- Library Assembly Register

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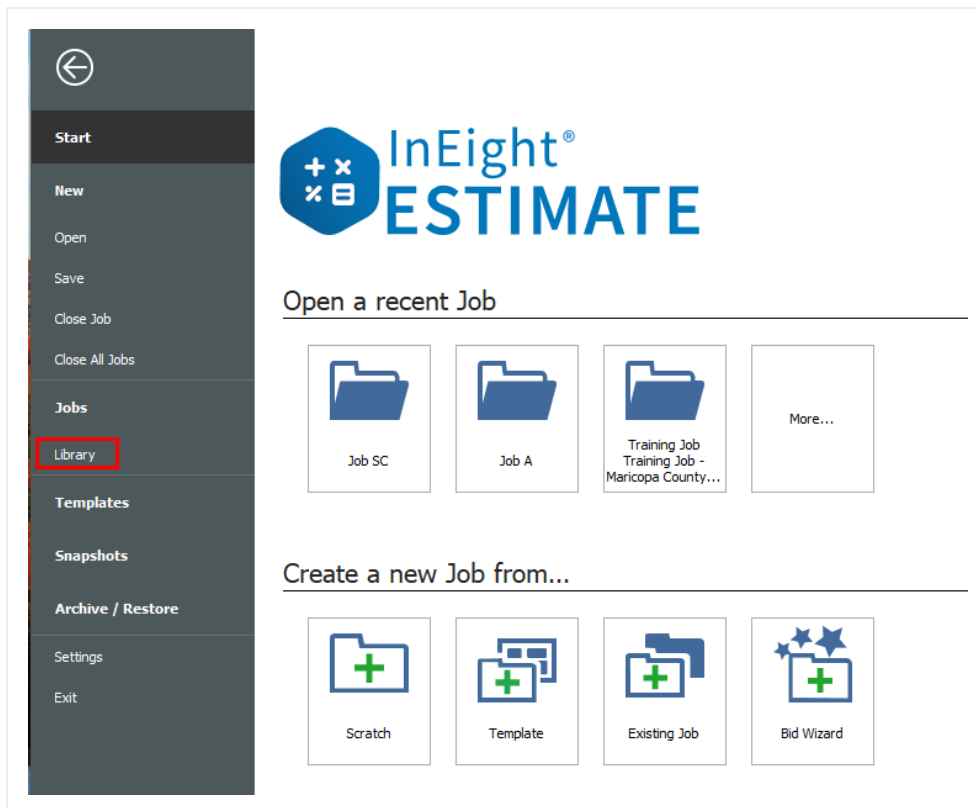
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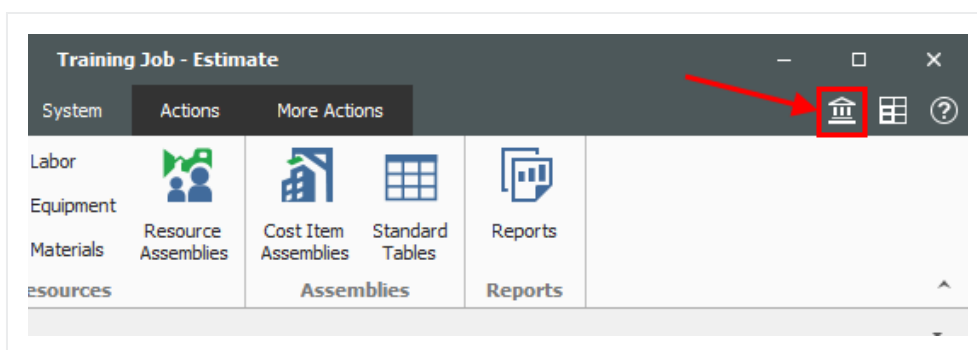
## 3.1 LIBRARY OVERVIEW

The Library is where you set up and maintain master information that imports into your projects, including resource rates, tags, units of measure, cost item assemblies, and master breakdown structures. It is also where security roles and permissions are configured.

You access the Library from the Backstage view in Estimate. Click on the **Library** link to open.



You can also access the Library by clicking on the Library icon, when on the InEight Estimate landing page.





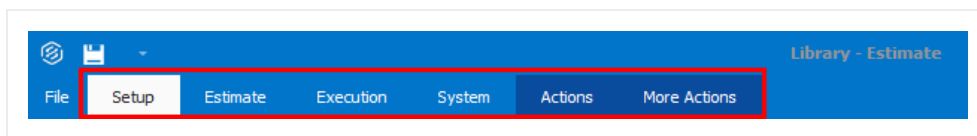
When the Library opens, you see ribbons available under the main menu tabs. Each Menu tab has unique sections which hold the necessary forms. In this lesson you will learn about each tab and their components.

### 3.1.1 Library Tabs

The Library has six tabs which organizes the forms under sections. The tabs are:

- Setup
- Estimate
- Execution
- System

The Actions and More Actions tabs appear when you open a register and contain functions for the register you have active.



#### 3.1.1.1 Setup Tab

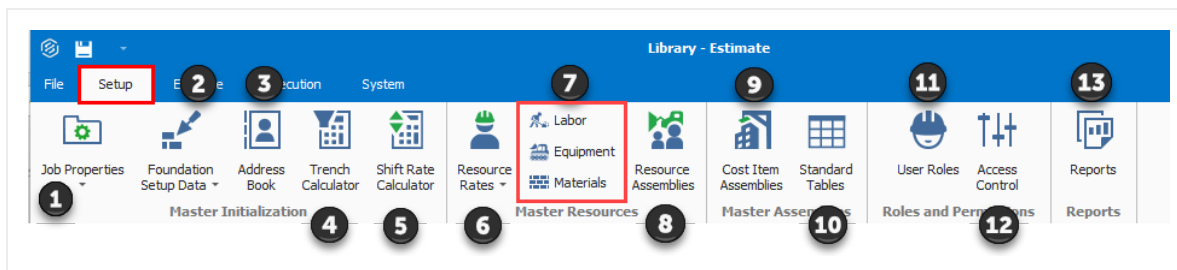
##### Overview - Setup Tab

Name		Description
1	Job Properties	The job properties maintained in the library will serve as the default settings for any new estimate that is created from scratch. When creating a new job it will inherit all the job properties set in the master library.
2	Foundation Setup Data	A master set of account codes, tags, and units of measure. When a new folder is created, the master set is automatically copied from the Library to the new folder.
3	Address Book	Used to store and maintain all information pertaining to the companies with whom you work and contact regularly (subcontractors, vendors, architects, etc.).
4	Trench Calculator	Stores and maintains common trench configurations that are used from project to project.



### Overview - Setup Tab (continued)

Name	Description
5 Shift Rate Calculator	Allows you to set up shift rate configurations that you can access at the project level.
6 Resource Rates	Opens the Library Resource Rate Register where you can create and edit all resources and resource cost details available for import into your projects.
7 Most Used Resources	For quick access to the Labor, Equipment and Materials tabs of the Master Resource Rate Register.
8 Resource Assemblies	Takes you to the Library Resource Assembly Register where you can set up resource assemblies to import into individual projects.
9 Cost Item Assemblies	Cost Item Assemblies are predictive models to quickly and accurately estimate elements of a job that can be repetitive in nature on the job or from job to job.
10 Standard Tables	The Standard Tables are used to create and/or list job-level table data that is accessible by any of the Cost Item Assemblies that exist in a job. The Standard Table Record allows the user to create and or modify a Table record. The Standard Table Register lists all the job level tables created / available in the project.
11 User Roles	Opens the Register where you assign users to a role which can include the forms, tabs and menu commands to which each role has access. The user names that are used when setting up your User Profiles come from Active Directory, and they are the user names that each user uses when logging onto his/her personal computer.
12 Access Control	Allows you to customize your system permissions by restricting destinations or commands that only designated roles should have access to.
13 Reports	Opens the Reports window, where you can access all system reports and configure the default report settings.



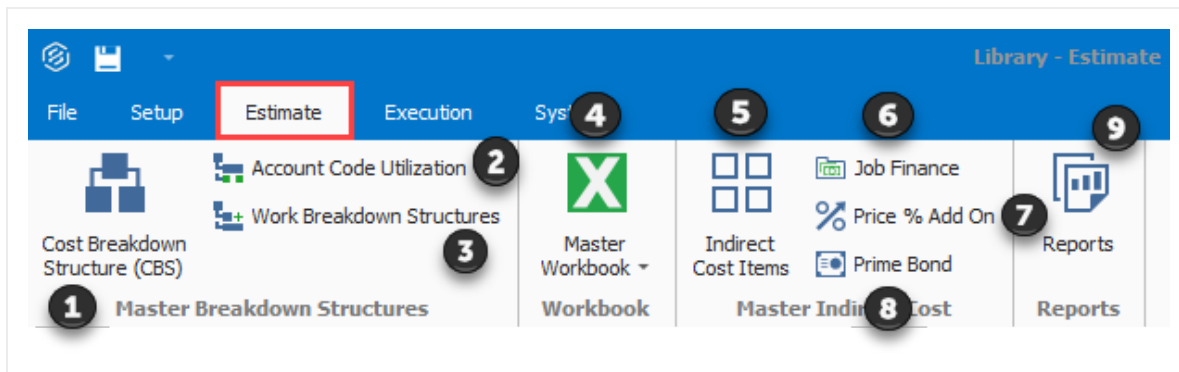


### 3.1.1.2 Estimate Tab

#### Overview - Estimate Tab

Name		Description
1	Cost Breakdown Structure (CBS)	Opens the Library Cost Break Structure register, where you can define the CBS that will automatically import when a new project is created.
2	Account Code Utilization	Used to roll estimate line items into an account code hierarchy and benchmark against historical projects in a way that is consistent across projects.
3	Work Breakdown Structures	Opens the Library Work Break Structure register, where you can define additional Work Breakdown Structures that will automatically import when a new project is created.
4	Master Workbook	Opens the master Microsoft Excel template which will be embed into each new estimate job folder. The cells in the embed excel workbook can be linked to send information to or from InEight Estimate Fields.
5	Indirect Cost Items	Takes you to the Library Cost Breakdown Structure Register where you can edit and define indirect cost items.
6	Job Finance	Takes you to the Library Cost Breakdown Structure Register where you can edit the Job Financing cost item.
7	Price % Add On	Takes you to the Price % Add On record, where you can define the price % add to be included in the Library CBS.
8	Prime Bond	Opens to the Library Prime Bond record where you can define the bond tables that will import automatically when a new project is created.
9	Reports	Opens the Reports window, where you can access all system reports and configure their report settings.



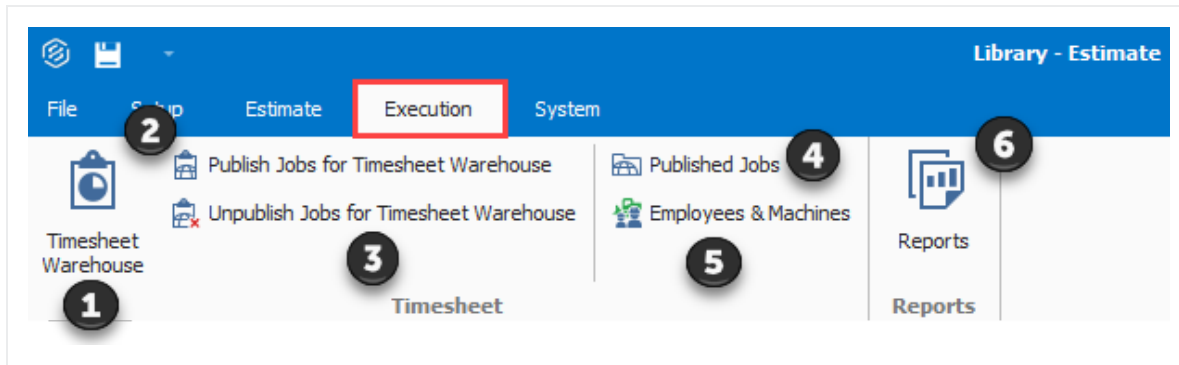


### 3.1.1.3 Execution Tab

#### Overview - Execution Tab

Name		Description
1	Timesheet Warehouse	Used to document for any period of time (day, week, month, etc.) the employees and machines employed on a cost item (tracked by Account, Phase or CBS Code), how many hours they are employed and optionally, the quantity of work they accomplish.
2	Publish Jobs for Timesheet Warehouse	Links to the Job Register to publish jobs from the Timesheet Warehouse.
3	Unpublished Jobs for Timesheet Warehouse	Opens up a list for to view the unpublished jobs from the Timesheet Warehouse.
4	Published Jobs	Opens to a Register to show the published jobs from the Timesheet Warehouse.
4	Employees & Machines	Opens a register which list all of your company's employees and machines, including their identification number and other associated codes.
5	Reports	Opens the Reports window, where you can access all system reports and configure their report settings.



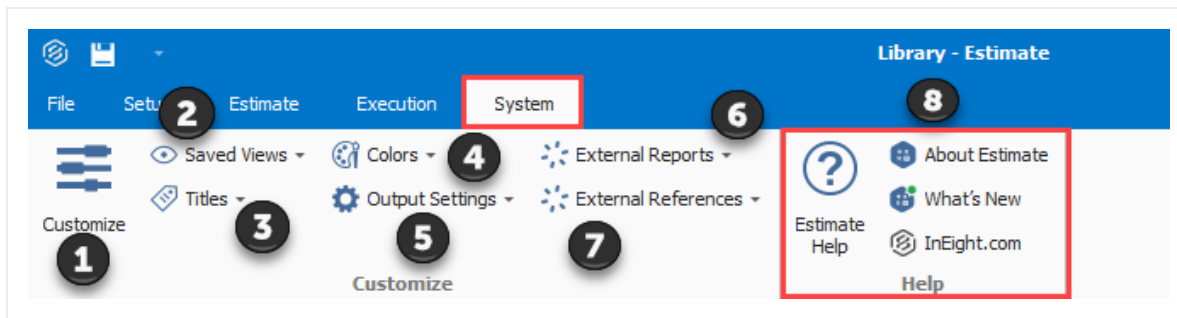


### 3.1.1.4 System Tab

#### Overview - System Tab

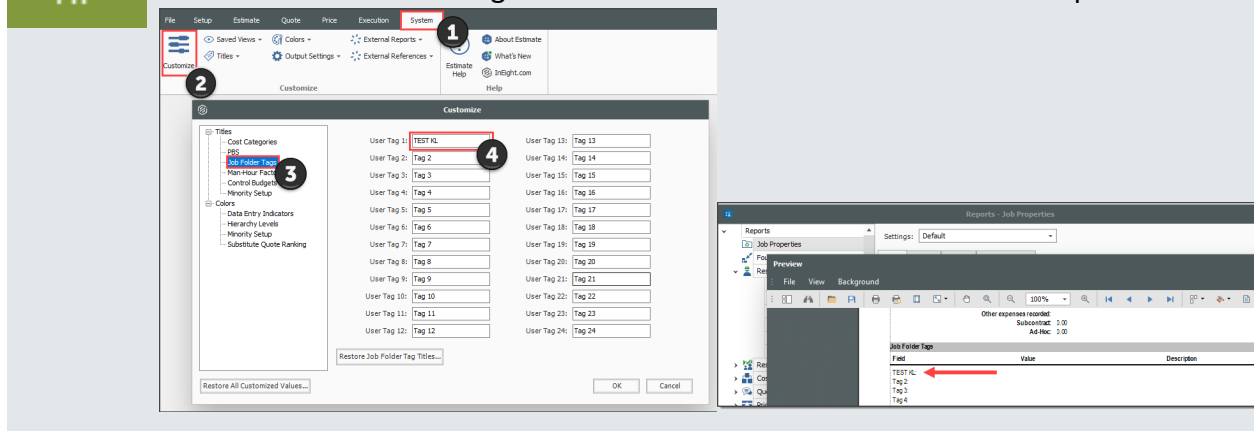
Name		Description
1	Customize	Window to customize the field titles that are displayed throughout various screens in the system, including all cost category titles, user-defined Tags, and more.
2	Saved Views	Allows you to save your views onto a disk or load from a disk.
3	Titles	Allows you to save titles onto a disk or load from a disk.
4	Colors	Allows you to save your colors onto a disk or load from a disk.
5	Output Settings	Allows you to save your output settings onto a disk or load from a disk.
6	External Reports	Menu to not only generate reports created by Estimate, but also to open programs, folders, documents, reports, or Internet resources with the associated program.
7	External References	Allows you to open programs, folders, documents, reports, or Internet resources with the associated program.
8	Help Section	Offers you links to Estimate's general Help menu, information about Estimate (i.e., version number, system information, tech support, etc.), What's New in the new version, and InEight's external website.





## TIP

Customized Job Folder Tags match the view of the fields in the Job Properties form.



## 3.2 LIBRARY JOB PROPERTIES

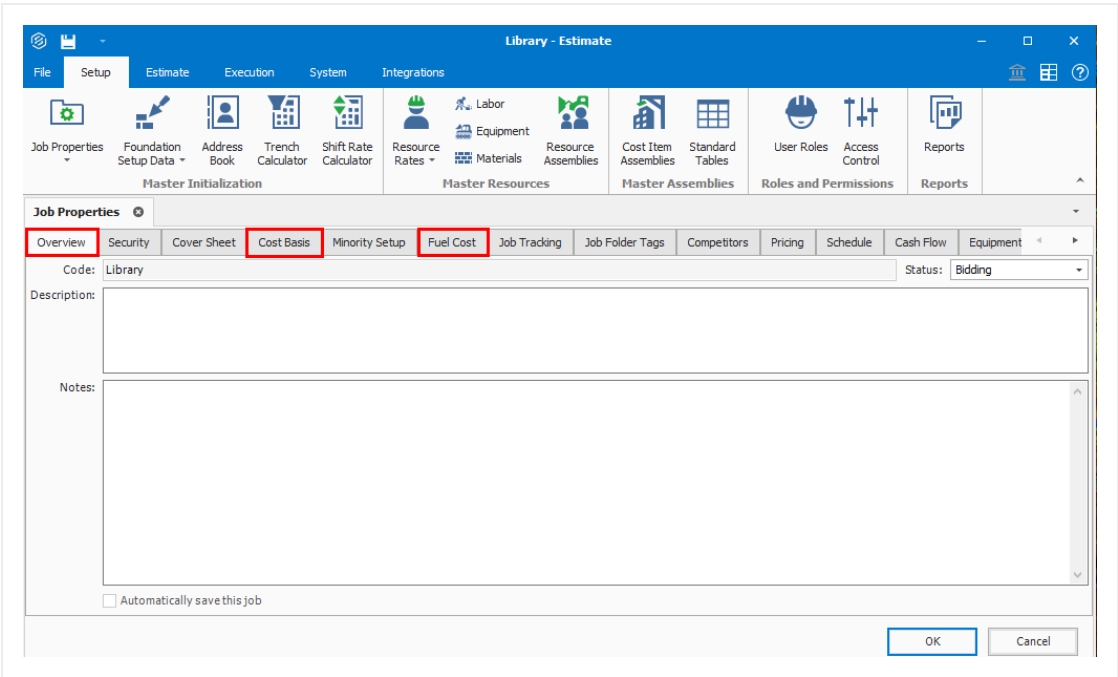
The Library Job Properties form serves as a template for new jobs. Some of the tabs on the Library Job Properties form hold basic settings that will require a default selection which will apply to all new jobs created from scratch. Time can be saved when utilizing Library Job Properties, because the data and settings you fill out will be automatically imported into a new job. Once imported, these settings can be changed at the job level if necessary.

It may be helpful to complete the following tabs / fields at the Library level:

- **Overview Tab Notes Field:** Filling out the Notes section at the Library level would be helpful for any instructions or reminders that you want to display on all projects' Job Properties form. For example, "Always double check currency exchange rates"
- **Cost Basis Tab:** Shift arrangements may or may not be standard across all projects, as well as wage rates and scales. The cost basis default rules should be established within the library.
- **Fuel Cost Tab:** Entering a default fuel cost here will factor with the utilization of your equipment

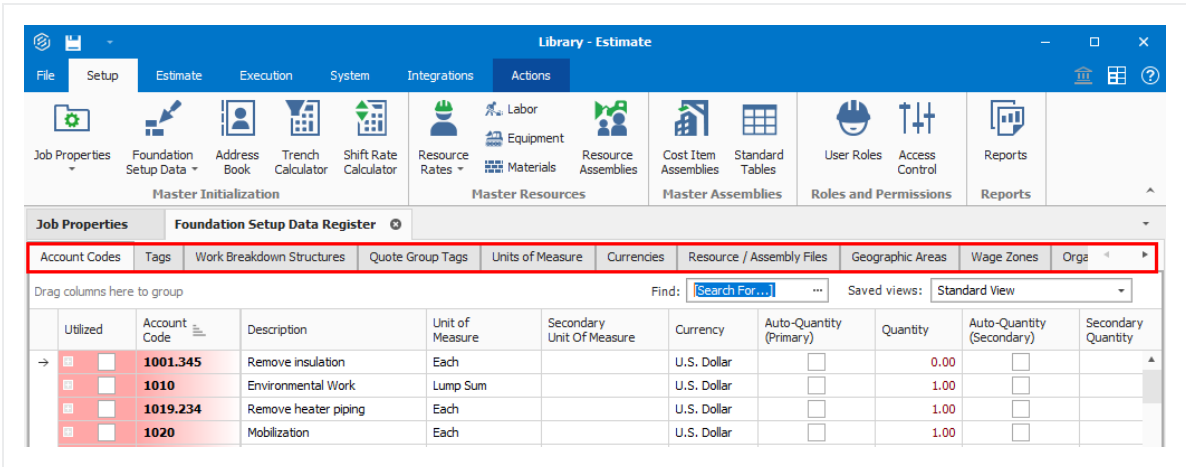


to be included in your equipment rates



### 3.3 LIBRARY FOUNDATION SETUP DATA

Foundation Setup Data is where all drop-down options within Estimate fields are stored. These can serve as category labels, alternate structures or validated tag fields. The different validated fields are organized into tabs on this form.



You should be aware of these category labels:



Category Labels	
Name	Definition
Account Codes	These codes will be set up on the back end and will help you compare your cost and production rates to similar cost items in past projects.
Tags	Some tags are already set up for you. Additional tags can be created and used to group and filter your items.
Work Breakdown Structures	Use this format when you need to have multiple variations and summary reports of an estimate. WBS retains the same relationships between items as in the original estimate and only changes the view and how items are arranged in hierarchy.
Units of Measure	These are standardized to relate to one another by a conversion factor. If you need to create a new unit of measure, you will need to reference it to a base unit of measure and can include a conversion factor to allow you to convert back and forth between English and Metric.
Currencies	The default currency is set to U.S. Dollar, but you can also enter the exchange rate for other currencies (such as Canadian) so you can estimate with whatever currency you need. Multiple currencies can be used in the same project. The system base currency can be changed from USD in the backstage view settings, but is a global change for the entire estimate environment.

Currency Name	Exchange Rate	Currency Symbol	Positive Currency Format	Negative Currency Format	Decimal Symbol
CND Dollar	1.00000	\$	\$1.1	(\$1.1)	Period (.)
U.S. Dollar	1.00000	\$	\$1.1	(\$1.1)	Period (.)

When you create a new job folder, all category labels defined in the Library Foundation Setup Data Register will be copied to the new job folder automatically.

## 3.4 RESOURCES

### VIDEO | Create a Unique Resource



InEight Estimate refers to labor, equipment and material items as Resources. You will use these resources as the basic building blocks used to detail the costs in your estimates.

InEight Estimate organizes resources into seven types:

Resources	
Name	Description
Labor	The human resources that perform direct or indirect work. Direct labor is typically classified by trade (e.g., pipefitters, electricians, iron workers) and title (e.g., foreman, journeyman, laborer).
Construction Equipment	Owned construction equipment.
Rented Construction Equipment	Construction equipment rented from a third party.
Installed Materials	Materials that will remain installed on site after the project is completed, (e.g., concrete, piping, aggregate).
Installed Equipment	Equipment that will remain installed on site after the project is completed, (e.g., boilers, heat exchangers, vessels, cooling towers).
Supplies	Expendable items that will not be permanently installed (e.g., small tools, consumables).
Unique	Resources that are of a “unique” nature and do not fit well into the other types (e.g., dump fees, hauling charges and equipment rented by the month).

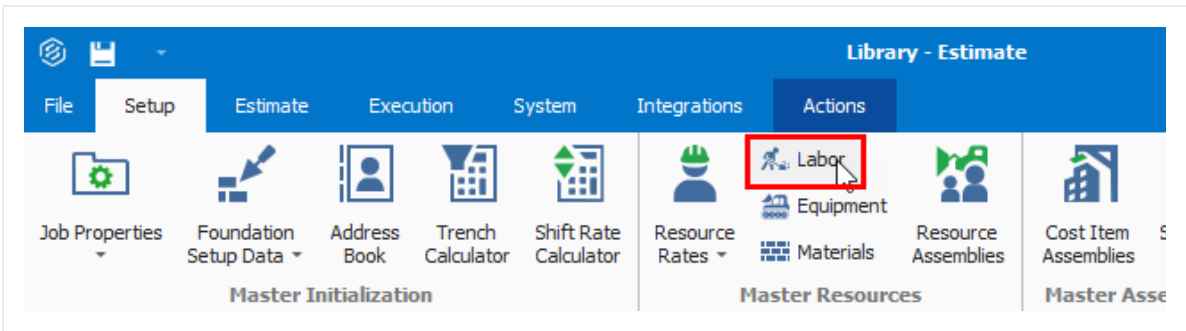
After creating a new job folder, you can import a filtered set of resources from the Library into the new project. This is done on the Cost Basis tab of the Job Properties form.

In the following section, you will learn more about the resources stored in your Library in the Library Resource Rate Register.

### 3.4.1 Library Resource Rate Register

To open the Library Resource Rate Register, select **Labor** from the **Master Resources** ribbon.





Overview – Library Resource Rate Register

Name		Description
1	Tabs	There are tabs along the top of the form for each of the seven resource types, in addition to an All tab that holds the resources of all types. <ul style="list-style-type: none"><li>• Notice that you are on the Labor Tab</li></ul>
2	Resource Code	Each record (or row in the register) represents a single resource.
3	Description	The Description provides more detail about the resource.
4	Resource Rate per Unit	This is the resource cost per unit.
5	Utilization Count	Tells you how many units of that resource are being used in the job.
6	Unit of Measure	Each resource is defined with a Unit of Measure.
7	Register	This register includes columns for the resource attribute categories so you can filter and group your resources.



Cost Breakdown Structure (CBS) Register

Job Properties

Resource Rate Register

1

All

Labor

Construction Equipment

Rented Construction Equipment

Installed Material

Installed Equipment

Supplies

Unique

Drag column 2 to group 3

4

5

Find: 6 For...

7

Previous View

Resource Code	Description	Unit Cost (Scale 1)	Unit Cost (Scale 2)	Unit Cost (Scale 3)	Utilization Count	Unit of Measure	Resource File Description	Wage Zone	Organizational Category
→ + LC1	Carpenter Apprentice	\$27.48	\$41.22	\$54.96	594.37	Hour	Standard Labor Rate...	Wage Zone A	Carpenter
+ LC2	Carpenter Journey...	\$28.92	\$43.38	\$57.84	1,188.73	Hour	Standard Labor Rate...	Wage Zone A	Carpenter
+ LC3	Carpenter Foreman	\$31.47	\$47.20	\$62.94	594.37	Hour	Standard Labor Rate...	Wage Zone A	Carpenter
+ LF1	Finisher Apprentice	\$26.80	\$40.20	\$53.60	0.00	Hour	Standard Labor Rate...	Wage Zone A	Finisher - Concrete
+ LF2	Finisher	\$28.07	\$42.10	\$56.13	594.37	Hour	Standard Labor Rate...	Wage Zone A	Finisher - Concrete
+ LF3	Finisher Foreman	\$32.32	\$48.48	\$64.64	0.00	Hour	Standard Labor Rate...	Wage Zone A	Finisher - Concrete
25		27,257.30							

**TIP**

Resource rate add and search tips:

- You cannot add new resources on the All tab.
- You can search for resources in the Resource Rate Register using the 'Find' field.

Next you will take a look at the different types of resources and how they differ when we drill into resource rate records from each category.

### 3.4.2 Labor Resources

Looking at your Labor resources more closely, you will see all the Resource Codes for the Labor resources begin with an L. This is a best practice for naming and organizing your resources, but you can also use another organizational method of your choice.

### 3.4.3 Resource Rate Record

If you need to add cost to a resource, adjust a rate, or just view a more detailed breakdown, you can open the resource's rate record. From the Library Resource Rate Register, double click on the row header for the resource you need to view in greater detail.



Double click on the  
row header to open  
resource rate record

		Resource File Description	Unit of Measure	Productivity Factor	
→	+ LC1	Carpenter Apprentice	Standard Labor Rate...	Hour	1.00
	+ LC1	Carpenter Apprentice	Standard Labor Rate...	Hour	1.00
	+ LC2	Carpenter Journey...	Standard Labor Rate...	Hour	1.00
	+ LC2	Carpenter Journey...	Standard Labor Rate...	Hour	1.00
	+ LC3	Carpenter Foreman	Standard Labor Rate...	Hour	1.00

Overview – Resource Rate Record

Name		Description
1	Record	The record references the resource you are editing.
2	Charge Rate	The Charge Rate tab is the tab the record defaults to and is where you define the cost of the resource.
3	Scale Buttons	The Scale buttons only show up on labor resources. They are used for defining regular time, overtime and double time rates for the resource.
4	Cost Category Breakdown	The Cost Category Breakdown is where you enter the costs for the resource. The categories will depend on what type of resource it is (e.g., equipment resources will have equipment cost categories and materials will have material cost categories).
5	Special Instructions / Base Wage Factors	The right side of the record will have additional options to help you define the rate. These options change depending on what type of resource it is.



Resource Rate Register

Labor Rate Record

Code: \* LC1 Description: Carpenter Apprentice

Setup Charge Rate Billing Rate

Scale 1Scale 2Scale 3All Scales

Cost Category Breakdown	Amount	Percent	Is Taxed	Is Insured
Total	Varies			
Labor	Varies			
Labor Base	Varies			
Labor Burden	Varies			
Labor Fringes	Varies			
Labor Insurance	Varies			
Labor Taxes	Varies			
Undefined Labor B...	\$0.00	0.00		
Undefined Labor	\$0.00	0.00		
Materials	\$0.00			
Undefined	\$0.00			

Special Instructions

Use the Materials cost category to add additional labor cost for materials and supplies.

Worker's Comp values for this resource can be adjusted automatically when this resource is employed in a job, based on the geographic location of the work, and the Worker's Comp Override listed on the Cost Item on which the resource is employed.

Standard Worker's Comp Overrides can be defined in the Library's Foundation Setup Data Register.

Base Wage Factors for Overtime

☒ Use Base Wage Factors for Scales 2 and 3

Scale 2 Factor: 1.50 x Base Wage

Scale 3 Factor: 2.00 x Base Wage

This option multiplies the Scale 1 base wage by the factors entered here to automatically calculate the base wage for Scales 2 and 3.

Name		Description
6	Setup	There is also a Setup tab where you can define the resource's attributes an a few other settings. These attributes are used for filtering which resource rates to load into a new estimate.
7	Cost Driver	Labor resources default Cost Driver is CI Duration which means their costs are driven by time.
8	Default Quantity	The Default Quantity is typically set to 1 for most cases if you are bringing in the resource you are using at least one.

Setup Charge Rate Billing Rate

Resource File: Standard Labor Rate File

Geographic Area: Southwest

Wage Zone: Wage Zone A

Org. Category: Carpenter

Account Code:

Cost Driver: CI Duration

Cost Curve: Employed Cost Item

Tag 1: Non Union

Tag 2: Hourly

Tag 3:

Productivity Factor: 1.00

Default Quantity: 1.00

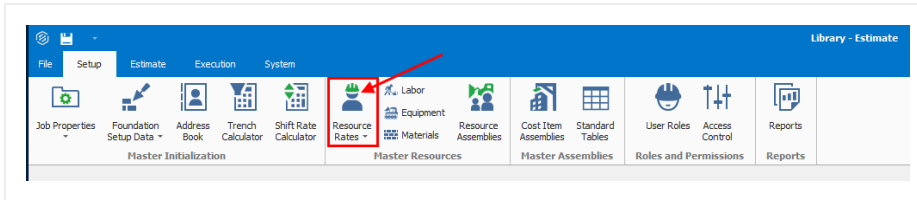
Currency: U.S. Dollar



The following steps walk you through how to create a new labor resource.

## Step by Step — Create a Labor Resource

1. From the Library landing page, on the Setup tab, click on **Resource Rates** from the Master Resources section.




- The Library Resource Rate Register opens
2. Select the **Labor** tab.
  3. Right click on any row header and select **New**.
    - A new Labor Rate Record displays
  4. In the Code field, type **L + [your initials]**.
  5. Press the **Tab** key.
  6. Fill in the Description field.
  7. Click on the resource's **Setup** tab and select **Standard Labor Rate File** from the Resource File drop-down list.
  8. Select a **location** for the Geographic Area.
  9. Select **Wage Zone A** for Wage Zone.
  10. Select a **labor type** for the Organizational Category.
  11. For Tag 2, select a **code**.



Code: \*

Description:

Setup

 Charge Rate

Billing Rate

Resource File:

User I

Geographic Area:

User I

Wage Zone:

User I

Org. Category:

User I

Account Code:

User I

Cost Driver:

User I

Cost Curve:

User I

Tag 1:

User I

Tag 2:

User I

Tag 3:


User D



Code: \*

Description:

Setup

 Charge Rate

Billing Rate

Resource File:

User I

Geographic Area:

User I

Wage Zone:

User I

Org. Category:

User I

Account Code:

User I

Cost Driver:

User I

Cost Curve:

User I

Tag 1:

User I

Tag 2:

User I

Tag 3:

User D

12. For Tag 1, select a **code**.
13. On the Charge Rate tab, enter a **dollar value** for your Labor Base.
14. Expand Labor Burden and under Labor Fringes, type in a **dollar value** for Pension and



## Subsistence.

Resource Rate Register		Labor Rate Record	
Code: *	LMECHINEIGHT	Description:	Mechanic - Heavy Duty
Setup	Charge Rate	Billing Rate	
Scale 1	Scale 2	Scale 3	All Scales
Cost Category Breakdown	Amount	↔	Percent
▼ Total	\$57.00		
▼ Labor	\$57.00		
Labor Base	\$52.00		
▼ Labor Burden	\$5.00		
▼ Labor Fringes	\$5.00		
Travel	\$0.00	←	0.00
Premium	\$0.00	←	0.00
Holiday	\$0.00	←	0.00
Savings	\$0.00	←	0.00
Pension	\$3.00	←	5.77
Vacation	\$0.00	←	0.00
Subsistence	\$2.00	←	3.85
Health & Welfare	\$0.00	←	0.00

15. Define an overtime and double-time rate for the resource. Select the **checkbox** for Use Base Wage Factors for Scales 2 and 3.
16. Set the Scale 2 Factor to **1.50** x Base Wage and Scale 3 Factor to **2.00** x Base Wage.

Base Wage Factors for Overtime	
<input checked="" type="checkbox"/>	Use Base Wage Factors for Scales 2 and 3
Scale 2 Factor:	1.50 x Base Wage
Scale 3 Factor:	2.00 x Base Wage
<p>This option multiplies the Scale 1 base wage by the factors entered here to automatically calculate the base wage for Scales 2 and 3.</p>	



17. Click **OK**, to close the record.

### 3.4.4 Construction Equipment Resources

- Similar to Labor Resources, Construction Equipment Resources are also duration driven resources by default
- They contain cost categories for ownership and operation costs

Resource Rate Register											
All	Labor	Construction Equipment	Rented Construction Equipment	Installed Material	Installed Equipment	Supplies	Unique				
Drag columns here to group						Find: <input type="text" value="Search For..."/>		Saved views: <input type="text" value="Previous View"/>			
Resource Code	Description	Resource File Description	Unit of Measure	Productivity Factor	Default Quantity	Waste % Add-on	Unit Cost (Scale 1)	Currency	Utilization Count	Organizational Category	Geograph Area
+ EAPAV	Asphalt Paver	Standard Equipment Rate...	Hour	1.00	1.00		\$53.40	U.S. Dollar	0.00	Asphalt	
+ EARL	Asphalt Roller	Standard Equipment Rate...	Hour	1.00	1.00		\$21.00	U.S. Dollar	0.00	Asphalt	
+ ECOMP1	Compactor Smooth D...	Standard Equipment Rate...	Hour	1.00	1.00		\$7.00	U.S. Dollar	0.00	Compactor	
+ ECOMP2	Compactor Sheeps F...	Standard Equipment Rate...	Hour	1.00	1.00		\$28.00	U.S. Dollar	0.00	Compactor	
+ ECR110	Crane 110 Ton	Standard Equipment Rate...	Hour	1.00	1.00		\$196.00	U.S. Dollar	0.00	Crane	
+ ECRBT	Boom Truck 15 Ton	Standard Equipment Rate...	Hour	1.00	1.00		\$28.00	U.S. Dollar	0.00	Crane	
+ ECRHC	Hydraulic Crane 25 Ton	Standard Equipment Rate...	Hour	1.00	1.00		\$84.00	U.S. Dollar	0.00	Crane	
+ ED6	Dozer D6	Standard Equipment Rate...	Hour	1.00	1.00		\$84.00	U.S. Dollar	0.00	Dozer	
+ ED8	Dozer D8	Standard Equipment Rate...	Hour	1.00	1.00		\$140.00	U.S. Dollar	0.00	Dozer	
+ EG14G	Grader 14G	Standard Equipment Rate...	Hour	1.00	1.00		\$35.00	U.S. Dollar	0.00	Grader	
+ EG160H	Grader 160H	Standard Equipment Rate...	Hour	1.00	1.00		\$91.00	U.S. Dollar	0.00	Grader	

These resources are the fleet of construction equipment that you own.

### 3.4.5 Rented Equipment Resources

These resources represent the construction equipment that you rent.

- Rented Equipment Resources are also duration driven resources by default
- Contain cost categories for rental and operation cost as well as additional fees
- On the Rental Construction Equipment Record, you will notice a new tab named Quote
  - Quotes will be discussed in detail in *Lesson 8 – Quote Management*
- You will also note the Tax section. You can check the box to Apply Standard Tax, which pulls the Sales Tax percentage defined on the Cost Basis tab in Job Properties, or you can manually specify a unique sales tax rate

<b>Tax</b> Apply Standard Tax <input type="checkbox"/> Unique Sales Tax Rate: 0.00 %
--



## Step by Step — Create a Rental Equipment Resource

1. Open the Library Resource Rates Register.
2. Select the **Rented Construction Equipment** tab.
3. Right click on any row header and choose **New**; a new Installed Rented Equipment Rate Record displays.
4. In the Code field, type **RECR + [your initials]**, then press **Tab**.
5. In the Description field, type **Crane 110 Ton**.
6. Click on the resource's **Setup** tab and select **Standard Rental Rate File** from the Resource File drop-down list.
7. Select a **resource** from the Organizational Category drop-down list.

Code: *	RECR110	Description:	Crane 110 Ton
Setup	Charge Rate	Quote	Billing Rate
Resource File:	Standard Rental Rate File	User Defined 1:	
Geographic Area:		User Defined 2:	
Wage Zone:		User Defined 3:	
Org. Category:	Crane	User Defined 4:	
Account Code:		User Defined 5:	
Cost Drivers:	CT Duration	User Defined 6:	

8. Move back to the Charge Rate tab to follow the step by step on the next page.

### 3.4.6 Equipment Consumption Rates

The Construction Equipment and Rented Construction Equipment Resource Rate Records include consumption rates that will factor with the fuel cost you define on the **Library Job Properties > Fuel Cost** tab to give a fuel cost for your equipment rate.



**Job Properties** Construction Equipment Rate Record

Code: \* EAPAV Description: Asphalt Paver

Setup Charge Rate Billing Rate

Cost Category Breakdown	Amount
Total	\$199.00
Owned Equipment	\$199.00
OE Ownership	\$0.00
OE Operation	\$199.00
OE Repair Parts	\$0.00
OE Repair Labor	\$0.00
OE Fuel	\$144.00
OE Lube	\$0.00

**Fuel**

Fuel Type: Gasoline Consumption Rate: 12.00 Gallon/Hour

Consumption Rate factored with cost per liter gives you a fuel cost.

☐ Automatically calculate Maintenance Labor Man-Hours for this resource

The below figure shows where consumption rates are defined on the Construction Equipment Resource Rate Record.

### 3.4.7 Non-Hourly Rate Calculator

For owned and rented construction equipment, the rate entered must be hourly. If your rate is weekly or monthly, you can use the Non-Hourly Rate Calculator on the Construction Equipment Resource Record to come up with the hourly rate.

#### Step by Step — Non-Hourly Rate Calculator

1. Refer back to your last entry's rate amount. Under Non-Hourly Period Charge Rates on the right, check the **Calculate Non-Hourly Period Charge Rates** checkbox.
2. On the resulting prompt, click **OK**.
3. In the Period field, select **Weekly**.
4. In the Amount Per Period field, type in a **number value**.
5. Type in a **number of hours** in the Hours Per Period field.



**Non-Hourly Period Charge Rates**

☒ Calculate Non-Hourly Period Charge Rates for RE Rental

Period:  ▼

Amount Per Period:

Hours Per Period:

Code: *	<input type="text" value="RECR110"/>	Description:	<input type="text" value="Crane 110 Ton"/>
<input type="button" value="Setup"/>	<input checked="" type="button" value="Charge Rate"/>	<input type="button" value="Quote"/>	<input type="button" value="Billing Rate"/>

Cost Category Breakdown		Amount
▼	Total	\$200.00
➤	Rented Equipment	\$200.00
➤	Fees	\$0.00
	Undefined	\$0.00

6. Click **OK** to close the record.

### 3.4.8 Installed Materials, Installed Equipment & Supplies Resources

- Comparing the Installed Material & Equipment resources to those covered so far, you will note that the unit of measure is not Hour for materials, but it is specific to the kind of material. It is a quantity-driven resource, as opposed to duration-driven like your labor and equipment resources



- You will also note the tax field can pull your standard tax settings from the Cost Basis tab in Job Properties, or a unique sales tax rate can be manually entered in each record
- On record for these resource types, you will notice a new tab named Quote. This tab shows up here because you may have to shop around and get quotes for these resources
  - Quotes will be discussed in detail in *Lesson 8 – Quote Management*
- In the Setup tab you will see a field named Waste % Add-on. Here you can account for approximate waste percentages
- Cost categories will differ on each type of resource record

Job Properties		Resource Rate Register ⓘ				
All	Labor	Construction Equipment	Rented Construction Equipment	Installed Material	Installed Equipment	Supplies
Drag columns here to group						
	Resource Code	Description	Unit Cost (Scale 1)	Utilization Count	Unit of Measure	Resource File Description
→	+ MAAM	Asphalt Mix (Finish)	\$32.50	0.00	Ton	Standard Material Rate...
	+ MAC	Asphalt Cement	\$195.00	0.00	Ton	Standard Material Rate...
	+ MACA1-1/2	Coarse Aggregate 1-1/2 In	\$9.10	0.00	Ton	Standard Material Rate...
	+ MAFA	Fine Aggregate	\$7.80	0.00	Ton	Standard Material Rate...
	+ MAHAUL	Aggregate Haul Quarry to P...	\$2.60	0.00	Ton	Standard Material Rate...
	+ MAIA3/4	Intermediate Aggregate 3/4...	\$10.40	0.00	Ton	Standard Material Rate...
	+ MASAND	Sand	\$7.80	0.00	Ton	Standard Material Rate...
	+ MATK	Tack	\$1.30	0.00	Gallon	Standard Material Rate...
	+ MBR	Aggregate Base Rock	\$8.45	0.00	Ton	Standard Material Rate...
	+ MC2000	Concrete 4000 PSI	\$110.50	0.00	Cubic Yard	Standard Material Rate...
	+ MC3500	Concrete 3500 PSI	\$104.00	0.00	Cubic Yard	Standard Material Rate...
	+ MDIRTA	Dirt Class A	\$1.30	0.00	Cubic Yard	Standard Material Rate...
	+ MDIRTB	Dirt Class B	\$6.50	0.00	Ton	Standard Material Rate...

Above is an example of the Installed Material tab in the Library Resource Rate Register.

The following steps walk you through how to create a new material resource in InEight Estimate.

## Step by Step — Create an Installed Material Resource

- Select **Resource Rates** from the Library landing page.
  - The Resource Rate Register displays
- Select the **Installed Material** tab.
- Right click on any row header and select **New** from the drop-down menu.



- A new Installed Material Rate Record displays
4. In the Code field, type **MGBP + [your initials]**, then press **Tab**.
  5. In the Description field, type **Brick Pavers**.
  6. Select a **unit of measure** from the Unit of Measure drop-down list.
  7. On the resource's Setup tab, under Resource File select **Standard Material Rate File**.
  8. On the Charge Rate tab, expand Materials and enter a **number value** in the Installed Materials Amount field.

Code: *	Description:
MGBP	Brick Pavers

Setup
Charge Rate
Quote
Billing Rate

Cost Category Breakdown	Amount
Total	\$5.00
Materials	
Installed Materials	\$5.00
Undefined Materials	\$0.00
Fees	\$0.00
Undefined	\$0.00

9. Click **OK** to finish adding this resource.

### 3.4.9 Unique Resources

The Unique resource type is a catch-all and can be used for anything from dump fees and security to creating subcontractors as a resource.

- The Unique resources are the only resources that have all cost categories available, as well as all units of measure
- You will also note the tax field which can pull your standard tax settings from the Cost Basis tab in Job Properties, or a unique sales tax rate can be manually entered in each record



- Quotes will be discussed in detail in *Lesson 8 – Quote Management*

Resource Rate Register

Resource Code	Description	Resource File Description	Unit of Measure	Productivity Factor	Default Quantity	Waste % Add-on	Unit Cost (Scale 1)	Currency	Utilization Count	Organization Category
UCRANE	Crane by the Month	Standard Unique Rate...	Month	1.00	1.00	0.00	\$16,500.00	U.S. Dollar	0.00	
UDPL	Disposal Fee for Liquids	Standard Unique Rate...	Gallon	1.00	1.00	0.00	\$6.00	U.S. Dollar	0.00	Earthwork
UDUMP	Dump Fees	Standard Unique Rate...	Load	1.00	1.00	0.00	\$100.00	U.S. Dollar	0.00	Earthwork
UHAUL	Haul to Job Site 15-20 Miles	Standard Unique Rate...	Ton	1.00	1.00	0.00	\$3.00	U.S. Dollar	0.00	Earthwork
UPD	Per Diem	Standard Unique Rate...	Day	1.00	1.00	0.00	\$150.00	U.S. Dollar	0.00	
USS	Security Service	Standard Unique Rate...	Week	1.00	1.00	0.00	\$500.00	U.S. Dollar	0.00	

## 3.5 RESOURCE ASSEMBLIES

A Resource Assembly is a group of resources. You can create an assembly once and then reuse it as needed in multiple cost items whenever the same combination of resources is needed.



The most common use for an assembly is to group labor resources into crews (e.g., Pipe Crew, Concrete Crew); however, any resource (equipment, materials, etc.) may be grouped into an assembly. Utilizing assemblies allows you to estimate faster, since you can add and manage an entire group of resources at once.

You can create assemblies in the Library and import them into job folders the same way you import resources.


### 3.5.1 Library Resource Assembly Register

To open the Library Resource Assembly Register, select the **Library** icon, then select **Resource Assemblies** from the Master Resources section of the Setup tab.

#### Overview – Library Resource Assembly Register

Section	Description
1	Each row in the register represents a single resource assembly and is defined with an



Section	Description
	Assembly Code and Assembly Description.
2	Each assembly can be expanded by clicking the plus  icon next to its Assembly Code.
3	Expanding an assembly reveals the list of resources that make up that assembly. <ul style="list-style-type: none"><li>Best practice for creating Assembly codes is to use C for Crew Assemblies, M for Material Assemblies, etc., however you can have labor, equipment, and materials in the same assembly</li></ul>

Resource Assembly Register

Drag columns here to group

Find: [Search For...] Saved views: Standard View

2	2	Description	Resource File Description	Quantity	Unit of Measure	Unit Cost	Total Cost	Currency	Organizational Category	Geographic Area	Wage Zone	Man Count	
→	-	CCONC	Concrete Crew	Standard Assembly...	1.00	Hour	\$330.38	\$330.38	U.S. Dollar	Concrete			
→		Row Number	Resource Code	Description	Quantity	Unit of Measure	Unit Cost	Currency	Cost Driver	Resource File Description	Organizational Category	Geographic Area	Wage Zone
		1	LC2	Carpenter Journeyman	2.00	Each	\$28.92	U.S. Dollar	CI Dura...	Standard Labor Rate File	Carpenter	Southwest	Wage Zon...
		2	LF2	Finisher	1.00	Each	\$28.07	U.S. Dollar	CI Dura...	Standard Labor Rate File	Finisher - Conc...	Southwest	Wage Zon...
		3	LIW1	Iron Worker	1.00	Each	\$35.55	U.S. Dollar	CI Dura...	Standard Labor Rate File	Iron Worker	Southwest	Wage Zon...
		4	LL2	Laborer	1.00	Each	\$26.37	U.S. Dollar	CI Dura...	Standard Labor Rate File	Laborer	Southwest	Wage Zon...
		5	ECRHC	Hydraulic Crane 25 Ton	1.00	Each	\$84.00	U.S. Dollar	CI Dura...	Standard Equipment Rate...	Crane		
		6	LC1	Carpenter Apprentice	1.00	Each	\$27.48	U.S. Dollar	CI Dura...	Standard Labor Rate File	Carpenter	Southwest	Wage Zon...
		7	LO2	Operator Class 2	1.00	Each	\$30.21	U.S. Dollar	CI Dura...	Standard Labor Rate File	Operator	Southwest	Wage Zon...
		8	ETFT	Flatbed Truck	1.00	Each	\$7.00	U.S. Dollar	CI Dura...	Standard Equipment Rate...	Truck		
		9	LC3	Carpenter Foreman	1.00	Each	\$33.87	U.S. Dollar	CI Dura...	Standard Labor Rate File	Carpenter	Southwest	Wage Zon...
1	+	CGRADE	Grading Crew	Standard Assembly...	1.00	Hour	\$175.06	\$175.06	U.S. Dollar	Earthwork			
	+	CMAINT	Equipment Maintenance	Standard Assembly...	1.00	Each	\$58.00	\$58.00	U.S. Dollar	Mechanic			
	+	CPAVE	Paving Crew	Standard Assembly...	1.00	Hour	\$346.04	\$346.04	U.S. Dollar	Asphalt			

3.5.2 Resource Assembly Record

To open an existing Resource Assembly Record, right click on the row header of an assembly (row) on the Resource Assembly Register and select Open.

Overview – Resource Assembly Record

Name	Description
1 Assembly Code and Description	Each assembly is defined with an assembly Code and an assembly Description.
2 Quantity and Unit of Measure	Each assembly has a quantity and unit of measure. The default is 1 EA. For crew assemblies with all hourly duration driven resources, it is a best practice to change the Qty to Hour, so that when used on a cost item, it will show you the assembly's unit cost per hour.



Name	Description
3 Assembly Details	The rows in the Assembly Details register represent the resources that make up the resource assembly.
4 Notes	An area where the estimators make notes for records related to the resource assemblies for work orders which is commonly performed by a type of crew.

**Resource Assembly Register** **Resource Assembly Record**

Code: \* CCONC Description: Concrete Crew

Resource File: Standard Assembly File Tag 1: Tag 2: Tag 3: Unit Cost: \$330.38

Geographic Area: Wage Zone: Man Count: 8.00 Equip Count: 2.00 Currency: U.S. Dollar

Notes:

Cost Summary Assembly Details

Drag columns here to group Find: [Search For...] Saved views: Previous View

Row Number	Resource Code	Description	Quantity	Unit of Measure	Unit Cost	Currency	Cost Driver	Resource File Description	Organizational Category	Geographic Area	Wage Zone
1	LC2	Carpenter Journey...	2.00	Each	\$28.92	U.S. Dollar	CI Duration	Standard Labor Rate File	Carpenter	Southwest	Wage Z
2	LF2	Finisher	1.00	Each	\$28.07	U.S. Dollar	CI Duration	Standard Labor Rate File	Finisher - Concrete	Southwest	Wage Z
3	LIW1	Iron Worker	1.00	Each	\$35.55	U.S. Dollar	CI Duration	Standard Labor Rate File	Iron Worker	Southwest	Wage Z
4	LI2	Laborer	1.00	Each	\$26.37	U.S. Dollar	CI Duration	Standard Labor Rate File	Laborer	Southwest	Wage Z

### 3.5.2.1 Productivity Rate Indicator in the CBS Register

The Productivity Indicator shows the field that contains the as-entered value and is driving the estimate for that cost item. This appears as an arrow aligned to the left of the cell as shown below.

Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency	Hours (Duration driven)	Hours (Non-Duration driven)
<b>308</b>	20.00	Mile	\$228,294.37	\$4,565,887.34	U.S. Dollar	5,191.90	15.36
<b>Prime Bond</b>	1.00	Lump Sum	\$39,357.30	\$39,357.30	U.S. Dollar		
<b>Price % Add-On</b>	1.00	Lump Sum	\$225,515.71	\$225,515.71	U.S. Dollar		
<b>Job Financing</b>	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar		
<b>Indirect Cost Escalation</b>	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar		
<b>Direct Cost Escalation</b>	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar		
<b>Indirect Cost Add-On</b>	1.00	Lump Sum	\$0.00	\$0.00	U.S. Dollar		
<b>Job Management &amp; Equipment</b>	1.00	Lump Sum	\$157,096.28	\$157,096.28	U.S. Dollar	800.00	0.00
<b>General Expense</b>	1.00	Lump Sum	\$4,200.00	\$4,200.00	U.S. Dollar	0.00	0.00
<b>Direct Cost Add-On</b>	1.00	Lump Sum	\$80,720.35	\$80,720.35	U.S. Dollar		
<b>Hobolization</b>	1.00	Lump Sum	\$13,335.70	\$13,335.70	U.S. Dollar	▶ 90.00	0.00
<b>Clearing &amp; Grubbing</b>	10.00	Acre	\$3,918.50	\$39,184.97	U.S. Dollar	80.00	0.00
<b>Unclassified Excavation</b>	50,000.00	Cubic Yard	\$2.21	\$110,560.40	U.S. Dollar	294.67	0.00
<b>Excavation</b>	50,000.00	Cubic Yard	\$0.66	\$33,100.80	U.S. Dollar	128.00	0.00
<b>Embarkment</b>	50,000.00	Cubic Yard	\$1.55	\$77,459.60	U.S. Dollar	166.67	0.00

Being able to see productivity drivers on the CBS register makes it easier to review and modify the estimate as a whole while reducing the potential to accidentally overwrite a manually entered data.



Follow the step by step below to create a Resource Assembly.

Step by Step — Create a Resource Assembly

1. From the Library landing page, under the Master Resources section of the Setup tab, select **Resource Assemblies**.
  - The Resource Assembly Register is shown.
2. Right click on any **row header** and select **New** from the drop-down menu.
  - A new Resource Assembly Record is shown.
3. In the Code field, type **CEXC + [your initials]** as the unique code for the assembly.
4. Add a **description** in the Description field.
5. In the Assembly Details register at the bottom of the screen, click in the **Resource Code** column in the first blank row, and then select the **Resource** icon that appears in the cell.
6. On the Labor tab of the resulting register, select the resource with the Description: **LL2Laborer** and click **OK** to add this resource to the assembly.
7. Add two additional resources.

TIP

You can use the Ctrl and Shift keys to select multiple resources at once.

8. Click **OK** to save and close the new assembly.

Resource Assembly Register					
Drag columns here to group					
	Code	Description	Resource File Description	Quantity	Unit of Measure
	+ CCONC	Concrete Crew	Standard Assembly...	1.00	Hour
→	+ CEXCPB	Excavation Assembly		1.00	Each
	+ CGRADE	Grading Crew	Standard Assembly...	1.00	Hour
	+ CMAINT	Equipment Maintenance	Standard Assembly...	1.00	Each



## Exercise 3.1 — Create Resources & Resource Assemblies

In this exercise, you will practice creating resources and assemblies in the InEight Estimate Library. In the Library Resource Rate Register, create resources with the following variables:

### Labor Resource

<b>Resource Code</b>	LSFA	<b>Wage Zone</b>	Wage Zone A
<b>Resource Description</b>	Field Administrator	<b>Organizational Category</b>	Supervision
<b>Geographic Area</b>	Southwest	<b>Scale 1 Labor Base</b>	\$33.45
<b>Scale 1 Premium</b>	2 percent	<b>Scale 1 Subsistence</b>	\$0.47
<b>Resource File</b>	Standard Labor Rate File		

Select the checkbox for **Use Base Wage Factors for Scales 2 and 3**.

**Scale 2 Factor:** 1.50 x Base Wage. **Scale 3 Factor:** 2.00 x Base Wage.

### Rented Construction Equipment Resource

#### Rented Construction Equipment Resource

<b>Resource Code</b>	RPW3000	<b>RE Rental Amount</b>	\$3.40
<b>Resource Description</b>	Pressure Washer 3000 PSI	<b>Organizational Category</b>	Clean & Inspect
<b>Resource File</b>	Standard Rental Rate File		

#### Installed Material Resource

<b>Resource Code</b>	MCCB	<b>Installed Materials Amount</b>	\$300.00
<b>Resource Description</b>	Pre-Cast Concrete Catch Basin	<b>Organizational Category</b>	Concrete
<b>Resource File</b>	Standard Material Rate File		
<b>Unit of Measure</b>	Each		

Uncheck the box for **Apply Standard Tax** and enter a **Unique Sales Tax Rate:** 6%

**In the Library Resource Assembly Rate Register, create resource assemblies with the following codes, descriptions, and resources**



**Assembly #1**

Assembly Code	CBRIDGE	
Assembly Description	Bridge Crew	
Resource File	Standard Assembly File	
Unit of Measure	Hour	
Select <b>Wage Zone A Labor</b> Resources for this Assembly.		
Resources on Assembly	Resource Description	Resource Quantity
LC3	Carpenter Foreman	1
LL2	Laborer	2
LF2	Finisher	1
LC2	Carpenter Journeyman	2

**Assembly #2**

Assembly Code	CRIPRAP	
Assembly Description	Rip Rap Replacement Crew	
Resource File	Standard Assembly File	
Unite of Measure	Hour	
Select <b>Wage Zone A Labor</b> Resources for this Assembly.		
Resources on Assembly	Resource Description	Resource Quantity
LT2	Teamster Foreman	.5
LO3	Operator Class 3	1
LL2	Laborer	2
EX510	Backhoe JD 510	1
ETPU	Pickup	1
EL950	Loader 950	1

**You should end up with the following results**



Resource Code	Resource File Description	Organizational Category	Geographic Area	Wage Zone	Description	Unit of Measure
LSFA	Standard Labor Rate File	Supervision	Southwest		Field Administrator	Hour
	Scale	Total	Labor	Labor Base	Labor Burden	Labor Fringes
→	1	\$33.92	\$33.92	\$33.45	\$0.47	\$0.47
	2	\$50.18	\$50.18	\$50.18	\$0.00	\$0.00
	3	\$66.90	\$66.90	\$66.90	\$0.00	\$0.00

Resource Code	Description	Resource File Description	Unit of Measure	Unit Cost (Scale 1)	Currency	Organizational Category
RPW3000	Pressure Washer 3000 PSI	Standard Rental Rate File	Hour	\$3.40	U.S. Dollar	Clean & Inspect
	Total	Rented Equipment	RE Rental	RE Rent Expense	RE Overhead	RE Finance Expense
	\$3.40	\$3.40	\$3.40	\$0.00	\$0.00	\$0.00
					RE Insurance	RE License
					\$0.00	\$0.00

Resource Code	Description	Resource File Description	Unit of Measure	Unit Cost (Scale 1)	Currency	Organizational Category
MCCB	Pre-Cast Concrete Catch Basin	Standard Material Rate File	Each	\$318.00	U.S. Dollar	Concrete
	Total	Materials	Installed Materials	Undefined Materials	Fees	Sales Taxes
	\$318.00	\$300.00	\$0.00	\$300.00	\$18.00	\$18.00
					Undefined Fees	Undefined
					\$0.00	\$0.00
					Billing Rate	Billing Mark
					\$318.00	

Assembly Code	Assembly Description	Resource File Description	Quantity	Unit of Measure	Unit Cost	Total Cost	Currency	Organizational Category	Geographic Area	Wage Zone
CBRIDGE	Bridge Crew	Standard Assembly File	1.00	Hour	\$170.11	\$170.11	U.S. Dollar			
	Row Number	Resource Code	Description	Quantity	Unit of Measure	Unit Cost	Currency	Cost Driver	Resource File Description	Organizational Category
	1	LC2	Carpenter Journeyman	2.00	Each	\$28.92	U.S. Dollar	CI Duration	Standard Labor Rate File	Carpenter
	2	LC3	Carpenter Foreman	1.00	Each	\$31.47	U.S. Dollar	CI Duration	Standard Labor Rate File	Carpenter
	3	LF2	Finisher	1.00	Each	\$28.07	U.S. Dollar	CI Duration	Standard Labor Rate File	Finisher - Concrete
	4	LL2	Laborer	2.00	Each	\$26.37	U.S. Dollar	CI Duration	Standard Labor Rate File	Laborer

Code	Description	Resource File Description	Quantity	Unit of Measure	Unit Cost	Total Cost	Currency	Organizational Category	Geographic Area	Wage Zone
CRIPRAP	Rip Rap Replacement Crew	Standard Assembly...	1.00	Hour	\$152.89	\$152.89	U.S. Dollar			
	Row Number	Resource Code	Description	Quantity	Unit of Measure	Unit Cost	Currency	Cost Driver	Resource File Description	Organizational Category
	1	LL2	Laborer	2.00	Each	\$26.37	U.S. Dollar	CI Duration	Standard Labor Rate File	Laborer
	2	LO3	Operator Class 3	1.00	Each	\$30.62	U.S. Dollar	CI Duration	Standard Labor Rate File	Operator
	3	LT2	Teamster Foreman	0.50	Each	\$32.32	U.S. Dollar	CI Duration	Standard Labor Rate File	Truck Driver - Teamster
	4	EL950	Loader 950	1.00	Each	\$14.18	U.S. Dollar	CI Duration	Standard Equipment Rate...	Loader
	5	ETPU	Pickup	1.00	Each	\$4.20	U.S. Dollar	CI Duration	Standard Equipment Rate...	Truck
	6	EX510	Backhoe JD 510	1.00	Each	\$35.00	U.S. Dollar	CI Duration	Standard Equipment Rate...	Excavator

**Congratulations, you have completed this exercise!**



## Lesson 3 Review

1. When you create a new job folder, all category labels defined in the Library Foundation Setup Data Register will be copied to the new job folder automatically.
  - a. True
  - b. False
2. This resource type is a catch-all and can be used for anything from dump fees and security to creating subcontractors as a resource.
  - a. Installed Materials
  - b. Unique
  - c. Labor
  - d. Construction Equipment
3. The Construction Equipment and Rented Construction Equipment Resource Rate Records include consumption rates that will factor with the fuel cost you define where?
  - a. Library Foundation Setup Data
  - b. Library Resource Rates
  - c. Job Properties
  - d. Cost Breakdown Structure

## Lesson 3 Summary

As a result of this lesson, you can define, adjust and explain:

- Library Job Properties
- Library Foundation Setup Data Register
- Library Resource Rate Register
- Library Assembly Register



# LESSON 4 – PROJECT SETUP

**Lesson Duration:** 45 minutes

## Lesson Objectives

After completing this lesson, you will be able to:

- Create a new project
- Enter Job Properties
- Create pay items in the Pay Item & Proposal Register

## Lesson Topics

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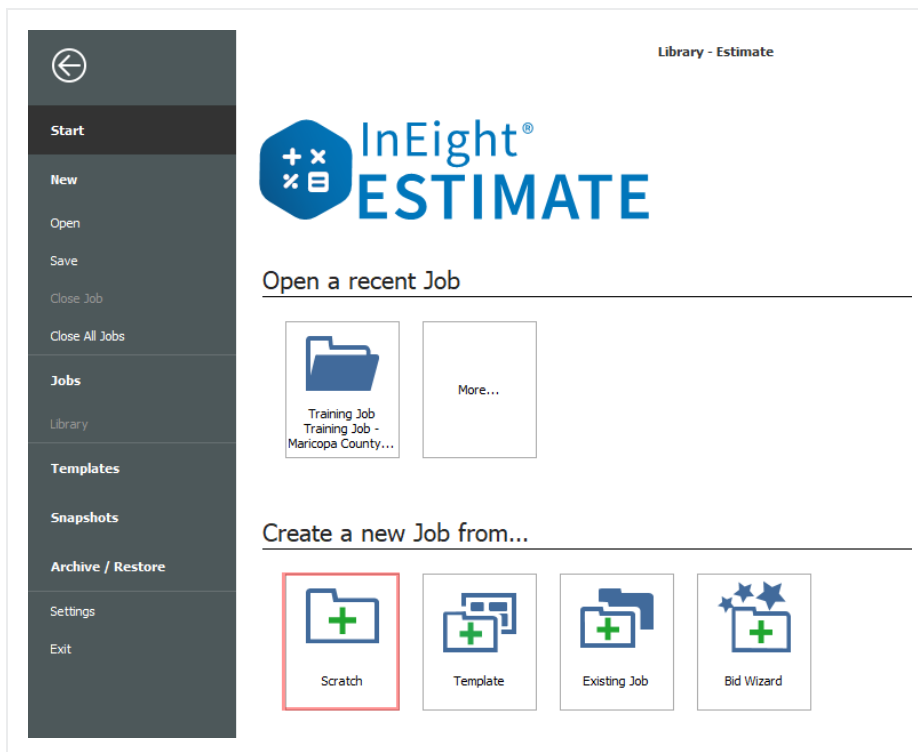
## 4.1 JOB CREATION

As discussed in Lesson 1, a job folder contains all pertinent information for a single project, and it is independent from any other job. When you create a new job folder, all your estimating and managing of the project will be stored in that folder.

First, you will create a new job from scratch.

### Step by Step — Create a New Job

1. From the InEight Estimate Backstage view, under the Create a new Job from... section, select **Scratch**, or select **New > Scratch** from the left sidebar menu.



2. On the New Job dialog, name the **Code** field.
  - The Job Code must be unique to differentiate between projects
3. Type in a **description** in the Description field.



- It is not required, but best practice is to have a good description to make it easier to find the job

The screenshot shows a 'New Job' dialog box. It has a title bar with a gear icon and the text 'New Job'. Below the title bar, there are two input fields. The first is labeled 'Code: \*' and contains the text 'E101 - Training Job SC'. The second is labeled 'Description:' and contains the text 'Sample Training Job'. A blue rectangular border highlights the 'Description' field. At the bottom of the dialog, there are two buttons: 'OK' and 'Cancel'. Two circular callouts with numbers are overlaid on the dialog: callout '2' points to the 'Code' field, and callout '3' points to the 'Description' field.

4. Click **OK** to create the new project.

## 4.2 JOB PROPERTIES

When you create a new project, the **Job Properties** form automatically displays. This is where you can enter basic information about the project. To open the Job Properties form at any other time, on the InEight Estimate landing page, select the **Setup** tab and click **Job Properties**.

### 4.2.1 Overview Tab

The Job Properties form opens to the Overview tab.

#### Overview – Overview Tab

Name		Description
1	Job Code and Description	Contain the information you entered on the New Job dialog. <ul style="list-style-type: none"><li>• The Description can be changed at any time if necessary</li><li>• The Code cannot be changed</li></ul>
2	Status	Indicates where in the process this project is (e.g., Bidding, Awarded, etc.) <ul style="list-style-type: none"><li>• When searching for jobs in the Job Folders list, you can filter and sort jobs by their status</li></ul>



## Overview – Overview Tab (continued)

Name	Description
	<ul style="list-style-type: none"> <li>• These job statuses can be adjusted to fit your company requirements in the Jobs Register, Tools Menu, Job Statuses.</li> </ul>
3	Notes <ul style="list-style-type: none"> <li>• Used to document project specifics.</li> <li>• Information in this field is created in InEight Estimate and it is not integrated with other programs</li> </ul>
4	Job created by Indicates the user or entity that initially created the job.

The screenshot shows the 'Job Properties' window with the 'Overview' tab selected. The window has a header bar with various tabs: Overview, Security, Cover Sheet, Cost Basis, Minority Setup, Fuel Cost, Job Tracking, Job Folder Tags, Pricing, Schedule, Cash Flow, Equipment Maintenance, Benchmarking, and Alternates. Below the header, there are three main sections:

- Section 1:** A box containing 'Code: Training Job' and 'Description: Training Job - Maricopa County No. TM2924'. A red box highlights this section, and a callout '1' points to it.
- Section 3:** A 'Notes' section with a text area. A red box highlights the text area, and a callout '3' points to it. The text area contains an example: 'Example: Embankments shall be so constructed that adequate surface drainage will be provided at all times. Roadway embankment materials that consist predominantly of soil shall be placed in horizontal layers not to exceed density. Unless otherwise specified, the top 150 millimeters (six inches) of the roadbed in both cut and fill sections shall be compacted to 95 percent of maximum density. Maximum density and optimum moisture will be determined by a Nuclear Density Gauge and a 305 millimeter (12-inch) Drop, AASHTO T 99, Method C. The determination of the density of the soil in place will be in accordance with an approved AASHTO method. Placing and compacting areas shall be kept...'.
- Section 4:** A 'Job created by:' field with the value 'InEight'. A red box highlights this field, and a callout '4' points to it.

At the bottom of the window, there is a checkbox labeled 'Automatically save this job'.

### TIP

You can change your Job Code by making a copy of the job with a new code.

## 4.2.2 Security Tab

When you set up the job, you can secure it so only those working on the estimate will have access. You can adjust security at the field level or at the job level.

The following steps walk you through how to set up security. For now, you will leave the Security tab as is without making any specific selections; however, the following steps guide you through making any security changes when needed in the future.



## Step by Step — Set Up Job Level Security

- On the Job Properties > Security tab, select the **Restrict access to this Job...** check box.
  - Notice the checkbox to “Allow ALL users with Bid Wizard access to use this job as a source” is checked by default. Make sure to keep this checked as well
- Click the **Add Users / Groups** button to add users.
- In the Select Users or Groups dialog, type the **email addresses** for those that need access and then click **OK**.
  - If you don’t know the email address, you can type the name of the user, and click the Check Names box to find the appropriate user

**Resource Assembly Register**   **Job Properties** ⓘ

Overview   Security   Cover Sheet   Cost Basis   Minority Setup   Fuel Cost   Job Tracking   Job Folder Tags   Competitors

**Estimate Protection**

☐ Enable field level estimate protection   Password:

**User Access**

☒ Restrict access to this job to the following users   ☒ Allow ALL users with Bid Wizard access to use this job as a source

Users allowed in this job:

user - Susan.Cappelloni@INEIGHT.COM

- The job can now only be opened by those listed under Users allowed in this job



## 4.2.3 Cover Sheet Tab

The Cover Sheet tab is where you can define much of the general information about the project. It includes fields to identify the job's location, contacts, and bid details.

The following fields are available:

- Job Location
- City, County, Country, Province/State
- Job Type
- Engineer
- Owner
- Architect
- Forecast Start and Forecast Finish
- Bid Date and Bid Time
- Bid Location
- Estimator
- Opening Type and Proposal Type
- Liquidated Damages (if applicable)

**Cost Breakdown Structure (CBS) Register** | **Job Properties** | Overview | Security | **Cover Sheet** | Cost Basis | Minority Setup | Fuel Cost | Job Tracking | Job Folder Tags | Competitors | Pricing | Schedule | Cash Flow | Equipment

**Identification**

Location: I-10 MP 100 to MP 120 | Type: Highway and General Engineering | Contract Duration: 160

City: Phoenix | Engineer: Example Engineer -- Fred Jones | Time Measure: Contract Days

County: Maricopa | Owner: Example Owner -- Jerry Slate | Forecast Start: 1/6/2014

Country: United States | Architect: Example Architect -- Robert Frost | Forecast Finish: 6/5/2014

State: Arizona | Duration: 150

Latitude: 0.00000

Longitude: 0.00000

**Proposal**

Bid Date: 12/23/2013 | Opening Type: Public

Bid Time: 10:00:00 PM | Proposal Type: Unit Price

Estimator: Example Prime Contractor 1 -- Tom Cross | Plan Holders: 5

OK Cancel

The fields on this tab can be helpful for historical reference and job classification. It is good practice to complete as many of these fields as possible, so you can reference and find the project later. These fields can be updated as needed at any time.



## 4.2.4 Cost Basis Tab

The Cost Basis tab has some important settings that will affect how costs are calculated in your estimate. The settings reviewed below are the ones you need to consider.

Name		Description
1	Standard Shift Arrangements	The default standard shift arrangements are set up as 8 hours per shift, 1 shift per day, and 5 days per week; this can be changed if a project requires a different standard shift arrangement.
2	Standard Wage Rate Composite:	Allows you to indicate what percentage of your labor hours will be regular time (Scale 1), overtime (Scale 2) or double time (Scale 3). You can enter these percentages manually, or you can use the Shift Rate Calculator to obtain a more accurate figure.
3	Lock Cost Items to Pay Items:	For this sample job, you will check this box. When Cost Items are locked to Pay Items, your level 1 estimate structure is controlled by your list of pay items.
4	Default Currency:	The default will be set to U.S. Dollar, but this can be changed if needed.
5	Sales Tax Rate:	This field is not required but may be used to automatically apply a sales tax to all your material and rental items. The default is set to zero.

### Cost Basis Tab Overview



### 4.2.5 Shift Rate Calculator

Take a closer look at calculating your shift rates using the Shift Rate Calculator. For this example, you will walk through setting up 2 shifts for your project.

#### Step by Step — Shift Rate Calculator

1. On the Job Properties > Cost Basis tab, select the **Shift Rate Calculator** button.

2. For Shift 1, type a **number value** of hours in the **Monday through Friday Work Hours** fields.
  - You can enter up to three shifts for the project
3. For Shift 1, type a **number value** of hours in the **Scale 1** fields.



- Scale 1 will be your regular time and Scale 2 will be any overtime

Actions

Load Calculator from Library

Save Calculator to Library

Clear All

Tools

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	TOTAL
Shift 1								
Work Hours	10.00	10.00	10.00	10.00	10.00		0.00	50.00
Scale 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scale 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scale 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Enter a **number value** for hours in the **Scale 2** fields (just Monday through Friday).
5. For Shift 2, type a **number value** for hours as you did above in Step 3.
6. Click **OK**.

Shift 2

Work Hours	12.00	12.00	12.00	12.00	12.00	12.00	12.00	84.00
Scale 1	8.00	8.00	8.00	8.00	8.00	6.00	0.00	46.00
Scale 2	4.00	4.00	4.00	4.00	4.00	6.00	12.00	38.00
Scale 3		0.00	0.00	0.00	0.00	0.00	0.00	0.00

- Now you have a blended shift arrangement, and your labor rates are a blend of 64.18% straight-time and 35.82% overtime



### 4.2.6 Import Filtered Resources

You may have noticed the bottom portion of your Cost Basis tab called the Resource Filter.

The Resource Filter portion of the Cost Basis tab is the most important part of Job Properties. You use it to import your labor, equipment, and materials from the Library. Until you import filtered resources, you have no resources (labor, equipment, materials) in your project.

Updated resource rates can be imported into the Library on a regular basis. It is important to update and have the “Latest & Greatest” rates available to import into your estimates.

You will import the rates you need using a set of four filters called Resource Attributes. Especially for labor rates, filtering by these attributes allows you to pare down the master list to just the resources you need.



Each of the resource filter categories are open for use as determined best by your business. The following are examples of common uses:

Resource Attribute Filters	
Name	Description
Resource File Description	This attribute can be used to designate the rate type or the year to which the rates pertain.
Geographic Area	This attribute is used to designate regions, cities, or provinces based on geographical location of a project.
Wage Zone	This attribute is typically used specifically for labor resources. For example, it may designate the trade and union agreements your labor resources belong to.
Organizational Category	This attribute can be used to designate what trade or work type your resources pertain to.

Resource filters become more specific from left to right, so it makes sense to start with Resource File Description and end with Organizational Category. The geographic area, wage zone and organizational category attribute titles can be changed to meet your business needs for filtering resources.

**TIP**

You can sort the filter lists by clicking on the filter category titles.

The following steps walk through using the Resource Filter to import resources.

### Step by Step — Import Filtered Resources

1. In your job, go to the **Job Properties > Cost Basis** tab, select the **Labor Rate** resource type.
2. Under Resource File Description, select **Standard Labor Rate File**.
3. For Geographic Area, select **Southwest**.
4. For Wage Zone (Work Center), select **Wage Zone A**.
5. For Organizational Category, select **All**.



The screenshot shows the 'Job Properties' form with five filter sections. Each section has a red box and a numbered circle indicating a selection step:

- Resource / Assembly Filter:** A red box highlights 'Labor Rate' with a circle containing the number 1.
- Resource / Assembly File:** A red box highlights 'Standard Labor Rate File' with a circle containing the number 2.
- Geographic Area:** A red box highlights 'Southwest' with a circle containing the number 3.
- Wage Zone:** A red box highlights 'Wage Zone A' with a circle containing the number 4.
- Organizational Category:** A red box highlights 'All' with a circle containing the number 5.

6. Select the **Construction Equipment** resource type.
7. Select the **Import Filtered Resources** button to bring your selected resources into the job.

**NOTE**

You must select “Import Filtered Resources” to import your resources. Clicking OK on the Job Properties form will not import your resources.

## 4.2.7 Fuel Cost Tab

On this tab you can enter the cost for fuel (or other energy sources). These unit cost will be multiplied by the consumption rates entered on each equipment record to define the fuel operating cost of each piece of equipment. The Cost per UM fields default to \$0.00.

### Step by Step — Enter Fuel Costs

1. In your job, open the **Job Properties > Fuel Cost** tab.
2. In Cost Per UM column, enter a **dollar amount** into the following:
  - Diesel
  - Gas & Gasoline



- Off Road Diesel

Job Properties

Overview

Security

Cover Sheet

Cost Basis

Minority Setup

Fuel Cost

Job

Drag columns here to group

	Fuel Type	Cost Per UM	Curre...	...	Account Code
	Diesel	\$4.20	U.S. Dollar	Gallon	
	Gas	\$3.90	U.S. Dollar	Gallon	
	Gasoline	\$3.90	U.S. Dollar	Gallon	
	Off Road Diesel	\$3.20	U.S. Dollar	Gallon	
→					

3. Currency should read U.S. Dollar and UM should read Gallon.

4.2.8 Job Folder Tags Tab

On this tab, you can enter tag fields to label your project, so you can reference it later.

Job Properties

Overview

Security

Cover Sheet

Cost Basis

Minority Setup

Fuel Cost

Job Tracking

Job Folder Tags

Competitors

Pricing

Schedule

Job Folder Tag Assignments

Tag 1:

Tag 2:

Tag 3:

Tag 4:

Tag 5:

Tag 6:

Tag 7:

Tag 8:

Tag 9:

Tag 10:

Tag 11:

Tag 12:

Tag 13:

Tag 14:

12/31/2004

Tag 15:

12/31/2004

Tag 16:

12/31/2004

Tag 17:

12/31/2004

Tag 18:

12/31/2004

Tag 19:

12/31/2004

Tag 20:

12/31/2004

Tag 21:

0.00

Tag 22:

12/31/2004

Tag 23:

12/31/2004

Tag 24:



Many of these fields are validated fields, meaning you can choose from options in a drop-down list. The names of these tags and the drop-down values are defined at a master level within the Library Foundation Setup Data. Some job folder tags are setup to be date fields or numerical fields. These tags are used to sort and filter the job register as well as for selecting which past estimates to utilize for benchmarking.

### 4.2.9 Schedule Tab

The Schedule tab is used to define the scheduling options for the integration between InEight Estimate Primavera or Microsoft Project. The settings you define here determine what information is sent to your scheduling tool, and how it will be structured.

- At the top of the Schedule tab, the Integrated Schedule can be set to Primavera or Microsoft Project or Manual
- You will need to confirm the proper settings are defined on each of the Schedule sub-tabs. These settings are defined in detail in *Lesson 12 – Schedule Integration*

Job Properties

Overview

Security

Cover Sheet

Cost Basis

Minority Setup

Fuel Cost

Job Tracking

Job Folder Tags

Competitors

F

Integrated Schedule:

Primavera

Always use Plug Days when updating Estimate from the sc

Schedule Currency:

U.S. Dollar

Cost Item Roll Up

Login Options

Mapping Options

Resources

Expense Costs

Actuals

Tags

Activity Calendars

☐ Automatically calculate Plug Days when rolling up cost items for scheduling purposes

☒ Longest scheduled days among all rolled up cost items

☐ Total scheduled days for all rolled up cost items

### 4.2.10 Other Job Properties Tabs

There are several additional tabs on the Job Properties form. The other tabs will not be discussed here because they are either used for project controls, or they will be covered at another time.

Other Job Properties Tabs	
Name	Function
Minority Setup	Used to set up minority participation goals (for example, DBE or MBE) and you want to track minority participation goal attainment status during the bid process,



Other Job Properties Tabs	
Job Tracking	Used to select the code that will be used when tracking job progress, define the planned production calculation, define the percent complete calculation, define the forecast methods, and define markup rates for calculating earned revenue on Time and Expense pay items.
Competitors	For an estimate that is being submitted for a competitive bid, this is a place to track a list of competitors and if available, store competitor price submissions for reference and trend tracking.
Pricing	Used to define how you want the Balanced Unit Price for each of the job's pay items to be calculated when using the AutoPrice feature
Cash Flow	Defines the cash flow rules (payment terms) that are used in the calculation of Job Financing and cost/revenue realization to generate the curves that display on the Cash Flow form.
Equipment Maintenance	Used to define the calculation of maintenance labor man-hours based on equipment utilization, to capture the impact on total man-hours when changes are made that affect the job's total value.
Benchmarking	Used to establish the historical data to be used for benchmarking the current job, and to define the default benchmark graph display and calculations.
Alternates	Used to define Alternate Scenarios, to assess the impact of those scenarios.



## Exercise 4.1 — Define Job Properties

In this exercise, you will continue to define your Job Properties from in the E101 training job you have created. Complete the following steps:



1. On the Cover Sheet tab, fill out the following fields:

<b>Job Location</b>	90 <sup>th</sup> Street & Shea
<b>City</b>	Scottsdale
<b>County</b>	Maricopa
<b>Country</b>	United States
<b>State</b>	Arizona
<b>Type</b>	Infrastructure
<b>Engineer</b>	Fred Jones
<b>Owner</b>	Jerry Slate
<b>Architect</b>	Robert Frost
<b>Contract Duration</b>	80
<b>Time Measure</b>	Calendar Days
<b>Forecast Start</b>	October 15, 2019
<b>Duration (days)</b>	70
<b>Bid Date and Bid Time</b>	10/1/2019 2:00 PM
<b>Estimator</b>	Jim Sly
<b>Bid Location</b>	123 Main Street
<b>Owner's Estimate</b>	\$500,000.00
<b>Opening Type</b>	Public
<b>Proposal Type</b>	Unit Price
<b>Plan Holders</b>	10
<b>Liquidated Damages</b>	\$1000.00 Per Day
<b>RFQ Contact</b>	Jim Sly

2. On the Cost Basis tab:



- Ensure the **Shift Arrangement** is 8 hours a day, 5 days a week
- Ensure the **Wage Composite** is set to 100% Scale 1
- Ensure the **Sales Tax** is set to 8%

## You should end up with the following results

The following Cover Sheet properties are defined:

**Job Properties**

Overview | Security | Cover Sheet | Cost Basis | Minority Setup | Fuel Cost | Job Tracking | Job Folder Tags | Competitors | Pricing | Schedule | Cash Flow | Equipment |

**Identification**

Location: 90th Street & Shea Type: Infrastructure Contract Duration: 80

City: Scottsdale Engineer: Example Engineer -- Fred Jones Time Measure: Calendar Days

County: Maricopa Owner: Example Owner -- Jerry Slate Forecast Start: 10/15/2019

Country: United States Architect: Example Architect -- Robert Frost Forecast Finish: 12/24/2019

State: Arizona Duration: 70

Latitude: 0.00000

Longitude: 0.00000

**Proposal**

Bid Date: 10/1/2019 Opening Type: Public

Bid Time: 2:00:00 PM Proposal Type: Unit Price

Estimator: Hard Dollar Corporation - Chief Estimator -- Jim Sly Plan Holders: 10

Bid Location: 123 Main Street Liquidated Damages: \$1,000.00

Owners Estimate: \$500,000.00 Liq. Damages Per: Day

RFQ Contact: Hard Dollar Corporation - Chief Estimator -- Jim Sly

OK Cancel

The following Cost Basis settings are defined:



Job Properties

OverviewSecurityCover SheetCost BasisMinority SetupFuel CostJob TrackingJob Folder TagsCompetitorsPricingScheduleCash FlowEquipment

Standard Shift Arrangements

Work Hours per Shift: 8.00  
Pay Hours per Shift: 8.00  
Shifts per Day: 1.00  
Days per Week: 5.00

Standard Wage Rate Composite

Scale 1: 100.00 %  
Scale 2: 0.00 %  
Scale 3: 0.00 %  
Shift / Rate Calculator

Rules

☒ Lock Cost Items to Pay Items  
Pay Item Unit Price Precision: 2  
☐ Activate PBS Changes Log  
☐ Activate Quantity Checking  
☐ Maintain CBS Structure at Level: 0  
When man-count changes: ☒ Change UM / Man-Hour  
☐ Change Days

☐ Preserve Original Cost Item Data Source

Currency

Default Currency: U.S. Dollar

Standard Rates

Sales Tax Rate: 8.00 %

Resource / Assembly Filter

Resource / Assembly Type

☐ Labor Rate  
☐ Construction Equipment R...  
☐ Rented Construction Equi...  
☐ Installed Material Rate  
☐ Installed Equipment Rate  
☐ Supply Rate  
☐ Unique Rate  
☐ Resource Assembly  
☐ Cost Item Assembly  
☐ Standard Table

Resource / Assembly File ...

☐ [All]  
☐ [None]  
☐ [Non-Blanks]  
☒ Standard Labor Rate File

Geographic Area

☐ [All]  
☐ [None]  
☐ [Non-Blanks]  
☒ Southwest

Wage Zone

☐ [All]  
☐ [None]  
☐ [Blanks]  
☐ [Non-Blanks]  
☒ Wage Zone A  
☐ Wage Zone B

Organizational Category

☒ [All]  
☐ [None]  
☐ [Non-Blanks]  
☐ Truck Driver - Teamster  
☐ Supervision  
☐ Carpenter  
☐ Welder  
☐ Mechanic  
☐ Operator  
☐ Remediation

Import Filtered Resources

OK

Cancel

Congratulations, you have completed this exercise!

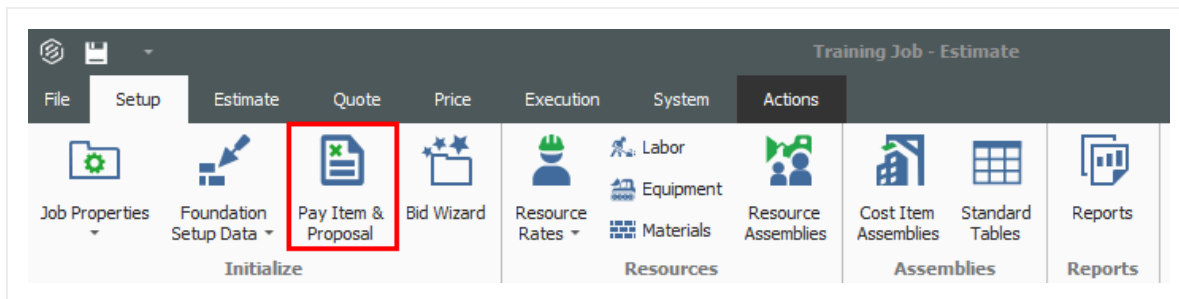


## 4.3 PAY ITEM CREATION

Pay items typically represent the owner required deliverables a contractor must submit pricing for. Within InEight Estimate, pay items are used to distribute the cost calculated in the Cost Breakdown Structure and all markup, fees or contingency calculated in the Price Breakdown Structure to a list of defined items. This allows the total estimate value to be distributed to a structure that is different then the CBS. Pay Items are predominantly used by Contractors to prepare a bid sheet. Owners may use pay items to identify funding sources or for various reporting needs.

Many Bid Forms are organized by grouping bid items for related scopes of work. Pay items within the Pay Item and Proposal screen can be grouped in a hierarchy by utilizing the Position Code column.

You can create pay items in the Pay Item & Proposal Register. Access this form by selecting the **Setup** tab > **Pay Item & Proposal**.



Name		Description
1	Proposal and Item Recaps	Related to pricing during bid close-out. You can disregard them at this time.
2	Pay Item Number	Represents the bid item number from the client (if they give you one) or can be a number you specify. This field is alpha-numeric
3	Position Code	Controls the way pay items can be grouped, and provide you with an efficient way to sort.
4	Description	You can enter a pay item description.
5	Pay Quantity and Forecast (T/O) Quantity	The Pay Quantity is the quantity provided by the client. The Forecast (T/O) Quantity is your measured quantity for the item.



### 4.3.1 Overview – Pay Item & Proposal Register

Pay Item & Proposal Register

Proposal Recap - Training Job

	Current	Target	Forecast	Variance	
Price:	\$6,569,735.00	\$5,897,950.68	\$6,577,223.80	\$671,784.32	CUT
Markup:	\$987,477.27	\$315,692.95	\$1,044,716.27	\$729,023.32	CUT
Margin%:	15.03	5.35	15.88	\$731,836.84	CUT

Item Recap - 200 SITEWORK

Description

Price

Distribution

Markup

Profit (Markup)

Business Over

Drag columns here to group

Pay Item Number	Position Code	Lock Quantity	Lock Price	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Currency	
200	1			SITEWORK & ROADWAY				U.S. Dollar	
+ 641 0100	1.1			Mobilization	1.00	1.00	Lump Sum	U.S. Dollar	
+ 201 0102	1.2			Clearing & Grubbing	10.00	10.00	Acre	U.S. Dollar	
+ 202 0183	1.3			Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	U.S. Dollar	
+ 303 5912	1.4			Aggregate Base	40,000.00	45,000.00	Ton	U.S. Dollar	
+ 303 4263	1.5			Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	U.S. Dollar	
400	2			WATER & SEWER				U.S. Dollar	
+ 413(B) 0464	2.1			36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet	U.S. Dollar	
+ 800 0220	2.2			10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet	U.S. Dollar	
+ 800 0330	2.3			24 Inch PVC Gravity Sewer (SDR35)	3,000.00	3,000.00	Linear Feet	U.S. Dollar	
+ 800 0400	2.4			4 Foot Diameter Manhole	16.00	16.00	Each	U.S. Dollar	
500	3			STRUCTURAL CONCRETE & BRIDGES				U.S. Dollar	
+ 501(A) 1306	3.1			Structural Excavation & Backfill	800.00	800.00	Cubic Yard	U.S. Dollar	
+ 506(A) 1322	3.2			Steel Reinforcement	30,000.00	30,000.00	Pound	U.S. Dollar	
+ 503(A) 1313	3.3			Retaining Wall	850.00	850.00	Cubic Yard	U.S. Dollar	

#### Step by Step — Create a Pay Item

- Open your job and select **Setup** tab > **Pay Item & Proposal** from the InEight Estimate landing page.
  - The Pay Item & Proposal Register displays
- In the Pay Item Number column, in the first blank row, type a **number value**.

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3. Use the Tab key to move to the Description column and type a **description**.
4. Leave the Pay Quantity at 1.00 and change the Unit of Measure to **LS (Lump Sum)**.
  - The Forecast (T/O) Quantity will auto populate to match your pay quantity, but can be changed later
  - You can tab to the next row to create additional pay items if needed

The screenshot shows the 'Pay Item' form. Callout 2 points to the 'Pay Item Number' field (1000). Callout 3 points to the 'Description' field (Mobilization). Callout 4 points to the 'Unit of Measure' dropdown menu, which is set to 'LS' (Lump Sum). Other visible fields include 'Lock Price', 'Row Number', 'Line Number', 'Pay Quantity' (1.00), 'Unit Price (current)' (\$0.00), 'Total Price (current)' (\$0.00), and '% Margin' (0.00).

### 4.3.2 Pay Item Prices by Category

Owners are increasingly requiring more information from contractors as part of their bid submissions. Many times, this is a further breakdown of a bid price such as separating the price of an item based on its labor cost, material cost or man-hours. Select columns in the Pay Item & Proposal register enable users to summarize their pay item prices by up to 10 price categories.

In addition to seeing the price by category, these additional columns also give users better visibility into how the price is established, including columns for the total cost, total distribution, total markup and markup percent. These new columns make it easier to verify that the distribution of unassigned cost and markup are calculated as intended by the estimator.

Pay Item Number	Position Code	Lock Quantity	Lock Price	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Currency	LABOR Cost
200	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SITEWORK & ROADWAY				U.S. Dollar	\$291,828
+ 641 0100	1.1	<input type="checkbox"/>	<input type="checkbox"/>	Mobilization	1.00	1.00	Lump Sum	U.S. Dollar	\$2,449
+ 201 0102	1.2	<input type="checkbox"/>	<input type="checkbox"/>	Clearing & Grubbing	10.00	10.00	Acre	U.S. Dollar	\$14,880
+ 202 0183	1.3	<input type="checkbox"/>	<input type="checkbox"/>	Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	U.S. Dollar	\$62,230
+ 303 5912	1.4	<input type="checkbox"/>	<input type="checkbox"/>	Aggregate Base	40,000.00	45,000.00	Ton	U.S. Dollar	\$99,794
+ 303 4263	1.5	<input type="checkbox"/>	<input type="checkbox"/>	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	U.S. Dollar	\$112,473
400	2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	WATER & SEWER				U.S. Dollar	\$128,895
+ 413(B) 0464	2.1	<input type="checkbox"/>	<input type="checkbox"/>	36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet	U.S. Dollar	\$19,602



## Exercise 4.2 — Create Pay Items

In this exercise, you will practice creating pay items in the Pay Item & Proposal Register. Complete the following steps, using the E101 – Training Job.

Pay Item Number	Description	Pay Quantity	Unit of Measure
2000	Clearing & Grubbing	10.00	Acre
3000	Excavation	50,000.00	CY
4000	10" PVC Pipe	1,000.00	LF

You should end up with the following results

Drag columns here to group							
Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure
+ 1000	<input type="checkbox"/>		1 1	Mobilization	1.00	1.00	LS
+ 2000	<input type="checkbox"/>		2 2	Clearing & Grubbing	10.00	10.00	Acre
+ 3000	<input type="checkbox"/>		3 3	Excavation	50,000.00	50,000.00	CY
+ 4000	<input type="checkbox"/>		4 4	10" PVC Pipe	1,000.00	1,000.00	LF
?	<input type="checkbox"/>						

**Congratulations, you have completed this exercise!**



## Lesson 4 Review

1. This is where you enter basic information about the job as well as define your cost basis.
  - a. Pay Item & Proposal
  - b. Job Properties
  - c. Library
  - d. Job Folder

---
2. On the Job Properties form, this tab is where you enter information such as the start date, bid date, job type and location.
  - a. Overview
  - b. Cover Sheet
  - c. Cost Basis
  - d. Foundation Setup Data

---
3. These are the project deliverables; anything the owner agrees to measure and pay for.
  - a. Cost Items
  - b. Resources
  - c. Target Price
  - d. Pay Items

---

## Lesson 4 Summary

As a result of this lesson, you can:

- Create a new job
- Enter Job Properties
- Create pay items in the Pay Item & Proposal Register



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# LESSON 5 – DIRECT COSTS

**Lesson Duration: 30 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Explain the estimating process in InEight Estimate
- Explain key terms and concepts

## Lesson Topics

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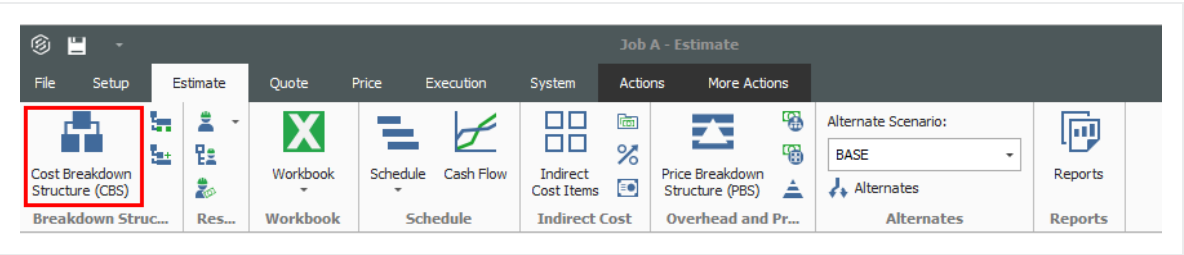


## 5.1 COST BREAKDOWN STRUCTURES

The Cost Breakdown Structure (CBS) is the main form where you will do your cost estimating.

- It is the hierarchy of work activities that make up the estimate
- Each row in the CBS represents a work activity or organizing category and is called a cost item

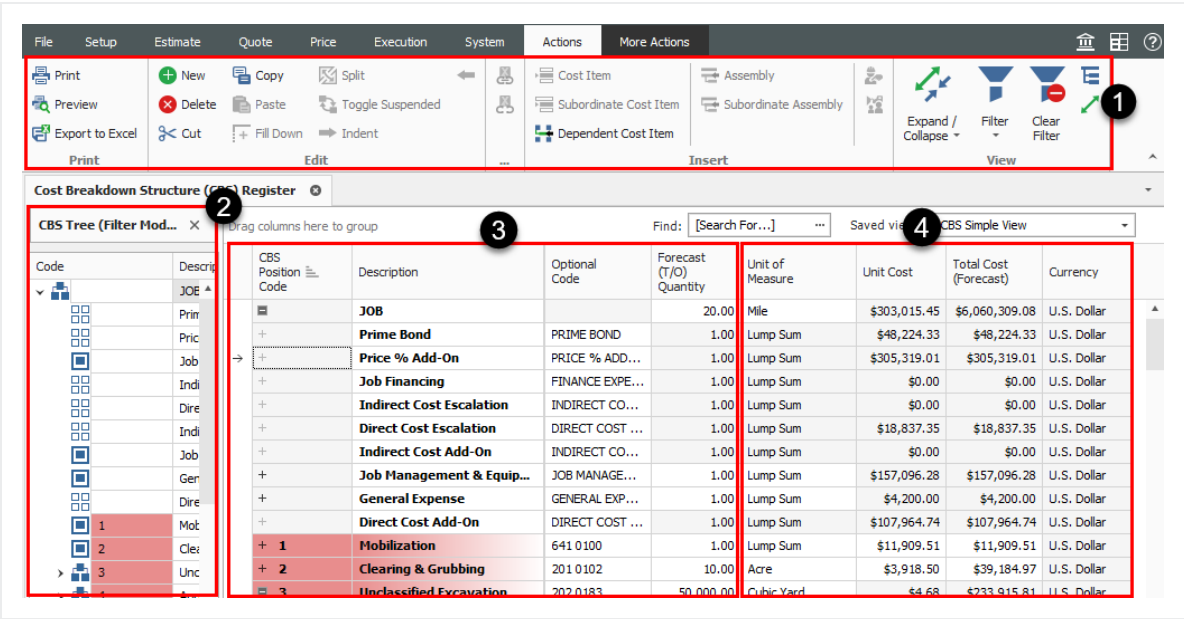
To access the Cost Breakdown Structure, from the InEight Estimate landing page select the **Estimate** tab, then under the Breakdown Structure section select **Cost Breakdown Structure (CBS)**.



### Overview – Cost Breakdown Structure (CBS) Register

Name		Description
1	Actions Menu	Shortcut icons allow you to edit cost items and import items from other sources such as Excel.
2	CBS Tree	The CBS tree mirrors your CBS hierarchy and can be used to quickly filter to a particular section of the CBS by selecting that line on the CBS Tree.
3	Left CBS register	This side of the register contains all of the estimate activities (cost items) that you create or import, organized into a parent-child hierarchy.
4	Right CBS register	This side of the register contains numerous columns for cost detail, production values, and user-defined tags and fields.





5.1.1 Cost Item Terminology

The CBS contains both direct and indirect costs.

- **Direct Cost Items** contain costs that pertain directly to the deliverables of the project. Therefore, direct cost items are typically assigned to pay items
- **Indirect Cost Items** contain overhead costs that are not directly associated with particular deliverable items but contribute to the total cost of the project (e.g., supervision, site office, safety supplies, bid securities). Occasionally an indirect cost item may be assigned to a pay item (e.g., Mobilization costs that are indirect but assigned to a Mobilization pay item).

InEight Estimate uses various terms to describe the parent-child relationships of the multiple levels in the CBS:

Terms	Description
Superior	A Superior cost item has subordinate (child) items below it that determine hours and costs.
Subordinate	A Subordinate cost item is a child to a Superior cost item.
Terminal	A Terminal cost item has no subordinate items. Resources, costs, and production can only be added at the terminal cost item level.

**NOTE** A Terminal cost item may or may not be a subordinate.



The levels of the CBS are referred to as Level 1, Level 2, etc., as you drill down in the structure. As costs are defined on the terminal items, the sum of the terminal cost items roll up to the superior cost items.

**TIP**

A superior cost item can have no costs of its own; its costs are strictly the rolled-up total from the subordinate cost items below it.

You can use superior cost items as buckets for organizing your work.

As hours and costs are defined on the terminal items, the sum of the terminal cost items roll up to the superior cost items.

## 5.1.2 Work Breakdown Structures

The Work Breakdown Structure (WBS) allows you to reorganize the estimate using different formats such as Construction Specifications Institute (CSI) MasterFormat or UniFormat. WBS formats are used when you need multiple variations and summary reports of an estimate. The WBS retains the same relationships between items as in the original estimate while only changing the view and items arrangement in the WBS hierarchy.

To view the Work Breakdown Structure View Register, in the Ribbon select the tab **Estimate > Work Breakdown Structures**.

### Overview – Work Breakdown Structure (WBS) View Register

Name		Description
1	WBS Tree	Use the WBS Tree to filter to a particular WBS item.
2	WBS Grid	When a specific WBS item is selected in the WBS Tree, all subordinate WBS items display in the WBS grid.
3	Cost Items	The Cost Items associated with the WBS subordinate in the WBS Grid displays in this data block.



Cost Breakdown Structure (CBS) Register

Quote Register

Quote Comparison & Award - Resources

Work Breakdown Structure View Register

WBS Tree

WBS: CEAS

Code

Description

> CEAS

> 10

> 11

> 12

> 13

> 14

> 17

Civil Engineering Account Code System

GENERAL PROVISIONS

EARTH WORK

PAVEMENT WORK

BRIDGE WORK

CONCRETE STRUCTURES

PIPE WORK

Drag columns here to group

Code

Description

CEAS

10

10.10

10.10.100

10.10.200

10.10.500

10.20

10.20.100

37

Civil Engineering Account Code System

GENERAL PROVISIONS

PROJECT SETUP

YARD

OFFICE FACILITIES

UTILITIES

EQUIPMENT SETUP

MOBILIZATION

Find: [Search For...]

Saved views: Standard View

Quantity

Unit of Measure

Currency

Unit Cost

Total Cost (Forecast)

1.00

Each

U.S. Dollar

\$2,494,088...

\$2,494,088.07

1.00

Lump Sum

U.S. Dollar

\$35,054.51

\$35,054.51

1.00

Each

U.S. Dollar

\$14,000.00

\$14,000.00

1.00

Each

U.S. Dollar

\$4,000.00

\$4,000.00

1.00

Each

U.S. Dollar

\$2,000.00

\$2,000.00

1.00

Each

U.S. Dollar

\$8,000.00

\$8,000.00

1.00

Each

U.S. Dollar

\$14,624.39

\$14,624.39

1.00

Load

U.S. Dollar

\$11,909.51

\$11,909.51

\$2,494,088...

Cost Items

Drag columns here to group

CBS Position Code

Description

Optional Code

Forecast (T/O) Quantity

Unit of Measure

Unit Cost

Total Cost (Forecast)

Allocated

Allocation Source

Currency

Cost Adjustment

Resource Assembly Quantity

+ 23.1

Setup Yard

UNASSIGNED

1.00

Lump Sum

\$4,000.00

\$4,000.00

U.S. Dollar

0.

Find: [Search For...]

Saved views: Standard View

1

1.00

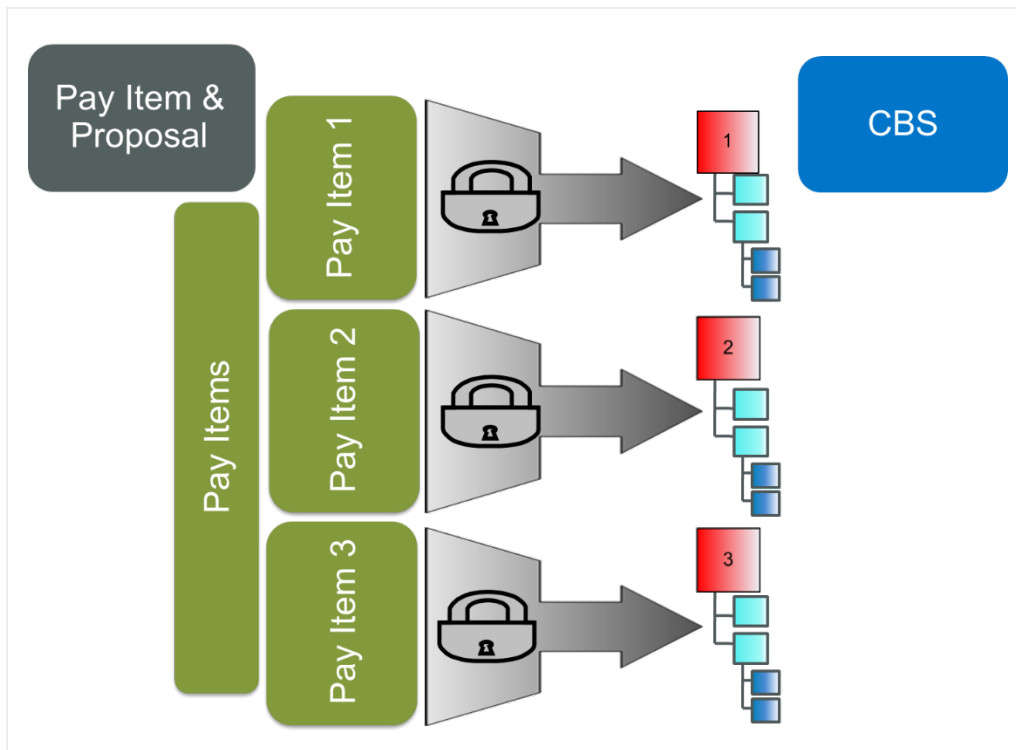
\$4,000.00

5.1.3 Locked vs. Unlocked Approach

There are two basic approaches to structuring your cost items and pay items. You can choose to work in a “locked approach” or an “unlocked approach.”

In a locked approach, level one cost items are automatically created and assigned to pay items. This locked approach works well when pay items adequately represent the work plan. Subordinate cost items inherit the pay item assignment of superior cost items.

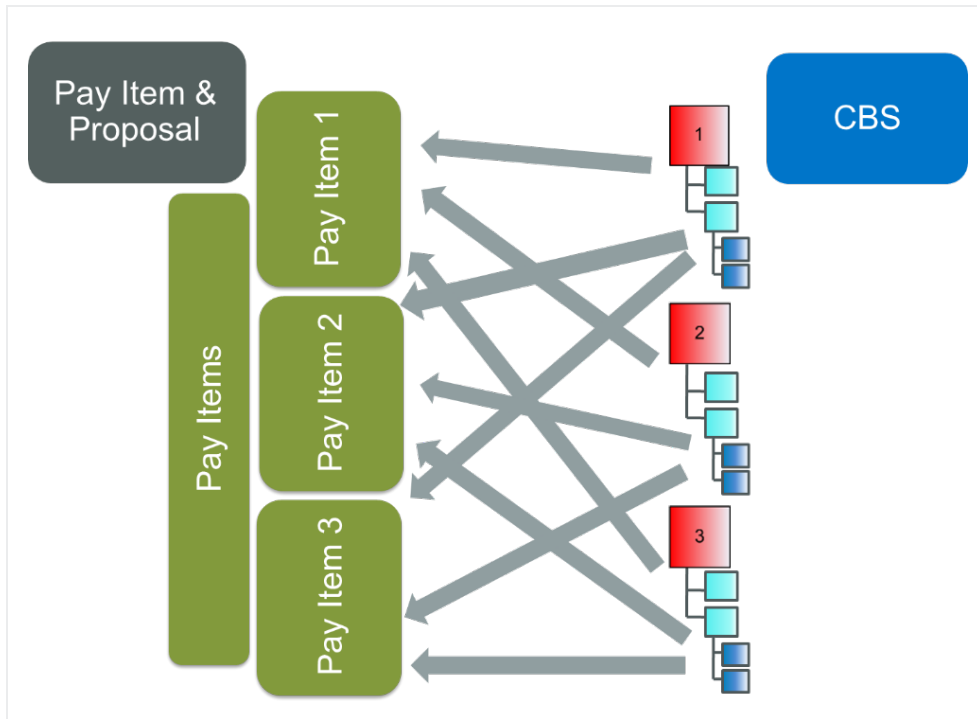


**NOTE**

If the Lock Cost Items to Pay Item rule is checked in Job Properties, InEight Estimate will automatically create level 1 cost items in the CBS Register for each of your pay items.

The unlocked approach may work better when the pay items do not adequately represent the work plan. You can then assign your cost items to your pay items in any arrangement. Companies looking to standardize the way they estimate and use templates will want to use this approach as it allows you to dictate the cost breakdown structure. Owners will also typically use the unlocked approach since pay items are not necessary to their estimating process.





The option of working in a locked approach vs. an unlocked approach is available in the Job Properties Form, on the Cost Basis tab under the Rules section. By selecting the checkbox for Lock Cost items to Pay Item, you are choosing to work in a locked approach.

The screenshot shows the 'Job Properties' form with the 'Cost Basis' tab selected. The 'Rules' section is visible, and the checkbox 'Lock Cost Items to Pay Items' is checked. Other options in the Rules section include 'Activate PBS Changes Log', 'Activate Quantity Checking', and 'Maintain CBS Structure at Level: 0'. The 'When man-count changes' section has two radio buttons: 'Change UM / Man-Hour' (selected) and 'Change Days'.

### 5.1.4 Take-Off Quantities

In the Cost Breakdown Structure, estimated quantities are entered into the Forecast (T/O) Quantity field with a corresponding unit of measure. The quantity will default to 1 each when you create a new cost item and should be updated to reflect the work being estimated.



CBS Position Code	Description	Forecast (T/O) Quantity
+ 1	<b>Mobilization</b>	1.00
+ 2	<b>Clearing &amp; Grubbing</b>	10.00
+ 3	<b>Unclassified Excavation</b>	50,000.00
+ 3.1	Excavation	50,000.00
+ 3.2	Embankment	50,000.00
+ 4	<b>Aggregate Base</b>	45,000.00
+ 4.1	Furnish & Haul Base Material	45,000.00
+ 4.2	Finegrade Subgrade	400,000.00
+ 4.3	Install Aggregate Base	45,000.00
+ 4.3.1	Place Aggregate Base	45,000.00
+ 4.3.2	Blue Top Aggregate Base	400,000.00

**NOTE**

Forecast (T/O) Quantities are only used for your cost items in the CBS Register.  
Pay Quantities are used for final pricing in the PBS and Pay Item & Proposal forms.

Because the training project is a “locked” job, you already have level 1 cost items, and their default take-off quantities are populated from their corresponding pay item quantities.

The following step by step walks you through adjusting the default take-off quantities on a couple of your cost items.

### Step by Step — Adjust Take-Off Quantities

- In your job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
  - For each cost item, you can enter the T/O quantity, followed by the unit of measure in the next column
- For this example, add a **number value** per acre and a **number value** to Excavation with the UoM to CY.

1	<b>Mobilization</b>	1.00	LS
2	<b>Clearing &amp; Grubbing</b>	15.00	Acre
3	<b>Excavation</b>	40,000.00	CY
4	<b>10 " PVC Pipe</b>	1,000.00	LF



## 5.2 COST ITEM CREATION

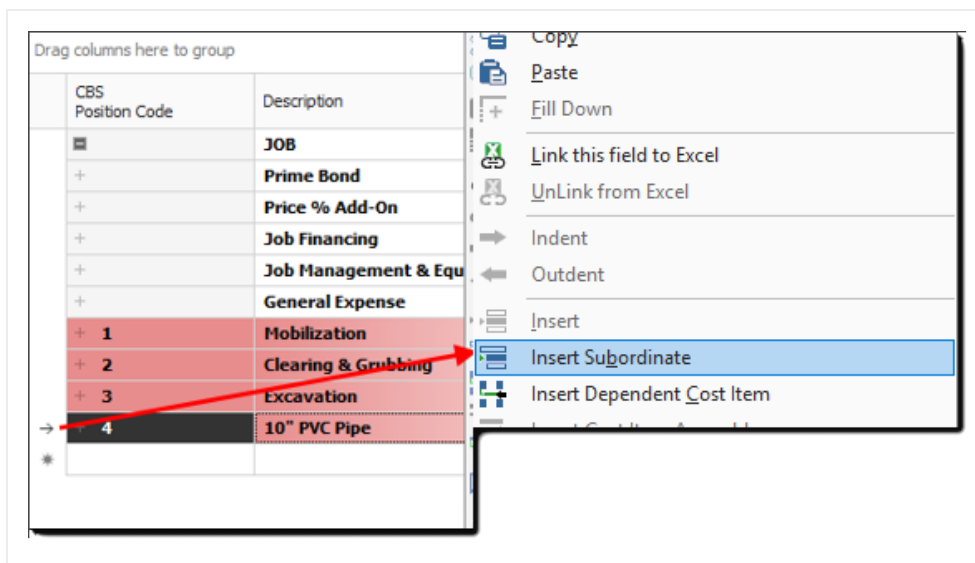
During estimate development, you will create new cost items to break down your work into specific activities. You can create superior and subordinate cost items as needed to organize your work.

### 5.2.1 Insert Subordinate Cost Item

You can add subordinate cost items in two different ways:

#### Option 1

Right-click on the row header of the superior cost item and select **Insert Subordinate**.

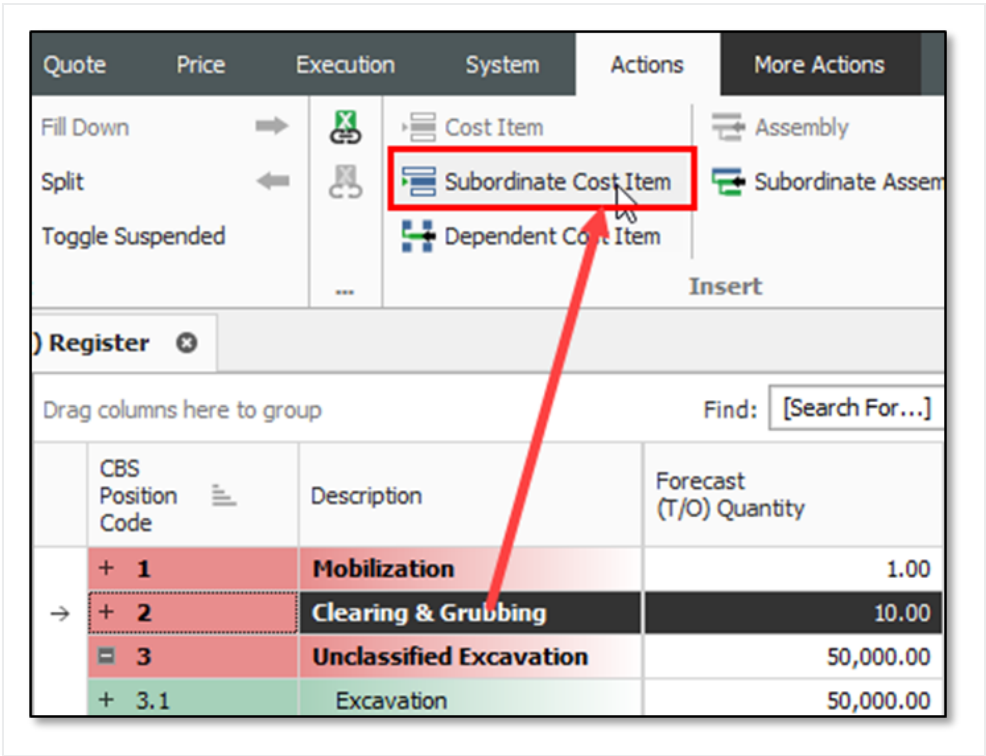


The row header is considered the far left edge of the CBS row where the small arrow appears above. It is used to open records and perform actions on items instead of clicking on cells within the row which will allow you to directly type into the selected cell.

#### Option 2

Click on the **Subordinate Cost Item** icon on the Cost Breakdown Structure (CBS) Register toolbar.





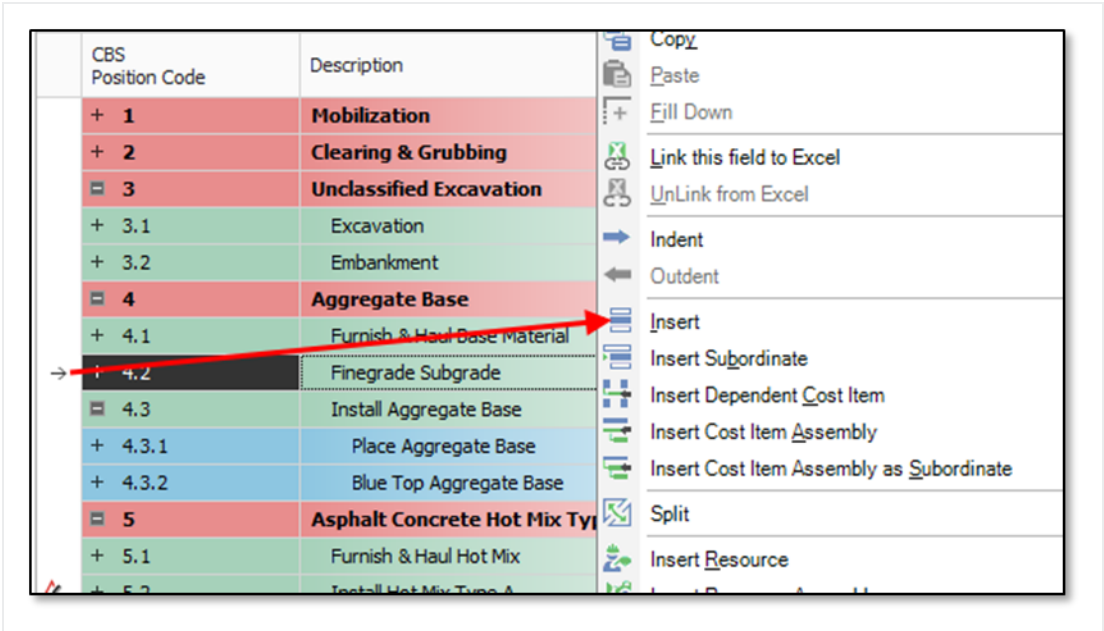
### 5.2.2 Insert Cost Item

You can add cost items at the same level in two different ways.

#### Option 1

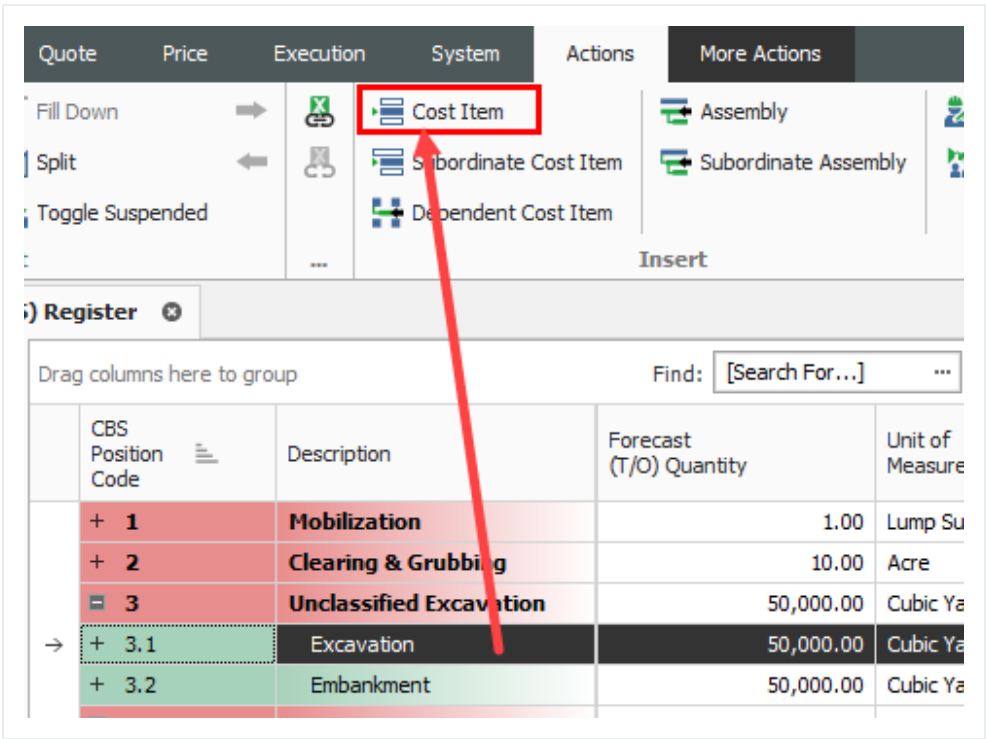
Right click on the row header of the superior cost item and select **Insert**.





Option 2

Click on the **Cost Item** icon on the Cost Breakdown Structure (CBS) Register toolbar.





Because the project you are working in is a “locked” job (where cost items are locked to pay items), your CBS Register will already have level 1 cost items representing each of your pay items, and each cost item will be assigned to its corresponding pay item.

The following step by step walks you through creating a subordinate (child) cost item for one of your level-one cost items.

### Step by Step — Create a Subordinate Cost Item

1. In your job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on a cost item and select **Insert Subordinate**.
  - This creates a new, subordinate cost item below your selected cost item
3. For the subordinate cost item, enter a Description.
4. Add a quantity and select your Unit of Measure.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
	<b>JOB</b>	1.00	Lump Sum
+	<b>Prime Bond</b>	1.00	Lump Sum
+	<b>Price % Add-On</b>	1.00	Lump Sum
+	<b>Job Financing</b>	1.00	Lump Sum
+	<b>Job Management &amp; Equipment</b>	1.00	Lump Sum
+	<b>General Expense</b>	1.00	Lump Sum
+ 1	<b>Mobilization</b>	1.00	LS
+ 2	<b>Clearing &amp; Grubbing</b>	15.00	Acre
→ + 2.1	<b>Clearing</b>	15.00	Acre
+ 3	<b>Excavation</b>	50,000.00	CY
+ 4	<b>10" PVC Pipe</b>	1,000.00	LF

#### TIP

You can create a subordinate at the same level, by right clicking on an equal-level cost item and selecting **Insert**.

### 5.2.3 Move Cost Items

As you develop your estimate, you may need to move cost items around in the Cost Breakdown Structure. To move a cost item:



1. Select the row header of the cost item you wish to move. If you select a superior cost item, it will bring the subordinates along with it.
2. Drag and drop the cost item to the right place in your structure. Notice one of two cursor symbols appears:

The symbol with three equal bars will drop the cost item at the same level as the cost item you drop it on.



The symbol with a subordinate bar will make the cost item become a subordinate to the one you drop it on.





## Exercise 5.1 — Create Cost Items

In this exercise, you will practice creating additional cost items. Create the following cost items, using your E101 – Training Job:

Code	Description	Forecast (T/O) Quantity	Unit of Measure
2.2	Grading	10	Acre
3.1	Excavate	40,000	CY
3.2	Haul	40,000	CY
4.1	Furnish Pipe Materials	1,000	LF
4.2	Excavate-Install-Backfill Pipe	1,000	LF

You should end up with the following results

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
+ 1	<b>Mobilization</b>	1.00	LS
+ 2	<b>Clearing &amp; Grubbing</b>	15.00	Acre
+ 2.1	Clearing	15.00	Acre
+ 2.2	Grading	10.00	Acre
+ 3	<b>Excavation</b>	40,000.00	CY
+ 3.1	Excavate	40,000.00	CY
+ 3.2	Haul	40,000.00	CY
+ 4	<b>10" PVC Pipe</b>	1,000.00	LF
+ 4.1	Furnish Pipe Materials	1,000.00	LF
+ 4.2	Excavate-Install-Backfill Pipe	1,000.00	LF

**Congratulations, you have completed this exercise!**



## 5.3 COSTS AND PRODUCTION

For the cost items you've created, you can now add their costs and production. All information for a cost item is contained in a Cost Item Record.

### 5.3.1 Cost Item Record

You can open the Cost Item Record by either double clicking on a cost item row header, or right clicking and selecting **Open**.

#### Cost Item Record Overview

Name		Description
1	Cost Item Header Information	Provides general information about the cost item. It displays the cost item's take-off quantity, Unit of Measure, and Cost. It also indicates what Cost Source is being used.  The Cost Segment drop-down is used to differentiate estimated costs in the Direct Costs, Job Overhead or Business overhead categories.
2	Costing Area	Section where costs are defined. There are three ways to enter costs: Detail, Plug, and Quote. The Cost Summary tab summarizes whatever costs are defined.  Under the Cost Segment drop down, you can choose
3	Data Blocks	Contains a set of tabs for entering additional information including production, shift arrangements, man-hour factors, notes, and scheduling information.



Cost Item Record

CBS Code:

Optional Code:

Description:

Forecast (T/O) Qty:

Unit of Measure:

Unit Cost:

Total Cost:

Currency:

3

202 0183

Unclassified Excavation

50,000.00

Cubic Yard

\$4.68

\$233,915.81

U.S. Dollar

3.1

3.1

Excavation

50,000.00

Cubic Yard

\$3.00

\$149,922.88

U.S. Dollar

PI Assignment:

PI Line Number:

PI Description:

Cost Segment:

Pay Quantity:

Cost Source:

Alternate:

202 0183

30

Unclassified Excavation

Direct Cost

50,000.00

Detail

BASE

Cost Item Summary

Detail : \$3.00

Plug : \$0.00

Quote : \$0.00

Allocation

Cost Category	Unit Cost	Total Cost	Unadjusted Total Cost	Cost Adjustment Percent	Cost Adjustment Amount	Billing Unit Rate	Total Billing Amount
Total	\$3.00	\$149,922.88	\$149,922.88	0.00	\$0.00	\$3.28	\$163,881.06
> Labor	\$0.66	\$33,170.48	\$33,170.48	0.00	\$0.00	\$0.93	\$46,438.66
> Owned Equipment	\$2.34	\$116,752.40	\$116,752.40	0.00	\$0.00	\$2.35	\$117,442.40
> Rented Equipment	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Supplies	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Materials	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Subcontract	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Fees	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Allowance	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Custom Category1	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00
> Undefined	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00

Employment Setup

Identification

Code: ETWT Type: Construction Equipment Rate

Description: Water Truck

Quantity (Less Waste):

Waste %:

Quantity: 1.00

Productivity Factor: 1.

Cost Driver: Schedule...

Employment Cost

Unit Cost: \$29.60 Total Cost: \$1,302.40

Maintenance Labor Cost

Unit Cost: \$0.00 Total Cost: \$0.00

## 5.3.2 Cost Segments

The Direct Costs, Job Overhead, and Business Overhead cost segments helps to classify the scope of work so you can report on direct vs indirect costs, and accurately control how markup is spread throughout your bid. This differentiation is necessary to effectively price work based on the risk profile of each segment of cost.



Cost Item Record

CBS Code:

Optional Code:

Description:

Forecast (T/O)

2

400

WATER & SEWER

2.1

413(B) 0464

36 Inch RCP Culvert Class III

1,

PI Assignment:

PI Line Number:

PI Description:

413(B) 0464

60

36 Inch RCP Culvert Class III

Cost Item Summary

Detail : \$67.54

Plug : \$0.00

Quote : \$0.00

Allocation

This cost item has subordinate cost items.  
Click the Next button to move to a subordinate cost item and enter Details.

5.3.3 Cost Sources

You can define costs on a cost item in one of three ways, called Cost Sources:

Tab	Description
Detail	This is the recommended costing method, where labor, equipment, and material resources are defined, along with productivity, to determine costs.
Plug	<div>This method allows you to enter a unit or total cost directly, without needing to enter resources or production. <b>This should rarely be used</b>, but does have a couple of use cases:<ul style="list-style-type: none"><li>Place holder value until you get more information (from subcontractors or designers)</li><li>For preliminary estimates when limited information is available</li></ul></div>



Tab	Description
Quote	<div>The Quote cost source is for contractors, subcontractors or vendor quotes.<ul style="list-style-type: none"><li>Creating and managing quotes is covered in <i>Lesson - Quote Management</i></li></ul></div>

Code	Description	Work Hours
ETWT	Water Truck	130.
ED8	Dozer D8	130.
ES623	Scraper 623	261.
ECOMP1	Compactor Smooth Drum	130.
ECOMP2	Compactor Sheeps Foot	130.
LL2	Laborer	130.

Cost Category	Unit Cost	Total Cost
Total	\$1,090.00	\$1,090.00
Labor	\$500.00	\$500.00
Owned Equipment	\$590.00	\$590.00
Rented Equipment	\$0.00	\$0.00

Company:	Acme Guardrail
Contact:	Johnson, Joe
Phone:	555-555-5555
Unit Price:	\$31.00
Bond:	\$0.00
Conditions:	\$0.00
Taxes:	\$0.00
Total:	\$31.00

Detail

Crews,  
Resources, &  
Productivity

Plug

Directly  
Entered Cost

Quote

Subcontracts

On each Cost Item Record, InEight Estimate gives you the option to define both Plug and Detail values on each respective tab.

5.3.3.1 Plug Tab

The Plug tab allows user to input unit or total cost to any of the listed cost categories which can be customized based on company requirements.



**Cost Breakdown Structure (CBS) Register** **Cost Item Record**

CBS Code: Optional Code: Description: Forecast (T/O) Qty: Unit of Measure: Unit Cost: Total Cost: Currency:

17	1200 0100	Toll Booth	1.00	Each	\$25,264.55	\$25,264.55	U.S. Dollar
17.1	0220	Site Preparation	1.00	Lump Sum	\$3,664.55	\$3,664.55	U.S. Dollar

PI Assignment: PI Line Number: PI Description: Cost Segment: Pay Quantity: Cost Source: Alternate:

1200 0100 170 Toll Booth Direct Cost 1.00 Detail BASE

Cgst Item Summary **Detail : \$3,664.55** **Plug : \$2,500.00** Quote : \$0.00 Allocation

Cost Category	Unit Cost	Total Cost
Total	\$2,500.00	\$2,500.00
Labor	\$0.00	\$0.00
Owned Equipment	\$0.00	\$0.00
Rented Equipment	\$0.00	\$0.00
Supplies	\$0.00	\$0.00
Materials	\$0.00	\$0.00
Subcontract	\$2,500.00	\$2,500.00
Fees	\$0.00	\$0.00
Allowance	\$0.00	\$0.00
Custom Category1	\$0.00	\$0.00
Undefined	\$0.00	\$0.00
Billing Rate	\$0.00	\$0.00
Billing Rate Markup	\$0.00	\$0.00

**Cost Item Setup**

Default Pay Rules

Scale 1: Scale 2: Scale 3:

Composite Wage Scale: 100.00 0.00 0.00

For every 8.00 hours worked, pay 8.00 hours

Default Shift Arrangements

Work Hours per Shift: Shifts per Day: Days per Week:

8.00 1.00 5.00

Default Properties

Account Code: 8000

Cost Curve: Linear

### 5.3.3.2 Detail Tab

**Cost Breakdown Structure (CBS) Register** **Cost Item Record**

CBS Code: Optional Code: Description: Forecast (T/O) Qty: Unit of Measure: Unit Cost: Total Cost: Currency:

17	1200 0100	Toll Booth	1.00	Each	\$25,264.55	\$25,264.55	U.S. Dollar
17.1	0220	Site Preparation	1.00	Lump Sum	\$3,664.55	\$3,664.55	U.S. Dollar

PI Assignment: PI Line Number: PI Description: Cost Segment: Pay Quantity: Cost Source: Alternate:

1200 0100 170 Toll Booth Direct Cost 1.00 Detail BASE

Cgst Item Summary **Detail : \$3,664.55** Plug : \$2,500.00 Quote : \$0.00 Allocation

Drag columns here to group Find: [Search For...] Saved views: Previous View

Row Nu...	C...	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Qua...
1	LL2		Laborer			3.00
2	LO1		Operator Class 1			1.00
3	EG14G		Grader 14G			1.00
4	ETWT		Water Truck			1.00
5	LT1		Teamster			1.00

**Cost Item Setup**

Default Pay Rules

Scale 1: Scale 2: Scale 3:

Composite Wage Scale: 100.00 0.00 0.00

For every 8.00 hours worked, pay 8.00 hours

Default Shift Arrangements

Work Hours per Shift: Shifts per Day: Days per Week:

8.00 1.00 5.00

Default Properties

Account Code: 8000

Cost Curve: Linear

Entering both a detailed and plug cost allows you to define costs at a higher summary level initially (Plug tab), and then define more detail as the estimating process progresses (Detail tab). You can review and compare your plug and detail values by toggling between tabs, but your cost item will only contribute the total cost from one of the tabs based on which cost source is selected.

You control which cost is used by selecting **Detail** or **Plug** in the Cost Source field on the Cost Item Record.



The screenshot displays the 'Cost Item Setup' dialog box in the InEight Estimate software. The 'Cost Source' dropdown menu is open, showing options: 'Plug', 'Description', 'Detail', and 'Quote'. The 'Plug' option is highlighted, and a red arrow points to it. The background shows a table with columns for Quantity, Waste %, and Quota.

Forecast (T/O) Qty:	Unit of Measure:	Unit Cost:	Total Cost:	Currency:
1.00	Each	\$24,100.00	\$24,100.00	U.S. Dollar
1.00	Lump Sum	\$2,500.00	\$2,500.00	U.S. Dollar

Cost Segment: Direct Cost Pay Quantity: 1.00 Cost Source: Plug Alternate: BASE

Quote : \$0.00 Allocation

aved views: Previous View

Quantity (Less Waste)	Waste % Add-on	Qua...
3.00		E
1.00		E
1.00		E
1.00		E
1.00		E

Cost Item Setup

Default Pay Rules

Composite Wage Scale

For every 8.00 hours

Default Shift Arrangement

Work Hours per Shift: 8.00

Default Properties

Account Code: 8000

Cost Curve: Linear

**TIP**

The Quote Cost Source can only be selected from the Quote Comparison & Award form. See Lesson 8 – Quote Comparison.

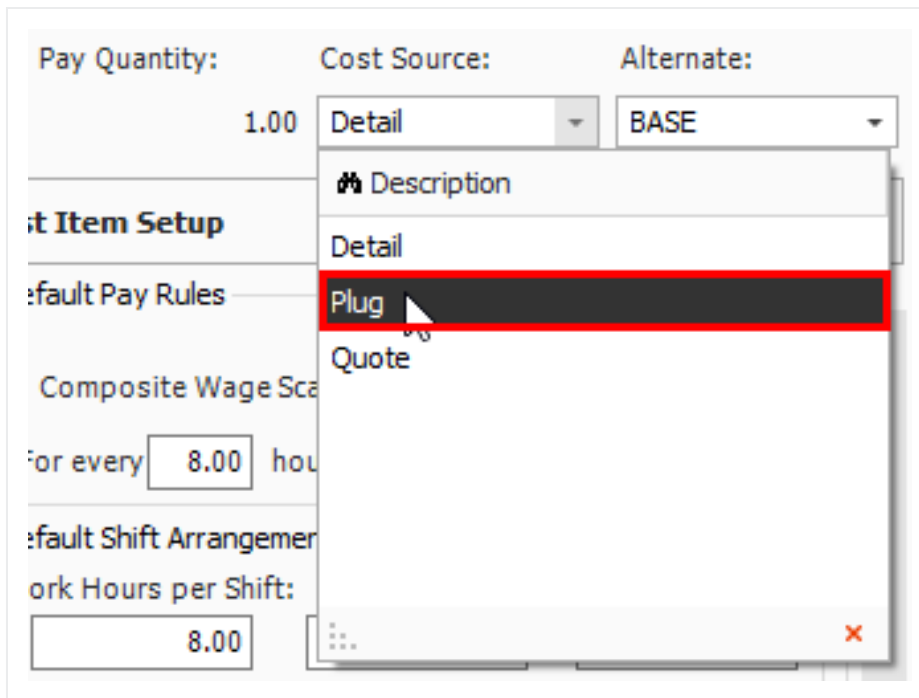
### 5.3.4 Plug Costs

The following steps walk you through defining a plug cost on a cost item.

#### Step by Step — Define a Plugged Cost

1. In your job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the **row header** for a cost item and select **Open**.
3. In the **Cost Source** drop-down field select **Plug**.





4. In the left section of the Cost Item, select the **Plug** tab.
  - This gives you the list of all cost categories, where you can enter either a Unit or Total Cost
5. Click in the **Labor Unit Cost** field and enter a **numeric value**. Click in the **Owned Equipment Unit Cost** field and enter a **numeric value**.



Cost Item Summary		Detail : \$0.00	Plug : \$20,000.00	
Cost Category		Unit Cost	Total Cost	
▼	Total	\$20,000.00	\$20,000.00	
>	Labor	\$10,000.00	\$10,000.00	
>	Owned Equipment	\$10,000.00	\$10,000.00	
>	Rented Equipment	\$0.00	\$0.00	
>	Supplies	\$0.00	\$0.00	
>	Materials	\$0.00	\$0.00	
>	Subcontract	\$0.00	\$0.00	
>	Fees	\$0.00	\$0.00	
>	Allowance	\$0.00	\$0.00	
	Custom Category 1	\$0.00	\$0.00	
	Undefined	\$0.00	\$0.00	
	Billing Rate	\$20,000.00	\$20,000.00	
	Billing Rate Markup	\$0.00	\$0.00	
	Billing Rate Markup %	0.00	0.00	

- The Total Cost for the cost item should now auto-calculate to be \$20,000.00

1	1000	Mobilization	1.00	LS	\$20,000.00	\$20,000.00	U.S. Dollar
---	------	--------------	------	----	-------------	-------------	-------------

### 5.3.5 Detail Costs

The **Detail** cost method is also defined on the Cost Item Record. On the Detail tab, you can add resources (labor, equipment, and material) and define production.

On the Production tab (right side of screen), define production by entering one of the following:

- A duration, or
- A unit per duration, or
- A duration per unit



When you enter a production value, all the other production fields will auto-fill based on what you entered.

**Resources**

Row	C...	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Meas...	Product...	W...	Pay H...	Unit Cost
1	LT1		Teamster			1.00	Each	1.00	80.00	80.00	\$30
2	ETLT		Lowboy Trailer			1.00	Each	1.00	80.00	80.00	\$33
3	ETTT		Tractor Truck			1.00	Each	1.00	80.00	80.00	\$78

**Production**

Duration Driven Resources

[Customize Display](#)

Days: 10.00  
Shifts: 10.00  
Hours: 80.00  
Man-Hours: 80.00  
Equip-Hours: 160.00

The hours defined on the Production tab drive the labor and equipment resources you employ on the left, multiplying their unit costs by the production hours.

When you employ material resources, their costs are driven by the quantity you enter into the quantity field.

The Total Cost of each resource is added together to give you the Total Cost for the cost item.

**Cost Breakdown Structure (CBS) Register** **Cost Item Record**

CBS Code: 1 Optional Code: 641 0100 Description: Mobilization Forecast (T/O) Qty: 1.00 Unit of Measure: Lump Sum Unit Cost: \$11,909.51 Total Cost: \$11,909.51 Currency: U.S. Dollar

PI Assignment: 641 0100 PI Line Number: 10 PI Description: Mobilization Cost Segment: Direct Cost Pay Quantity: 1.00 Cost Source: Detail Alternate: BASE

**Resources**

Waste % Add-on	Cost Driver	Quantity (Less Waste)	Productivity Factor	Total Cost (Forecast)	Curre...	Cost Curve	Work Hours Rules
1	CI Duration		1.00	\$2,449.51	U.S. Dollar	Employed C...	
2	CI Duration		1.00	\$2,688.00	U.S. Dollar	Employed C...	
3	CI Duration		1.00	\$6,272.00	U.S. Dollar	Employed C...	

**Production**

Duration Driven Resources

[Customize Display](#)

Days: 10.00  
Shifts: 10.00  
Hours: 80.00  
Man-Hours: 80.00  
Equip-Hours: 160.00

### 5.3.5.3 Add Cost Detail

The following steps walk you through adding resources and production on a cost item.





Step by Step — Add Cost Detail

- 1. Using your job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
- 2. Right click on the **row header** for a cost item and select **Open**.
- 3. Select the **Detail** tab.
  - Notice there is no cost on the Detail tab since no cost detail is defined

Cgst Item Summary											
Detail : \$0.00   Plug : \$0.00   Quote : \$0.00   Allocation											
Drag columns here to group											
Find: [Search For...]   Saved views: Previous View											
Row Nu...	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Mea...	Product... Factor	W... H...	Pay Hours	Unit Cost
→											Total Cost (Forec...

- 4. A blank row is available to define your costs. With your cursor in the code field, click the **Resource Selection** icon to open the Resource Selection Register.

Drag columns here to group			
	Row Number	Code	Resource Assembly
			

- 5. On the **Labor** tab, select a **labor resource**.
- 6. Select **OK**.



Actions

AllLaborConstruction EquipmentRented Construction EquipmentInstalled MaterialInstalled EquipmentSuppliesUnique

Drag columns here to groupFind: [Search For...]Saved views: Previous View

Resource Code	Description	Resource File Description	Unit of Measure	Productivity Factor	Default Quantity	Resource Type
+ LIW1	Iron Worker	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LIW2	Iron Worker Foreman	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LL1	Labor Apprentice	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LL2	Laborer	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LL3	Labor Foreman	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LMECH	Mechanic	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LO1	Operator Class 1	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LO2	Operator Class 2	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LO3	Operator Class 3	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate
+ LO4	Operator Foreman	Standard Labor Rate File	Hour	1.00	1.00	Labor Rate

124

OKCancel

- The labor resource you selected is now employed on the cost item
- In the new blank row, click in the **Code** field and click on the **Resource Selection** icon to open the Resource Selection Register.
  - Select the **Labor** tab, then select a **labor resource**.
  - Click **OK**.
  - In the new blank row, click in the **Code** field and click on the **Construction Equipment** tab, then select an **equipment resource**.
  - Click **OK**.

Drag columns here to group


Row Nu...	Code	Resource Assembly	Description	Quantity	Unit of Mea...
+ 1	LL2		Laborer	1.00	Each
+ 2	LO1		Operator Class 1	1.00	Each
+ 3	EL988		Loader 988	1.00	Each
*					


- Because these are duration-based resources, you need to enter a Production value. From the lower-right section of the form, select the **Production** tab.





Man Count:2.00


Equip Count:1.00


 Cos...


 Pro...

 Ma...

 Res...

 Sch...

 Use...

 B

13. Enter a **numeric value** in the Days field, then press **Tab**.
- Notice the red arrow indicating where production was defined

• Notice that the Total Cost of the cost item is defined, based on the resources and productivity you defined

2.1

Clearing

15.00

Acre

\$553.10

\$8,296.52

U.S. I

PI Assignment: 2000

PI Line Number: 2

PI Description: Clearing & Grubbing

Cost Segment: Direct Cost

Pay Quantity: 10.00

Cost Source: Detail

Alternate: BASE

Cgst Item Summary

Detail : \$553.10

Plug : \$0.00

Quote : \$0.00

Allocation

Production

Duration Driven Resources

Customize Display

Days: 8.00

Shifts: 1

Hours: 64.00

Man-Hours: 128.00

Equip-Hours: 64.00

Qty Driven Hourly Resources

Row Nu...	Code	Resource Assembly	Description
+	1	LL2	Laborer
+	2	LO1	Operator Class
→	3	EL988	Loader 988
*			

14. Next, adjust the production by entering a **numeric value** in the Acre/Day field.

2

2000

Clearing & Grubbing

15.00

Acre

\$1,037.06

\$15,555.97

U.S. Dollar

2.1

Clearing

15.00

Acre

\$1,037.06

\$15,555.97

U.S. Dollar

PI Assignment: 2000

PI Line Number: 2

PI Description: Clearing & Grubbing

Cost Segment: Direct Cost

Pay Quantity: 10.00

Cost Source: Detail

Alternate: BASE

Cgst Item Summary

Detail : \$1,037.06

Plug : \$0.00

Quote : \$0.00

Allocation

Production

Duration Driven Resources

Customize Display

Days: 15.00

Shifts: 15.00

Hours: 120.00

Man-Hours: 240.00

Equip-Hours: 120.00

Acre/Day: 1.00

Qty Driv Hour Resour

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

Row Nu...	Code	Resource Assembly	Description	Quantity (Less Waste)
+	1	LL2	Laborer	
+	2	LO1	Operator Class 1	
→	3	EL988	Loader 988	
*				

15. Click **OK** to close the record.



### 5.3.5.4 Add Assembly

#### Step by Step — Define Cost Detail by Adding an Assembly

1. Using your job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the row header for a cost item and select **Open**.
3. Select the **Detail** tab.
  - A blank row is available to define your costs
4. With your cursor in the Resource Assembly field, click the **Resource Assembly Selection** icon to open the Resource Assembly Selection Register.

Cost Item Summary | Detail : \$0.00 | Plug : \$0.00 | Quote : \$0.00

Drag columns here to group

Row Nu...	Code	Resource Assembly	Description

A red arrow points to the Resource Assembly Selection icon (a small green and blue icon) located in the Resource Assembly field of the first row.

5. Select a **labor assembly**, then select **OK**.



- The assembly you selected is now employed on the cost item

2

2000

Clearing & Grubbing

2.2

Grading

PI Assignment:

PI Line Number:

PI Description:

2000

2

Clearing & Grubbing

Cgst Item Summary

Detail : \$0.00

Plug : \$0.00

Quote : \$0.00

Allocation

Drag columns here to group

Row Num...	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Qua...
→	1	CGRAD	Grading Crew			
→	1	ETWT	Water Truck			0.50 Each 1.00
	2	LL2	Laborer			1.00 Each 1.00
	3	LO3	Operator Class 3			2.00 Each 1.00
	4	EG14G	Grader 14G			1.00 Each 1.00
	5	ECOMP1	Compactor Smooth Drum			1.00 Each 1.00
	6	LO4	Operator Foreman			1.00 Each 1.00

6. Because this crew includes duration-based resources, you need to enter a Production value.  
Select the **Production** tab.
7. Enter a **numeric value** in the Acre/Day field, then press **Tab**.

Production

Qty Driven Hourly Resources

Duration Driven Resources

Customize Display

Days: 10.00 0.00

Shifts: 10.00 0.00

Hours: 80.00 0.00

Man-Hours: 320.00 0.00

Equip-Hours: 200.00 0.00

Acre/Day: 1.00 0.00

Acre/Shift: 0.13 0.00

Acre/Hour: 0.03 0.00

Acre/Man-Hr: 0.03 0.00

Acre/Equip-Hr: 0.05 0.00

Days/Acre: 1.00 0.00

Shifts/Acre: 1.00 0.00



2

2000

Clearing & Grubbing

15.00

Acre

\$2,301.20

\$34,518.06

U.S. t

2.2

Grading

10.00

Acre

\$1,896.21

\$18,962.09

U.S. t

PI Assignment:

PI Line Number:

PI Description:

Cost Segment:

Pay Quantity:

Cost Source:

Altern

2000

2

Clearing & Grubbing

Direct Cost

6.67

Detail

BASE

Cost Item Summary

Detail : \$1,896.21

Plug : \$0.00

Quote : \$0.00

Allocation

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

Row Num...	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quan...
→	1	CGRADE	Grading Crew			
	→	1	ETWT	CGRADE	Water Truck	
		2	LL2	CGRADE	Laborer	
		3	LO3	CGRADE	Operator Class 3	
		4	EG14G	CGRADE	Grader 14G	

Production

Qty

Res

Duration Driven Resources

[Customize Display](#)

Days: 10.00

Shifts: 10.00

Hours: 80.00

Man-Hours: 320.00

Equip-Hours: 200.00

Acre/Day: 1.00

- Notice the Total Cost of the cost item is defined, based on the resources included in the assembly and the productivity you defined



## Exercise 5.2 — Define Cost Detail

For cost items you create in InEight Estimate, you need to add resources, assemblies and production to define their costs. In this exercise, you will practice defining cost details. Complete the following steps, using your E101 – Training Job:

### Add the following resources to 3.1 Excavate cost item

Code	Description	Quantity
LO1	Operator Class 1	1
LL2	Laborer	2
LL3	Labor Foreman	1
EX225	Excavator 225	1
<b>CY/Hour</b>	<b>400</b>	

### Add the following resources to 3.2 Haul cost item

Code	Description	Quantity
LO1	Operator Class 1	1
LL2	Laborer	2
LL3	Labor Foreman	1
LT1	Teamster	1
EL950	Loader 950	1
ETDT	Dump Truck	1
EX225	Excavator 225	1

### Add the following production value to cost item

<b>CY/Hour</b>	<b>400</b>
----------------	------------



### Add the following resources to 4.1 Furnish Pipe Materials cost item

Code	Description	Quantity
MPP10	Pipe 10" PVC SDR21	1,000 with 5% Waste % Add-on = 1,050 LF

### Add the following assembly to 4.2 Excavate-Install-Backfill Pipe cost item

Resource Assembly	Description	Quantity
CPIPE	Pipe Crew	1

### Add the following production value to cost item

Days	3
------	---

### You should end up with the following results

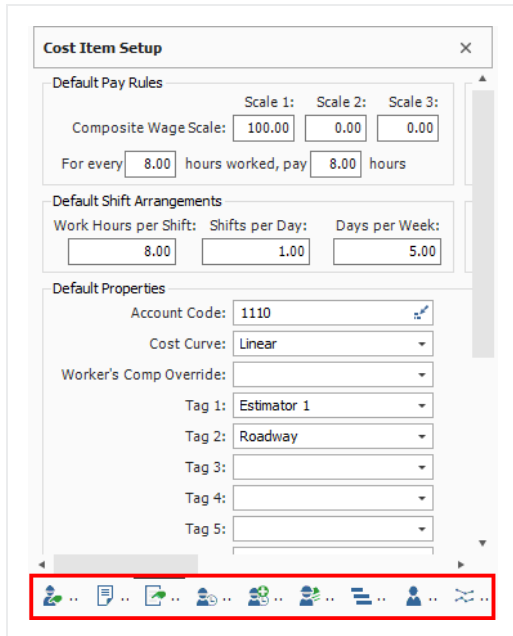
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
+ 1	<b>Mobilization</b>	1.00	Lump Sum	\$20,000.00	\$20,000.00
+ 2	<b>Clearing &amp; Grubbing</b>	15.00	Acre	\$2,301.20	\$34,518.06
+ 2.1	Clearing	15.00	Acre	\$1,037.06	\$15,555.97
+ 2.2	Grading	10.00	Acre	\$1,896.21	\$18,962.09
+ 3	<b>Excavation</b>	40,000.00	CY	\$1.52	\$60,723.96
+ 3.1	Excavate	40,000.00	CY	\$0.51	\$20,587.04
+ 3.2	Haul	40,000.00	CY	\$1.00	\$40,136.93
+ 4	<b>10" PVC Pipe</b>	1,000.00	LF	\$11.89	\$11,893.33
+ 4.1	Furnish Pipe Materials	1,000.00	LF	\$3.54	\$3,538.08
+ 4.2	Excavate-Install-Backfill Pipe	1,000.00	LF	\$8.36	\$8,355.25

### Congratulations, you have completed this exercise!



## 5.4 COST ITEM DETAILS

The Cost Item Record contains other tabs (called Data Blocks) in addition to the Production tab, for storing and calculating information specific to that cost item.



The screenshot shows the 'Cost Item Setup' dialog box with three main sections: Default Pay Rules, Default Shift Arrangements, and Default Properties. The Default Pay Rules section includes fields for Composite Wage Scale (100.00), Scale 1 (0.00), Scale 2 (0.00), Scale 3 (0.00), and For every 8.00 hours worked, pay 8.00 hours. The Default Shift Arrangements section includes fields for Work Hours per Shift (8.00), Shifts per Day (1.00), and Days per Week (5.00). The Default Properties section includes fields for Account Code (1110), Cost Curve (Linear), Worker's Comp Override, and five tags (Tag 1: Estimator 1, Tag 2: Roadway, Tag 3, Tag 4, Tag 5). A red box highlights the bottom toolbar containing icons for various actions.

You can add to or adjust the information on these tabs as needed, based on the cost item's circumstances. In this section, you will review three of the tabs (in addition to the Production tab) you will likely use most often: Cost Item Setup, Notes, and Man-Hour Factors.

### 5.4.1 Cost Item Setup

On the data block where the Production tab was found, there is also a Cost Item Setup tab where you can adjust wage scale and shift arrangements for a specific cost item.



**Cost Item Setup**

**Default Pay Rules**

	Scale 1:	Scale 2:	Scale 3:
Composite Wage Scale:	100.00	0.00	0.00

For every 8.00 hours worked, pay 8.00 hours

**Default Shift Arrangements**

Work Hours per Shift:	Shifts per Day:	Days per Week:
8.00	1.00	5.00

**Default Properties**

Account Code: 1110

Cost Curve: Linear

Worker's Comp Override:

Tag 1: Estimator 1

Tag 2: Roadway

Tag 3:

Tag 4:

Tag 5:

Quantity Driver: Pay Item

Quote Group Tag:

Minority Goal Allowance: 100.00

Phase Code:

When man-count changes: ☒ Change UM / Man-Hour ☐ Change Days

Suspend: ☐

The composite wage scale and work and pay hours are used in the calculation of the cost of employed labor resources. The data reported on the Default Pay Rules tab is, by default, the composite wage scale and work and pay hours defined on the Job Properties - Cost Basis tab for the current job.

These settings can be modified from the default on a cost item-by-cost item basis.

The Pay Rules for cost items can also be defined or modified on the Cost Breakdown Structure (CBS) Register in the Scale 1, Scale 2, Scale 3, Work Hours Rules, and/or Pay Hours Rules columns in the row of the subject cost item.

## Step by Step — Adjust Shift Arrangements

1. Using your job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the row header for a cost item and select **Open**.



3. Select the **Cost Item Setup** tab in the lower-right portion of the form (the tab name may be abbreviated).
4. In the Default Pay Rules data block, adjust your wage scale to a **numeric value** for Scales 1 and 2.

15.00 | Acre | \$1,079.93 | \$16,198.97 | U.S. Dollar

Cost Segment: Direct Cost | Pay Quantity: 10.00 | Cost Source: Detail | Alternate: BASE

**Cost Item Setup**

Default Pay Rules

Composite Wage Scale: Scale 1: 80.00 | Scale 2: 20.00 | Scale 3: 0.00

For every 8.00 hours worked, pay 8.00 hours

Default Shift Arrangements

Work Hours per Shift: 8.00 | Shifts per Day: 1.00 | Days per Week: 5.00

Default Properties

Drag columns here to group							
Find: [Search For...]		Saved views: Previous View					
Row Number	Unit Cost	Code	Resource Assembly	Description	Quantity	Unit of Measure	Quantity (Less)
1	\$31.22	LL2		Laborer	1.00	Each	

5. Under the Composite Wage Scale, adjust the hours so that for every **10** hours worked, pay **10** hours.

**Cost Item Setup**

Default Pay Rules

Composite Wage Scale: Scale 1: 80.00 | Scale 2: 20.00 | Scale 3: 0.00

For every 10.00 hours worked, pay 10.00 hours

Default Shift Arrangements

Work Hours per Shift: 8.00 | Shifts per Day: 1.00 | Days per Week: 5.00

6. In the **Default Shift Arrangements** data block, change the Work Hours per Shift to **10**. Leave Shifts per Day at **1** and Days per Week at **5**.



**Cost Item Setup**

**Default Pay Rules**

Scale 1: 80.00   Scale 2: 20.00   Scale 3: 0.00

Composite Wage Scale: 80.00   20.00   0.00

For every 10.00 hours worked, pay 10.00 hours

**Default Shift Arrangements**

Work Hours per Shift: 10.00   Shifts per Day: 1   Days per Week: 5.00

- Notice that your hours did not change on the cost item (they will remain constant)
- However, if you go back to the Production tab, you will also see that it automatically adjusted your other production values based on the new settings

**Production**

Duration Driven Resources	Qty Driven Hourly Resources
Days: 12.00	0.00
Shifts: 12.00	0.00
Hours: 120.00	0.00
Man-Hours: 240.00	0.00
Equip-Hours: 120.00	0.00
Acre/Day: 1.25	0.00
Acre/Shift: 1.25	0.00
Acre/Hour: 0.13	0.00
Acre/Man-Hr: 0.06	0.00
Acre/Equip-Hr: 0.13	0.00
Days/Acre: 0.80	0.00
Shifts/Acre: 0.80	0.00

## 5.4.2 Notes

On the Cost Item Record, you can enter any cost item-specific instructions, parameters, or general information on the Notes tab. Below are a few examples of the kinds of notes you might enter:

- **For a Hauling cost item:** *There should be very little waste. If so, we can spread it out in the right of way at MP 111*
- **For a Structural Excavation and Backfill item:** *The backfill cannot be the native material. Have to use clean base rock*
- **For an Underground Pipe cost item:** *The average depth is close to 10 ft.*

### TIP

You can use the Notes tab to reference cost item changes (e.g., changing shift arrangements, changing a resource rate).



## 5.4.3 Man-Hour Factors

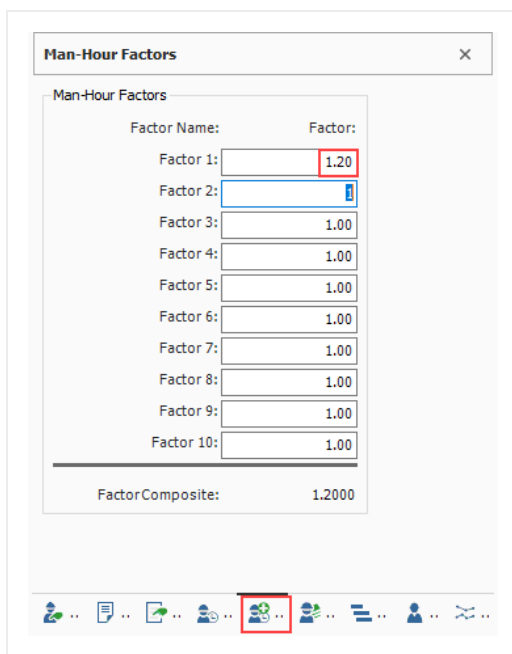
For items that have known risks or potential resource concerns, you can apply a Man-Hour Factor to take those risks into consideration.

Man-Hour factors are applied on the Man-Hour Factors tab on the Cost Item Record. Factors are applied in relation to 1, where slower production is greater than 1 and faster production is less than 1.

**TIP**

Man-Hour Factors affect both Labor and Equipment Hours.

For example, if you predict production to be 20% slower due to weather concerns, you would type 1.2 in the weather factor field.

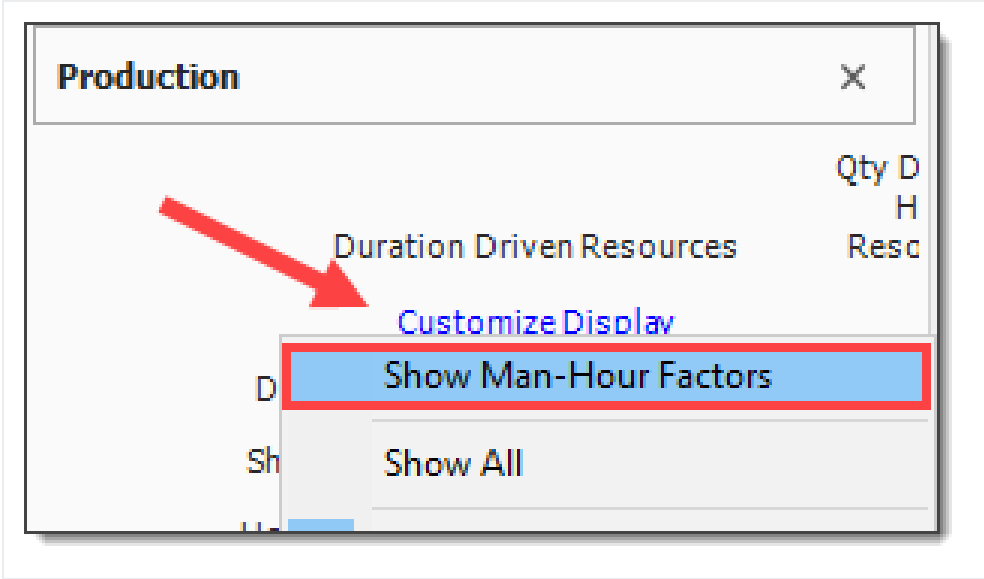


Factor Name:	Factor:
Factor 1:	1.20
Factor 2:	
Factor 3:	1.00
Factor 4:	1.00
Factor 5:	1.00
Factor 6:	1.00
Factor 7:	1.00
Factor 8:	1.00
Factor 9:	1.00
Factor 10:	1.00
Factor Composite:	1.2000

Even after defining a Man-Hour Factor, the Production tab will still display the original Production values.

- To see the factored Production values, click the **Customize Display** link on the **Production** tab and select **Show Man-Hour Factors**
- Both original and factored production are then displayed on the Production tab





**TIP**

You can apply Man-Hour Factors to multiple cost items at once by Multi-Editing selected cost items on the CBS Register.

5.4.4 Unique Identifier

You may have noticed when you made changes on the Cost Item Setup tab, that the fields you changed and the Cost Item Setup tab became highlighted, indicating they were altered from their original state.



Cost Item Setup

Default Pay Rules

Scale 1: 80.00Scale 2: 20.00Scale 3: 0.00

Composite Wage Scale: 80.0020.000.00

For every 8.00 hours worked, pay 8.00 hours

Default Shift Arrangements

Work Hours per Shift: 8.00Shifts per Day: 1.00Days per Week: 5.00

Default Properties

Account Code:

Cost Curve: Linear

Worker's Comp Override:

Tag 1:

Tag 2:

Tag 3:

Tag 4:

Tag 5:

Quantity Driver: Superior CI

Quote Group Tag:

Minority Goal Allowance: 100.00

Phase Code:

When man-count changes: ☒ Change UM / Man-Hour☐ Change Days

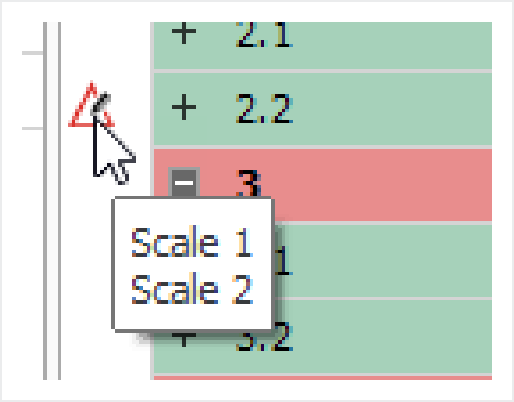
Suspend: ☐

On the CBS Register, the cost item you edited now has a Unique Identifier in the row header indicating the cost item was altered from the default values set in the project job properties or in the project library of resources rates.

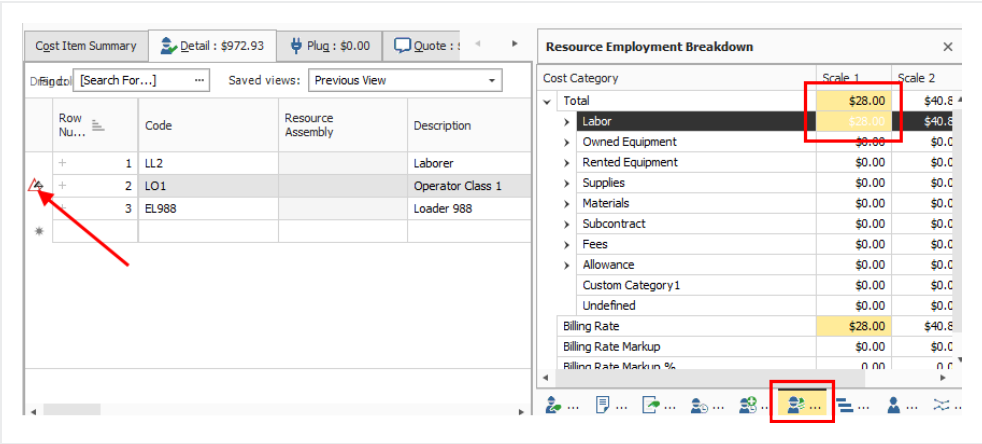
		JOB	
id	+	Prime Bond	PRIME
add-On	+	Price % Add-On	PRICE
iding	+	Job Financing	FINAN
igement	+	Job Management & Equipment	JOB M
xpense	+	General Expense	GENE
on	+ 1	Mobilization	1000
& Grubb	+ 2	Clearing & Grubbing	2000
on	+ 2.1	Clearing	
ype	+ 2.2	Grading	
	+ 3	Excavation	3000
	+ 3.1	Excavate	
	+ 3.2	Haul	

If you hover over the identifier, a pop-up menu appears indicating what data points were changed.





This same identifier will show up for resources as well, if you make changes to the employed resource’s cost to be different than the original resource rate imported from the Resource Rate Register.



5.4.4.1 Highlight Unique (Delta) Toggle

You can turn the highlighting of unique resource and cost item fields off and on from the Actions menu of the Cost Item Record, under the View section.







With CI Quantity as your cost driver for the Operator, you can adjust the Work Hours manually, where previously that column was read-only.

Let's say you want your Operator to work specifically 80 hours.

Drag columns here to group

Find: [Search For...] ... Saved views: Previc

Row Number	Code	Resource Assembly	Description	Quantity	Unit of Mea...	Unit Cost	Work Hours	Pay Hours	Waste % Add-on	Cost Driver
1	LL2		Laborer	0.50	Each	\$29.00	80	60.00		CI Quantity
2	LO1		Operator Clas...	1.00	Each	\$29.94	120.00	120.00		CI Duration
3	EL988		Loader 988	1.00	Each	\$73.75	120.00	120.00		CI Duration

\*

However, since the resource is now quantity driven, if you change the Forecast (T/O) Quantity to 50 you will see that the work hours will still adjust from 12 to 40.

Cost Breakdown Structure (CBS) Register Cost Item Record Cost Item Record

CBS Code: 2.2 Optional Code: Clearing Description: Forecast (T/O) Qty: 50.00 Unit of Measure: Cubic Yard Unit Costs: \$1,156.70 Total Costs: \$57,835.17 Currency: U.S. Dollar

PI Assignment: 201 0102 PI Line Number: 20 PI Description: Clearing & Grubbing Cost Segment: Direct Cost Pay Quantity: 50.00 Cost Source: Detail Alternate: BASE

Cgst Item Summary Detail: \$1,156.70 Plug: \$0.00 Quote: \$0.00 Allocation

Drag columns here to group

Find: [Search For...] ... Saved views: Previous View

Row Number	Code	Resource Assembly	Description	Quantity	Unit of Mea...	Unit Cost	Work Hours	Pay Hours	Waste % Add-on	CI
1	LL2		Laborer	0.50	Each	\$29.00	240.00	240.00		C
2	LO1		Operator Clas...	1.00	Each	\$29.94	480.00	480.00		C
3	EL988		Loader 988	1.00	Each	\$73.75	480.00	480.00		C

\*

Production

Duration Driven Resources Factored Duration Driven Resources Qty Driv

Customize Display (x 1,200%)

Days: 40.00 48.00 48.

Shifts: 40.00 48.00 48.

Hours: 400.00 480.00 480.

Man-Hours: 400.00 480.00 240.

Equip-Hours: 400.00 480.00 0.

If you want it set at 80 hours no matter what changes you make to your quantity, you can change the cost driver to Fixed. Then when you change the Forecast Quantity to 500, the work hours for the Operator will not change and will remain at 80 hours as shown below.

CBS Code: 2.2 Optional Code: Clearing Description: Forecast (T/O) Qty: 500.00 Unit of Measure: Cubic Yard

PI Assignment: 201 0102 PI Line Number: 20 PI Description: Clearing & Grubbing Cost Segment: Direct Cost

Cgst Item Summary Detail: \$106.39 Plug: \$0.00 Quote: \$0.00 Allocation

Drag columns here to group

Find: [Search For...] ... Saved views: Previous View

Code	Resource Assembly	Description	Quantity	Unit of Mea...	Unit Cost	Work Hours	Pay Hours	Waste % Add-on	Cost Driver	Quantity (Less Waste)
1	LL2	Laborer	0.50	Each	\$29.00	80.00	80.00		Fixed	
2	LO1	Operator Clas...	1.00	Each	\$29.94	480.00	480.00		CI Duration	
3	EL988	Loader 988	1.00	Each	\$73.75	480.00	480.00		CI Duration	

\*

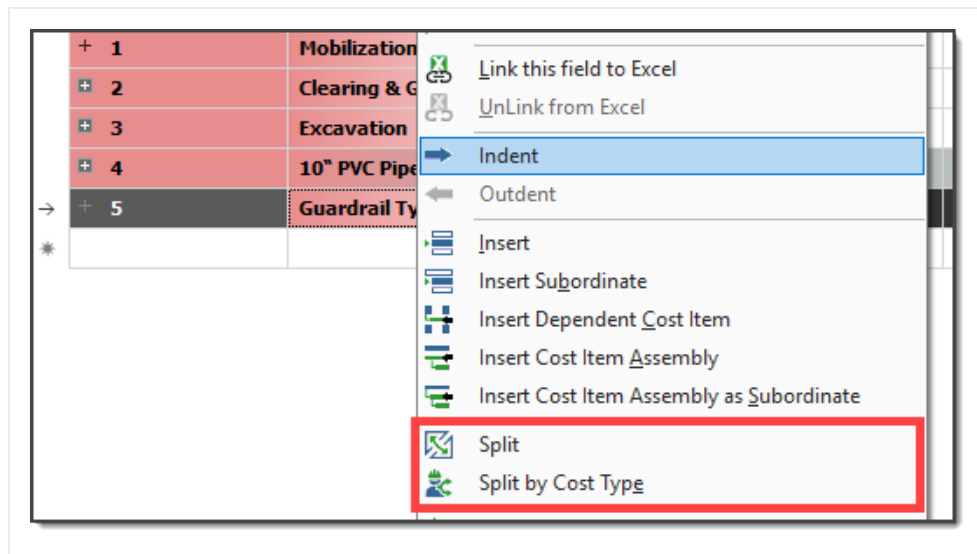
If you followed along and made any adjustments to cost item 2.1 Clearing, change the Cost Driver for the Operator resource back to **CI Duration** and the Work Hours back to **100**.



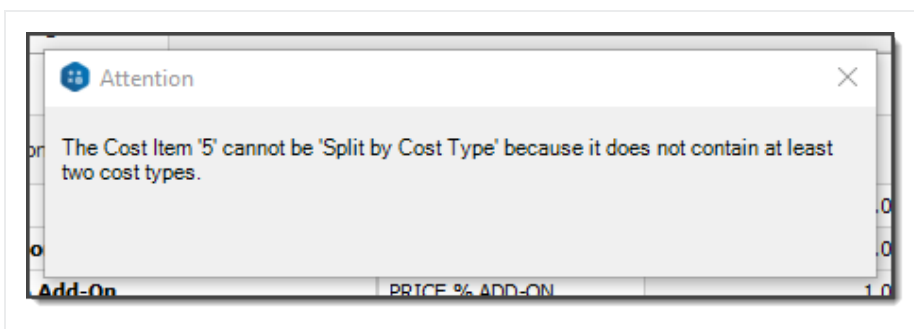
### 5.4.5.2 Split by Cost Type

It is common for an estimate to progress through multiple levels of detail. Often a high-level estimate for a particular scope of work consists of a single cost item inclusive of the entire cost of that work in a single line item. As the estimate is further refined, more detail is added and at times it can become necessary to split a cost item by the four main types of costs that make it up, such as separating the material cost from the installation cost.

The Split by Cost Type feature gives you the ability to select a cost item or a collection of cost items, and then separate any of the labor, equipment, material, or subcontract costs into separate cost items.

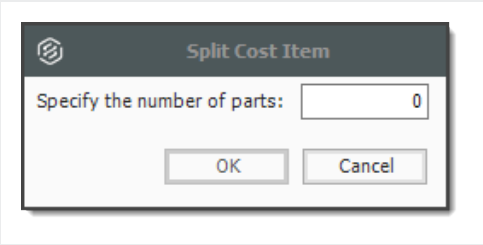


- Right click on a new Cost Item under Guardrail Type 2, and select **Split by Cost Item**. You can use this option if there are at least two types. If not, you will get this pop-up:

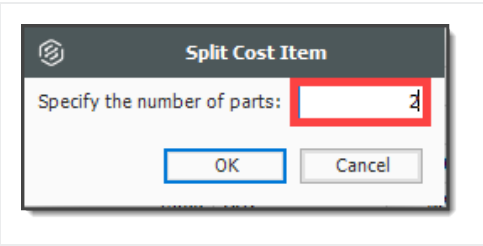


Alternatively, click on **Split**.

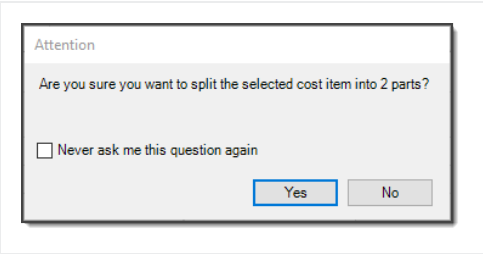





- Enter the number of parts to split and click OK



- You will be asked if you want to proceed. If so, click Yes



The end-result will automatically add subordinate rows which you can now edit.

 5	Guardrail Type 2
+ 5.1	Guardrail Type 2
+ 5.2	Guardrail Type 2

### 5.4.6 Suspend Cost Items

The Suspend feature allows you to turn cost items on and off in order to perform “what-if?” analysis or evaluate alternative approaches to the work.

A cost item can be suspended in InEight Estimate for various reasons including the following:

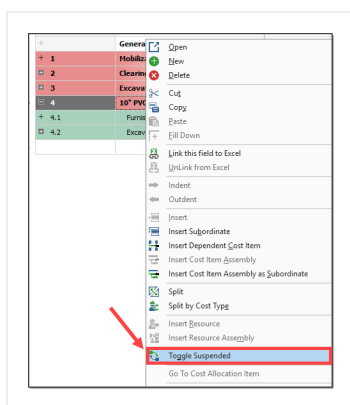


- Manually suspended cost items
- Suspended parent
- Parent with cost source that is not Detail (plugged or quoted)
- Parent cost item with a zero quantity
- Pay item is suspended
- Allocated cost items
- Alternate scenarios:
  - Overridden by another alternate
  - Alternative is not active

Suspended cost items do not contribute any cost to the job's total value. Suspended items can be unsuspended at anytime in order to be included in the total project value.

## Step by Step — Suspend a Cost Item

1. On the **Cost Breakdown Structure (CBS) Register**, select a **cost item**.
2. Right click on the selection and select **Toggle Suspended** from the menu.
  - You can also select Toggle Suspended under the Edit section of the Actions tab up above
  - You can also suspend cost items by checking the Suspend checkbox on the Cost Item Setup tab of a cost item record



- If a superior cost item is suspended, its subordinate cost items are automatically suspended as well



+ 3.1	Excavate	40,000.00	LT
+ 3.2	Haul	40,000.00	CY
<b>4</b>	<b>10" PVC Pipe</b>	1,000.00	LF
+ 4.1	Furnish Pipe Materials	1,000.00	LF
+ 4.2	Excavate-Install-Backfill	1,000.00	LF

- The costs associated with these cost items will no longer contribute to the estimate

### 5.4.6.3 Editable Man-Hour Factors in Suspended Cost Items

You can edit Man-Hour Factors for a suspended cost item by creating and maintaining cost items, including Man-Hour Factors. This can be accomplished in a suspended state while having the scope of work included in your estimate. The cost to contribute is excluded from the scope of work until you are ready to make it part of your estimate.

The screenshot shows the 'Cost Breakdown Structure (CBS) Register' window. The main table lists cost items with columns for CBS Code, Optional Code, Description, Forecast (TQ) Qty, Unit of Measure, Unit Cost, Total Cost, and Currency. A cost item '4' with description '10" PVC Pipe' is highlighted. Below the main table, there are sections for 'PI Assignment', 'Cost Segment', 'Pay Quantity', 'Cost Source', and 'Alternate'. A 'Man-Hour Factors' dialog box is open on the right, showing a list of factors (Factor 1 through Factor 5) with input fields for their values. The dialog box has 'OK', 'Cancel', '< Prev', and 'Next >' buttons at the bottom.

### 5.4.6.4 Unsuspend a Cost Item

Follow the step by step below to unsuspend a cost item.

#### Step by Step — Unsuspend a Cost Item

1. On the Cost Breakdown Structure (CBS) Register, select a **cost item**.
2. Right click on the selection and choose **Toggle Suspended**.



- You can also select Toggle Suspended from the Edit section of the Actions tab
- You can also unsuspend cost items by unchecking the Suspend checkbox on the Cost Item Setup tab of a cost item record

### 5.4.6.5 Suspend Column

Within the CBS Register, the Suspend column indicates which cost items are suspended.

CBS Position Code	Description	Suspend	Forecast (T/O) Qui
+ 1	<b>Mobilization</b>	<input type="checkbox"/>	
+ 2	<b>Clearing &amp; Grubbing</b>	<input type="checkbox"/>	
+ 2.1	Clearing	<input type="checkbox"/>	
+ 2.2	Grading	<input type="checkbox"/>	
+ 3	<b>Excavation</b>	<input type="checkbox"/>	
+ 3.1	Excavate	<input type="checkbox"/>	
+ 3.2	Haul	<input type="checkbox"/>	
+ 4	<b>10" PVC Pipe</b>	<input checked="" type="checkbox"/>	
+ 4.1	Furnish Pipe Materials	<input checked="" type="checkbox"/>	
+ 4.2	Excavate-Install-Backfill	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	

- Hover over the checkmarks to see why the cost item is suspended

+ 3.2	Haul	<input type="checkbox"/>	
+ 4	<b>10" PVC Pipe</b>	<input checked="" type="checkbox"/>	
+ 4.1	Furnish Pipe Materials	<input checked="" type="checkbox"/>	
+ 4.2	Excavate-Install-Backfill	<input checked="" type="checkbox"/>	

Parent is Suspended

- You can suspend and unsuspend cost items by checking and unchecking the checkboxes in the Suspend column as well

### 5.4.7 Adding Cost Adjustments

Total Cost and Billing Adjustments can now be made in the CBS register which can be viewed either from the Standard view of the CBS register, or a saved view affiliated with change.



Cost Breakdown Structure (CBS) Register										
Find: [Search For...] Saved views: Cost Item Adjustment View										
CBS Position Code	Description	Forecast (7/0) Quantity	Unit of Measure	Total Cost (Forecast)	Cost Adjustment	Total Cost Adjustment Amount	Total Cost Adjustment Percent	Labor Cost Adjustment Amount	Labor Cost Adjustment Percent	Owned Equipment Cost Adjustment Amount
3.5	REBAR	1.00	Lump Sum	\$2,618,414.00						
3.5.1	Rebar	1.00	Lump Sum	\$2,512,724.00		\$0.00	0.00	\$0.00	0.00	\$0.00
3.5.2	Post Tension Tendons	1.00	Lump Sum	\$0.00		\$0.00	0.00	\$0.00	0.00	\$0.00
3.5.3	Crane	1.00	Lump Sum	\$105,690.00		\$0.00	0.00	\$0.00	0.00	\$0.00
3.6	034100 - Precast Structural Concrete	2,800.00	SQFT	\$128,640.00						
3.6.1	Precast Panels	27.00	EA	\$64,320.00		\$0.00	0.00	\$0.00	0.00	\$0.00
3.6.2	Crane	1.00	Lump Sum	\$64,320.00		\$0.00	0.00	\$0.00	0.00	\$0.00
4	DIV 04 - MASONRY	1.00	Lump Sum	\$2,326,834.67						
4.1	042000 - Unit Masonry	1.00	Lump Sum	\$2,326,834.67						
4.1.1	CMU Walls	1.00	Lump Sum	\$1,879,709.33		\$1,708,826.67	1000.00	\$0.00	0.00	\$0.00
4.1.2	Precast Concrete Caps	1.00	Lump Sum	\$170,882.67		\$0.00	0.00	\$0.00	0.00	\$0.00
4.1.3	Steel Embeds	1.00	Lump Sum	\$170,882.67		\$0.00	0.00	\$0.00	0.00	\$0.00
4.1.4	Scaffolding	1.00	Lump Sum	\$105,360.00						
4.1.4.1	Setup & Maintain Scaffolding	2.00	Month	\$105,360.00		\$0.00	0.00	\$0.00	0.00	\$0.00
4.1.4.2	Additional Month	0.00	Month	\$0.00		\$0.00	0.00	\$0.00	0.00	\$0.00
4.1.4.3	Netting on Exterior	0.00	Lump Sum	\$0.00		\$0.00	0.00	\$0.00	0.00	\$0.00
5	DIV 05 - METALS	1.00	Lump Sum	\$854,880.00						
261				\$20,381,473.74		\$1,733,328.68		\$17,567.79		\$176.78

Adjustment fields have been added to the CBS to view and modify the adjustment amount and adjustment percent without going into each individual cost item.

Any adjustment made to the Adjustment Amount fields on the CBS register will then have the Adjustment Percent field automatically calculated. Changes made to those fields will be highlighted in yellow signifying an adjustment has been made.

3.6.1	Precast Panels	27.00	EA	\$64,320.00		\$0.00	0.00	\$0.00	0.00
3.6.2	Crane	1.00	Lump Sum	\$64,320.00		\$0.00	0.00	\$0.00	0.00
4	DIV 04 - MASONRY	1.00	Lump Sum	\$2,326,834.67					
4.1	042000 - Unit Masonry	1.00	Lump Sum	\$2,326,834.67					
4.1.1	CMU Walls	1.00	Lump Sum	\$1,879,709.33		\$1,708,826.67	1000.00	\$0.00	0.00
4.1.2	Precast Concrete Caps	1.00	Lump Sum	\$170,882.67		\$0.00	0.00	\$0.00	0.00
4.1.3	Steel Embeds	1.00	Lump Sum	\$170,882.67		\$0.00	0.00	\$0.00	0.00
4.1.4	Scaffolding	1.00	Lump Sum	\$105,360.00					
4.1.4.1	Setup & Maintain Scaffolding	2.00	Month	\$105,360.00		\$0.00	0.00	\$0.00	0.00
4.1.4.2	Additional Month	0.00	Month	\$0.00		\$0.00	0.00	\$0.00	0.00
4.1.4.3	Netting on Exterior	0.00	Lump Sum	\$0.00		\$0.00	0.00	\$0.00	0.00
5	DIV 05 - METALS	1.00	Lump Sum	\$854,880.00					
261				\$20,381,473.74		\$1,733,328.68		\$17,567.79	

Other adjustments fields in the CBS register include the many adjustments fields that have been added to the **Billing Rates View**.

A new Saved view called **Cost Item Adjustment View** has been added to the Cost Breakdown Structure.



## Exercise 5.3 – Manage Cost Item Details

In this exercise, you will practice making adjustments to your cost item details. Complete the following steps, using your E101 – Training Job:

1. Open the Cost Item Record for cost item **2.2 Grading**.
2. From the **Cost Item Setup** tab, change the Composite Wage Scale to **80% Scale 1, 20% Scale 2**.
3. Change the Default Shift Arrangements to **10 Work Hours per Shift, 1 Shift per Day, 5 Days per Week**. Also adjust for every **10 hours** worked, pay **10 hours**.
4. From the **Man-Hour Factors** tab, apply a Man-Hour Factor of **1.1** to the same cost item.
5. On the **Notes** tab, type **Added man-hour factor due to hard soil conditions**.

You should end up with the following results for 2.2 Grading

The screenshot displays the 'Cost Item Record' for '2.2 Grading'. The interface includes several tabs: 'Cost Item Assembly Register', 'Price Breakdown Structure', 'Cost Breakdown Structure (CBS) Register', 'Job Properties', 'Cost Item Record', 'Cost Item Record', 'Cost Item Record', and 'Cost Item Record'. The 'Cost Item Record' tab is active, showing a table with columns for 'CBS Code', 'Optional Code', 'Description', 'Forecast (T/O) Qty', 'Unit of Measure', 'Unit Cost', 'Total Cost', and 'Currency'. The table lists two items: '2.2000 Clearing & Grubbing' and '2.2000 Grading'. The 'Grading' item is selected, and its details are shown in the 'Production' section. The 'Production' section includes a table with columns for 'Row Number', 'Unit Cost', 'Code', 'Resource Assembly', 'Description', 'Quantity', 'Unit of Measure', 'Quantity (Less Waste)', 'Waste % Add-on', 'Productivity Factor', 'Work Hours', and 'Pay Hours'. The table lists six resources: '1 ETWT CGRADE Water Truck', '2 L12 CGRADE Laborer', '3 L03 CGRADE Operator Class 3', '4 B514G CGRADE Grader 14G', '5 ECOMP1 CGRADE Compactor Smooth Drum', and '6 L04 CGRADE Operator Foreman'. The 'Production' section also includes a 'Customize Display' section with fields for 'Days', 'Shifts', 'Hours', 'Man-Hours', 'Equip-Hours', 'Acre/Day', 'Acre/Shift', 'Acre/Hour', and 'Acre/Man-Hr'.

**Congratulations, you have completed this exercise!**



## Lesson 5 Review

1. Resources, costs, and production can only be added to what type of cost item?
  - a. Superior
  - b. Terminal
  - c. Parent

---
2. What Cost Source is used for defining resources and production?
  - a. Plug
  - b. Detail
  - c. Quote

---
3. On the Cost Item Record, what tab is used for changing the cost item's Default Shift Arrangements?
  - a. Cost Item Setup
  - b. Production
  - c. Man-Hour Factors
  - d. Notes

---

## Lesson 5 Summary

As a result of this lesson, you can:

- Explain the Cost Breakdown Structure and its purpose
- Create cost items
- Add costs and production
- Manage cost item details



# LESSON 6 – INDIRECT COSTS

**Lesson Duration: 45 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Explain how indirect costs are defined in InEight Estimate
- Estimate default indirect cost items
- Estimate user-defined indirect cost items

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## 6.1 INDIRECT COSTS OVERVIEW


Indirect costs such as the cost of prime bond, mobilization, or site supplies are typically overhead costs that are not directly associated with a particular project deliverable but contribute to the total cost of the project. However, indirect costs can be assigned to a pay items. This gives you the flexibility to more accurately control the cost basis of bid items and strategically price the work to maximize cost recovery and profit.

Once your direct costs are defined, you can add indirect project costs. Estimate provides two ways you can create indirect costs:

1. **Default Indirect Cost Items:** These are pre-built cost items created by InEight Estimate, located at the top of the CBS Register.

CBS Position Code	Description
	JOB
+	Prime Bond
+	Price % Add-On
+	Job Financing
+	Indirect Cost Escalation
+	Direct Cost Escalation
+	Indirect Cost Add-On
+	Job Management & Equip...
+	General Expense
+	Direct Cost Add-On

2. **User-Defined Indirect Cost Items:** Any cost item you create in the CBS Register that is not assigned to a pay item is considered indirect cost.

	23	Job Overhead - Indirect ...	
+	23.1	Setup Yard	
+	23.2	Trailer Rent	
+	23.3	Utilities	

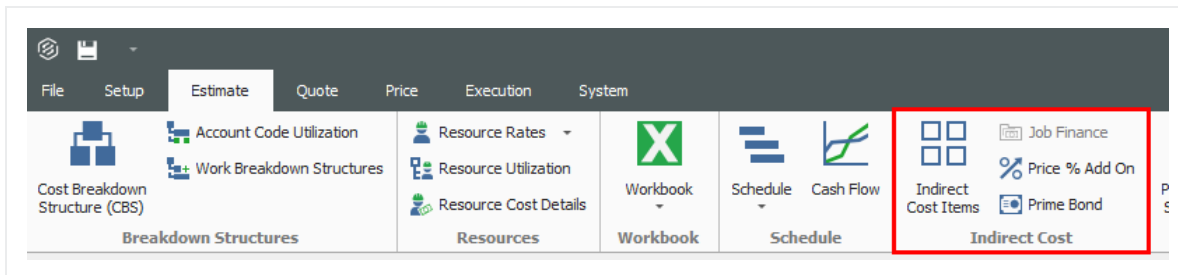


**TIP**

The Cost Breakdown Structure (CBS) located in the Library under the Estimate tab, Master Breakdown Structures section, controls which of the default indirect cost items to copy into new job folders.

## 6.1.1 Navigation to Indirect Costs

From the Estimate tab of the InEight Estimate landing page, you can quickly access indirect costs from the Indirect Cost section.



- Select Indirect Cost Items to open the Cost Breakdown Structure Register filtered to only your indirect costs
- You can select Prime Bond, Price % Add On, and Job Financing to access those indirects

The following section takes a closer look at the default indirect cost items.

## 6.2 DEFAULT INDIRECT COST ITEMS

InEight Estimate contains various default cost items to help you calculate your indirect costs.

### 6.2.1 Independent Indirect Cost Items

**Independent indirect cost items** function very much like the direct cost items you defined previously:

- Job Management & Equipment
- General Expense

#### 6.2.1.1 Job Management & Equipment

The sample Job Management & Equipment Record below shows that you can add resources and production just like in your direct cost items. Supervisory staff resources were added, and the production duration is set to 100 days.



Cost Breakdown Structure (CBS) RegisterCost Item Record

CBS Code:Optional Code:Description:Forecast (T/O) Qty:Unit of Measure:Unit Cost:Total Cost:Currency:

JOB MANAGEMETJob Management & Equipment1.00Lump Sum\$157,096.28\$157,096.28U.S. Dollar

PI Assignment:PI Line Number:PI Description:Cost Segment:Pay Quantity:Cost Source:Alternate:Job Overhead1.00DetailBASE

Cgct Item SummaryDetail : \$157,096.28Plug : \$0.00Quote : \$0.00Allocation

Drag columns here to groupFind: [Search For...]Saved views: Previous View

Row Number	Code	Description	Quantity	Unit of Measure	Unit Cost	Work Hours	Pay Hours	Waste % Add-on	Quantity (Less Waste)	Prod. Factor
1	LSS	Project Superintend...	1.00	Each	\$42.53	800.00	800.00			
2	LSSEC	Secretary	1.00	Each	\$20.41	800.00	800.00			
3	LSPE	Project Engineer	1.00	Each	\$51.03	800.00	800.00			
4	ETST	Service Truck	1.00	Each	\$50.60	800.00	800.00			
5	ETPU	Pickup	2.00	Each	\$15.90	1,600.00	1,600.00			

Production

Duration Driven ResourcesFactored Duration Driven Resources

Customize Display(x 1.0000)

Days:100.00100.0

Shifts:100.00100.0

Hours:800.00800.0

Man-Hours:2,400.002,400.0

Equip-Hours:2,400.002,400.0

Lump Sum Days:0.010.0

The following Step by Step walks you through defining resources and costs for your Job Management & Equipment indirect cost item.

Step by Step — Add Job Management & Equipment Costs

1. In your job, from the InEight Estimate landing page, select the **Estimate** tab.

2. Select **Cost Breakdown Structure (CBS)**.

3. Double click on the **Job Management & Equipment** row header.

You can see that this record looks like the direct cost item records that you have been working with thus far in the CBS

Cost Breakdown Structure (CBS) RegisterCost Item RecordCost Item Record

CBS Code:Optional Code:Description:Forecast (T/O) Qty:Unit of Measure:Unit Cost:Total Cost:Currency:

JOB MANAGEMETJob Management & Equipment1.00Lump Sum\$0.00\$0.00U.S. Dollar

PI Assignment:PI Line Number:PI Description:Cost Segment:Pay Quantity:Cost Source:Alternate:Job Overhead1.00DetailBASE

Cgct Item SummaryDetail : \$0.00Plug : \$0.00Quote : \$0.00Allocation

Drag columns here to groupFind: [Search For...]Saved views: Previous View

Code	Resource Assembly	Description	Quantity	Unit of Measure	Unit Cost	Wo	Ho

Employment Setup

Identification

Code:Type:

Description:

Quantity (Less Waste):Waste % Add-on:

Quantity:Productivity Factor:

Cost Driver:

4. Here you will add a **labor resource** by clicking in the Code column and selecting the icon.

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Code	Reso...	Description	Qua...	Unit of Meas...	Unit Cost	Work Hours	Pro Fa
1 LSSEC		Secretary	1.00	Each	\$21.97	0.00	
2 LSSUPT		Project Superintend...	1.00	Each	\$45.78	0.00	

5. Select the **Production** tab.
6. Enter a **numeric value** in the Days field.
  - This represents the length of the job

**Production**

Duration Driven Resources

[Customize Display](#)

Days: 70.00

Shifts: 70.00

7. Click **OK** to close the record.

## Step by Step — Add General Expense Costs

1. In your job, from the InEight Estimate landing page, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**.
3. Right click on the **General Expense** row header and select **Open**.
  - The General Expense cost item record also looks identical to a direct cost item record
  - You could add existing resources here, but in this case, you will create an ad hoc resource
4. Type in a **description** the Description column.



GENERAL EXPE General Expense

PI Assignment: PI Line Number: PI Description:

Cost Item Summary Detail : \$0.00 Plug : \$0.00 Quote : \$0.00 Allocation

Drag columns here to group

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on
1			General Office Supplies	0.00	0.00

5. Enter a **number** in the Quantity field.
6. For the Unit of Measure field, select a **Unit of Measure** from the drop down.
7. Click on (highlight) that **row**, and then click the **Resource Employment Breakdown** tab.
8. Enter a **number** in the Undefined Supplies cost category.
  - The amount entered automatically fills into the unit and total cost columns

Cost Item Summary Detail : \$1,000.00 Plug : \$0.00 Quote : \$0.00 Allocation

Drag columns here to group

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Productivity Factor	Work Hours	Pay Hours	Unit Cost	Total Cost (Forecast)
1			General Office Supplies	1.00	0.00	1.00	Lump Sum	1.00			\$1,000.00	\$1,000.00

Resource Employment Breakdown

Cost Category	Scale 1
Total	\$1,000.00
Labor	\$0.00
Owned Equipment	\$0.00
Rented Equipment	\$0.00
Supplies	\$1,000.00
Undefined Supplies	\$1,000.00
Materials	\$0.00

**TIP**

You are only allowed to enter information in the Resource Cost Breakdown if the resource row is selected, otherwise fields will not display.

9. Click **OK** to close the record.

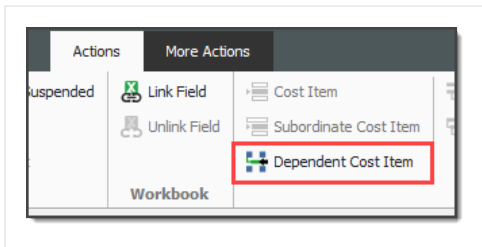
## 6.2.2 Dependent Indirect Cost Items

The other default indirect cost items are **dependent indirect cost items**, meaning their costs depend on other costs, prices or hours. They include:

- Direct and Indirect Cost Add-On
- Direct and Indirect Cost Escalation
- Prime Bond



- Price % Add-On
- Job Financing
- Man-Hour Add-On



It's possible to assign any assigned or dependent cost item to any of the 3 cost segments and provides greater control over where costs exist in the Price Breakdown Structure (PBS).

Cost Breakdown Structure (CBS) Register			Pay Item & Proposal Register		
Drag columns here to group					
CBS Position Code	Description	Cost Segment	Pay Item Assignment	Pay Item Position Code	
	JOB				
+	Prime Bond	Business Over ...			
+	Price % Add-On	Description			
+	Job Financing	Business Overhead			
+	Indirect Cost Escalation	Direct Cost			
+	Direct Cost Escalation	Job Overhead			
+	Indirect Cost Add-On				
+	Mobilization				
1	SITWORK & ROADWAY				
+ 1.1	Mobilization				
+ 1.2	Clearing & Grubbing	Direct Cost	201 0102	1.2	
+ 1.3	Unclassified Excavation	Direct Cost	202 0183	1.3	
+ 1.3.1	Excavation	Direct Cost	202 0183	1.3	

### 6.2.2.2 Default Dependent Cost Item Deletion

#### NOTE

If you need to use additional dependent cost items, you can create your own, but you must delete all the existing default dependent cost items first.

The following steps walk you through deleting your existing default indirect costs so you can create your own.



## Step by Step — Delete Existing Default Dependent Cost Items

1. In your job, from the InEight Estimate landing page, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**.
3. Select an indirect cost item by clicking on its **row header**.
4. Press and hold the **Shift** key while selecting **another indirect cost item**.
  - All your dependent indirect cost items are now selected

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
+	<b>JOB</b>	20.00	Mile
+	<b>Prime Bond</b>	1.00	Lump Sum
+	<b>Price % Add-On</b>	1.00	Lump Sum
→ +	<b>Job Financing</b>	1.00	Lump Sum
+	<b>Job Management &amp; Equipment</b>	1.00	Lump Sum
+	<b>General Expense</b>	1.00	Lump Sum

5. Right click on the selection and select **Delete**.
6. Select **Yes** to confirm you want to delete the selected cost items.
  - Your indirect cost items are now deleted

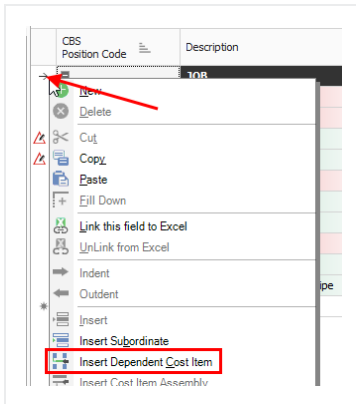
### 6.2.2.3 Prime Bond

The following steps walk you through adding and defining your prime bond for the job.

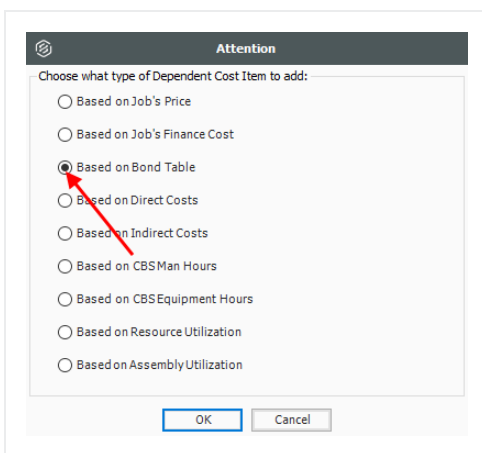
## Step by Step — Define Prime Bond

1. In your job, from the InEight Estimate landing page, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**.
3. Right click on the **row header** for any cost item and select **Insert Dependent Cost Item**.





4. On the resulting Attention prompt, select **Based on Bond Table**.



5. Click **OK**.

- The Prime Bond indirect cost item now displays at the top of your CBS

6. Right click on the Prime Bond row header and select **Open**.

- Prime Bond represents the insurance for the job
- This is an irregular form and uses bond rate tables
  - The form's Bond Table Name defaults to No Bond Required until a saved Bond Table



Name is chosen

Cost Breakdown Structure (CBS) Register

Bond Cost Item Record

CBS Code:

Description: Prime Bond

Total Cost: \$0.00

Dependency

Cost is calculated based on Target Price.

Bond Table

Identification

Table Name: No Bond Required

Last Maintenance:

Bond Rate Layers

From To Cost per \$1,000

7. Use the Table Name drop-down to choose **EXAMPLE: GENERAL CONSTRUCTION**

Cost Breakdown Structure (CBS) Register

Bond Cost Item Record

CBS Code:

Description: Prime Bond

Total Cost: \$48,681.94

Dependency

Cost is calculated based on Target Price.

Bond Table

Identification

Table Name: EXAMPLE: GENERAL CONSTRUCTION

Last Maintenance:

Bond Rate Layers

From To Cost per \$1,000

8. Click **OK** to close the record.

- The Prime Bond indirect cost item is now added to your CBS

CBS Position Code	Description	Optional Code	Forecast (T/O) Qua
	<b>JOB</b>		
+	<b>Job Management &amp; Equipment</b>	JOB MANAGEMENT & E...	
+	<b>General Expense</b>	GENERAL EXPENSE	
+	<b>Prime Bond</b>	PRIME BOND	
1	<b>Mobilization</b>	1000	
2	<b>Closing &amp; Subbing</b>	2000	



## Multiple bond rate dependent items

For certain projects, it may be desirable to calculate costs for bond or insurance premiums based upon multiple different rate tables. It is now possible to add multiple bond/rate table based dependent items in the CBS.

For example, in addition to having a prime bond, the job may also require insurance coverage where the premium is calculated using a rate table-based approach. This can now be accomplished by adding another Bond/Rate-table based dependent cost item to the job.

Cost Breakdown Structure (CBS) Register									
Drag columns here to group									
CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Allocated	Currency	Hours (Duration driven)
+	JOB		20.00	Mile	\$277,636.11	\$5,552,322.14	<input checked="" type="checkbox"/>	U.S. Dollar	5,492.23
+	Prime Bond	PRIME BOND	1.00	Lump Sum	\$42,305.50	\$42,305.50	<input type="checkbox"/>	U.S. Dollar	
+	Insurance	INSURANCE	1.00	Lump Sum	\$140,027.49	\$140,027.49	<input type="checkbox"/>	U.S. Dollar	
+	Job Financing	FINANCE EXPENSE	1.00	Lump Sum	\$29,842.32	\$29,842.32	<input type="checkbox"/>	U.S. Dollar	
+	Indirect Cost Escalation	INDIRECT COST ESCALATION	1.00	Lump Sum	\$2,131.11	\$2,131.11	<input type="checkbox"/>	U.S. Dollar	
+	Direct Cost Escalation	DIRECT COST ESCALATION	1.00	Lump Sum	\$15,048.80	\$15,048.80	<input type="checkbox"/>	U.S. Dollar	
+	Indirect Cost Add-On		1.00	Lump Sum	\$5,823.31	\$5,823.31	<input type="checkbox"/>	U.S. Dollar	
+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum	\$100,820.54	\$100,820.54	<input type="checkbox"/>	U.S. Dollar	
1	SITEWORK & ROADWAY	200	1.00	Each	\$2,464,161.56	\$2,464,161.56	<input type="checkbox"/>	U.S. Dollar	2,158.33
+ 1.1	Mobilization	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51	<input type="checkbox"/>	U.S. Dollar	80.00
+ 1.2	Clearing & Grubbing	201 0102	10.00	Acre	\$3,918.50	\$39,184.97	<input type="checkbox"/>	U.S. Dollar	80.00
+ 1.3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard	\$4.68	\$233,915.81	<input type="checkbox"/>	U.S. Dollar	291.67

## Deleting Bond Tables

Delete bond tables that are not applicable to your estimate by selecting them and then clicking the **Delete** button. You can customize the Bond Table window to only view the tables that are relevant to your estimate from the Table Name drop-down list.



Bond Table

Identification

Table Name:EXAMPLE: GENERAL CONSTRUCTION

Edit NameDelete

Last Maintenance:

Table Name

EXAMPLE: EARTHWORK

Bond Rate Layers

From

EXAMPLE: GENERAL CONSTRUCTION

EXAMPLE: PAVING

EXAMPLE: PIPE

EXAMPLE: UNDERGROUND UTILITIES

No Bond Required

\$10,000,000.01

\$20,000,000.01

\$40,000,000.01

\$1,000

10.80000

8.20000

7.00000

5.00000

4.80000

3.50000

3.00000

Bond Table

Cost Item Setup

Notes

Schedule

OK

Cancel

< Prev

Next >


6.2.2.4 Price % Add-On

The following steps walk you through defining the Price % Add-On.

Step by Step — Define a Price % Add-On

- 1. From the Cost Breakdown Structure (CBS) Register, right click on the **row header** for any cost item and select **Insert Dependent Cost Item**.
- 2. On the resulting Attention prompt, select **Based on Job’s Price**.





Attention

Choose what type of Dependent Cost Item to add:

☒ Based on Job's Price

☐ Based on Job's Finance Cost

☐ Based on Bond Table

☐ Based on Direct Costs

☐ Based on Indirect Costs

☐ Based on CBS Man Hours

☐ Based on CBSEquipment Hours

☐ Based on Resource Utilization

☐ Based on AssemblyUtilization

OK

Cancel

3. Click **OK**.
4. Double click on the **Price % Add On** row header to open the record.

CBS Position Code	Description	Optional Code
	JOB	
+	Job Management & Equipment	JOB MANAGEMENT & E...
+	General Expense	GENERAL EXPENSE
+	Prime Bond	PRIME BOND
→ +	Price % Add-On	PRICE % ADD-ON
+ 1	Mobilization	1000

5. The Price % Add-on Record opens to the **Description** tab. Type a **description** in the Description field and enter a **numeric value** for rate.



Cost Breakdown Structure (CBS) Register

Price % Add-On Record

CBS Code:

Description:

Price % Add-On

Description

Dependency

Drag columns here to group

	Description	Rate	Account Code	
	Office Overhead	4.00		

6. Click **OK** to close the record.

6.2.2.5 Direct Cost Add-On

The following steps walk you through creating a Direct Cost Add-On dependent cost item.

Step by Step — Define a Direct Cost Add-On

- 1. From the Cost Breakdown Structure (CBS) Register, right click on the **row header** for any cost item and select **Insert Dependent Cost Item**.
- 2. On the resulting Attention prompt, select **Based on Direct Costs**.
- 3. Click **OK**.
- 4. Double click on the **Direct Cost Add-On** row header.
- 5. On the Description tab, type a **description** in the Description column.



**Cost Breakdown Structure (CBS) Register** **Direct Cost Add-On Record** ✕

CBS Position Code: Description:

Direct Cost Add-On

Description	Dependency	Cost Categorization	Allocation
Drag columns here to group			
Description		Curre...	Total Cost (Forecast)
Small Tools			

6. Press the **Tab** key (you can define additional rows for other add-on costs as needed).

- The Dependency Cost Breakdown appears on the right
- The **Subject Cost** is the cost that the cost item depends on, based on what is defined on the cost item's Dependency tab

		Total Cost:	Alternate:
		\$0.00	BASE
<b>Cost Breakdown</b> ✕			
Cost Category	Subject Cost	Rate	Cost
▼ Total	\$130,759.83	0.00	\$0.00
▶ Labor	\$58,969.83	0.00	\$0.00
▶ Owned Equipment	\$68,251.92	0.00	\$0.00
▶ Rented Equipment	\$0.00	0.00	\$0.00
▶ Supplies	\$0.00	0.00	\$0.00
▶ Materials	\$3,276.00	0.00	\$0.00
▶ Subcontract	\$0.00	0.00	\$0.00
▶ Fees	\$262.08	0.00	\$0.00
▶ Allowance	\$0.00	0.00	\$0.00
Custom Category 1	\$0.00	0.00	→ \$0.00
Undefined	\$0.00	0.00	→ \$0.00

7. Click on the **Dependency** tab to see what contributes to your subject cost.



- These are the cost items on which this Direct Cost Add-On depends

CBS Position Code: Description:

Direct Cost Add-On

Description	Dependency	Cost Categorization	Allocation	
Drag columns here to group				
CBS Position Code	Description	Include	Currency	Opt Cod
<b>1</b>	<b>Mobilization</b>	<input checked="" type="checkbox"/>	U.S. Dollar	100
2.1	Clearing	<input checked="" type="checkbox"/>	U.S. Dollar	
2.2	Grading	<input checked="" type="checkbox"/>	U.S. Dollar	
3.1	Excavate	<input checked="" type="checkbox"/>	U.S. Dollar	
3.2	Haul	<input checked="" type="checkbox"/>	U.S. Dollar	
4.1	Furnish Pipe Materials	<input checked="" type="checkbox"/>	U.S. Dollar	
4.2	Excavate-Install-Backfill Pipe	<input checked="" type="checkbox"/>	U.S. Dollar	
*		<input type="checkbox"/>		

- There are a couple of options at the bottom to control how dependency items are selected. By default, the bottom radio button is selected
  - The bottom radio button allows you to use column filtering to control what items are included
  - The top button allows you to manually select the cost items you would like to include

8. For this activity, leave the default (lower) button selected.

Toggle Include All

(Affects displayed items only)

☐ Define the Subject Cost by viewing all available items and clicking the Include box for the desired items  
☒ Define the Subject Cost using column filtering (all current and future items that match the filter will be included automatically)

- Click on the **Description** tab, where you can define an add-on Rate (percentage) or Cost at any of the cost category levels in the Dependency Cost Breakdown on the right side of the record.
  - You can also add a rate at the Total level to have it apply to all your cost categories
- Enter a **numeric value** in the Rate field at the Labor cost category level, then press **Tab**.



Cost Breakdown				
Cost Category	Subject Cost	Rate		Cost
▼ Total	\$130,759.83	0.00		\$0.00
▶ Labor	\$58,969.83	10		\$0.00
▶ Owned Equipment	\$68,251.92	0.00		\$0.00
▶ Rented Equipment	\$0.00	0.00		\$0.00
▶ Supplies	\$0.00	0.00		\$0.00
▶ Materials	\$3,276.00	0.00		\$0.00
▶ Subcontract	\$0.00	0.00		\$0.00
▶ Fees	\$0.00	0.00		\$0.00

11. Click **OK** to close the record.

### 6.2.2.6 Repositioning Dependent Cost Items

Repositioning dependent cost items creates a simpler way to manage the hierarchy of your project by placing items of more importance ahead of other line items.

Since dependent cost items can now be repositioned, a Position Code field has been added with the functionality similar to column remaining the same. The below listed dependent cost item fields are now exposed in the CBS register so you can more easily see the various percentages used in dependent items.

- Subject Cost
- Subject Cost Rate
- Subject Billing Amount
- Subject Billing Rate

These columns can also be found in the new saved view **Bid Review**.



CBS Position Code	Description	Optional Code
[-]	<b>JOB</b>	
+	<b>Prime Bond</b>	PRIME BOND
+	<b>Price % Add-On</b>	PRICE % ADD-ON
+	<b>Job Financing</b>	FINANCE EXPENSE
+	<b>Indirect Cost Escalation</b>	INDIRECT COST ESCALATION
+	<b>Direct Cost Escalation</b>	DIRECT COST ESCALATION
+	<b>Indirect Cost Add-On</b>	INDIRECT COST ADD-ON
+	<b>Job Management &amp; Equipment</b>	JOB MANAGEMENT & EQUIPMENT
+	<b>General Expense</b>	GENERAL EXPENSE
+	<b>Direct Cost Add-On</b>	DIRECT COST ADD-ON
+ 1	<b>Mobilization</b>	641 0100

+ 24.1.2	Day Two	
+ 25	<b>Prime Bond</b>	PRIME BOND
+ 26	<b>Price % Add-On</b>	PRICE % ADD-ON
+ 27	<b>Job Financing</b>	FINANCE EXPENSE
+ 28	<b>Indirect Cost Escalation</b>	INDIRECT COST ESCALATION
+ 29	<b>Direct Cost Escalation</b>	DIRECT COST ESCALATION
+ 30	<b>Indirect Cost Add-On</b>	INDIRECT COST ADD-ON
+ 31	<b>Job Management &amp; Equipment</b>	JOB MANAGEMENT & EQUIPMENT
+ 32	<b>General Expense</b>	GENERAL EXPENSE
+ 33	<b>Direct Cost Add-On</b>	DIRECT COST ADD-ON

## 6.3 USER-DEFINED INDIRECT COST ITEMS

You may prefer to create your own indirect cost items. You create user-defined indirect cost items the same way you create direct cost items. The only difference is that your indirect cost items will not be assigned to pay items. One advantage of creating your own indirect cost items is the ability to create a parent-child structure for your indirect costs.

Here is an example of user-defined indirect cost items, expanded to show their employed resources:



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
<b>5</b>	<b>Indirect Cost</b>	1.00	Each	\$10,584.36	\$10,584.36
- 5.1	Head Office	1.00	Each	\$370.32	\$370.32
	...				
	...				
→ + 1	Head Office Project ...	1.00	Each	8.00	8.00
				\$46.29	\$370.32
- 5.2	Field Office	1.00	Each	\$1,775.04	\$1,775.04
	...				
	...				
+ 1	Field Office Clerk	1.00	Each	4.00	4.00
				\$38.00	\$152.00
+ 2	Field Office Safety M...	1.00	Each	8.00	8.00
				\$62.38	\$499.04
+ 3	Field Office Site Supe...	1.00	Each	16.00	16.00
				\$70.25	\$1,124.00
- 5.3	Site Facilities	1.00	Each	\$905.00	\$905.00
	...				
	...				
→ + 1	Field Office Telephone	0.50	Month		\$250.00
					\$125.00
+ 2	Field Office Trailer	1.00	Each	0.00	0.00
				\$5.94	\$0.00
+ 3	Pick Up Truck	1.00	Each	80.00	80.00
				\$9.75	\$780.00
+ 5.4	Misc. Expenses	1.00	Each	\$2,765.00	\$2,765.00
+ 5.5	Supervision	1.00	Each	\$4,769.00	\$4,769.00

## Step by Step — Add User-Defined Indirect Cost Items

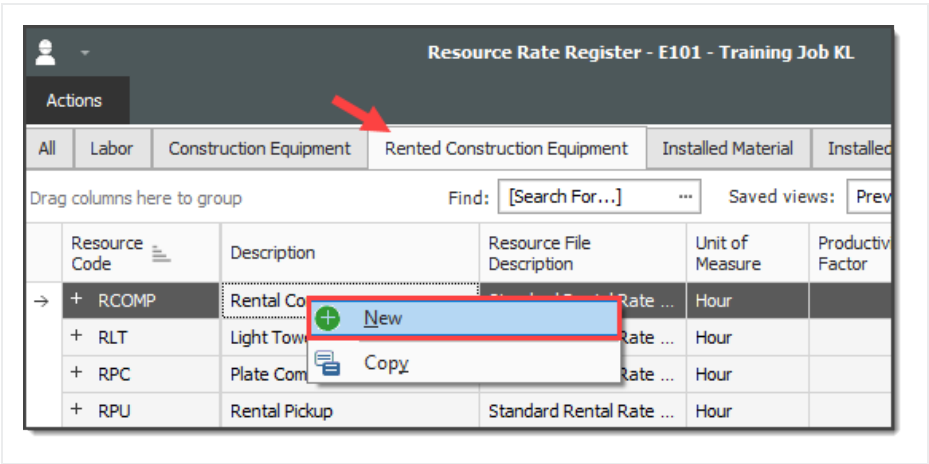
- At the bottom of your CBS, create an indirect cost item with a Forecast (T/O) Quantity of **1** and a Unit of Measure of **Each**.
- Add two subordinates under the new cost item and name both. For the first subordinate cost item, set it to **1 Each**. Set the second to **1 Lump Sum**.

<b>5</b>	<b>Job Overhead</b>	1.00	Each
+ 5.1	Job Trailer	1.00	Each
+ 5.2	Utilities	1.00	Lump Sum

- Open the first subordinate cost item by double clicking on the **row header**.
  - Assuming there is nothing for this subordinate indirect cost item in your Resource Rate Register, you will create this resource “on the fly”
- In the Detail grid, click on the **Resource Register** icon in the Code field as if you were going to select from the Resource Rate Register.



- 5. On the Resource Rate Register, click the **Rented Construction Equipment** tab.
- 6. Right click on one of the line items and select **New** to add a new resource.



- 7. Enter a Resource Code of **RJT** for the Rented Construction Equipment Resource.
- 8. In the Description field, type in a **description**.



**Rented Construction Equipment Rate Record - Training Job**

Code: \*  Description:

Setup ☒ Charge Rate ☐ Quote ☐ Billing Rate

Cost Category Breakdown	Amount
▼ Total	\$0.00
> Rented Equipment	\$0.00
> Fees	\$0.00
Undefined	\$0.00

**Fuel**

Fuel Type:  Consumption Rate:  Unit/Hour

Fuel Account:

**Tax**

☒ Apply Tax

Unique Sales Tax:

**Maintenance**

☒ Automatic Maintenance

Assembly containing the Maintenance Labor resources:

☒ Use job default:

☐ Use:

Maintenance Man-Hours per equipment utilization hour:

**Non-Hourly Period Charge Rates**

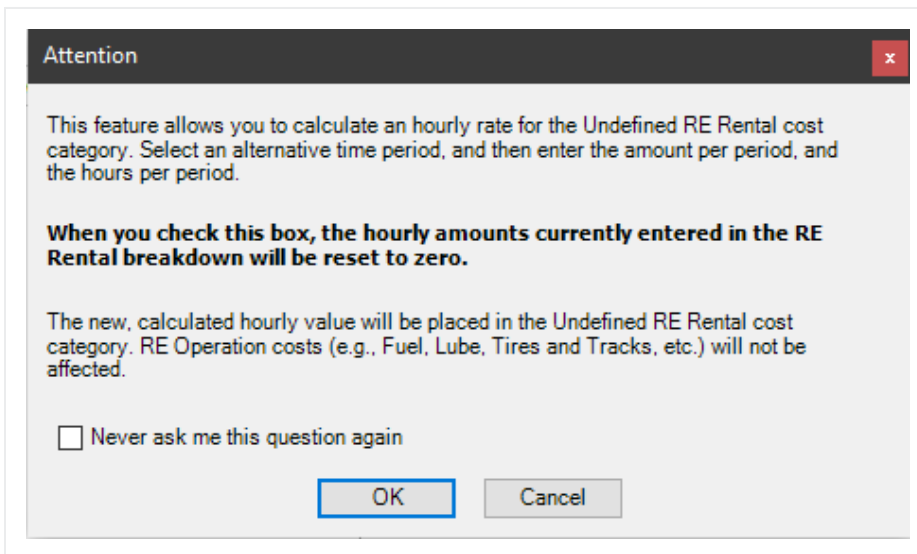
☐ Calculate Non-Hourly Period Charge Rates for RE Rental

If a fuel type and consumption is specified above, this machine's fuel cost is calculated using the cost per unit of measure for the fuel type specified in the Job Properties form and the fuel cost defined in the charge rates on this form is ignored.

[Never offer this help again](#)

- You do not need to enter Fuel, but the Job Trailer's cost is given to you at a charge per week, so you will use the Non-Hourly Period Charge Rates to figure out the hourly cost
- Select the **Calculate Non-Hourly Period Charge Rates for RE Rental** checkbox; this will allow you to edit the fields below the checkbox. A pop-up box will appear.
  - Click **OK** on the resulting prompt.



**TIP**

You may need to expand the resource record to see all of the fields to fill out.

11. Select **Weekly** as the Period, and type **1,000** as the Amount Per Period.
12. Since the Period is Weekly, type **40** in the Hours Per Period field.

**Non-Hourly Period Charge Rates**

☒ Calculate Non-Hourly Period Charge Rates for RE Rental

Period: Weekly

Amount Per Period: \$1,000.00

Hours Per Period: 40.00

13. Press the **Tab** key so the change takes effect on your Cost Category Breakdown (on the left).
  - Now you can see that Estimate auto-filled the Rented Equipment category, as well as your Standard Sales Tax under Fees in the Cost Category Breakdown, to equal a total amount per hour

Cost Category Breakdown	Amount
Total	\$27.00
> Rented Equipment	\$25.00
> Fees	\$2.00
Undefined	\$0.00

14. Click **OK** to close the Resource Rate Record.



15. Select the **new resource** you created, then click **OK** to return to the Cost Item Record.
16. On the Cost Item Record, adjust the quantity of **first subordinate cost item** you created, assuming you will have multiples of this item on site.
17. Finally, adjust your production by entering the **duration** of the job.

The screenshot shows the 'Production' tab of the Cost Item Record. The 'Quantity' field for 'Job Trailer' is highlighted with a red box and contains the value 2.00. The 'Duration' field is also highlighted with a red box and contains the value 70.00. The 'Shifts' field is set to 20.

18. Click **OK** to close the record.
19. On the CBS register, select the **Utilities** cost item by double clicking on the **row header**.
20. Create another ad hoc resource on this cost item which will be **1Lump Sum**.

The screenshot shows the CBS register with the 'Utilities' cost item selected. The 'Unit of Measure' is set to 'Lump Sum' and the 'Unit Cost' is \$0.00. The 'Quantity' is 1.00.


21. Finally, go to the **Resource Employment Breakdown** tab and enter your **forecasted cost** for the duration of the job in the Custom Category1 row.

The screenshot shows the 'Resource Employment Breakdown' tab. The 'Custom Category1' row is highlighted with a red box and contains the value \$1,500.00. The 'Total' row is also highlighted with a red box and contains the value \$1,500.00.

22. Click **OK** to close the record.



- Your user-defined indirect cost items now contain production and costs

 5	Job Overhead	1.00	Each	\$31,740.00	\$31,740.00
+ 5.1	Job Trailer	1.00	Each	\$30,240.00	\$30,240.00
+ 5.2	Utilities	1.00	Lump Sum	\$1,500.00	\$1,500.00



Exercise 6.1 — Define Indirect Costs

In this exercise, you will practice entering Indirect Costs. Complete the following steps, using the E101 – Training Job:

- 1. Double click on the **Price % Add On** row header.
- 2. You already have Office Overhead as your first line item. In the next blank row type **Corporate Insurance** in the Description field and enter a rate of **.10**.
- 3. Click **OK** to close the record.
- 4. Double click on the **Direct Cost Add-On** row header.
- 5. You already have Small Tools as your first line item. On the Description tab, type **Safety & Training** in the next blank row’s Description field, then press **Tab**.
- 6. The Dependency Cost Breakdown appears on the right. Enter a rate of **5** for Labor Costs only.
- 7. Click **OK** to close the record.

You should end up with the following results

Cost Breakdown Structure (CBS) Register

Price % Add-On Record

CBS Code:

Description:

Price % Add-On

Total Cost:

\$9,082.87

Description

Dependency

Drag columns here to reorder

Search For...

...

Saved views:

Previous View

Description	Rate	Account Code
→ Office Overhead	4.00	
Corporate Insurance	0.10	
*		

Cost Item Setup

×

Properties

Currency:

U.S. Dollar

Account Code:

Cost Curve:

Linear

Tag 1:



Cost Breakdown Structure (CBS) Register

Direct Cost Add-On Record

CBS Position Code:

Description:

Direct Cost Add-On

Total Cost: \$8,845.47

Alt: BASE

Description

Dependency

Cost Categorization

Allocation

Drag (Find):

[Search For...]

...

Saved views:

Previous View

Description

Curre...

Total Cost (Forecast)

Small Tools

U.S. Dollar

\$5,896.98

→ Safety & Training

U.S. Dollar

\$2,948.49

\*

Cost Breakdown

Cost Category	Subject Cost	Rate	Cost
▼ Total	\$130,759.83	2.25	\$2,948.49
▶ Labor	\$58,969.83	5.00	\$2,948.49
▶ Owned Equipment	\$68,251.92	0.00	\$0.00
▶ Rented Equipment	\$0.00	0.00	\$0.00
▶ Supplies	\$0.00	0.00	\$0.00
▶ Materials	\$3,276.00	0.00	\$0.00
▶ Subcontract	\$0.00	0.00	\$0.00
▶ Fees	\$262.08	0.00	\$0.00
▶ Allowance	\$0.00	0.00	\$0.00
▶ Custom Category 1	\$0.00	0.00	\$0.00
▶ Undefined	\$0.00	0.00	\$0.00

Congratulations, you have completed this exercise!



## Lesson 6 Review

1. Default direct costs are pre-built \_\_\_\_\_ created by InEight Estimate, located within the CBS Register.
  - a. billing rates
  - b. cost items
  - c. pay items

---
2. Any cost item you create in the CBS Register that is not assigned to a pay item is considered indirect cost.
  - a. True
  - b. False

---
3. You create user-defined indirect cost items the same way you create direct cost items. The only difference is that your indirect cost items will not be assigned to \_\_\_\_\_.
  - a. Resources
  - b. Pay Items
  - c. Assemblies

---

## Lesson 6 Summary

As a result of this lesson, you can:

- Explain how indirect costs are defined in InEight Estimate
- Estimate default indirect cost items
- Estimate user-defined indirect cost items



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# LESSON 7 – FINALIZE THE ESTIMATE

This lesson is primarily suited towards contractors who must add profit or markup to their total estimated cost, which will be submitted in the form of a bid or proposal. Most owners can divert from this lesson as it's more geared towards adding profit and markup. There are a few use cases in which an owner may wish to use the price breakdown structure. For example: to add risk, contingency, or reserves if it is preferred, these are not shown directly in the budget line items. The price breakdown structure also provides a summary level review of the total estimate and is a great reference during estimate reviews.

**Lesson Duration: 45 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Add job markup (profit)
- Use tools on the PBS form to review your estimate
- Spread Target Price over pay items
- Make bid adjustments

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## 7.1 JOB MARKUP (PROFIT)

On the Data Map  notice how the different segments within the pyramid coincide with the percentage amounts that make up Direct Costs, Indirect Costs and Target Profit. Illustrations below show how the Data Map values correspond to the values that make up the cost and profit.

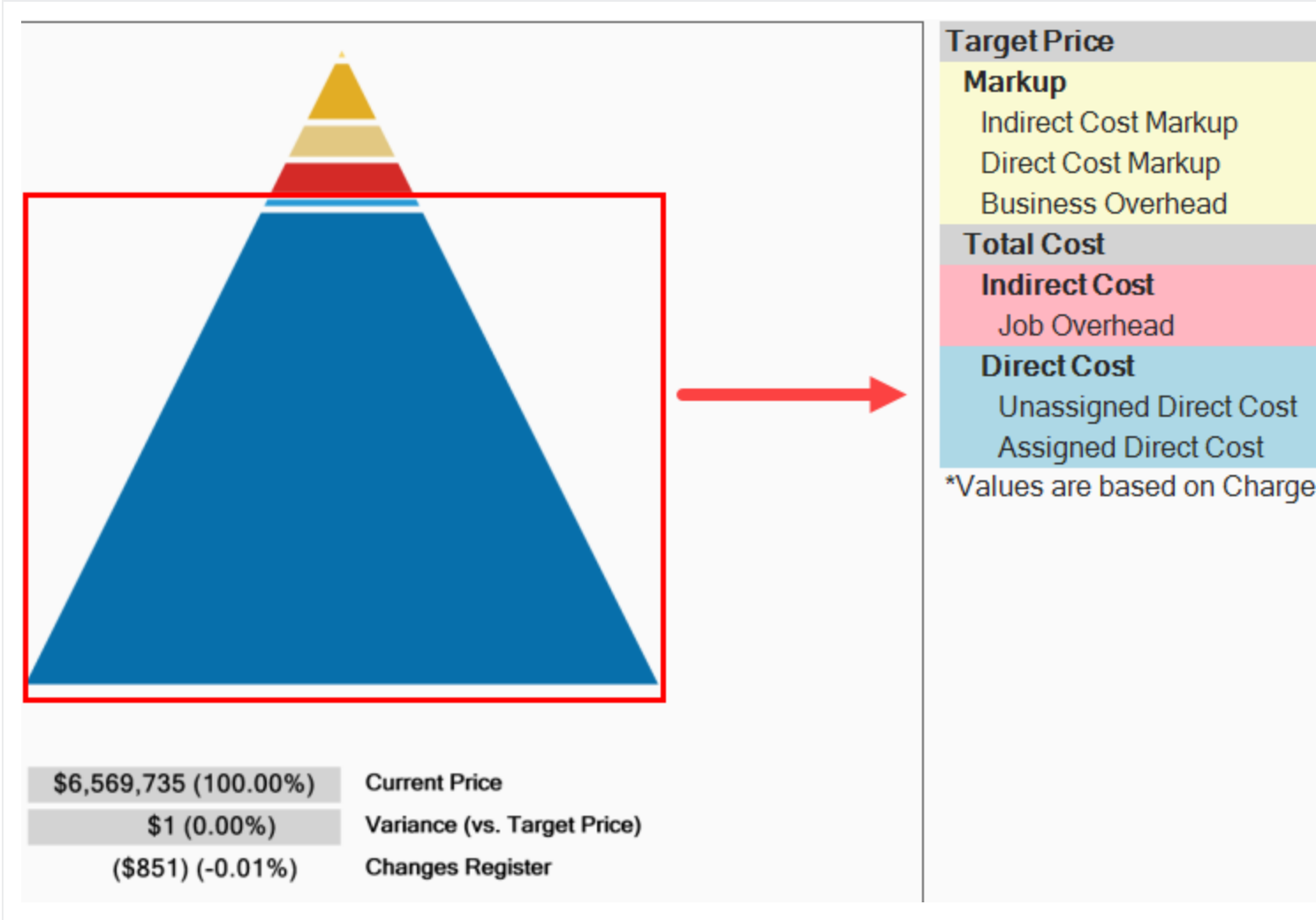
To open the Data Map, select the Price tab, then Data Map from the Overhead and Profit section.

### 7.1.1 Target Price

For contractors building the price of your project is like building a pyramid. The foundation of your price consists of the direct costs of the job.

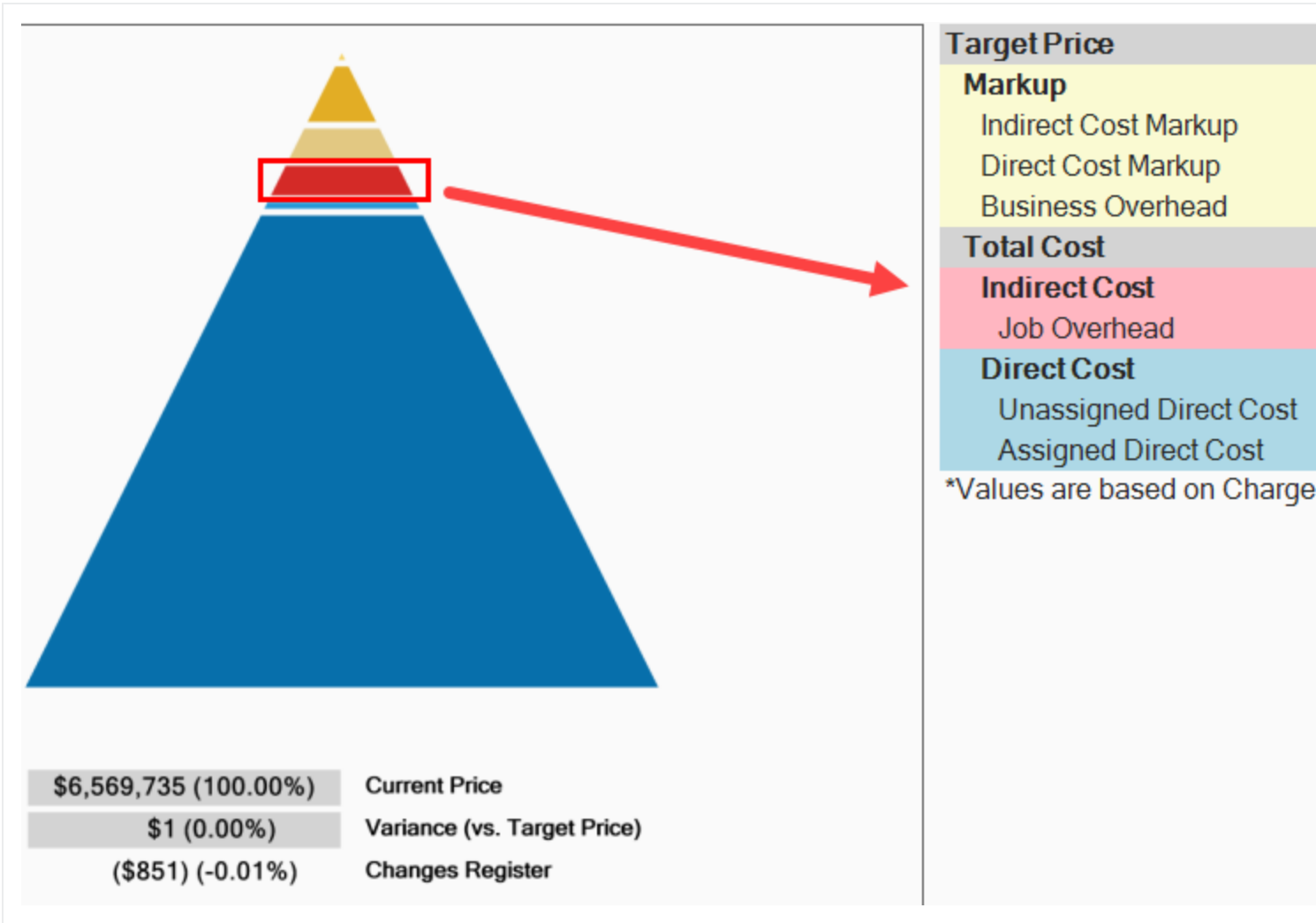
The images below represent a default examples.





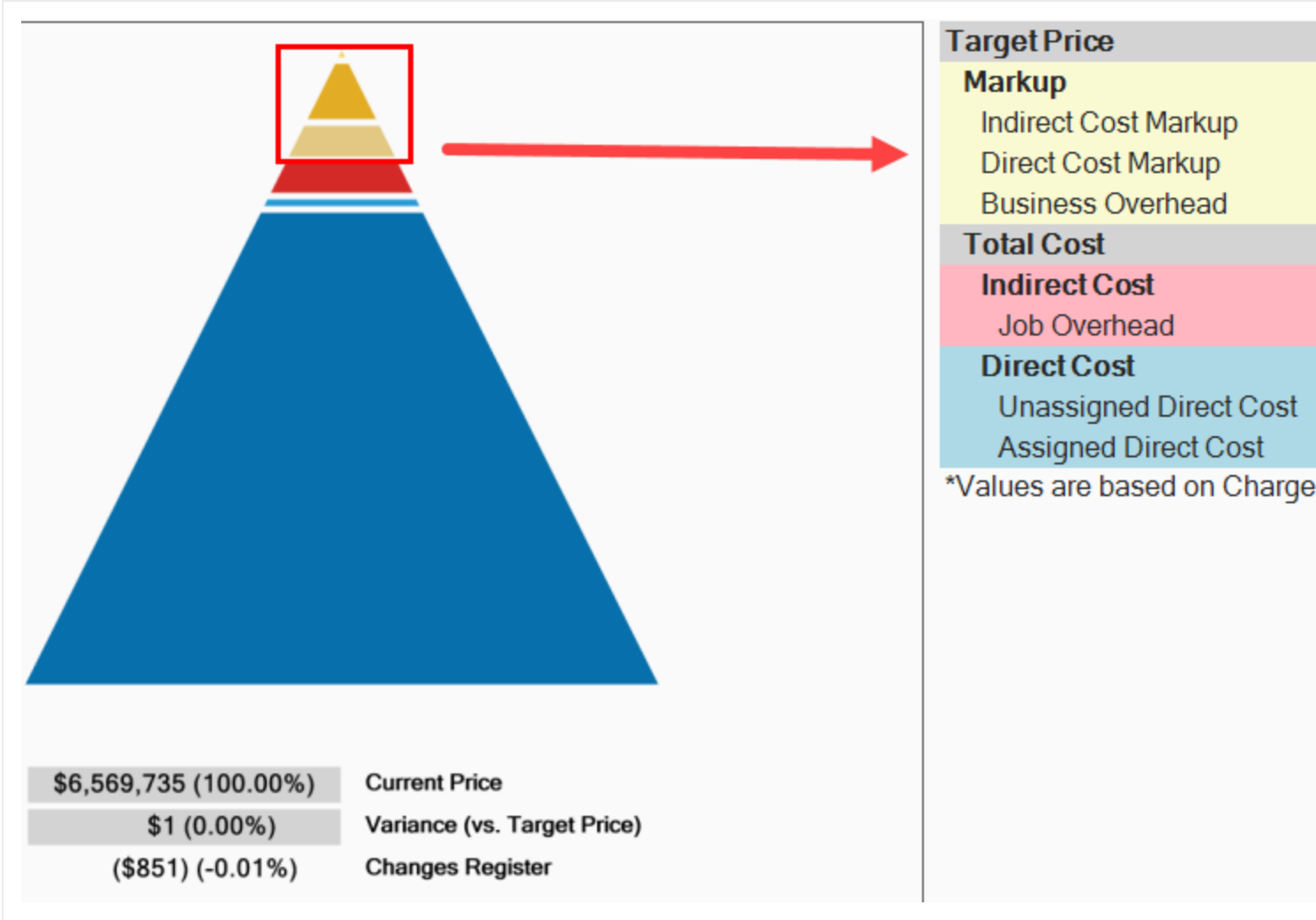
On top of your direct costs, you can decide if costs with a cost segment of business overhead should be indirect costs or markup. You estimate your direct and indirect costs in the CBS Register.





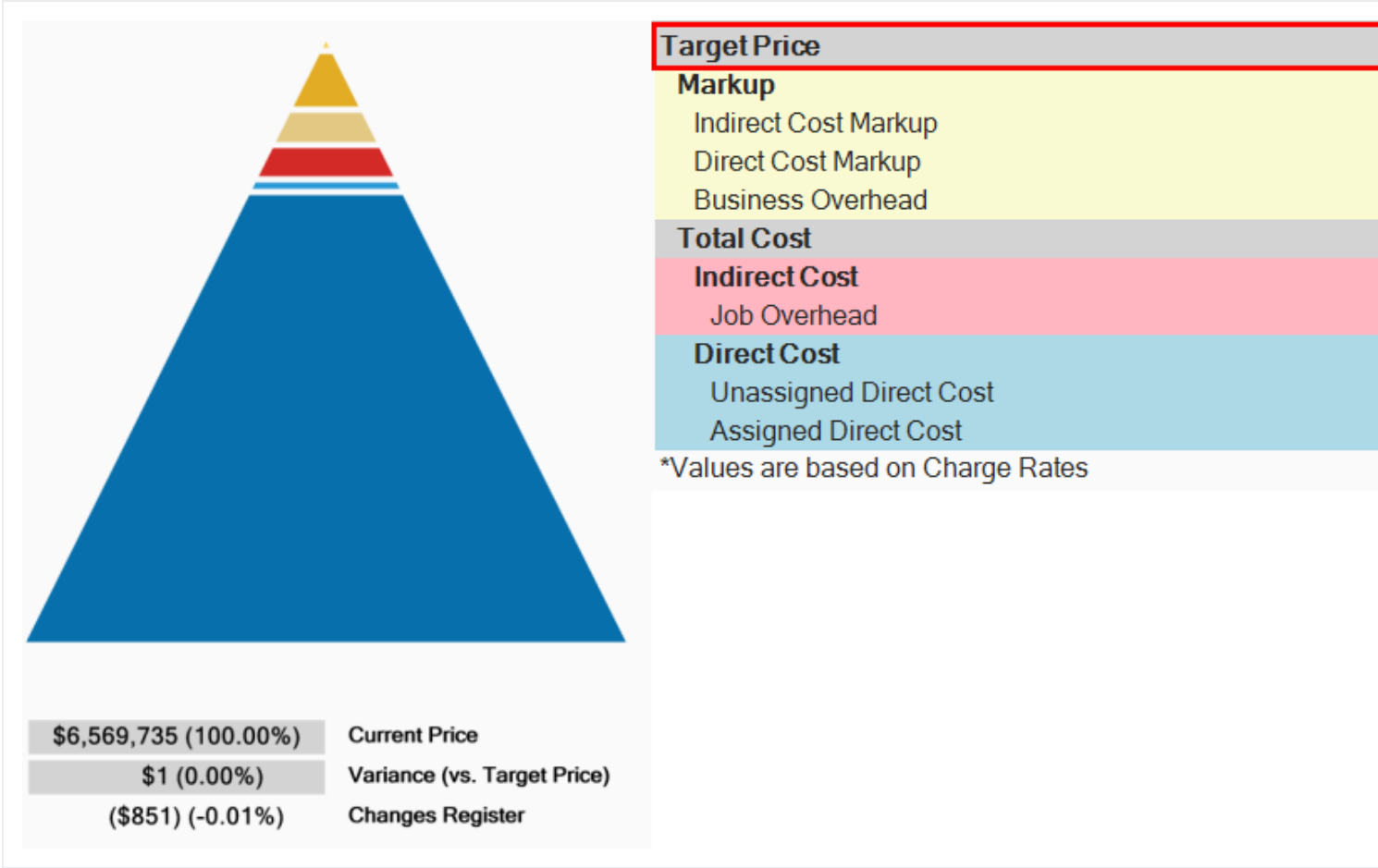
At the top of the pyramid you add an amount for profit. You add profit in the Price Breakdown Structure (PBS) form. There is a very small block at the top of the Data Map, which comprises 0.22% of Indirect Cost Markup.





The total of the direct cost, indirect cost, and profit in the project is referred to in InEight Estimate as the Target Price. This is the final price that you want to submit as your proposal.





### 7.1.2 Price Breakdown Structure

As you already practiced, your direct and indirect costs are estimated in the CBS. Your project’s profit needs to be defined in the Price Breakdown Structure (PBS) form.

The main purpose of the Price Breakdown Structure (PBS) is to add markup (profit) to the estimate. The Price Breakdown Structure is a visual run-down of the costs and profit that make up your Target Price. It helps you analyze how your costs contribute to the price you are targeting, including the amount of profit you would like to include.

You can open the PBS from the InEight Estimate landing page by selecting the **Price** tab, then **Price Breakdown Structure (PBS)** from the Overhead and Profit section.



### Overview – Price Breakdown Structure

Name		Definition
1	PBS Description	<p>The left side of the screen displays several cost classifications:</p> <ul style="list-style-type: none"> <li>• Target Profit</li> <li>• Business Overhead</li> <li>• Job Overhead</li> <li>• Direct Cost</li> </ul>
2	Various Columns	<p>The Assigned and Unassigned columns show which costs are either assigned or not assigned to pay items. Unassigned costs are spread back to pay items based on the distribution logic set in Job Properties &gt; Pricing. The Total columns represents a summation of both columns.</p> <p>Each layer displays with an amount, and the percentage of the Target Price that this amount represents.</p>
3	PBS Menu	<p>The right side of the screen holds several tabbed pages of information. This information is useful in analyzing the job at a summary level.</p>
4	Refresh Data	<p>To ensure that you are always reviewing the most up-to-date factors and ratios, click the Refresh Summary Data button whenever you are reviewing the data.</p>



Price Breakdown Structure					Markup Analysis   Price Status   Cost Source   Resource Utilization			
Description	Assigned	Unassigned	Total	% of Target	Markup Analysis (based on Bid Quantities and Charge Rate Markup)			
Price Breakdown Structure								
Target Price	\$5,252,19...	\$1,317,54...	\$6,569,73...	100.00				
Markup	\$0.00	\$984,119.62	\$984,119.62	14.98				
Target Profit		\$638,196.32	\$638,196.32	9.71				
Indirect Cost Markup		\$15,122.66	\$15,122.66	0.23	Markup as % of All Costs (Target Price - Markup)			
Direct Cost Markup		\$623,073.66	\$623,073.66	9.48	Markup as % of All Labor Costs			
Business Overhead	\$0.00	\$345,923.30	\$345,923.30	5.27	Markup as % of All Direct Labor Costs			
Price % Add-On	\$0.00	\$295,638.13	\$295,638.13	4.50	Markup as % of All Indirect Labor Costs			
Job Financing	\$0.00	\$33,105.26	\$33,105.26	0.50	Markup as % of All Owned Equipment and Rented Equipment Costs			
Indirect Cost Escala...	\$0.00	\$2,131.11	\$2,131.11	0.03	Markup as % of All OE Ownership and RE Rental Costs			
Direct Cost Escalation	\$0.00	\$15,048.80	\$15,048.80	0.23	Markup as % of All OE Operation and RE Operation Costs			
Business Overhead ...	\$0.00	\$0.00	\$0.00	0.00	Markup as % of All Materials Costs			
Total Cost	\$5,252,19...	\$333,421.97	\$5,585,61...	85.02	Markup as % of All Supplies Costs			
Indirect Cost	\$0.00	\$332,421.97	\$332,421.97	5.06	Markup as % of All Subcontract Costs			
Job Overhead	\$0.00	\$332,421.97	\$332,421.97	5.06	Markup per Manhour			
Prime Bond	\$0.00	\$47,148.68	\$47,148.68	0.72	Markup per Equipment hour			
Indirect Cost A...	\$0.00	\$5,888.67	\$5,888.67	0.09				
Direct Cost Add...	\$0.00	\$104,088.34	\$104,088.34	1.58				
Job Overhead I...	\$0.00	\$175,296.28	\$175,296.28	2.67				
Direct Cost	\$5,252,19...	\$1,000.00	\$5,253,19...	79.96				
Direct Cost Items	\$5,252,19...	\$1,000.00	\$5,253,19...	79.96				

**TIP**

All costs in the Price Breakdown Structure are based on pay quantities (not forecast take-off quantities).

### 7.1.3 Markup vs. Margin

Let's look at the difference between Markup and Margin.

- Markup is a function of cost, while margin is a function of price
- Markup indicates how much you are marking up the cost
- Margin indicates what percentage of your price the markup represents

The percentages on the main PBS screen are margin, so you can see what percentage each category in the PBS represents compared to the total price. If you enter 10% in the Target Profit field, your profit will be 10% margin of your total price.



Description	Assigned	Unassigned	Total	% of Target
▼  Price Breakdown Structure				
▼  Target Price	\$5,252,19...	\$1,317,54...	\$6,569,73...	100.00
▼  Markup	\$0.00	\$984,119.62	\$984,119.62	14.98
>  Target Profit		\$638,196.32	\$638,196.32	9.71
>  Business Overhead	\$0.00	\$345,923.30	\$345,923.30	5.27
▼  Total Cost	\$5,252,19...	\$333,421.97	\$5,585,61...	85.02

When you open the Direct or Indirect Markup Records, the Rate percentage there indicates markup of the cost. If you enter 10% markup on \$100, the markup will be \$10.

Within Job Properties, you can choose if costs with a cost segment of business overhead should be indirect costs or markup. If selecting markup, then Business Overhead will be spread within the Markup category of the Price Breakdown Structure. The Total Markup will be the sum of Target Profit and all Items categorized as Business Overhead.

Data Map

Job Properties

Overview

Security

Cover Sheet

Cost Basis

Minority Setup

Fuel Cost

Job Tracking

Job Folder Tags

Pricing

Balanced Price Options

Calculate Balanced Pay Item Prices using:

☒ Cost Amount
 ☐ Billing Amount

Distribute Unassigned Cost/Billing Amount by:

☒ Individual Categories
 ☐ Top level Categories
 ☐ Total Cost/Billing amount

Markup Options

Markup Pay Item by:

☒ Using Weighted Distribution
 ☐ Keeping Markup with Assigned Costs

Categorize Business Overhead as:

☐ Indirect Cost
 ☒ Markup



This lets you see the true total cost of the job, including the total markup inclusive of the business overhead. You can also create cost items and categorize them as business overhead, then possibly include overhead costs such as estimating or home office expenses. This provides you with added flexibility in marking up your job.

## 7.1.4 Define Profit

Before you define profit, review the PBS. You estimated your direct cost items, and you also estimated some indirect cost items in the CBS. You can view your direct and indirect cost totals on the Price Breakdown Structure. Notice you have not defined profit yet.

Description	Assigned	Unassigned	Total	% of Target
▼  Price Breakdown Structure				
▼  Target Price	\$5,252,19...	\$645,755.99	\$5,897,950.68	100.00
▼  Markup	\$0.00	\$315,692.95	\$315,692.95	5.35
▼  Target Profit		\$0.00	\$0.00	0.00
Indirect Cost Markup		\$0.00	\$0.00	0.00
Direct Cost Markup		\$0.00	\$0.00	0.00
▼  Business Overhead	\$0.00	\$315,692.95	\$315,692.95	5.35
<input type="checkbox"/> Price % Add-On	\$0.00	\$265,407.78	\$265,407.78	4.50
<input type="checkbox"/> Job Financing	\$0.00	\$33,105.26	\$33,105.26	0.56
<input type="checkbox"/> Indirect Cost Escala...	\$0.00	\$2,131.11	\$2,131.11	0.04
<input type="checkbox"/> Direct Cost Escalation	\$0.00	\$15,048.80	\$15,048.80	0.26
<input type="checkbox"/> Business Overhead ...	\$0.00	\$0.00	\$0.00	0.00
▼  Total Cost	\$5,252,19...	\$330,063.05	\$5,582,257.73	94.65
▼  Indirect Cost	\$0.00	\$329,063.05	\$329,063.05	5.58
▼  Job Overhead	\$0.00	\$329,063.05	\$329,063.05	5.58
<input type="checkbox"/> Prime Bond	\$0.00	\$43,789.75	\$43,789.75	0.74
<input type="checkbox"/> Indirect Cost A...	\$0.00	\$5,888.67	\$5,888.67	0.10
<input type="checkbox"/> Direct Cost Add...	\$0.00	\$104,088.34	\$104,088.34	1.76
<input type="checkbox"/> Job Overhead I...	\$0.00	\$175,296.28	\$175,296.28	2.97
▼  Direct Cost	\$5,252,19...	\$1,000.00	\$5,253,194.68	89.07
<input type="checkbox"/> Direct Cost Items	\$5,252,19...	\$1,000.00	\$5,253,194.68	89.07

You can define profit by entering a profit percentage directly on the PBS, or by modifying the Direct or Indirect Cost Markup Records.

The following steps walk you through plugging a Target Profit percentage directly on the PBS form.



### 7.1.4.1 Profit as a Percentage of Target Price

#### Step by Step — Add Profit as a Percentage of Target Price

1. Open your job in InEight Estimate.
2. From the InEight Estimate landing page, select the **Price** tab.
3. Select **Price Breakdown Structure (PBS)** from the Overhead and Profit section.
4. On the Target Profit row, enter a **numeric value** in the % of Target Price column, then press **Tab**.

Notice that entering that Target Profit has the following effects, once you tab off the field:

- Your Target Price increases
- Indirect and Direct Cost Markup values automatically have amounts pushed down to them
- The amounts for both Prime Bond and Price % Add-On increase, as they are based on a percentage of the Target Price
- Direct Cost and Job Overhead amounts don't change, but their % of Target Price changes

### 7.1.4.2 Profit Through Direct Cost Markup Record

The following steps walk you through how to add profit as markup on the Direct Cost Markup record.

#### Step by Step — Modify the Direct Cost Markup Record

1. On the Price Breakdown Structure (PBS) form, double click on the **Direct Cost Markup** row.

Description	Cost	% of Target
▼ ▲ Price Breakdown Structure		
▼ ▲ Target Price	\$6,568,772.37	100.00
Target Profit	\$656,877.24	10.00
1 ▲ Direct Cost Markup	\$623,140.54	9.49
▲ Indirect Cost Markup	\$33,736.70	0.51
▼ ▲ Total Cost	\$5,911,895.14	90.00



- In the Markup Cost Item Record, override the Default entry with **Direct Cost Markup** in the Description field.

Drag columns here to group

Description	Currency
Direct Cost Markup	U.S. Dollar

- In the Rate column on the Dependency Cost Breakdown, a numeric value for your rates in the Labor Cost, Owned Equipment, Materials, and Fees categories. Reset the other categories back to **0**.
  - Notice the average rate rolls up at the Total cost category level

Cost Breakdown			
Cost Category	Subject Cost	Rate	Cost
▼ Total	\$133,226.64	12.15	\$16,191.02
▶ Labor	\$59,096.84	15.00	\$8,864.53
▶ Owned Equipment	\$70,591.72	10.00	\$7,059.17
▶ Rented Equipment	\$0.00	0.00	\$0.00
▶ Supplies	\$0.00	0.00	\$0.00
▶ Materials	\$3,276.00	8.00	\$262.08
▶ Subcontract	\$0.00	0.00	\$0.00
▶ Fees	\$262.08	2.00	\$5.24
▶ Allowance	\$0.00	0.00	\$0.00
Custom Category 1	\$0.00	0.00	\$0.00
Undefined	\$0.00	0.00	\$0.00

- Click **OK** to save your changes and return to the PBS.

- The Direct Cost Markup now is a different percentage of the Target Price, and the Target Profit and Target Price have changed

Description	Cost	% of Target
▼ Price Breakdown Structure		
▼ Target Price	\$248,161.82	100.00
▼ Target Profit	\$25,249.17	10.17
▼ Indirect Cost Markup	\$9,058.15	3.65
▼ Direct Cost Markup	\$16,191.02	6.52
▼ Total Cost	\$222,912.65	89.83



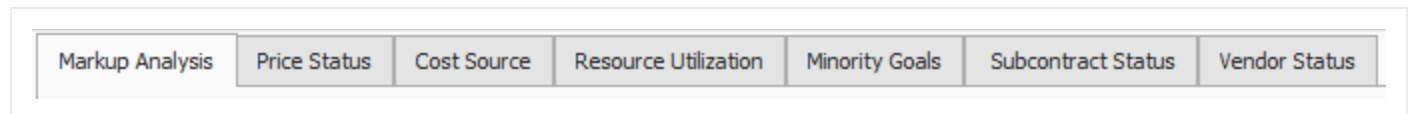
5. Click the **Refresh Summary Data** button on the PBS to see the changes reflected.

## 7.2 COST ESTIMATE AUDIT/REVIEW

InEight Estimate offers built-in reports to double check your estimate and review different aspects of your project, including material costs, quotes, man-hours and production.

### 7.2.1 Price Breakdown Structure Tabs

The purpose of the tabs on the Price Breakdown Structure is to assist with estimate reviews.



#### 7.2.1.1 Markup Analysis

On this tab, you can compare your profit to your costs for labor, subcontract and other cost groupings. By seeing the ratios of your markup compared to your different cost categories, you can gauge if you have the right balance of costs in your estimate.

Markup Analysis (based on Bid quantities)		
Markup as % of	All Costs (Target Price - Target Profit)	11.11
Markup as % of	All Labor Costs	79.42
Markup as % of	All Direct Labor Costs	94.07
Markup as % of	All Indirect Labor Costs	510.05

For example, if your markup is more than 100% of your Labor cost, it may indicate that you don't have enough labor cost in your estimate to cover the work, which could indicate labor cost overruns during execution that would eat into your profit margin.



### 7.2.1.2 Cost Source

The Cost Source tab shows the breakdown of Detail, Plug and Quote cost sources, as well as the amounts and percentages of each that are attributable to Direct and Indirect cost. Your Plug cost source should be the lowest percentage.

Markup Analysis	Price Status	Cost Source	Resource Utilization	Minority Goals	Subcontract Status	Vendor Status
-----------------	--------------	-------------	----------------------	----------------	--------------------	---------------

Cost Source Analysis (based on Bid quantities)								
	Detail		Plug *		Quote		Total	
	Amount	%	Amount	%	Amount	%	Amount	%
Direct Cost	\$5,156,491.67	97.95	\$64,600.00	1.23	\$43,200.00	0.82	\$5,264,291.67	100.00
Indirect Cost	\$638,694.52	98.62	\$5,338.76	0.82	\$3,570.19	0.55	\$647,603.46	100.00
Total	\$5,795,186.19	98.03	\$69,938.76	1.18	\$46,770.19	0.79	\$5,911,895.14	100.00

\* Includes values entered as flat amounts (not percentages) on dependent cost items.

### 7.2.1.3 Resource Utilization

The Resource Utilization tab shows a breakdown of the man-hours and equipment hours utilized on the job, based on take-off quantities.

Markup Analysis	Price Status	Cost Source	Resource Utilization
-----------------	--------------	-------------	----------------------

Resource Utilization Analysis (based on T/O quantities)	
Total Manhours	26,838.86
Total Equipment Hours	15,961.51
Total Shift Hours	5,508.23
Total Days *	682.70
Total Schedule Days	168.00

\* shift hours divided by (hours per shift times shift per day)



### 7.2.1.4 Subcontract Status

The Subcontract Status tab displays a breakdown of subcontractor amounts, costs, and percentages for quoted cost items. This is a good place to review how much of your estimate is subcontracted.

### 7.2.1.5 Vendor Status

The Vendor Status tab displays a breakdown of vendor information, including amounts and percentages of the Target Price represented by vendors. This is a good place to review how much of your estimate costs come from vendor quotes.

Markup Analysis	Price Status	Cost Source	Resource Utilization	Minority Goals	Subcontract Status	Vendor Status
<b>Vendor Analysis (based on Bid quantities)</b>						
Number of Vendors		2				
Total Vendor Amount		\$1,442,571.90				
% of Target Price		21.96				
Company Name	Contact	Phone	Amount	Currency	Percent	Street Address
Example Vendor 4 DBE	Slim, Lester	111-122-1321	\$271,471.20	U.S. Dollar	4.13	400 Fourth Street
Example Vendor 1	Roberts, Pat	111-123-2134	\$1,171,100.70	U.S. Dollar	17.83	100 Tenth Street

## 7.3 SPREAD TARGET PRICE OVER PAY ITEMS

In the Cost Breakdown Structure you generated your direct and indirect costs, and in the Price Breakdown Structure you added profit to come up with a Target Price for the bid, but you still haven't decided how to spread the Target Price over your pay items.

In Lesson 4 you created pay items for the project in the Pay Item & Proposal Register. You can now go back to the Pay Item & Proposal Register to distribute your Target Price over those pay items.

### 7.3.1 Current Price vs. Target Price

In InEight Estimate, Current Price means the total price that is currently assigned on your pay items. Open the Pay Item & Proposal Register to see what the Current Price is for your pay items (Price > Pay Item & Proposal).



At this point there is no pricing on your pay items, so your Current Price is \$0.00. This is because you have not yet spread your Target Price (the total of your cost and profit) over your pay items.

Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Meas...	Unit Price (cu...	Total Price (current)
+ Mobilization	1.00	1.00	Each	\$0.00	\$0.00
+ Clearing and Grubbing	10.00	15.00	Acre	\$0.00	\$0.00
+ Excavation	50,000.00	40,000.00	CY	\$0.00	\$0.00
+ 10 " PVC Pipe	1,000.00	1,000.00	LF	\$0.00	\$0.00

### 7.3.2 Proposal Recap

On the Pay Item & Proposal Register, there is a Proposal Recap table where you can compare your Current Price to your Target Price to see if there is any variance.

Proposal Recap - Training Job					
	Current	Target	Forecast	Variance	
Price:	\$6,455,450.00	\$6,506,904.35	\$6,462,850.00	\$51,454.35	<b>ADD</b>
Profit:	\$599,221.88	\$650,676.22	\$655,858.61	\$5,182.39	<b>CUT</b>
Margin%:	9.28	10.00	10.15	\$10,653.01	<b>CUT</b>

Ideally, you want to add pricing to your pay items until your Current Price equals your Target Price, so that your Variance equals zero. That way you know you are covering all your costs and getting the profit you want.

Notice the Variance column will indicate if you need to ADD or CUT pricing on your pay items to hit your Target Price.

### 7.3.3 Spread the Target Price

For lump sum contracts, spreading the Target Price may be as simple as spreading it to a single pay item that represents the entire project. However, most jobs will have at least a few pay items defined by the owner, and Unit Price contracts will have many pay items.

There are two main ways to distribute pricing onto your pay items:



1. Define pay item prices manually, by entering a unit or total price, or a margin percentage.
2. Use InEight Estimate's AutoPrice feature to distribute pricing automatically.

### 7.3.4 Define Pricing for Pay Items Manually

First, you will walk through the process of defining pricing manually. This method requires filling in each item's price based solely on your own judgment.







#### Step by Step — Define Pricing Manually

1. From the InEight Estimate landing page, select the **Price** tab.
2. Select **Pay Item & Proposal** from the Pay Items section.
  - Review the Proposal Recap and determine where adds or cuts are needed. If your Current Price is \$0.00, you need to add the entire Target Price to your pay items

	Current	Target	Forecast	Variance	
Price:	<b>\$0.00</b>	\$248,161.82	\$0.00	\$248,161.82	<b>ADD</b>
Profit:	(\$222,912.65)	\$25,249.17	(\$219,532.90)	\$244,782.07	<b>ADD</b>
Margin%:	0.00	10.17	0.00	\$244,399.25	<b>ADD</b>

3. Select a **pay item**.
  - Notice at the top-right of your register you have an Item Recap to tell you what the direct cost, overhead and profit would be for the Civil Work pay item if it was balanced



Item Recap - 1000 Mobilization			
		Balanced Unit	Current Unit
	<b>Price:</b>	\$31,225.08	<b>\$0.00</b>
	<b>Profit:</b>	\$3,216.65	(\$28,008.43)
	<b>Total Cost:</b>	\$28,008.43	\$28,008.43
	Business Overhead:	\$1,929.76	
	Job Overhead:	\$6,078.66	
	Unassigned Direct Cost:	\$0.00	
	Assigned Direct Cost:	\$20,000.00	

4. First, define pricing manually. In the **Total Price (current)** field for your selected pay item, enter a **dollar amount**.

Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Meas...	Unit Price (current)	Total Price (current)
Mobilization	1.00	1.00	Lump Sum	\$20,000.00	\$20,000.00

5. Use Go to Column (<Ctrl> - G) to find the **% Margin** column, bring it in next to the Total Price (current) column, and adjust your % Margin amount as needed.

Pay Item Number	Description	Pay Qua...	Forecast (T/O) Quantity	Unit of Meas...	Curre...	Unit Price (current)	Total Price (current)	% Margin
+ 1000	Mobilization	1.00	1.00	Lump Sum	U.S. Dollar	\$20,000.00	\$20,000.00	-40.04
+ 2000	Clearing & Grubbing	10.00	15.00	Acre	U.S. Dollar	\$4,705.04	\$47,050.40	5.00
+ 3000	Excavation	50,000.00	40,000.00	CY	U.S. Dollar	\$0.00	\$0.00	0.00
+ 4000	10" PVC Pipe	1,000.00	1,000.00	LF	U.S. Dollar	\$0.00	\$0.00	0.00

### 7.3.5 Use AutoPrice to Balance and Hit the Target Total

Perhaps you want to get a head start and have InEight Estimate spread your Target Price proportionately over your pay items for you. This can be done using the InEight Estimate AutoPrice



feature.

**TIP**

Once distributed, you will still have the ability to adjust your pricing on pay items manually as needed.

Look at how you can use the AutoPrice feature.

### Step by Step — Use AutoPrice to Balance and Hit the Target Total

1. Open the your job in InEight Estimate.
2. From the InEight Estimate landing page, select the **Price** tab.
3. Click on **Pay Item & Proposal** to open the Pay Item & Proposal Register.
4. On the Pay Item & Proposal Register menu, choose **Actions > Balanced Bid > Hit Target Total**.
5. Review the Proposal Recap and see that the Variance is now \$0.00. Now that the job is balanced, you can see that the Current Price and the Target Price are the same, indicating that the costs and profit are spread proportionately over your pay items.

## 7.3.6 Use AutoPrice to Unbalance and Hit the Target Total

The Autoprice to Unbalance feature in InEight Estimate can automatically distribute profit to account for your over- and underrun items.

InEight Estimate will take profit from your underrun and put it on your overrun by using the Actions > Unbalanced > Hit Target Total feature. The purpose is to maximize your profit by spreading it strategically between these items.

### Step by Step — Unbalance Hit Target Total

1. You may encounter overrun and/or underrun items in the Pay Item & Proposal Register of your job.



Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Meas...	Curre...
Excavation	10.00	15.00	Cubic Yard	U.S. Dollar
Clearing & Grubbing	50,000.00	40,000.00	Acre	U.S. Dollar

2. If you do, highlight the row for each item to view it's current balanced item recap.

Item Recap - 2000 Clearing && Grubbing				Item Recap - 3000 Excavation			
		Balanced Unit	Current Unit			Balanced Unit	Current Unit
▲	Price:	\$4,985.70	\$4,994.91	▲	Price:	\$2.86	\$2.86
▲	Profit:	\$515.91	\$525.12	▲	Profit:	\$0.29	\$0.29
	Total Cost:	\$4,469.79	\$4,469.79		Total Cost:	\$2.57	\$2.57
▲	Business Overhead:	\$245.35		▲	Business Overhead:	\$0.15	
▲	Job Overhead:	\$1,681.60		▲	Job Overhead:	\$0.91	
▲	Unassigned Direct Cost:	\$0.00		▲	Unassigned Direct Cost:	\$0.00	
▲	Assigned Direct Cost:	\$2,542.84		▲	Assigned Direct Cost:	\$1.52	

3. On the Pay Item & Proposal Register menu, choose **Actions > Unbalanced Bid**.

**Actions**

Link Field
Unlink Field

☒ Assigned Direct Cost Only
☒ Overwrite Locked Pay Items

☒ Balanced Bid
☒ Custom Auto Price

☒ **Unbalanced Bid**

**Workbook**
**Auto Price**

- You will see the changes reflected and how the profit was spread to your overrun and underrun items

Unit Price (current)	Total Price (current)	% Margin
\$3,000.00	\$150,000,000.00	-9.26
\$4,871.84	\$48,718.40	97.68
\$91,100.00	\$91,100.00	10.05



- In the example shown, highlighting each item will show that all your overhead and profit from Excavation was put onto Clearing & Grubbing.

Item Recap - 2000 Clearing && Grubbing			
		Balanced Unit	Current Unit
▲	Price:	\$4,985.70	\$11,706.11
▲	Profit:	\$515.91	\$7,236.32
	Total Cost:	\$4,469.79	\$4,469.79
▲	Business Overhead:	\$245.35	
▲	Job Overhead:	\$1,681.60	
▲	Unassigned Direct Cost:	\$0.00	
▲	Assigned Direct Cost:	\$2,542.84	

Item Recap - 3000 Excavation			
		Balanced Unit	Current Unit
▲	Price:	\$2.86	\$1.52
▲	Profit:	\$0.29	(\$1.05)
	Total Cost:	\$2.57	\$2.57
▲	Business Overhead:	\$0.15	
▲	Job Overhead:	\$0.91	
▲	Unassigned Direct Cost:	\$0.00	
▲	Assigned Direct Cost:	\$1.52	



## Exercise 7.1 — Manually Price Pay Items

To finalize your bid proposal, you will apply final pricing (costs and profit) to your pay items either manually or using the AutoPrice tool. In this exercise, you will practice entering prices manually for your pay items. Complete the following steps, using your E101 – Training Job.

1. Continue manually pricing items in the Pay Item & Proposal Register.
2. Type **2.75** in the Unit Price (current) column for pay item Unclassified Excavation.
3. Type **2** in the % Margin field for pay item 4000 – 10" PVC Pipe.
4. Check your variance to see if you need to add or cut your current pricing to hit your Target Price.

**You should end up with the following results**

Pay Item Number	Row Nu...	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Meas...	Unit Price (current)	Total Price (current)	% Margin
+ 1000	1	Mobilization	1.00	1.00	Lump Sum	\$20,000.00	\$20,000.00	-40.04
+ 2000	2	Clearing & Grubbing	10.00	15.00	Acre	\$4,705.04	\$47,050.40	5.00
+ 3000	3	Excavation	50,000.00	40,000.00	CY	\$2.75	\$137,500.00	6.44
+ 4000	4	10" PVC Pipe	1,000.00	1,000.00	LF	\$22.00	\$22,000.00	1.99

According to the Proposal Recap, you need to add \$21,611.42 to reach your Target Price.

### Proposal Recap - E101 - Training Job PB2

	Current	Target	Forecast	Variance	
Price:	<b>\$226,550.40</b>	\$248,161.82	\$222,575.60	<b>\$21,611.42</b>	<b>ADD</b>
Profit:	\$3,637.75	\$25,249.17	\$3,042.70	\$22,206.47	<b>ADD</b>
Margin%:	1.61	10.17	1.37	\$21,823.65	<b>ADD</b>

**Congratulations, you have completed this exercise!**



## 7.4 BID ADJUSTMENTS


Often you will want to continue adjusting certain pay items and then rebalance to hit the target total.

### 7.4.1 Lock Price

You can lock down a pay item price and it will not factor in future rebalancing.

#### Step by Step — Lock Price

1. Select the **Lock Price** checkbox on an item's row.

Pay Item Number	Description 	Lock Price	Pay Quantity	Forecast (T/O) Quantity
+ 202 0183	Unclassified Excavation	<input type="checkbox"/>	50,000.00	50,000.00
+ 641 0100	Mobilization	<input checked="" type="checkbox"/>	1.00	1.00
+ 201 0102	Clearing & Grubbing	<input type="checkbox"/>	10.00	10.00

2. After making further adjustments in the next step by step, you will return to the Pay Item & Proposal to rebalance.
  - You can continue to adjust at previous levels aside from solely in the Pay Item & Proposal Register
  - For example, you could make a last-minute adjustment in the PBS or CBS. You can make adjustments anywhere, but for this example an adjustment will be made in the Direct Cost Add-On record at the CBS level

#### Step by Step — Make Last Minute Bid Adjustments

1. With your job open, select the **Estimate** tab.
2. Click on **Cost Breakdown Structure** to open the CBS.
3. Double click on the row header to open the **Direct Cost Add-On** dependent cost item record.



4. Under the Description tab on the left, click in the blank row under the **Description** column.
5. Type in a **description**.
6. Make the adjustment by typing a **numeric value** in the **Cost** column of the Materials Cost category under the Cost Breakdown section on the right.

Cost Breakdown				
Cost Category	Subject Cost	Rate		Cost
▼ Total	\$130,759.83	-0.76		(\$1,000.00)
▶ Labor	\$58,969.83	0.00		\$0.00
▶ Owned Equipment	\$68,251.92	0.00		\$0.00
▶ Rented Equipment	\$0.00	0.00		\$0.00
▶ Supplies	\$0.00	0.00		\$0.00
▶ Materials	\$3,276.00	-30...		(\$1,000.00)
▶ Subcontract	\$0.00	0.00		\$0.00
▶ Fees	\$262.08	0.00		\$0.00
▶ Allowance	\$0.00	0.00		\$0.00
Custom Category1	\$0.00	0.00	→	\$0.00
Undefined	\$0.00	0.00	→	\$0.00

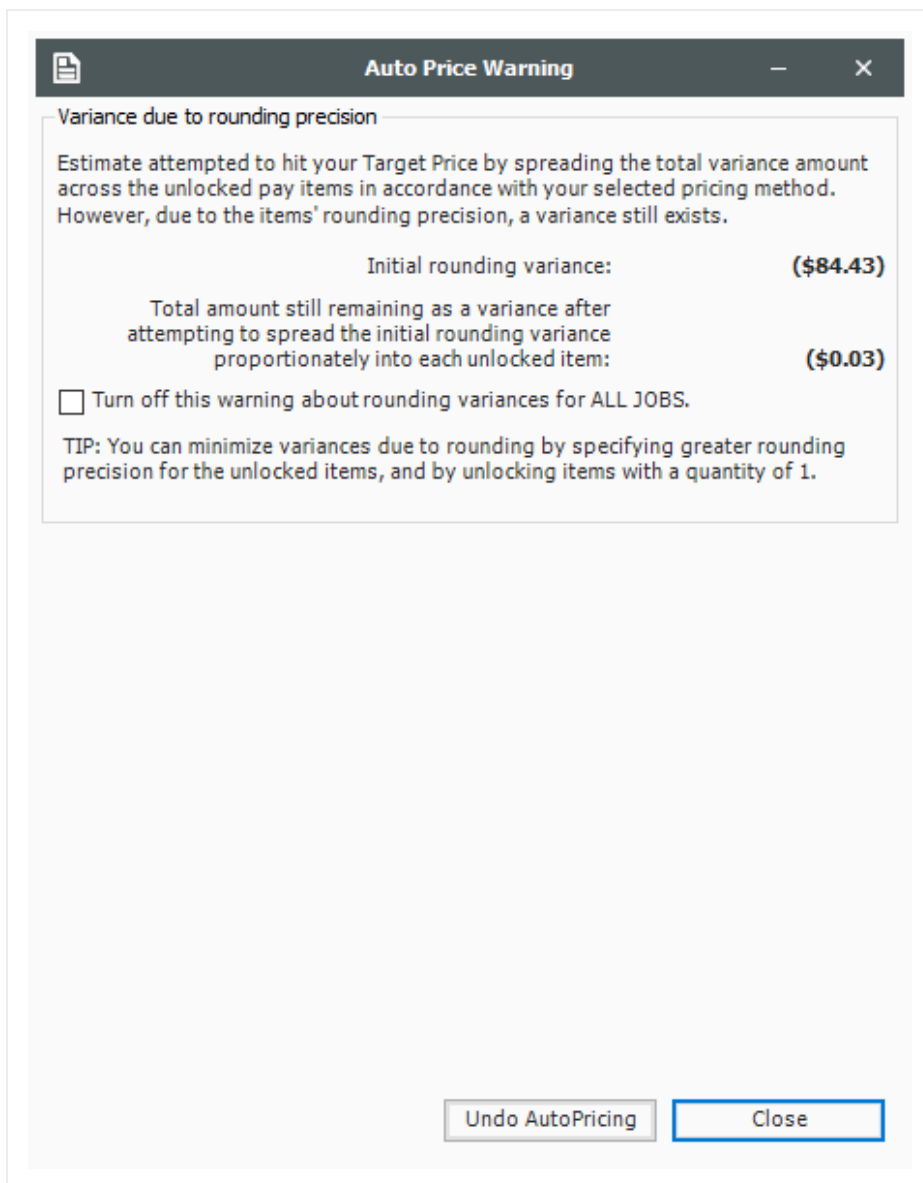
- To make a cut, enter a negative value, i.e. -1000

7. Press the **Tab** key, and your adjustment will be reflected on the left-hand side.

Description	Dependency	Cost Categorization	Allocation	
Drag columns here to group				
	Description	Curre...	Total Cost (Forecast)	Ac Co
	Small Tools	U.S. Dollar	\$5,896.98	
	Safety & Training	U.S. Dollar	\$2,948.49	
→	Cut	U.S. Dollar	(\$1,000.00)	
*				

8. Finally, return to the **Pay Item & Proposal**.
9. On the **Actions** menu, select **Balanced Bid > Hit Target Total**.
10. An Auto Price Warning may display, informing you of rounding variances. After reading the details, click the **Close** button.

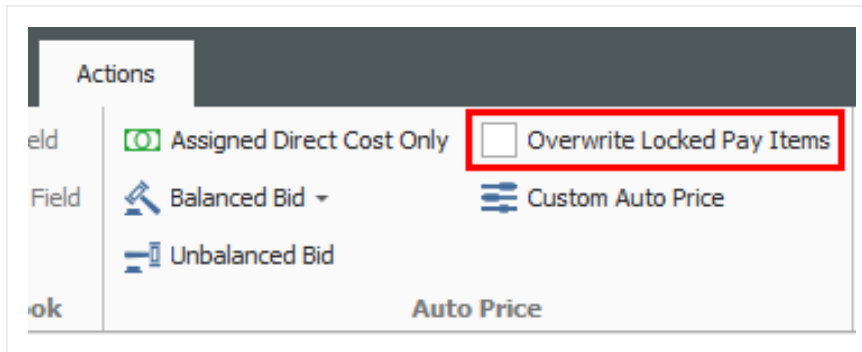




- Note on the proposal recap that a variance may still exist because there are limited number of pay items to spread the rounding error over
- Note that the locked item did not adjust, but the other pay items were updated
- Note that you can overwrite locked items for spreading your price by checking the



### Overwrite Locked Pay Items option on the Actions menu



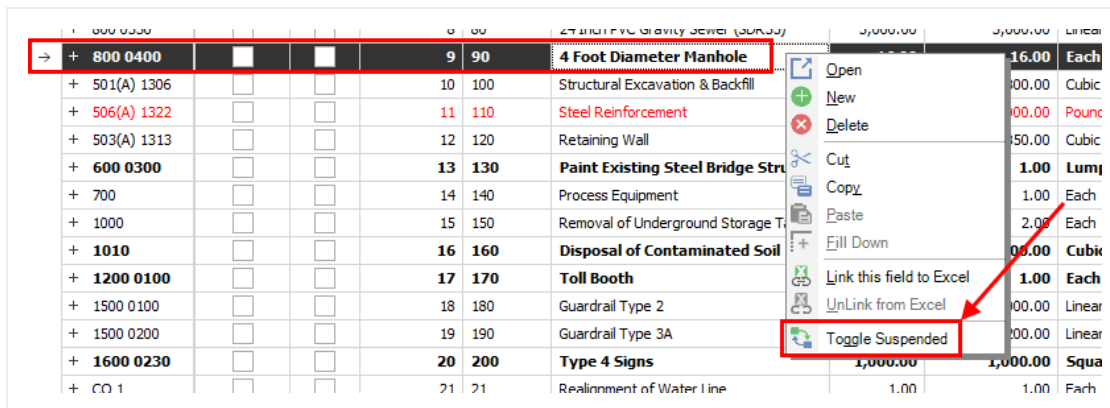
## 7.4.2 Suspend Pay Items

Like suspending cost items in the CBS Register, you can suspend pay items in the Pay Item & Proposal Register. Suspending a pay item causes it to no longer contribute quantities and pricing to the estimate.

This can be helpful when considering alternate items on a bid submission. Should the client decide to not require a pay item, you can suspend it, causing the pay item and any of its assigned cost items to no longer contribute any cost or price. It will no longer show up on your bid and no longer contribute to the overall total price.

You can suspend/unsuspend pay items in one of three ways:

- Right click on the pay item and select Toggle Suspended





- Select the pay item and click Toggle Suspended under the Edit section of the Actions Tab

**Pay Item & Proposal Register**

**Proposal Recap - Training Job**

	Current	Target	Forecast	Variance	
Price:	\$6,455,450.00	\$6,514,915.53	\$6,462,850.00	\$59,465.53	<b>ADD</b>
Profit:	\$592,026.02	\$651,491.55	\$658,609.04	\$7,117.49	<b>CUT</b>
Margin%:	9.17	10.00	10.19	\$13,693.38	<b>CUT</b>

Drag columns here to group

Pay Item Number	Lock Qua...	L... P...	Row Nu...	Line Nu...	Description	Pay Qua...	Forecast (T/O) Quantity	Unit of Meas...
+ 641 0100	<input type="checkbox"/>	<input type="checkbox"/>	1	10	Mobilization	1.00	1.00	Lump Sum
+ 201 0102	<input type="checkbox"/>	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	10.00	Acre
+ 202 0183	<input type="checkbox"/>	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	50,000.00	Ton
+ 303 5912	<input type="checkbox"/>	<input type="checkbox"/>	4	40	Aggregate Base	40,000.00	45,000.00	Ton
+ 303 4263	<input type="checkbox"/>	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton
+ 413(B) 0464	<input type="checkbox"/>	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet
+ 800 0220	<input type="checkbox"/>	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet
+ 800 0330	<input type="checkbox"/>	<input type="checkbox"/>	8	80	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	3,000.00	Linear Feet
→ + 800 0400	<input type="checkbox"/>	<input type="checkbox"/>	9	90	4 Foot Diameter Manhole	16.00	16.00	Each
+ 501(A) 1306	<input type="checkbox"/>	<input type="checkbox"/>	10	100	Structural Excavation & Backfill	800.00	800.00	Cubic Yards

- Open the pay item record and checking/unchecking the Suspend box

**Pay Item & Proposal Register** | **Pay Item Record**

Pay Item Number: \* 800 0400 | Line Number: 90

Description: 4 Foot Diameter Manhole | Alternate: BASE

Suspend: ☐ (highlighted with a red arrow)

Quantity

Lock Quantity:	Pay Quantity:	Forecast (T/O) Qty:	Unit of Measure:	Qty Variance:	Qty Variance %:	Qty Variance Group:
<input type="checkbox"/>	16.00	16.00	Each	0.00	0.00	Even Run

Price

Lock Price:	Unit Price Precision:	Unit Price:	Total Price:	Currency:	Payment Method:	% Margin:



## Lesson 7 Review

1. Markup is a function of cost, while margin is a function of \_\_\_\_\_.
  - a. billing
  - b. price
  - c. job overhead
  - d. indirect costs

---
2. When adding profit, it must be the same amount for direct and indirect costs.
  - a. True
  - b. False

---
3. What options do you have to enter profit on the PBS?
  - a. % Mark-Up, % Margin, and Fixed Dollar Amount
  - b. % Mark-Up or % Margin
  - c. Fixed Dollar Amount Only

---
4. Once distributed, you still can adjust your pricing on pay items manually as needed.
  - a. True
  - b. False

---

## Lesson 7 Summary

As a result of this lesson, you can:

- Add job markup (profit)
- Use tools on the PBS form to review your estimate
- Spread Target Price over pay items
- Make bid adjustments



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# LESSON 8 – QUOTE MANAGEMENT

**Lesson Duration:** 60 Minutes

## Lesson Objectives

After completing this lesson, you will be able to:

- Create and publish RFQs
- Define quote pricing
- Compare and award quotes
- Create and analyze scope items

## Lesson Topics

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## 8.1 QUOTE MANAGEMENT OVERVIEW

### 8.1.1 Quote Management Workflow

When you make the decision to send out RFQs (Requests for Quote), as the estimator you will outline the specifications for the request, select the vendors you wish to contact, and issue the request for quotes.

When you receive quotes back from vendors, you can enter their pricing into InEight Estimate, where you can compare them, award them, and update your CBS costs in one fluid process without the need to re-enter data in multiple locations. InEight Estimate lets you enter multiple vendor quotes to enable price comparison.

**TIP**

Awarding a quote in InEight Estimate does not mean the vendor is awarded the contract, but rather that their price is selected as the carrying cost in the bid.

InEight Estimate provides a built-in workflow for managing your quotes, consisting of three steps:

1. Creating and publishing Requests for Quote (RFQs)
2. Updating quotes with vendor/subcontractor pricing
3. Comparing and awarding quotes

InEight Estimate has a separate form to manage each step:

1. Request for Quote (RFQ) Register
2. Quote Register
3. Quote Comparison & Award



### 8.1.2 Quotes and Quote Groups

Typically, an estimate contains two types of quotes:



1. Quotes for resources (materials, equipment) purchased or rented from suppliers.
2. Quotes for subcontracted work.

In InEight Estimate, quotes from suppliers are managed at the resource level. In other words, you can use material resources to represent the items purchased from the supplier.


For the cost items in your project that you plan to subcontract, you can manage quotes at the cost item level, using the cost items themselves as the descriptions on the quote request.

You can use Quote Groups to group together multiple resources or cost items that will be sent in an RFQ package. Using quote group tags can save a great deal of time generating packages of items to request quotes for.

### 8.1.2.1 Resource Level Quote Groups


When sending out quotes, you may want to organize your resources into groups based on the type of material, such as pipe, aggregate, or concrete. When creating Requests for Quote, you will be able to select your pre-defined quote group and it will bring all the related resources along with it. You can assign quote groups using a pre-defined tag called a Quote Group in the Resource Rate Register.

Below is an example of resources with a quote group assigned:

Resource Rate Register 

All	Labor	Construction Equipment	Rented Construction Equipment	Installed Material	Installed Equipment	Supplies	Unique
-----	-------	------------------------	-------------------------------	--------------------	---------------------	----------	--------

Drag columns here to group

Resource Code 	Description	Quote Group	Resource File Description	Unit of Measure
+ IECT	Cooling Towers	Process Equipment Install	Standard Installed Equipment Rate...	Each
+ IEFC	Feeder Controls	Landscaping Work	Standard Installed Equipment Rate...	Each
+ IEHS	Heating System	Process Equipment Install	Standard Installed Equipment Rate...	Each
+ IEPHP	Pump High Pressure	Commercial Work	Standard Installed Equipment Rate...	Each
+ IERMT	Raw Material Tank	Concrete Materials	Standard Installed Equipment Rate...	Each
+ IERS	Recovery System	Process Materials	Standard Installed Equipment Rate...	Each
+ IEST	Separator Tank	Process Materials	Standard Installed Equipment Rate...	Each

### 8.1.2.2 CBS Level Quote Groups

For your subcontracted items, you can assign quote groups at the cost item level to group together subcontractor work, such as Commercial Work or Landscaping Work. These labels are assigned using a pre-defined tag called Quote Group in the Cost Breakdown Structure register.



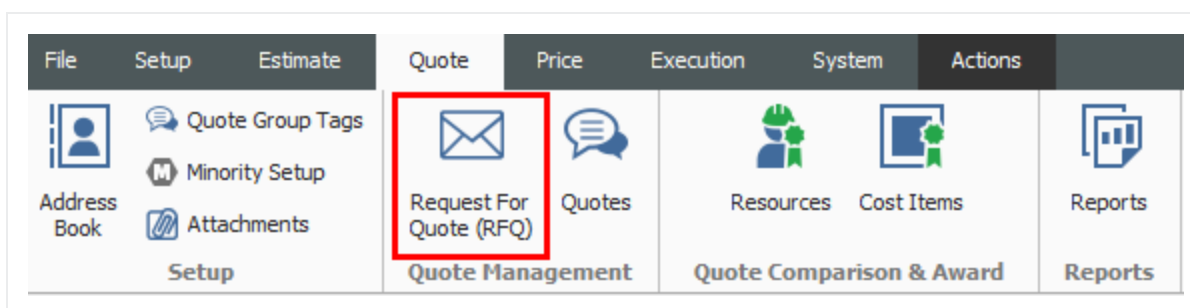
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Quote Group
- 13	Paint Existing Steel Bridge Structure	1.00	Lump Sum	Structural Painting
- 14	Process Equipment	1.00	Each	Process Equipment Install
- 17	Toll Booth	1.00	Each	Commercial Work
+ 18	Guardrail Type 2	1,000.00	Linear Feet	Guardrail Work
+ 19	Guardrail Type 3A	200.00	Linear Feet	Guardrail Work
+ 20	Type 4 Signs	1,000.00	Square Feet	Sign Work

## 8.2 REQUESTS FOR QUOTE

Requests for Quote (RFQs) are invitations to sellers that include a requested list of items or services/pricing and terms. When you create an RFQ in InEight Estimate, you are able to indicate the line items you want to include in the quote, and the vendor(s) to whom you want to send it.

### 8.2.1 Request for Quote (RFQ) Register Overview

To access the Request for Quote (RFQ) Register, from the InEight Estimate landing page, select the Quote tab, then click on Request for Quote (RFQ).



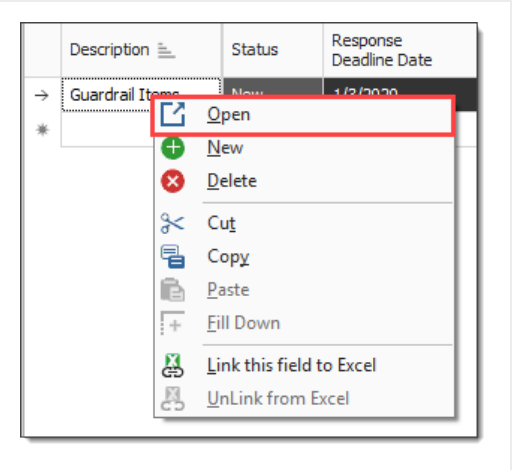
- The RFQ register lists all of the RFQs you've created, with a Description, a Status, and a Response Deadline Date



Cost Breakdown Structure (CBS) Register			Resource Rate Register		Request for Quote (RFQ) Register						
Drag columns here to group											
	Description	Status	Response Deadline Date	Response Deadline Time	Published Date	RFQ Instructions	Buyer's Special Terms	Tag 1	Tag 2	Tag 3	Notes
	Guardrail Items	New	1/3/2020	11:00 AM							
→											

8.2.2 Request for Quote (RFQ) Record

You can double click on the row header, or right-click on any request for quote in the Request for Quote Register and choose **Open** to access an existing Request for Quote (RFQ) Record.



Overview – Request for Quote (RFQ) Record

Name		Definition
1	RFQ Description	Each record contains a Description, Deadline Date and Deadline Time fields to identify the RFQ and indicate when a response is due.
2	RFQ Tabs	The record is organized into tabs where you can define the items for the quote, terms & conditions, and the seller companies to receive the RFQ.
3	Status and Published Data	The Status and Published Date let you know if it is new or published (sent out), and when it was published.



Publish  
Create Quote

Process

**Request for Quote (RFQ) Register** **1** **Request for Quote (RFQ) Record** **3**

Description  
Guardrail Items

Response Deadline Date: 6/28/2019 Response Deadline Time: 11:00:00 AM

Status  
New  
Published Date

**2**

Line Items Terms & Conditions Seller Companies Attachments Setup

Resources Cost Items

Drag columns here to group Find: [Search For...] Saved views: Previous View

	CBS Position Code	RFQ ID	Quote Group Tag	Optional Code	Description	Quantity	Unit of Measure	Currency	Tag 1	Tag 2	Tag 3
→	18	18	Guardrail Work	1500 0100	Guardrail Typ...	1,000.00	Linear Feet	U.S. Dollar	Estimat...	Guardrail	
	19	19	Guardrail Work	1500 0200	Guardrail Typ...	200.00	Linear Feet	U.S. Dollar	Estimat...	Guardrail	
*											

OK Cancel New... < Prev Next >

### 8.2.3 Create an RFQ

When putting together your RFQs, you will be able to select the appropriate material resources and cost items for which you need quotes in your estimate. To create a new RFQ, you have a few options:

- **Create RFQ from scratch:** This creates an empty RFQ Record for you to define
- **Create RFQ from Quote Group Tag(s):** This option lets you create an RFQ from a quote group so you can add multiple materials or subcontract items at once
- **Create RFQ using Default Seller data:** In your address book you can store vendors with a list of their default materials. This option lets you select the vendor and have it automatically find their



materials in the job

New RFQ

Cost Item Identification

Use the following field: CBS Position Code

Please select from the following options:

☒ Create RFQ from scratch

☐ Create RFQ from Quote Group Tag(s)

☒ Only show Quote Group tags that are currently utilized in this job

☒ On the resulting RFQ record, only list resources with utilization currently greater than zero

☐ Create RFQs using Default Seller data

This option scans the job for all Resources and Quote Groups utilized in the job. For any that are listed in the Address Book as 'Default Quotes' for the Sellers you select on the subsequent selection register, a new RFQ record will be added for each Seller listing their default items.

☒ Create separate RFQ records for each Quote Group, per seller?

Description

OK

Cancel

The rest of this section walks through each tab on the RFQ Record in more detail.

8.2.3.1 Line Items

The Line Items tab lists the resources or cost items selected for the RFQ, including the Description, Quantity, Quote Group, Currency and other user-defined tags.



Response Deadline Date: 1/3/2020 Response Deadline Time: 11:00 AM

Line Items Terms & Conditions Seller Companies Attachments Setup

Resources Cost Items

Drag columns here to group Find: [Search For...] Saved views: Previous View

	CBS Position Code	RFQ ID	Quote Group Tag	Optional Code	Description	Quantity	Unit of Measure	Currency
→	18	18	Guardrail Work	1500 0100	Guardrail Typ...	1,000.00	Linear Feet	U.S. Dollar
	19	19	Guardrail Work	1500 0200	Guardrail Typ...	200.00	Linear Feet	U.S. Dollar

### 8.2.3.2 Terms & Conditions

This tab provides ample space for you to enter terms, conditions and instructions that need to be included on the RFQ.

Response Deadline Date: 1/3/2020 Response Deadline Time: 11:00 AM

Line Items Terms & Conditions Seller Companies Attachments Setup

Buyer's Special Terms & Conditions

Any penalties assessed by the owner due to quality control compliance deviations by the supplier will be deducted from teh supplier's payment.

RFQ Instructions

Please contact site super John Smith @ 623-555-7862 for delivery instructions.

### 8.2.3.3 Seller Companies

You will use the Seller Companies tab to select the suppliers or subcontractors that will be receiving the RFQ. This is done by selecting them from the InEight Estimate Library Address Book. This tab will store all of the pertinent contact information for each seller, including their fax number and/or email address so that you can send them the RFQ.



Response Deadline Date: 1/3/2020
Response Deadline Time: 11:00 AM

Line Items
Terms & Conditions
**Seller Companies**
Attachments
Setup

Drag columns here to group

	Company Name	First Name	Last Name	Status	Publish Item Quantities	Publish by Fax	Fax	Publish by Email
→	Example Sub #1 -- Harry Belefony	Harry	Belefony	New	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	222-221-2...	<input checked="" type="checkbox"/>
	Example Sub #2 -- Mel Blank	Mel	Blank	New	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	222-222-1...	<input checked="" type="checkbox"/>
	Example Sub #3 -- Frank Matty	Frank	Matty	New	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	222-222-3...	<input checked="" type="checkbox"/>
*					<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

The following options are particularly noteworthy:

- **Publish Item Quantities:** If you want the RFQ to specify your take-off quantities, select this checkbox. If you want to keep that information to yourself and let the vendors or contractors determine their own quantities, deselect this checkbox
- **Publish by Fax:** If you choose to publish by fax, InEight Estimate creates a Word document with a template filled out. It is ready to print and send, but you have the opportunity to double-check the information before emailing the RFQ

#### NOTE

When RFQs are generated for multiple vendors using the Publish by Fax option, be sure to separate the MS Word document pages and send only the correct pages to each vendor.

- **Publish by Email:** If you choose to publish by email, the Word document is created, the template is filled out, it is attached to an email, and automatically sent to the email address listed for that vendor in the Address Book

#### NOTE

When using the Publish by Email option, the process is automatic and it does not give you the opportunity to double check your information before the RFQ is emailed. For this reason, it is recommended to Publish by Fax, review the information, and then email the RFQ manually.

## 8.2.4 Attachments

This tab allows you to specify any electronic files that need to be attached to the RFQ, such as drawings or specifications for the work.



Response Deadline Date: 1/3/2020 Response Deadline Time: 11:00 AM

Line Items Terms & Conditions Seller Companies **Attachments** Setup

Drag columns here to group

	File Name	Description	Location	File Type	File Size	Attached By	Date Attached
→	File Export.pdf	Plumbing quote	C:\Users\K...	Adobe Acrob...	58640	karen.loftus@i...	11/19/2019 8:00:16 AM

### 8.2.5 Setup

The Setup tab lets you indicate what information will display on the published RFQ template, including custom tags. In addition to selecting tags and adding notes on the Setup tab, you can also specify your RFQ Publication Settings and can choose whether you want to include the instructions, special terms and conditions, notes and attachments.

Response Deadline Date: 1/3/2020 Response Deadline Time: 11:00 AM

Line Items Terms & Conditions Seller Companies Attachments **Setup**

Tag 1:  Tag 2:  Tag 3:

RFQ Publication Settings

Cost Item Identifier: CBS Position Code

☒ Include RFQ Instructions  
☒ Include Buyer's Special Terms & Conditions  
☒ Include Notes  
☐ Include Attachments  
☒ Publish Item Quantities  
☒ Publish By Fax  
☒ Publish By Email

Notes

### 8.2.6 Publish an RFQ

Once created, InEight Estimate allows you to generate a Microsoft Word RFQ template that can be faxed or manually sent via email to the supplier or subcontractor.




When you complete all of the fields that are required for this RFQ, you are ready to publish the RFQ. To do so, select all of the vendors that you want to receive the RFQ and click **Actions > Publish** on the RFQ Record ribbon.

### Step by Step — Create and Publish an RFQ

1. Open your job.
2. From the InEight Estimate landing page, select the **Quote** tab.
3. Select **Request for Quote (RFQ)**.
4. From the Actions tab, click on the **New** icon to create a new RFQ.
5. Select **Create RFQ from Quote Group Tag(s)**, leaving the checkboxes checked to only show quote groups and resources that are being used.
6. Select a **description** from the panel.



 New RFQ

**Cost Item Identification**

Use the following field: CBS Position Code

Please select from the following options:

☐ Create RFQ from scratch

☒ Create RFQ from Quote Group Tag(s)

☒ Only show Quote Group tags that are currently utilized in this job

☒ On the resulting RFQ record, only list resources with utilization currently greater than zero

☐ Create RFQs using Default Seller data

This option scans the job for all Resources and Quote Groups utilized in the job. For any that are listed in the Address Book as 'Default Quotes' for the Sellers you select on the subsequent selection register, a new RFQ record will be added for each Seller listing their default items.

☒ Create separate RFQ records for

Description

☐ [Uncheck All]

☐ [Blanks]

☐ Asphalt Materials

☐ Commercial Work

☐ Concrete Materials

☐ Guardrail Work

☐ Landscaping Work

☐ Manhole Materials

☐ None

☐ Painting Materials

☐ Pipe Materials

☐ Process Equipment Install

☐ Process Materials

☐ Sign Work

☐ Structural Painting

☒ Aggregates

7. Click **OK**.

- The Request for Quote (RFQ) Record is created with two aggregate line items
- The Description field is automatically filled with the name of the quote group



Description

Aggregates

Response Deadline Date: 12/27/2018

Line Items Terms & Conditions Seller Companies Attachments

Resources Cost Items

Drag columns here to group

	Code	Quote Group Tag	Description
→	MBR	Aggregates	Aggregate B...
	MDIRTB	Aggregates	Dirt Class B

8. In the Response Deadline Date field, select a **date** two weeks from today, and for the Response Deadline Time, type a **time stamp** (e.g. 2:00 pm).

Response Deadline Date: 1/31/2020

Response Deadline Time: 2:00 PM

Line Items Terms & Conditions Seller Companies Attachments Setup

9. Select the **Terms & Conditions** tab.
10. Create and type in any **special conditions** in the Buyer's Special Terms & Conditions field.
11. Type in **instructions** in the RFQ Instructions field.

Response Deadline Date: 1/31/2020

Response Deadline Time: 2:00 PM

Line Items Terms & Conditions Seller Companies Attachments Setup

Buyer's Special Terms & Conditions

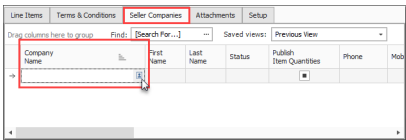
Prices are good for the duration of the contract

RFQ Instructions

All items to be delivered to jobsite by supplier's trucks



12. Select the **Seller Companies** tab and click in the first blank row in the **Company Name** column.



13. Click on the **Address book**  icon, and then select vendors.

14. Click **OK**.

15. Make sure **Publish by Fax** is checked for all sellers, and that they all have Fax numbers.

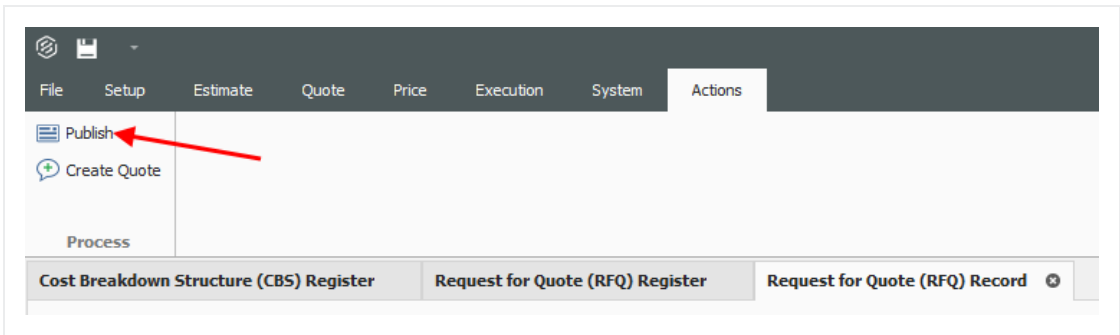
- Also make sure **Publish by Email** is unchecked for each vendor

Response Deadline Date: 1/31/2020		Response Deadline Time: 2:00 PM	
Line Items	Terms & Conditions	Seller Companies	Attachments
Find: [Search For...]			
Saved views: Previous View			
Company Name	First Name	Last Name	Status
Example Vendor 1 -- Pat Roberts	Pat	Roberts	New
Example Vendor 2 -- Stan Mark	Stan	Mark	New
Example Vendor 4 DBE -- Lester Slim	Lester	Slim	New

16. Select the sellers to whom you want to send the RFQ.

Company Name	First Name	Last Name
Example Vendor 1 -- Pat Roberts	Pat	Roberts
Example Vendor 2 -- Stan Mark	Stan	Mark
Example Vendor 4 DBE -- Lester Slim	Lester	Slim

17. Under the Actions tab of the record, select **Publish** to create your RFQ document.



- MS Word opens the file automatically for you to review; and from here you can either print it or send it in an email as an attachment



## REQUEST FOR QUOTATION

**Job:** Training Job Training Job - Maricopa County No. TM2924

**TO:**

**Name:** Pat Roberts  
**Company:** Example Vendor 1  
 100 Tenth Street  
 Hometown, AZ 889080

**Phone:** 111-123-2134  
**Mobile Phone:**  
**Fax:** 222-123-1234  
**Email:**

**FROM:**

**Name:** Tom Cross  
**Company:** Example Prime Contractor 1  
 400 First Street Suite 4000  
 Hometown, AZ 889004

**Phone:** 111-122-1111  
**Mobile Phone:**  
**Fax:** 222-112-2211  
**Email:**

**Job Information:**

Training Job	
Training Job - Maricopa County No. TM2924	
Owner:	Example Owner
Job Type:	Highway and General Engineering
Job Location:	I-10 MP 100 to MP 120
City:	Phoenix
County:	Maricopa
State / Province:	Arizona
Country:	United States
Bid Location:	Engineer's Office
Bid Date:	1/8/2020
Bid Time:	10:00 PM
Measurement System:	English

**Request for Quote (RFQ) Information:**

18. Click **OK** to save the RFQ Record.

### 8.2.7 RFQ Email Draft

When sending out Requests for Quotes (RFQ) on a bid, it is essential to be able to effectively communicate the project requirements to potential subs or suppliers to ensure you have good quote coverage within your estimate. Email RFQs open as a draft email message, giving you, the sender, the opportunity to control specifically what is sent and customize the message before sending it out to subs and suppliers.



RFQ from InEight Corporation - SKIP for Training Job - Infrastructure: Training Job - Maricopa County No. TM2924 - Message (HTML)

File Message Insert Options Format Text Review Help Tell me what you want to do

Times New Roman 12 B I U A

To: Charlie Bravo

Cc:

Subject: RFQ from InEight Corporation - SKIP for Training Job - Infrastructure: Training Job - Maricopa County No. TM2924

## REQUEST FOR QUOTATION

**Job:** Training Job-1 Training Job - Maricopa County No. TM2924

**TO:**

**FROM:**

<b>Name:</b> Harry Belefony	<b>Name:</b> Tom Cross
<b>Company:</b> Example Sub #1 600 First Street Suite 6000 Hometown, AZ 889006	<b>Company:</b> Example Prime Contractor 1 400 First Street Suite 4000 Hometown, AZ 889004
<b>Phone:</b> 111-222-1111	<b>Phone:</b> 111-222-1111
<b>Mobile Phone:</b>	<b>Mobile Phone:</b>
<b>Fax:</b> 222-221-2212	<b>Fax:</b> 222-112-2211
<b>Email:</b> charlieb1234@example.com	<b>Email:</b>

**Job Information:**

Owner:	Training Job-1 Training Job - Maricopa County No. TM2924
Job Type:	Example Owner
Job Location:	Highway and General Engineering
City:	I-10 MP 100 to MP 120
County:	Phoenix
State / Province:	Maricopa
Country:	Arizona
Bid Location:	United States
Bid Date:	Engineer's Office
Bid Time:	1/6/2020
	5:00 AM

**Request for Quote (RFQ) Information:**

Publication Date: 8/21/2020 3:57 PM

Response Deadline Date: 7/29/2009 11:00 AM

## 8.3 QUOTES

When you receive responses to your RFQ, the next step is to enter their pricing in the Quote Register. The Quote Register stores all of the quotes you have for that job. Each quote has a Description and a Quote Status, and each quote displays seller contact information.

In this case, an estimator in charge of receiving quotes would need to determine how best to input these quotes within the Quote register.



### 8.3.1 Sample Received Quote Scope Sheet

#### Overview – Received Quote Scope Sheet

Name		Description
1	Section one	Scope item one includes 4 items the subcontractor has considered as work to be done onsite. You may want to consider adding all 4 items as individual quotes. Then creating a package identifying these quotes as on-site work, totaling \$203,000.
2	Section two	Scope item two includes 3 items the subcontractor has considered as work to be done offsite. You may want to consider adding all 3 items as individual quotes. Then creating a package identifying these quotes as offsite work, totaling \$24,650.
3	Exclusions	The subcontractor is showing 9 items they excluded from their scope of responsibility.
4	Qualifications	The subcontractor has included 3 stipulations pertaining to this bid. If selected all 3 are considered accepted terms.



# Received Quote Scope Sheet

DATE: 12/19/2019  
PROJECT: TRAINING JOB TRAINING JOB - MARICOPA COUNTY NO. TM2924  
LOCATION: PHOENIX, AZ

SITE CONCRETE: FORM, SUPPLY AND INSTALL

**1**

## ONISTE IMPROVEMENTS

1. Vertical Curb; Curb and Gutter; Valley Gutter w/ rebar
2. 4" thick broom finish walk with wire mesh; ramp w/ domes
3. Flow-Through planer slab and walls
4. 8" thick crosswalk paving with rebar 36" x 36" pattern broom finish and 18" x 36" pattern colored aggregate finish (1 location only @ 16<sup>th</sup> street entrance)

Price: \$203,300

**2**

## OFFSITE IMPROVEMENTS

1. Curb and Gutter
2. HC Ramps w/ domes; planter w/ rebar
3. 36" x 36" patterned finish walk w/ wire mesh

Price: \$24,650

**3**

## EXCLUSIONS:

1. Layout of lines and grades
2. Site grading
3. Aggregate base and/or compaction; sand cushion
4. Sealants, caulking and waterproofing; precast items
5. Misc post footings and masonry wall footings
6. Supply of embedded iron or metal
7. Demolition
8. Traffic control and pedestrian protection

**4**

## QUALIFICATIONS

1. Price valid for 60 days
2. GC will provide a concrete pump washout area
3. 5% retention will be released 45 days after completion of our work

Alternate Price to furnish and install 4" aggregate base under parking structure lab. Sand by others. Price based on rock being placed prior to piles, pilecaps and grade beams.  
\$24,100





This proposal is good for thirty (30) days from the date herein, after which time Summit Construction reserves the right to review the proposal for any changes in price. Please call me if you need any further information.

Rick  
Estimator

## 8.3.2 Quote Register Overview

To access the Quote Register, choose **Quote > Quotes** on the main InEight Estimate menu or click the **Quotes** icon on the toolbar.



Quote Register 								
Drag columns here to group								
	Description 	RFQ Description	Quote Status	Seller	Company	Quote Total	Awarded Total	Currency
 	Aggregates	Aggregates	Accepted	Example Vendor 1 -- Pat Rob...	Example Vendor 1	\$402,192.00	\$402,192.00	U.S. Dollar
	Aggregates	Aggregates	Accepted	Example Vendor 4 DBE -- Les...	Example Vendor 4 ...	\$0.00	\$0.00	U.S. Dollar
	Aggregates	Aggregates	Accepted	Example Vendor 2 -- Stan Mark	Example Vendor 2	\$0.00	\$0.00	U.S. Dollar
	Asphalt Materials		Accepted	Example Vendor 1 -- Pat Rob...	Example Vendor 1	\$1,115,97...	\$1,102,50...	U.S. Dollar
	Asphalt Materials		Accepted	Example Vendor 2 -- Stan Mark	Example Vendor 2	\$1,263,17...	\$13,671.00	U.S. Dollar
	Electrical Work	Electrical Work	Accepted	Architectural Designs, Inc. -- ...	Architectural Desig...	\$4,200.00	\$0.00	U.S. Dollar
	Electrical Work	Electrical Work	Accepted	HD Engineering Group -- Rog...	HD Engineering Gr...	\$4,450.00	\$0.00	U.S. Dollar

### 8.3.3 Quote Record Overview

The Quote Record establishes who the vendor is, along with quoted prices and all terms and conditions. Once a requested quote returns, you can either create the quote in InEight Estimate from scratch or convert the original RFQ to a quote and enter the supplier or subcontractor pricing. Each Quote Record contains additional fields and options for managing the quote.

Quote Records utilize data blocks allowing you to reposition tabs, detach tabs into individual windows, and redock tabs in new locations. Using the data blocks layout, you can input and maintain important quote data like Vendor Qualifications and Special Terms & Conditions.

Right click on any existing quote in the Quote Register and choose **Open** to access the Quote Record.

#### Overview – Quote Record

Name		Description
1	Header block	You can include detailed contact information about the supplier or subcontractor. This automatically fills when you select the seller from the Address Book. The External Ref field can be used to access information specific to the bid/quote.
2	Price block	The Price data block contains a breakdown of pricing information for the quote, including taxes, item conditions, and special conditions.
3	Quote tabs	The tabs at the bottom of the screen hold detailed information regarding the quote.
4	Default Data Blocks	Data blocks include Special Terms & Conditions, Qualifications, Packages, Taxes, Seller's Profile, Setup, and Minority.



The screenshot displays the Estimate User Guide interface, highlighting the Header and Price blocks. The Header block (1) contains fields for Description, Contact, Company Name, First Name, Last Name, External Ref., Optional Code, Date, Source, Currency, Status, Ignore, and Reason. The Price block (2) shows Total, Extended Price, Item Taxes, Quote Tax, Bond, Item Conditions, and Special Conditions. The Resources block (3) is a table with columns for Code, Quote Group, Description, No Split, Free, Awarded, and Duration. The Special Terms & Conditions block (4) includes fields for Buyer's and Seller's Special Terms & Conditions, Special Conditions Adjustments, and Distribute Special Conditions.

### 8.3.4 Header Block

The Header block portion of the screen is where you enter in description information pertaining to the quote, along with vendor/contractor information.

There is an **External Ref** field you can use as a hyperlink for attaching any supporting bid quote attachments from the vendor/contractor.

On the right portion of the header block is where you enter optional information related to:

- **Optional Code** – a code used to reference the received quote.
- **Date** – date the quote is received.
- **Source** – this is the method by which the quote was received. The options are email, fax, hard copy, phone, and other.
- **Currency** – system of money in general use for a particular country..
- **Ignore** – by ignoring the quote, and providing a reason, the quote will turn grey in the Quote Comparison & Award screen.

### 8.3.5 Price Block

The Price block includes the quotes extended price, along with any additional taxes, bonds, item conditions, and special conditions.



## 8.3.6 Quote Record Tabs

### 8.3.6.1 Resources & Cost Items

The Resources & Cost Items tab displays the resources or cost items quoted, along with their estimated quantities and units of measure.

- A Unit Price column is included on this tab for entering the quoted pricing from the seller, either manually or by pasting from an electronic format
- If a Package code is entered, the Unit Price field is greyed out, and the Package code amount is used
- Additional columns are provided for making conditional amount or percentage adjustments to the quote to manage last-minute changes
- A note field is included for explanation changes
- A No Split option indicates that the seller will only provide the quoted goods or services if they are selected to provide all listed items. They will not provide one quoted item without you procuring all others from them as well.
- You can check an item as Free for circumstances where the vendor will include the price of one item with another. Marking the included item(s) as free reminds you there is no quoted price for that item

Resources

Cost Items

Drag columns here to group

Find:

Search For...

...

Saved views:

Previous View

▼

	Package	Code	RFQ ID	Quote Group	Optional Code	Description	No Split	Free	Awarded	Du...	Quantity	Unit of Measure	Unit Price	Extended Price
		3.1	3.1		3.1	Excavation, scrapers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	50,000.00	Cubic Yard	\$0.00	\$0.00
P1		3.2	3.2		3.1	Excavation, trucks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	50,000.00	Cubic Yard	P1	P1 \$200,000.00
P1		3.3	3.3		3.2	Embankment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	50,000.00	Cubic Yard	P1	P1
P1		3.4	3.4			Rock Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	3,000.00	Cubic Yard	P1	P1

## 8.3.7 Data Blocks

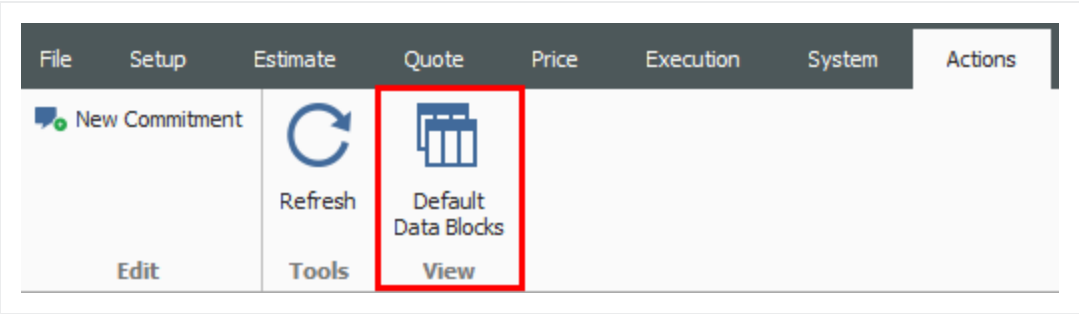
The Quote Record utilizes data blocks that allows you to customize the layout and focus on data block tabs that matter most to you. You can select the default data block action in the ribbon to revert back to the default setting, which shows all six data blocks.

Data Block tabs include:

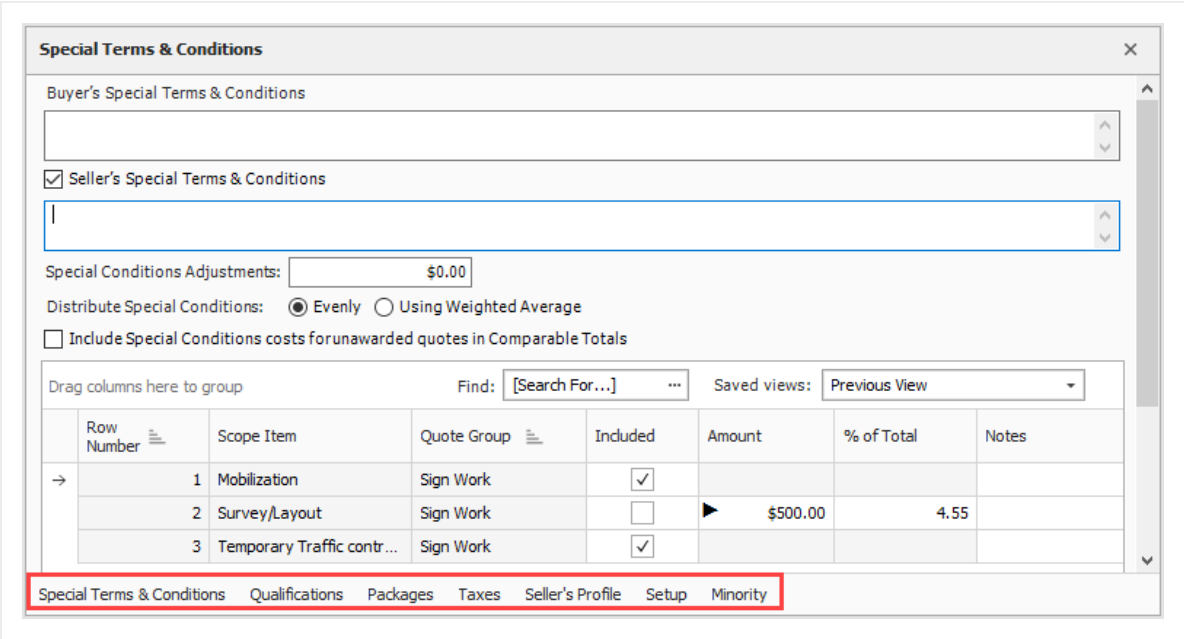
- Special Terms & Conditions
- Qualifications
- Packages



- Taxes
- Seller’s Profile
- Setup
- Minority

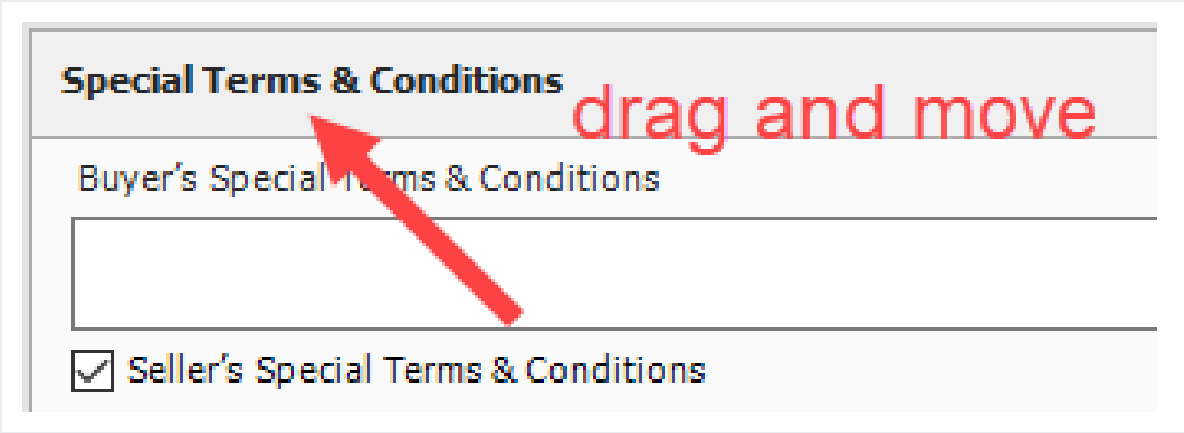


The six data blocks appear at the bottom right of the screen.

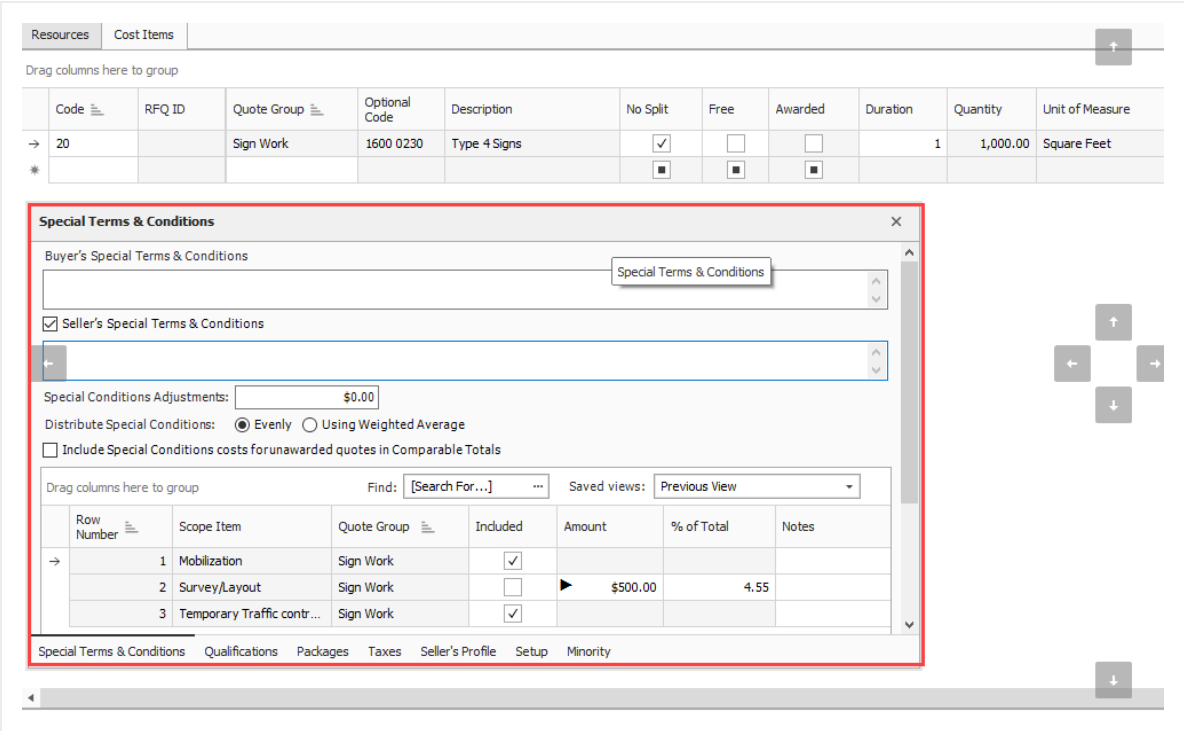


It’s possible to move the entire data block, or individual data blocks to other parts of the screen. For example, select the Special Terms & Conditions header row, and drag to the desired part of the screen.





Drop the data block on top of an arrow where you wish to land the data block.



The data block will now reside on the left side of the screen.



Header

Description: Sign Items

Optional Code:

Contact: Example Sub #3 -- Frank Matty

Phone: 111-333-3434

Company Name: Example Sub #3

Mobile:

First Name: Frank

Fax: 222-222-3232

Last Name: Matty

Email:

External Ref.:

Date:

Source:

Currency: U.S. Dollar

Status: Received

Ignore: Reason:

Special Terms & Conditions

Buyer's Special Terms & Conditions

☒ Seller's Special Terms & Conditions

Special Conditions Adjustments: \$0.00

Distribute Special Conditions: ☒ Evenly ☐ Using Weighted Average

☐ Include Special Conditions costs for unawarded quotes in Comparable Totals

Drag columns here to group

Find: Search For... Saved views: Previous View

Row Number	Scope Item	Quote Group	Included	Amount	% of Total	Notes
1	Mobilization	Sign Work	<input checked="" type="checkbox"/>			

Resources

Cost Items

Drag columns here to group

Code	RFQ ID
20	
*	

Special Terms & Conditions

Qualifications

Packages

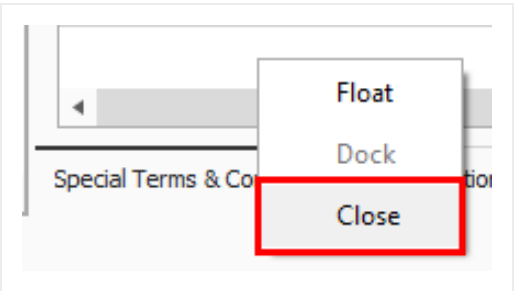
Taxes

Seller's Profile

Setup

Minority

You can also close a specific tab if it's not commonly used. In this example, you can right click on a tab (like Special Terms & Conditions) and select close.



8.3.8 Data Block Tabs

8.3.8.2 Special Terms & Conditions

Special Terms & Conditions is where you can include buyers and sellers special terms, add fixed cost to the quote, and include/exclude scope items.



Special Terms & Conditions

Buyer's Special Terms & Conditions

☒ Seller's Special Terms & Conditions

Special Conditions Adjustments:

\$0.00

Distribute Special Conditions:

☒ Evenly ☐ Using Weighted Average

☐ Include Special Conditions costs forunawarded quotes in Comparable Totals

Drag columns here to group

Find: 

Search For...

Saved views: 

Previous View

Row Number	Scope Item	Quote Group	Included	Amount	% of Total	Notes
→ 1	Mobilization	Sign Work	<input checked="" type="checkbox"/>			
2	Survey/Layout	Sign Work	<input type="checkbox"/>	\$500.00	4.55	
3	Temporary Traffic contr...	Sign Work	<input checked="" type="checkbox"/>			

Special Terms & Conditions

Qualifications

Packages

Taxes

Seller's Profile

Setup

Minority

8.3.8.3 Qualifications

This tab allows you to include bond. You can enter the bond rate and the system will calculate the total Bond Cost or vise versa. This tab also allows you to enter insurance contact information and seller license information. If the vendor in the address book already had this information, then this information will get pre-filled when the seller is assigned to the Quote.



Qualifications

×

Bond

☒ Seller can provide a BOND for all work quoted

Bonding Company:

Bonding Agent:

Bonding Phone:

☐ Add Bond Cost to the Quote

Cost of BOND to be added to quoted price :

Rate/\$1,000:  \$30.00

Bond Cost:  \$330.00

Insurance

☒ Seller is INSURED as required by applicable law

Insurance Company:

Insurance Agent:

Insurance Phone:

License

☒ Seller is LICENSED to perform all work quoted

Licenser:

Class:

ID:

Special Terms & Conditions

Qualifications

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Seller's Profile

Setup

Minority

#### 8.3.8.4 Packages

Using the Packages feature allows you a way to arrange quotes into a collection which makes sense for packaging your quotes. You can determine how to intake quotes from subcontractors and classify them into a package grouping.

By creating a Package code within the Packages block, and giving it a dollar value, you can then assign that package code to one or many quote records. In this case, the subcontractor provided quotes for both on site and off-site concrete work. You can then determine which individual quotes go with the on site or off-site package. The Package Amount field carries over to the Extended Price field under the Cost Items tab.



Resources

Cost Items

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

Package	Code	RFQ ID	Unit Price	Extended Price	Currency	Default Tax Rate
P1	3.1		P1 P1	\$200,000.00	U.S. Dollar	0.00
P1	3.2		P1 P1		U.S. Dollar	0.00
P1	4.1		P1 P1		U.S. Dollar	0.00
P1	4.2		P1 P1		U.S. Dollar	0.00
P1	4.3		P1 P1		U.S. Dollar	0.00
P2	5.1		P2 P2	\$30,000.00	U.S. Dollar	0.00
P2	5.2		P2 P2		U.S. Dollar	0.00
P2	20		P2 P2		U.S. Dollar	0.00

Packages

Drag columns here to group

Find: [Search For...]

Code	Description	Amount
P1	On Site	\$200,000.00
P2	Off Site	\$30,000.00

2

Special Terms & ConditionsQualificationsPackagesTaxesSeller's ProfileSetupMinority

You can also create a package by selecting multiple items and selecting **Add to new Package**.

8.3.8.5 Taxes

Item Tax and Quote Tax have been combined to display on a single data block called Taxes. Using the taxes feature allows you to add item taxes to each item's price. You can also add taxes to the quote.

Taxes

Item Tax

☒ Add Item Taxes to each Item's Price

Quote Tax

☐ Add Taxes to the Quote

Taxes to be added to Awarded Total as a Percentage of Total:

Tax Rate: 0.00

Total Tax: \$0.00

Special Terms & ConditionsQualificationsPackagesTaxesSeller's ProfileSetupMinority

8.3.8.6 Seller's Profile

The Seller's Profile tab populates with address book notes and alternate contact information.



Seller's Profile

Address Book Notes

Example...Save for training AS NEEDED

Alternate Contact Information

☐ Name:

☐ Email:

☐ Phone:

☐ Fax:

☐ Mobile:

Special Terms & Conditions

Qualifications

Packages

Taxes

Seller's Profile

Setup

Minority

8.3.8.7 Setup

This tab provides extra space for any additional notes and tags to be assigned to the quote.



Setup

Current Status

RFQ Status:

Last Update: 5/5/2020 7:05:03 PM

Quote Origin: WMFarr

Tags

Tag 1: Pipe

Tag 2:

Tag 3:

Notes

Special Terms & Conditions

Qualifications

Packages

Taxes

Seller's Profile

Setup

Minority

8.3.8.8 Minority

This tab allows you to determine if the seller qualifies for any type of minority business, and the ability to apply a certification number.



Minority

Minority Business Enterprise

☐ Seller qualifies as the following type of MINORITY BUSINESS ENTERPRISE on this job:

☐ DBE

DBE Certification:

☐ MBE

MBE Certification:

☐ WBE

WBE Certification:

☐ OBE1

OBE1 Certification:

☐ OBE2

OBE2 Certification:

☐ OBE3

OBE3 Certification:

☐ OBE4

OBE4 Certification:

☐ OBE5

OBE5 Certification:

☐ OBE6

OBE6 Certification:

☐ OBE7

OBE7 Certification:

Special Terms & Conditions

Qualifications

Packages

Taxes

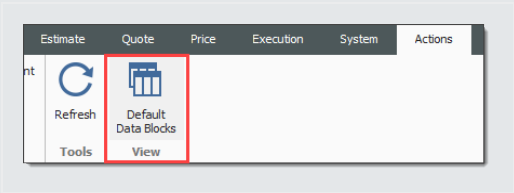
Seller's Profile

Setup

Minority

TIP

If any of your Data Blocks become deleted on a Quote Record, simply click the **Default Data Block** icon.



### 8.3.9 Create a Quote from RFQ

Walk through the steps of creating a quote from an RFQ.

TIP

To create a quote from scratch, click the **New** icon on the Quote Register and fill in the quote details and seller fields manually.



## Step by Step — Create a Quote from RFQ

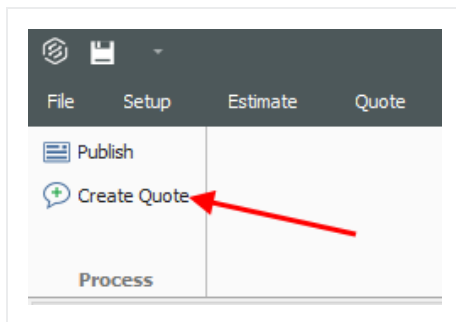
1. Open your job.
2. From the InEight Estimate landing page, select the **Quote** tab.
3. Select **Request for Quote (RFQ)**.
4. Open the **RFQ record** for which you've received quotes (e.g. Aggregates RFQ).

Description	Status	Response Deadline Date	Response Deadline Time	Published Date	RFQ Instru
Aggregates	Published	1/31/2020	2:00 PM	11/14/2019	
Guardrail Items	New	1/3/2020	11:00 AM		

5. Select the **Seller Companies** tab and select the sellers for whom you need to create quotes.

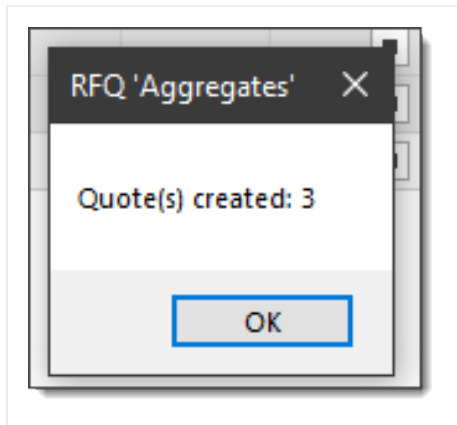
Company Name
Example Vendor 1 -- Pat Roberts
Example Vendor 2 -- Stan Mark
Example Vendor 4 DBE -- Lester Slim

6. From the Actions menu, select **Create Quote**.
  - InEight Estimate will create quotes for each of the sellers you selected





- A prompt indicates how many quotes were created, then click OK



7. Close the RFQ Record and the RFQ Register.
8. To open the Quote Register, select **Quote** from the InEight Estimate landing page.
9. Select **Quotes** from the Quote Management section.
  - The quotes that you created from RFQ are now listed on the Quote Register

Quote Register				
Drag columns here to group				
	Description	RFQ Description	Quote Status	Seller
→	Aggregates	Aggregates	Accepted	Example Vendor 1 -- Pat Roberts
	Aggregates	Aggregates	Accepted	Example Vendor 4 DBE -- Lester Slim
	Aggregates	Aggregates	Accepted	Example Vendor 2 -- Stan Mark

### 8.3.10 Enter Quote Details

Now that you have quotes created, you can enter pricing.

#### Step by Step — Enter Quote Details

1. Open the Quote Record for a seller.
2. On the Resources tab, make sure No Split is unchecked for all items.



- 3. Also on the Item Resources & Cost Items tab, now enter the following **unit prices** for the resources:

Resource Code	Description	Unit Price
MBR	Aggregate Base Rock	\$8.00
MDIRTB	Dirt Class B	\$6.00

- 4. Click **OK** to close the Quote Record.

Step by Step — Create a Multi-packages Quote

- 1. From the InEight Estimate landing page, select the **Quote** tab.
- 2. Click on the **Quotes** icon under Quote Management.
- 3. Double click on an item (e.g. **Pipe Materials**).

Cost Breakdown Structure (CBS) Register

Quote Register

Quote Record

Drag columns here to group

	Description	RFQ Description	Quote Status	Seller
→	Pipe Materials		Received	Example Vendor
⚠	Pipe Materials		Received	Example Vendor
	Pipe Materials		Received	Example Vendor
⚠	Pipe Materials		Received	Example Vendor
*				

- 4. In the Description field, type in or replace the **description**.
- 5. In the Contact field, select a **contact**.



Cost Breakdown Structure (CBS) Register    Quote Register    Quote Record

Header

Description: Pipe Materials for site improvements.

Contact: Example Vendor 1 -- Pat Roberts




Company Name: Example Vendor 1


6. Click **OK**
7. Select the **Cost Items** tab on the left side of the screen.

Resources

Cost Items

Drag columns here to group

	Code 	Quote Group 	Description
	MPP10	Pipe Materials	Pipe 10" PVC SDR21
	MPP24	Pipe Materials	Pipe 24" PVC SDR35
	MPR36	Pipe Materials	Pipe RCP 36 In



8. Add a **cost item** under Cost Items.
9. Then, add another **cost item** under Cost Items.
10. On the Packages tab, enter the following 2 new records:
  1. Code: **P1**
  2. Description: **On Site**
  3. Amount: **\$200,000**
  4. Code: **P2**
  5. Description: **Off Site**



6. Amount: **\$300,000**

Packages			
Drag columns here to group			
	Code	Description	Amount
	P1	On Site	\$200,000.00
→	P2	Off Site	\$300,000.00
✱			

- 11. Type in **P1** under Package for cost item 7.
- 12. Type in **P2** under Package for cost item 8.

Resources

Cost Items

Drag columns here to group

Find: 

Search For...

...

Saved views: 

Previous View

▼

	Package	Code	RFQ ID	Quote Group	Optional Code	Description	No
	P1	7		Pipe Materials	800 0220	10 Inch PVC Force Main...	
	P2	8		Pipe Materials	800 0330	24 Inch PVC Gravity Se...	

Packages

Drag columns here to group

	Code	Description	Amount
	P1	OnSite	\$200,000.00
	P2	Off Site	\$300,000.00
→			

- 13. Select **OK**.
- 14. Under the Quote Comparison and Award ribbon, select **Cost Items**.
- 15. Under Quote Groups, select **Pipe Materials**.
  - Quote Comparison and Award shows the newly created quote with the associated package quotes.



Detail	Example Vendor 1 Pipe Materials	Example Vendor 6 WBE Pipe Materials	Example Vendor 1 Pipe Materials for site improvements
<b>\$22.51</b>	P1 \$290,000.00	P1 \$300,000.00	P1 \$200,000.00
<b>\$52.84</b>	P2 \$126,000.00	P2 \$125,000.00	P2 \$300,000.00
\$428,694...	\$416,000.00	\$425,000.00	\$500,000.00
\$428,694...	\$416,000.00	\$425,000.00	\$500,000.00
\$428,694...	\$0.00	\$0.00	\$0.00
\$428,694...	\$416,000.00	\$425,000.00	\$500,000.00
\$0.00	\$0.00	\$0.00	\$0.00
	11/13/2019 4:1...	11/13/2019 4:4...	11/13/2019 4:3...

- The Package Price can quickly be modified in the Quote Comparison and Award form by selecting the Edit Package action in the Actions tab or by using the right click context menu.

Example Vendor 1  
Pipe Materials for site  
improvements.

P1 \$200,000.	
P2 \$300,000.	
\$500,000.	
\$500,000.	
\$0.00	\$0.00
\$500,000.00	\$500,000.00

Award

Award And Lock

Lock

Unlock

Edit Quote

Edit Cost Item

Edit Package



### 8.3.11 Use Unit Price or Extended Price on Quote Record Item

It's possible to enter the Extended Price for a Quote Item, and the Unit Price is then calculated, which makes entering quotes more efficient and results in less errors.

Quote Record

Header

Description:AsphaltMaterials

Contact:Example Vendor 2 -- Stan Mark

Phone:111-133-2123

Company Name:Example Vendor 2

Mobile:

First Name:Stan

Fax:222-123-2134

Last Name:Mark

Email:

External Ref.:

Resources

Cost Items

Drag columns here to group

	Code	Quote Group	Description	No Split	Free	Awarded	Duration	Quantity	Unit of Measure	Unit Price
MAAM	Asphalt Materials	Asphalt Mix (Finish)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	35,000.00	Ton		
MAFA	Asphalt Materials	Fine Aggregate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	1,860.00	Ton		
→			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

### 8.3.12 Duplicating an Existing Quote

You can create a new quote by duplicating an existing quote from the Quote Compare & Award form. Duplicate Quotes will contain the same scope as the quote that you previously copied.

Step by Step — Duplicate an existing Quote

- 1. From the InEight Estimate landing page, select the **Quote** tab.
- 2. Select the **Resources** icon under Quote Comparison & Award.
- 3. Highlight any row under the Quote column you want to duplicate.



Cost Breakdown Structure (CBS) Register										
Quote Register										
Quote Comparison & Award - Resources										
Find: [Search For...] Saved views: Standard View										
Resource Code	Description	Utilization Count	Unit of Measure	Unit Cost (Scale 1)	Plug	Detail	Example Vendor 1 Asphalt Materials	Example Vendor 2 Asphalt Materials	Example Vendor 3 Pipe Materials	Example Vendor 4 DBE Pipe Materials
MAAM	Asphalt Mix (Finish)	36,750.00	Ton	\$31.50	\$34.13	\$34.13	\$31.50	\$35.70	\$34.13	\$34.13
MAFA	Fine Aggregate	1,860.00	Ton	\$7.25	\$8.19	\$8.19	\$7.25	\$7.35	\$8.19	\$8.19
MPP10	Pipe 10" PVC SDR21	12,600.00	Linear Feet	\$13.65	\$3.28	\$3.28	\$3.28	\$3.28	\$12.60	\$13.65
MPP24	Pipe 24" PVC SDR35	3,000.00	Linear Feet	\$22.05	\$20.48	\$20.48	\$20.48	\$20.48	\$25.20	\$22.05
MPR36	Pipe RCP 36 In	1,024.00	Linear Feet	\$32.55	\$34.13	\$34.13	\$34.13	\$34.13	\$31.50	\$32.55
Scope Items										
Summary										
Minority Type										
Quoted Total					\$1,406,973.75	\$0.00	\$1,171,100.70	\$1,325,646.00	\$266,616.00	\$271,471.20
Comparable Total					\$1,406,973.75	\$1,406,973.75	\$1,308,747.30	\$1,463,292.60	\$1,535,943.15	\$1,540,798.35

4. Select the **Actions** tab.

5. Under the Quotes section, select the **Duplicate Quote** icon.

Print	By Quote Group	Set All to Reviewed	Edit Resource	<b>Duplicate Quote</b>	Package Entire Quote	Award	Lock	Quoted Items	Zero Items
Preview	All Quote Groups	Set All to Not Reviewed	Edit Quote	Ignore Quote	Edit Package	Award And Lock	Unlock	Unit Price	Scope Items
Export to Excel	All Quote Items	Layout	Quote Group Status	Resources	Quotes	View	Edit Prices	Substitute Values	Ignored Quotes

Cost Breakdown Structure (CBS) Register										
Quote Register										
Quote Comparison & Award - Resources										
Find: [Search For...] Saved views: Standard View										
Resource Code	Description	Utilization Count	Unit of Measure	Unit Cost (Scale 1)	Plug	Detail	Example Vendor 1 Asphalt Materials	Example Vendor 2 Asphalt Materials	Example Vendor 3 Pipe Materials	Example Vendor 4 DBE Pipe Materials
MAAM	Asphalt Mix (Finish)	36,750.00	Ton	\$31.50	\$34.13	\$34.13	\$31.50	\$35.70	\$34.13	\$34.13
MAFA	Fine Aggregate	1,860.00	Ton	\$7.25	\$8.19	\$8.19	\$7.25	\$7.35	\$8.19	\$8.19
MPP10	Pipe 10" PVC SDR21	12,600.00	Linear Feet	\$13.65	\$3.28	\$3.28	\$3.28	\$3.28	\$12.60	\$13.65
MPP24	Pipe 24" PVC SDR35	3,000.00	Linear Feet	\$22.05	\$20.48	\$20.48	\$20.48	\$20.48	\$25.20	\$22.05
MPR36	Pipe RCP 36 In	1,024.00	Linear Feet	\$32.55	\$34.13	\$34.13	\$34.13	\$34.13	\$31.50	\$32.55
Scope Items										
Summary										
Minority Type										
Quoted Total					\$1,406,973.75	\$0.00	\$1,171,100.70	\$1,325,646.00	\$266,616.00	\$271,471.20
Comparable Total					\$1,406,973.75	\$1,406,973.75	\$1,308,747.30	\$1,463,292.60	\$1,535,943.15	\$1,540,798.35

- The resources and prices from the quote you previously selected have been copied into a new Quote Record.

6. From the Header block, enter in any missing information.

- The information listed in the Header block will not copy over to the duplicated quote.

7. Enter additional Cost Items in the Quote tabs data block.

- Check the default data blocks for any information you want to add to your duplicate quote.



Cost Breakdown Structure (CBS) RegisterQuote RegisterQuote Comparison & Award - ResourcesQuote Record

Header

Description:Asphalt Materials (Copy)

Contact:<Ad-Hoc Address>

Company Name:

First Name:

Last Name:

External Ref.:

Phone:

Mobile:

Fax:

Email:

Optional Code:

Date:

Source:

Currency:U.S. Dollar

Status:Received

Ignore:Reason:

Total

Extended Price:\$1,062,834.00

Item Taxes:\$53,141.70

Quote Tax:

Bond:

Item Conditions:\$0.00

Special Conditions:

Total:\$1,115,975.70

ResourcesCost Items

Drag columns here to group

Find:Recent Entries

Saved views:Previous View

Code	RFQ ID	Quote Group	Optional Code	Description	No Split	Free

Minority

Minority Business Enterprise

☐ Seller qualifies as the following type of MINORITY BUSINESS ENTERPRISE on this job:

☐ DBE DBE Certification:

☐ MBE MBE Certification:

☐ WBE WBE Certification:

☐ OBE1 OBE1 Certification:

☐ OBE2 OBE2 Certification:

☐ OBE3 OBE3 Certification:

☐ OBE4 OBE4 Certification:

☐ OBE5 OBE5 Certification:

☐ OBE6 OBE6 Certification:

Special Terms & Conditions

Qualifications

Packages

Taxes

Seller's Profile

Setup

Minority

OK

Cancel

New...

< Prev

Next >

8. Once done, click **OK**.



Exercise 8.1 — Quote Management

When you receive quotes from vendors, you will need to record their pricing and conditions in their InEight Estimate quote records. In this exercise, you will practice entering quote details. Enter the following Quote Record details, using the Training Job:

<b>Quote Name:</b> Aggregates	<b>Seller Name:</b> Example Vendor 2 - Stan Mark	
Resource Code	Description	Unit Price
MBR	Aggregate Base Rock	\$7.45
MDIRTB	Dirt Class B	Not Quoted (delete)
<b>Special Instructions</b> Seller is NOT willing to split items.		

**Quote Name:**  
Aggregates

**Seller Name:** Example Vendor 4 - Lester Slim

Resource Code	Description	Unit Price
MBR	Aggregate Base Rock	\$8.15
MDIRTB	Dirt Class B	FREE
<b>Special Instructions</b> Seller is NOT willing to split items.		

Resource Code	Description	Unit Price
<b>Quote Name:</b> Aggregates		<b>Seller Name:</b> Example Vendor 4 - Lester Slim
Resource Code	Description	Unit Price
MBR	Aggregate Base Rock	\$8.15
MDIRTB	Dirt Class B	FREE
<b>Special Instructions</b> Seller is NOT willing to split items.		

You should end up with the following results



Description	RFQ Description	Seller	Contact Name	Quote Total
Aggregates	Aggregates	Example Vendor 4 DBE -- Lester Slim	Slim, Lester	\$408,834.56
Aggregates	Aggregates	Example Vendor 2 -- Stan Mark	Mark, Stan	\$373,719.94
Aggregates	Aggregates	Example Vendor 1 -- Pat Roberts	Roberts, Pat	\$402,192.00

**Congratulations, you have completed this exercise!**



## 8.4 QUOTE COMPARISON & AWARD

Now that you've received quotes and entered pricing information, you will compare them to determine which is the preferred vendor or contractor to carry their pricing in your estimate. The Quote Comparison & Award forms improve visibility into comparative analytics, while increasing efficiencies in populating the estimate with quoted values.




The Quote Comparison & Award screen is designed to closely match the layout of a vendor comparison sheet. It's designed to show all scope items with prices provided by multiple vendors and substitute pricing where items have been excluded.

Now that you've entered contextual quote information in the Quote Register, the Quote Comparison & Award screen provides you with the ability to make better, and more efficient determinations for awarding the quote.

### 8.4.1 Quote Comparison & Award Overview

To open the Quote Comparison & Award form, select **Quote > Quote Comparison & Award**.

#### Overview – Quote Comparison and Award Form

Name		Definition
1	Resource and Cost Item Filter	You can show either your quoted resources or cost items.
2	Quote Group Filter	This section provides checkboxes to further filter your items. The Quote Group Filter allows you to mark the quotes as reviewed.
3	Quote Description and Vendor	<p>Your quotes display with the vendor name plus the quote description.</p> <ul style="list-style-type: none"> <li>Awarded items have an award symbol </li> <li>If an item is designated as No Split, it has a chain link icon </li> <li>Awarded and Locked items have a lock symbol next to the award symbol </li> </ul>
4	Cost Source Type	The cost source can either be a Plug or Detail type.



## 8.4.2 Edit Mode

You can make last minute modifications to the quote price directly in the Quote Comparison and Award form.

When in Edit mode, the quote item's price, unmodified by the quote's bond cost or special conditions, can be updated. You can modify the Unit price or the Extended price for each of the quote items that are not part of the package or marked as Free.

The updates made to quote items in Quote Compare and Award will update the estimate in real time allowing you to see the impact of the changes in the estimate.

## 8.4.3 Substitute Values

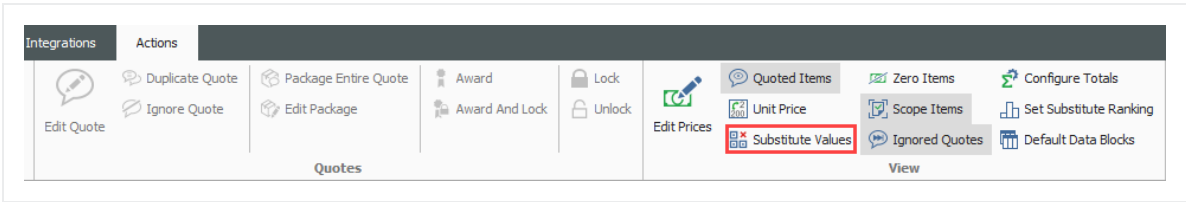
You can display a substitute value by selecting **Actions > Substitute Values**.

Notice the entered quotes. One of the vendors did not give pricing for three of the CBS items.



								HD Engineering Group Concrete, Sitework
18	Guardrail Type 2	1,000.00	Linear Feet	\$24.00		\$24,000.00	\$25,000.00	\$50,000.00
19	Guardrail Type 3A	200.00	Linear Feet	\$31.00		\$6,200.00	\$7,000.00	
20	Type 4 Signs	1,000.00	Square F...	\$15.00		\$15,000.00	\$15,000.00	
27.1	Electrical Work	1.00	Each	\$5,000.00		\$5,000.00	\$5,000.00	

When you compare this quote to the others, it can be difficult to see if the total cost of the quote is high or low because it is missing some of the pricing. InEight Estimate can help you make an “apples to apples” comparison by filling in a substitute price for items that are missing.



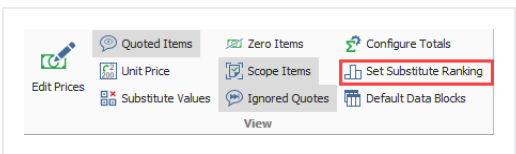
You can tell when it’s a substitute value because the price displays in italics.

								HD Engineering Group Concrete, Sitework
18	Guardrail Type 2	1,000.00	Linear Feet	\$24.00		\$24,000.00	\$25,000.00	\$50,000.00
19	Guardrail Type 3A	200.00	Linear Feet	\$31.00		\$6,200.00	\$7,000.00	<i>\$7,000.00</i>
20	Type 4 Signs	1,000.00	Square F...	\$15.00		\$15,000.00	\$15,000.00	<i>\$13,000.00</i>
27.1	Electrical Work	1.00	Each	\$5,000.00		\$5,000.00	\$5,000.00	<i>\$3,500.00</i>

InEight Estimate grabs the substitute value from one of four places:

1. Awarded splittable quote
2. Lowest splittable quote you’ve received
3. Detail (this only applies to quoting cost items)
4. Plug cost (the rate defined for that resource in InEight Estimate)

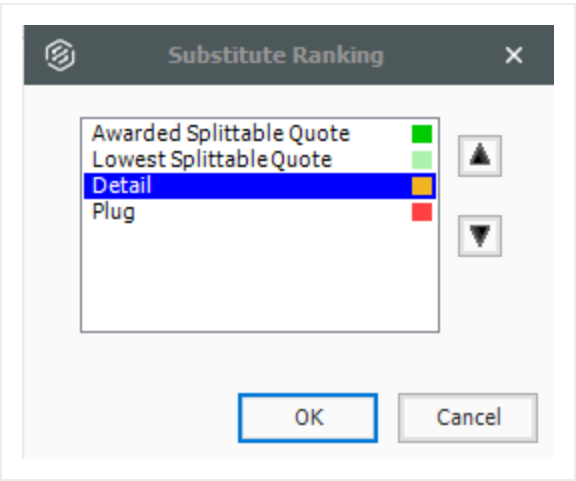
You can set the order for a substitute value by selecting **Actions > Set Substitute Ranking**.



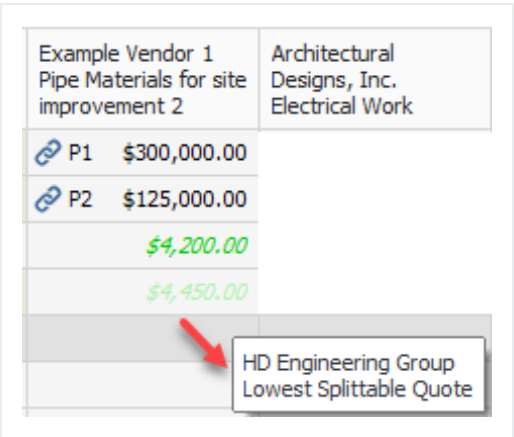
On the resulting Substitute Ranking window, you can use the up and down arrows to change the selection order. It will look from the top to the bottom of the list. The plug being in red represents the most risk, while the Awarded Splittable Quote is the least risk. Users can modify the color coding of



these Substitute values by navigating to System Customize dialog and then selecting Substitute Quote Ranking in the colors sections.



Note that the substitute values are color-coded so that back on the Quote Comparison & Award form you can see the source that your substitute value comes from. When you hover- over a substitute value it displays the vendor whose substitute value has been used.



When you use a substitute value, it is included in your Comparable Total so you can have a more realistic comparison of your quotes.



Print

Preview

Export to Excel

Quote Groups

All Items

Set All to Reviewed

Set All to Not Reviewed

Layout

Quote Group Status

Cost Items

Edit

Quoted Items

Substitute Values

Edit Quote

Award

Award And Lock

Lock

Unlock

Edit Package

Quoted Items

Unit Price

Substitute Values

Scope Items

Ignored Quotes

Configure Totals

Set Substitute Ranking

Default Data Blocks

Session Recap

Auto Award

Tools

Cost Breakdown Structure (CBS) Register

Request for Quote (RFQ) Register

Request for Quote (RFQ) Record

Quote Register

Quote Comparison & Award - Cost Items

Quote Group(s)

Drag columns here to group

	Description	Reviewed
<input type="checkbox"/>	Electrical Work	<input type="checkbox"/>
<input type="checkbox"/>	Electrical work 2	<input type="checkbox"/>
<input type="checkbox"/>	Electrical work 3	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Guardrail Work	<input type="checkbox"/>
<input type="checkbox"/>	Pipe Materials	<input type="checkbox"/>
<input type="checkbox"/>	Sign Work	<input type="checkbox"/>

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Me...	Unit Cost	Total Cost (Forecast)	Plug	Detail	Example Sub #2 Guard Rail Items	Example Sub #1 Guard Rail Items	HD Engineering Group Concrete, Sitework
18	Guardrail Type 2	1,000.00	Linear ...	\$24.00	\$24,000.00	\$25.00	\$25.00	\$24.00	\$25.00	\$50.00
19	Guardrail Type 3A	200.00	Linear ...	\$31.00	\$6,200.00	\$35.00	\$35.00	\$31.00	\$30.00	\$35.00
17	Toll Booth	1.00	Each	\$40,000...	\$40,000.00	\$25,000.00	\$25,264.55	\$25,264.55	\$40,000.00	\$25,264.55
Scope Items										
Summary										
Minority Type										
Quoted Total							\$57,000.00	\$25,264.55	\$30,200.00	\$71,000.00
Comparable Total							\$57,000.00	\$57,264.55	\$55,464.55	\$82,264.55
Awarded Total							\$0.00	\$30,200.00	\$40,000.00	\$0.00
Quoted Items Total							\$57,000.00	\$25,264.55	\$30,200.00	\$71,000.00
Special Conditions							\$0.00	\$0.00	\$0.00	\$0.00
Last Update								7/29/2009 2:21:...	11/13/2019 9:0...	11/13/2019 1:0...

### 8.4.4 Display Ignored Quotes

You can view ignored quotes by selecting **Actions > Ignored Quotes**.

You can ignore a quote by right clicking on the subcontractor header, then selecting Edit Quote.

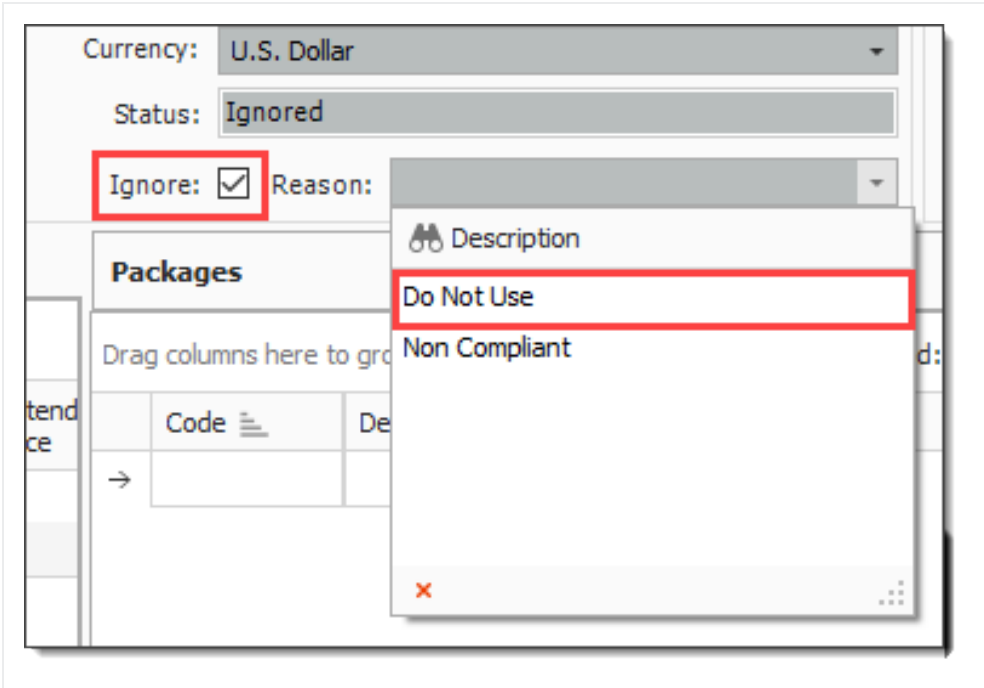
Example Vendor 2 Asphalt Materials	Example Vendor 1 Pipe Materials for site improvements	Example Vendor 4 DBE Pipe Materials
\$1,311,975.00		
\$13,671.00		
		1,990.00
		6,150.00
		3,331.20
		DBE
		1,471.20
		0,798.35

	Award
	Award And Lock
	Lock
	Unlock
	Edit Quote
	Duplicate Quote
	Ignore Quote
	Package Entire Quote
	Edit Package
	Edit Resource

From the Quote Record screen, select the Ignore check box and also a Reason, then select OK.





**NOTE** If the quote record is already awarded, you will not be able to select the Ignore option.

If the Ignored Quotes button is pressed, the ignored quote will display in grey. An ignored Quote cannot be awarded. The ignored quotes get appended to the right end of the QC&A form.

Award

Award And Lock

Lock

Unlock

Edit Prices

Quoted Items

Unit Price

Substitute Values

Zero Items

Scope Items

Ignored Quotes

Configure Totals

Set Substitute Ranking

Default Data Blocks

Session Recap

Auto Award

Tools

Quote Comparison & Award - Cost items

Find: [Search For...]

Saved views: Previous View

Unit of Measure	Unit Cost	Total Cost (Forecast)		Detail	Example Sub #3 Sign Items	Example Sub #2 Guard Rail Items	Example Sub #4 DBE Sign Items	Example Sub #1 Guard Rail Items
Linear Feet	\$24.00	\$24,000.00	\$25,000.00	\$25,000.00	\$25,000.00	\$24,000.00	\$25,000.00	\$25,000.00
Linear Feet	\$31.00	\$6,200.00	\$7,000.00	\$7,000.00	\$7,000.00	\$6,200.00	\$7,000.00	\$6,000.00
Square F...	\$13.00	\$13,000.00	\$15,000.00	\$13,000.00	\$11,000.00	\$13,000.00	\$13,000.00	\$13,000.00
					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
					\$500.00		<input checked="" type="checkbox"/>	
					<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
								DBE
			\$47,000.00	\$0.00	\$11,000.00	\$30,200.00	\$13,000.00	\$31,000.00
			\$47,000.00	\$45,000.00	\$43,000.00	\$43,200.00	\$45,000.00	\$44,000.00



## 8.4.5 Additional Quote Comparison and Award functions

The Quote Comparison and Award form contains other notable functions which improves the process of selecting the quote that brings the greatest value to the estimate.

### Overview – Additional Quote Comparison and Award Functions

Name		Definition
1	Asterisk next to Quote Item	An Asterisk (*) is displayed on a quote to indicate when that quote includes quote items appearing in other Quote groups.
2	Zero value Plug/Detail	Award quotes to Plug or Detail when its value is zero.
3	Updated Quote Items Tool tip	Quote Item Tool tip displays details including: <ul style="list-style-type: none"> <li>Unit Price</li> <li>Extended Price</li> <li>Bond</li> <li>Taxes</li> <li>Special Conditions</li> <li>an indicator for a delta quote item</li> </ul>

Description	Forecast (T/C) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug	Detail	Case Construction Concrete Formwork
formwork	1.00	Lump Sum	\$2,339,113.70	\$2,339,113.70	\$1,281,200.00	\$2,525,200.00	\$2,525,200.00
place and finish	1.00	Lump Sum	\$0.00	\$0.00	\$375,500.00	\$0.00	\$294,000.00
Comparable Total					\$3,656,700.00	\$2,525,200.00	\$2,892,622.19

## 8.4.6 Configure Totals

You can display and sort additional Summary Totals, Special Conditions, and Last Updated fields by selecting **Actions > Configure Tools**.



Configure Totals

	Caption	Visible	Sort
→	Seller	<input checked="" type="checkbox"/>	None
	Quote Description	<input checked="" type="checkbox"/>	None
	Minority Type	<input checked="" type="checkbox"/>	None
	Notes	<input checked="" type="checkbox"/>	None
	Extended Price	<input type="checkbox"/>	None
	Item Taxes	<input type="checkbox"/>	None
	Quote Tax	<input type="checkbox"/>	None
	Bond	<input type="checkbox"/>	None
	Item Conditions	<input type="checkbox"/>	None
	Quoted Items Total	<input type="checkbox"/>	None
	Special Conditions	<input type="checkbox"/>	None
	Quoted Total	<input checked="" type="checkbox"/>	None
	Substitute Values	<input type="checkbox"/>	None
	Comparable Total	<input checked="" type="checkbox"/>	Ascending
	Awarded Total	<input type="checkbox"/>	None
	Last Update	<input type="checkbox"/>	None

▲

▼

Options

Location: ☐ Top ☒ Bottom

OK

Cancel

The Options radio button give you better control for viewing totals at the tops of the screen or after the quotes.

After selecting additional captions, the new fields appear at the bottom of the Quote Comparison & Award screen. Notice that the caret symbol next to the Comparable totals in the below screenshot indicates that the Quotes are sorted based on Comparable totals in an ascending order.



CBS Position Code	Description
18	Guardrail Type 2
19	Guardrail Type 3A
20	Type 4 Signs
	<b>Scope Items</b>
	Mobilization
	Survey/Layout
	Temporary Traffic control de...
	<b>Summary</b>
	Minority Type
	Notes
	Extended Price
	Item Taxes
	Quote Tax
	Bond
	Item Conditions
	Quoted Items Total
	Special Conditions
	Quoted Total
	Substitute Values
	Comparable Total <
	Awarded Total: \$43,200.00
	Last Update

### 8.4.7 Adding Notes to Quote Comparison & Award

The Notes feature within the Configure Totals tool, allows you to quickly add, edit, and view notes for a quote in the Quote Comparison & Award form. Having visibility into the notes such as phone conversations with vendor/supplier, quotes that need clarification, or notes on other attributes will help you in making better decisions on who to consider when awarding a particular quote.

#### Step by Step — Add the Notes section to Quote Comparison & Award form

1. From the InEight Estimate landing page, select the **Quote** tab.
2. Select the **Resources** icon under Quote Comparison & Award.
  - Notice the absence of the Notes section. This is the default option until you follow the next steps.



- 3. Select the **Actions** tab.
- 4. From the View section, select the **Configure Totals** icon.

Print

By Quote Group

Set All to Reviewed

Set All to Not Reviewed

Export to Excel

All Quote Items

Print

Layout

Quote Group Status

Resources

Quotes

Quoted Items

Zero Items

Configure Totals

Session Recap

Review

All Quote Groups

Edit Resource

Duplicate Quote

Package Entire Quote

Award

Award And Lock

Lock

Edit Prices

Unit Price

Scope Items

Set Substitute Ranking

Auto Award

Edit Quote

Ignore Quote

Edit Package

Substitute Values

Ignored Quotes

Default Data Blocks

Tools

Cost Breakdown Structure (CBS) Register

Quote Register

Quote Comparison & Award - Resources

Find: [Search For...]

Saved views: Previous View

Resource Code	Description	Utilization Count	Unit of Measure	Unit Cost (Scale 1)	Plug	Detail	Example Vendor 1 Asphalt Materials	Example Vendor 2 Asphalt Materials	Example Vendor 3 Pipe Materials for site improvements	Example Vendor 4 OEC Pipe Materials
MAAM	Asphalt Mix (Finish)	36,750.00	Ton	\$31.50		\$34.13	\$24.13	\$31.50	\$35.70	\$24.13
MAFA	Fine Aggregate	1,860.00	Ton	\$7.25		\$8.19	\$5.19	\$7.25	\$7.35	\$5.19
MPP10	Pipe 10" PVC SDR21	12,600.00	Linear Feet	\$13.65		\$3.28	\$3.28	\$3.28	\$12.60	\$13.65
MPP24	Pipe 24" PVC SDR35	3,000.00	Linear Feet	\$22.05		\$20.48	\$20.48	\$20.48	\$25.20	\$22.05
MPP36	Pipe RCP 36 In	1,024.00	Linear Feet	\$32.55		\$34.13	\$24.13	\$24.13	\$31.50	\$32.55
Scope Items										
Summary										
Minority Type										0%
Quoted Total						\$1,406,973.75	\$0.00	\$1,171,100.70	\$1,325,646.00	\$266,616.00
Comparable Total						\$1,406,973.75	\$1,406,973.75	\$1,308,747.30	\$1,463,292.60	\$1,535,943.15

- 5. Select the check box in the Visible column for the Notes caption.

Configure Totals

Caption	Visible	Sort
Seller	<input checked="" type="checkbox"/>	None
Quote Description	<input checked="" type="checkbox"/>	None
Minority Type	<input checked="" type="checkbox"/>	None
Notes	<input checked="" type="checkbox"/>	None
Extended Price	<input type="checkbox"/>	None
Item Taxes	<input type="checkbox"/>	None
Quote Tax	<input type="checkbox"/>	None
Bond	<input type="checkbox"/>	None
Item Conditions	<input type="checkbox"/>	None
Quoted Items Total	<input type="checkbox"/>	None
Special Conditions	<input type="checkbox"/>	None
Quoted Total	<input checked="" type="checkbox"/>	None
Substitute Values	<input type="checkbox"/>	None
Comparable Total	<input checked="" type="checkbox"/>	Ascending
Awarded Total	<input type="checkbox"/>	None

Options

Location: ☐ Top ☒ Bottom

OK

Cancel

- 6. Select **OK**.



- The Notes section displays on the Quote Comparison & Award form.

Cost Breakdown Structure (CBS) Register

Quote Register

Quote Comparison & Award - Resources

Drag columns here to group

Find: Search For... Saved views: Previous View

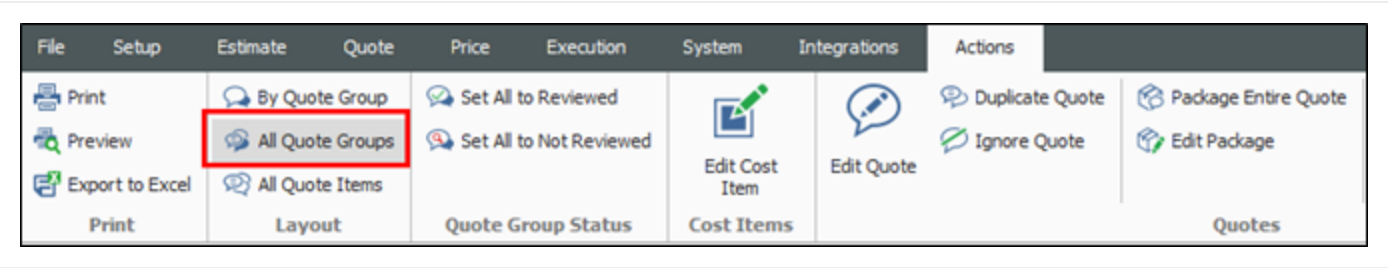
Resource Code	Description	Utilization Count	Unit of Measure	Unit Cost (Scale 1)	Plug	Detail	Example Vendor 1 Asphalt Materials	Example Vendor 2 Asphalt Materials	Example Vendor 1 Pipe Materials for site improvements	Example Vendor 4 DEE Pipe Materials
MAM	Asphalt Mix (Finish)	36,750.00	Ton	\$31.30	\$34.13	\$34.13	\$31.50	\$35.70	\$34.13	\$34.13
MFA	Fine Aggregate	1,860.00	Ton	\$7.25	\$8.19	\$8.19	\$7.25	\$7.35	\$8.19	\$8.19
MPI10	Pipe 10" PVC SDR21	12,600.00	Linear Feet	\$13.65	\$3.28	\$3.28	\$3.28	\$3.28	\$12.40	\$13.65
MPI24	Pipe 24" PVC SDR35	3,000.00	Linear Feet	\$22.05	\$20.48	\$20.48	\$20.48	\$20.48	\$25.20	\$22.05
MPI36	Pipe RCP 36 In	1,024.00	Linear Feet	\$32.55	\$34.13	\$34.13	\$34.13	\$34.13	\$31.50	\$32.55
Scope Items										
Summary										
Minority Type										
Notes										
Quoted Total					\$1,406,973.75	\$0.00	Example Note	5.00	\$266,616.00	\$271,471.20
Comparable Total					\$1,406,973.75	\$1,406,973.75		2.60	\$1,535,943.15	\$1,540,798.35

OK

Cancel

8.4.8 All Quote Groups Layout

The All Quote Group icon, located within the Quote Comparison and Award ribbon, allows you to see all the quote groups at the same time.



You can make appropriate quote group selections based on understanding how choosing a quote group impacts the entire estimate. In addition, the quote groups layout provides you with the visibility and flexibility in aligning scopes, and being able to perform an efficient comparison of various quotes.

Features of this layout include:














Overview – Quote Groups Layout

Name		Definition
1	Totals per Quote Group	Ability to see the Awarded Total Plug, Detail and Quote amount per Quote Group
2	Total Awarded Amount	Visibility into the Total Awarded Amount per Quote Group









Example Sub #3 Sign Items	Example Sub #2 Guard Rail Items	Example Sub #4 DBE Sign Items
\$25,000.00	 \$24,000.00	\$25,000.00
\$7,000.00	 \$6,200.00	\$7,000.00
 \$11,000.00	\$13,000.00	\$13,000.00
<input checked="" type="checkbox"/>	 Award And Lock	
\$500.00	 Lock	
<input checked="" type="checkbox"/>	 Unlock	
	 Edit Quote	
	 Duplicate Quote	
	 Ignore Quote	DBE
 \$11,000.00	 Package Entire Quote	\$11,000.00
\$0.00	 Edit Package	\$0.00
\$0.00	 Edit Cost Item	\$0.00

The Award icon displays next to the awarded item(s).

Example Sub #2 Guard Rail Items	
	\$25,264.55
 \$24,000.00	\$24,000.00
 \$6,200.00	\$6,200.00

Once you award a quote in InEight Estimate, you can see it adds the Awarded Total on the comparison screen, and the pricing updates automatically in the Cost Breakdown Structure.



CBS Position Code	Description	Forec... (T/O) Quan...	Unit of Me...	Unit Cost	Total Cost (Forec...	Plug	Detail	Example Sub #2 Guard Rail Items	Example Sub #1 Guard Rail Items
17	Toll Booth	1.00	Each	\$40,000...	\$40,000...	\$25,000.00	\$25,264.55	\$25,264.55	\$40,000.00
18	Guardrail Type 2	1,000.00	Linear ...	\$25.00	\$25,000...	\$25,000.00	\$50,000.00	\$24,000.00	\$25,000.00
19	Guardrail Type 3A	200.00	Linear ...	\$30.00	\$6,000...	\$7,000.00	\$7,000.00	\$6,200.00	\$6,000.00
20	Type 4 Signs	1,000.00	Square...	\$15.00	\$15,000...	\$15,000.00	\$14,000.00	\$14,000.00	\$14,000.00
27.1	Electrical Work	1.00	Each	\$5,000.00	\$5,000...	\$5,000.00	\$3,500.00	\$3,500.00	\$3,500.00
<b>Summary</b>									
	Minority Type								
	Quoted Total					\$77,000.00	\$25,264.55	\$30,200.00	\$71,000.00
	Comparable Total	<				\$77,000.00	\$99,764.55	\$72,964.55	\$88,500.00
	<b>Awarded Total</b>					\$20,000.00	\$0.00	\$0.00	\$71,000.00
	Quoted Items Total					\$77,000.00	\$25,264.55	\$30,200.00	\$71,000.00
	Special Conditions					\$0.00	\$0.00	\$0.00	\$0.00
	Last Update							7/29/2009 2:21:...	11/13/2019 9:0:...

**NOTE**

You can award multiple Quote items by selecting all the items and then using the right click context menu to award.

### 8.4.9.1 Open Status

If a quote is yellow, this indicates that the quote record is open in another screen. Closing out of the quote record, will turn the record back to gray.

Drag columns here to group

Find: [Search For...]

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug	Detail	Example Sub #2 Guard Rail Items	Example Sub #1 Guard Rail Items	HD Engineering Group Concrete, Stewwork
18	Guardrail Type 2	1,000.00	Linear Feet	\$24.00	\$24,000...	\$25,000.00	\$50,000.00	\$24,000.00	\$25,000.00	\$50,000.00
19	Guardrail Type 3A	200.00	Linear Feet	\$31.00	\$6,200.00	\$7,000.00	\$7,000.00	\$6,200.00	\$6,000.00	\$7,000.00
	Scope Items									
	Summary									
	Minority Type									
	Quoted Total					\$32,000.00	\$0.00	\$30,200.00	\$31,000.00	\$50,000.00
	Comparable Total	<				\$32,000.00	\$57,000.00	\$30,200.00	\$31,000.00	\$57,000.00

### 8.4.9.2 Award Status

The Award Status indicates whether or not all quotes are awarded within a quote group.

Quote Register										
Quote Comparison & Award - Cost Items										
Quote Group(s)	Descr... [...]	Review	CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug	Detail
<input checked="" type="checkbox"/> Electrical Work										
<input checked="" type="checkbox"/> Guardrail Work										
<input checked="" type="checkbox"/> Sign Work										
	17			Toll Booth	1.00	Each	\$40,000.00	\$40,000.00	\$25,000.00	\$25,264.55
	18			Guardrail Type 2	1,000.00	Linear Feet	\$25.00	\$25,000.00	\$25,000.00	\$50,000.00
	19			Guardrail Type 3A	200.00	Linear Feet	\$30.00	\$6,000.00	\$7,000.00	\$6,200.00
	20			Type 4 Signs	1,000.00	Square F...	\$15.00	\$15,000.00	\$15,000.00	\$14,000.00
	27.1			Electrical Work	1.00	Each	\$5,000.00	\$5,000.00	\$5,000.00	\$3,500.00
	<b>Summary</b>									
				Minority Type						
				Quoted Total				\$77,000.00	\$25,264.55	\$30,200.00
				Comparable Total	<			\$77,000.00	\$98,764.55	\$71,964.55



### 8.4.9.3 Review

You can keep track of what quote groups have been reviewed by checking the Reviewed check box.

Quote Group(s) <span>×</span>		
<input checked="" type="checkbox"/>	Description <span>≡</span>	Reviewed
<input checked="" type="checkbox"/>	Electrical Work	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Guardrail Work	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Sign Work	<input type="checkbox"/>

This can be helpful when there are many quotes to track and several users managing them. If any changes are made to quotes within a quote group *after* the quote group is marked as Reviewed, the quote group will be highlighted in yellow to indicate something changed since the last review.

Quote Group(s) <span>×</span>		
<input checked="" type="checkbox"/>	Description <span>≡</span>	Reviewed
<input checked="" type="checkbox"/>	Electrical Work	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Guardrail Work	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Sign Work	<input checked="" type="checkbox"/>

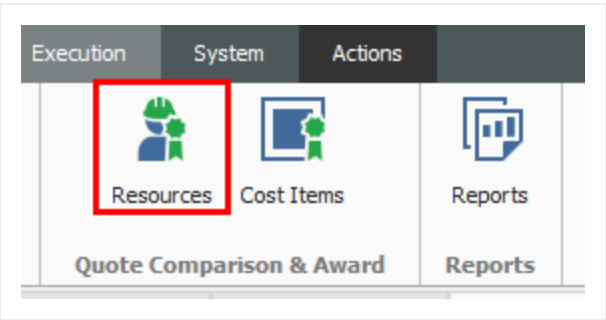
Once reviewed again after the changes, you can uncheck and check the Reviewed checkbox again to indicate it is up to date, and the yellow highlighting disappears.

The following steps walk you through comparing and awarding the Aggregate quotes.

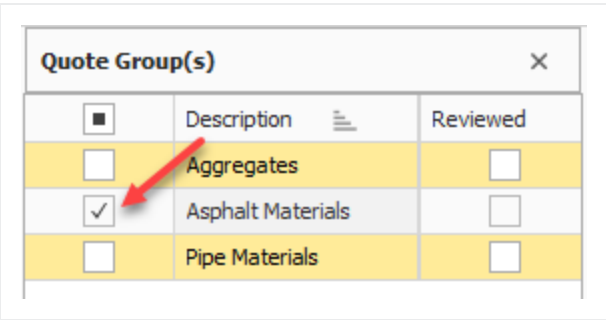
#### Step by Step — Compare and Award Quotes

1. Open the **Training job**, and from the main InEight Estimate landing page select **Quote>Quote Comparison & Award**.
2. Select **Resources** on the Quote Comparison & Award ribbon.





3. Under Description, select **Asphalt Materials**.



4. Review the quotes to determine the lowest bidder:
- Select the Configure Total icon in the tool ribbon to view additional captions
  - Both vendors have no split items for both resources.



Resource Code	Description	Utiliza... Count
MAAM	Asphalt Mix (Finish)	36,750.00
MAFA	Fine Aggregate	1,860.00
Scope Items		
Summary		
Minority Type		
Quoted Total		
Comparable Total		
Awarded Total		
Quoted Items Total		
Special Conditions		
Last Update		

5. Example Vendor 1 has the lowest comparable amount, so award all to Vendor 1 by right clicking on the Example Vendor 1 Asphalt Materials and selecting **Award All**.

Example Sub #3 Sign Items	Example Sub #2 Guard Rail Items	Example Sub #4 DBE Sign Items
\$25,000.00	<b>Award All</b>	\$25,000.00
\$7,000.00	Award And Lock All	\$7,000.00
\$11,000.00	Lock All	\$13,000.00
	Unlock All	
	Edit Quote	
	Duplicate Quote	
	Ignore Quote	
	Package Entire Quote	
		DBE

- By awarding Example Vendor 1 both resources, the award ribbon icon displays next to the unit price.



Detail	Example Vendor 1 Asphalt Materials	Example Vendor 2 Asphalt Materials
\$34.13	\$31.50	\$35.70
\$8.19	\$7.25	\$7.35

- You could also change your mind and award Example Vendor 2 one of the resources. In this case, award resource code MAFA to Example Vendor 2.

6. Right click on \$7.35 under Example Vendor 2, and select **Award**.

- You now have awarded resource code MAFA to Example Vendor 2.

Detail	Example Vendor 1 Asphalt Materials	Example Vendor 2 Asphalt Materials
\$34.13	\$31.50	\$35.70
\$8.19	\$7.25	\$7.35

### 8.4.10 Package Entire Quote

The Package Entire Quote function allows you to mark an entire quote as a package. This is beneficial if you are attempting to quickly update an existing detailed quote to a lump sum quote from the Quote Record or Quote Compare and Award form.

<div> <div> Set All to Reviewed Set All to Not Reviewed </div> <div> Edit Cost Item Edit Quote </div> <div> Duplicate Quote Ignore Quote </div> <div> Package Entire Quote Award </div> <div> Award And Lock Unlock </div> <div> Quoted Items Unit Price </div> <div> Zero Items Scope Items </div> <div> Configure Totals Set Substitute Ranking </div> <div> Session Recap Auto Award </div> </div> <div> Quote Group Status Cost Items Quotes View Tools </div>									
<div> columns here to group Find: [Search For...] Saved views: Previous View </div>									
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug	Detail	Harmon Construction Concrete, Sitework	Eagle Concrete Corp. Concrete, Sitework
3.1.1	Sidewalks	4,544.00	SQFT	\$9.89	\$44,939.07	\$44,939.07	\$44,939.07	P1 \$206,000.00	P1 \$242,500.00
3.1.2	V curb	50.00	LF	\$34.51	\$1,725.32	\$1,725.32	\$1,725.32	P1	P1
3.1.3	Curb and Gutter	1,250.00	LF	\$34.51	\$43,133.12	\$43,133.12	\$43,133.12	P1	P1
3.1.4	Valley gutter	50.00	LF	\$34.51	\$1,725.32	\$1,725.32	\$1,725.32	P1	P1
3.1.5	Handicap ramps	159.00	SQFT	\$9.89	\$1,572.47	\$1,572.47	\$1,572.47	P1	P1
3.1.6	Truncated domes	1.00	Lump Sum	\$25,000.00	\$25,000.00	\$25,000.00	\$25,000.00	P1	P1
3.1.7	Flow thru planter slab	125.00	LF	\$96.04	\$12,005.46	\$12,005.46	\$12,005.46	P1	P1
3.1.8	Flow thru planter walls	125.00	LF	\$96.04	\$12,005.46	\$12,005.46	\$12,005.46	P1	P1
3.1.9	Median Infill	225.00	CY	\$41.02	\$9,230.60	\$9,230.60	\$9,230.60	P1	P1
3.1.10	Rolled curb adjacent to...	50.00	LF	\$34.51	\$1,725.32	\$1,725.32	\$1,725.32	P1	P1
3.1.11	Reinforcing	2,612.40	lb	\$4.59	\$12,000.00	\$12,000.00	\$12,000.00	P1	P1



## 8.4.11 Incomplete Quotes

The Incomplete quotes status indicates if a quote includes quote items that do not yet have a price. This is often the case when vendors respond to an RFQ expressing interest in bidding but do not provide their prices until right before the bid is due. These quotes display in gray in the Quote Compare and Award form.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug	Detail	Natomas Masonry, Inc. Masonry	Marquis Masonry	H.P. Construction Inc. Masonry
4.1.1	CMU Walls	1.00	Lump Sum	\$485,922.27	\$485,922.27	\$400,000.00	\$400,000.00	P1 \$512,648.00	\$526,724.53	P1 \$766,352.00
4.1.2	Precast Concrete Caps	1.00	Lump Sum	\$14,577.67	\$14,577.67	\$12,000.00	\$12,000.00	P1	\$12,375.47	P1
4.1.3	Steel Embeds	1.00	Lump Sum	\$12,148.06	\$12,148.06	\$10,000.00	\$10,000.00	P1	\$0.00	P1
<b>Scope Items</b>										
	Demolition									
	Caulking, Sealants &...									
	Scaffolding									
	Shoring/Bracing					\$15,000.00			\$12,000.00	
	Testing/Inspection									
<b>Summary</b>										
	Minority Type									
	Notes									

Incomplete Quotes that are Scope Only can be viewed in the Quote Compare and Award form using the **Zero Items** toggle. These are quotes that have none of the Items priced. These quotes are displayed to the right of all the Comparable Quotes.

Quote Group(s)	Description	CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug	Detail	Natomas Masonry, Inc. Masonry	H.P. Construction Inc. Masonry	Marquis Masonry
	Concrete, Precast	4.1.1	CMU Walls	1.00	Lump Sum	\$1,879,705.33	\$1,879,705.33	\$4,400,000.00	\$1,708,826.67	P1 \$512,648.00	P1 \$766,352.00	\$0.00
	Concrete, Structural	4.1.2	Precast Concrete Caps	1.00	Lump Sum	\$170,882.67	\$170,882.67	\$12,000.00	\$12,000.00	P1	P1	\$0.00
	Concrete, Structural	4.1.3	Steel Embeds	1.00	Lump Sum	\$170,882.67	\$170,882.67	\$10,000.00	\$10,000.00	P1	P1	\$0.00
	Scope Items											
	Demolition											
	Caulking, Sealants & Backer Rod											
	Scaffolding											
	Shoring/Bracing							\$15,000.00				
	Testing/Inspection											
	Summary											
	Minority Type											
	Notes											
	Quoted Total							\$4,422,000.00	\$1,708,826.67	\$512,648.00	\$574,764.00	\$0.00
	Comparable Total							\$4,422,000.00	\$1,730,826.67	\$512,648.00	\$574,764.00	\$1,730,826.67



## 8.5 SCOPE ITEMS

During the bidding process, it's common for subcontractors and suppliers to provide a quote(s) for work during the tail end of the bidding process. These last-minute offers make it extremely difficult for you to evaluate and compare the various quotes and your ability to award them. With **scope items**, you can create and evaluate checklists and quote group exclusions, and account for them within the Quote Comparison and Award form.

You can view scope items as a checklist of items that break down the quote's scope of work into individual tasks to aid in the process of evaluating subcontractor and supplier quotes in greater detail. This can be used to ensure that certain items of work are included or excluded. If excluded, the scope items need to be properly accounted for by contractor awarding the quote.

### Overview – Quote Record – Scope Items

Section	Description
Seller's Special Terms & Conditions	By default, all scope items are considered included in the quote, and the Special Conditions amount is \$0.00. On the quote record, by selecting the checkbox, you can indicate scope items and uncheck items that are not included. The amount associated with these items will then total up in the Special Conditions subtotal. The person responsible for awarding quotes needs to update the Inclusions field to correspond with what the subcontractor has agreed to include in the quote.



**Special Terms & Conditions**

**Quote Tax**

Add Taxes to the Quote: ☐ Yes ☒ No

TAXES to be added to awarded TOTAL as a % of total :

Tax Rate:

Total Tax:

**Item Tax**

☒ Add Item Taxes to each item's price

**Buyer's Special Terms & Conditions**

☒ Seller's Special Terms & Conditions

**FIXED COST** to be added to Seller's awarded total (any combination of items) :

Distribute Special Condition: ☒ Evenly ☐ Using weighted average

☒ Include Special Conditions costs for unawarded quotes in Comparable Totals

Drag columns here to group Find:  Saved views: Previous View

Row Number	Scope Item	Quote Group	Included	Amount	% of Total	Notes
→ 1	Permits	Electrical Work	<input checked="" type="checkbox"/>			
2	Surveying and Layout	Electrical Work	<input type="checkbox"/>	\$500.00	14.29	
3	Temporary Traffic Control Devices	Electrical Work	<input checked="" type="checkbox"/>			
4	Trench and Backfill for Electrical W...	Electrical Work	<input checked="" type="checkbox"/>			
				<b>\$950.00</b>		

Special Terms & Conditions    Qualifications    Packages    Seller's Profile    Setup    Minority

## Overview – Quote Comparison and Award – Scope Items

Section		Description
1	Scope Items	Quote Comparison and Award checklist items for your quote that help with evaluating subcontractor and supplier quotes in greater detail. This is used to ensure certain items are either included (inclusion) or excluded (exclusion) in the quote and accounted for by the entity awarding the quote.
2	Scope Item Inclusions	Maintained in Quote Record form. These are the Seller's Special Terms & Conditions scope items that the subcontractor is including in their quote price. When the scope item contains a value, the subcontractor is agreeing to perform the work.
3	Scope Item Exclusions	Maintained in Quote record form. These are the Seller's Special Terms & Conditions scope items price. If the Inclusions checkbox is blank, the subcontractor is NOT agreeing to perform the scope items.



## Overview – Quote Comparison and Award – Scope Items (continued)

Section	Description
4 Scope Item value	An entered value means that the subcontractor is excluding this scope of work. However, you may add an amount because this scope could incur a cost. Once the bid is awarded, you may find another subcontractor to perform the work. You are simply accounting for a cost for this scope of work. In the example below, HD Engineering is not going to paint the electrical equipment, but you know the cost is \$150.00. You are showing this cost to account the cost for this scope of work that needs to happen.
5 Seller's Special Terms & Conditions	By default, all scope items are considered included in the quote, and the Special Conditions amount is \$0.00. On the quote record, by selecting this checkbox, you can indicate scope items and uncheck items that are not included. The amount associated with these items will then total up in the Special Conditions subtotal. The person responsible for awarding quotes needs to update the Inclusions field to correspond with what the subcontractor has agreed to include in the quote.

Cost Breakdown Structure (CBS) Register

Quote Register

Quote Comparison & Award - Cost Items

Quote Group(s)

	Description	Reviewed
<input checked="" type="checkbox"/>	Electrical Work	<input type="checkbox"/>
<input type="checkbox"/>	Electrical work 2	<input type="checkbox"/>
<input type="checkbox"/>	Electrical work 3	<input type="checkbox"/>
<input type="checkbox"/>	Guardrail Work	<input type="checkbox"/>
<input type="checkbox"/>	Pipe Materials	<input type="checkbox"/>
<input type="checkbox"/>	Sign Work	<input type="checkbox"/>

Drag columns here to group

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Me...	Unit Cost	Total Cost (Forecast)	Plug	Detail	Architectural Designs, Inc. Electrical Work	HD Engineering Group Electrical Work
27.1	Electrical Work	1.00	Each	\$4,200.00	\$4,200.00	\$5,000.00	\$4,200.00	\$4,200.00	\$4,450.00
1	Scope Items								
	Permits							<input type="checkbox"/>	2 <input checked="" type="checkbox"/>
	Surveying and Layout							\$500.00	\$500.00
	Temporary Traffic Control Devices							<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Trench and Backfill for Electrical Work							<input type="checkbox"/>	<input type="checkbox"/>
	Painting Electrical Equipment							<input type="checkbox"/>	4 <input type="checkbox"/> \$150.00
	Temporary Power and Lighting							<input type="checkbox"/>	4 <input type="checkbox"/> \$300.00
	Summary								
	Minority Type								
	Quoted Total					\$5,000.00	\$0.00	\$4,200.00	\$4,450.00
	Comparable Total	<				\$5,000.00	\$4,200.00	\$4,200.00	\$4,450.00
	Awarded Total					\$0.00	\$0.00	\$4,200.00	\$0.00
	Quoted Items Total					\$5,000.00	\$0.00	\$3,700.00	\$3,500.00
5	Special Conditions					\$0.00	\$0.00	\$500.00	\$950.00
	Last Update							11/13/2019 1:0...	11/13/2019 3:5...

The example below in the Quote Register form shows quotes from two subcontractors, both with different quote prices. It is important to understand all scope of work the subs are quoting. By just viewing these quotes alone, it's difficult to understand which quote will provide you with the best value. In other words, just because Example Sub #3 is the lowest priced quote, does not mean it is the best quote to go with.



Quote Register										
Drag columns here to group										
	Description	RFQ Description	Quote Status	Seller	Company	Quote Total	Awarded Total	Currency	Awarded	Awarded Status
	Electrical Work	Electrical Work	Accepted	Example Sub #5 MBE -- Chr...	Example Sub #5 MBE	\$4,450.00	\$0.00	U.S. Dollar	<input type="checkbox"/>	None
	Electrical Work	Electrical Work	Accepted	Example Sub #3 -- Frank M...	Example Sub #3	\$4,200.00	\$0.00	U.S. Dollar	<input type="checkbox"/>	None

The example below in Quote Comparison and Award shows that HD Engineering Group is excluding 3 scope items in their quote that totals \$950. This provides a more granular picture for what is being included within each subcontractor's scope of work. It also displays how much each scope of work costs, so you have the option to find another subcontractor to perform this scope work.

Quote Comparison & Award - Cost items										
g columns here to group										
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Me...	Unit Cost	Total Cost (Forecast)	Plug	Detail	Architectural Designs, Inc. Electrical Work	HD Engineering Group Electrical Work	
27.1	Electrical Work	1.00	Each	\$4,200...	\$4,200.00	\$5,000.00	\$4,200.00	\$4,200.00	\$4,450.00	
<b>Scope Items</b>										
	Permits							<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Surveying and Layout							\$500.00		\$500.00
	Temporary Traffic Control Devices							<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Trench and Backfill for Electrical Work							<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	Painting Electrical Equipment							<input type="checkbox"/>		\$150.00
	Temporary Power and Lighting							<input type="checkbox"/>		\$300.00
<b>Summary</b>										
	Minority Type									
	Quoted Total					\$5,000.00	\$0.00	\$4,200.00		\$4,450.00
	Comparable Total	<				\$5,000.00	\$4,200.00	\$4,200.00		\$4,450.00
	Awarded Total					\$0.00	\$0.00	\$4,200.00		\$0.00
	Quoted Items Total					\$5,000.00	\$0.00	\$3,700.00		\$3,500.00
	Special Conditions					\$0.00	\$0.00	\$500.00		\$950.00
	Last Update							11/13/2019 1:0...		11/13/2019 3:5...

Utilizing Scope Items enables you to more effectively compare quotes from subcontractors and suppliers by providing a deeper comparison of quotes. Moreover, it provides clearer visibility of what a proposal may or may not be including at the time you are attempting to make an award.

You can make a more informed decision on whom to award the quote to, now that the vendor quotes and associated scope items are all visible on one screen.

### 8.5.1 Scope Item Setup

Scope items are stored within each quote group tag in the Foundation Setup Data form. On each Quote Group Tag Record, you can list out scope items that break down the work into smaller scopes of work, along with the estimated cost amount associated with each scope item.



Foundation Setup Data Register

Quote Group Tag Record ✕

Description: \* Electrical Work

Award Status: Complete

Reviewed: ☐

Last Reviewed:

Quote Last Changed:

Drag columns here to group

Row Nu...	Scope Item	Amount	% of Total
1	Permits	\$0.00	
2	Surveying and Layout	\$500.00	
3	Temporary Traffic Control Devices	\$0.00	
4	Trench and Backfill for Electrical Work	\$0.00	
5	Painting Electrical Equipment	\$0.00	
6	Temporary Power and Lighting	\$300.00	
→			

## 8.5.2 Scope Item Creation and Award

The following Step by Step assumes you are putting out an advertisement for bids for some electrical work on a project. You will add scope items with some fixed costs as a special condition, then will compare quotes in order to decide which vendor quote is the best deal.

### Step by Step — Create and Award Scope Items

1. Open the **Training Job**.
2. Select the **Setup** tab.
3. Click on **Foundation Data Setup** in the Initialize section.
4. Select the **Quote Group Tags** tab to setup Scope Items within a Quote Group.
5. Create a new Quote Group Tag called **Electrical Work** and click **OK**.



**Foundation Setup Data Register** \*

Account Codes   Tags   Work Breakdown Structures   Quote Group Tags   U

Drag columns here to group

	Description	Award Status	Utilized In Quotes
+	Aggregates	Complete	<input checked="" type="checkbox"/>
+	Asphalt Materials	Complete	<input checked="" type="checkbox"/>
+	Bridge Work	Complete	<input type="checkbox"/>
+	Commercial Work	Complete	<input type="checkbox"/>
+	Concrete Beams	Complete	<input type="checkbox"/>
+	Concrete Materials	Complete	<input type="checkbox"/>
→ +	<b>Electrical Work</b>	Complete	<input type="checkbox"/>

6. Open **Electrical Work** and add the following Scope Items:
  - Permits
  - Surveying and Layout
  - Temporary Traffic Control Devices
  - Trench and Backfill for Electrical Work
  - Painting Electrical Equipment
  - Temporary Power and Lighting
7. Enter **500** in the Amount field for Survey and Layout, and **300** for Temporary Power and Lighting.
  - If any of these default columns are missing, click on one of the headers, and right click. Select **Column Chooser** and drag the item(s) over to the header bar, then click **OK**




Row Number		Scope Item	Amount	% of Total
1		Permits	\$0.00	
2		Surveying and Layout	\$500.00	
3		Temporary Traffic Control Devices	\$0.00	
4		Trench and Backfill for Electrical Work	\$0.00	
5		Painting Electrical Equipment	\$0.00	
6		Temporary Power and Lighting	\$300.00	

8. Click **OK**.
9. Select the **Estimate** tab.
10. Click on **Cost Breakdown Structure (CBS)**.
11. Change your Saved Views to **Quote Group Setup View**.
12. Create a cost item **Entry Gate** with a subordinate **Electrical Work**.
13. Assign **Quote Group Electrical Work** to the Electrical Work cost item.

CBS Position Code	Description	Forecast (T/O) Quantity
- 26	Entry Gate	1.00
+ 26.1	Electrical Work	1.00

14. Select the **Quote** tab.
15. Click **Request For Quote (RFQ)** to open the RFQ Register.
16. Create an RFQ for the Electrical Work cost item by selecting the **New** icon on the Actions tab.
17. Select **Create RFQ from Quote Group Tag(s)** and select **Electrical Work**.



 **New RFQ**

**Cost Item Identification**

Use the following field: CBS Position Code

Please select from the following options:

☐ Create RFQ from scratch

☒ **Create RFQ from Quote Group Tag(s)**

☐ Create RFQs using Default Seller data

☒ Only show Quote Group tags that are currently utilized in this job

☒ On the resulting RFQ record, only list resources with utilization currently greater than zero

This option scans the job for all Resources and Quote Groups utilized in the job. For any that are listed in the Address Book as 'Default Quotes' for the Sellers you select on the subsequent selection register, a new RFQ record will be added for each Seller listing their default items.

☒ Create separate RFQ records for each Quote Group, per seller?

Description

☐ [Uncheck All]

☐ [Blanks]

☐ Aggregates

☐ Asphalt Materials

☐ Commercial Work

☐ Concrete Materials

☐ Guardrail Work

☐ Landscaping Work

☐ Manhole Materials

☐ None

☐ Painting Materials

☐ Pipe Materials

☐ Process Equipment Install

☐ Process Materials

☐ Sign Work

☐ Structural Painting

☒ **Electrical Work**

OK

Cancel

18. Click **OK**.

19. Click on the **Seller Companies** tab and select the following Company Names:



- Architectural Designs
- HD Engineering Group

20. Highlight both companies and select **Publish**.

- Make sure the appropriate boxes are checked and fields filled out for publishing either by fax or by email prior to publishing

**Publish**

Create Quote

Process

Foundation Setup Data Register      Quote Group Tag Record

Description

Electrical Work

Response Deadline Date: 1/2/2019      Response De

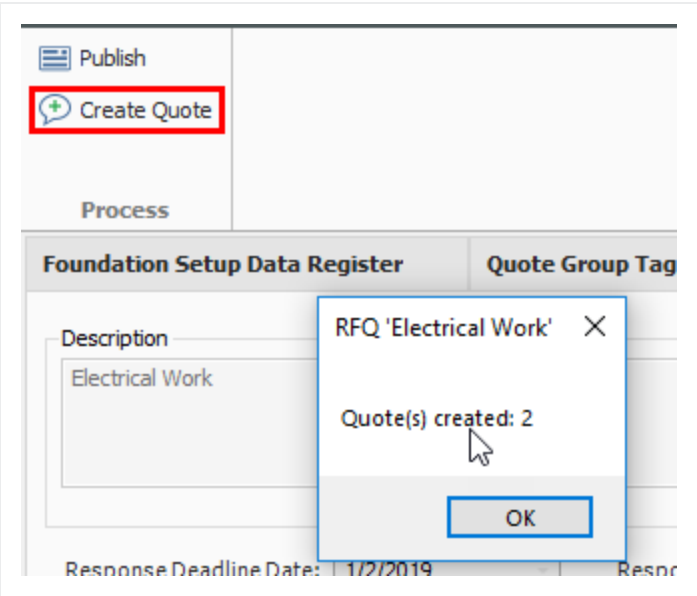
Line Items      Terms & Conditions      Seller Companies      Attachment

Drag columns here to group

	Company Name	First Name	Last Name
	Architectural Designs, Inc. -- Jones ...	Jones	Hardy
→	HD Engineering Group -- Roger C...	Roger	Croon
*			

21. Assuming that you’ve already received quotes back from both companies, create a Quote from this RFQ for both companies by selecting the companies and selecting **Create Quote**.





22. Click **OK** to close the RFQ record.
23. Select the **Quote >Quotes** tab to open the Quote Register.
  - Note the 2 quotes that were just created for Electric Work

Description	RFQ Description	Quote Status	Seller
[Enter Description]		Invalid	<Ad-Hoc Address>
[Enter Description]		Invalid	<Ad-Hoc Address>
Aggregates	Aggregates	Received	Example Vendor 1 -- P
Aggregates	Aggregates	Received	Example Vendor 4 DBE
Aggregates	Aggregates	Received	Example Vendor 2 -- S
Asphalt Materials		Received	Example Vendor 1 -- P
Asphalt Materials		Received	Example Vendor 2 -- S
Concrete, Sitework		Ignored	HD Engineering Group
Electrical Work	Electrical Work	Received	Architectural Designs,
Electrical Work	Electrical Work	Received	HD Engineering Group

24. Open the Quote Record for HD Engineering Group and enter a Unit Price of **3,500**, which is based on the quote you received.
25. Select the **Special Terms & Conditions** tab and select the **Seller's Special Terms & Conditions** radio button.



- You now have visibility for all of scope items for this quote

Row Number	Scope Item	Quote Group	Inclusions	Amount	% of Total
1	Permits	Electrical Work	<input checked="" type="checkbox"/>		
2	Surveying and Layout	Electrical Work	<input checked="" type="checkbox"/>		
3	Temporary Traffic Cont...	Electrical Work	<input checked="" type="checkbox"/>		
4	Trench and Backfill for E...	Electrical Work	<input checked="" type="checkbox"/>		
5	Painting Electrical Equip...	Electrical Work	<input checked="" type="checkbox"/>		
6	Temporary Power and L...	Electrical Work	<input checked="" type="checkbox"/>		

26. Assuming HD Engineering is excluding certain scope items from this quote, click on the **Included checkbox** to exclude (uncheck) the following scope items:

- Surveying and Layout
- Painting Electrical Equipment
- Temporary Power and Lighting

☒ Include Special Conditions costs for unawarded quotes in Comparable Totals

Drag columns here to group
 Find: 
 Saved views: Previous View

Row Number	Scope Item	Quote Group	Included	Notes
1	Permits	Electrical Work	<input checked="" type="checkbox"/>	
2	Surveying and Layout	Electrical Work	<input type="checkbox"/>	
3	Temporary Traffic Contr...	Electrical Work	<input checked="" type="checkbox"/>	

27. Type **150** in the Amount field for Painting Electrical Equipment.

- Notice how the 3 scope items you just excluded are now added to the Special Conditions total for the quote



<b>Total</b>	
Extended Price:	\$3,500.00
Item Taxes:	\$0.00
Quote Tax:	
Bond:	
Item Conditions:	\$0.00
Special Conditions:	\$950.00
<b>Total:</b>	<b>\$4,450.00</b>

28. Click **NEXT** to move to the other Quote Record for Architectural Designs.
29. Enter a Unit Price of **3,700**.
30. Press **Tab** to move to the **Special Terms & Conditions** tab and select the **Seller's Special terms & Conditions (at right)** radio button.
31. Uncheck the Inclusions checkbox for **Surveying and Layout**
32. Add the amount **500**.

aved views: Previous View		
Amount	% of Total	Notes
▶ \$500.00	14.29	
<b>\$950.00</b>		

33. Click **OK**.
34. Select the **Quote** tab.
35. Open the **Quote Comparison and Award** form, and select the **Cost Items** tab.
36. Under **Quote Groups**, select **Electrical Work**.



Quote Group(s)			
<input type="checkbox"/>	Description		Reviewed
<input checked="" type="checkbox"/>	Electrical Work		<input type="checkbox"/>
<input type="checkbox"/>	Guardrail Work		<input type="checkbox"/>
<input type="checkbox"/>	Sign Work		<input type="checkbox"/>

- You will notice that scope items with inclusions and exclusions on the quotes are now displayed in the Scope Items section. The Scope Items button needs to be pressed in the View section of the screen
- The total of all exclusions are now added to the Special Conditions section for each subcontractor

\$5,000.00	\$3,700.00	\$3,700.00	\$4,450.00
\$5,000.00	\$0.00	\$0.00	\$0.00
\$5,000.00	\$0.00	\$3,700.00	\$3,500.00
\$0.00	\$0.00	\$500.00	\$950.00

TIP

If your Special Conditions row is missing, click the Substitute Values icon on the Action tab. You can also rearrange the sequence as desired.

Quoted Items

Unit Price

**Substitute Values**

Scope Items

Ignored Quotes

Configure Totals

View

Unit of Measure	Unit Cost	Total Cost (Forecast)
.00	Each	\$0.00

Configure Totals

Caption	Visible	Sort
→ Minority Type	<input checked="" type="checkbox"/>	None
Quoted Total	<input checked="" type="checkbox"/>	None
Comparable Total	<input checked="" type="checkbox"/>	Ascending
Awarded Total	<input checked="" type="checkbox"/>	None
Quoted Items Total	<input checked="" type="checkbox"/>	None
Special Conditions	<input checked="" type="checkbox"/>	None
Last Update	<input checked="" type="checkbox"/>	None

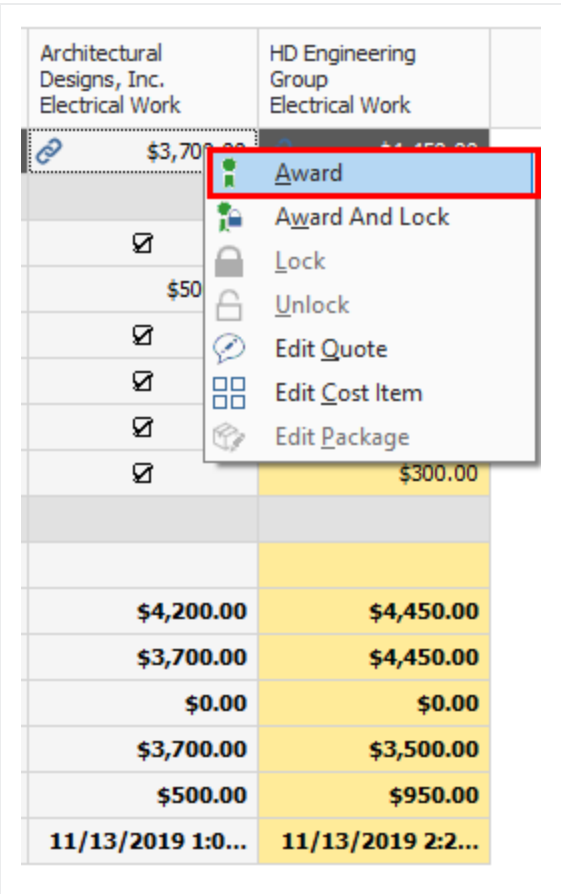
▲ ▼

OK Cancel



- Most importantly, this comparison including scope items makes it clear HD Engineering Group has provided a quote of \$4,450, while Architectural Design’s quote is \$4,200

37. Right click on the quoted amount for Architectural Design and select **Award** to award the work to Architectural Design.






Architectural Designs, Inc. Electrical Work	HD Engineering Group Electrical Work
\$3,700.00	\$4,450.00
<input checked="" type="checkbox"/>	
\$50	
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/>	\$300.00
\$4,200.00	\$4,450.00
\$3,700.00	\$4,450.00
\$0.00	\$0.00
\$3,700.00	\$3,500.00
\$500.00	\$950.00
11/13/2019 1:0...	11/13/2019 2:2...

38. Click **Yes**, on the resulting prompt to mark the quote group as reviewed.



- The Architectural Design's quote is now awarded

Detail	Architectural Designs, Inc. Electrical Work	HD Engineering Group Electrical Work
\$4,200.00	  \$4,200.00 	\$4,450.00
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	\$500.00	\$500.00
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>	\$150.00
	<input checked="" type="checkbox"/>	\$300.00
\$0.00	\$4,200.00	\$4,450.00
\$4,200.00	\$4,200.00	\$4,450.00
\$0.00	\$4,200.00	\$0.00
\$0.00	\$3,700.00	\$3,500.00
\$0.00	\$500.00	\$950.00
	11/13/2019 1:0...	11/13/2019 2:...

## 8.6 QUOTE ITEM ADJUSTMENT

Quote items can be adjusted even after a quote has been awarded. This could happen on closing day when a vendor sends in a last minute discount. For example, vendor 3 has sent in a 10% discount on piping materials. This percentage discount is applied to the vendor 3 quote by entering the 10% in the Condition Adjustment column.

### Step by Step — Quote Item Adjustment

1. From the Ribbon, select the **Quote** tab.
2. Under the Quote Comparison and Award section, select **Resources**.



- 3. Locate the **Example Vendor 3** column.
- 4. Select the quote you want to edit under the Example Vendor 3 column. In the Ribbon, select the **Actions** tab.
- 5. Under the Quotes section, select **Edit Quote**. You can also right-click and select **Edit Quote**. This launches the Quote Record.

Resource Code	Description	Detail	Example Vendor 3 Pipe Materials	Example Vendor 4 DBE Pipe Materials
MPR36	Pipe RCP 36 In	\$34.13	\$31.50	\$32.55
MPP24	Pipe 24" PVC SDR35	\$20.48		
MPP10	Pipe 10" PVC SDR21	\$3.28		
Scope Items				
Summary				
	Minority Type			
	Quoted Total	\$0.00		
	Comparable Total <	\$137,646.60		
	Awarded Total: \$271,...	\$0.00		
	Quoted Items Total	\$0.00		
	Special Conditions	\$0.00		
	Last Update		7/14/2	

Award

Award And Lock

Lock

Unlock

Edit Quote

Duplicate Quote

Ignore Quote

Package Entire Quote

Edit Package

Edit Resource

- 6. You can make Condition Adjustments by a percentage or an amount. Select the field to adjust the percentage or amount of the **Condition Adjustments**.

Find: [Search For...] ...

Saved views: Previous View

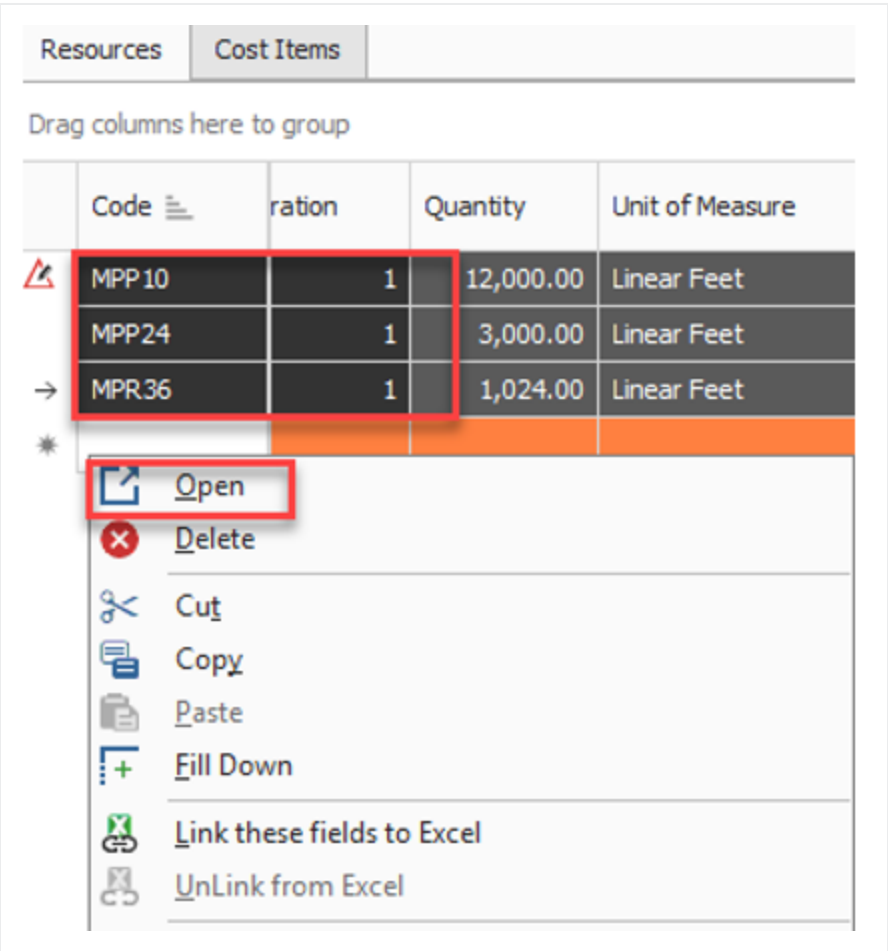
Tax Rate	Condition Adjustment Percentage	Condition Adjustment Amount	Total Price
5.00	-10.00	(\$14,400.00)	\$136,800.00
5.00	0.00	\$0.00	\$75,600.00
5.00	0.00	\$0.00	\$32,256.00

NOTE

If you enter a percentage, the amount is populated based on that calculation. This is the same for entering a Condition Adjustment Amount.



- 7. Items adjustments can be applied individually or by using the multi-edit function. Select multiple resources in the Quote Record, then right-click and select **Open**. This opens the **Quote Resource Item Record**.



- 8. As you populate the 10% discount adjustment to all of the items selected using the multi-edit tool, the amount value changes to **Varies**. This is because of the variance in the unit rates for each selected item.



Description

Varies

Item

Line Number

Code

Quantity

Unit of Measure

Varies

Varies

Varies

Linear Feet

Tags

Quote Group

Tag 1

Tag 2

Tag 3

Pipe Materials

Varies

Varies

Price & Setup

Item Note

Seller Condition

Setup

☒ No Split

☐ Free

Plug Unit Price:

Varies

DBE Allowance %:

60.00

Default Tax Rate %:

5.00

Days Duration:

1

Condition Adjustment

Amount:

Varies

Percentage:

-10.00

Price

Unit Price:

Varies

Extended Price:

Varies

Tax Rate:

5.00

Total:

Varies

9. Select **OK** to save the changes to the line items in the Quote record and to save the Quote.



## Lesson 8 Review

1. When you receive responses to your RFQ, the next step is to enter their pricing in the \_\_\_\_\_.
  - a. CBS Register
  - b. PBS
  - c. Quote Register
  - d. RFQ Register
2. On a Quote Record, No Split means
  - a. The quote must be combined with other quotes from the same vendor
  - b. All items on the quote must be purchased from that seller
  - c. You can't split the quote into multiple quotes
3. When a quote group is highlighted in yellow on the Quote Comparison & Award form, it signifies that
  - a. The quote group has changed since it was last marked as Reviewed
  - b. No quotes have been awarded for that quote group
  - c. There are some quotes in the quote group that contain substitute values

## Lesson 8 Summary

As a result of this lesson, you can:

- Create and publish RFQs
- Define quote pricing
- Compare and award quotes
- Create and analyze scope items



# LESSON 9 – REPORTING

**Lesson Duration: 30 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Run reports from the Reports menu
- Create and run reports from register forms

## Lesson Topics

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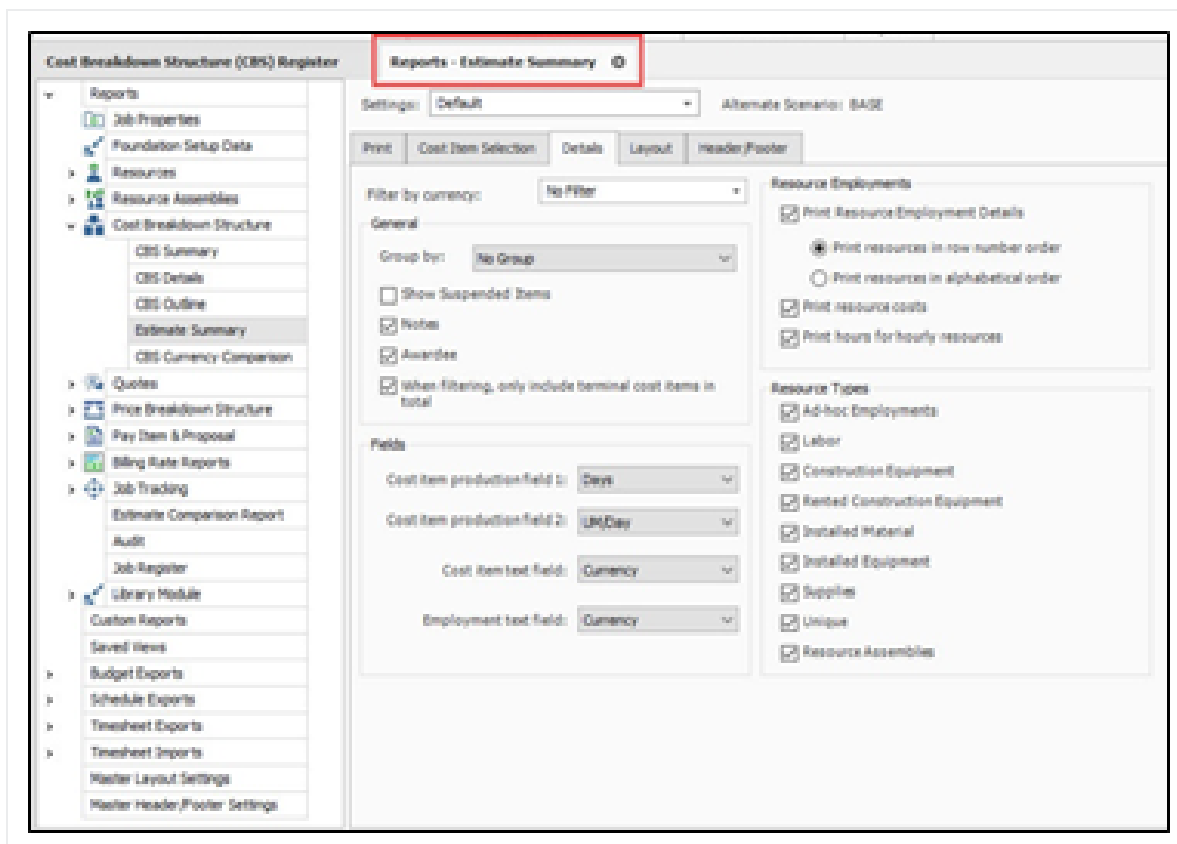


## 9.1 REPORTS MENU

InEight Estimate provides a lot of out of the box reports, referred to as “canned” or “system” reports, that can help you review and analyze your estimate.

### 9.1.1 Non-Modal Report dialog box

The Reports dialog is docked along with the other forms and registers. You can continue to work with your estimate without being forced to close the Reports dialog box.



If the report becomes undocked, the job code shows in the reports dialog box header.



## 9.1.2 Adjustable Reports

Most of the reports within InEight Estimate can be adjusted to output the specific data and reporting format you need. Each report has its own set of output settings for configuring and formatting the report.

All InEight Estimate adjustable reports are accessed from the Reports menu. You may even run the same report multiple times and choose different output settings based on what you want to see or who the intended audience is.

For example, you may choose to run the CBS Details Report several times to satisfy different needs or for different audiences, and include or exclude specific data depending on what you or the report recipients want to see.

- For a group of *estimators*, you may want to run a CBS Details Report that shows all cost and productivity data for a job
- For *field personnel*, you may want to run a CBS Details Report that shows no cost data, but all production and resource data
- Finally, for *executive management*, you may want to run a CBS Details Report that shows summary level information only

The following steps take you through a brief overview of the Reports menu and how you can access it.

### Step by Step — Get to Know the Reports Menu

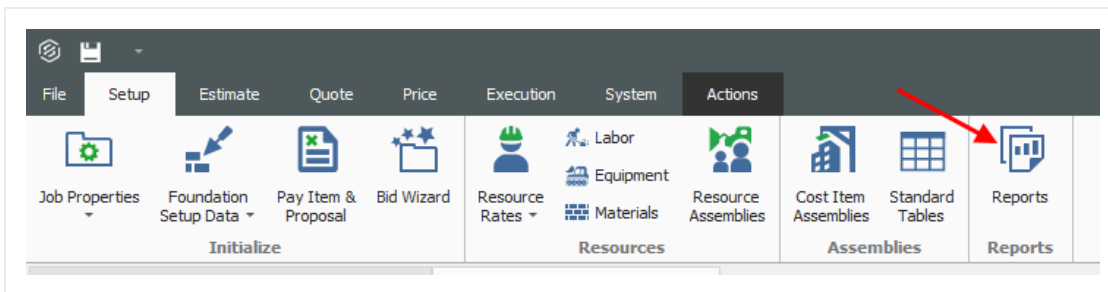
1. Open the **Training Job**, and select **Setup** tab.
  - You access the Reports menu by clicking on the Reports icon

**TIP**

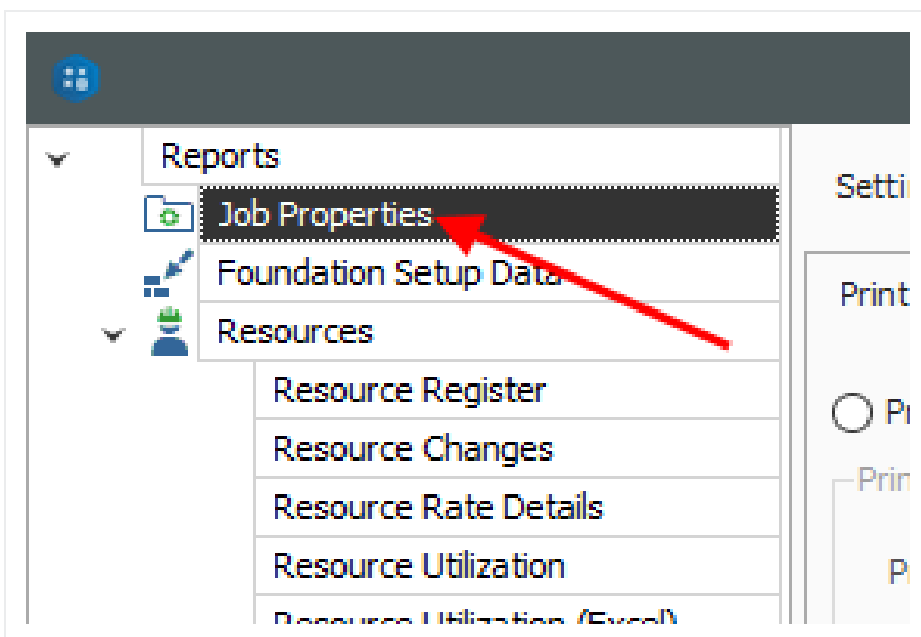
You can access the Reports menu from the Setup, Estimate, Quote, Price, and Execution tabs.

2. Select **Reports**.



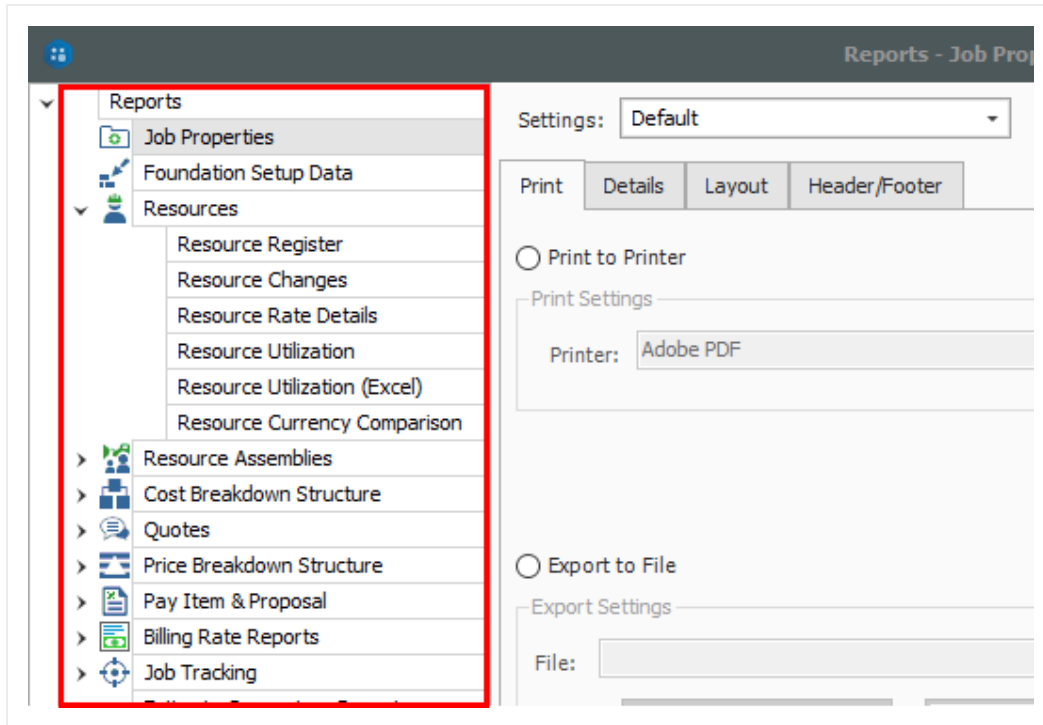


3. Here you select the Report of your choice. For this example, select the first option, **Job Properties**.

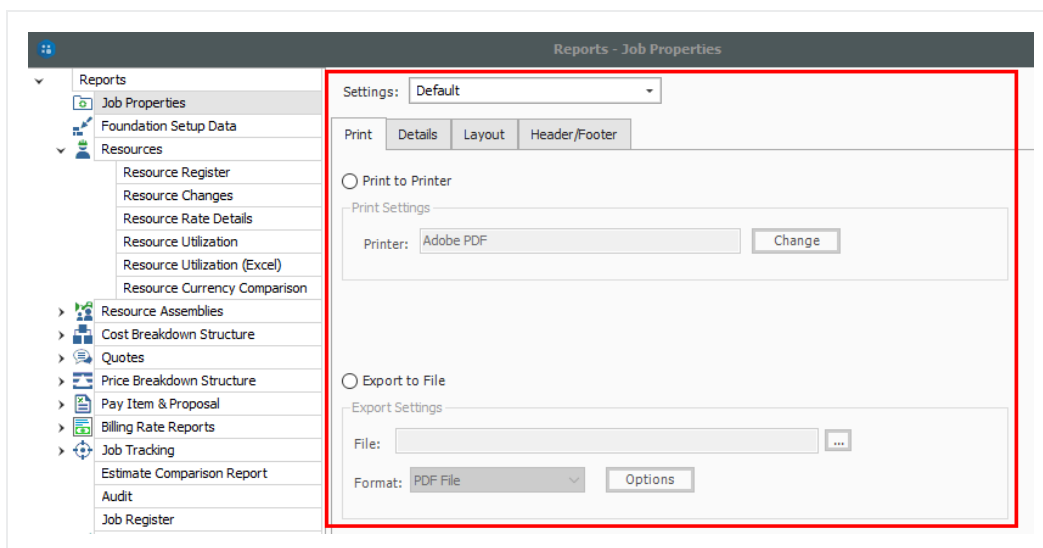


- You will see a split screen with the reports available on the left side bar
- The side bar on the left of the Reports form contains a “tree” of all InEight Estimate adjustable reports



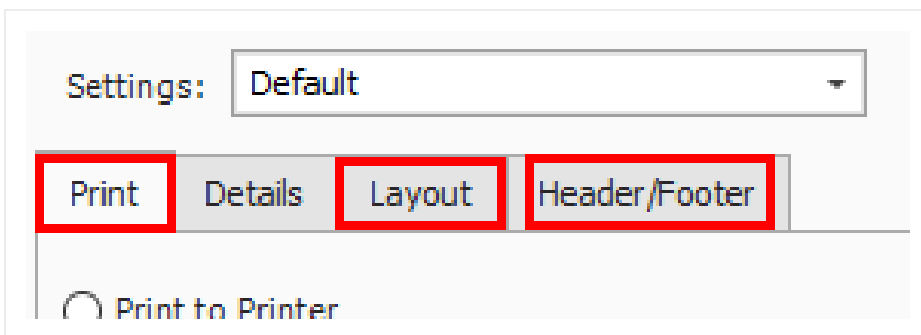


- On the right, when you select a report node on the left, note that it displays the Output Settings on the right side of the form, from which the report settings can be adjusted and the report can then be run

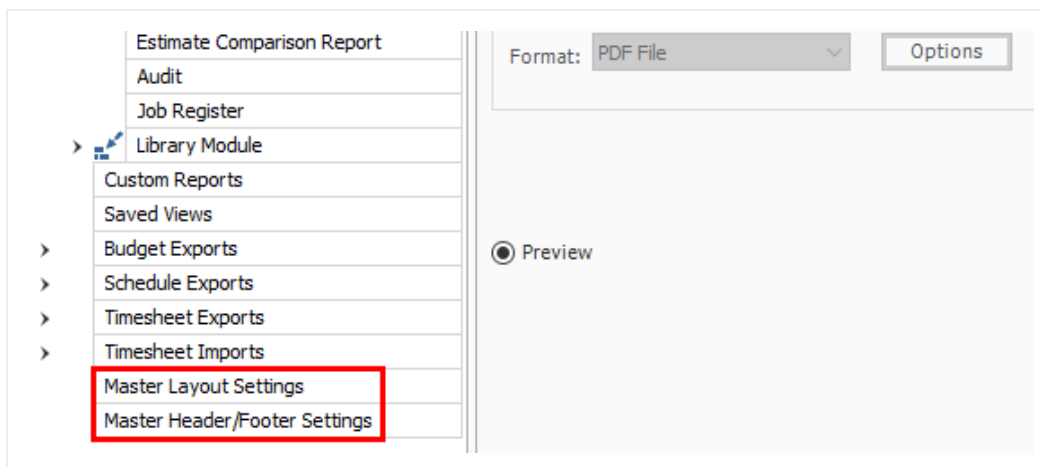


4. Each report has a Print tab, a Layout tab and a Header/ Footer tab specific to that report.





- There are also Master Layout Settings and Master Header/Footer Settings located at the bottom of the left-hand side bar tree. Here you can define settings that will apply to all reports



### 9.1.3 Output Settings

This section provides a more detailed explanation of the output setting tabs.

#### 9.1.3.1 Report Printing Options

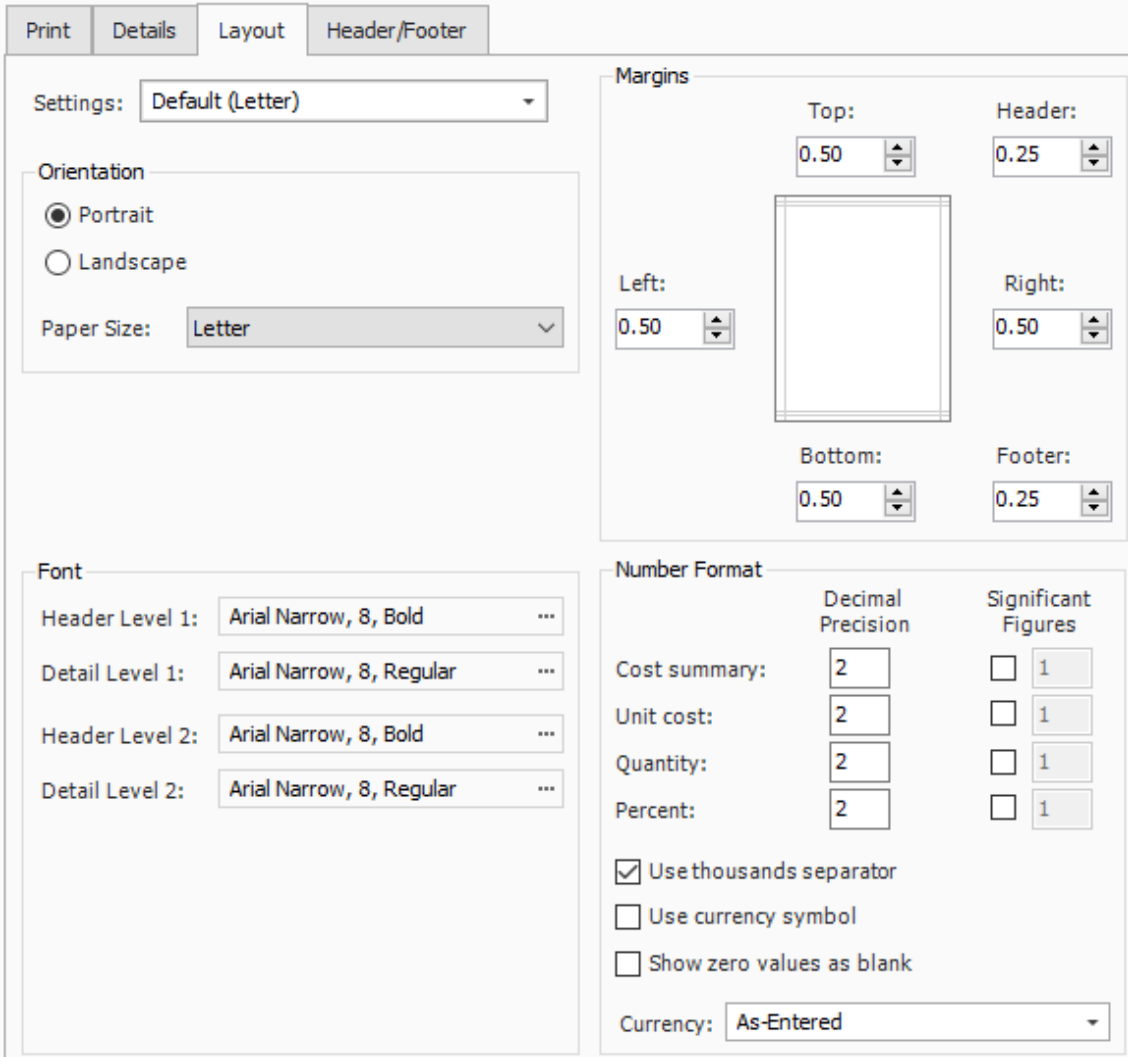
The Print tab includes three options for printing output: Print to Printer, Export to File, and Preview. Export file outputs include PDF, Excel, text, and more.

#### 9.1.3.2 Report Layout Settings

Many of the InEight Estimate adjustable reports include formatting options for the general layout of the report, located under the Layout tab of the report's output settings. Settings for the report include:



## Orientation, Margins, Font, and Number Format.



The screenshot displays the 'Header/Footer' settings tab. It includes sections for Orientation (Portrait selected), Paper Size (Letter), Margins (Top: 0.50, Bottom: 0.50, Left: 0.50, Right: 0.50, Header: 0.25, Footer: 0.25), Font (Header Level 1: Arial Narrow, 8, Bold; Detail Level 1: Arial Narrow, 8, Regular; Header Level 2: Arial Narrow, 8, Bold; Detail Level 2: Arial Narrow, 8, Regular), and Number Format (Decimal Precision: 2, Significant Figures: 1, Use thousands separator: checked, Use currency symbol: unchecked, Show zero values as blank: unchecked, Currency: As-Entered).

### 9.1.3.3 Report Header/Footer Settings

Many of the InEight Estimate adjustable reports include the option to define and insert headers and footers into the report. You can add information to the left, middle, or right of the header and footer sections of the report.

1. Once you define headers and footers, you can save them for use on other reports.
2. You can add page, time, and date stamps as needed, as well as images (e.g., company logo).
3. You can also use brackets to have it “stamp” the report with the Job Code and Job Description.



4. You can enter your own information as desired.

PrintDetailsLayoutHeader/Footer

Settings: Default

Insert Field

Page Header

Report Header (first page only)

[Report Title]

[Company Name]

Job Code: [Job Code]

Description: [Job Description]

Estimate Summary Report

9.1.3.4 Report Detail Settings

Most reports have a Details tab with various options to configure what information is included on the report.



Print

Details

Layout

Header/Footer

Overview

☒ Job Code
 ☒ Description
 ☒ Status
 ☒ Notes

Security

☒ Estimate Protection
 ☒ Authorized Users

Cover Sheet

☒ Identification Data
 ☒ Proposal Data

Cost Basis

☒ Default Currency
 ☒ Standard Shift Arrangements
 ☒ Standard Wage Rate Composite
 ☒ Rules
 ☒ Standard Rates
 ☒ Bond Rate Table
 ☒ Resource Filter

Toggle Include All

Minority Setup

☒ Certification Authority
 ☒ Participation Goals

Fuel Cost

☒ Fuel Type
 ☒ Unit of Measure
 ☒ Cost per Unit of Measure

Job Tracking

☒ Tracking Setup
 ☒ Percent Complete
 ☒ Forecast Methods
 ☒ Time and Expense Items

Job Folder Tags

☒ Job Folder Tags

Competitors

☒ Competitors

Pricing

☒ Auto Price Options
 ☒ Forecast Profit Calculation

Schedule

☒ Schedule Setup

Cash Flow

☒ Revenue Timing
 ☒ Cost Timing
 ☒ Cost of Money
 ☒ Quantities
 ☒ Reporting Periods
 ☒ Dates

Equipment Maintenance

☒ Options
 ☒ Shift Arrangements

Benchmarking

☒ Benchmarking

### 9.1.3.5 Save Output Settings

Once you've configured your settings for the report, you can save them as a custom version of that report.



▼ Reports

Job Properties

Foundation Setup Data

▼ Resources

Resource Register

Resource Changes

Resource Rate Details

Resource Utilization

Resource Utilization (Excel)

Resource Currency Comparison

▶ Resource Assemblies

▼ Cost Breakdown Structure

CBS Summary

CBS Details

CBS Outline

Estimate Summary

Estimate Summary - Foreman

CBS Currency Comparison

Settings: Estimate Summary - Foreman

Alternate Scenario: BASE

PrintCost Item SelectionDetailsLayoutHeader/Footer

☒ Print a contiguous range of cost items:

From: 5.1

To: 6.2

☐ Select cost items to print from the register below:

Drag columns here to groupFind: [Search For...] ... Saved

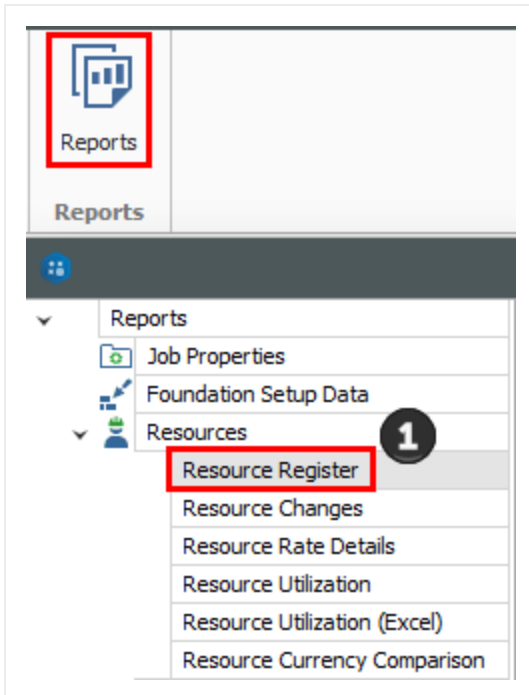
	Include	CBS Position Code	Description
→	<input type="checkbox"/>		Prime Bond
	<input type="checkbox"/>		Price % Add-On
	<input type="checkbox"/>		Job Financing

The following steps walk you through configuring the settings and formatting for two different reports.

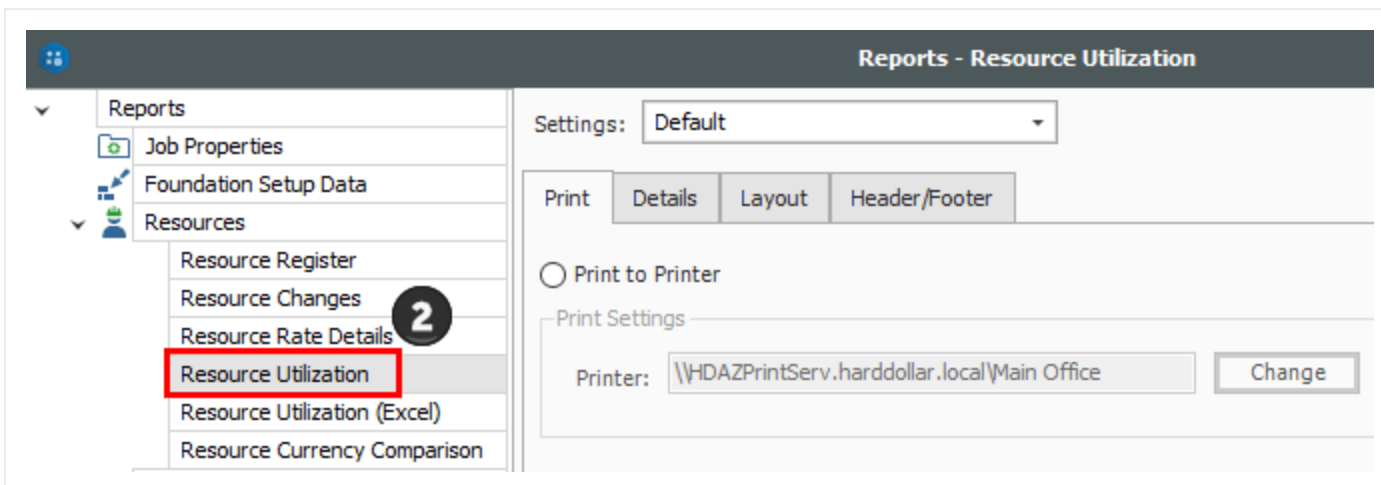


## Step by Step — Configure Report Output Settings (Report 1)

1. Open the **Training Job** and select **Setup >Report>Resources**.



2. Under Resources on the left side bar, select **Resource Utilization**.



3. On the Print tab there are three options. A best practice is to always set to **Preview** so you can review before printing.



**Print** Details Layout Header/Footer

☐ Print to Printer

Print Settings

Printer: \\HDAZPrintServ.harddollar.local\\Main Office Change

☐ Export to File

Export Settings

File:  ...

Format: PDF File Options

☒ **Preview** 3

4. On the Layout tab you can make adjustments based on your preferences.



PrintDetailsLayoutHeader/Footer

4

Settings: Default (Letter, Landscape)

Orientation

Portrait

Landscape

Paper Size: Letter

Font

Header Level 1: Arial Narrow, 8, Bold

Detail Level 1: Arial Narrow, 8, Regular

Header Level 2: Arial Narrow, 8, Bold

Detail Level 2: Arial Narrow, 8, Regular

Margins

Top: 0.50

Header: 0.25

Left: 0.50

Right: 0.50

Bottom: 0.50

Footer: 0.25

Number Format

Decimal Precision

Significant Figures

Cost summary:

2

☐

1

Unit cost:

2

☐

1

Quantity:

2

☐

1

Percent:

2

☐

1

☒ Use thousands separator

☐ Use currency symbol

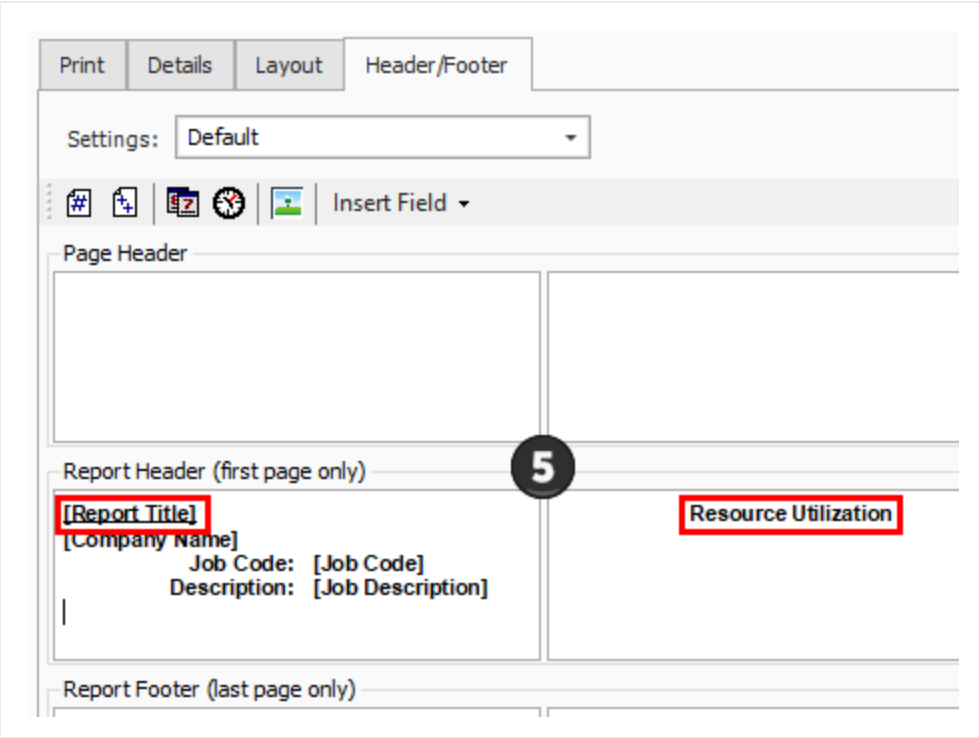
☐ Show zero values as blank

Currency:

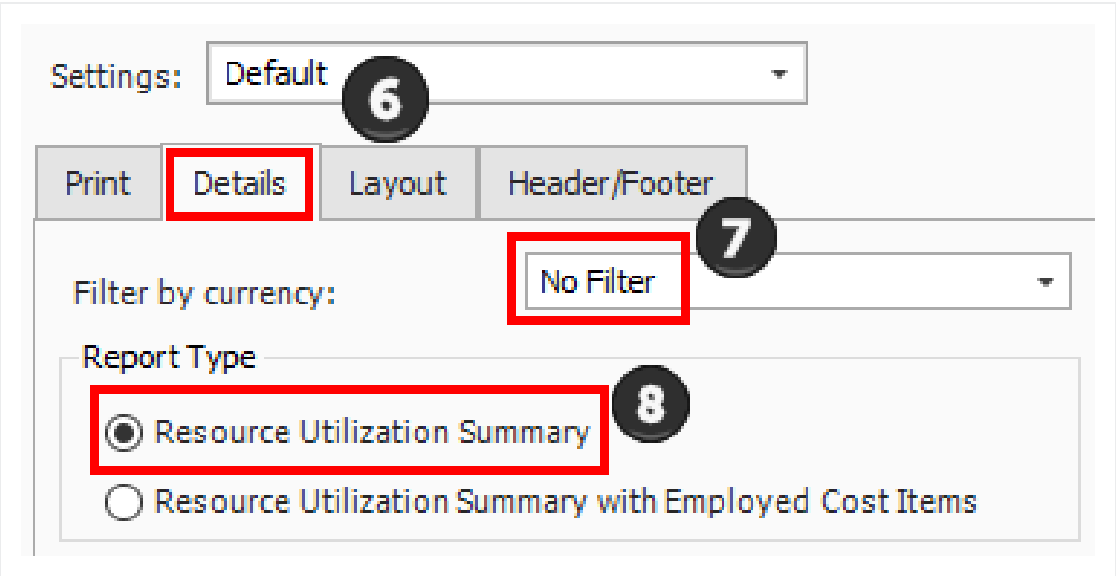
As-Entered

5. Move to the Header / Footer tab. Remove the default **Report Title** from the first page Header only and enter **Resource Utilization** in the center Report Header box as a title that will appear on the first page only.



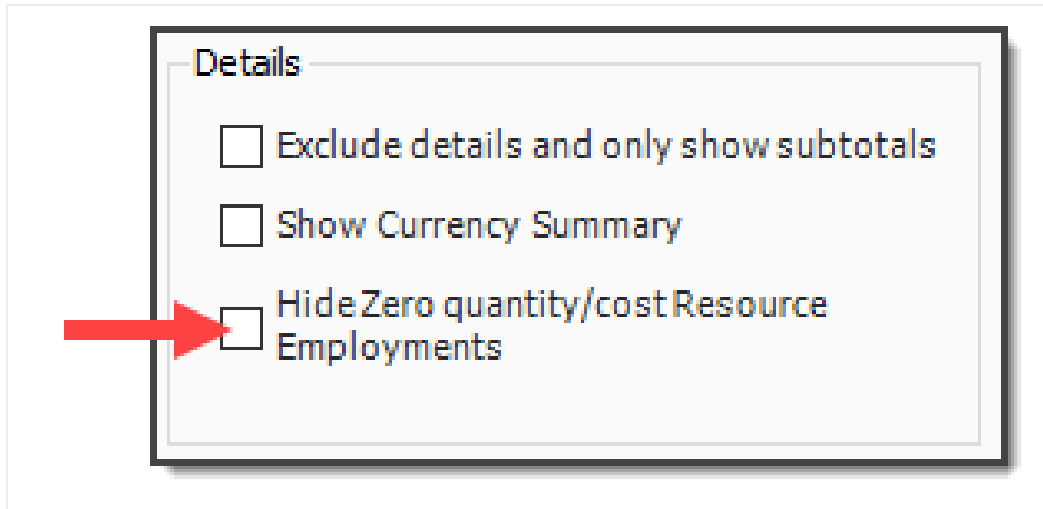


- 6. Go to the **Details** tab, and you can see the details and options you can select to customize and adjust the report.
- 7. For this navigation, you will not Filter by currency; leave the selection as **No Filter**.
- 8. Under Report Type, choose the first option, **Resource Utilization Summary**.





- You can choose to select the Hide Zero quantity/cost Resources Employments Details box if you prefer to have your printed report not show any resources that have a dollar value of zero



- You can choose if you want the report at a summary level, or if you want it to reference your cost items when you are looking at a resource
- If you choose Resource Utilization Summary with Employed Cost Items, it adds CBS position to the structure of the report
- You would select this if you wanted to see cost items and resources by the cost item

**TIP**

The Details settings are “sticky” features, meaning they default to what was selected the last time.

9. You can use grouping to group by different tags and user-defined fields. Most of them are related to the Resource Rate Register, for example: Geographic Area, Organizational Category, Wage Zone, etc. For this example, group by **Resource Organizational Category**.
10. Next, you can choose the resources you want to see. For this example, select the **Labor** and **Construction Equipment** Resource Types.



**Group By**

☐ Insert page breaks between the outermost groups

**Resource Organizational Category** (9)

< no field selected >

< no field selected >

< no field selected >

< no field selected >

< no field selected >

**Resource Type**

☒ Labor (10)

☒ Construction Equipment

☐ Rented Construction Equipment

☐ Installed Material

☐ Installed Equipment

☐ Supplies

☐ Unique

- For this example, you will not make any selections under Columns or Details

**Columns**

☐ Show Currency column

☐ Show plug rate for non-hourly resources

☐ Show tax separately from plug rate for non-hourly resources

☐ Show hours for non-hourly duration driven resources

**Details**

☐ Exclude details and only show subtotals

☐ Show Currency Summary

- This is just one of many ways to organize and adjust your report.

11. Click **Run** to run the report.

- This report can be helpful for seeing your utilization hours, broken down by regular time and overtime hours

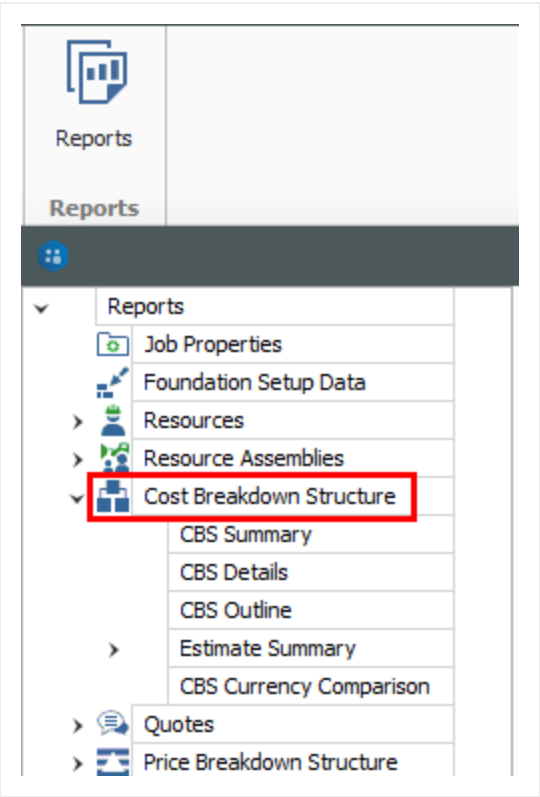
12. Click the red **X** to close this page and open the Construction Equipment page.

13. Click the red **X** to close the Construction Equipment report.

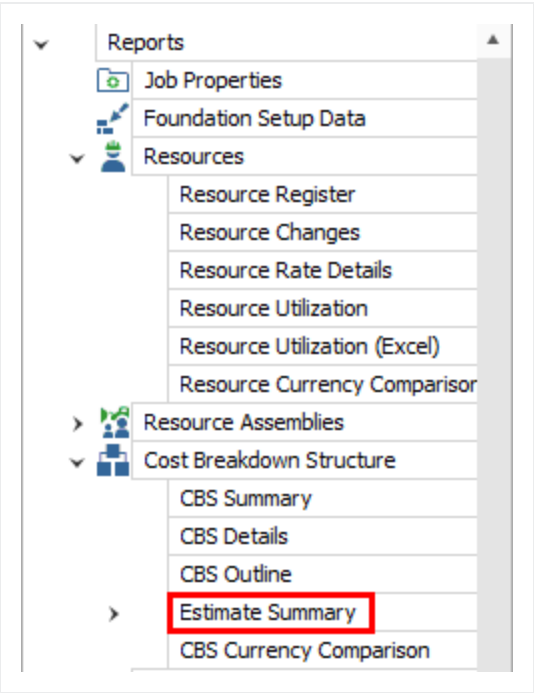
## Step by Step — Configure Report Output Settings (Report 2)

1. Open the **Training Job** and select **Setup > Reports**, then expand the **Cost Breakdown Structure** node.



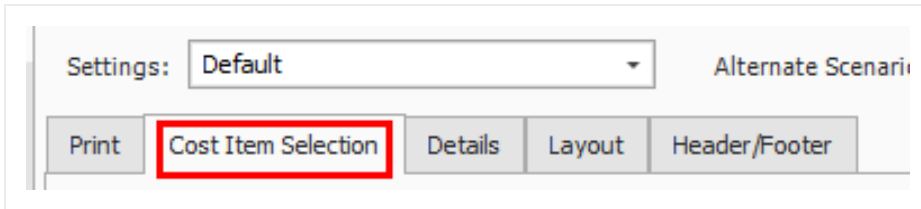


2. Under Cost Breakdown Structure on the left side bar, select **Estimate Summary**.





3. Along with the Print, Details, Layout, and Header / Footer tabs, there is an additional tab called **Cost Item Selection**. Select this tab.



4. The Cost Item Selection tab allows you to report on a selection of cost items:
  - Print a contiguous range of cost items: Allows you to print a series of cost items in a row. In this case, print just items: select 4.1 in the From field and 4.3.2 in the To field.
  - Select cost items to print from the register below: Allows you to use column filters to select the cost items to include in the report; leave this button unselected.
5. You can roll up your cost items to a certain CBS level for the report as well, depending on the level of detail you need.
6. On the **Details** tab, select **Days** for Cost item production field 1, and **Man-Hours / UM** for Cost item production field 2 (this report allows you to report on two production values).
7. Under **Resource Types**, uncheck all of the boxes except **Labor**, **ConstructionEquipment**, and **Installed Material**.



Print Cost Item Selection Details Layout Header/Footer

Filter by currency: No Filter

**General**

Group by: No Group

☐ Show Suspended Items

☒ Notes

☒ Awardee

☒ When filtering, only include terminal cost items in total

**Fields**

Cost item production field 1: Days

Cost item production field 2: Man-Hours/UM

Cost item text field: Currency

Employment text field: Currency

**Resource Employments**

☒ Print Resource Employment Details

☒ Print resources in row number order

☐ Print resources in alphabetical order

☒ Print resource costs

☒ Print hours for hourly resources

**Resource Types**

☐ Ad-hoc Employments

☒ Labor

☒ Construction Equipment

☐ Rented Construction Equipment

☒ Installed Material

☐ Installed Equipment

☐ Supplies

☐ Unique

☐ Resource Assemblies

8. Leave the rest of the settings at their defaults, then select the **Header / Footer** tab.
9. In the center **Page Footer** field delete the existing text, then type **Confidential –Internal Use Only**.

Page Footer

[Date Printed] [Time Printed]

Confidential - Internal Use Only

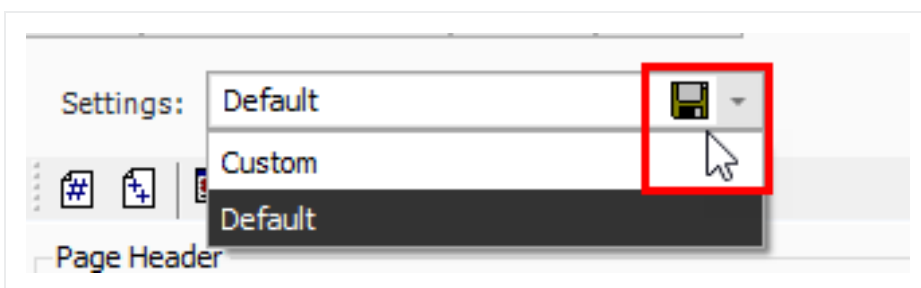
[Page # of Pages #]

10. To save the settings you've configured, click on the **Settings** drop-down arrow above the output setting tabs.

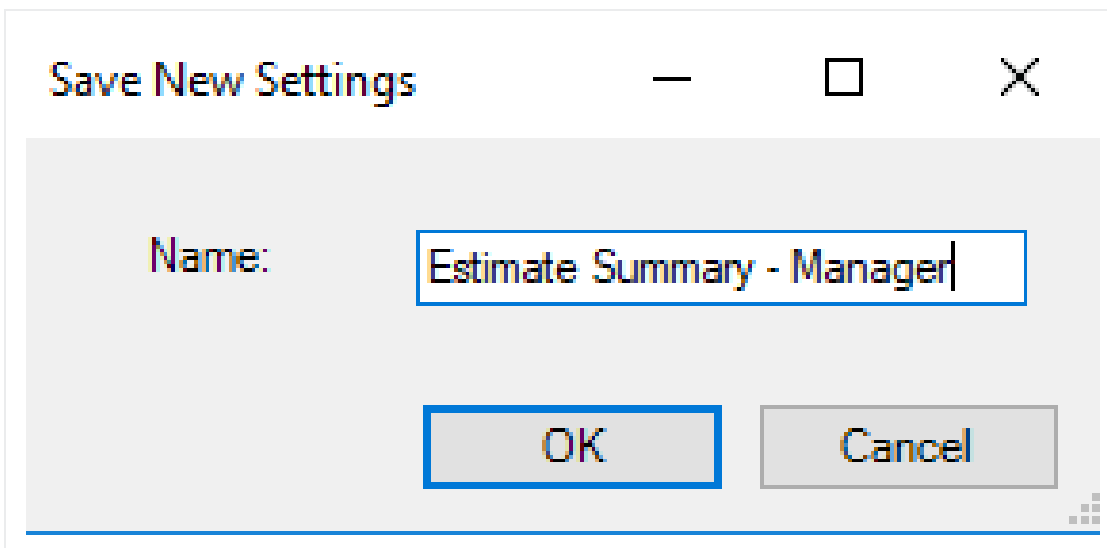




11. Select the **Save disk**  icon to save the new settings.

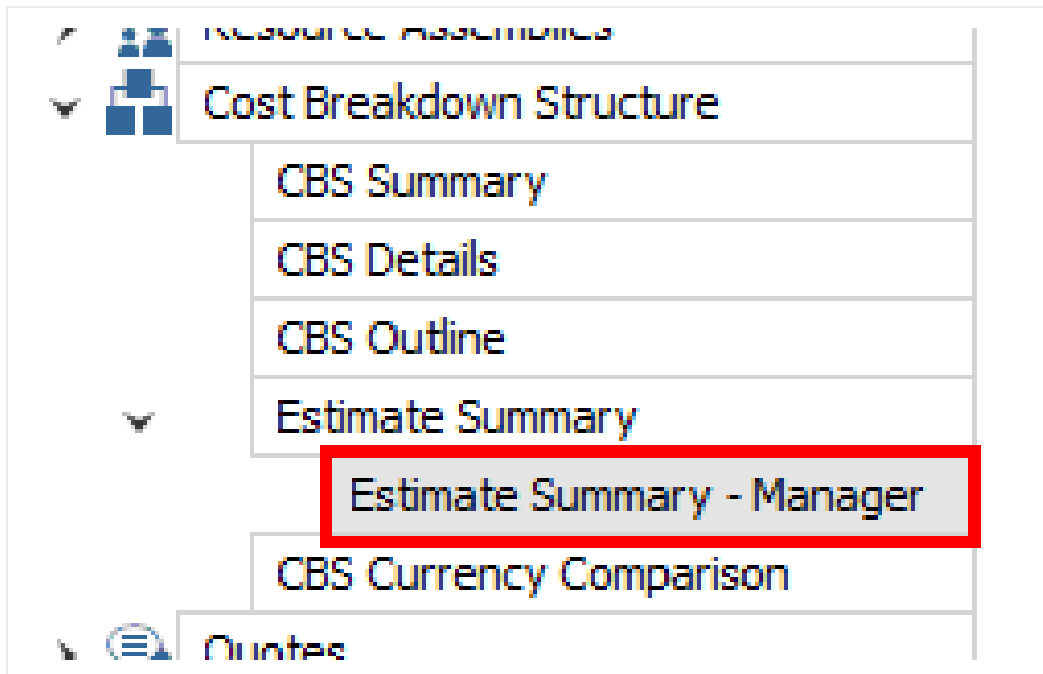


12. Type **Estimate Summary – Manager**.
13. Click **OK**.



- Notice that a custom version of the report now displays under Estimate Summary on the Reports tree on the left





## 9.1.4 Helpful Reports

### 9.1.4.6 PBS Summary

Under the Price Breakdown Structure Report node, the PBS Summary Report gives a good overview of how your price breaks down by cost category. This provides a high-level overview that is cost category driven, providing information based on the total value of the project.

When selecting your settings on the Details tab, a best practice is to select and include:

- Cost Categories
- Markup Rate
- Percentage of Cost

This allows you to see your costs and markup broken out by cost category.



Reports

- Job Properties
- Foundation Setup Data
- Resources
- Resource Assemblies
- Cost Breakdown Structure
- Quotes
- Price Breakdown Structure
  - PBS Summary
    - PBS By Cost Source
    - PBS Changes Register
  - Pay Item & Proposal
  - Billing Rate Reports
  - Job Tracking
    - Budget / Contract Changes Register
    - Budget Variance Report
    - Cost Details
    - Job Status
    - Time and Expenses
    - Payment Approval
    - Estimate Comparison Report
    - Audit
    - Job Register
  - Library Module
  - Custom Reports

Settings: Default

Print Details Layout Header/Footer

Target Price

- Target Profit
  - Indirect Cost Markup
  - Direct Cost Markup
- Total Cost
  - Indirect Cost
    - Business Overhead
      - Unassigned Business Overhead
      - Indirect Cost Escalation
      - Direct Cost Escalation
      - Prime Bond
      - Price % Add-On
      - Job Financing
      - Indirect Cost Add-On
  - Job Overhead
- Direct Cost
  - Unassigned Direct Cost (Work Plan)
  - Assigned Direct Cost (Work Plan)

Cost Categories

- ☒ Markup Rate
- ☒ Percentage of Cost
- ☐ Markup Analysis
- ☐ Price Status
- ☐ Cost Source Analysis
- ☐ Resource Utilization Analysis
- ☐ Minority Goal Attainment Analysis
- ☐ Subcontractor Analysis
- ☐ Vendor Analysis

Run Close

**TIP**

You can also select to show markup rate and what percentage the markup is of your cost.

### 9.1.5 Standard Proposal

Located under the Pay Item & Proposal report node, the Standard Proposal report can be used for contractors required to submit a pricing proposal to a client. It lists all the pay items with the client provided quantities and your final pricing. You can include subtotals (defined on the Pay Item & Proposal Register), cover sheet information, and a signature block.



**Proposal****ABC Contractors**
**Job Code:** Training Job  
**Description:** Training Job - Maricopa County No. TM2924

Proposal						
Line No.	Pay Item No.	Description Subtotal Description	Quantity	Unit of Measure	Unit Price	Total Price
10	641 0100	Mobilization	1.00	Lump Sum	94,200	94,200.00
20	201 0102	Clearing & Grubbing	10.00	Acre	0.00	0.00
30	202 0183	Unclassified Excavation	50,000.00	Cubic Yard	7.49	374,500.00
40	303 5912	Aggregate Base	40,000.00	Ton	27.92	1,116,800.00
50	303 4263	Asphalt Concrete Hot Mix Type A	38,000.00	Ton	42.62	1,619,560.00
60	413(B) 0464	36 Inch RCP Culvert Class III	1,000.00	Linear Feet	123.77	123,770.00
70	800 0220	10 Inch PVC Force Main (SDR21)	12,000.00	Linear Feet	29.64	355,680.00
80	800 0330	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	Linear Feet	63.26	189,780.00
90	800 0400	4 Foot Diameter Manhole	16.00	Each	4,532.35	72,517.60
100	501(A) 1306	Structural Excavation & Backfill	800.00	Cubic Yard	27.69	22,152.00
110	506(A) 1322	Steel Reinforcement	30,000.00	Pound	1.79	53,700.00
120	503(A) 1313	Retaining Wall	850.00	Cubic Yard	532.05	452,242.50
130	600 0300	Paint Existing Steel Bridge Structure	1.00	Lump Sum	100,215.00	100,215.00
140	700	Process Equipment	1.00	Each	1,946,884.65	1,946,884.65
150	1000	Removal of Underground Storage Tanks	2.00	Each	13,220.83	26,441.66
160	1010	Disposal of Contaminated Soil	800.00	Cubic Yard	30.20	24,160.00
170	1200 0100	Toll Booth	1.00	Each	30,994.27	30,994.27
180	1500 0100	Guardrail Type 2	1,000.00	Linear Feet	28.96	28,960.00
190	1500 0200	Guardrail Type 3A	200.00	Linear Feet	37.40	7,480.00
200	1600 0230	Type 4 Signs	1,000.00	Square Feet	15.68	15,680.00
21	CO1	Realignment of Water Line	1.00	Each	0.00	0.00
<b>GRAND TOTAL:</b>						<b>6,655,717.68</b>

## 9.1.6 CBS Details

Under the Cost Breakdown Structure report node, the CBS Details report can be a helpful report for bid review. On the Details tab you can include or not include any of the information contained in the CBS



Register, including cost items with production, costs by category, shift arrangements, resources, and notes.

Cost Breakdown Structure Details

INEIGHT - PAUL TRIPPI

Job Code: Training Job

Description: Training Job - Maricopa County No. TM2924

From Cost Item: 1

To Cost Item: 0.10

CBS Position Code	CI Description	Cost Source	Cost Item		Unit Cost	Total Cost	Unit and Total Costs by Category					
			Forecast (TIO) Quantity UM				Labor	Owned Equipment	Rented Equipment	Materials	Supplier	Subcontract
1	Mobilization	Detail	1.00	Lump Sum	11,909.51	11,909.51	2,449.51	8,950.00	0.00	0.00	0.00	0.00
							2,449.51	8,950.00	0.00	0.00	0.00	0.00

Notes: There are 10 loads. Figure Mob in only. The next job will pick up the load out.

Added \$500 Contingency Allowance in case extra permits are required

Pay Item Assignment: 341 0100 (Mobilization)

Default Properties:

Account Code

1020

Cost Curve

Linear

Tag 1

Estimator 1

Tag 2

Roadway

Tag 3

Tag 4

Tag 5

Optional Code

341 0100

Phase Code

Owner's Qty.

1.00

Quote Group

Quantity Driver

Pay Item

Minority Allow

100.00%

WC Override

Default Pay Rules:

Wage Scale 1

100.00

Wage Scale 2

0.00

Wage Scale 3

0.00

Resource Work Hrs

8.00

Resource Pay Hrs

8.00

Default Shift Arrangements

Work Hrs/Shift

8.00

Shifts/Day

1.00

Days/Week

5.00

Production:

Duration

Days

10.00

Shifts

10.00

Hours

80.00

Man-Hours

80.00

Equip-Hours

160.00

Cost/Duration

Cost/Day

1,190.95

Cost/Shift

146.87

Cost/Hour

146.87

Cost/Man-Hr.

74.43

Cost/Equip-Hr.

UM / Duration

UM/Day

0.10

UM/Shift

0.10

UM/Hour

0.01

UM/Man-Hr

0.01

UM/Equip-Hr

0.01

Duration / UM

Days/UM

10.00

Shifts/UM

10.00

Hours/UM

80.00

Man-Hrs/UM

80.00

Equip-Hrs/UM

160.00

Resource Code	Description	Quantity	Pay Hours	UM	Unit Cost	Total Cost	Unit and Total Costs by Category				
	Assembly	Cost Driver	Account Code		Tag 1	Tag 2	Tag 3	Workers Comp %			

9.1.7 Audit

Under the Job Tracking node, the Audit Report is a very important report to run during estimate review to make sure you didn't leave anything out of the estimate. It checks for a number of potential errors in the estimate, including:

- Zero Price Pay Items
- Zero-value cost items
- Pay items without Cost Items assigned
- Resources with a quantity of zero



## Exercise 9.1 — Run a System Report

You can adjust InEight Estimate system reports to report on the particular information you need. Complete the following steps to configure and run the Pay Item Summary report, using the Training Job:

1. From the Reports window, expand the **Pay Item & Proposal** report node.
2. On the Reports tree, select **Pay Item Summary**.
3. On the Details tab, select a **Pay Item Range from 303 4263 – 800 0220**.
4. Choose to **Include Assigned Cost Items**.
5. Show Costs As: **Unit**.
6. Include **Profit Analysis** columns and **Include Pay Item Price** columns
7. Run the report.

## You should end up with the following results

ABC Contractors											
Job Code: Training Job											
Description: Training Job - Maricopa County No. TM2924											
From Item: 303 4263				To Item: 800 0220							
Pay/Coat Item				Unit Cost by Category							
Code	Description	Quantity	UM	Assigned Direct Cost	Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	Fee Allowance
303 4263	Asphalt Concrete Hot Mix Type A	38,000.00	Ton	42.62	3.11	6.43	0.00	31.50	0.00	0.00	1.58 0.00
	5 Asphalt Concrete Hot Mix Type A	38,000.00	Ton	1,619,430.35	3.11	6.43	0.00	31.50	0.00	0.00	1.58 0.00
	5.1 Furnish & Haul Hot Mix	38,000.00	Ton	1,492,382.18	1.43	4.77	0.00	31.50	0.00	0.00	1.58 0.00
	5.2 Install Hot Mix Type A	38,000.00	Ton	127,048.17	1.68	1.66	0.00	0.00	0.00	0.00	0.00 0.00
413(B) 0464	36 Inch RCP Culvert Class III	1,000.00	Linear Feet	66.42	19.60	13.48	0.93	30.82	0.00	0.00	1.59 0.00
	6 36 Inch RCP Culvert Class III	1,000.00	Linear Feet	66,416.79	19.60	13.48	0.93	30.82	0.00	0.00	1.59 0.00
	6.1 Furnish RCP Materials	1,000.00	Linear Feet	32,361.33	0.00	0.00	0.00	30.82	0.00	0.00	1.54 0.00
	6.2 Excavate RCP Trench	1,815.00	Cubic Yard	8,163.20	4.85	3.34	0.00	0.00	0.00	0.00	0.00 0.00
	6.3 Install RCP Pipe	1,000.00	Linear Feet	11,735.94	6.45	5.29	0.00	0.00	0.00	0.00	0.00 0.00
	6.4 Backfill RCP Pipe	1,550.00	Cubic Yard	14,136.32	8.31	4.86	0.93	0.00	0.00	0.00	0.05 0.00
	SUBTOTAL: SITEWORK & ROADWAY			1,685,847.14	137,694.00	257,768.56	926.90	1,227,620.31	0.00	0.00	61,437.36 0.00
800 0220	10 Inch PVC Force Main (SDR21)	12,000.00	Linear Feet	22.51	4.56	4.72	0.00	12.60	0.00	0.00	0.63 0.00
	7 10 Inch PVC Force Main (SDR21)	12,000.00	Linear Feet	270,163.37	4.56	4.72	0.00	12.60	0.00	0.00	0.63 0.00
	7.1 Furnish 10 Inch PVC Materials	12,000.00	Linear Feet	158,760.00	0.00	0.00	0.00	12.60	0.00	0.00	0.63 0.00
	7.2 Excavate-Install-Backfill 10 Inch PVC	12,000.00	Linear Feet	111,403.37	4.56	4.72	0.00	0.00	0.00	0.00	0.00 0.00
	Extended Totals By Category			1,956,010.51	192,599.77	314,486.16	926.90	1,379,020.31	0.00	0.00	68,997.36 0.00

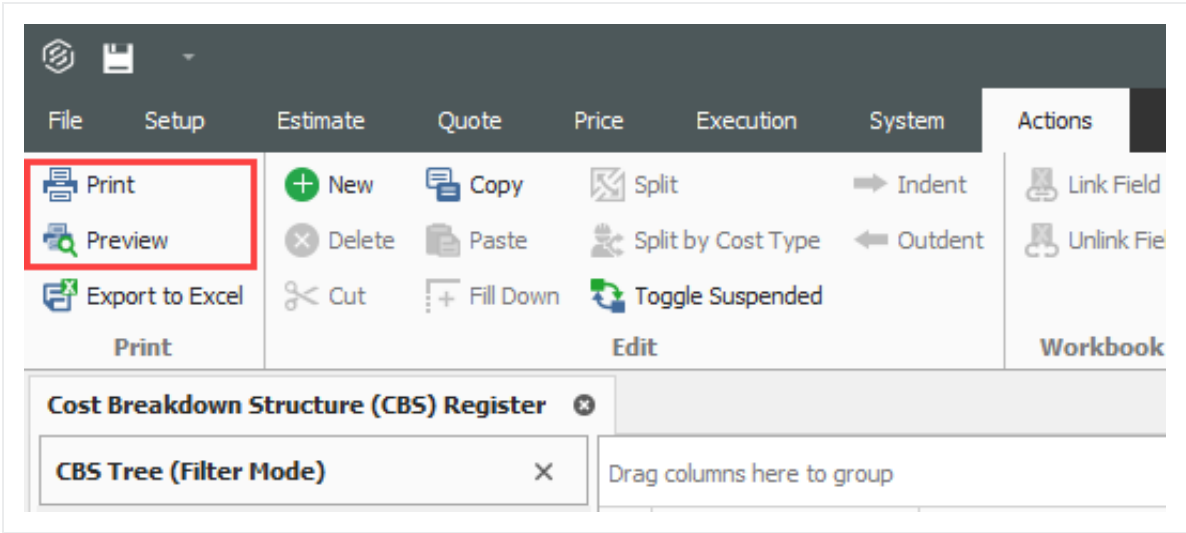


**Congratulations, you have completed this exercise!**



# 9.2 REGISTER REPORTS

At any time, you can print a report of the data in the currently displayed register using the Print or Preview option available from the Actions tab for the register you are in.



The data that prints is the data currently displayed on the register form. The report will print whatever columns are displayed on the register; if you have customized the display in the register, the report prints that data. In other words, register reports are entirely customizable.

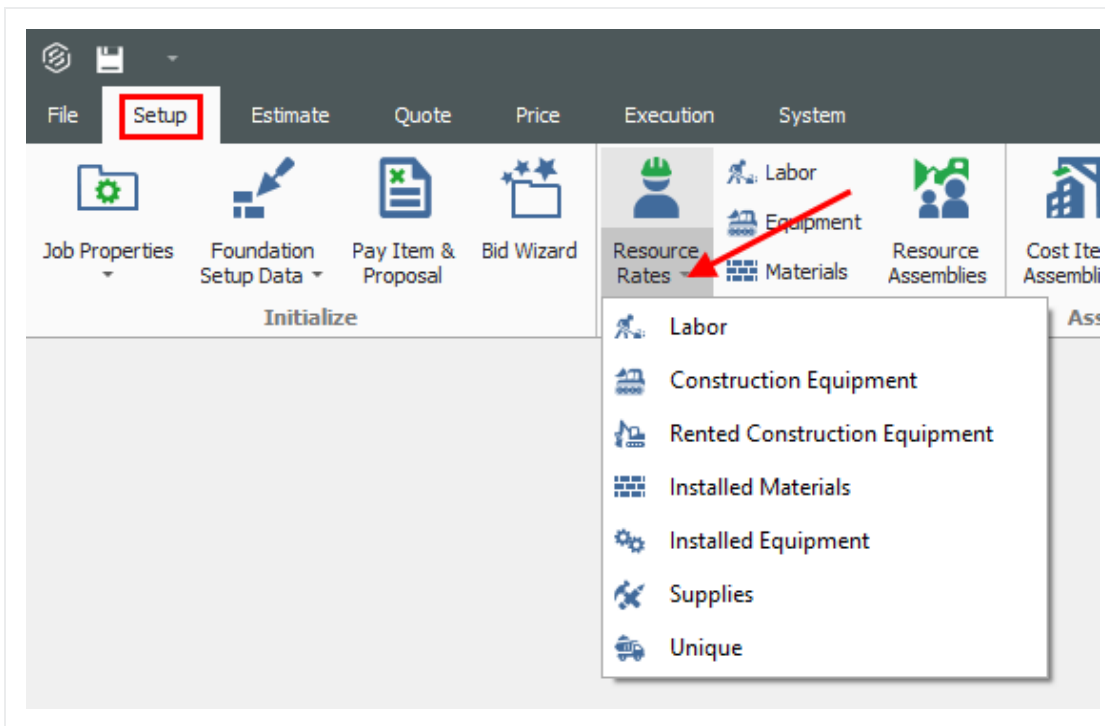
By creating Saved Views, you can report the data on a register form in several different variations.

The following step by step example will walk you through creating a custom register report on resource utilization and saving it as a Saved View.



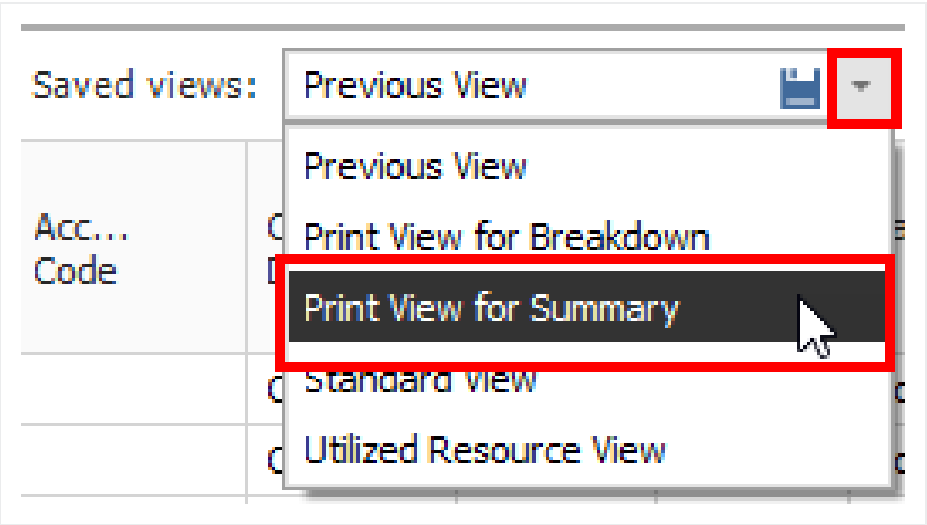
## Step by Step — Create a Register Report

1. Open the **Training Job** and select **Setup** tab, then select the **Resource Rates** drop-down list.



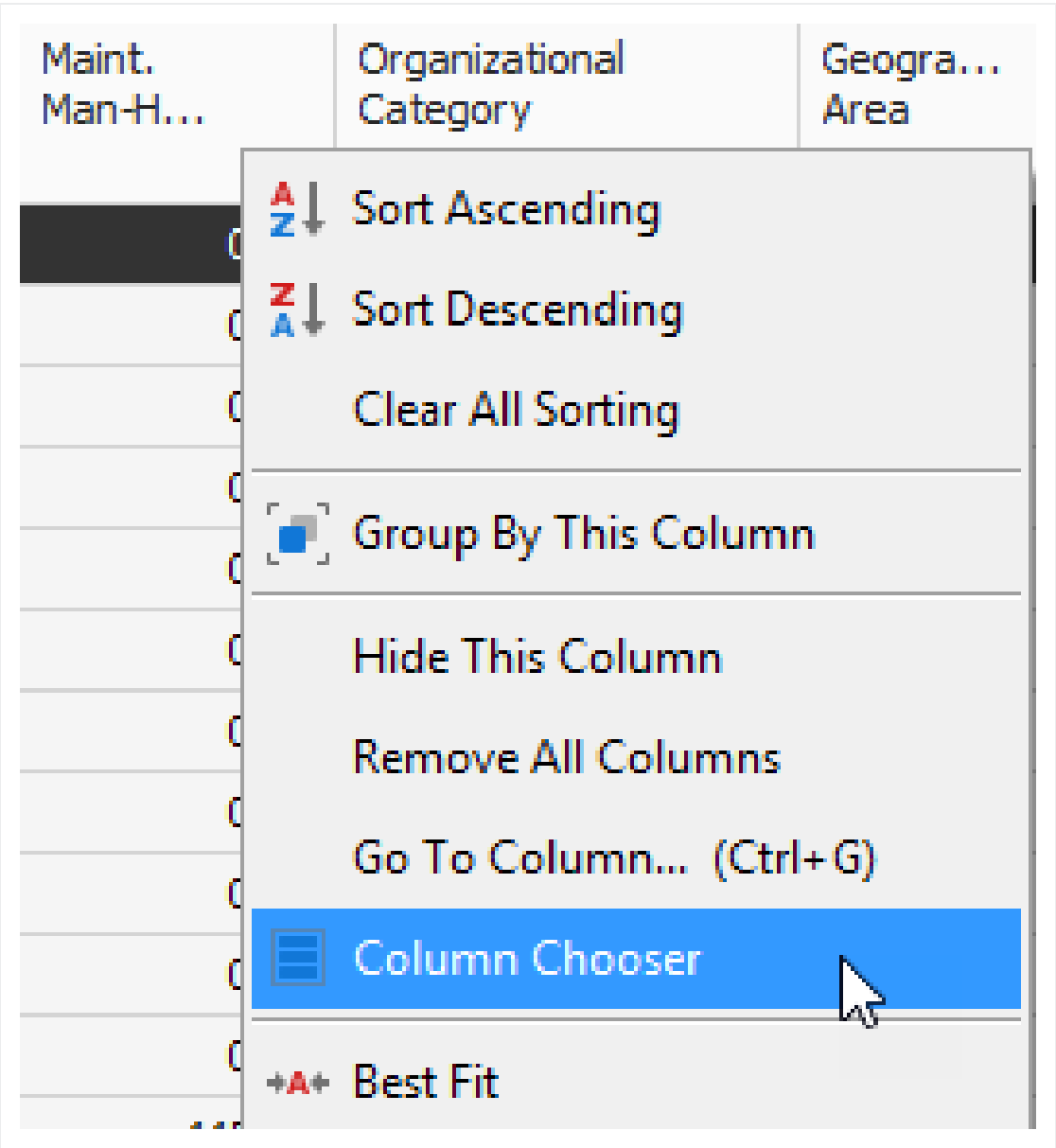
2. From the drop-down list, select **Labor**.
3. From your Saved Views drop down menu on the Resource Rate Register, select the **Print View for Summary** view.





- 4. Notice this view includes utilization hours
- 5. Right-click on a column header and select **Column Chooser**.







- 6. From the Customization window, drag-and-drop the **Minority Percent, Unique Sales Tax, (Scale 2),** and **Maint. Man-Hour Factor** columns into the register.
- 7. Close the Customize window.
- 8. Sort the **Utilization Count** column by clicking on the column header twice so that you see the bars descending.



- This sorts your items so the most utilized resources are at the top

Resource Code	Utilization Count		Maint. Man-H...	Organizational Category
+ LL2	8,946.59		0.00	Laborer
+ LO2	4,734.02		0.00	Operator
+ LT1	3,611.05		0.00	Truck Driver - Team...
+ LO1	1,640.00		0.00	Operator
+ LO4	1,484.63		0.00	Operator
+ LC2	1,188.73		0.00	Carpenter
+ LO3	889.33		0.00	Operator
+ LSSUPT	800.00		0.00	Supervision
+ LSSEC	800.00		0.00	Supervision
+ LSPE	800.00		0.00	Supervision
+ LL3	721.33		0.00	Laborer
+ LIW1	594.37		0.00	Iron Worker

9. Click on the **Saved Views** drop-down menu and select the **Save disc**  icon to save the view.
10. Name the view **Labor Utilization View**, and then click **OK** to save the customized view.
11. From the **Actions** menu, select **Preview** to review the report before printing.



<div> <div>INEIGHT - PAUL TRIPPI</div> <div>E101 - Training Job KL--Sample Training Job</div> <div>Labor Register</div> </div>						
Resource Code	Description	Utilization Count	Unit of Measure	Unique Sales Tax	Minority Percent	Maint. Man-Hour Factor
LO1	Operator Class 1	680.00	Hour	0.00	0.00	0.00
LL2	Laborer	590.00	Hour	0.00	0.00	0.00
LSSUPT	Project Superintendent	560.00	Hour	0.00	0.00	0.00
LSSEC	Secretary	560.00	Hour	0.00	0.00	0.00
LO3	Operator Class 3	220.00	Hour	0.00	0.00	0.00
LL3	Labor Foreman	200.00	Hour	0.00	0.00	0.00
LO4	Operator Foreman	110.00	Hour	0.00	0.00	0.00
LT1	Teamster	100.00	Hour	0.00	0.00	0.00

## 9.2.1 Register Report Output Settings

Within the Preview for a register report, there are several options to choose from to configure the output of your report.

### 9.2.1.1 Page Setup

While in the Preview mode, selecting **File > Page Setup** provides setup options for the page format:

- Page Size (legal, letter, etc.)
- Paper Width & Height
- Orientation (portrait or landscape)
- Page Margins (left, right, top, bottom)

### 9.2.1.2 Exporting to Document

Using the Export function allows you to identify a Print range, Image quality, Password Security, and more. Selecting **File > Export Document** prints an Adobe Acrobat (\*.pdf) report.



## Exercise 9.2 — Create a Custom Register Report

You can configure the columns in your registers for reporting and run your own custom reports. Complete the following steps to configure and run a report from the CBS Register, using the Training Job:

1. Select **Estimate>Cost Breakdown Structure (CBS)**.
2. Under Saved Views, Select **CBS Simple View**.
3. Hide the **Optional Code** column.
4. Add back in the **Man-Hours (Total)** and **Man-Hours / UM** columns.
5. Now add back in the **Labor Total Cost, Owned Equipment Total Cost, and Materials Total Cost** categories for reviewing the estimate.
6. Save the View (create your own name for the view).
7. Select **Preview** to view the report.

## You should end up with the following results

Cost Breakdown Structure (CBS) Register												
ABC Contracting Inc Training Job--Training Job - Maricopa County No. TM2924												
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Man-Hours (Total)	Unit Cost	Labor Total Cost	Total Cost (Forecast)	Man-Hours Total Incl. Maintenance	Owned Equipment Total	Man-Hours/ UM	Materials Total Cost	Currency
	JOB	20.00	Mile	27,993.15	\$306,883.14	\$907,442.76	\$6,137,662.81	28,438.44	\$1,062,750.40		\$3,393,700.70	U.S. Dollar
	Prime Bond	1.00	Lump Sum		\$48,686.14	\$0.00	\$48,686.14		\$0.00		\$0.00	U.S. Dollar
	Price % Add-On	1.00	Lump Sum		\$309,475.27	\$0.00	\$309,475.27		\$0.00		\$0.00	U.S. Dollar
	Job Financing	1.00	Lump Sum		\$0.00	\$0.00	\$0.00		\$0.00		\$0.00	U.S. Dollar
	Indirect Cost Escalation	1.00	Lump Sum		\$0.00	\$0.00	\$0.00		\$0.00		\$0.00	U.S. Dollar
	Direct Cost Escalation	1.00	Lump Sum		\$11,026.79	\$12,026.79	\$11,026.79		\$0.00		(\$1,000.00)	U.S. Dollar
	Indirect Cost Add-On	1.00	Lump Sum		\$0.00	\$0.00	\$0.00		\$0.00		\$0.00	U.S. Dollar
	Job Management & Equipment	1.00	Lump Sum	2,400.00	\$157,096.28	\$91,176.28	\$157,096.28	2,400.00	\$65,920.00	2,400.00	\$0.00	U.S. Dollar
	General Expense	1.00	Lump Sum	0.00	\$4,200.00	\$0.00	\$4,200.00	0.00	\$0.00	0.00	\$0.00	U.S. Dollar
	Direct Cost Add-On	1.00	Lump Sum		\$109,544.08	\$15,676.56	\$109,544.08		\$19,450.89		\$66,546.70	U.S. Dollar
1	Mobilization	1.00	Lump Sum	0.00	\$75,000.00	\$50,000.00	\$75,000.00	0.00	\$0.00	0.00	\$25,000.00	U.S. Dollar
2	Clearing & Grubbing	10.00	Acre	0.00	\$0.00	\$0.00	\$0.00	0.00	\$0.00	0.00	\$0.00	U.S. Dollar
3	Unclassified Excavation	50,000.00	Cubic Yard	3,964.29	\$9.95	\$110,467.00	\$497,466.56	4,115.48	\$302,999.56	0.08	\$0.00	U.S. Dollar
3.1	Excavation, scrapers	50,000.00	Cubic Yard	1,250.00	\$3.00	\$33,170.48	\$149,922.88	1,325.00	\$116,752.40	0.03	\$0.00	U.S. Dollar

**Congratulations, you have completed this exercise!**



## Lesson 9 Review

1. The \_\_\_\_\_ Report gives a good overview of how your price breakdowns by cost category.
  - a. Estimate Summary
  - b. PBS Summary
  - c. Audit

---
2. The \_\_\_\_\_ Report is a very important report to run during bid review to make sure you didn't leave anything out of the estimate.
  - a. CBS Details
  - b. Audit
  - c. Pay Item Summary

---
3. A best practice is to always set your Print output setting to **Preview** so you can review before printing.
  - a. True
  - b. False

---

## Lesson 9 Summary

As a result of this lesson, you can:

- Run reports from the Report menu
- Create and run reports from register forms



# LESSON 10 – DATA REPRODUCTION

**Lesson Duration: 20 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Create a job from an existing job or template
- Create a template
- Reproduce estimate data using the Bid Wizard
- Reproduce estimate data using copy/paste
- Add cost items to a job using the CBS Bid Wizard
- Utilize the Snapshot function

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## 10.1 COPY AN EXISTING JOB

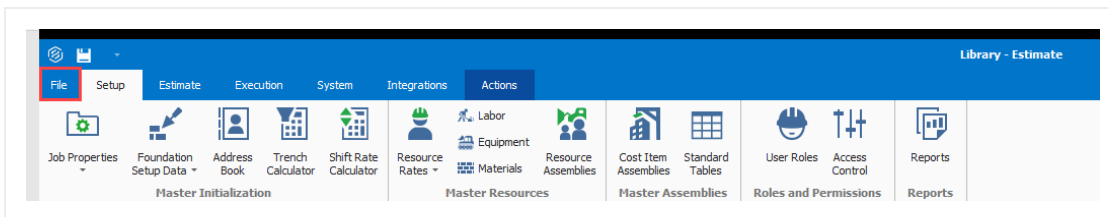
As you build an estimate, you may want to reuse pay items, cost items, or resources from a previous estimate. When you plan to reuse the majority of content within a job, you can simply make a copy of the existing job.

Using the **Create a new Job from... Existing Job** option on the Backstage View creates an exact replica of the existing job, including the job's properties, pay items, cost items, and resources.

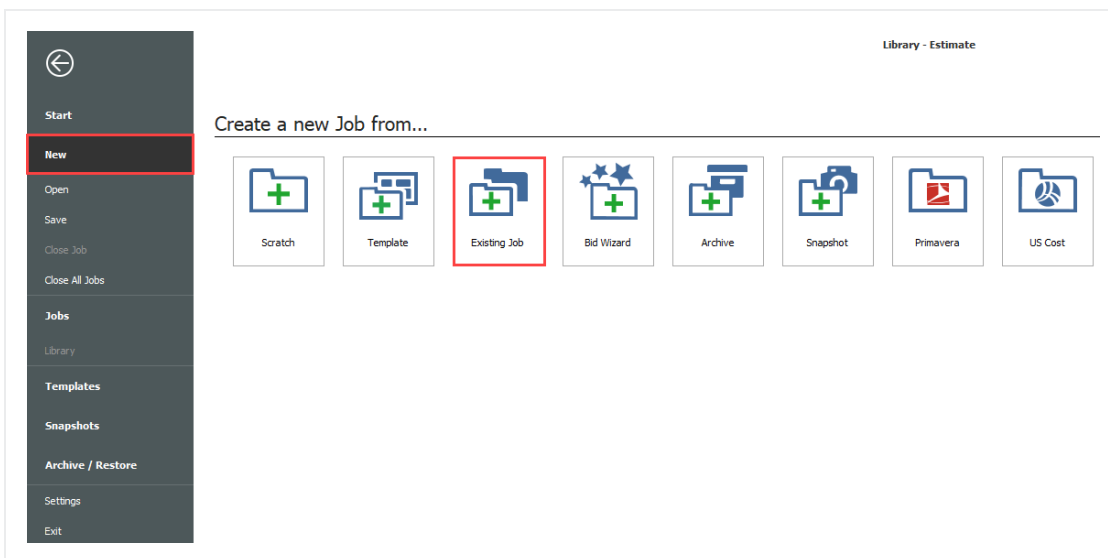
The following Step by Step walks you through how to make a copy of an existing job.

### Step by Step — Copy an Existing Job

1. Click the **File** tab on the **Estimate** landing page.



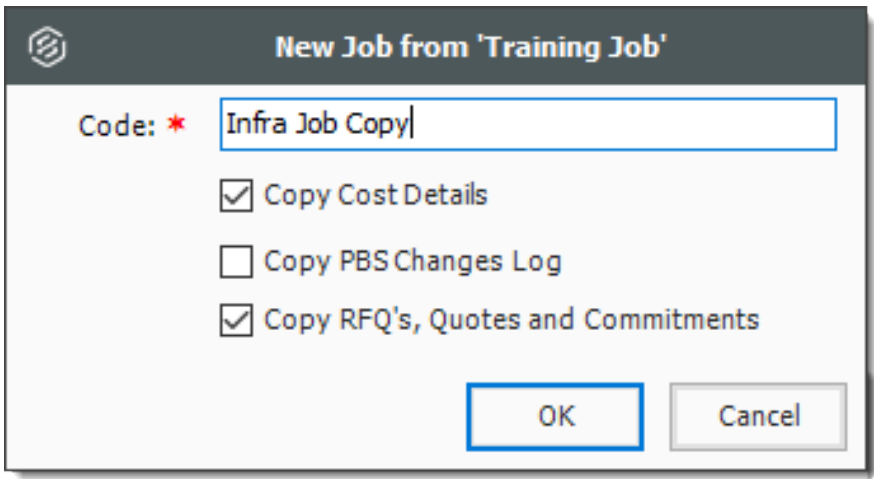
2. From the left side panel, select **New**, then select **Existing Job**.



3. The Job Register displays a list of your existing projects; select the Training Job and click **OK**.



4. On the New Job dialog, in the Code field, type **Infra Job Copy** with your initials.
5. To copy the cost details from the existing job to the new job, verify that the **Copy Cost Details** checkbox is selected
  - If you wanted to copy just the cost item structure without cost details, you would uncheck the box.
6. Uncheck the check for copying the PBS Changes Log.
7. Click **OK** to create the new job.



The screenshot shows a dialog box titled "New Job from 'Training Job'". It has a dark header bar with a logo on the left. Below the header, there is a "Code: \*" label followed by a text input field containing "Infra Job Copy". Underneath the input field are three checkboxes: "Copy Cost Details" (checked), "Copy PBS Changes Log" (unchecked), and "Copy RFQ's, Quotes and Commitments" (checked). At the bottom right of the dialog are two buttons: "OK" and "Cancel".

The new job opens with the Job Properties form active, so you can begin to modify the new job as needed. If you look through the tabs on the Job Properties form, you will find that it looks exactly like the job from which it was copied. Other forms, such as the Pay Item & Proposal Register and the CBS Register, also look the same in both jobs until you make modifications in one job or the other.

This is a very easy method for creating a new job, and it is a good choice if you want to copy an entire job. However, if you want to pick and choose which parts of a job to duplicate, the Bid Wizard is a better choice.

## 10.2 TEMPLATES

Job Templates provide you the ability to maintain a list of template jobs that can be used to create new jobs. As your company grows and increases the number of projects, the need to standardize the



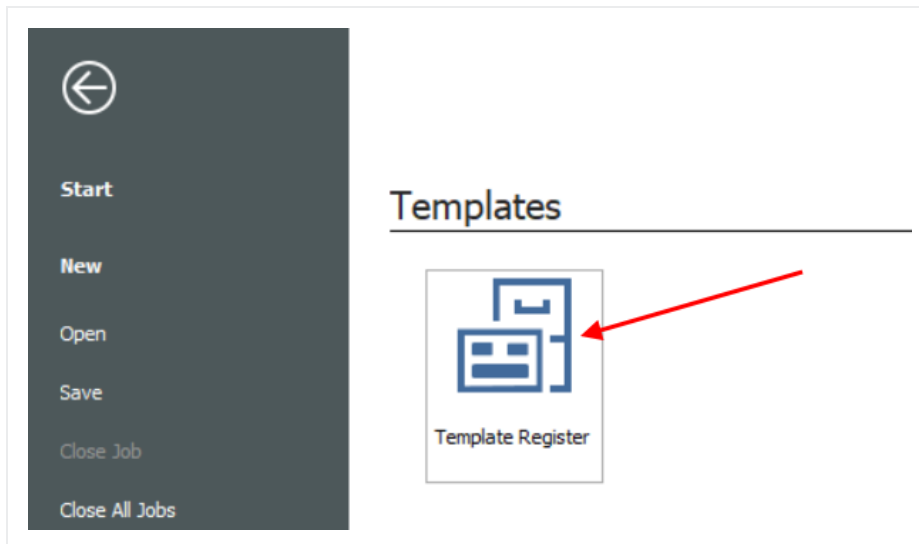
estimating process increases to ensure consistency and reduce the chance of information being overlooked.

In InEight Estimate you can create job folders and store them in a separate register as templates. This allows you to store cost items in master templates separate from the jobs in your Job Register.

You can create templates from scratch or from existing job folders. The following steps walk you through how to create a new template from an existing job folder.

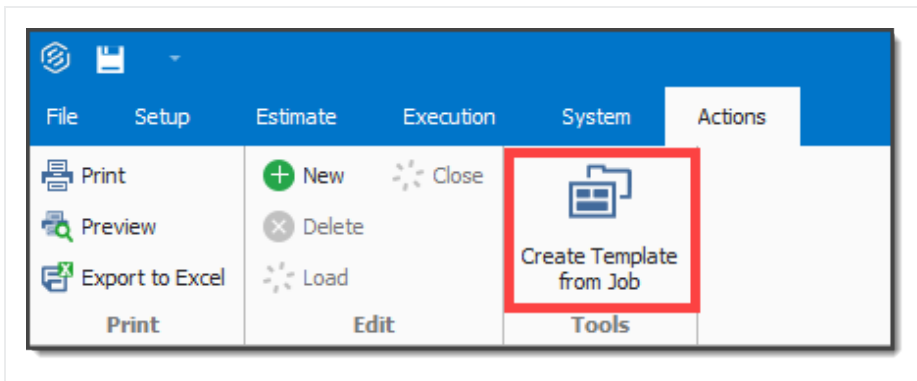
## Step by Step — Create a Template

1. Click the **File** tab on the Estimate landing page.
2. From the left side panel, select **Templates**.
3. Under Templates, select the **Template Register**.

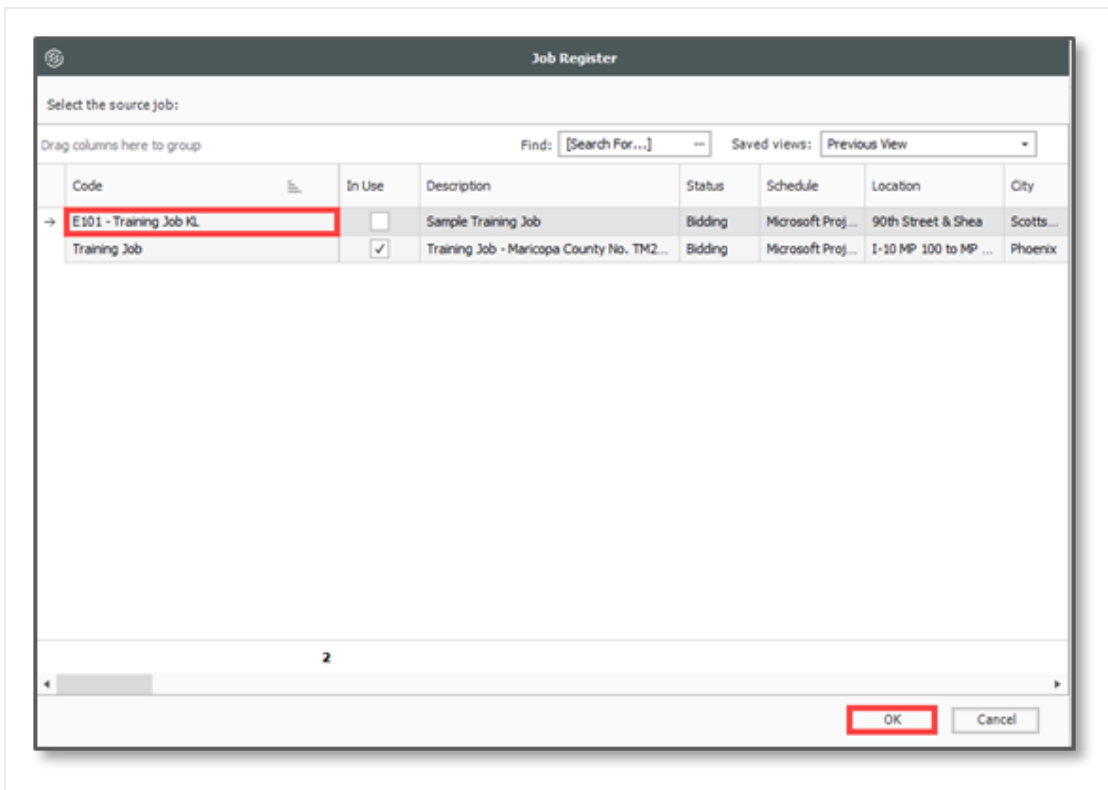




4. From the Actions tab, select **Create Template from Job**.



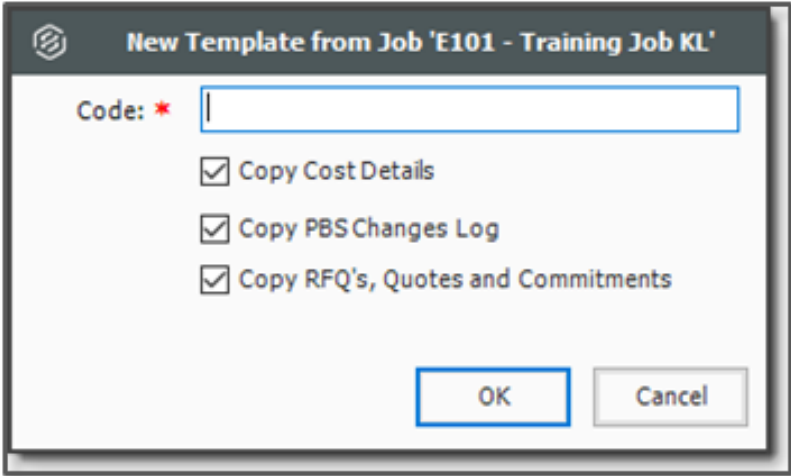
- The Job Register opens for you to select the source job for the template
  - Assume that you want to make a template from your E101 Training Job
5. Select the **E101 Training Job with your initials**, then click **OK**.

**NOTE**

You cannot create templates from jobs that are published to Job Tracking.



- A prompt appears to give your new template a Job Code



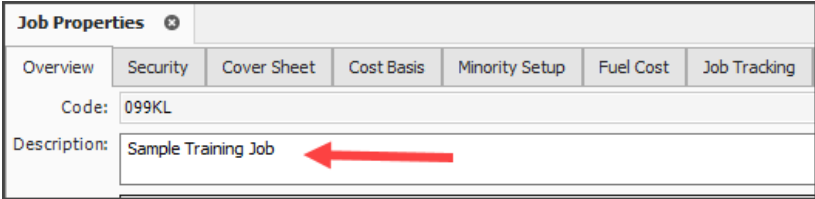
The screenshot shows a dialog box titled "New Template from Job 'E101 - Training Job KL'". It contains a "Code:" field with a red asterisk and a text input box. Below the field are three checked checkboxes: "Copy Cost Details", "Copy PBS Changes Log", and "Copy RFQ's, Quotes and Commitments". At the bottom right are "OK" and "Cancel" buttons.

6. In the Code field, type **Small Project Template[your initials]**.

- Leave Copy Cost Details and Copy PBS Changes Log checked

7. Click **OK**.

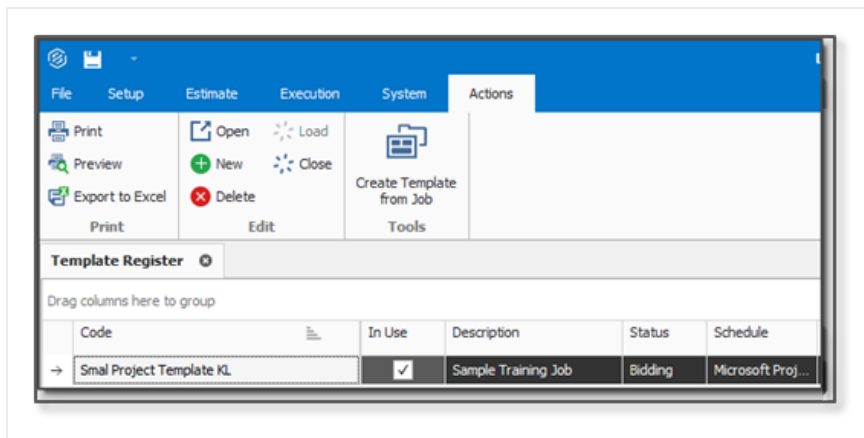
- The new template is created and opens to the Job Properties form
- You can add the description in addition to the code for any new job you are creating from a template. This description is later added to the Overview tab of the new job on the Job Properties form



The screenshot shows the "Job Properties" form with the "Overview" tab selected. The "Code:" field contains "099KL". The "Description:" field contains "Sample Training Job", with a red arrow pointing to it. The form has tabs for "Overview", "Security", "Cover Sheet", "Cost Basis", "Minority Setup", "Fuel Cost", and "Job Tracking".

- Back in the Templates Register, you can see the new template created





- Similar to copying an existing job, you can create a new job from a template from the New menu in the Backstage View.

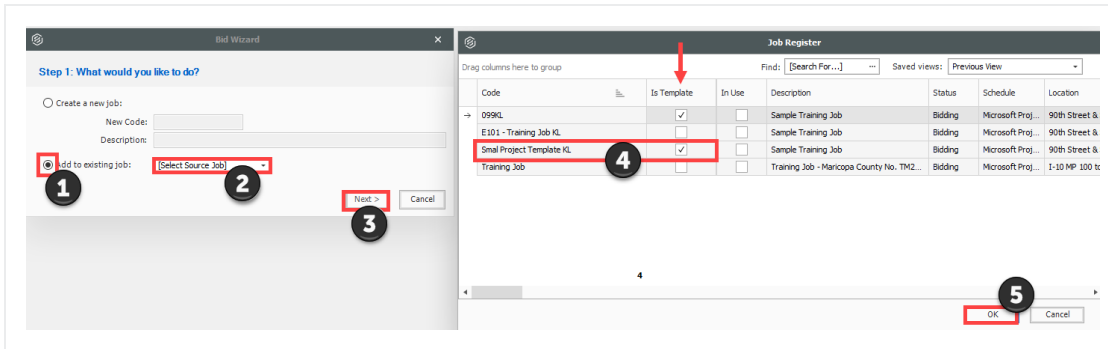


- You can also create a new job from a template from the New menu in the Bid Wizard.



8. Select **Add to existing job**
9. From Select Source Job, click the **dropdown** arrow
10. Click **Next**
11. Select a job that is shown as having a Template
12. Click **OK**





## 10.2.1 Archive and Restore Templates

The templates feature gives you the ability to archive and restore templates, enabling templates to become portable. You can move templates between different environments. You can also backup the templates similarly to the Jobs Archive and Restore function.

### Step by Step — Archive and Restore a Template

1. Click **File** to open the Backstage View.
2. Select **Archive / Restore**.
  - Several options appear for archiving and restoring your jobs, templates, and library
3. Select **Archive Template**.
  - The Template Register appears
4. Select the **Small Project Template [your initials]** template you previously made, then click **OK**.
5. When prompted to include attachments, click **Yes**.
  - The Save As window appears
6. Browse to where you want to save the job, then click **Save**.
7. Select **Restore Template** from the Archive / Restore page of the Backstage View to begin restoring the template.
8. Browse to the archived template and select it.
9. Click **Open**.



- If the template already exists, a prompt will appear asking if you want to overwrite it
  - To overwrite it, select **Yes**
  - If you select **No**, you will be prompted to save it under a new Template Code

## 10.3 BID WIZARD

InEight Estimate's Bid Wizard is a powerful tool that can help automate the process of setting up estimates by copying information that already exists in other InEight Estimate job folders. The Bid Wizard can be used to create new projects, create a new job from an existing template, or to add to projects that are already underway.

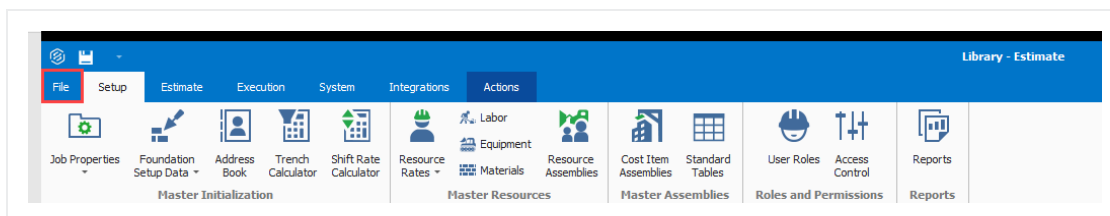
Rather than copying every part of an existing job, the Bid Wizard gives you more flexibility and control over which parts of a job you want to duplicate, e.g., pay items or cost items or both.

In most cases you will be copying cost items, but if you have a project with pay items that are commonly used, you can copy them into a new project. If you select pay items, you will be able to select cost items as well.

The following Step by Step walks you through how you can use the Bid Wizard to create a new job by importing pay items and their associated costs from an existing job.

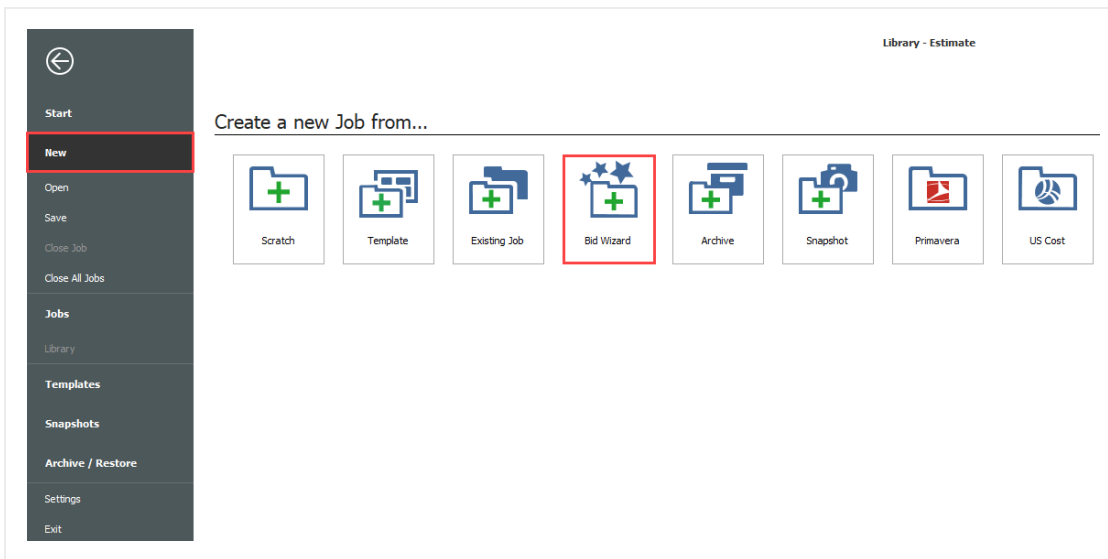
### Step by Step — Use the Bid Wizard

1. To open the Bid Wizard, click the **File** tab on the Estimate landing page.

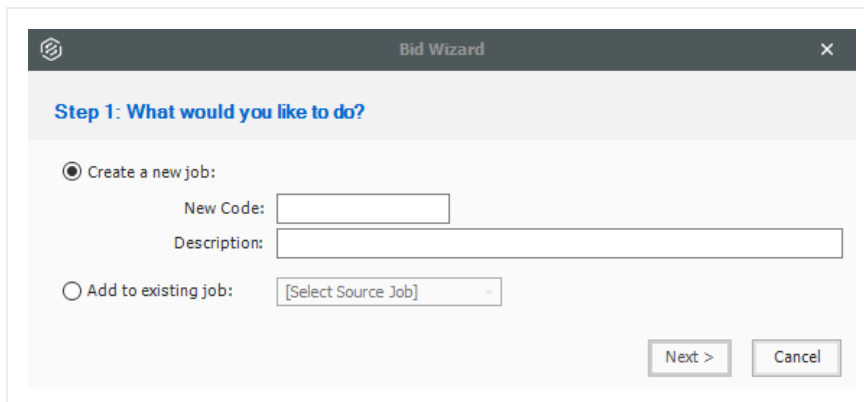


2. From the left side panel, select **New**, then select **Bid Wizard**.





- The Bid Wizard – Step 1 dialog displays

**TIP**

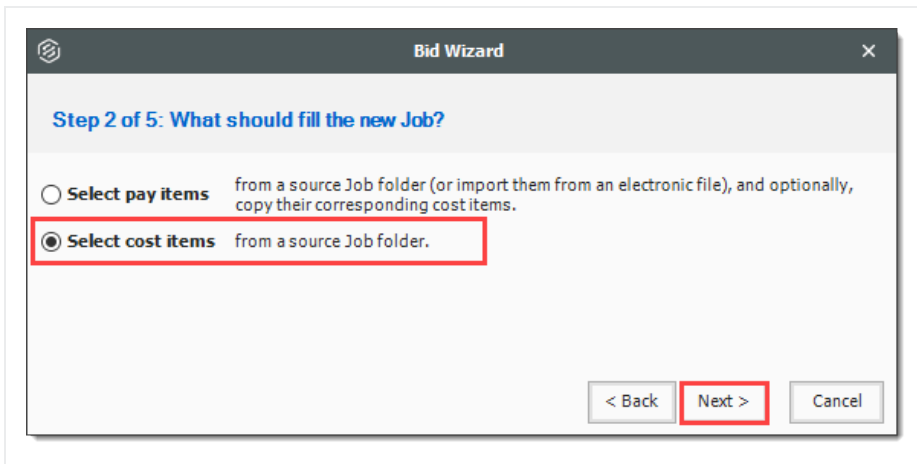
Notice that you can either create a new project or add to an existing project.

3. Type **E101 Bid Wizard** (with your initials) in the New Code field.
4. Type **Bid Wizard Example** in the Description field.
5. Click the **Next** button.

- The Bid Wizard – Step 2 dialog displays

6. Choose **Select cost items** and click **Next**.





- The Bid Wizard – Step 3 of 4 dialog displays
  - You use this step to indicate which source you want to pull your setup data from (the library or your source job)
7. For all selections, select **Copy from source job**.
  8. Check the **Also copy all non-utilized resources** checkbox.
  9. Select **Copy from source job** under Unassigned Cost Items and Markup, and the **Copy Markup** box is automatically selected.



The screenshot shows the 'Bid Wizard' dialog box at 'Step 3 of 4: What would you like to do?'. It contains five sections with radio buttons and checkboxes, each with a descriptive text block to its right. Red boxes highlight the selected options: 'Copy from source job' for Job Properties, Foundation Setup Data, and Workbook; and 'Also copy all non-utilized resources' for Resources and Resource Assemblies. The 'Unassigned Cost Items and Markup' section has 'Copy from source job' selected and 'Copy Markup' checked. At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

Section	Options	Description
Job Properties	<input type="radio"/> Copy from Master Job Properties <input checked="" type="radio"/> Copy from source job	Job Properties contains the Overview, Security, Cover Sheet, Cost Basis, Minority Setup and Fuel Cost for the job.
Foundation Setup Data	<input type="radio"/> Copy from Master Foundation Setup Data <input checked="" type="radio"/> Copy from source job	Foundation Setup Data contains the Account Codes, Tags, Quote Group Tags, Units of Measure, Currencies, Resource / Assembly Files, Geographic Areas, Wage Zones, Organization Categories and Weather Tags.
Resources and Resource Assemblies	Copy utilized Resources and Resource Assemblies from source job <input checked="" type="checkbox"/> Also copy all non-utilized resources	Resources and Resource Assemblies that are utilized by Cost Items in the source job(s) are copied by default. Optionally, all Resources and Resource Assemblies can be copied from the source job(s) into the new job.
Unassigned Cost Items and Markup	<input type="radio"/> Copy from Master CBS <input checked="" type="radio"/> Copy from source job <input checked="" type="checkbox"/> Copy Markup	Unassigned Cost Items are those cost items in the CBS that are not assigned to specific pay items, including Prime Bond, Job Financing, General Expense, and others.
Workbook	<input type="radio"/> Copy from Library <input checked="" type="radio"/> Copy from source job	The workbook contains data that is used to link fields in Estimate to cells in Excel. The workbook containing the data that you want to use for linking with Excel can be copied from the Library or the source job.

< Back   Next >   Cancel

10. Click **Next**.

- The Bid Wizard – Step 4 of 4 dialog displays

11. Click the **Source Job** drop-down arrow.



The screenshot shows the 'Bid Wizard' window at 'Step 4 of 4: Choose the source Cost Items to copy.' The 'Source Job' dropdown menu is highlighted with a red box and contains the text '[Select Source Job]'. Below this, there is a search bar labeled 'Find: [Search For...]' and a 'Saved views: Standard View' dropdown. A table with columns 'Include', 'CBS Position Code', 'Description', 'Optional Code', and 'Forecast (T/O) Quantity' is visible. At the bottom, there is a 'Toggle Include All' button and navigation buttons '< Back', 'Finish', and 'Cancel'.

Include	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity
---------	-------------------	-------------	---------------	-------------------------

- The Job Register opens

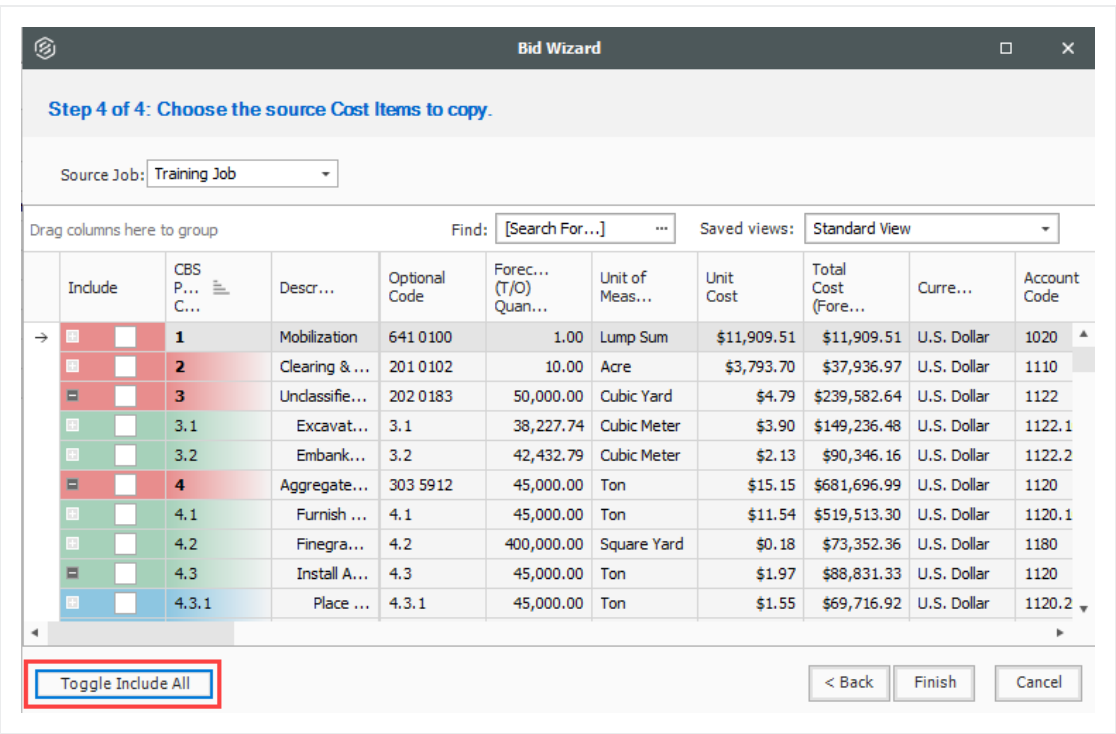
12. Find and select **Training Job**.

13. Click **OK**.

- This screen displays the cost items of the source job (Training Job). All items are automatically selected

14. Use the **Toggle Include All** button to exclude all selections.





- 15. Select the checkboxes to include **Mobilization**, **Clearing & Grubbing**, and **Unclassified Excavation**.
- 16. Notice that when selecting Unclassified Excavation, that cost item’s subordinates are automatically selected



**Step 4 of 4: Choose the source Cost Items to copy.**

Source Job: Training Job

Drag columns here to group Find: [Search For...] Saved views: Standard View

Include	CBS P... C...	Descr...	Optional Code	Forec... (T/O) Quan...	Unit of Meas...	Unit Cost	Total Cost (Fore...	Curre...	Account Code
<input checked="" type="checkbox"/>	1	Mobilization	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51	U.S. Dollar	1020
<input checked="" type="checkbox"/>	2	Clearing & ...	201 0102	10.00	Acre	\$3,793.70	\$37,936.97	U.S. Dollar	1110
<input checked="" type="checkbox"/>	3	Unclassife...	202 0183	50,000.00	Cubic Yard	\$4.79	\$239,582.64	U.S. Dollar	1122
<input checked="" type="checkbox"/>	3.1	Excavat...	3.1	38,227.74	Cubic Meter	\$3.90	\$149,236.48	U.S. Dollar	1122.1
<input checked="" type="checkbox"/>	3.2	Embank...	3.2	42,432.79	Cubic Meter	\$2.13	\$90,346.16	U.S. Dollar	1122.2
<input type="checkbox"/>	4	Aggregate...	303 5912	45,000.00	Ton	\$15.15	\$681,696.99	U.S. Dollar	1120
<input type="checkbox"/>	4.1	Furnish ...	4.1	45,000.00	Ton	\$11.54	\$519,513.30	U.S. Dollar	1120.1
<input type="checkbox"/>	4.2	Finegra...	4.2	400,000.00	Square Yard	\$0.18	\$73,352.36	U.S. Dollar	1180
<input type="checkbox"/>	4.3	Install A...	4.3	45,000.00	Ton	\$1.97	\$88,831.33	U.S. Dollar	1120
<input type="checkbox"/>	4.3.1	Place ...	4.3.1	45,000.00	Ton	\$1.55	\$69,716.92	U.S. Dollar	1120.2

Toggle Include All < Back Finish Cancel

17. Click **Finish** to add the new job.

- An Attention prompt appears asking, “Do you want to adjust Pay Rules and Shift Arrangements of the copied cost items?”
- Typically, you will want to use the shifts and payment rules of your new destination job.

18. Select **Adjust the pay rules and shift arrangements to match the destination**.

**Attention**

You have ordered one or more cost items to be copied by the Bid Wizard.

Do you want to adjust Pay Rules and Shift Arrangements of the copied cost items?

☐ Keep the original pay rules and shift arrangements

☒ Adjust the pay rules and shift arrangements to match the destination

☐ Never ask me this question again

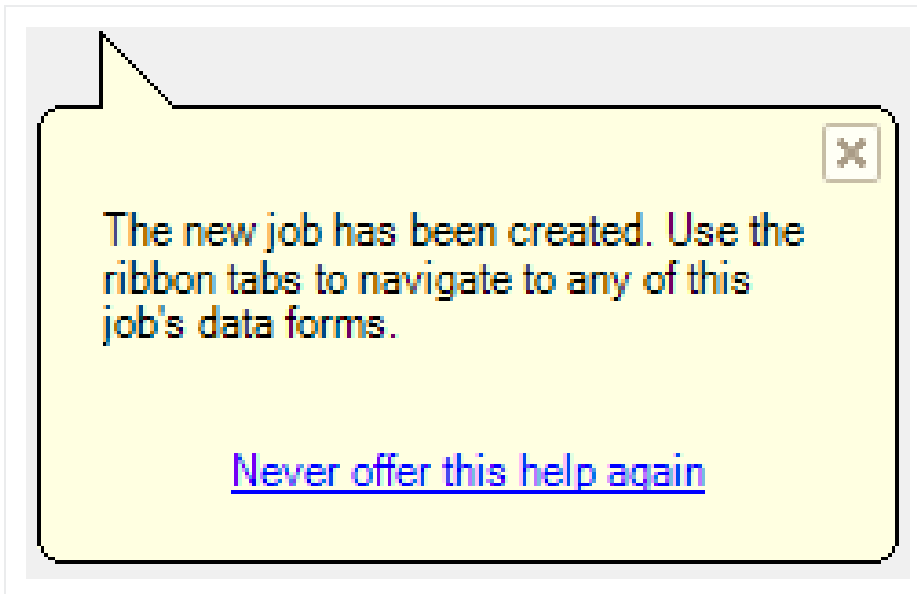
OK



19. Click **OK**.

- A help bubble appears letting you know the job has been created, and that you can use the ribbon tabs on the Estimate landing page to open any form

20. Close the help bubble by selecting the **X** in the upper right corner.



21. Open the **Estimate > CBS** to see the three cost items that were brought in.



Cost Breakdown Structure (CBS) Register					
Drag columns here to group					
	CBS Position Code	Description	Really Optional Code	Forecast (T/O) Quantity	Unit of Measure
→		<b>JOB</b>		1.00	Lump Sum
+		<b>Prime Bond</b>	PRIME BOND	1.00	Lump Sum
+		<b>Price % Add-On</b>	PRICE % ADD-ON	1.00	Lump Sum
+		<b>Job Financing</b>	FINANCE EXPENSE	1.00	Lump Sum
+		<b>Indirect Cost Escalation</b>	INDIRECT COST ESCAL...	1.00	Lump Sum
+		<b>Direct Cost Escalation</b>	DIRECT COST ESCALAT...	1.00	Lump Sum
+		<b>Indirect Cost Add-On</b>	INDIRECT COST ADD-ON	1.00	Lump Sum
+		<b>Job Management &amp; Equipment</b>	JOB MANAGEMENT & E...	1.00	Lump Sum
+		<b>General Expense</b>	GENERAL EXPENSE	1.00	Lump Sum
+		<b>Direct Cost Add-On</b>	DIRECT COST ADD-ON	1.00	Lump Sum
+ 1		<b>Mobilization</b>	641 0100	1.00	Lump Sum
+ 2		<b>Clearing &amp; Grubbing</b>	201 0102	10.00	Acre
3		<b>Unclassified Excavation</b>	202 0183	50,000.00	Cubic Yard
+ 3.1		Excavation	3.1	38,227.74	Cubic Meter
+ 3.2		Embankment	3.2	42,432.79	Cubic Meter

### 10.3.1 Bid Wizard Updates

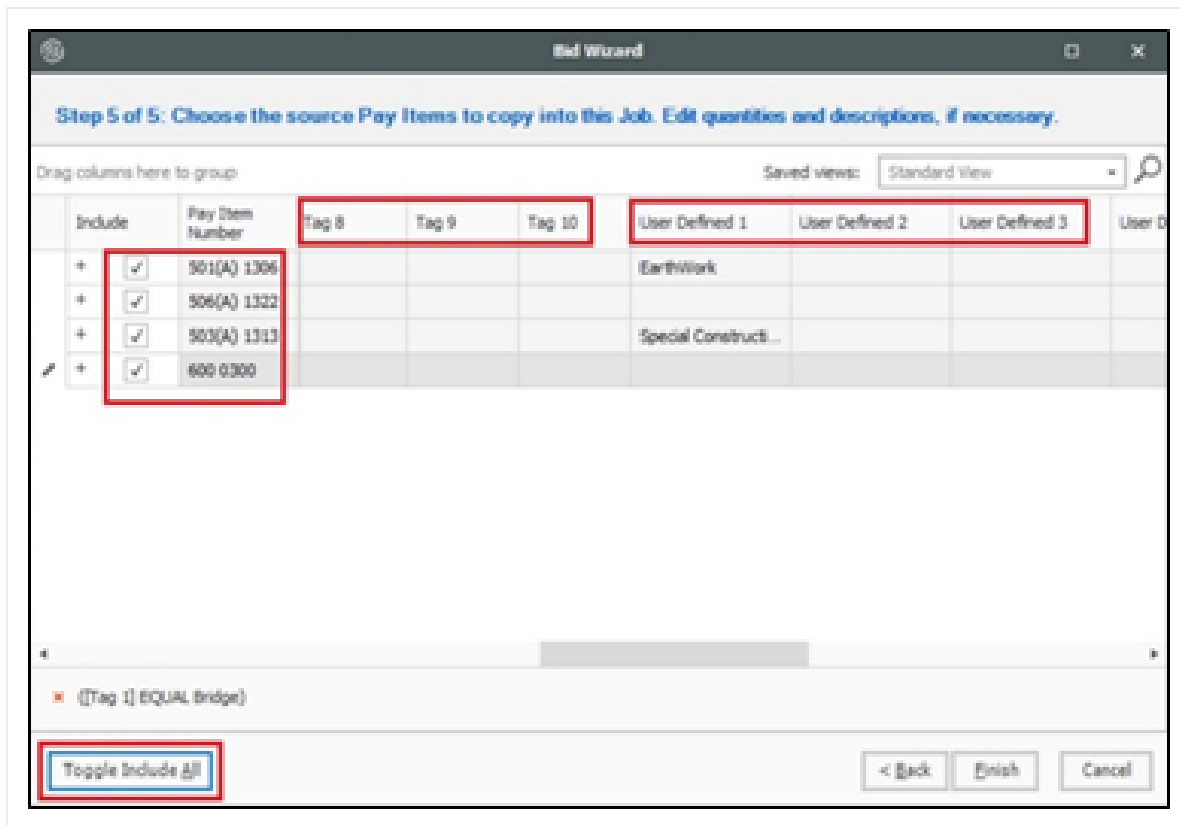
While using the Bid Wizard, the Include option is left unchecked by default. A filter is applied to bring in pay items when using the Bid Wizard. The Toggle Include All button only selects the filtered list of items instead of all items.

When the filter criteria is modified, the selected items remain checked even if some of the items might not be visible in the view. When the view is changed, the selected items remain checked.

Tags and UDF fields are included in the **Bid Wizard Selection** register for the cost items and Pay Item & Proposal selection registers. This lets you filter the list of cost items based on a tag or UDF.

When you select the **Toggle Select All** button, only filtered items are included which allow you to include scopes of work relevant to your estimate without having to manually select all items needed.





## 10.4 COPY ESTIMATE DATA USING EDIT COMMANDS

While the Bid Wizard is an efficient way to copy cost history into new projects, you may prefer to use edit commands such as copy and paste to bring cost history into your estimate.

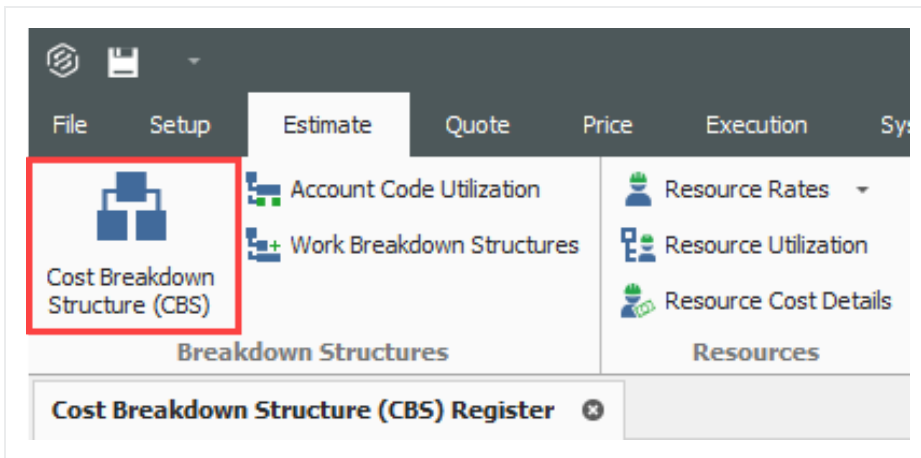
To copy and paste cost history from one job to another, it is beneficial to see the jobs side by side. The following steps walk you through the process.

### Step by Step — Copy Estimate Data Using Edit Commands

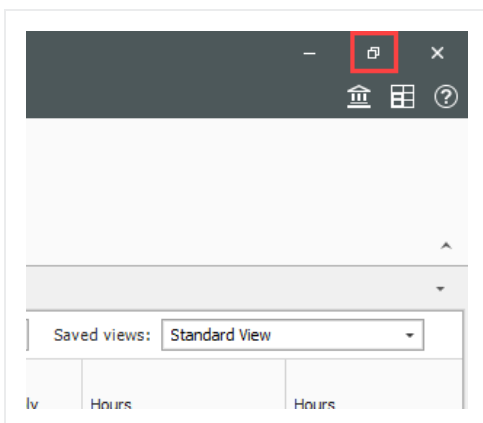
1. Click the **File** tab from the Estimate landing page and open the **E101 Bid Wizard** job you just created.
2. Open the **Training Job** (if you do not still have it open).



3. Make sure the CBS is open for both jobs by going to the Estimate menu and selecting **Cost Breakdown Structure (CBS)**.



4. Since you have both jobs open and they are in their own application window, align them to be side by side by using the **minimize icons** of each job or utilizing Windows align functionality.





- Note that the window caption identifies the CBS Register for each job

- On the CBS of the Training Job, click the row header on cost item **4 – Aggregate Base** and press **Ctrl+C** to copy the cost item.

→	4	Aggregate Base	303 5912
+	4.1	Furnish & Haul Base Material	4.1
+	4.2	Finegrade Subgrade	4.2
+	4.3	Install Aggregate Base	4.3
+	4.3.1	Place Aggregate Base	4.3.1
+	4.3.2	Blue Top Aggregate Base	4.3.2

**TIP**

When you copy a superior cost item, all of its subordinates are automatically copied.

- On the CBS of the E101 Bid Wizard job, click the row header on the first blank register row, and press **Ctrl+V** to paste the cost item.

+	1	Mobilization	641 0100	1.00	Lump Sum
+	2	Clearing & Grubbing	201 0102	10.00	Acre
+	3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard
+	3.1	Excavation	3.1	38,227.74	Cubic Meter
+	3.2	Embankment	3.2	42,432.79	Cubic Meter
→					

- On the Attention dialog, select **Adjust the pay rules and shift arrangements to match the destination** and click **OK**.



Attention

You have ordered one or more cost items to be copied and inserted as subordinates to the Cost Item at CBS Position Code <JOB>.

Do you want to adjust Pay Rules and Shift Arrangements of the copied cost items?

☐ Keep the original pay rules and shift arrangements
   
☒ Adjust the pay rules and shift arrangements to match the destination

☐ Never ask me this question again

- You can see in the destination job's CBS that you've added the Aggregate Base cost item, along with its subordinate cost items and all cost and productivity detail

Training Job - Estimate									
E101 Bid Wizard - Estimate									
File	Setup	Estimate	Quote	Price	Execution	System	Integrations	Actions	More Actions
Cost Breakdown Structure (CBS)	Breakdown Structure (CBS)	Res...	Workbook	Schedule	Cash Flow	Indirect Cost Items	Price Breakdown Structure (PBS)	Overhead and Pr...	Alternates
Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register	Cost Breakdown Structure (CBS) Register
CBS Position Code	Description	Really Optional Code	Forecast (T/C) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	CBS Position Code	Description	Really Optional Code
JOB	PRIME BOND	PRIME BOND	20.00	Mile	\$1,633,147...	\$72,662,954...	JOB	PRIME BOND	PRIME BOND
+	Price % Add-On	PRICE % ADD-ON	1.00	Lump Sum	\$47,119.07	\$47,119.07	+	Price % Add-On	PRICE % ADD-ON
+	Job Financing	FINANCE EXPENSE	1.00	Lump Sum	\$295,371.61	\$295,371.61	+	Job Financing	FINANCE EXPENSE
+	Indirect Cost Escalation	INDIRECT COST ESCALATION	1.00	Lump Sum	\$0.00	\$0.00	+	Indirect Cost Escalation	INDIRECT COST ESCALATION
+	Direct Cost Escalation	DIRECT COST ESCALATION	1.00	Lump Sum	\$19,131.77	\$19,131.77	+	Direct Cost Escalation	DIRECT COST ESCALATION
+	Indirect Cost Add-On	INDIRECT COST ADD-ON	1.00	Lump Sum	\$59,476.54	\$59,476.54	+	Indirect Cost Add-On	INDIRECT COST ADD-ON
+	Job Management & Equipment	JOB MANAGEMENT & E...	1.00	Lump Sum	\$125,896.28	\$125,896.28	+	Job Management & Equipment	JOB MANAGEMENT & E...
+	General Expense	GENERAL EXPENSE	1.00	Lump Sum	\$4,200.00	\$4,200.00	+	General Expense	GENERAL EXPENSE
+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum	\$104,203.16	\$104,203.16	+	Direct Cost Add-On	DIRECT COST ADD-ON
1	Hobolization	641 0100	2.00	Lump Sum	\$11,909.51	\$23,819.02	1	Hobolization	641 0100
2	Clearing & Grubbing	201 0102	10.00	Acre	\$3,793.70	\$37,936.97	2	Clearing & Grubbing	201 0102
3	Unclassified Excavation	202 0183	50.00	Cubic Yard	\$4.94	\$246,901.12	3	Unclassified Excavation	202 0183
3.1	Excavation	3.1	38,227.74	Cubic Meter	\$4.10	\$156,546.16	3.1	Excavation	3.1
3.2	Embankment	3.2	42,432.79	Cubic Meter	\$2.13	\$89,346.16	3.2	Embankment	3.2
4	Aggregate Base	303 5912	45,000.00	Ton	\$15.15	\$681,696.99	4	Aggregate Base	303 5912
4.1	Furnish & Haul Base Material	4.1	45,000.00	Ton	\$11.54	\$519,513.30	4.1	Furnish & Haul Base Material	4.1
4.2	Primegrade Subgrade	4.2	400,000.00	Square Yard	\$0.18	\$72,360.36	4.2	Primegrade Subgrade	4.2
4.3	Initial Aggregate Base	4.3	45,000.00	Ton	\$1.97	\$88,851.33	4.3	Initial Aggregate Base	4.3
4.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton	\$1.55	\$69,716.92	4.3.1	Place Aggregate Base	4.3.1
4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard	\$0.05	\$19,114.42	4.3.2	Blue Top Aggregate Base	4.3.2
5	Asphalt Concrete Hot Mix Type A	303 4263	35,000.00	Ton	\$42.62	\$1,491,580.59	5	Asphalt Concrete Hot Mix Type A	303 4263

**TIP**

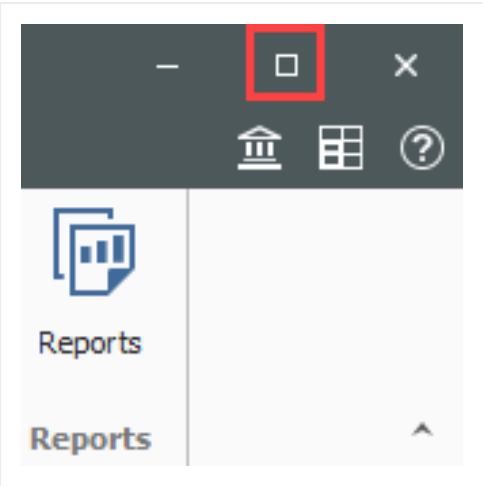
You can also drag and drop cost items from one CBS to another instead of copying and pasting.

**TIP**

Copied cost items are considered Job Overhead until they are assigned to a pay item

- To go back to your full screen view of the E101 Bid Wizard job, select the maximize icon.





# 10.5 CBS BID WIZARD

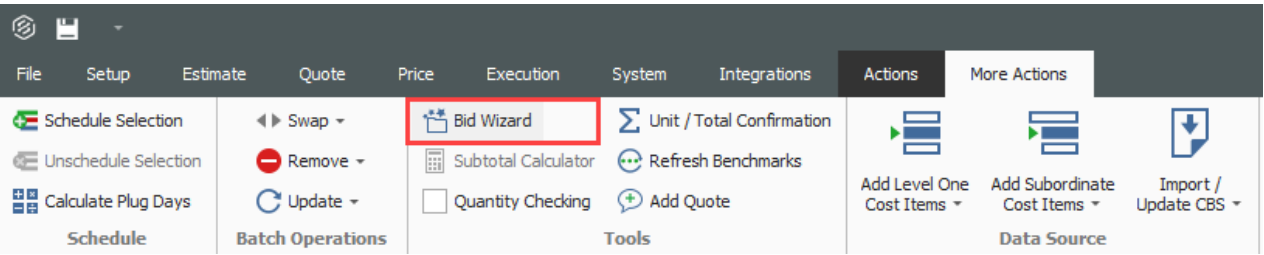
You can also use the Bid Wizard to add cost items while you are in the CBS Register. The following steps walk through using the CBS Bid Wizard.

## Step by Step — Use the CBS Bid Wizard

- 1. Click the **File** tab from the Estimate landing page and open the **E101 Bid Wizard** job you created.
- 2. From the **Estimate** tab, select **Cost Breakdown Structure (CBS)**.
- 3. Create a new cost item by typing **New** in the Description column on the bottom row of the CBS
- 4. Highlight the **New** row.

4	Aggregate Base	303 5912	45,000.00	Ton
+ 4.1	Furnish & Haul Base Material	4.1	45,000.00	Ton
+ 4.2	Freight Subgrade	4.2	400,000.00	Square Yard
+ 4.3	Install Aggregate Base	4.3	45,000.00	Ton
+ 4.3.1	Plant Aggregate Base	4.3.1	45,000.00	Ton
+ 4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard
5	New		1.00	Each

- 5. To open the CBS Bid Wizard, click the **Bid Wizard** icon on the **More Actions** tab.





- The Bid Wizard window opens

6. Click in the **Source Job** column on the New cost item row.

Place Aggregate Base		45,000.00	Ton	[Select Source Job]
Blue Top Aggregate Base		400,000.00	Square Yard	[Select Source Job]
<b>New</b>		1.00	Each	[Select Source J... ▼]

7. From the Source Job drop-down list, select **Training Job**.

8. Scroll to the right of the Source Job column and click in the **Source CBS Position Code** column on the New Cost item row.

- A source CBS Register window appears

9. Select CBS position code **5 – Asphalt Concrete Hot Mix Type A** from the register.

Drag columns here to group Find: [Search For...] ... Saved views: Previous View ▼

	CBS Position Code	Description	Really Optional Code	Unit of Measure	Forecast (T/O) Quantity
	4.2	Finegrade Subgrade	4.2	Square Yard	
	4.3	Install Aggregate Base	4.3	Ton	
	4.3.1	Place Aggregate Base	4.3.1	Ton	
	4.3.2	Blue Top Aggregate Base	4.3.2	Square Yard	
→	<b>5</b>	<b>Asphalt Concrete Hot Mix Type A</b>	303 4263	Ton	
	5.1	Furnish & Haul Hot Mix	5.1	Ton	
	5.2	Install Hot Mix Type A	5.2	Ton	
	<b>6</b>	<b>36 Inch RCP Culvert Class III</b>	413(B) 0464	Linear Feet	
	6.1	Furnish RCP Materials	6.1	Linear Feet	
	6.2	Excavate RCP Trench	6.2	Cubic Yard	
	6.3	Install RCP Pipe	6.3	Linear Feet	
	6.4	Backfill RCP Pipe	6.4	Cubic Yard	

OK Cancel

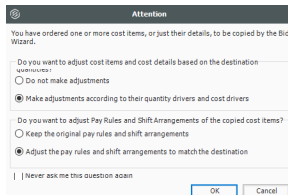
10. Click **OK**.

11. Click **Finish** on the Bid Wizard.



- An Attention prompt displays, asking if you want to make adjustments
- Keep the default options selected: **Make Adjustments according to their quantity drivers and cost drivers** and **Adjust the pay rules and shift arrangements to match the destination**

## 12. Click **OK**.



**Attention**

You have ordered one or more cost items, or just their details, to be copied by the Bid Wizard.

Do you want to adjust cost items and cost details based on the destination version?

☐ Do not make adjustments

☒ Make adjustments according to their quantity drivers and cost drivers

Do you want to adjust Pay Rules and Shift Arrangements of the copied cost items?

☐ Keep the original pay rules and shift arrangements

☒ Adjust the pay rules and shift arrangements to match the destination

☐ Never ask me this question again

**OK** **Cancel**

- You can see that cost item 5 and its subordinates are now imported into your existing job.
- You could choose a new name for the cost item, or name it **Asphalt Concrete Hot Mix Type A** to match the original cost item

4.3	Install Aggregate Base	4.3	45,000.00	Ton
+ 4.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton
+ 4.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard
5	Asphalt Concrete Hot Mix Type A		1.00	Each
+ 5.1	Furnish & Haul Hot Mix	5.1	1.00	Ton
+ 5.2	Install Hot Mix Type A	5.2	1.00	Ton

## 10.6 SNAPSHOTS

A job snapshot is a copy of an estimate that provides read-only access to the job as it existed at a specific point in time. You can now filter the Snapshot register to jobs containing snapshots.

The Snapshot register has some additional columns as well. In addition to the Code, Description, Last Saved, and Version column, the Snapshot register contains all fields that are present on the Jobs register that provides you with an easier way to group, sort, filter, and find the jobs you need.

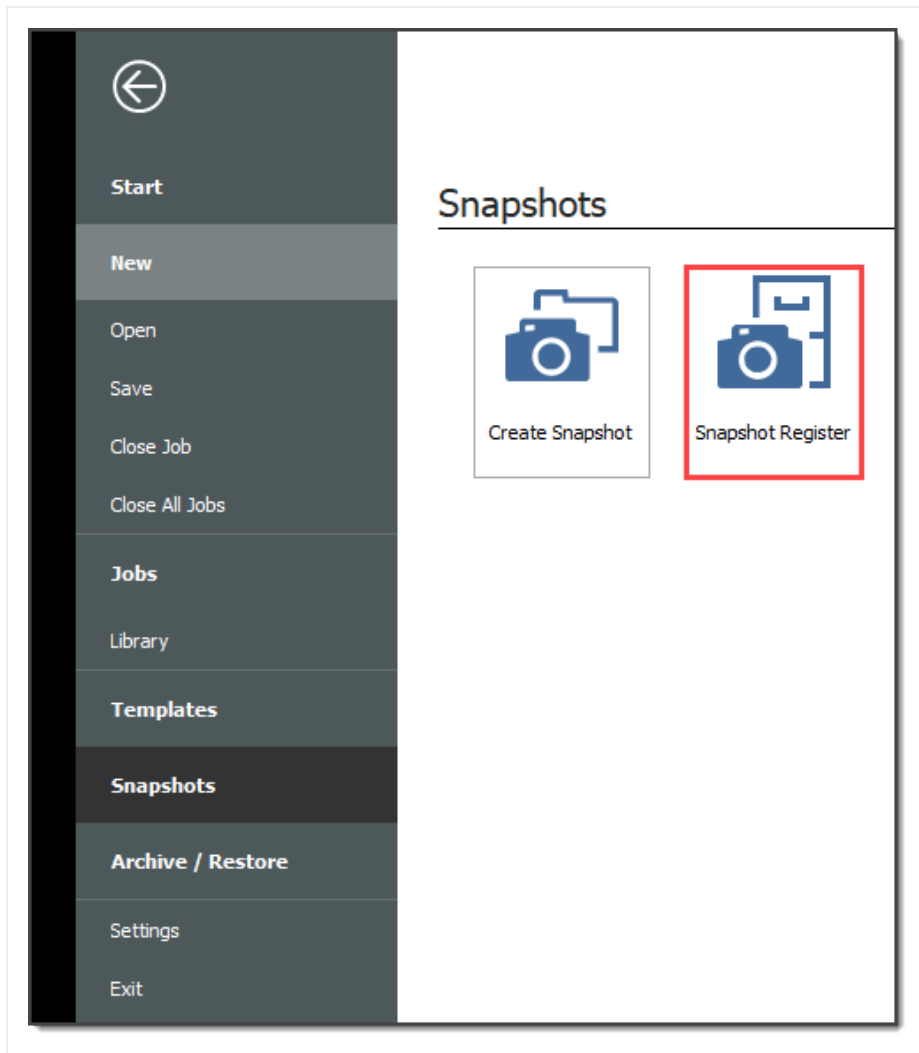
### 10.6.1 Snapshot Register


The Snapshot Register is where you will view individual snapshots for specific jobs.



## Step by Step — Snapshot Register

1. Click the **File** tab to open the Backstage View. In the panel, select **Snapshots**.
2. From the Snapshots form, select the **Snapshot Register** tab.



3. To view individual snapshots for specific jobs, click the  icon next to the desired job to display the list of snapshots.



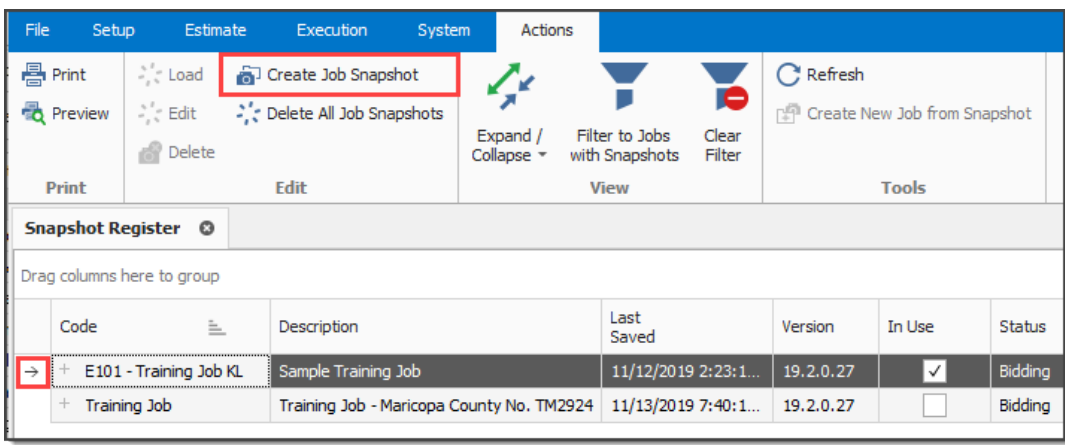
	Code	Description
→	+ E101 - Training Job KL	Sample Training Job
	+ Training Job	Training Job - Maricopa County No. TM2924

## 10.6.2 Creating a New Job Snapshot

### Step by Step — Create a New Job Snapshot

You can create a Job Snapshot from an existing Job.

1. From the Snapshots form, select the **Create Snapshot** tab.

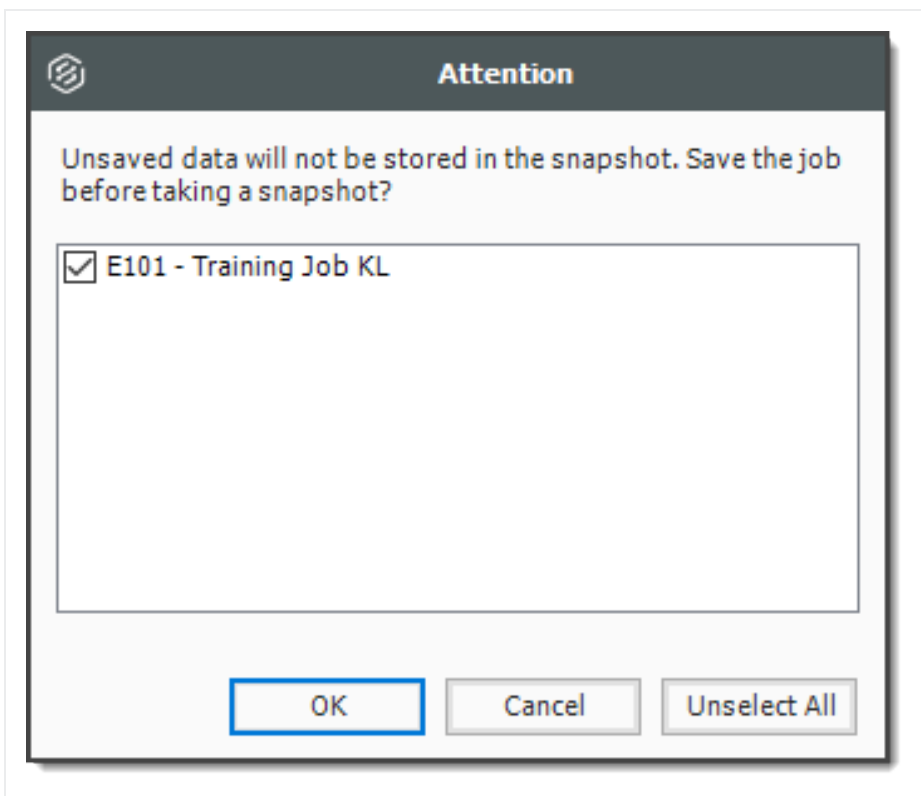


The screenshot shows the 'Snapshots' form with the 'Actions' menu open. The 'Create Job Snapshot' button is highlighted with a red box. Below the menu is the 'Snapshot Register' table.

Snapshot Register						
Drag columns here to group						
	Code	Description	Last Saved	Version	In Use	Status
→	+ E101 - Training Job KL	Sample Training Job	11/12/2019 2:23:1...	19.2.0.27	<input checked="" type="checkbox"/>	Bidding
	+ Training Job	Training Job - Maricopa County No. TM2924	11/13/2019 7:40:1...	19.2.0.27	<input type="checkbox"/>	Bidding

2. If an existing job is open select **Save**, if you haven't already done so.





3. A New Job Snapshot [Job Code Here] dialog box appears. From there, you can add a Snapshot comment.
  - If you want to Include all Attachments that have been stored in the Job Folder with this Snapshot, select the check box, otherwise uncheck the box.
  - If you want to Use Job's current User Access restrictions for this Snapshot, select this radio button.
  - If you want to Remove User Access restrictions for this Snapshot and allow read-only access to all users, select this radio button
  - If you want to Specify User Access restrictions for this Snapshot (default selection), select this option
    - Then use the Add and Remove buttons to specify user access using Active Directory.

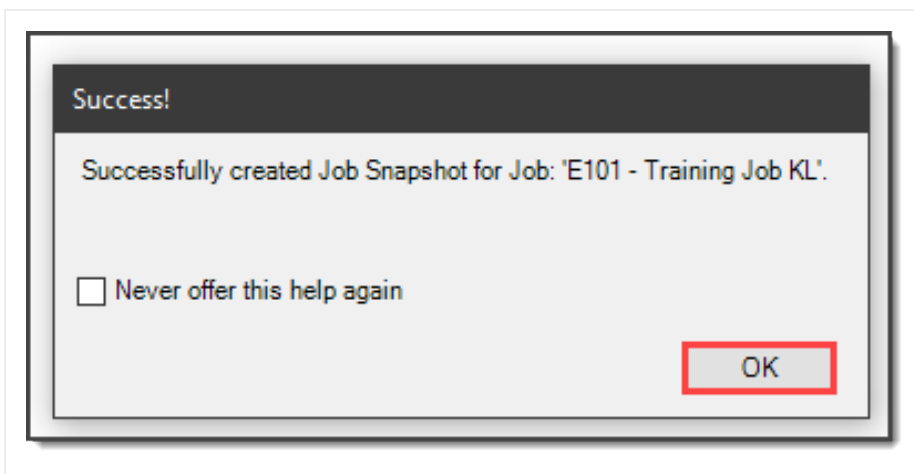


(Users with current access to the job default onto the list.)

The screenshot shows a dialog box titled "New Job Snapshot [E101 - Training Job KL]". It contains the following fields and options:

- Job:** E101 - Training J
- Job Description:** Sample Training Job
- Snapshot Comment:** <add comment here> (with a red box around the text area)
- ☒ Include all Attachments that have been stored in the Job Folder with this Snapshot (indicated by a red arrow)
- User Access** section (outlined in red):
  - ☐ Use Job's current User Access restrictions for this Snapshot
  - ☐ Remove all User Access restrictions for this Snapshot
  - ☒ Specify User Access restrictions for this Snapshot
- A list box containing:
  - user - karen.loftus@ineight.com
  - user - paul.trippi@ineight.com
- Add...** and **Remove** buttons next to the list box.
- OK** and **Cancel** buttons at the bottom right.


4. Click OK to create the snapshot.
5. A pop-up indicates when the snapshot has been created.

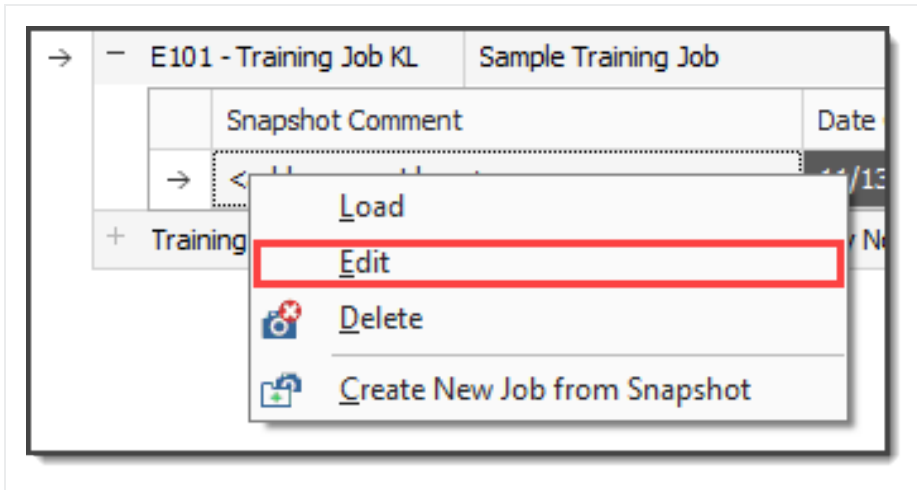




### 10.6.3 Editing a Job Snapshot

#### Step by Step — Edit a Job Snapshot

1. From the Snapshot Register, click the  icon next to the desired job to display snapshots.
2. Right-click on the individual snapshot you want to edit and select **Edit**.




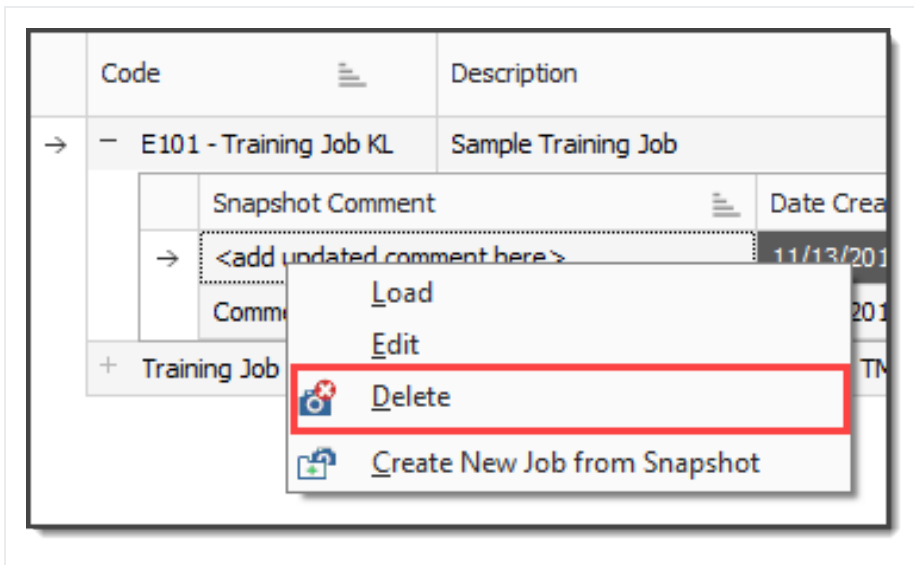
3. The same sort of dialog box opens up as when you created the Snapshot. In this case, from the Edit Job Snapshot [Job Code Here] dialog box, modify the Snapshot Comment and the User Access options as needed.
  - If you want to Include all Attachments that have been stored in the Job Folder with this Snapshot, select the check box. Otherwise, uncheck the box
  - If you want to Use Job's current User Access restrictions for this Snapshot, select this radio button
  - If you want to Remove User Access restrictions for this Snapshot and allow read-only access to all users, select this radio button
  - If you want to Specify User Access restrictions for this Snapshot (default selection), select this option
    - Then use the Add and Remove buttons to specify user access using Active Directory. (Users with current access to the job default onto the list.)
4. Click **OK** to update the snapshot.



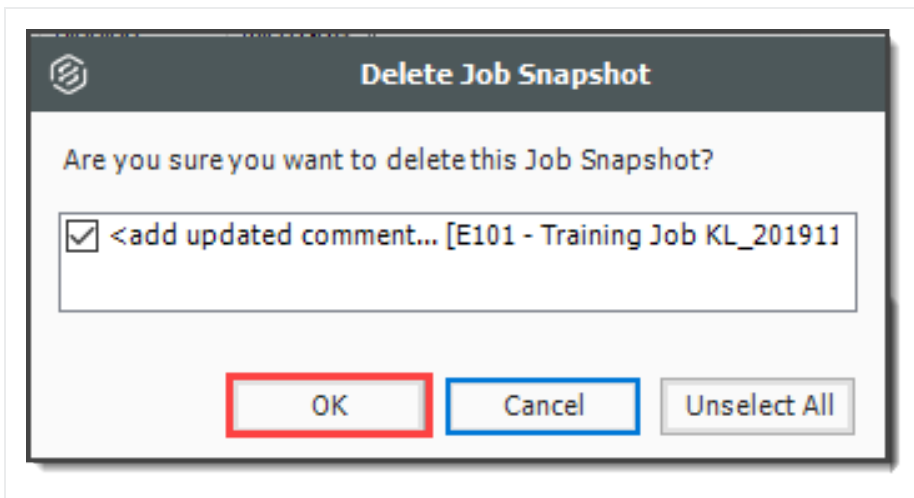
## 10.6.4 Deleting a Job Snapshot

### Step by Step — Delete a Job Snapshot

1. From the Snapshot Register, click the  icon next to the desired job to display snapshots.
2. Right-click on the individual snapshot you want to delete snapshots from and select **Delete**.

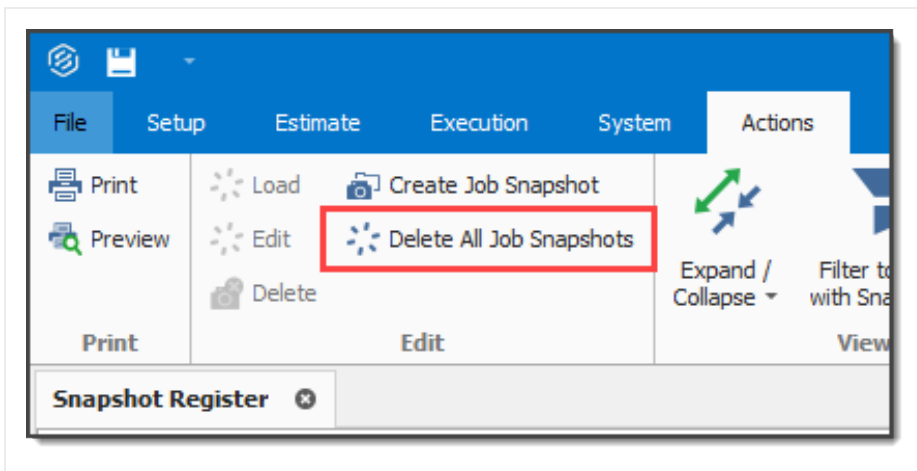


3. Click **OK**



Alternatively, you can delete all Job Snapshots by clicking **Delete All Job Snapshots** from the Actions tab.



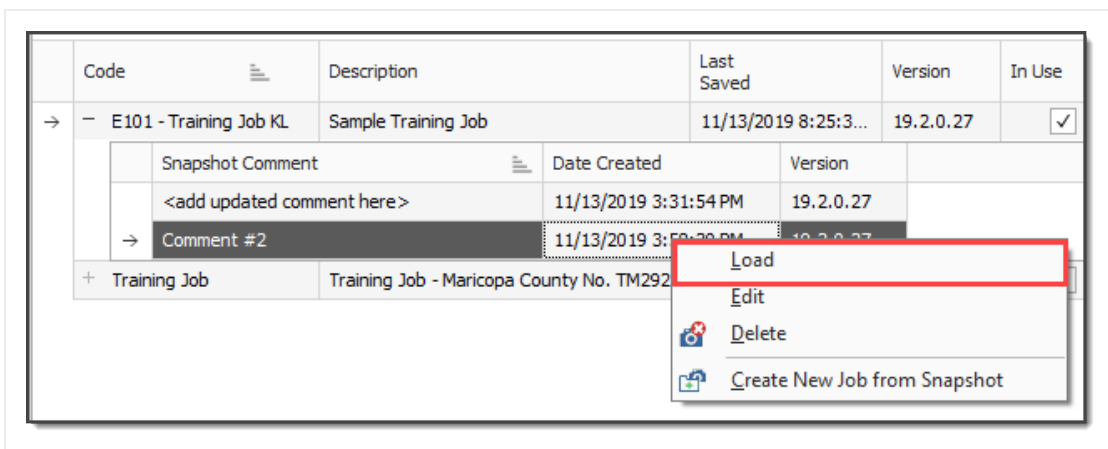


### 10.6.5 Loading a Job Snapshot

When you load an existing Snapshot, it loads into Estimate as any other job.

#### Step by Step — Load a Job Snapshot

1. Click the File tab to open the Backstage View, then select **Snapshots**.
2. From the Snapshots form, select the **Snapshot Register** tab.
3. On the Snapshot Register, click the icon next to the desired job to display the list of snapshots.
4. Right-click on the individual snapshot you want to load and select **Load**.





To identify a snapshot in Estimate as a read-only snapshot:

- The job name is preceded by the label **SNAPSHOT:** centered on the top of the toolbar
- A red banner shows the specific snapshot information at the bottom of the screen

## NOTE

A snapshot can be modified, but it cannot be saved as it is read-only.

The screenshot displays the Estimate software interface with a snapshot of a training job. The title bar at the top reads "SNAPSHOT: Training Job - Estimate". The toolbar below the title bar includes various icons for file operations, editing, and viewing. The main window shows a "Cost Breakdown Structure (CBS) Register" with a table of items. The table has columns for Code, Description, CBS Position Code, Description, Forecast (T/O) Quantity, Unit of Measure, Unit Cost, Total Cost (Forecast), Allocated, Allocation Source, Currency, Cost Adjustment, and Optional Code. The items listed include Prime Bond, Job Financing, Indirect Cost Escalation, Direct Cost Escalation, Job Management & Equipment, General Expense, Mobilization, Clearing & Grubbing, and Aggregate Base. A red arrow points to the "Aggregate Base" item in the table. The bottom status bar shows "As-Entered Currency", "As-Entered Units", "Minimum Example", and "Accrued Costs OFF".



## Exercise 10.1 — Data Reproduction

Now that you have learned how to utilize the Bid Wizard, complete the following steps using the Bid Wizard and Copy & Paste features.

1. Open the Bid Wizard by clicking the **Bid Wizard** icon from the **More Actions** tab.  
\_\_\_\_\_
2. Choose the **Create a new job** radio button.  
\_\_\_\_\_
3. Type **BW Exercise** (with your initials) in the **New Code** field and type **Exercise** in the Description field.  
\_\_\_\_\_
4. Choose **Select cost items**.  
\_\_\_\_\_
5. For all selections, choose **Copy from source job**.  
\_\_\_\_\_
6. Select the **Also copy all non-utilized resources** checkbox.  
\_\_\_\_\_
7. Select **Copy from source job** under Unassigned Cost Items and Markup, and the Copy Markup box is automatically selected.  
\_\_\_\_\_
8. Find and select **Training Job** and click **OK**.  
\_\_\_\_\_
9. Use the **Toggle Include All** button to exclude all selections.  
\_\_\_\_\_
10. Select the checkboxes to include **Cost Items 4-7**.  
\_\_\_\_\_
11. Click **Finish** to add the new job.  
\_\_\_\_\_
12. Select **Adjust the pay rules and shift arrangements to match the destination**.  
\_\_\_\_\_
13. Open the **CBS** to see the cost items that were brought in.  
\_\_\_\_\_



14. Open the **Infra Job Copy** with your initials that you created earlier in this lesson.

15. Copy **Cost items 8 and 9** and paste them into the BW Exercise job.

### You should end up with the following results

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure
+	<b>Indirect Cost Escalation</b>	INDIRECT COST ESCAL...	1.00	Lump Sum
+	<b>Direct Cost Escalation</b>	DIRECT COST ESCALAT...	1.00	Lump Sum
+	<b>Indirect Cost Add-On</b>	INDIRECT COST ADD-ON	1.00	Lump Sum
+	<b>Job Management &amp; Equipment</b>	JOB MANAGEMENT & E...	1.00	Lump Sum
+	<b>General Expense</b>	GENERAL EXPENSE	1.00	Lump Sum
+	<b>Direct Cost Add-On</b>	DIRECT COST ADD-ON	1.00	Lump Sum
1	<b>Aggregate Base</b>	303 5912	45,000.00	Ton
+ 1.1	Furnish & Haul Base Material	4.1	45,000.00	Ton
+ 1.2	Finegrade Subgrade	4.2	400,000.00	Square Yard
1.3	Install Aggregate Base	4.3	45,000.00	Ton
+ 1.3.1	Place Aggregate Base	4.3.1	45,000.00	Ton
+ 1.3.2	Blue Top Aggregate Base	4.3.2	400,000.00	Square Yard
2	<b>Asphalt Concrete Hot Mix Type A</b>	303 4263	35,000.00	Ton
+ 2.1	Furnish & Haul Hot Mix	5.1	35,000.00	Ton
+ 2.2	Install Hot Mix Type A	5.2	35,000.00	Ton
3	<b>36 Inch RCP Culvert Class III</b>	413(B) 0464	1,024.00	Linear Feet
+ 3.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet
+ 3.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard
+ 3.3	Install RCP Pipe	6.3	1,024.00	Linear Feet
+ 3.4	Backfill RCP Pipe	6.4	1,587.20	Cubic Yard
4	<b>10 Inch PVC Force Main (SDR21)</b>	800 0220	12,000.00	Linear Feet
+ 4.1	Furnish 10 Inch PVC Materials	7.1	12,000.00	Linear Feet
+ 4.2	Excavate-Install-Backfill 10 Inch PVC	7.2	12,000.00	Linear Feet
5	<b>24 Inch PVC Gravity Sewer (SDR35)</b>	800 0330	3,000.00	Linear Feet
5.1	Excavate 24 Inch PVC	8.1	3,000.00	Linear Feet
+ 5.1.1	Excavate 24 Inch PVC 0-6 ft Depth	8.1.1	1,390.00	Cubic Yard
+ 5.1.2	Excavate 24 Inch PVC 6-10 ft Depth	8.1.2	3,610.00	Cubic Yard
+ 5.2	Furnish & Install 24 Inch PVC	8.2	3,000.00	Linear Feet
+ 5.3	Backfill 24 Inch PVC	8.3	4,520.00	Cubic Yard
6	<b>4 Foot Diameter Manhole</b>	800 0400	16.00	Each
+ 6.1	Furnish 4 ft Manhole Materials	9.1	16.00	Each
+ 6.2	Excavate-Install-Backfill Manhole	9.2	16.00	Each

**Congratulations, you have completed this exercise!**



## Lesson 10 Review

1. From the New option on the Backstage View, which of the following options are available for creating a new job? (Select all that apply)
  - a. Scratch
  - b. Template
  - c. Import
  - d. Existing Job
  - e. Historic
  - f. Bid Wizard

---
2. Which of the following job reproduction options lets you pick and choose which cost items you want to import into your new job?
  - a. Template
  - b. Bid Wizard
  - c. Existing Job
  - d. Archive

---
3. Which of the following options allows you to add cost items from another project when working in the CBS Register?
  - a. Bid Wizard
  - b. CBS Bid Wizard
  - c. Template
  - d. Existing Job

---

## Lesson 10 Summary

As a result of this lesson, you can:

- Create a job from an existing job or template
- Create a template



- Reproduce estimate data using the Bid Wizard
- Reproduce estimate data using copy/paste
- Add cost items to a job using the CBS Bid Wizard
- Utilize the Snapshot function



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# LESSON 11 – EXCEL INTEGRATION

**Lesson Duration: 20 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Export data from InEight Estimate to Excel
- Link a field in InEight Estimate to Excel
- Update a linked InEight Estimate field with Excel data

## Lesson Topics

11.1 Linking to Excel .....	403
11.1.1 InEight Estimate Workbook .....	403
11.1.2 Linking to and from Excel .....	404
11.1.3 Update Links .....	408
Lesson 11 Review .....	410
Lesson 11 Summary .....	410

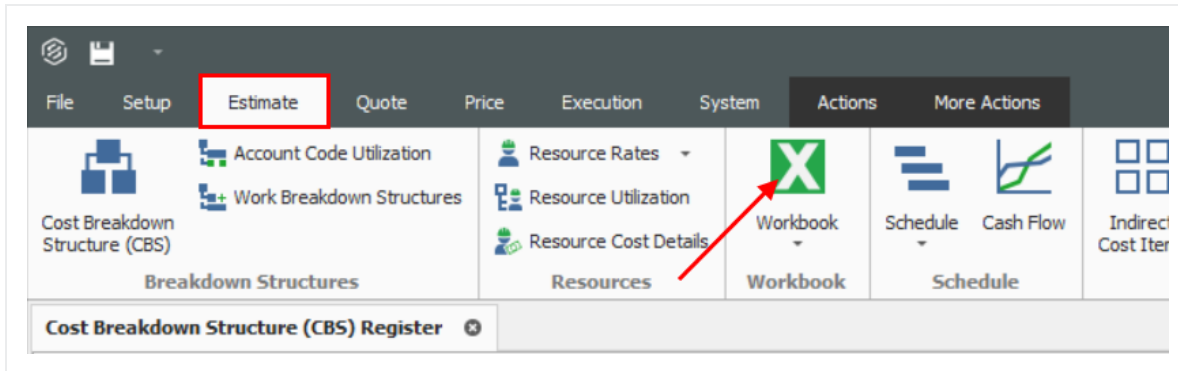
## 11.1 LINKING TO EXCEL

### 11.1.1 InEight Estimate Workbook

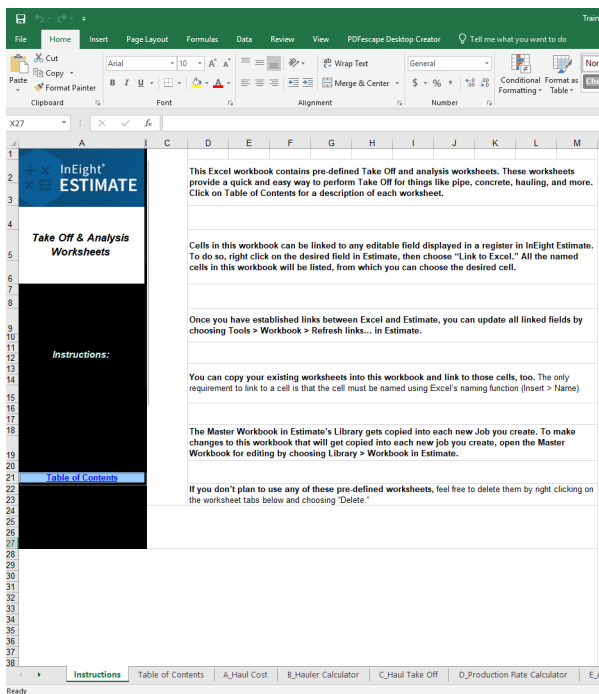
Every job has its own Excel workbook embedded within it for doing side calculations and take-offs. You can link your calculations to fields in InEight Estimate to automatically update them into your estimate. When you create a new job from scratch, the Library Master Workbook is copied to create a new embedded Excel workbook for the job.



The workbook comes with some pre-defined take-off and analysis worksheets, or you can create your own. Simply open the appropriate worksheet, plug in your values, and Excel will calculate your results. To open your job's workbook, select the Estimate tab, then click on the Workbook icon under the Workbook section.



- The embedded Excel workbook for the job opens.



## 11.1.2 Linking to and from Excel

InEight Estimate's linking capabilities with Excel can be done in one of two ways. A field in InEight Estimate can be populated with a value from Excel, or a cell in Excel can be populated with the data from an InEight Estimate field. This two-way linking functionality allows you to make quick work of complex chores to perform spreadsheet-based take-off or formula-driven analysis.



6	36 Inch RCP Culvert Class III	413(B) 0464	1,024.00	Linear Feet
+ 6.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet
+ 6.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard

The following example walks through how to link a simple take-off calculation into InEight Estimate from Excel. It is a take-off to determine the size of a concrete foundation.

## Step by Step — Link Estimate to Excel

1. Open the **Training** Job and from the Estimate tab, open the **CBS Register**.
2. For this example, create a new cost item in the blank row at the bottom of the CBS register and name it **Concrete Foundation**.

Concrete Foundation		1.00	CY
---------------------	--	------	----

3. Open the job's Excel workbook from the Estimate tab, by selecting the Workbook icon.
4. In the workbook, create a new worksheet named **Concrete Take-off** and enter the following fields:

	A	B	C	D	E	F	G
1	Concrete Take-off						
2							
3	Length	10 yards					
4	Width	10 yards					
5	Height	0.5 yards					
6							
7							
8							
9							
10							
11							
12							

Instructions | Table of Contents | **Concrete Take-Off**

5. Create a new row to calculate the total cubic yards by factoring the length, width, and height quantities.

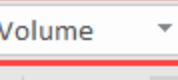


	A	B	C
1	Concrete Take-off		
2			
3	Length	10	yards
4	Width	10	yards
5	Height	0.5	yards
6	Volume	=sum(B3*B4*B5)	
7			

- Your Volume Total should be 50 cubic yards

	A	B	C
1	Concrete Take-off		
2			
3	Length	10	yards
4	Width	10	yards
5	Height	0.5	yards
6	Volume	50	CY
7			

6. InEight Estimate will only link to named fields in Excel. Click in the field you want to name (B6), then click in the Field Name window and type **Volume**.



Volume

6

	A	B	C
1	Concrete Take-off		
2			
3	Length	10	yards
4	Width	10	yards
5	Height	0.5	yards
6	Volume	50	CY
7			

- Go back to the CBS Register and right click on the Concrete Foundation cost item **Forecast (T/O) Quantity** field.
- From the resulting right click menu, select **Link this field to Excel**.
  - You can also link the field by selecting the field and then selecting Link Field from the Actions tab



**Training Job - Estimate**

Execution	System	Integrations	Actions	More Actions	
in	→ Indent	<b>Link Field</b>	Cost Item	Assembly	Resource
	← Outdent	Unlink Field	Subordinate Cost Item	Subordinate Assembly	Resource Assembly
Suspended		<b>Workbook</b>	Dependent Cost Item		
			<b>Insert</b>		

Find

	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
	06420	1.00	Lump Sum	\$2,100.00	\$2,100.00
	08210	1.00	Lump Sum	\$1,000.00	\$1,000.00
	09640	1.00	Lump Sum	\$1,800.00	\$1,800.00
	12510	1.00			
	15300	1.00			
	16510	1.00			
	1500 0100	1,000.00			
	1500 0200	200.00			
	1600 0230	1,000.00			
e	CO1	1.00			
	UNASSIGNED DIRECT C...	1.00			
osts	UNASSIGNED	1.00			
	UNASSIGNED	1.00			
	UNASSIGNED	1.00			
	UNASSIGNED	1.00			
		1.00			
the Water		1.00			
		1.00			
		1.00			
		1.00			
		1.00			
		1.00			

**Link this field to Excel**

UnLink from Excel

→ Indent

← Outdent

Insert


Insert Subordinate

Insert Dependent Cost Item

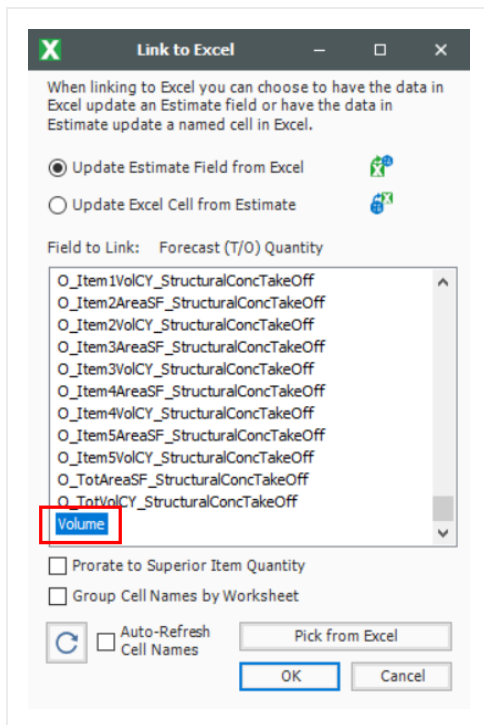
Insert Cost Item Assembly

Insert Cost Item Assembly as Subordinate

Split

- On the Link to Excel dialog, select the **Update InEight Estimate field from Excel** radio button.
- In the Field to link window, select **Volume** (you may need to click the Refresh  button for the field name to display).





11. Click **OK**.

- The Forecast Quantity field for Concrete now is linked to the Volume field in Excel and populates with the take-off quantity (50)

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
+ 26	Concrete Foundation	50.00	CY

### 11.1.3 Update Links

When data in InEight Estimate or Excel changes, you can quickly update all links, in just the currently active job or in all open jobs. Simply select one of the following options from the Workbook drop-down list on the Estimate tab.



Estimate

Quote

Price

Execution

System

Actions

More Actions

Account Code Utilization

Work Breakdown Structures

Resource Rates

Resource Utilization

Resource Cost Details

Workbook

Schedule

Cash Flow

Indirect Cost Items

Work Breakdown Structures

Resources

Work Breakdown Structure (CBS) Register

Filter

re to group

de	Description	Option Code
	JOB	
	Prime Bond	PRIME
	Price % Add-On	PRICE % ADD-ON

Open Job Workbook

Update Current Job From Workbook

Update All Open Jobs From Workbook

Update Workbook From Current Job

Update Workbooks From All Open Jobs

Delete Broken Links in All Open Jobs



## Lesson 11 Review

1. The Export to Excel feature is available on all register forms in the system and allows you to export the data currently displayed on a register form to an Excel worksheet.
  - a. True
  - b. False

---
2. You can use the \_\_\_\_\_ tool to easily select a group of items to copy.
  - a. Customize
  - b. Workbook
  - c. Cell Select
  - d. Excel Select

---
3. In order to link an Excel field to InEight Estimate, the Excel field must be:
  - a. Named
  - b. Highlighted
  - c. Tagged
  - d. Selected

---

## Lesson 11 Summary

As a result of this lesson, you can:

- Export data from InEight Estimate to Excel
- Link a field in InEight Estimate to Excel
- Update a linked InEight Estimate field with Excel data



# LESSON 12 – SCHEDULE INTEGRATION

**Lesson Duration:** 45 minutes

## Lesson Objectives

After completing this lesson, you will be able to:

- Set up scheduling options
- Update schedule from InEight Estimate
- Update InEight Estimate from schedule
- Manage changes between estimate and schedule

## Lesson Topics

12.1 Primavera .....	413
12.1.1 Scheduling Options .....	413
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12.1.3 Update Primavera from InEight Estimate .....	421
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12.1.5 Manage Changes Between Estimate and Schedule .....	433
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12.2.1 Set Up Scheduling Options .....	440
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# 12.1 PRIMAVERA

## 12.1.1 Scheduling Options

Prior to sending information from InEight Estimate to Primavera, you need to make sure the proper settings are in place.

### 12.1.1.1 Job Properties Schedule Tab

Primavera scheduling options are configured on the **Setup > Job Properties > Schedule** tab.

The screenshot shows the 'Job Properties' window with the 'Schedule' tab selected. The 'Integrated Schedule' dropdown is set to 'Primavera'. The 'Always use Plug Days when updating Estimate from the schedule' checkbox is checked. The 'Schedule Currency' is set to 'U.S. Dollar'. Below these, there are sub-tabs: 'Cost Item Roll Up', 'Login Options', 'Mapping Options', 'Resources', 'Expense Costs', 'Actuals', 'Tags', and 'Activity Calendars'. The 'Cost Item Roll Up' sub-tab is active, showing options for 'Automatically calculate Plug Days when rolling up cost items for scheduling purposes'. Two radio buttons are present: 'Longest scheduled days among all rolled up cost items' (selected) and 'Total scheduled days for all rolled up cost items'. A note explains that Plug Days of the superior cost item will be recalculated when a change is made to the scheduled days of a subordinate. A 'Recalculate Plug Days' button is at the bottom.

- At the top of the Schedule tab, the Integrated Schedule must be set to **Primavera**
- As a default, the **Always use Plug Days when updating InEight Estimate from the schedule** checkbox is not selected (on a job by job basis, this box can be checked later for jobs in which an estimator does not want updates from Primavera to change the duration and therefore the cost of your cost items in InEight Estimate)
- On the Schedule tab, there are several sub-tabs that need to be set up correctly to produce



correct data behavior and ensure the correct passing of data to Primavera

**Job Properties** ⓘ

Overview Security Cover Sheet Cost Basis Minority Setup

Integrated Schedule: Primavera

Schedule Currency: U.S. Dollar

Cost Item Roll Up Login Options Mapping Options Resources

## Step by Step — Login Options Tab

- On the Schedule > Login Options tab of Job Properties, select the **Use these login settings** radio button.
  - If pre-defined login settings were required, the Use pre-defined login settings radio button would be selected instead
  - The Instance will remain set to **-Default-**
  - Database selection will be **pmdb** during training.
- Type your user name in the User Name field.
- Type your password into the Password field.
  - You will have your own login settings specific to your company

**Job Properties** ⓘ

Overview Security Cover Sheet Cost Basis Minority Setup Fuel Cost Job Tracking Job Folder Tags Competitors Pricing Schedule

Integrated Schedule: Primavera ☐ Always use Plug Days when updating Estimate from the schedule

Schedule Currency: U.S. Dollar

Cost Item Roll Up Login Options Mapping Options Resources Expense Costs Actuals Tags Activity Calendars

☒ Use these login settings: Instance: -Default- Database: pmdb User Name: admin Password: \*\*\*\*\*

☐ Use pre-defined login settings:



### 12.1.1.2 Mapping Options Tab

The Mapping Options tab contains options critical to downstream applications. It will have the following settings selected by default:

1. The **CBS Position Code** is selected as the field to populate the Primavera WBS Code and Activity ID fields.
2. The **Manage the Primavera WBS structure in InEight Estimate...** radio button is selected for the initial push from InEight Estimate to P6.
  - This means the WBS structure in Primavera will be controlled by the structure of superior and terminal cost items in InEight Estimate.
  - Selecting the other option would cause the WBS structure to be controlled in Primavera. Only terminal cost items would be sent from InEight Estimate to Primavera and all hierarchal structure (WBS Elements) would be created in Primavera manually
  - This option can be changed later, on a job-by-job basis.
3. The **Update the Project's Planned Start Date in Primavera from the Forecast Start Date** option is checked.
  - This will automatically pull the Forecast Start Date from the Job Properties > Cover Sheet tab to become the Planned Start Date in Primavera.

#### NOTE

*You should double-check to make sure the right Start Date is defined on the Job Properties > Cover Sheet tab.*

Cost Item Roll Up | Login Options | **Mapping Options** | Resources | Expense Costs | Actuals | Tags | Activity Calendars

Use the following Estimate field to populate the Primavera WBS Code and Activity ID fields:

☒ CBS Position Code

☐ Schedule ID

Updating the Primavera WBS Structure from Estimate:

☒ Manage the Primavera WBS structure in Estimate. Update Primavera WBS elements and activities with superior and terminal cost items.

☐ Manage the Primavera WBS structure in Primavera. Update Primavera activities with terminal cost items.

☐ Synchronize Schedule Relationships:

☒ From Estimate to P6

☐ From P6 to Estimate

☐ Update the Schedule ID field from Primavera WBS Codes / Activity IDs

☒ Update the Project's Planned Start Date in Primavera from the Forecast Start Date on the Cover Sheet

☐ Keep suspended cost items in the Primavera schedule (with zero values)

☐ Create Cost Items from Primavera WBS Elements/Activities

### 12.1.1.3 Resources Tab

The Resources tab dictates how resources are mapped between InEight Estimate and P6.



	Section	Name
1	Update Primavera Resources from Estimate	<p>Provides options for sending InEight Estimate resources to Primavera.</p> <ul style="list-style-type: none"> <li>Typically, you would select the <b>Update scheduled resources only</b> option to send only resources that are employed on cost items</li> <li>The <b>Update all of this job's resources</b> option updates Primavera with all of the resources in your project's Resource Rate Register</li> </ul>
2	Map Resource Types to Primavera	Specify whether your resources will import into Primavera as Resources or Roles.
3	Update Primavera Budgeted Units when using Plug Days	Allows you to specify how to handle Budgeted Units for items that use Plug Days.
4	Update Primavera Cost Accounts from Estimate Account Codes	Checking this box causes assigned account codes to import into Primavera as Cost Accounts.
5	Update Price/Unit on Primavera Resource Assignments	Checking the boxes in this section will cause the Charge Rate costs of your resources to import into Primavera along with your resources.

#### 12.1.1.4 Overview – Resources Tab

The screenshot shows the 'Resources' tab in the Primavera software interface. The tab is highlighted with a red box. Below the tab, there are several sections with numbered callouts:

- 1**: 'Update Primavera Resources from Estimate:' section. It contains three radio button options: 'Update all of this job's resources', 'Update scheduled resources only' (which is selected and highlighted with a red box), and 'Do not update Primavera resources'.
- 2**: 'Map Resource Types to Primavera:' section. It contains a list of resource types (Labor, Construction Equipment, Rented Construction Equipment, Installed Material, Installed Equipment, Supplies, Unique) each with a dropdown menu set to 'Resource'.
- 3**: 'Update Primavera Budgeted Units when using Plug Days:' section. It contains two radio button options: 'Adjust Budgeted Units to match Plug Duration' (which is selected and highlighted with a red box) and 'Maintain Budgeted Units to match (non-plug) Work Hours'.
- 4**: 'Update Primavera Cost Accounts from Estimate Account Codes:' section. It contains a checkbox labeled 'Update Primavera Cost Accounts on Resource Assignments' which is highlighted with a red box.
- 5**: 'Update Price / Unit on Primavera Resource Assignments:' section. It contains a list of resource types (Labor, Construction Equipment, Rented Construction Equipment, Installed Material, Installed Equipment, Supplies, Unique) each with a checked checkbox.



### 12.1.1.5 Expense Costs Tab

The Expense Costs tab is useful for bringing costs in from InEight Estimate that are not connected to resources, for example, your plugged and/or quoted cost items. This tab is optional, and it is not required to make selections here.

OverviewSecurityCover SheetCost BasisMinority SetupFuel CostJob TrackingJob Folder TagsCompetitorsPricingScheduleCash Flow

Integrated Schedule: Primavera

☐ Always use Plug Days when updating Estimate from the schedule

Schedule Currency: U.S. Dollar

Cost Item Roll UpLogin OptionsMapping OptionsResourcesExpense CostsActualsTagsActivity Calendars

☒ Update Primavera Expense Costs from Estimate

Cost Category	Primavera Expense Category
Labor:	HD01 Labor
Owned Equipment:	HD02 Owned Equipment
Rented Equipment:	HD03 Rented Equipment
Supplies:	HD04 Supplies
Materials:	HD05 Materials
Subcontract:	HD06 Subcontract
Fees:	HD07 Fees
Allowance:	HD08 Allowance
Custom Category1:	HD09 Custom Category1
Undefined:	HD10 Undefined

### 12.1.2 Schedule Cost Items

Before you can integrate with Primavera, your cost items need to be marked as Scheduled in InEight Estimate. This is done on the Cost Breakdown Structure (CBS) Register. From your Saved Views drop-down list in the CBS, the Schedule Setup View displays all of your schedule-related columns. There are a couple to keep in mind when you schedule your items:

- **Scheduled:** This column tells you which of your items are selected to be included in your Primavera schedule
- **Roll Up Schedule:** This column lets you check a box to roll up your estimate to the selected level when it imports into Primavera

In the below example, notice that all of the cost items are scheduled, but the subordinates for Unclassified Excavation will be rolled up to the superior level.




Cost Breakdown Structure (CBS) Register							Quote Register	Quote Comparison & Award - Cost items		
Drag columns here to group										
	CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Sched... ID	Scheduled	Currency	
→	+ 7.1	Furnish 10 Inch PVC Materials	12,000.00	Linear Feet	\$13.23	\$158,760.00	HD.0000031	<input checked="" type="checkbox"/>	U.S. Dollar	
	+ 7.2	Excavate-Install-Backfill 10 Inch PVC	12,000.00	Linear Feet	\$9.28	\$111,403.37	HD.0000032	<input checked="" type="checkbox"/>	U.S. Dollar	
	8	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	Linear Feet	\$52.82	\$158,461.37	HD.0000033	<input checked="" type="checkbox"/>	U.S. Dollar	
	8.1	Excavate 24 Inch PVC	3,000.00	Linear Feet	\$3.00	\$9,005.49	HD.0000034	<input checked="" type="checkbox"/>	U.S. Dollar	
	+ 8.1.1	Excavate 24 Inch PVC 0-6 ft Depth	1,390.00	Cubic Yard	\$1.95	\$2,712.05	HD.0000035	<input checked="" type="checkbox"/>	U.S. Dollar	
	+ 8.1.2	Excavate 24 Inch PVC 6-10 ft Depth	3,610.00	Cubic Yard	\$1.74	\$6,293.44	HD.0000036	<input checked="" type="checkbox"/>	U.S. Dollar	
	+ 8.2	Furnish & Install 24 Inch PVC	3,000.00	Linear Feet	\$36.08	\$108,232.54	HD.0000037	<input checked="" type="checkbox"/>	U.S. Dollar	
	+ 8.3	Backfill 24 Inch PVC	4,520.00	Cubic Yard	\$9.12	\$41,223.34	HD.0000038	<input checked="" type="checkbox"/>	U.S. Dollar	
	9	4 Foot Diameter Manhole	16.00	Each	\$3,594.03	\$57,504.47	HD.0000039	<input checked="" type="checkbox"/>	U.S. Dollar	
	+ 9.1	Furnish 4 ft Manhole Materials	16.00	Each	\$2,001.50	\$32,024.00	HD.0000040	<input checked="" type="checkbox"/>	U.S. Dollar	

The following steps walk you through scheduling your cost items.

## Step by Step — Schedule a Cost Item in InEight Estimate

1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. In the Saved Views drop-down list, select **Schedule Setup View**.

Saved views: Schedule Setup View 

- In the Scheduled column, you can select the checkbox for each cost item that you want to schedule
  - If a cost item has subordinate cost items below it, you will only be able to check the superior cost item, which will automatically schedule the subordinate cost items along with it
3. Select the **Mobilization, Clearing & Grubbing**, and **Unclassified Excavation** cost items, then press **Tab**.



CBS Position Code	Description	Scheduled	Roll Up Schedule
	<b>JOB</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+	<b>Prime Bond</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Price % Add-On</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Job Financing</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Indirect Cost Escalation</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Direct Cost Escalation</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Indirect Cost Add-On</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Job Management &amp; Equipment</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>General Expense</b>	<input type="checkbox"/>	<input type="checkbox"/>
+	<b>Direct Cost Add-On</b>	<input type="checkbox"/>	<input type="checkbox"/>
+ 1	<b>Mobilization</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	<b>Clearing &amp; Grubbing</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3	<b>Unclassified Excavation</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.1	Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4	<b>Aggregate Base</b>	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input type="checkbox"/>	<input type="checkbox"/>

## Step by Step — Schedule a Group of Cost Items in InEight Estimate

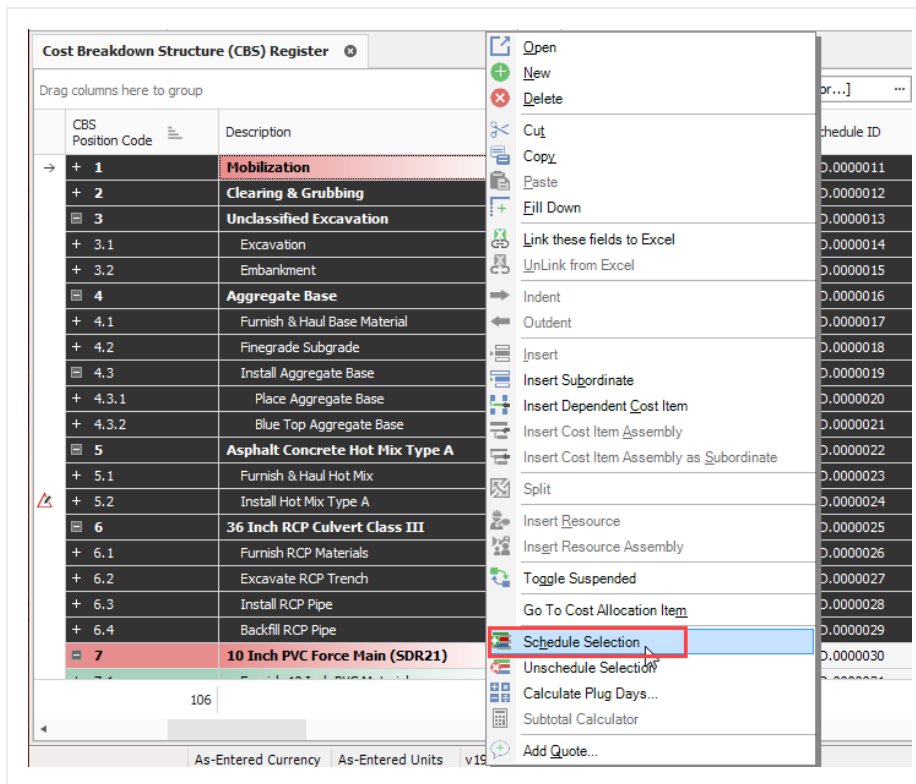
1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
  - To schedule multiple cost items, you can highlight the row for each cost item that you want to schedule, using the Shift and Ctrl keys to select multiple rows.
3. Select additional cost items **4-Aggregate base**, **5- Asphalt Concrete Hot Mix**, and **6- 36-inch RCP Culvert Class**.

### TIP

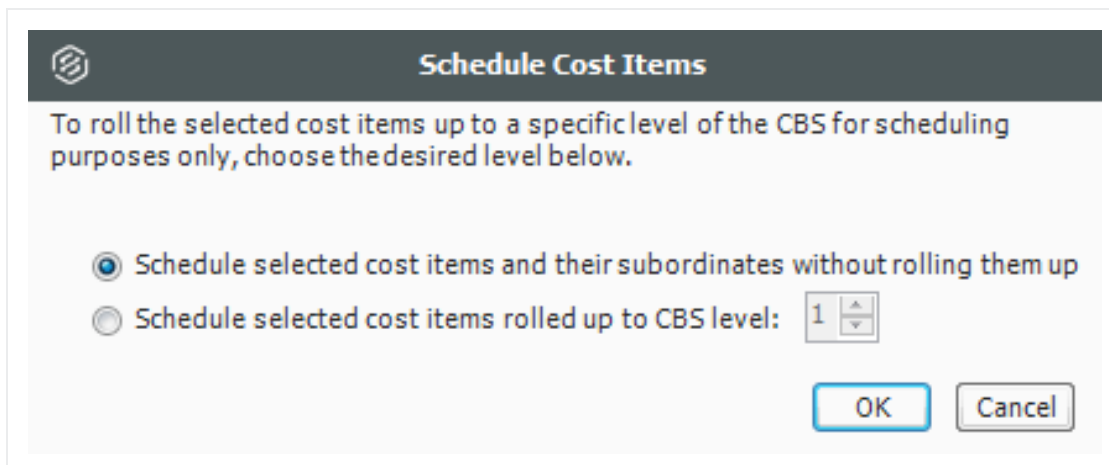
To schedule all cost items, highlight the JOB row.

4. Right click on the selected rows and select **Schedule Selection**.





- On the Schedule Cost Items dialog, you can select whether or not you want to roll up the selected cost items to a specific level of the CBS for scheduling purposes
5. Select **Schedule selected cost items and their subordinates without rolling them up**, then click **OK**.





- Your scheduled cost items will import into Primavera the next time you update Primavera from InEight Estimate.

### 12.1.2.6 Roll Up Schedule

For cost item 3 – Unclassified Excavation, your scheduler does not need all of your estimate details and wants to roll up your cost items to a higher level when they import into the Primavera schedule.

Follow the steps below to learn how to roll up your cost items for the schedule.

#### Step by Step — Roll Up Schedule

1. In the **Training Job**, from the Estimate tab select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
  - Review your cost items to decide which cost items need to be rolled up
3. Select the **Roll Up Schedule** checkbox on the Unclassified Excavation cost item.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+ 3.1	Excavation	<input type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input type="checkbox"/>	<input type="checkbox"/>
▣ 4	Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>
▣ 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.1	Place Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.2	Blue Top Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 12.1.3 Update Primavera from InEight Estimate

Now that you have set up your Primavera options in Job Properties and scheduled your cost items in the CBS, you are ready to send your project information to Primavera.



When you first update Primavera from InEight Estimate, Primavera will create a new project automatically and load it with the following information from InEight Estimate:

Data Sent from InEight Estimate to Primavera		
Data Type	InEight Estimate	Primavera
Project Data	Job Code	Project ID
	Job Description	Project Name
Activity Data	CBS Position Code//Schedule ID	WBS Code / Activity ID
	Description	WBS Element / Activity Name
	Hours	Planned Duration (Hours)
	Shift and Rate Rules	Activity Calendar
	Cost Item Tags and UDFs	Activity Codes or UDFs
	Cost Category Total Cost	Cost Category (custom text columns)
Resource Data	Resource Code	Resource ID
	Resource Description	Resource Name
Cost Data	Resource Cost / Unit	Resource Price / Unit
	Cost Category Total Cost	Expense Category Budgeted Cost

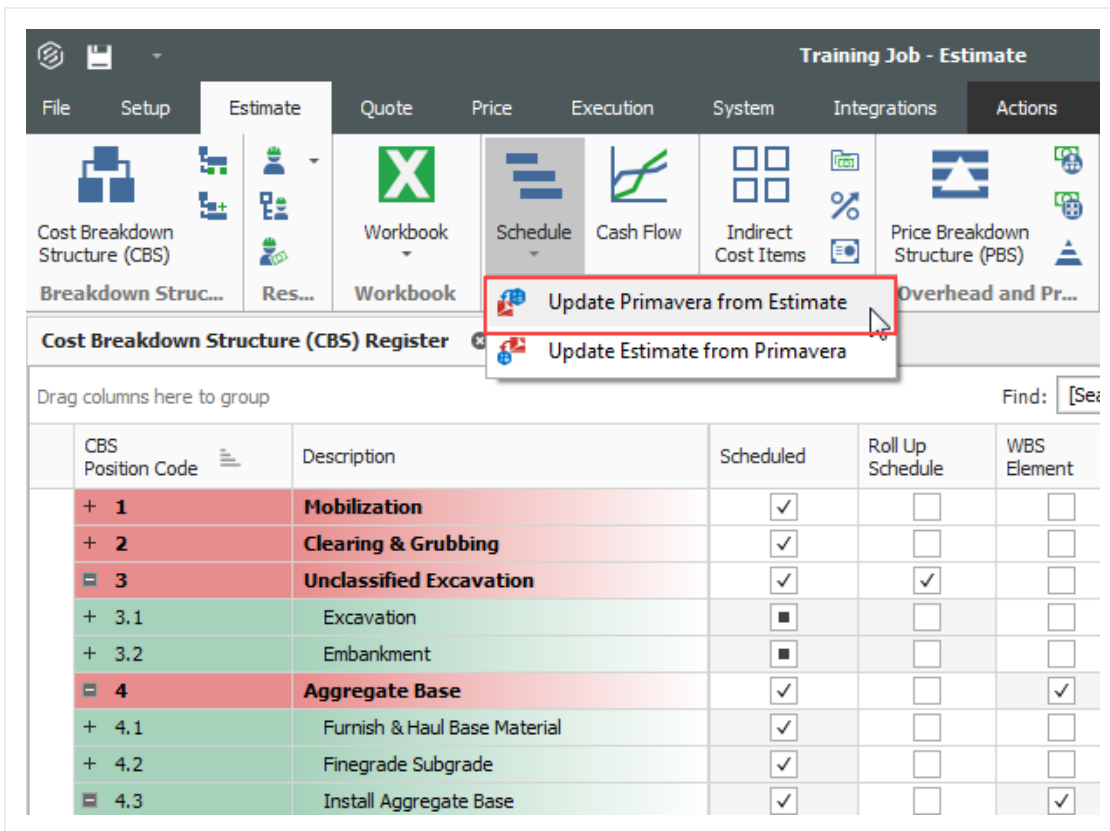
**NOTE** Tags, resource data, and cost data only update in Primavera if selected in the Job Properties > Schedule settings.

The following steps walk you through updating Primavera from InEight Estimate to create a new schedule.



## Step by Step — Update Primavera from InEight Estimate

1. From the Estimate tab, select **Schedule>Update Primavera from InEight Estimate**.

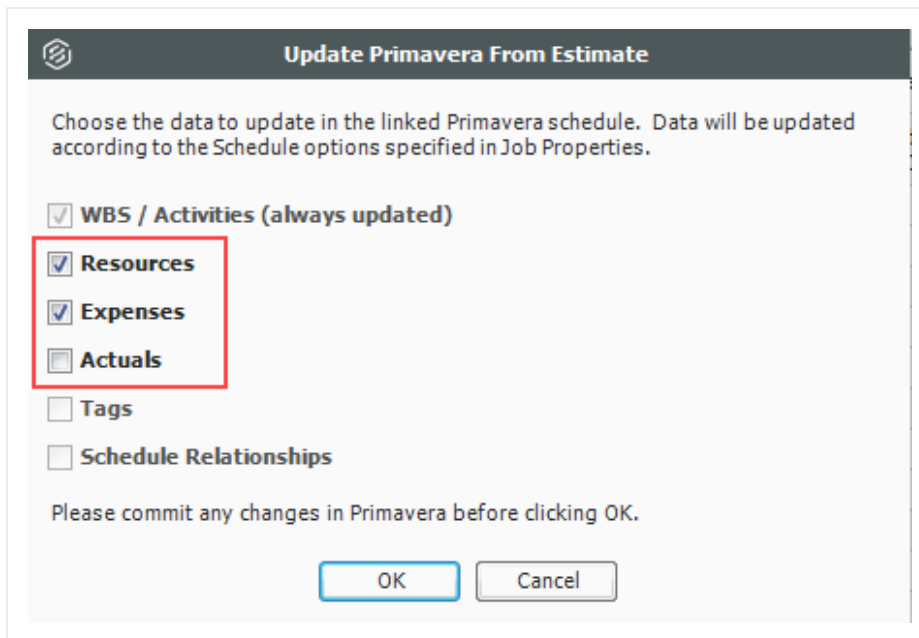


The screenshot shows the Primavera software interface with the 'Estimate' tab selected. The 'Schedule' menu option is highlighted, and a dropdown menu is visible with two options: 'Update Primavera from Estimate' and 'Update Estimate from Primavera'. The 'Update Primavera from Estimate' option is selected.

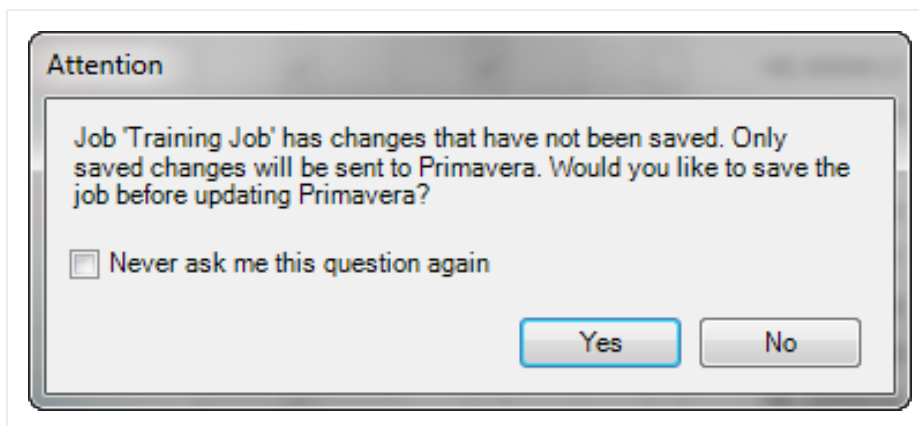
CBS Position Code	Description	Scheduled	Roll Up Schedule	WBS Element
+ 1	Mobilization	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+ 2	Clearing & Grubbing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 3	Unclassified Excavation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.1	Excavation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 4	Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- The Update Primavera From Estimate dialog prompts you to indicate what data to update to Primavera
2. Make sure **Resources** and **Expenses** are checked. Deselect **Actuals** (For Job Tracking purposes) if auto selected, then click **OK**.



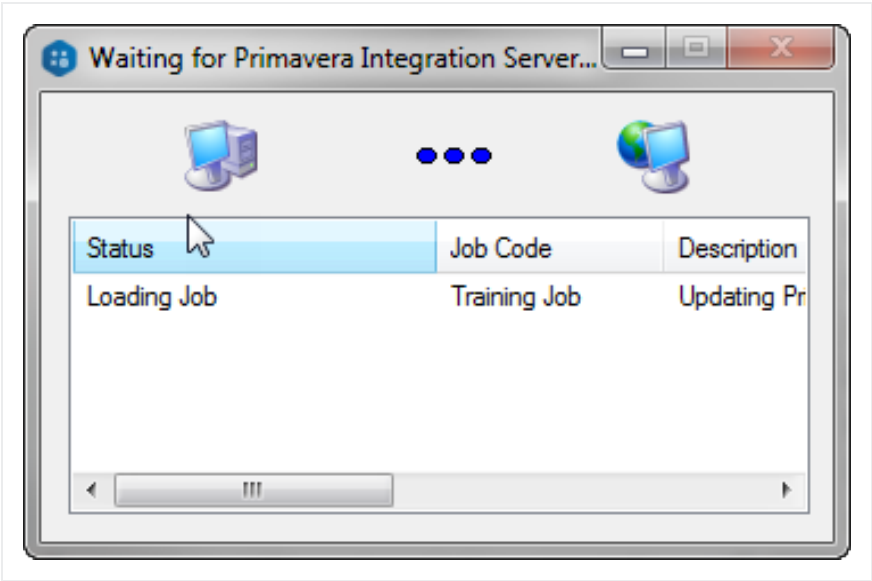


- An Attention prompt appears, letting you know that the job has not been saved.
3. Click **Yes** to save the job before updating Primavera.



- A window appears that shows the progress of the data sync between InEight Estimate and Primavera. Depending on the size of the job, this can take several minutes



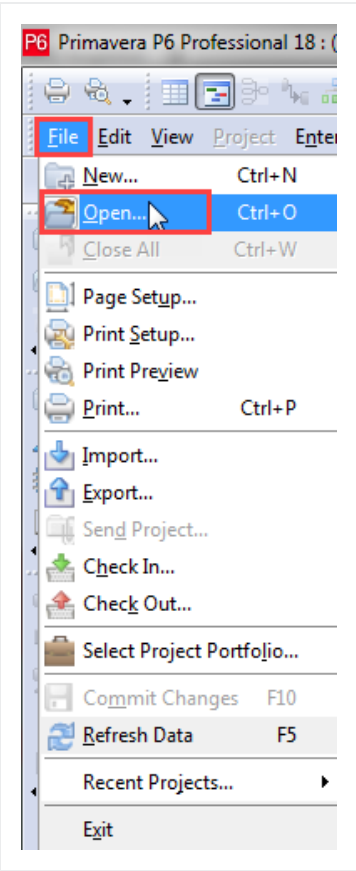


- When the window disappears, the update is complete
4. Open Primavera P6 (Project Management) client.
  5. Log in to Primavera, using the same Username and Password that was entered on the Schedule > Login Options tab in InEight Estimate Job Properties.

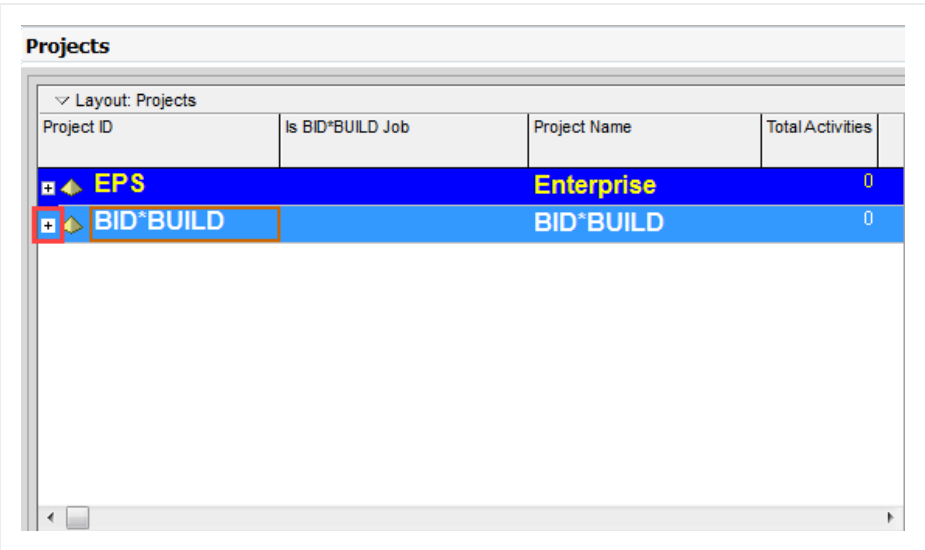


6. In Primavera, open the project.





7. In the Open Project dialog, expand the **BID\*BUILD** folder.



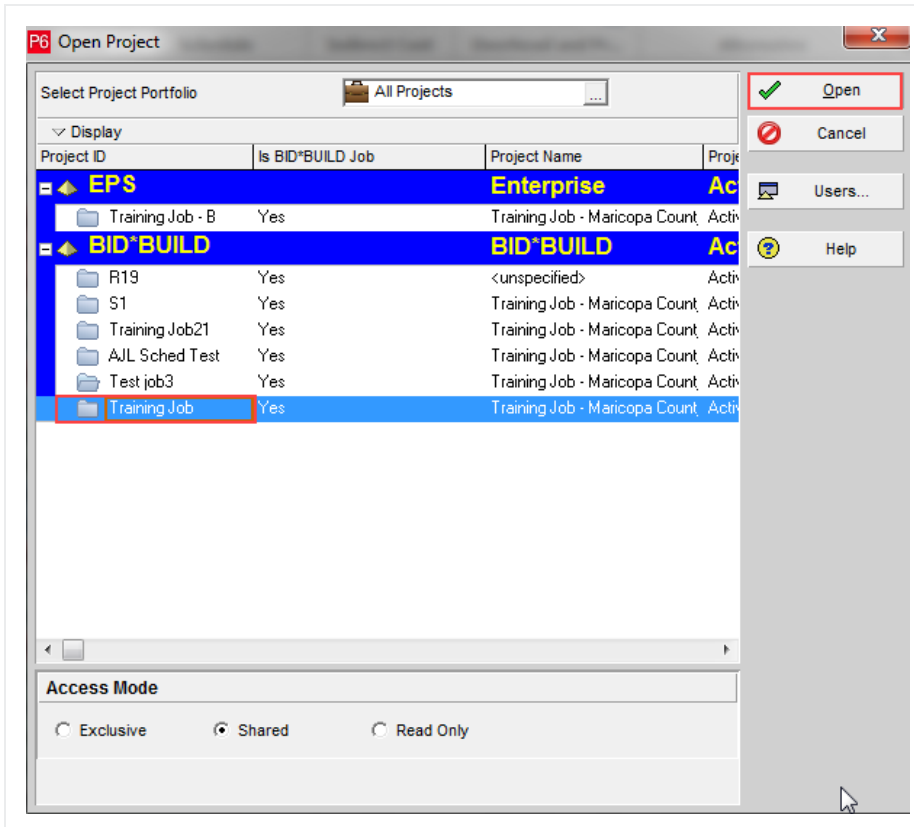


**NOTE**

All projects created from InEight Estimate are created in the BID\*BUILD folder by default.

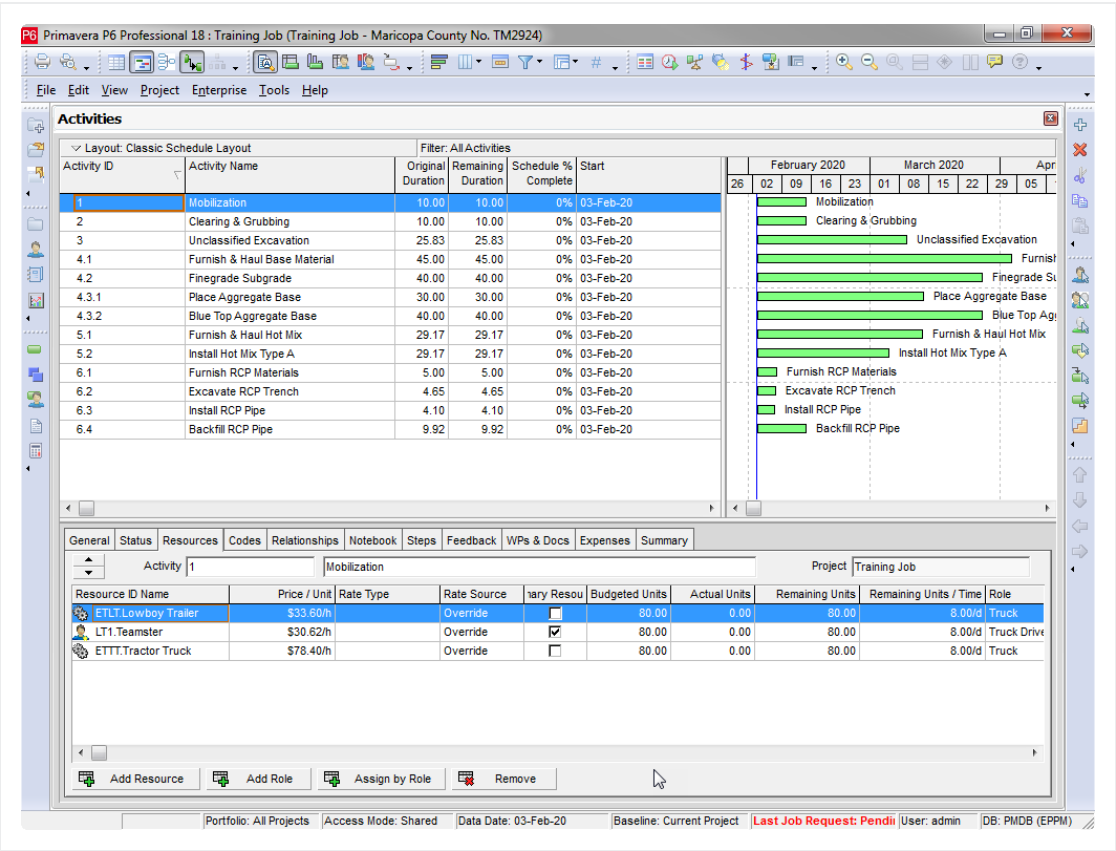
- Your available projects are sorted by their job names.

8. Select the **Training Job** (with your initials) so that it is highlighted, and then select **Open**.



- The WBS Layout displays for the project. You can see the breakdown structure imported from InEight Estimate with durations, rolled up as specified by the Roll Up Schedule option in InEight Estimate
  - Initially, the start date for your activities is the start date defined on the Job Properties > Cover Sheet tab (these will change as activity relationships are defined)
9. Select the **Resources** tab to see the resources that imported for each activity, with their associated costs.





12.1.4 Update InEight Estimate from Primavera

You can also bring information back from Primavera into InEight Estimate. When you update InEight Estimate from Primavera, the following information updates:

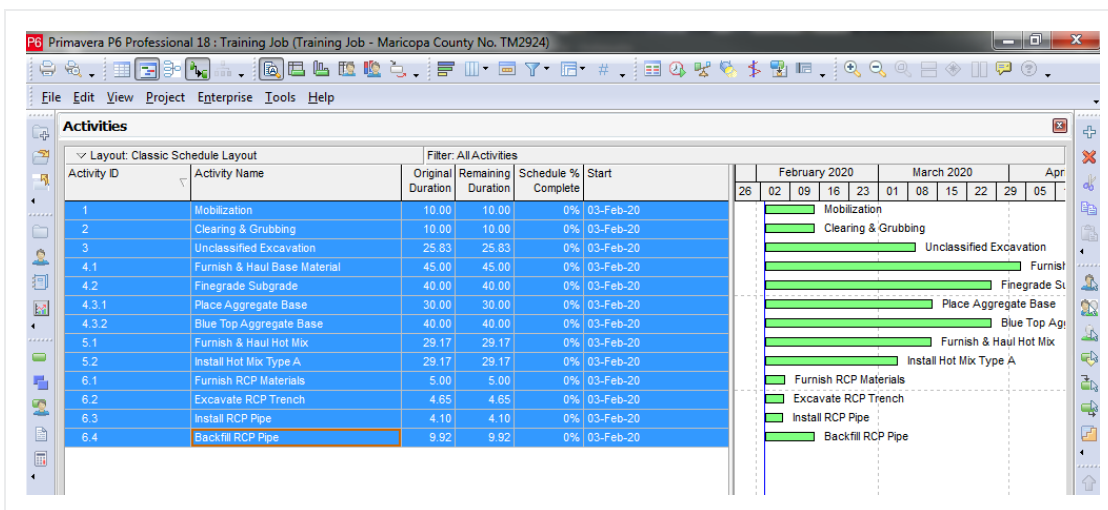
Update InEight Estimate from Primavera		
Data Type	Primavera	InEight Estimate
Activity Data	Start Dates	Start Dates
	Finish Dates	Finish Dates
	Relationships	Schedule Relationships
	Hours	Plugged Days



Complete the following steps to practice updating InEight Estimate from Primavera. You will create a scheduling relationship in Primavera, and then import the updated dates and relationships into InEight Estimate.

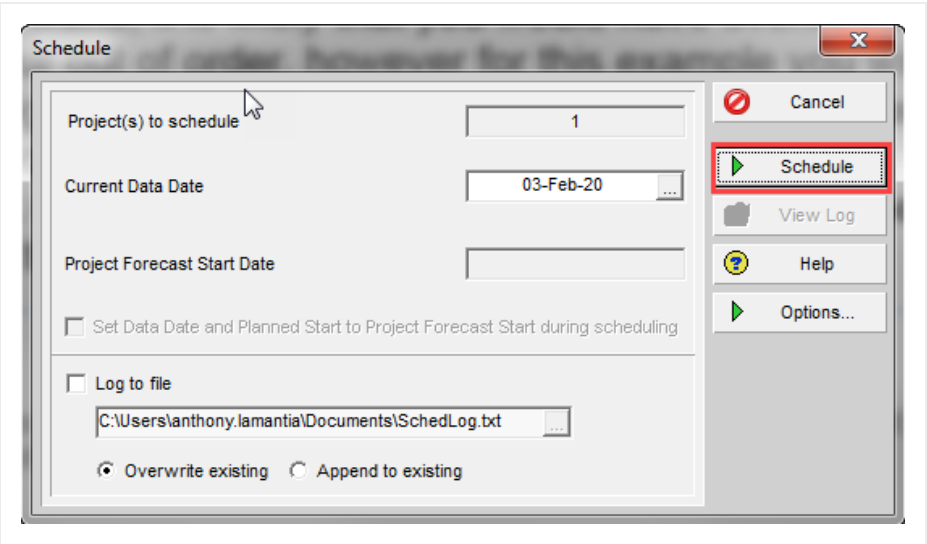
## Step by Step — Update InEight Estimate from Primavera

1. Open your version of the **Training Job** project in Primavera.
  - In the real world, it is likely that you would have overlapping activities, or your activities would occur out of order, however for this example you will link all activities from finish to start
2. Highlight all of your activities from **1-Mobilization** through **6.4-Backfill RCP Pipe**.

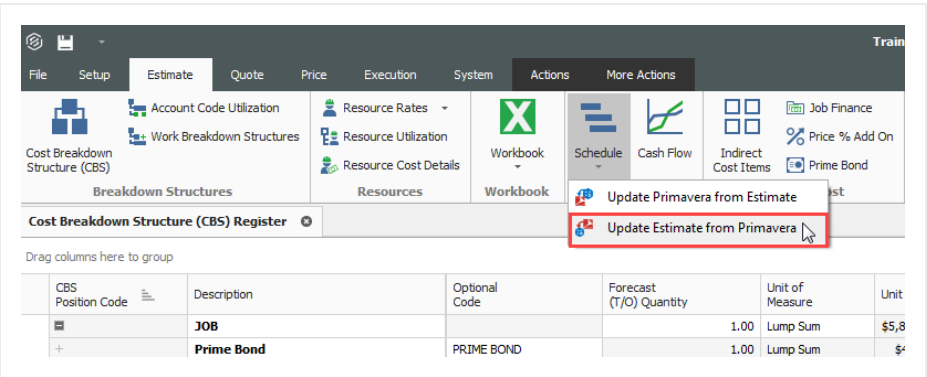


3. Right click on one of the selected rows and select **Link Selected Activities** to create the Finish to Start relationship.
  - You may have to select the Relationship Lines button to show the linked activities in the graph on the right side of the screen.
4. To schedule this new relationship, select the **Schedule** button (or press the **F9** key).
5. On the Schedule Project window, keep the default settings and select the **Schedule** button.





- 6. To update InEight Estimate with this change, go back to InEight Estimate and select **Estimate** tab.
- 7. Select **Schedule>Update Estimate from Primavera**.



- 8. On the Update InEight Estimate from Primavera prompt, keep the default **Update the estimate to stay in synch with the schedule** selected, then click **OK**.



**Update Estimate from Primavera**

This will update the cost items in this job with schedule dates, durations and descriptions from Primavera. This may change the duration of these cost items, which could affect their cost. Changes made to Resource or Cost data in Primavera will NOT affect Estimate. How do you wish to proceed?

☒ **Update the estimate to stay in synch with the schedule.**  
 Change the estimated work hours for all hourly resources employed on these cost items to reflect the new durations (this will change the cost item's cost).

☐ **Do NOT update the estimate.**  
 Instead, schedule these cost items using Plug Days. (Note: you can toggle the schedule between Plug Days and Estimated Days for each cost item directly in the Job's CBS.)

☐ Never ask me this question again

9. On the Schedule Setup View, you can see the Start and Finish dates updated from Primavera.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
	<b>JOB</b>	2/3/2020	2/23/2021	2/3/2020	2/23/2021	2/3/2020	2/23/2021
+	<b>Prime Bond</b>						
+	<b>Price % Add-On</b>						
+	<b>Job Financing</b>						
+	<b>Indirect Cost Escalation</b>						
+	<b>Direct Cost Escalation</b>						
+	<b>Indirect Cost Add-On</b>						
+	<b>Job Management &amp; Equipment</b>						
+	<b>General Expense</b>						
+	<b>Direct Cost Add-On</b>						
+ 1	<b>Mobilization</b>	2/3/2020	2/14/2020	2/3/2020	2/14/2020	2/3/2020	2/14/2020
+ 2	<b>Clearing &amp; Grubbing</b>	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	2/28/2020
3	<b>Unclassified Excavation</b>	3/2/2020	4/6/2020	3/2/2020	4/6/2020	3/2/2020	4/6/2020
+ 3.1	Excavation	3/2/2020	4/6/2020	3/2/2020	4/6/2020	3/2/2020	4/6/2020
+ 3.2	Embankment	3/2/2020	4/6/2020	3/2/2020	4/6/2020	3/2/2020	4/6/2020
4	<b>Aggregate Base</b>	4/6/2020	11/9/2020	4/6/2020	11/9/2020	4/6/2020	11/9/2020
+ 4.1	Furnish & Haul Base Material	4/6/2020	6/8/2020	4/6/2020	6/8/2020	4/6/2020	6/8/2020
+ 4.2	Finegrade Subgrade	6/8/2020	8/3/2020	6/8/2020	8/3/2020	6/8/2020	8/3/2020
4.3	Install Aggregate Base	8/3/2020	11/9/2020	8/3/2020	11/9/2020	8/3/2020	11/9/2020
+ 4.3.1	Place Aggregate Base	8/3/2020	9/14/2020	8/3/2020	9/14/2020	8/3/2020	9/14/2020



## 12.1.5 Manage Changes Between Estimate and Schedule

As changes to scope, resources, and costs come up in your estimate, and changes to relationships and dates occur in the schedule, you can continue updating your estimate and schedule as needed.

### 12.1.5.7 Plug Days

The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab.

For example, your 10" PVC Pipe activity may have extra days in the schedule due to the delivery date of the pipe material, but you don't want those extra days to drive the costs in your estimate, since your crews won't be working on the activity on those extra days.

**NOTE** All superior cost items are hard-coded to use Schedule Plug Days.

### Step by Step — Schedule Plug Days

1. Look at the Days (Duration driven) column in the CBS where it shows 4.65 days for Excavate-Install-Backfill Pipe.
2. Make sure the **Schedule Plug Days** checkbox is selected on the **Excavate-Install-Backfill Pipe** cost item, then enter a Plug Days duration for the number of days the item will be scheduled in Primavera (**7** days).

CBS Position Code	Description	Days (Duration driven)	Schedule Plug Days	Plug Days
6	36 Inch RCP Culvert Class III	18.66	<input checked="" type="checkbox"/>	26.01
+ 6.1	Furnish RCP Materials	0.00	<input checked="" type="checkbox"/>	5.00
+ 6.2	Excavate RCP Trench	4.65	<input checked="" type="checkbox"/>	7.00
+ 6.3	Install RCP Pipe	4.10	<input type="checkbox"/>	4.10
+ 6.4	Backfill RCP Pipe	9.92	<input type="checkbox"/>	9.92

- This allows you to maintain your duration of 4.65 days in the estimate and 7 days in the schedule.

### 12.1.5.8 Update Primavera with InEight Estimate Changes

The following steps will walk you through updating the schedule with a scope change in your estimate.

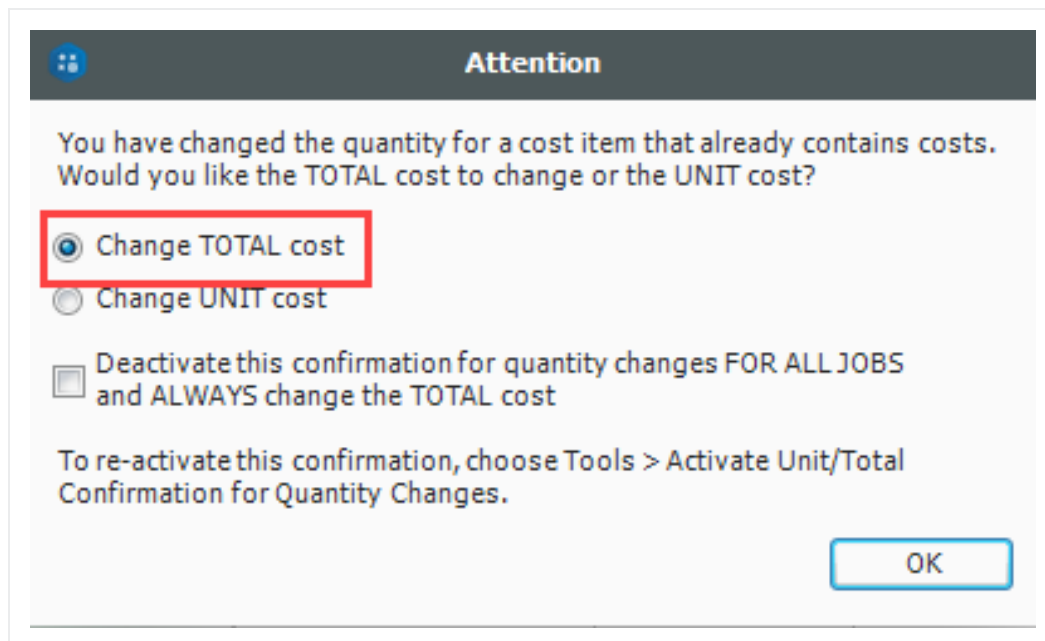


## Step by Step — Update Primavera with InEight Estimate Changes

1. In the **Training Job** from the Estimate tab, select **Cost Breakdown Structure**.
  - In this scenario, there is a scope change for your Excavation requiring you to change all of your quantities
2. Change the quantity in the Forecast (T/O) Quantity field in the CBS as specified below:

Quantity Change for Cost Item			
CBS Code	Description	Old Quantity	New Quantity
5	Asphalt Concrete Hot Mix Type A	35,000	25,000

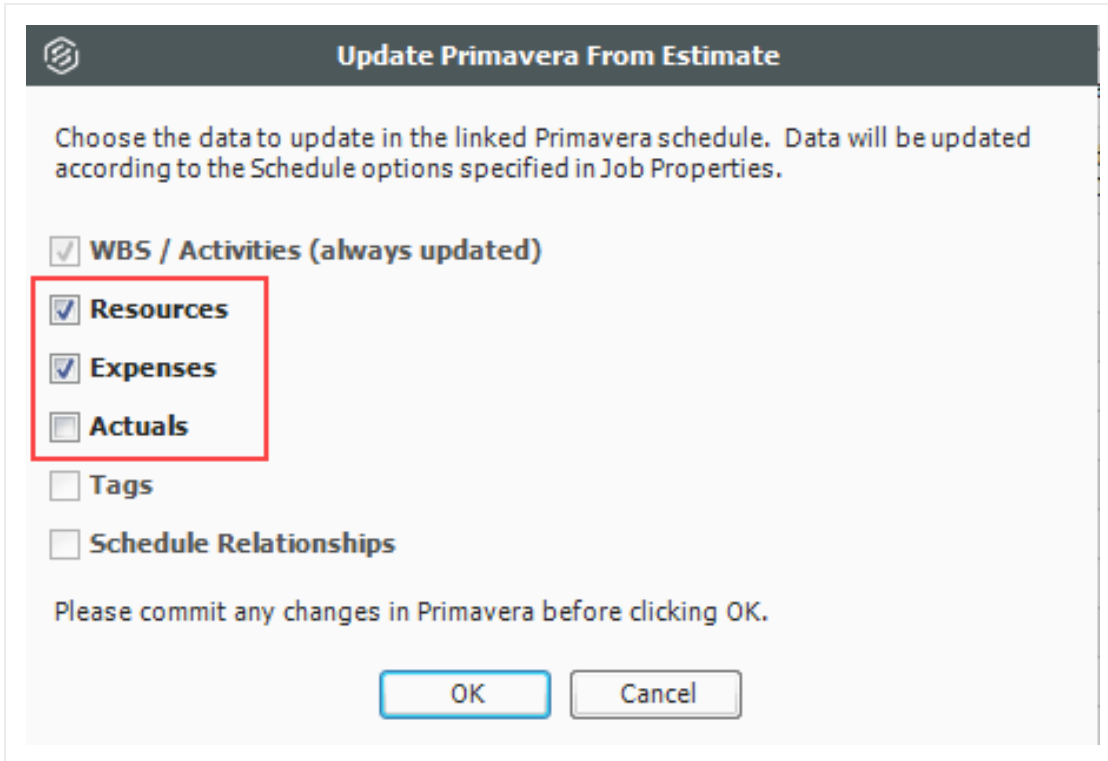
- As you make your changes, take note of how your duration changes in the Days (Duration driven) column for these items
- If prompted about changing Total or Unit Cost, select **Change TOTAL cost**, so that your unit costs stay intact, then click **OK**.



3. From the Estimate tab, select **Schedule>Update Primavera from InEight Estimate** to send the changed hours to Primavera.



- The Update Primavera From InEight Estimate dialog prompts you to indicate what data to update to Primavera
4. Make sure Resources and Expenses are checked, then select **OK**.



**Update Primavera From Estimate**

Choose the data to update in the linked Primavera schedule. Data will be updated according to the Schedule options specified in Job Properties.

☒ **WBS / Activities (always updated)**

☒ **Resources**

☒ **Expenses**

☐ **Actuals**

☐ **Tags**

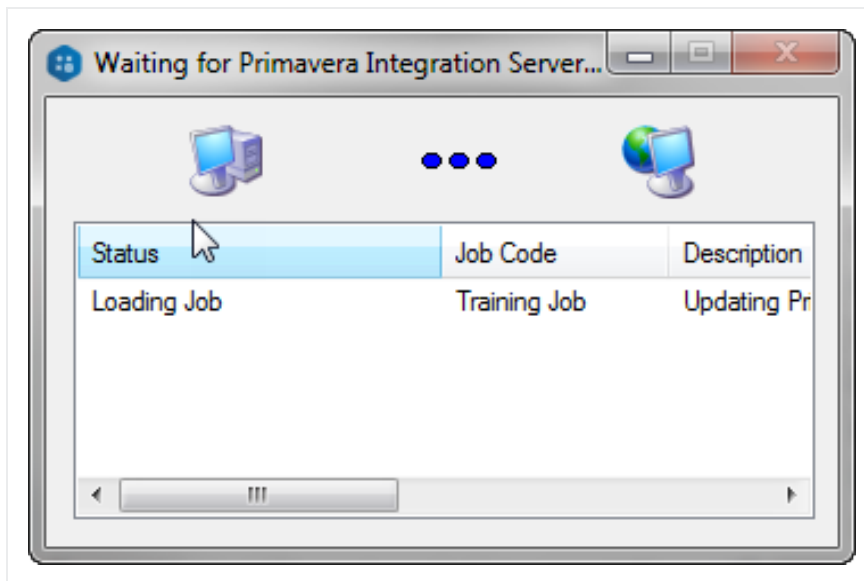
☐ **Schedule Relationships**

Please commit any changes in Primavera before clicking OK.

**OK** **Cancel**

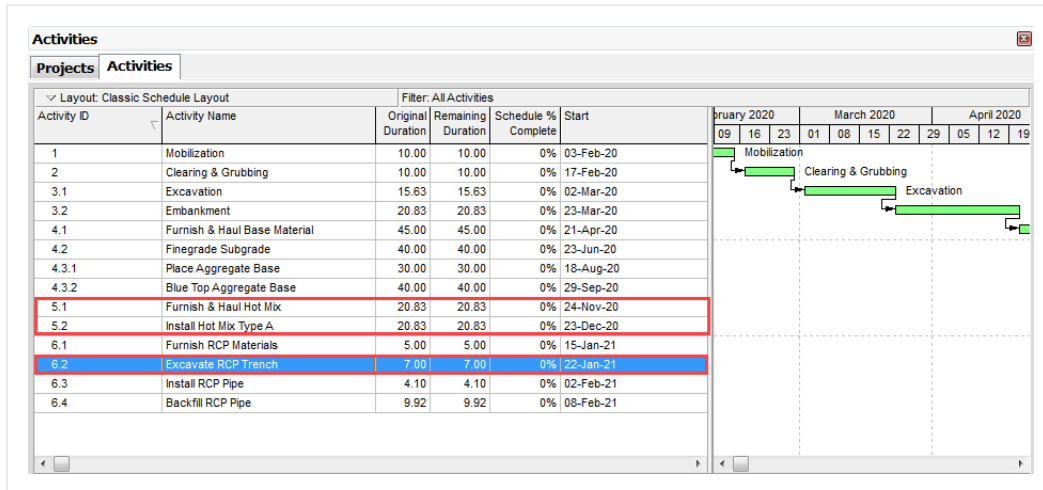
- A window appears that shows the progress of the data sync between InEight Estimate and Primavera. Depending on the size of the job, this can take a few minutes





- When the window disappears, the update is complete
5. Open Primavera (P6 Web Client).
  6. Open the **Training Job** project.
  7. On the Activities screen, compare the Planned Duration to the Days (Duration driven) in InEight Estimate for Excavate-Install-Backfill Pipe.
    - The Primavera scheduled duration should have changed from 4.65 days to 7 days to match the updated duration in InEight Estimate for Excavate-Install-Backfill Pipe
    - You will also notice a change in days for Excavation after changing the T/O Quantity in InEight Estimate





8. To schedule this change in Primavera, select the **Schedule** button (or press the **F9** key) and select the **Schedule** button on the Schedule Project window.
9. Your start and finish dates are different now. In InEight Estimate, from the Estimate tab, select **Schedule>Update InEight Estimate from Primavera** to update InEight Estimate with the new dates.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
+ 1	Mobilization	2/3/2020	2/14/2020	2/3/2020	2/14/2020	2/3/2020	2/17/2020
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	3/2/2020
3	Unclassified Excavation	3/2/2020	4/21/2020	3/2/2020	4/21/2020	3/2/2020	4/21/2020
+ 3.1	Excavation	3/2/2020	3/23/2020	3/2/2020	3/23/2020	3/2/2020	3/23/2020
+ 3.2	Embankment	3/23/2020	4/21/2020	3/23/2020	4/21/2020	3/23/2020	4/21/2020
4	Aggregate Base	4/21/2020	11/24/2020	4/21/2020	11/24/2020	4/21/2020	11/24/2020
+ 4.1	Furnish & Haul Base Material	4/21/2020	6/23/2020	4/21/2020	6/23/2020	4/21/2020	6/23/2020
+ 4.2	Finegrade Subgrade	6/23/2020	8/18/2020	6/23/2020	8/18/2020	6/23/2020	8/18/2020
4.3	Install Aggregate Base	8/18/2020	11/24/2020	8/18/2020	11/24/2020	8/18/2020	11/24/2020
+ 4.3.1	Place Aggregate Base	8/18/2020	9/29/2020	8/18/2020	9/29/2020	8/18/2020	9/29/2020
+ 4.3.2	Blue Top Aggregate Base	9/29/2020	11/24/2020	9/29/2020	11/24/2020	9/29/2020	11/24/2020
5	Asphalt Concrete Hot Mix Type A	11/24/2020	1/14/2021	11/24/2020	1/14/2021	11/24/2020	1/15/2021
+ 5.1	Furnish & Haul Hot Mix	11/24/2020	12/23/2020	11/24/2020	12/23/2020	11/24/2020	12/23/2020
+ 5.2	Install Hot Mix Type A	12/23/2020	1/14/2021	12/23/2020	1/14/2021	12/23/2020	1/15/2021
6	36 Inch RCP Culvert Class III	1/15/2021	2/22/2021	1/15/2021	2/22/2021	1/15/2021	2/22/2021
+ 6.1	Furnish RCP Materials	1/15/2021	1/21/2021	1/15/2021	1/21/2021	1/15/2021	1/21/2021
+ 6.2	Excavate RCP Trench	1/22/2021	2/1/2021	1/22/2021	2/1/2021	1/22/2021	2/1/2021
+ 6.3	Install RCP Pipe	2/2/2021	2/8/2021	2/2/2021	2/8/2021	2/2/2021	2/8/2021
+ 6.4	Backfill RCP Pipe	2/8/2021	2/22/2021	2/8/2021	2/22/2021	2/8/2021	2/22/2021



## Exercise 12.1 — Manage Changes Between Estimate and Primavera

As changes occur during the estimating process, you can keep the estimate and schedule in sync through schedule integration. In this exercise, you will practice making changes between the estimate and schedule. Complete the following steps:

1. Open the **Training Job** and open the **CBS Register**.  
\_\_\_\_\_
2. Check the box in the Schedule Plug Days column for the Install RCP Pipe.  
\_\_\_\_\_
3. Change the Plug Days for Install RCP Pipe to **8 days**.  
\_\_\_\_\_
4. Update Primavera from InEight Estimate.  
\_\_\_\_\_
5. Open the Training Job project in Primavera and confirm the Planned Duration (you may need to change your view to see this column) changed to 8 days.  
\_\_\_\_\_
6. In Primavera, change the Planned Duration for Backfill RCP Pipe to **12 days**.  
\_\_\_\_\_
7. Schedule the changes in Primavera (Schedule button or F9).  
\_\_\_\_\_
8. Update InEight Estimate from Primavera.  
\_\_\_\_\_

## You should end up with the following results

Cost item 6.3 Install RCP Pipe is now showing 8 Plug days in Primavera.



Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish
1	Mobilization	10.00	10.00	0%	03-Feb-20	14-Feb-20
2	Clearing & Grubbing	10.00	10.00	0%	17-Feb-20	28-Feb-20
3.1	Excavation	15.63	15.63	0%	02-Mar-20	23-Mar-20
3.2	Embankment	20.83	20.83	0%	23-Mar-20	21-Apr-20
4.1	Furnish & Haul Base Material	45.00	45.00	0%	21-Apr-20	23-Jun-20
4.2	Finegrade Subgrade	40.00	40.00	0%	23-Jun-20	18-Aug-20
4.3.1	Place Aggregate Base	30.00	30.00	0%	18-Aug-20	29-Sep-20
4.3.2	Blue Top Aggregate Base	40.00	40.00	0%	29-Sep-20	24-Nov-20
5.1	Furnish & Haul Hot Mix	20.83	20.83	0%	24-Nov-20	23-Dec-20
5.2	Install Hot Mix Type A	20.83	20.83	0%	23-Dec-20	14-Jan-21
6.1	Furnish RCP Materials	5.00	5.00	0%	15-Jan-21	21-Jan-21
6.2	Excavate RCP Trench	7.00	7.00	0%	22-Jan-21	01-Feb-21
6.3	Install RCP Pipe	8.00	8.00	0%	02-Feb-21	11-Feb-21
6.4	Backfill RCP Pipe	9.92	9.92	0%	08-Feb-21	22-Feb-21

Cost item 6.4 Backfill RCP Pipe should have 12 plug days in InEight Estimate.

CBS Position Code	Description	Days (Duration driven)	Schedule Plug Days	Plug Days	Start	Finish
<b>6</b>	<b>36 Inch RCP Culvert Class III</b>	18.66	<input checked="" type="checkbox"/>	46.00	1/15/2021	3/1/2021
+ 6.1	Furnish RCP Materials	0.00	<input checked="" type="checkbox"/>	5.00	1/15/2021	1/21/2021
+ 6.2	Excavate RCP Trench	4.65	<input checked="" type="checkbox"/>	7.00	1/22/2021	2/1/2021
+ 6.3	Install RCP Pipe	4.10	<input checked="" type="checkbox"/>	8.00	2/2/2021	2/11/2021
+ 6.4	Backfill RCP Pipe	9.92	<input checked="" type="checkbox"/>	12.00	2/12/2021	3/1/2021

**Congratulations, you have completed this exercise!**



## 12.2 MICROSOFT PROJECT

### 12.2.1 Set Up Scheduling Options

Prior to sending information from InEight Estimate to Microsoft Project, you need to make sure the proper settings are in place.

#### 12.2.1.1 Job Properties Schedule Tab

Microsoft Project scheduling options are configured on the Schedule tab of the Job Properties form.

- At the top of the Schedule tab, the Integrated Schedule must be set to **Microsoft Project**
- As a default, the **Always use Plug Days when updating InEight Estimate from the schedule** checkbox is not selected (on a job by job basis, this box can be checked later for jobs in which an estimator does not want updates from Microsoft Project to change the duration and therefore the cost of your cost items in InEight Estimate)

**Job Properties** ⓘ

Overview Security Cover Sheet Cost Basis Minority Setup Fuel Cost Job Tracking Job Folder Tags Competitors Pricing **Schedule** Cash Flow Equipment

Integrated Schedule: Microsoft Project ☐ Always use Plug Days when updating Estimate from the schedule

Schedule Currency: U.S. Dollar

Cost Item Roll Up

☐ Automatically calculate Plug Days when rolling up cost items for scheduling purposes

☒ Longest scheduled days among all rolled up cost items

☐ Total scheduled days for all rolled up cost items

Note: When rolling up cost items for scheduling purposes, the Plug Days of the superior cost item will be recalculated when a change is made to the scheduled days of a subordinate.

To force immediate recalculation of Plug Days for superior cost items, use the 'Recalculate Plug Days' button or the 'Calculate Plug Days...' command on the 'Tools' menu in the CBS Register.

Recalculate Plug Days

### 12.2.2 Schedule Cost Items

Before you can integrate with Primavera, your cost items need to be marked as Scheduled in InEight Estimate. This is done on the Cost Breakdown Structure (CBS) Register. From your Saved Views drop-down list in the CBS, the Schedule Setup View displays all of your schedule-related columns. There are a couple to keep in mind when you schedule your items:



- **Scheduled:** This column tells you which of your items are selected to be included in your Primavera schedule
- **Roll Up Schedule:** This column lets you check a box to roll up your estimate to the selected level when it imports into Primavera

In the below example, notice that all of the cost items are scheduled, but the subordinates for Unclassified Excavation will be rolled up to the superior level.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	<b>Mobilization</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	<b>Clearing &amp; Grubbing</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3	<b>Unclassified Excavation</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+ 3.1	Excavation	<input type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input type="checkbox"/>	<input type="checkbox"/>
+ 4	<b>Aggregate Base</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The following steps walk you through scheduling your cost items.

## Step by Step — Schedule a Cost Item in InEight Estimate

1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. In the Saved Views drop-down list, select **Schedule Setup View**.

Saved views:

Schedule Setup View

- In the Scheduled column, you can select the checkbox for each cost item that you want to schedule
- If a cost item has subordinate cost items below it, you will only be able to check the superior cost item, which will automatically schedule the subordinate cost items along with it



3. Select the **Mobilization**, **Clearing & Grubbing**, and **Unclassified Excavation** cost items, then press **Tab**.

CBS Position Code	Description	Scheduled	Roll Up Schedule
<b>JOB</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ <b>Prime Bond</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Price % Add-On</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Job Financing</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Indirect Cost Escalation</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Direct Cost Escalation</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Indirect Cost Add-On</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Job Management &amp; Equipment</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>General Expense</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>Direct Cost Add-On</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ <b>1 Mobilization</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ <b>2 Clearing &amp; Grubbing</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>3 Unclassified Excavation</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.1 Excavation		<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.2 Embankment		<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>4 Aggregate Base</b>		<input type="checkbox"/>	<input type="checkbox"/>
+ 4.1 Furnish & Haul Base Material		<input type="checkbox"/>	<input type="checkbox"/>
+ 4.2 Finegrade Subgrade		<input type="checkbox"/>	<input type="checkbox"/>

## Step by Step — Schedule a Group of Cost Items in InEight Estimate

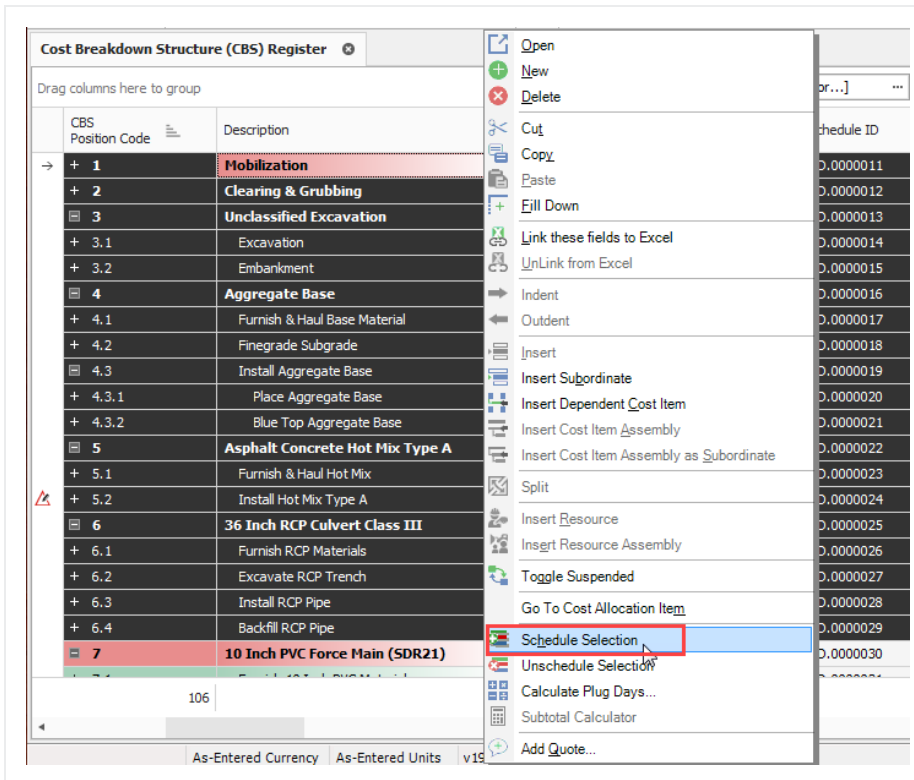
1. In the **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
  - To schedule multiple cost items, you can highlight the row for each cost item that you want to schedule, using the Shift and Ctrl keys to select multiple rows.
3. Select additional cost items **4-Aggregate base**, **5- Asphalt Concrete Hot Mix**, and **6- 36-inch RCP Culvert Class**.

### TIP

To schedule all cost items, highlight the JOB row

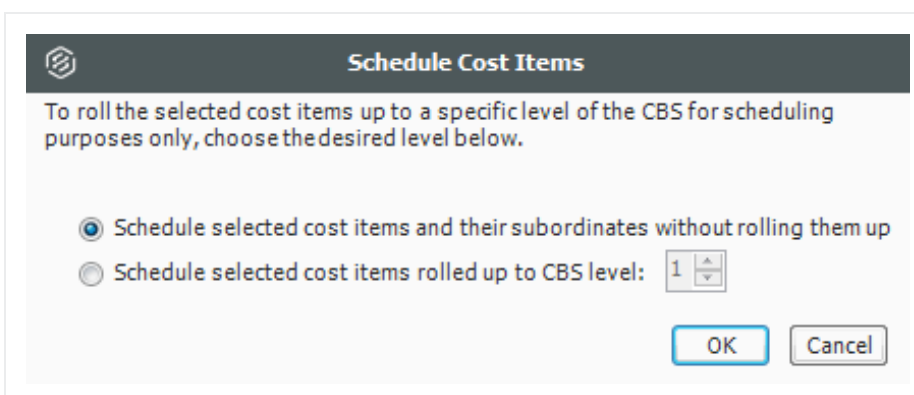


4. Right click on the selected rows and select **Schedule Selection**.



- On the Schedule Cost Items dialog, you can select whether or not you want to roll up the selected cost items to a specific level of the CBS for scheduling purposes

5. Select **Schedule selected cost items and their subordinates without rolling them up**, then click **OK**.



- Your scheduled cost items will import into Primavera the next time you update Primavera from InEight Estimate.



### 12.2.2.2 Roll Up Schedule

For cost item 3 – Unclassified Excavation, your scheduler does not need all of your estimate details and wants to roll up your cost items to a higher level when they import into the Primavera schedule.

Follow the steps below to learn how to roll up your cost items for the schedule.

#### Step by Step — Roll Up Schedule

1. In the **Training Job**, from the Estimate tab select **Cost Breakdown Structure**.
2. From the Saved Views drop-down list, select **Schedule Setup View**.
  - Review your cost items to decide which cost items need to be rolled up
3. Select the **Roll Up Schedule** checkbox on the Unclassified Excavation cost item.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	<b>Mobilization</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 2	<b>Clearing &amp; Grubbing</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3	<b>Unclassified Excavation</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+ 3.1	Excavation	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 3.2	Embankment	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4	<b>Aggregate Base</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3	Install Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.1	Place Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+ 4.3.2	Blue Top Aggregate Base	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 12.2.3 Update Microsoft Project from InEight Estimate

Now that you have set up your schedule to integrate with Microsoft Project in Job Properties and scheduled your cost items in the CBS, you are ready to send your project information to Microsoft Project.

When you first update Microsoft Project from InEight Estimate, Microsoft Project will create a new project automatically and load it with the following information from InEight Estimate:



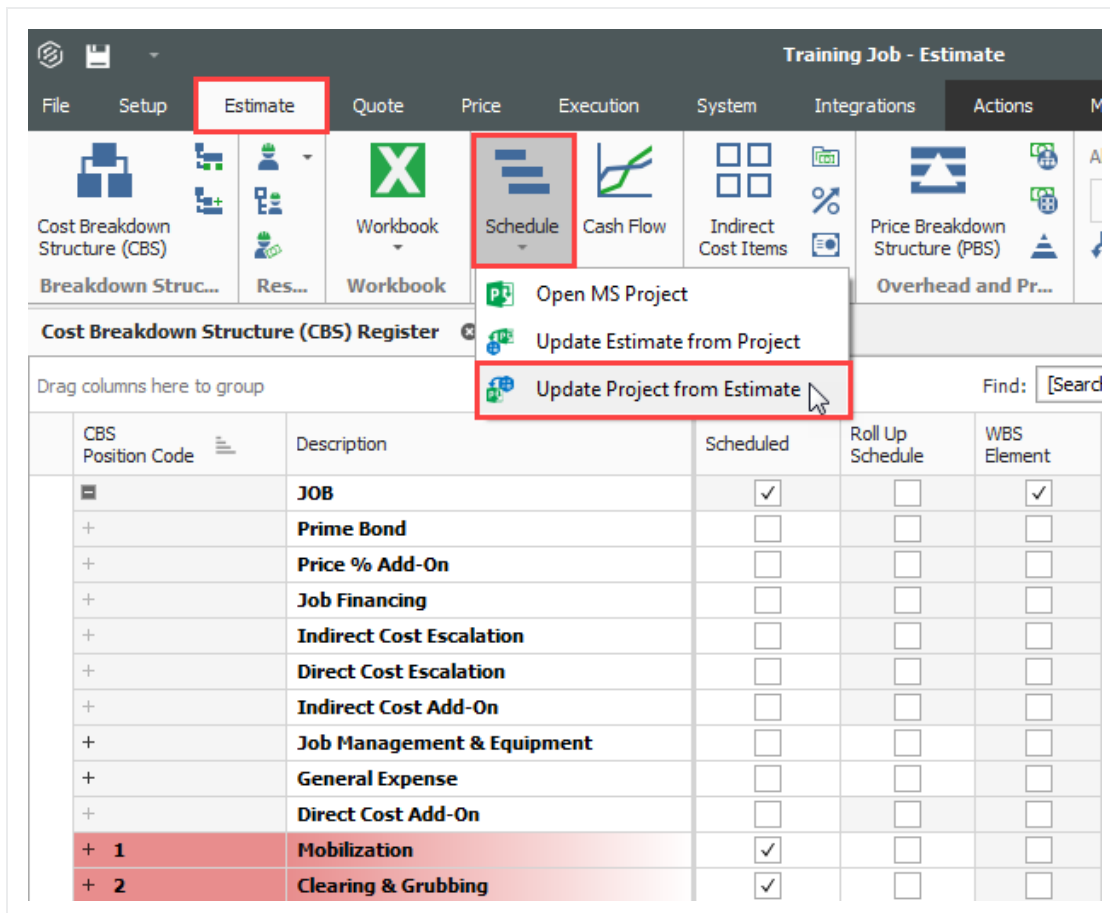
Data Sent from InEight Estimate to Microsoft Project		
Data Type	InEight Estimate	Microsoft Project
Project Data	Job Code	Project Name
Activity Data	CBS Position Code	01 – CBS Position Code
	Description	Description
	Days (Duration Driven)	Duration
Cost Data	Cost Category Total Cost	Cost Category (custom text columns)

The following steps walk you through updating Microsoft Project from InEight Estimate to create a new schedule.



## Step by Step — Update MS Project from InEight Estimate

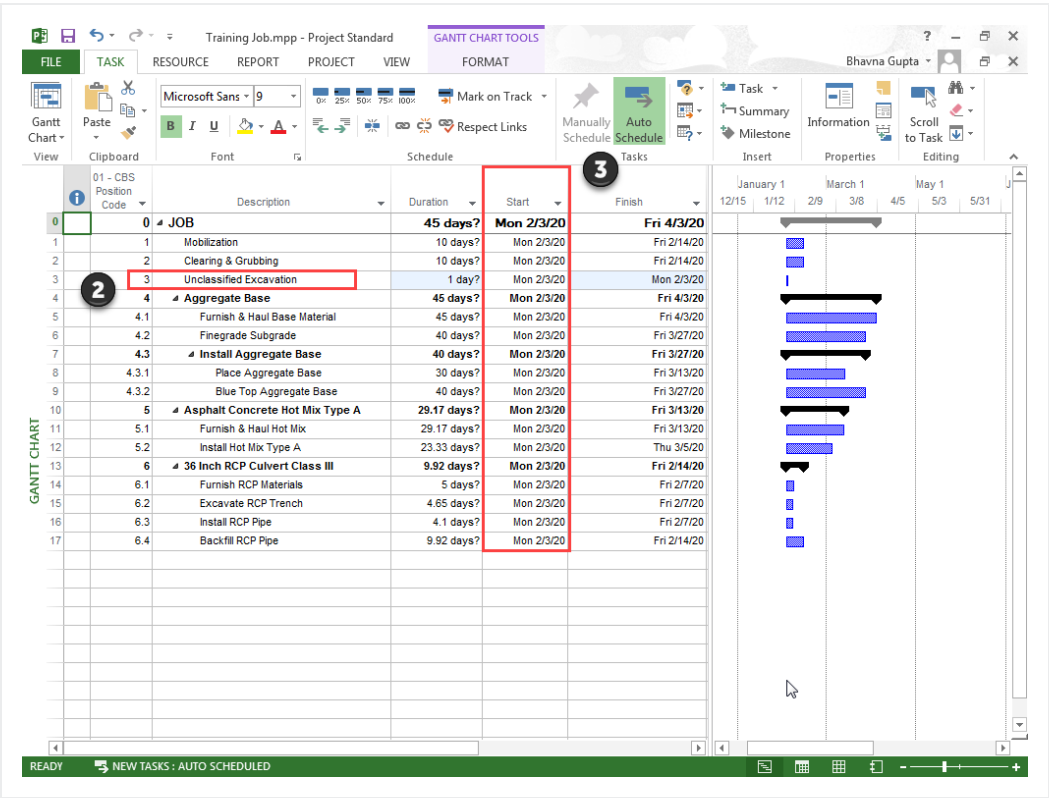
1. From the Estimate tab, select **Schedule>Update Project from InEight Estimate**.



- Your job automatically opens in Microsoft Project
- The Work Breakdown Structure Layout displays for the project
- You can see the breakdown structure imported from InEight Estimate with durations, rolled up as specified by the Roll Up Schedule option in InEight Estimate
- Initially, the start date for your activities is the start date defined on the Job Properties >



Cover Sheet tab (these will change as activity relationships are defined)



12.2.4 Update InEight Estimate from Microsoft Project

You can also bring information back from Microsoft Project into InEight Estimate. When you update InEight Estimate from Microsoft Project, the following information updates:

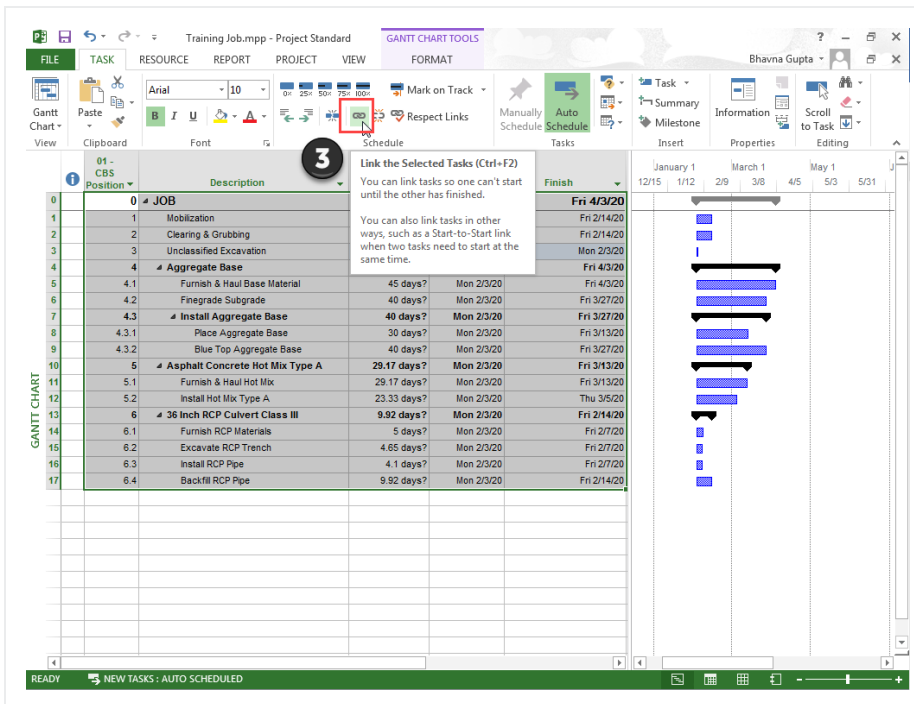
Update InEight Estimate from Microsoft Project		
Data Type	Microsoft Project	InEight Estimate
Activity Data	Start Dates	Start Dates
	Finish Dates	Finish Dates
	Hours	Hours

Walk through the following steps to practice updating InEight Estimate from Microsoft Project. You will create a scheduling relationship in Microsoft Project and then import the updated dates and relationships into InEight Estimate.



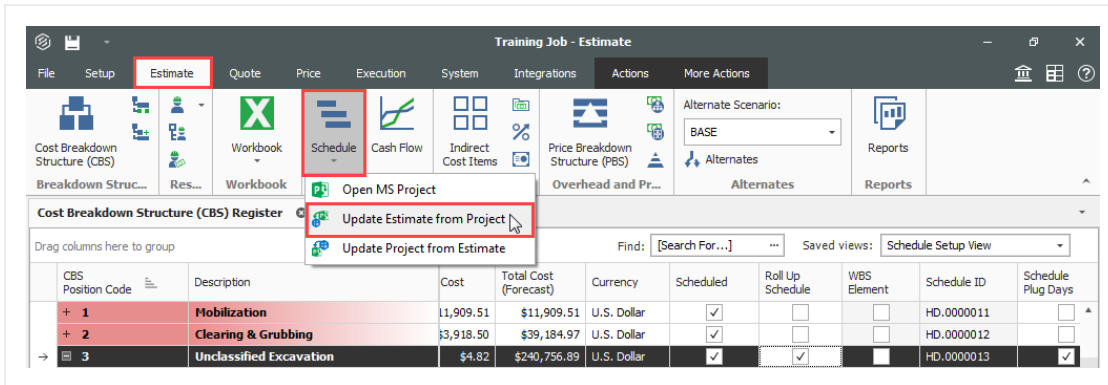
## Step by Step — Update InEight Estimate from MS Project

1. Open your version of the **Training Job** project in Microsoft Project.
  - In the real world, it is likely that you would have overlapping activities or your activities would be out of order, however for this example you will link all activities from finish to start
2. Click on the **Link Tasks** icon to link all activities.



- Ensure the **Auto Schedule** button is selected
3. To update InEight Estimate with this change, go back to InEight Estimate and from the Estimate tab, select **Schedule>Update InEight Estimate from Project**.





- On the Schedule Setup View, you can see the Start and Finish dates updated from MS Project.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
+ 1	Mobilization	2/3/2020	2/14/2020	2/3/2020	2/14/2020	2/3/2020	2/14/2020
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	2/28/2020
3	Unclassified Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.1	Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.2	Embankment	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
4	Aggregate Base	3/3/2020	10/5/2020	3/3/2020	10/5/2020	3/3/2020	10/5/2020
+ 4.1	Furnish & Haul Base Material	3/3/2020	5/4/2020	3/3/2020	5/4/2020	3/3/2020	5/4/2020
+ 4.2	Finegrade Subgrade	5/5/2020	6/29/2020	5/5/2020	6/29/2020	5/5/2020	6/29/2020
4.3	Install Aggregate Base	6/30/2020	10/5/2020	6/30/2020	10/5/2020	6/30/2020	10/5/2020
+ 4.3.1	Place Aggregate Base	6/30/2020	8/10/2020	6/30/2020	8/10/2020	6/30/2020	8/10/2020
+ 4.3.2	Blue Top Aggregate Base	8/11/2020	10/5/2020	8/11/2020	10/5/2020	8/11/2020	10/5/2020
5	Asphalt Concrete Hot Mix Type A	10/6/2020	12/17/2020	10/6/2020	12/17/2020	10/6/2020	12/17/2020
+ 5.1	Furnish & Haul Hot Mix	10/6/2020	11/16/2020	10/6/2020	11/16/2020	10/6/2020	11/16/2020
+ 5.2	Install Hot Mix Type A	11/16/2020	12/17/2020	11/16/2020	12/17/2020	11/16/2020	12/17/2020
6	36 Inch RCP Culvert Class III	12/17/2020	1/20/2021	12/17/2020	1/20/2021	12/17/2020	1/20/2021
+ 6.1	Furnish RCP Materials	12/17/2020	12/24/2020	12/17/2020	12/24/2020	12/17/2020	12/24/2020
+ 6.2	Excavate RCP Trench	12/24/2020	12/31/2020	12/24/2020	12/31/2020	12/24/2020	12/31/2020
+ 6.3	Install RCP Pipe	12/31/2020	1/6/2021	12/31/2020	1/6/2021	12/31/2020	1/6/2021
+ 6.4	Backfill RCP Pipe	1/6/2021	1/20/2021	1/6/2021	1/20/2021	1/6/2021	1/20/2021

## 12.2.5 Manage Changes Between Estimate and Schedule

As changes to scope, resources, and costs come up in your estimate, and changes to relationships and dates occur in the schedule, you can continue updating your estimate and schedule as needed.

### 12.2.5.3 Plug Days

The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab. For example, your 10" PVC Pipe activity may have extra days in the schedule due to the delivery date of the pipe material, but you don't want



those extra days to drive the costs in your estimate, since your crews won't be working on the activity on those extra days.

**TIP**

All superior cost items are hard-coded to use Schedule Plug Days.

## Step by Step — Schedule Plug Days

1. Look at the Days (Duration driven) column in the CBS where it shows 4.65 days for Excavate RCP Trench.
2. Make sure the **Schedule Plug Days** checkbox is selected on the Excavate RCP Trench cost item, and then enter a Plug Days duration for the number of days the item will be scheduled in Primavera (**7** days).

CBS Position Code	Description	Days (Duration driven)	Schedule Plug Days	Plug Days
6	36 Inch RCP Culvert Class III	18.66	<input checked="" type="checkbox"/>	26.01
+ 6.1	Furnish RCP Materials	0.00	<input checked="" type="checkbox"/>	5.00
+ 6.2	Excavate RCP Trench	4.65	<input checked="" type="checkbox"/>	7.00
+ 6.3	Install RCP Pipe	4.10	<input type="checkbox"/>	4.10
+ 6.4	Backfill RCP Pipe	9.92	<input type="checkbox"/>	9.92

- This allows you to maintain your duration of 4.65 days in the estimate and 7 days in the schedule.

Any duration changes made in Project will import into InEight Estimate as Plug Days automatically so that they can be reviewed by the estimator before making any changes to production in InEight Estimate.

### 12.2.5.4 Update Microsoft Project with InEight Estimate Changes

The following steps will walk you through updating the schedule with a scope change in your estimate.

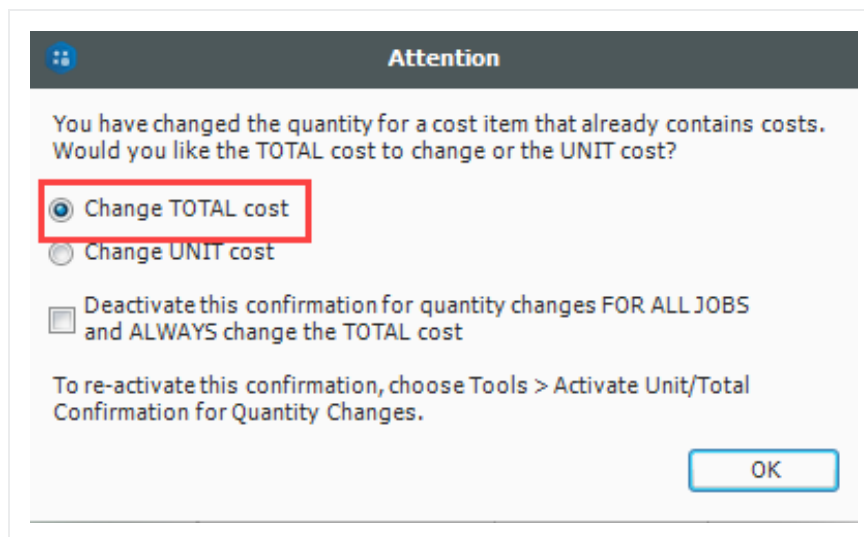


## Step by Step — Update MS Project with InEight Estimate Changes

1. In the InEight Estimate **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.
  - In this scenario, there is a scope change for your Excavation requiring you to change all of your quantities
2. Change the quantity in the Forecast (T/O) Quantity field in the CBS as specified below.

Quantity Change for Cost Item			
CBS Code	Description	Old Quantity	New Quantity
5	Asphalt Concrete Hot Mix Type A	35,000	25,000

- As you make your changes, take note of how your duration changes in the **Days (Duration driven)** column for these items.
- If prompted about changing Total or Unit Cost, select **Change TOTAL cost**, so that your unit costs stay intact



3. From the Estimate tab, select **Schedule>Update Project from InEight Estimate** to send the changed hours to Microsoft Project.
4. Go back to the **Training Job** in Microsoft Project.



- The Microsoft Project scheduled duration should have changed from 4.65 days to 7 days to match the updated duration in InEight Estimate for Excavate RCP Trench
- You can also see that the days for Asphalt Concrete Hot Mix Type A and its subordinates adjusted because you adjusted the Forecast T/O Quantity in InEight Estimate

	01 - CBS Position Code	Description	Duration	Start	Finish
0	0	JOB	239.51 days?	Mon 2/3/20	Fri 1/1/21
1	1	Mobilization	10 days?	Mon 2/3/20	Fri 2/14/20
2	2	Clearing & Grubbing	10 days?	Mon 2/17/20	Fri 2/28/20
3	3	Unclassified Excavation	1 day?	Mon 3/2/20	Mon 3/2/20
4	4	Aggregate Base	155 days?	Tue 3/3/20	Mon 10/5/20
5	4.1	Furnish & Haul Base Material	45 days?	Tue 3/3/20	Mon 5/4/20
6	4.2	Finegrade Subgrade	40 days?	Tue 5/5/20	Mon 6/29/20
7	4.3	Install Aggregate Base	70 days?	Tue 6/30/20	Mon 10/5/20
8	4.3.1	Place Aggregate Base	30 days?	Tue 6/30/20	Mon 8/10/20
9	4.3.2	Blue Top Aggregate Base	40 days?	Tue 8/11/20	Mon 10/5/20
10	5	Asphalt Concrete Hot Mix Type A	37.5 days?	Tue 10/6/20	Thu 11/26/20
11	5.1	Furnish & Haul Hot Mix	20.83 days?	Tue 10/6/20	Tue 11/3/20
12	5.2	Install Hot Mix Type A	16.67 days?	Tue 11/3/20	Thu 11/26/20
13	6	36 Inch RCP Culvert Class III	26.01 days?	Thu 11/26/20	Fri 1/1/21
14	6.1	Furnish RCP Materials	5 days?	Thu 11/26/20	Thu 12/3/20
15	6.2	Excavate RCP Trench	7 days?	Thu 12/3/20	Mon 12/14/20
16	6.3	Install RCP Pipe	4.1 days?	Mon 12/14/20	Fri 12/18/20
17	6.4	Backfill RCP Pipe	9.92 days?	Fri 12/18/20	Fri 1/1/21

5. Your Start and Finish dates are different now. In InEight Estimate, from the Estimate tab, select **Schedule >Update InEight Estimate from Project** to update InEight Estimate with the new dates.

CBS Position Code	Description	Start	Finish	Early Start	Early Finish	Late Start	Late Finish
+ 2	Clearing & Grubbing	2/17/2020	2/28/2020	2/17/2020	2/28/2020	2/17/2020	2/28/2020
+ 3	Unclassified Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.1	Excavation	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 3.2	Embankment	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020	3/2/2020
+ 4	Aggregate Base	3/3/2020	10/5/2020	3/3/2020	10/5/2020	3/3/2020	10/5/2020
+ 4.1	Furnish & Haul Base Material	3/3/2020	5/4/2020	3/3/2020	5/4/2020	3/3/2020	5/4/2020
+ 4.2	Finegrade Subgrade	5/5/2020	6/29/2020	5/5/2020	6/29/2020	5/5/2020	6/29/2020
+ 4.3	Install Aggregate Base	6/30/2020	10/5/2020	6/30/2020	10/5/2020	6/30/2020	10/5/2020
+ 4.3.1	Place Aggregate Base	6/30/2020	8/10/2020	6/30/2020	8/10/2020	6/30/2020	8/10/2020
+ 4.3.2	Blue Top Aggregate Base	8/11/2020	10/5/2020	8/11/2020	10/5/2020	8/11/2020	10/5/2020
+ 5	Asphalt Concrete Hot Mix Type A	10/6/2020	11/26/2020	10/6/2020	11/26/2020	10/6/2020	11/26/2020
+ 5.1	Furnish & Haul Hot Mix	10/6/2020	11/3/2020	10/6/2020	11/3/2020	10/6/2020	11/3/2020
+ 5.2	Install Hot Mix Type A	11/3/2020	11/26/2020	11/3/2020	11/26/2020	11/3/2020	11/26/2020
+ 6	36 Inch RCP Culvert Class III	11/26/2020	1/1/2021	11/26/2020	1/1/2021	11/26/2020	1/1/2021
+ 6.1	Furnish RCP Materials	11/26/2020	12/3/2020	11/26/2020	12/3/2020	11/26/2020	12/3/2020
+ 6.2	Excavate RCP Trench	12/3/2020	12/14/2020	12/3/2020	12/14/2020	12/3/2020	12/14/2020
+ 6.3	Install RCP Pipe	12/14/2020	12/18/2020	12/14/2020	12/18/2020	12/14/2020	12/18/2020
+ 6.4	Backfill RCP Pipe	12/18/2020	1/1/2021	12/18/2020	1/1/2021	12/18/2020	1/1/2021



## Lesson 12 Review

1. Under the Job Properties > Schedule tab, which setting can be enabled to account for plugged costs (e.g., for subcontractors)?
  - a. Resource price/unit
  - b. Expense Costs
  - c. Schedule ID
  - d. Actuals

---
2. For InEight Estimate schedule integration with Primavera, which of the following can be sent from your estimate to the schedule? (Select all that apply)
  - a. Activity data
  - b. Cash Flow graphs
  - c. Resource data
  - d. Cost data
  - e. Price data

---
3. The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab.
  - a. True
  - b. False

---

## Lesson 12 Summary

As a result of this lesson, you can:

- Set up scheduling options
- Update Schedule from InEight Estimate
- Update InEight Estimate from Schedule
- Manage changes between estimate and schedule



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# LESSON 13 – CASH FLOW

**Lesson Duration: 25 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Interpret cash flow and resource utilization on the Cash Flow graph
- Select Cash Flow Options
- Change Cash Flow Display Settings

## Lesson Topics

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## 13.1 CASH FLOW

The Cash Flow form provides a graphical representation of the cash flow and resource utilization of your project, so you can quickly assess financing and resource needs.

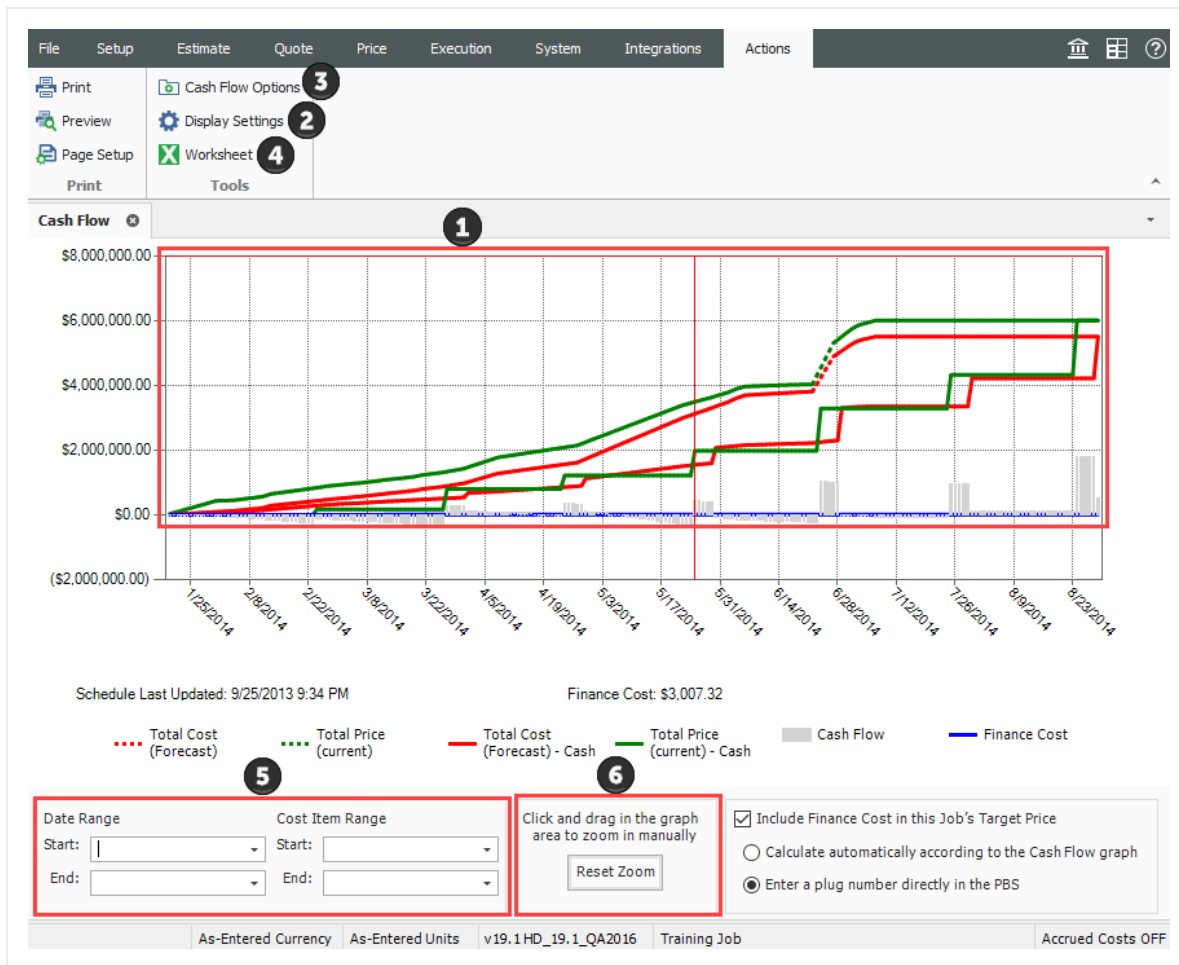
You can open the Cash Flow form by selecting the **Estimate** tab from the Estimate landing page, then selecting **Cash Flow** from the Schedule section.

In order to generate a cash flow curve the estimate must be populated with schedule dates either directly from integration with Primavera, Microsoft project, or input manually.

### Overview – Cash Flow Form

Section	Description
1	<p>The graph displays the projected cash flow of your project, along with job financing expense, individual cost category costs and resource utilization.</p> <ul style="list-style-type: none"> <li>• The x-axis measures time</li> <li>• The left y-axis measures amounts</li> <li>• The right y-axis measures quantities (when resource utilization is displayed)</li> <li>• All graphs depicted on the Cash Flow form can be displayed based on Pay Quantity or Forecast (T/O) Quantity</li> </ul>
2	<p>Click on the <b>Display Settings</b> icon to indicate what to display on the graph.</p> <ul style="list-style-type: none"> <li>• You can display total costs and price or specific cost categories</li> <li>• You can also set the display settings to report on Resource Utilization</li> </ul>
3	<p>Click on the <b>Cash Flow Options</b> icon to specify revenue timing, cost timing, and cost of money.</p>
4	<p>Click the <b>Excel</b> icon to export the numerical data represented on the graph into an Excel spreadsheet where you can run additional analysis.</p>
5	<p>You can filter the Cash Flow graph by date range or by a range of cost items.</p>
6	<p>Click and drag over the graph to zoom in on a particular section. Click the <b>Reset Zoom</b> button to restore the graph to its original state.</p>





## 13.2 CASH FLOW OPTIONS

The Cash Flow Options are used to define the cash flow rules (revenue timing, cost timing, cost of money, and quantities) needed to calculate the finance expense and cash flow for your project.

Cash flow rules (revenue timing, cost timing, cost of money, and quantities) describe how cash flow occurs between a contractor and a client, and between contractors or owners and vendors/subcontractors. Cash flow is then calculated based on both the earning and payment terms you specify, and the job's schedule and pay item prices.

To open the Cash Flow Options, click on the **Cash Flow Options** icon in the Tools section of the Actions tab.

### TIP

You can also access Cash Flow Options from the Setup > Job Properties > Cash Flow tab.



1. **Revenue timing:** Revenue is the amount of money actually paid to a contractor by the client for the completion of project deliverables. This section contains options to specify when and how often payment is recieved.
2. **Cost Timing:** Cost is the amount of money expended to complete the scope of the project. This section contains options to specify when and how often you pay contractors, subcontractors and vendors.

**NOTE**

To include any of your costs in your cash flow (including indirect costs), they need to be scheduled

3. **Cost of Money:** Represents the financing cost to fund the project. This section contains fields to specify interest rates you pay for the money you borrow, and interest rates you earn for money invested, to determine a total Finance Cost.
4. **Quantities:** Allows you to calculate cash flow based on pay quantities or forecast (T/O) quantities.
5. **Dates:** By default, the scheduled Early Start and Early Finish dates of each cost item (and its resource employments) as listed in the CBS Register, provide the timing of the expenses, revenue, and costs that show up on the Cash Flow graph. You have the option to base cash flow timing on Start/Finish dates or Late Start/Finish dates.



**Cash Flow** | **Job Properties** | Overview | Security | Cover Sheet | Cost Basis | Minority Setup | Fuel Cost | Job Tracking | Job Folder Tags | Competitors | Pricing | Schedule

**Revenue timing** 1

Bills are submitted to the owner:

- ☐ At the end of the job
- ☒ Every month on this day 25
- ☐ Every 1 weeks
- ☐ Every 1 days

Average calendar days elapsed from billing to collection: 30 days

Amount of each billing that is withheld by owner as retainage: 5.00 %

Retainage is released:

- ☒ At the end of the job
- ☐ On a specific date:

☐ Spread revenue using the same Cost Curves as the contributing Cost Items

**Cost timing** 2

Bills are received from subcontractors and vendors:

- ☐ At the end of the job
- ☒ Every month on this day 25
- ☐ Every 1 weeks
- ☐ Every 1 days

Average calendar days elapsed from receipt of invoice to payment: 35 days

Amount of each invoice received that is withheld by you as retainage: 5.00 %

Retainage is released to subcontractors and vendors:

- ☒ At the end of the job
- ☐ On a specific date:

☒ Apply cash timing rules for all procurable cost categories (non labor and equipment), even if their cost source is not set to "Quote"?

**Cost of money** 3

Average annual interest rate paid to borrow money (when cost exceeds revenue): 8.00 %

Average annual interest rate earned (when revenue exceeds cost): 2.00 %

**Quantities** 4

- ☐ Pay Quantity
- ☒ Forecast (T/O) Quantity

**Dates** 5

Period setting for cash flow: Day

Early Start / Finish

OK Cancel

### 13.2.0.1 Cash Flow Options Set Up

The following steps walk you defining settings on the Cash Flow Options form.

#### Step by Step — Cash Flow Options Setup

1. In the **E101 – Training Job**, from the Estimate tab, select **Setup > Job Properties > Cash Flow**.

**Cash Flow** | **Job Properties** | Overview | Security | Cover Sheet | Cost Basis | Minority Setup | Fuel Cost | Job Tracking | Job Folder Tags | Competitors | Pricing | Schedule | **Cash Flow**

- You will see the default options already there
  - You will adjust a few of those options
2. Change your Revenue timing to **Every month on the 10th**.



- The average calendar days from billing to collection should be set to 25 days

Overview Security Cover Sheet Cost Basis Minority Setup Fuel Cost Job Tracking Job Folder Tags Competitors Pricing Schedule Cash Flow

**Revenue timing** 2

Bills are submitted to the owner:

☐ At the end of the job

☒ Every month on this day 10

☐ Every 1 weeks

☐ Every 1 days

Average calendar days elapsed from billing to collection: 25 days

Amount of each billing that is withheld by owner as retainage: 5.00 %

Retainage is released:

☒ At the end of the job

☐ On a specific date:

☐ Spread revenue using the same Cost Curves as the contributing Cost Items

- For Cost timing, bills are received from subcontractors and vendors **Every month on the 25th**.

- Average calendar days elapsed from receipt of invoice to payment should be set to 30 days

**Cost timing** 3

Bills are received from subcontractors and vendors:

☐ At the end of the job

☒ Every month on this day 25

☐ Every 1 weeks

☐ Every 1 days

Average calendar days elapsed from receipt of invoice to payment: 30 days

Amount of each invoice received that is withheld by you as retainage: 5.00 %

Retainage is released to subcontractors and vendors:

☒ At the end of the job

☐ On a specific date:

☒ Apply cash timing rules for all procurable cost categories (non labor and equipment), even if their cost source is not set to "Quote"?

- For Cost of money, enter **10%** for the Average annual interest rate paid to borrow money (when cost exceeds revenue) and **2%** for Average annual interest rate earned (when revenue exceeds cost).

**Cost of money** 4

Average annual interest rate paid to borrow money (when cost exceeds revenue): 10.00 %

Average annual interest rate earned (when revenue exceeds cost): 2.00 %


- Leave all remaining options as originally defaulted.



## 13.3 CASH FLOW DISPLAY SETTINGS

### 13.3.1

### 13.3.2 Cost Items and Cost Categories

The Cash Flow Display Settings allow you to control what information displays on the Cash Flow graph. To open the Display Settings click on the **Actions > Display Settings**  icon in the Tools section.

#### Overview – Cash Flow Display Settings – Cost Items and Cost Categories

Section	Description
1	You can save your display settings for future use.
2	Select how the graph measures the timing of your cash flow. Options include: Day, Week, Month, Quarter, and Year.
3	<p>Under the Cost Items section, you can select:</p> <ul style="list-style-type: none"> <li>• <b>Total Cost (Forecast)</b>: The total cost of your scheduled cost items, based on when your costs are accrued (when your cost items are scheduled). This is displayed as a dashed line on the graph</li> <li>• <b>Total Price (current)</b>: The total revenue of your pay items, based on when the revenue is earned (when your cost items are scheduled). This is displayed as a dashed line on the graph</li> <li>• <b>Total Cost (Forecast) – Cash</b>: The total cost of your scheduled cost items, reflecting the cost timing you specify in the Cash Flow Options. This is displayed as a solid line on the graph</li> <li>• <b>Total Price (current) – Cash</b>: The total revenue of the pay items, reflecting the revenue timing you specify in the Cash Flow Options. This is displayed as a solid line on the graph</li> <li>• <b>Cash Flow</b>: Displays the difference between your Total Cost – Cash and Total Price – Cash values, so you can see if you are making or losing money</li> <li>• <b>Finance Cost</b>: Displays the Cost of Money amount calculated from the settings you specify in the Cash Flow Options</li> </ul>
4	<p>You can check the Estimated box for any specific cost categories you need to display.</p> <ul style="list-style-type: none"> <li>• The other check boxes are used for InEight Estimate Performance</li> </ul>



**Cash Flow Display Settings**

Settings: Default

☐ Display this text **1** Custom report title: **2**

Period: Day **3**

**Cost Items**

- ☒ Total Cost (Forecast)
- ☒ Total Price (current)
- ☒ Total Cost (Forecast) - Cash
- ☒ Total Price (current) - Cash
- ☒ Cash Flow
- ☒ Finance Cost
- ☐ As-Built Total Cost
- ☐ CE-Total Cost Earned (to-date)

**Cost Categories**

	Estimated	As-Built	Planned To Date
Labor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Owned Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rented Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subcontract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allowance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Custom Category1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Undefined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Resources**

☐ Resource Utilization

Summarize resources by: Resource Type

Get data from: ☒ This job's utilized resources ☐ All Library resources

Value	Qty	Cost	AB Qty	AB Cost
<input type="checkbox"/> Labor				
<input type="checkbox"/> Construction Equipment				
<input type="checkbox"/> Rented Construction Eq...				
<input type="checkbox"/> Installed Material				
<input type="checkbox"/> Installed Equipment				
<input type="checkbox"/> Supply				
<input type="checkbox"/> Unique				

Quantity: None Cost: None

As-Built Quantity: None As-Built Cost: None

OK Cancel

### 13.3.2.1 Cash Flow Display Set Up

The following steps walk you through setting up your Cash Flow Display Settings.

#### Step by Step — Cash Flow Display Settings Set Up

1. In the **E101 – Training Job**, from the Estimate tab, select **Cash Flow** from the Schedule section.
2. On the **Actions** tab, select **Display Settings** to open the Display Settings window.
3. From the Period drop-down list, select **Week**.
4. Under the Cost Items section, make sure the following are selected:
  - Total Cost (Forecast)
  - Total Price (Forecast)
  - Total Cost (Forecast) – Cash
  - Total Price (Forecast) – Cash
  - Cash Flow



- Finance Cost

Cost Items

☒

Total Cost  
(Forecast)

☒

Total Price  
(current)

☒

Total Cost  
(Forecast) - Cash

☒

Total Price  
(current) - Cash

☒

Cash Flow

☒

Finance Cost

☒

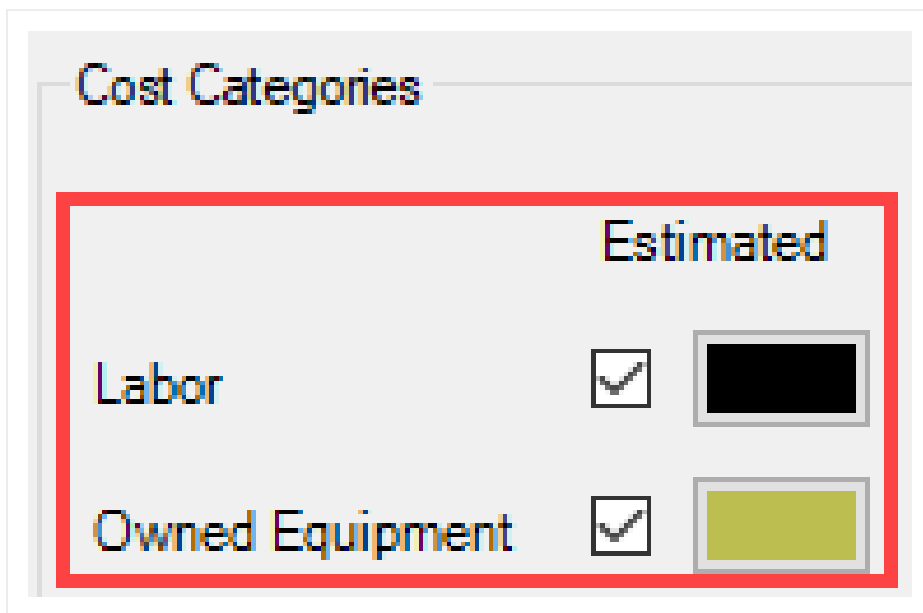
As-Built  
Total Cost

☐

CE-Total Cost  
Earned (to-date)

5. Under the **Cost Categories** section, check the **Estimated** checkbox for the Labor and Owned Equipment categories.



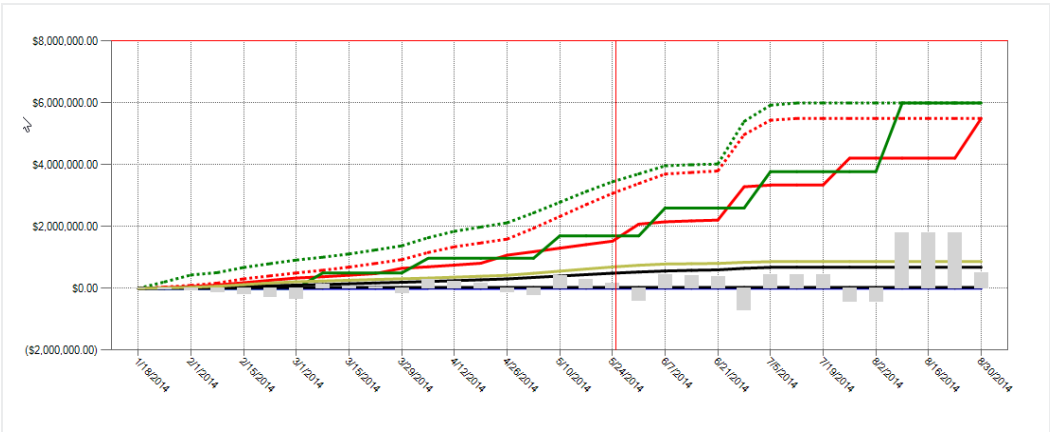


6. Click **OK** to close the Display Settings window.

- Your Total Cost (Forecast) displays as a dashed red line, indicating your accrued costs based on when your cost items are scheduled and the assigned cost curves for each cost item.
- Your Total Price (current) displays as a dashed green line, indicating the revenue you've earned, based on the timing of your pay items
- Your Total Cost (Forecast) – Cash displays as a solid red line, indicating your costs, based on when your cost items are scheduled *and* the cost timing defined in Cash Flow Options
- Your Total Price (current) – Cash displays as a solid green line, indicating your revenue, based on the timing of your pay items *and* the revenue timing defined in Cash Flow Options
- Your Cash Flow displays grey bars indicating when your cash flow is negative or positive



- Your Finance Cost displays as a blue line on the graph



7. To filter your graph by date range, click on the **Start** drop-down arrow ▾ and select a start date of your date range filter.

Thursday, December 27, 2018

February 2014

SU	MO	TU	WE	TH	FR	SA
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	1
2	3	4	5	6	7	8

Clear

Date Range

Start: 2/3/2014 ▾

End: ▾

Start: ▾

End: ▾

8. Click on the **End** drop-down arrow ▾ and select an end date of your date range filter.



- Your graph now only includes your cost items that fall within the specified date range
9. To remove the filter, click in the **Start** field and press the **Backspace** key.
  10. Do the same for the End field.

### 13.3.3 Resource Utilization

You can also use the Cash Flow graph to report on resource utilization. For example, you may want to run a report that displays a work hours curve for a particular labor trade or to see the peak usage times for a particular piece of heavy equipment.

You can run resource utilization graphs based off of any of the following:

- Resource Type
- Resource Code
- Description
- Organizational Category
- Tag 1, 2, and 3
- Quote Group
- Account Code and Cost Item Account Code
- Fuel Type

You set up your resource utilization settings from the same Display Settings window you use for setting up Cash Flow, **Display Settings** in the Tools section of the Actions menu.



**Cash Flow Display Settings**

Settings: Previous

☐ Display this text as a custom report title:

Period: Week

**Cost Items**

- ☒ Total Cost (Forecast)
- ☒ Total Price (current)
- ☒ Total Cost (Forecast) - Cash
- ☒ Total Price (current) - Cash
- ☒ Cash Flow
- ☒ Finance Cost
- ☒ As-Built Total Cost
- ☐ CE-Total Cost Earned (to-date)

**Cost Categories**

	Estimated	As-Built	Planned To Date
Labor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Owned Equipment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rented Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subcontract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fees	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Allowance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Custom Category1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Undefined	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Resources**

☒ Resource Utilization

Summarize resources by: Description

Get data from: ☒ This job's utilized resources ☐ All Library resources

Value	Qty	Cost	AB Qty	AB Co
<input type="checkbox"/> Dozer D8				
<input type="checkbox"/> Dump Fees				
<input type="checkbox"/> Dump Truck				
<input type="checkbox"/> Excavator 225				
<input checked="" type="checkbox"/> Excavator 245				
<input type="checkbox"/> Feeder Controls				
<input type="checkbox"/> Fine Aggregate				
<input type="checkbox"/> Finisher				
<input type="checkbox"/> Flatbed Truck				
<input type="checkbox"/> Form Materials				

Quantity: None Cost: None

As-Built Quantity: None As-Built Cost: None

OK Cancel

### 13.3.3.2 Resource Utilization Display Set Up

The following steps walk you through setting up your Cash Flow graph to report on Resource Utilization.

#### Step by Step — Resource Utilization Display Setup

1. In the **E101 – Training Job**, from the Estimate tab, select **CashFlow** from the Schedule section.
2. On the Actions tab, select **Display Settings** to open the Display Settings window.
3. Make sure the all checkboxes are unchecked under the Cost Items and Cost Categories sections.
4. Under the Resources section, check the **Resource Utilization** checkbox.
5. From the Summarize resources by drop-down list, select **Description**.



**Resources**

☒ Resource Utilization

Summarize resources by: Description v

Get data from: ☒ This job's utilized resources  
☐ All Library resources

6. From the resulting list of Values, select **Laborer**.
7. Click in the **Qty** field for the selected value and select a color of your choice.
  - In this case the Qty represents the work hours for your Laborer resource
8. Click in the **Cost** field for the selected value and select a different color of your choice.

Get data from: ☒ This job's utilized resources  
☐ All Library resources

Value	Qty	Cost	AB Qty	AB Co
<input type="checkbox"/> Labor Foreman				
<input checked="" type="checkbox"/> Laborer				
<input type="checkbox"/> Loader 950				
<input type="checkbox"/> Lowboy Trailer				

9. From the **Quantity and Cost** drop down lists, you can select how your quantities and costs will display on the graph. In this case select the Quantity to display as a **Bar** and Cost to display as a **Line**.



Value

☐ Labor Foreman

☒ Laborer

☐ Loader 950

☐ Lowboy Trailer

☐ Manhole Precast 4 Ft

Qty

Cost

AB Qty

AB Co

<

>

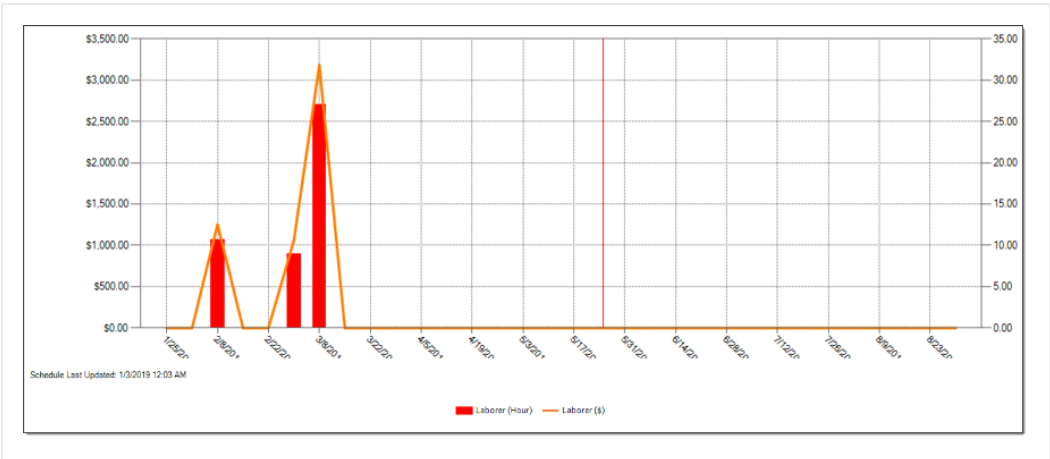
Quantity:

Cost:

Bar

Line

10. Click **OK** to close the Display Settings window.
- The graph now displays the utilization of your Laborer resource, showing the work hours and costs used over time



The graphs displayed on the Cash Flow form are based on the estimated cost of each cost item and its resource employments (in the case of resource utilization).



## Lesson 13 Review

1. Under what cash flow form can you set up your revenue and cost timing?
  - a. Cash Flow Options
  - b. Display Settings
  - c. Worksheet
  - d. Page Setup

---
2. By default, the red dashed line on the Cash Flow graph represents the:
  - a. Total Cost (Forecast)
  - b. Total Price (current)
  - c. Total Cost (Forecast) – Cash
  - d. Total Price (current) - Cash

---
3. In the Cash Flow Display Settings, Resource Utilization allows you to view a graphical summarization of your resources by which of the following? (Select all that apply)
  - a. Resource File Description
  - b. Resource Type
  - c. Resource Code
  - d. Description
  - e. Wage Zone
  - f. Organizational Category

---

## Lesson 13 Summary

As a result of this lesson, you can:

- Interpret cash flow and resource utilization on the Cash Flow graph
- Select Cash Flow Options
- Change Cash Flow Display Settings



# LESSON 14 – INEIGHT ESTIMATE CALCULATORS

**Lesson Duration: 20 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Use the Haul Calculator
- Use the Trench Calculator
- Use the In-Field Calculator

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## 14.1 HAUL CALCULATOR

The **Haul Calculator** allows you to enter the specifics of up to three haul routes (distance, travel speed, etc.). Once entered, you can either:

- Calculate the number of trucks required to complete the haul in a set amount of time, or
- Calculate how long it will take to complete the haul with a set number of trucks

The following activity walks step by step through using the Haul Calculator to calculate the number of trucks needed for a cost item.

### Step by Step — Haul Calculator – Calculate Quantity of Trucks

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Open cost item **4.1 – Furnish & Haul Base Material**.
3. On the Cost Item Record, click the **Detail tab**.
4. Right click on the **ETDT – Dump Truck** row header and select **Open Haul Calculator**.



Cost Item Summary

Detail : \$11.54

Plug : \$0.00

Quote : \$0.00

Drag columns here to group

	Row Number	Code	Resource Assembly	Description
	+ 1	LT1		Teamster
→	+ 2	ETDT		Dump Truck
				Aggregate Base Rock

Open

Delete

Cut

Copy

Paste

Fill Down

Link this field to Excel

UnLink from Excel

Insert Resource

Insert Resource Assembly

Open Haul Calculator

Edit Resource Periods...

5. On the Haul Calculator, select the **Calculate quantity of ETDT required to complete haul in duration entered below** radio button. (ETDT is the resource code for the Dump Truck you selected.)

Haul Calculator Record - Training Job

☒ Calculate quantity of ETDT required to complete haul in duration entered below

☐ Calculate total duration of haul using quantity of ETDT entered below

6. For the **Haul Distance**, type 5.
7. Enter an **Average Payload (Ton)** of 30.
8. For **Load Time (Minutes)**, type 3.
9. Enter a **Travel Speed Full** of 35 Mile/Hour.



10. For **Dump Time (Minutes)**, type **2**.
11. Enter a **Travel Speed Empty** of **45** Mile/Hour. Notice this calculates a cycle time of 20.24.
12. Enter a **Work Efficiency** of **90 percent**.

Route 1	
Quantity (Ton)	45,000.00
Haul Distance - One Way (Mile)	5.00
Average Payload (Ton)	30.00
Total Loads	1,500.00
Load Time (Minutes)	3.00
Travel Speed Full (Mile/Hour)	35.00
Dump Time (Minutes)	2.00
Travel Speed Empty (Mile/Hour)	45.00
Cycle Time (Minutes)	20.24
Work Efficiency (%)	90.00
Total Hauler Hours	562.17
Hours Per Shift	8.00



- The calculator shows a result of 1.56 concurrent haulers

Results

Quantity of resource ETDT	1.56	0.00	0.00	<b>1.56</b>	Concurrent Haulers
Total duration (Hours)	0.00	0.00	0.00	<b>360.00</b>	Hours

OK Cancel

13. Click **OK**.
14. Your cost item now shows a quantity of 1.56. Round up the Quantity to **2**. Also, adjust the Teamster Quantity to **2** (if needed).

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+	1	LT1	Teamster			2.00	Each
+	2	ETDT	Dump Truck			2.00	Each
+	3	MBR	Aggregate Base Rock	45,500.00	5.00	47,775.00	Ton

## Step by Step — Haul Calculator – Calculate Total Duration

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Open cost item **4.1 – Furnish & Haul Base Material**.
3. On the Cost Item Record, click the **Detail** tab.
4. Change your Teamster and Dump Truck quantities back to **2 each**.
5. Right click on the **ETDT – Dump Truck** row header and select **Open Haul Calculator**.
6. On the Haul Calculator, select the **Calculate total duration of haul using quantity of ETDT entered below** radio button.
  - With the previous information you entered still there, the calculator calculates a total duration of 281.08 hours



**Haul Calculator Record - Training Job**

☐ Calculate quantity of ETDT required to complete haul in duration entered below  
☒ Calculate total duration of haul using quantity of ETDT entered below

	Route 1	Route 2	Route 3	TOTAL	
Quantity (Ton)	45,000.00	0.00	0.00	45,000.00	Ton
Haul Distance - One Way (Mile)	5.00	0.00	0.00	5.00	Mile
Average Payload (Ton)	30.00	0.00	0.00	30.00	Ton
Total Loads	1,500.00	0.00	0.00	1,500.00	
Load Time (Minutes)	3.00	0.00	0.00	3.00	Minutes
Travel Speed Full (Mile/Hour)	35.00	0.00	0.00	35.00	Mile/Hour
Dump Time (Minutes)	2.00	0.00	0.00	2.00	Minutes
Travel Speed Empty (Mile/Hour)	45.00	0.00	0.00	45.00	Mile/Hour
Cycle Time (Minutes)	20.24	0.00	0.00	20.24	Minutes
Work Efficiency (%)	90.00	100.00	100.00	90.00	%
Total Hauler Hours	562.17	0.00	0.00	562.17	Hours
Hours Per Shift	8.00	8.00	8.00	8.00	

**Results**

Quantity of resource ETDT	0.00	0.00	0.00	<b>2.00</b>	Concurrent Haulers
Total duration (Hours)	281.08	0.00	0.00	<b>281.08</b>	Hours

OK Cancel

7. Click **OK**.

- The Hours field on the Production tab updated to 281.08
- Your ETDT Dump Truck quantity remains at 2

## 14.2 TRENCH CALCULATOR

The **Trench Calculator** allows you to quickly calculate trench, pipe, and bedding values. You can perform pipe-related take-off by defining the details of the trench (e.g., length, depth, width, hinge elevation, backslope, and swell factor), the pipe (diameter, elevation, and waste factor), and up to four beddings.

With this information, the Trench Calculator can automatically calculate:

- Total excavation volume (neat-line)
- Total excavation volume (including swell/shrinkage)



- Total pipe to purchase
- Lift Volume (for up to four beddings)
- Lift Weight (for up to four beddings)

You can use these calculations to define certain cost item setup data:

- You can use the Total Excavation Volume that is calculated as the quantity of the cost item
- You can use the Total pipe to purchase calculation as the quantity of a resource (e.g., pipe) that has been employed to the cost item
- You can use the Lift Volume or Lift Weight that is calculated as the quantity of a resource employed to the cost item in either cubic yards or tons
- You can click the Toggle English / Metric button at the bottom of the dialog to switch between the English and Metric systems for entering data

**TIP**

You can access the Trench Calculator from the Actions tab of a Cost Item Record

**NOTE**

When copying cost items in a job or from job to job, the Trench Calculator variable data is included with the data being copied. When a cost item is copied to the clipboard, Trench Calculator variable data is also included.

## 14.2.1 Trench Calculator – Trench Tab

The following steps walk through using the Trench Calculator to take-off excavation volume.

### Step by Step — Trench Calculator – Trench

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Create a new cost item from the bottom row of your CBS and call it **24" Pipe**.
3. Add the following three subordinates and update their Units of Measure:
  - Excavate Trench: **CY**
  - Install Pipe: **LF**
  - Backfill Trench: **CY**
4. Open the **Excavate Trench** Cost Item Record. Add the following resources:



- **LL2 Laborer – 1**
- **LO2 Operator Class 2 – 1**
- **EX245 Excavator 245 – 1**

5. Adjust the Production to: **100 CY/Hour**.

The screenshot shows the 'Cost Item Summary' and 'Production' tabs. The 'Cost Item Summary' table lists three items: LL2 Laborer, LO2 Operator Class 2, and EX245 Excavator 245. The 'Production' tab shows various production metrics, with 'CY/Hour' highlighted and set to 100.00.

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)
1	LL2		Laborer	
2	LO2		Operator Class 2	
3	EX245		Excavator 245	

Production Metric	Value	Unit
Days	0.00	0.00
Shifts	0.00	0.00
Hours	0.01	0.00
Man-Hours	0.02	0.00
Equip-Hours	0.01	0.00
CY/Day	800.00	0.00
CY/Shift	800.00	0.00
<b>CY/Hour</b>	<b>100.00</b>	0.00
CY/Man-Hr	50.00	0.00

6. On the Cost Item Record's Actions tab, select **Trench Calculator**.

The screenshot shows the 'Training Job - Estimate' window with the 'Actions' tab selected. The 'Trench Calculator' button is highlighted. Below the Actions tab, the 'Tools' section shows the 'Trench Calculator' button again. At the bottom, there is a table with fields for Quantity, Unit of Measure, Unit Cost, Total Cost, and Currency.

Quantity (T/O) Qty:	Unit of Measure:	Unit Cost:	Total Cost:	Currency:
1.00	Each	\$1.74	\$1.74	U.S. Dollars

- For **Trench Length**, type **1000.00** feet.
- For **Trench Width** (at the bottom) type **4.00** feet.
- Enter a **Trench Depth** of **10.00** feet.
- Enter a **Hinge Elevation** of **5.00** feet.



11. Enter a **Backslope** of **45** degrees.
12. Define the **Material Swell/Shrinkage Factor** (fraction expressed as a decimal) at **.10**.
  - You can select either a “neat-line” total volume or include swell/shrinkage
13. Select the “Total excavated volume (including swell/shrinkage)” checkbox.

**Trench Calculator**

Trench Pipe Beddings

**Variables**

Trench length: 1000.00 feet

Trench width (at bottom): 4.00 feet

Trench depth: 10.00 feet

Hinge elevation: 5.00 feet

Backslope: 45.00 degrees

Material swell/shrinkage factor: 0.10 (decimal)

**Results**

Total excavation volume (neat-line): **2,407.41** CY

Use this volume as the quantity on this cost item ☐

Total excavated volume (including swell/shrinkage): **2,648.15** CY

Use this volume as the quantity on this cost item ☒

Save Configuration to Library Load Configuration from Library Toggle English / Metric OK Cancel

14. Click **Save Configuration to Library** and save the Trench calculator as **Trench Example** with your initials.
15. Click **OK**.

## 14.2.2 Trench Calculator – Pipe Tab

You can also use the Trench Calculator to take off how much piping and bedding you need for the trench.



## Step by Step — Trench Calculator – Pipe

- On the CBS Register, adjust the Forecast T/O Quantity for the Install Pipe cost item to **1000 LF**.
  - Assume this quantity is based off manual take-off calculations you already did
- Open the **Install Pipe** Cost Item Record.
- Add the Resource Assembly of **CPIPE - Pipe Crew** and adjust the production to **300 LF / Day**.
- On the Cost Item Record's Actions tab, select **Trench Calculator**.
- Select **Load Configuration from Library**.
- Select **Trench Example** (with your initials).

Trench Calculator Configurations - Library

Actions

Drag columns here to group

Find: 

[Search For...]

...

Saved views: 

Standard View

	Name	Comments	Pipe Diameter	UM	Pipe Type	Pipe Class	Agency	Last Changed	Last Chang
→	New Trench Configuration (bla...		0.00	inches					
	24" PVC Sewer at 10' Deep (1)		26.00	inches				7/29/2009 2:13:19 PM	wmfarr
	Trench Example PB		0.00	inches				2/15/2019 11:59:52 AM	Paul.Benn

- Click **OK**.
- On the Trench Calculator, select the **Pipe** tab.
- Enter the following for the size and position of the pipe:
  - Pipe exterior diameter: **26.00** inches
  - Pipe center elevation (from bottom): **19.00** inches
  - Waste factor: **10%**
- Click on the resource icon to pull up the Resource Rate Register.
- Select the Installed Material tab.
- Select **MPP24 Pipe 24" PVC SDR35**, then click **OK**.
  - The Pipe variables you entered should match the following image:



13. Click **Save Configuration to Library** and save the Trench calculator as **Trench Example** with your initials.
14. When prompted to overwrite the existing saved file, click **Yes**.
15. Click **OK** to close the Trench Calculator.

### 14.2.3 Trench Calculator – Beddings Tab

The following steps walk you using the Trench Calculator to calculate bedding take-offs.

#### Step by Step — Trench Calculator – Beddings

1. Back on the CBS Register, adjust the Forecast T/O Quantity for **Backfill Trench** to **2300 CY**, based on manual calculations.
2. Open the **Backfill Trench** Cost Item Record.




3. Add the following resources:
  - **LL2 Laborer – 3**
  - **LO2 Operator Class 2 – 1**
  - **RPC Plate Compactor – 1**
  - **EL950 Loader 950 – 1**
4. Adjust the Production to **160 CY/Day**.
5. From the Cost Item Record's Actions tab, select **Trench Calculator**.
6. Select **Load Configuration from Library**
7. Select **Trench Example** (with your initials), then click **OK**.
8. On the Trench Calculator, select the **Beddings** tab.
9. On the Beddings tab, you can define up to four beddings to backfill the trench
  - The variables you enter will determine how much bedding you need
10. Enter the following variables for each bedding:

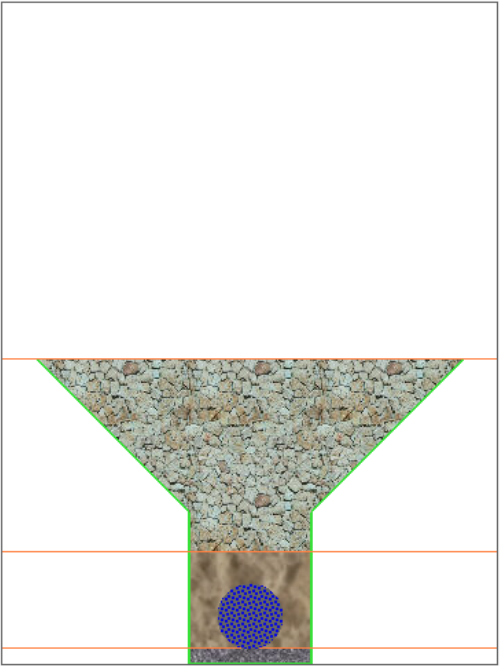
	Bedding Lift 1	Bedding Lift 2	Bedding Lift 3
Elevation (from trench floor)	6.00	38.00	76.00
Additional material needed	5.00	5.00	5.00
Conversion factor	1.60	1.70	1.60

- Under Results, you can match each of the Bedding Lifts with a material resource, by selecting the **resource** icon and selecting the resource you want to employ from the Material tab
11. Selecting the resource from the Tons selection field, select the following materials for each bedding:

	Resource Code	Resource Description
Bedding Lift 1	MASAND	Sand
Bedding Lift 2	MAFA	Fine Aggregate
Bedding Lift 3	MACA1-1/2	Coarse Aggregate




Trench Calculator



TrenchPipeBeddings


☒ Bedding Lift 1
 ☐ Bedding Lift 2
 ☐ Bedding Lift 3
 ☐ Bedding Lift 4

**Variables**


Elevation (from trench floor):  inches
 Additional material needed to compensate for compaction:  %
 Conversion factor (TON per CY):

**Results**

Lift Volume: **77.78** CY

Use Lift Volume as the quantity on this resource (on this cost item):  

Lift Weight: **124.44** Tons

Use Lift Weight as the quantity on this resource (on this cost item):  

Save Configuration to LibraryLoad Configuration from LibraryToggle English / Metric

OKCancel

12. Click **OK**.

- Note that the pipe and bedding materials are added to the cost item with their quantities

Row Number		Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+	1	LL2		Laborer			3.00	Each
+	2	LO2		Operator Class 2			1.00	Each
+	3	RPC		Plate Compactor			1.00	Each
+	4	EL950		Loader 950			1.00	Each
+	5	MASAND		Sand	124.44	0.00	124.44	Ton
+	6	MAFA		Fine Aggregate	593.66	0.00	593.66	Ton
+	7	MACA1...		Coarse Aggregate ...	3,327.59	0.00	3,327.59	Ton



## Exercise 14.1 — Trench Calculator

In this exercise, you will practice using the Trench Calculator to take-off piping and bedding materials. Complete the following steps:

1. In the **Training Job**, create a new cost item called **Underground Pipe**.
2. Give the cost item a quantity and unit of measure of **1640 Linear Feet**.
3. Open the new cost item and open the **Trench Calculator**.
4. On the **Trench tab**, enter the variables for the trench:

Trench length	1000 feet
Trench width (at bottom)	4 feet
Trench depth	10 feet
Hinge elevation	5 feet
Backslope	45 degrees
Material swell/shrinkage factor	0.10 (decimal)

- Do NOT check the box to bring in volume shrinkage.

5. Select the **MPR36** material resource from the drop-down Results list.
6. On the **Beddings** tab, enter bedding variables.

Bedding lift 1	
Elevation (from trench floor)	6 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.3



Bedding lift 1

Bedding material resource (Tons)	MASAND
----------------------------------	--------

Bedding lift 2

Elevation (from trench floor)	38 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.1
Bedding material resource (Tons)	MAFA

Bedding lift 3

Elevation (from trench floor)	76 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.1
Bedding material resource (Tons)	MACA1-1/2

7. Select **OK** and confirm that the pipe material and bedding materials populated the cost item.

You should end up with the following results



Cost Breakdown Structure (CBS) Register

Cost Item Record

CBS Code:

Optional Code:

Description:

Forecast (T/O) Qty:

Unit of Measure:

Unit Cost:

Total Cost:

Currency:

26

Underground Pipe

1,640.00

LF

\$34.59

\$56,734.45

U.S. Dollar

PI Assignment:

PI Line Number:

PI Description:

Cost Segment:

Pay Quantity:

Cost Source:

Alternate:

Job Overhead

1,640.00

Detail

BASE

Cost Item Summary

Detail : \$34.59

Plug : \$0.00

Quote : \$0.00

Allocation

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+	1	MPR36	Pipe RCP 36 In	1,000.00	0.00	1,000.00	Linear Feet
+	2	MASAND	Sand	101.11	0.00	101.11	Ton
→ +	3	MAFA	Fine Aggregate	384.13	0.00	384.13	Ton
+	4	MACA1...	Coarse Aggregate ...	2,153.15	0.00	2,153.15	Ton
*							

Production

Qty Driven Hourly Resources

Duration Driven Resources

Customize Display

Days: 0.00 0.00

Shifts: 0.00 0.00

Hours: 0.00 0.00

Man-Hours: 0.00 0.00

Equip-Hours: 0.00 0.00

LF/Day: 0.00 0.00

OK

Cancel

< Prev

Next >

Congratulations, you have completed this exercise!



## 14.3 IN-FIELD CALCULATOR

You can use the In-field Calculator to do simple mathematical calculations in any numeric field on records, registers, and tree lists. You use this calculator much like an Excel workbook field, by inserting the cursor in the field where you want to perform a calculation, then pressing the "=" key, followed by a valid arithmetic expression. To display the calculated result, you press the tab key. The resulting value is stored without the arithmetic expression used to calculate the value.

The following steps walk through using the In-field Calculator to calculate the area of how much sandblasting is needed for painting the steel bridge structure specified in the Training Job.

### NOTE

The resulting field value is stored without the arithmetic expression used to calculate the value.

### Step by Step — In-Field Calculator

1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Scroll to find cost item **13.3 Sandblast**.
3. Click in the **Forecast (T/O) Quantity** field.

Item	Description	Quantity	Unit
<b>13</b>	<b>Paint Existing Steel Bridge Structure</b>	1.00	Lump Sum
+ 13.1	Setup Equipment	1.00	Lump Sum
+ 13.2	Wash-Remove-Dispose of Water	25,000.00	Square Feet
+ 13.3	Sandblast	2500	Square Feet
+ 13.4	Apply Primer	25,000.00	Square Feet
+ 13.5	Paint Top Coat	25,000.00	Square Feet

4. Press the = key, then type **10\*250**.



<b>- 13</b>	<b>Paint Existing Steel Bridge Structure</b>	1.00	Lump Sum
<b>+ 13.1</b>	Setup Equipment	1.00	Lump Sum
<b>+ 13.2</b>	Wash-Remove-Dispose of Water	25,000.00	Square Feet
<b>+ 13.3</b>	Sandblast	=10*250	Square Feet
<b>+ 13.4</b>	Apply Primer	25,000.00	Square Feet

5. Press the **Tab** key and it calculates the result.



## Lesson 14 Review

1. The Haul calculator allows you to:
  - a. Calculate the number of trucks required to complete the haul in a set amount of time
  - b. Calculate how long it will take to complete the haul with a set number of trucks
  - c. Neither
  - d. Both

---
2. The Trench Calculator allows you to quickly calculate \_\_\_\_\_ values.
  - a. Trench
  - b. Pipe
  - c. Bedding
  - d. All of the above

---
3. For the in-field calculator, what symbol needs to be at the beginning of the math equation for it to calculate?
  - a. +
  - b. -
  - c. =
  - d. (

---

## Lesson 14 Summary

As a result of this lesson, you can:

- Use the Haul Calculator
- Use the Trench Calculator
- Use the In-Field Calculator



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# LESSON 15 – COST ITEM ASSEMBLIES

**Lesson Duration: 40 Minutes**

## Lesson Objectives

After completing this lesson, you will be able to:

- Explain what a cost item assembly is and why it is used
- Create and edit a cost item assembly
- Employ a cost item assembly

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## 15.1 COST ITEM ASSEMBLY OVERVIEW

### 15.1.1 Overview

**Cost Item Assemblies** utilize predictive models to quickly and accurately estimate elements of a job that can be repetitive in nature on a single job or from job to job. They use parameter driven estimating to create cost items. They use created parameters and mathematical calculations to incorporate quantity takeoffs and estimate quantification into cost items. A cost item assembly will output fully populated cost items directly into the project CBS. The inputs are dimension values and specification sections, while the output is cost items.

Cost Item Assemblies accomplish the following:

- Model a construction system or component that is quick and easy to employ
- Promote a consistent process of estimating among various users
- Enable less experienced users to more efficiently create an estimate
- Provide good visibility into the assumptions and calculations made to obtain the results
- Provide the flexibility to easily adjust model assumptions and account for varying project requirements from estimate to estimate

All the following can be done with Cost Item Assemblies:

- Assembly employments can be re-opened to modify inputs
- Assemblies can be stored in the Library and imported like resources
- Assemblies can be copied and pasted between projects
- Assemblies can be created from existing project cost items
- Assemblies can be modified for project specific needs
- Assemblies can be modified and employments updated in the project
- Employed assemblies can become permanent cost items by deleting the link
- Assemblies can be created for either metrical or imperial units

### 15.1.2 Users

There are typically two types of users that work with Cost Item Assemblies:



- The power user, someone like the lead estimator, creates the cost item assemblies
- The end user uses the created assemblies

### User Types

User	Function
Power User	<p>This user can determine what questions need to be answered to create a standard construction system, and how specifically to use those answers in determining the systems quantities, cost and resources to be applied in the estimate.</p> <p>Many companies have spreadsheets that they have created for estimators in the organization to use in estimating specific types of work. If you are the person that often creates or enhances those spreadsheets, you probably fall into the category of being a user that will create Cost Item Assemblies.</p>
End User	<p>This is sometimes a less experienced estimator that will benefit from being provided a set of questions to answer because it can help the estimator develop an understanding for the way the work is estimated and provide them with guidance in gathering the right information.</p> <p>The use of Cost Item Assemblies is not exclusive to less experienced estimators, however. They can be used by anyone involved in the estimating process that wants to quickly create an estimate for a scope of work in a consistent and repeatable way. Cost Item Assemblies can be a great way to initialize an estimate and give the estimator more time to focus on analyzing the job and considering different ways of approaching the work.</p>

### 15.1.3 Navigation / Data Blocks

The use of data blocks in the Cost Item Assembly Register allows you to set up a layout that works best for you.

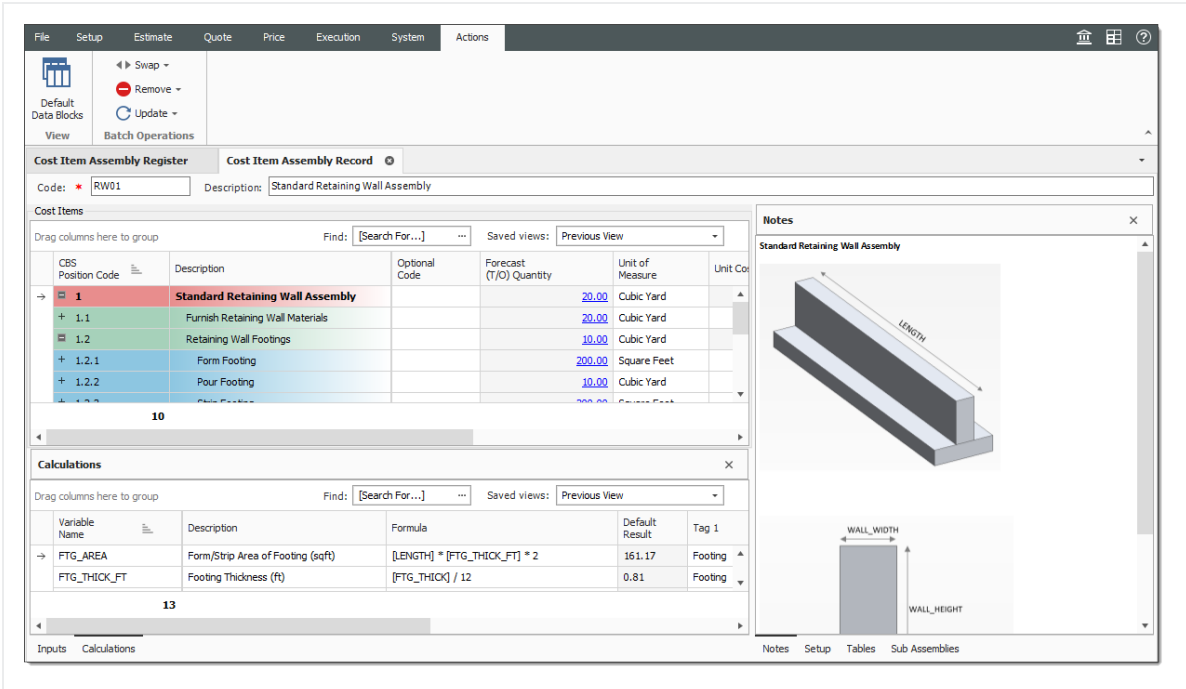
The data blocks in the Cost Item Assembly Record are:

- Cost Items
- Inputs
- Calculations



- Notes
- Setup
- Tables
- Sub Assemblies

The Default Data Block view looks like the following:



### 15.1.4 Move Data Blocks

To move **Calculations** onto the screen, simply click on the name and drag it until the following options appear:



**Cost Item Assembly Register**

Code: RW01 Description: Standard Retaining Wall Assembly

**Cost Items**

CBS Position Code	Description	Optional Code	Forecast (T/C) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	WBS: CEAS (Civil Engineering Account Code System)	WBS: CEAS (Civil Engineering Account Code System) Description	Pay Item Description	Is Linked To Excel	Currency
1	Standard Retaining Wall Assembly		20.00	Cubic Yard	\$424.67	\$8,493.38					U.S. Dollar
1.1	Furnish Retaining Wall Materials		20.00	Cubic Yard	\$150.65	\$3,013.08					U.S. Dollar
1.2	Retaining Wall Footings		10.00	Cubic Yard	\$194.66	\$1,946.56					U.S. Dollar
1.2.1	Form Footing		200.00	Square Feet	\$6.29	\$1,257.77					U.S. Dollar
1.2.2	Pour Footing		200.00	Cubic Yard	\$26.95	\$5,389.52					U.S. Dollar
1.3	Strip Footing		20.00	Cubic Yard	\$12.80	\$2,560.00					U.S. Dollar
1.3.1	Retaining Wall Wall		20.00	Cubic Yard	\$333.37	\$6,667.40					U.S. Dollar
1.3.1.1	Pour Wall		20.00	Square Feet	\$4.19	\$83.80					U.S. Dollar
1.3.2	Pour Wall		20.00	Cubic Yard	\$33.90	\$678.00					U.S. Dollar
1.3.3	Strip Wall		20.00	Square Feet	\$1.80	\$36.00					U.S. Dollar
						\$8,493.38					

**Calculations**

Variable Name	Description	Formula	Default Value	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2
FTG_AREA								
FTG_THICK_FT								

**Inputs**

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2
LENGTH	1	Wall Length (ft)	Value		100.00	None				✓					
FTG_WIDTH	2	Footing Width (ft)	Value		3.33	None				✓					
FTG_THICK	3	Footing Thickness (in)	Value		9.67	None				✓					
WALL_HEIGHT...	4	Wall Height, Avg (ft)	Value		2.40	None				✓					
WALL_WIDTH...	5	Wall Width (in)	Value		12.00	None				✓					

**Notes**

Standard Retaining Wall Assembly

3D Diagram showing dimensions: LENGTH, WALL\_WIDTH, WALL\_HEIGHT, FTG\_WIDTH, FTG\_THICK.

Next, choose where to place it on your screen:

**Inputs**

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2
LENGTH	1	Wall Length (ft)	Value		100.00	None				✓					
FTG_WIDTH	2	Footing Width (ft)	Value		3.33	None				✓					
FTG_THICK	3	Footing Thickness (in)	Value		9.67	None				✓					
WALL_HEIGHT...	4	Wall Height, Avg (ft)	Value		2.40	None				✓					
WALL_WIDTH...	5	Wall Width (in)	Value		12.00	None				✓					

**Calculations**

Variable Name	Description	Formula	Default Value	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2
FTG_AREA								
FTG_THICK_FT								

The calculations data block now appears on the screen.

**Cost Item Assembly Register**

Code: RW01 Description: Standard Retaining Wall Assembly

**Cost Items**

CBS Position Code	Description	Optional Code	Forecast (T/C) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	WBS: CEAS (Civil Engineering Account Code System)	WBS: CEAS (Civil Engineering Account Code System) Description	Pay Item Description	Is Linked To Excel	Currency
1	Standard Retaining Wall Assembly		20.00	Cubic Yard	\$424.67	\$8,493.38					U.S. Dollar
1.1	Furnish Retaining Wall Materials		20.00	Cubic Yard	\$150.65	\$3,013.08					U.S. Dollar
1.2	Retaining Wall Footings		10.00	Cubic Yard	\$194.66	\$1,946.56					U.S. Dollar
1.2.1	Form Footing		200.00	Square Feet	\$6.29	\$1,257.77					U.S. Dollar
1.2.2	Pour Footing		200.00	Cubic Yard	\$26.95	\$5,389.52					U.S. Dollar
						\$8,493.38					

**Inputs**

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2
LENGTH	1	Wall Length (ft)	Value		100.00	None				✓					
FTG_WIDTH	2	Footing Width (ft)	Value		3.33	None				✓					
FTG_THICK	3	Footing Thickness (in)	Value		9.67	None				✓					
WALL_HEIGHT...	4	Wall Height, Avg (ft)	Value		2.40	None				✓					
WALL_WIDTH...	5	Wall Width (in)	Value		12.00	None				✓					

**Calculations**

Variable Name	Description	Formula	Default Value	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2	User Defined 3
FTG_AREA	Form/Strip Area of Footing (sqft)	$[LENGTH] * [FTG_THICK_FT] * 2$	161.17	Footing					
FTG_THICK_FT	Footing Thickness (ft)	$[FTG_THICK] / 12$	0.81	Footing					
FTG_VOL	Volume of Footing Concrete (CY)	$[LENGTH] * [FTG_WIDTH] * [FTG_THICK_FT] / ...$	9.94	Footing					

**Notes**

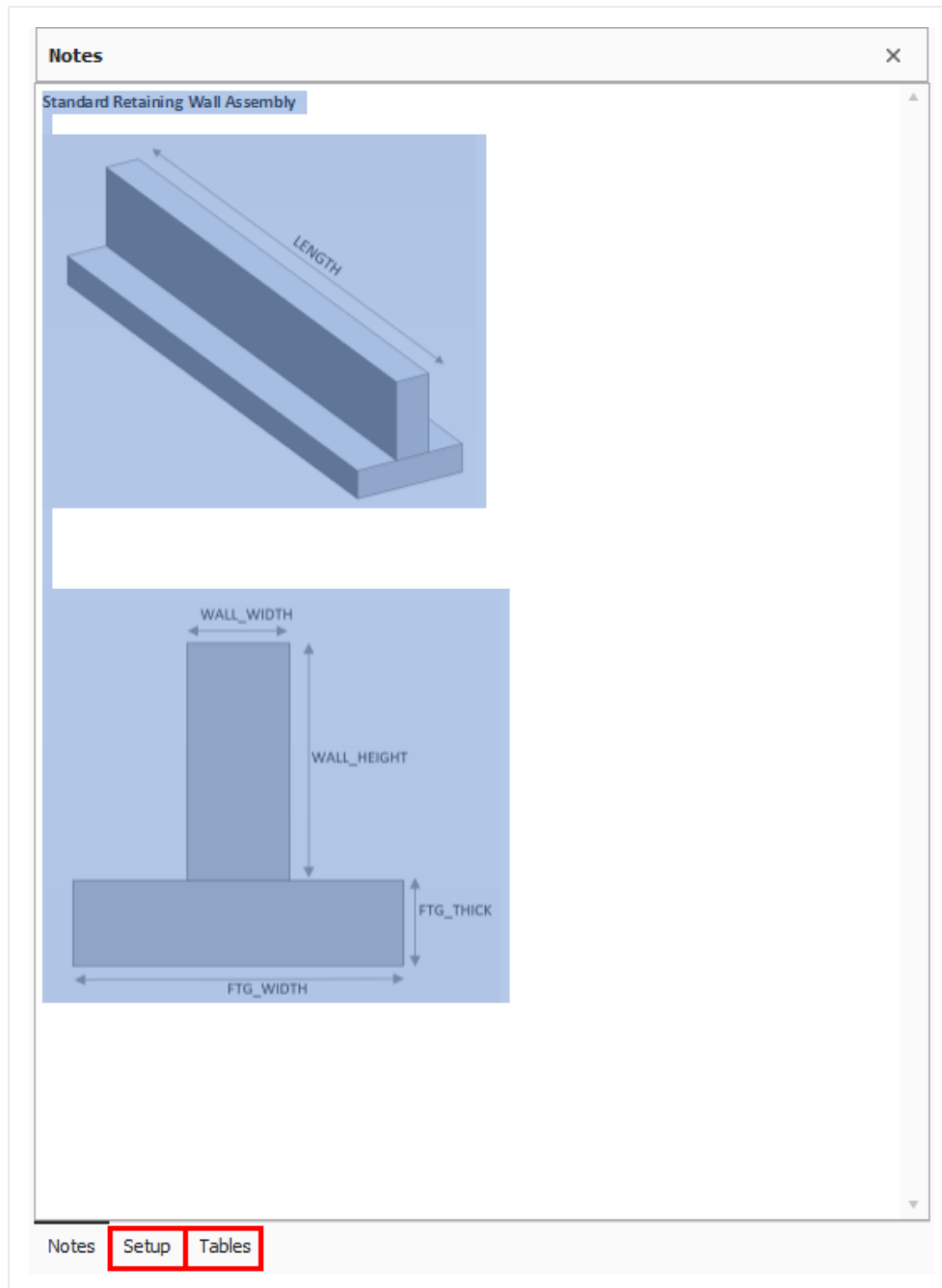
Standard Retaining Wall Assembly

3D Diagram showing dimensions: LENGTH, WALL\_WIDTH, WALL\_HEIGHT, FTG\_WIDTH, FTG\_THICK.



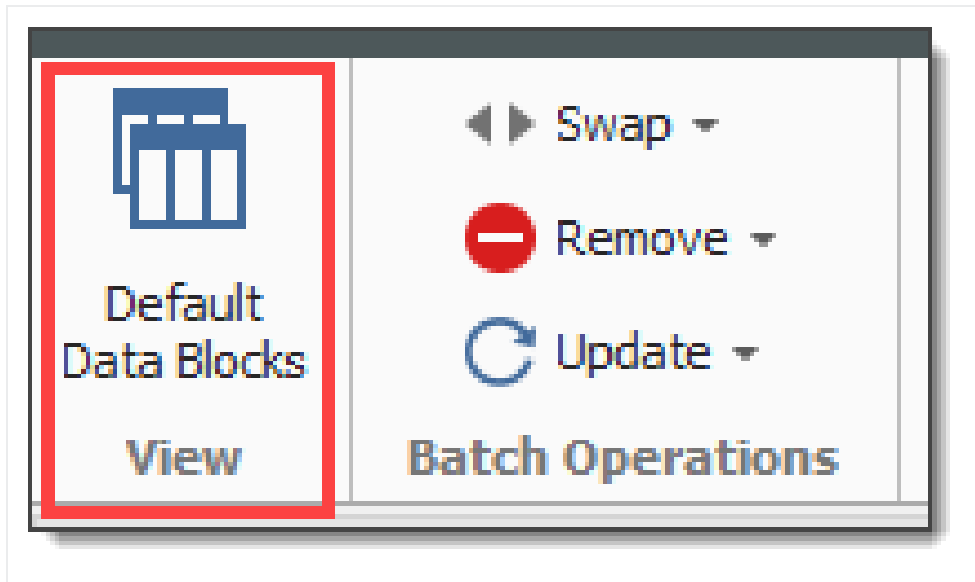
### 15.1.5 Add and Remove Data Blocks

To look at **Setup** and **Tables**, click on the tabs to view them.



To get rid of the Notes screen, simply press the X, and to bring it back, click on **Default Data Blocks** in the ribbon.





## 15.2 COST ITEM ASSEMBLY CREATION

### 15.2.1 Create a Cost Item Assembly Record

Cost Item Assemblies allow you to create intelligent construction systems to automatically estimate various scopes of work, based upon a user providing specification and dimension variables. You can create multiple Cost Item Assemblies and maintain a library of construction systems that are used throughout the estimating department. When creating an assembly, it's helpful to have a solid understanding of the various inputs that will be used and how those inputs will be used to influence the resulting collection of cost items.

Cost Item Assemblies are created by entering a code and description for the assembly. Both fields can be changed at any time.

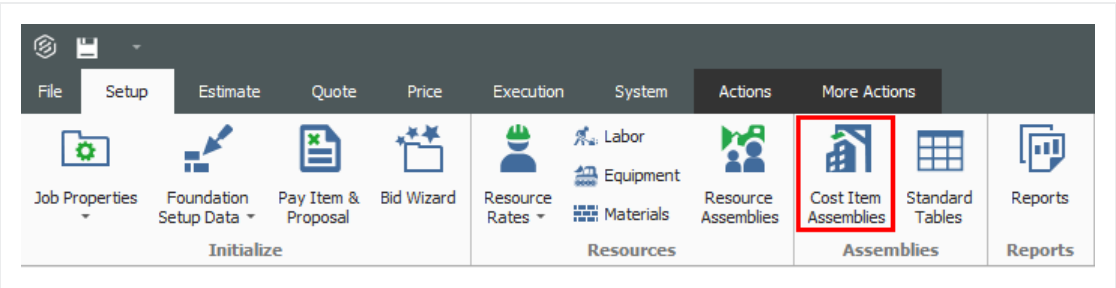
#### Scenario

One scope of work that is part of the estimate is a ductbank. This ductbank work entails excavating, laying the conduit, and then either backfilling it with concrete or soil depending on the location, and all conduit runs consist of two conduits. You want to estimate the cost and hours for this work using a cost item assembly.

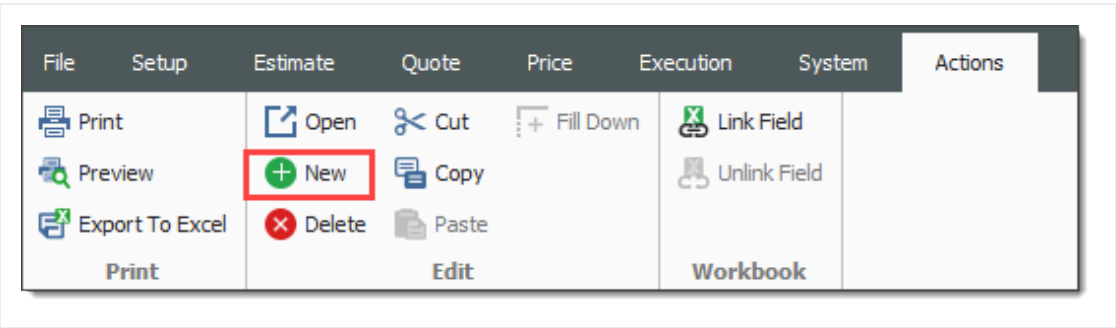


Step by Step — Create a Cost Item Assembly Record

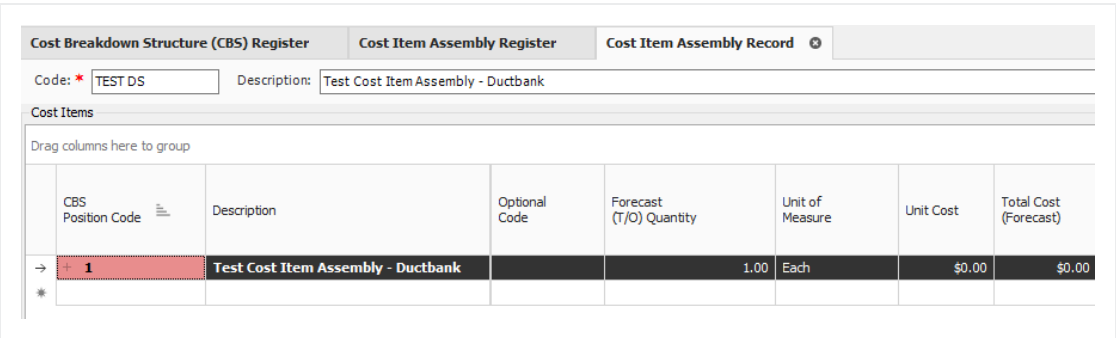
- 1. From the Setup tab, click on **Cost Item Assemblies**.



- 2. From the Actions tab, click on **New**.

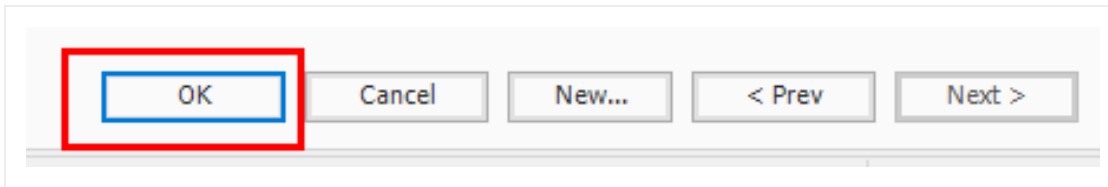


- 3. In the Code field, type **TEST – Your Initials**.
- 4. In the Description field, type **Test Cost Item Assembly - Ductbank**.



- 5. In the bottom right corner, click **OK**.





- Notice that your Cost Item Assembly now shows up in the Cost Item Assembly Register

Cost Breakdown Structure (CBS) Register

Cost Item Assembly Register

Drag columns here to group

	Code	Description	Assembly File Description	Default Quantity	Default Unit of Measure	Default Unit Cost	Default Total Cost	Default Currency
	RW01	Standard Retaining Wall Assembly	Standard Cost It...	20.00	Cubic Yard	\$424.67	\$8,493.38	U.S. Dollar
→	TEST DS	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00	U.S. Dollar
*								

## 15.2.2 Workflow

There is a standard workflow for building cost item assemblies .

1. Define the desired output from an assembly (cost items).
2. Decide what questions the estimator will be required to answer (and what assumptions you want to set).
3. Create input tables for user selections.
4. Create expressions to provide the required results to populate the cost items.

## 15.2.3 Build Cost Item Assembly Record

Once your Cost Item Assembly has been created, it is time to build the assembly. To begin, you first fill out the setup information, then you use the remaining data blocks to build the assembly record.

The fields in the Setup tab can be filled with unique names, choice of pull-downs or left blank. The fields on the Setup tab include:

- Assembly file
- Geographic Areas
- Wage Zone
- Org. Category

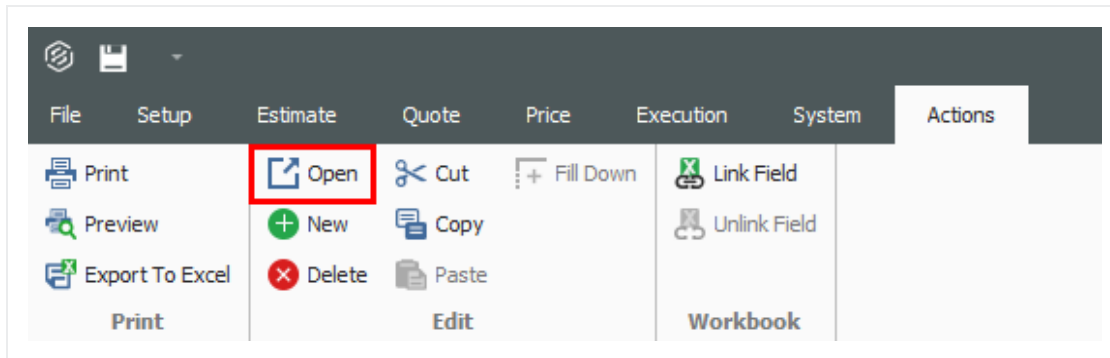


- Last Changed By is updated when the definition of the assembly is modified, such as the inputs, calculations, cost items, tables, notes, etc.
- Last Changed On is updated when the definition of the assembly is modified, such as the inputs, calculations, cost items, tables, notes, etc.
- The Tag and User Defined field can be filled in by the user

The first four fields are used the same way resource attributes are used to filter which resources are imported from the master library into a project. These will appear on the cost basis tab of job properties as filters to determine which cost item assemblies you import into a new estimate.

## Step by Step — Cost Item Assembly Set Up

1. Select your assembly from the list and click **Open** from the ribbon.



2. In the bottom right corner, click on the **Setup** tab.



**Setup** X

Assembly File:  Tag 1:

Geographic Area:  Tag 2:

Wage Zone:  Tag 3:

Org. Category:  Tag 4:

Last Changed By: Karen.Loftus Tag 5:

Last Changed On: 11/15/2019 9:00:37 AM Tag 6:

Tag 7:

Tag 8:

Tag 9:

Tag 10:

Notes **Setup** Tables Sub Assemblies

3. In the Assembly File drop-down, select **Standard Cost Item Assembly File**.



Setup

Assembly File:

Tag 1:

Geographic Area:

Description

Tag 2:

Wage Zone:

Komatsu Equipment Rate File

Tag 3:

Org. Category:

Standard Assembly File

Standard Cost Item Assembly File

Tag 4:

Last Changed By:

Standard Equipment Rate File

Tag 5:

Last Changed On:

Standard Installed Equipment Rate File

Tag 6:

Standard Labor Rate File

Tag 7:

Standard Material Rate File

Tag 8:

Tag 9:

Tag 10:

4. Select a Geographic Area and Org. Category.

Setup

Assembly File:

Standard Cost Item Assembly ...

Tag 1:

Geographic Area:

Southwest

Tag 2:

Wage Zone:

Tag 3:

Org. Category:

Excavator

Tag 4:

Last Changed By:

Karen.Loftus

Tag 5:

Last Changed On:

11/15/2019 9:03:24 AM

Tag 6:

Tag 7:

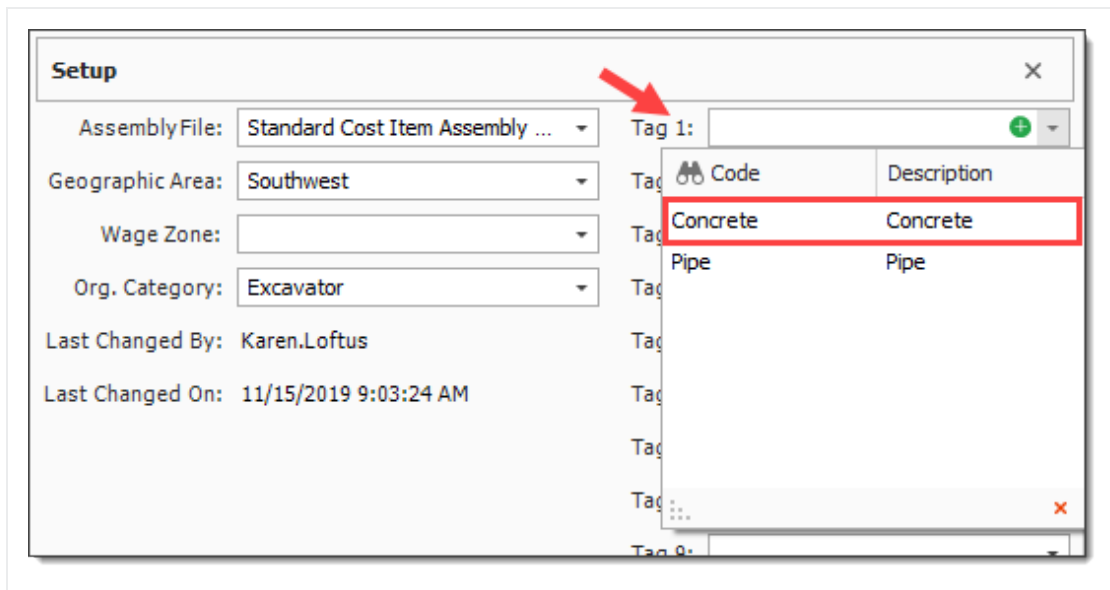
Tag 8:

Tag 9:

Tag 10:

5. In the Tag 1 drop-down, select **Concrete**.





**Setup**

Assembly File: Standard Cost Item Assembly ...

Geographic Area: Southwest

Wage Zone:

Org. Category: Excavator

Last Changed By: Karen.Loftus

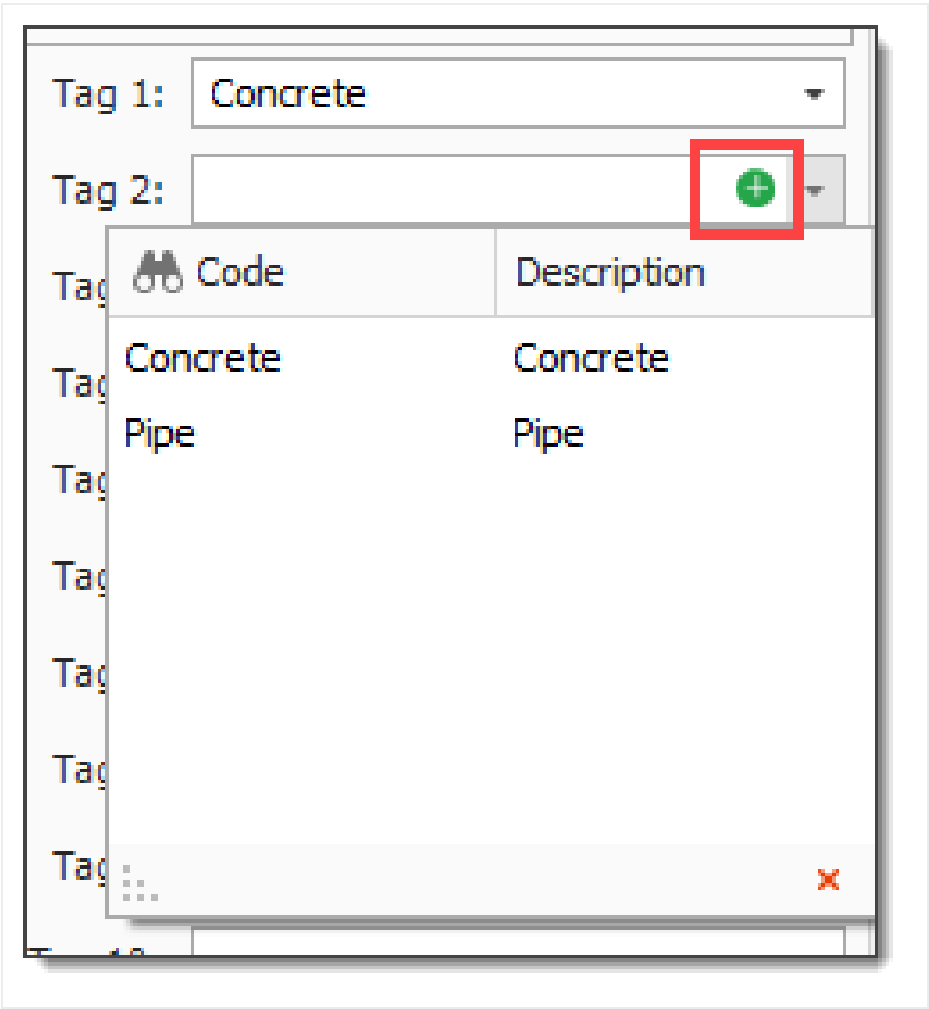
Last Changed On: 11/15/2019 9:03:24 AM

Tag 1:

Code	Description
Concrete	Concrete
Pipe	Pipe

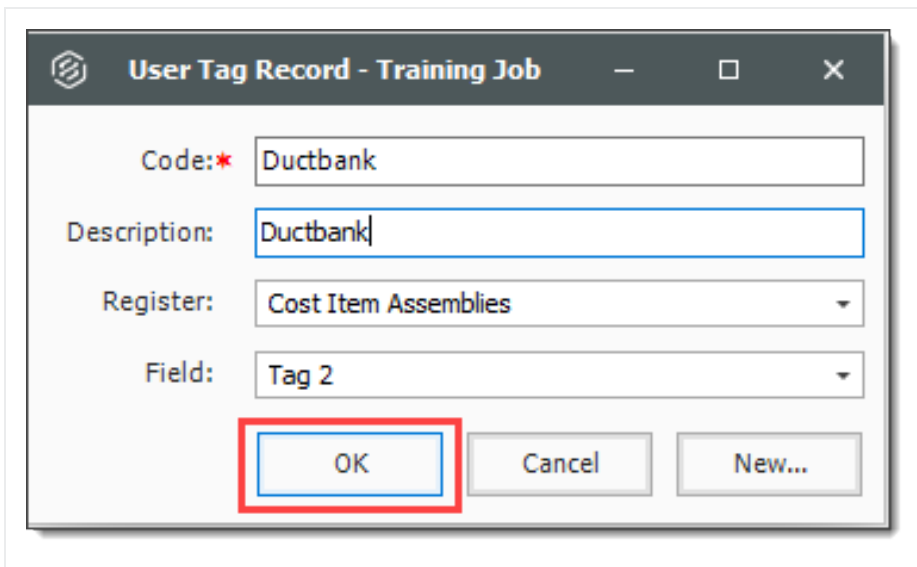


6. In the Tag 2 drop-down, click the **Add** icon.



7. Enter the following, then click **OK**.





### 15.2.4 Cost Items

The Cost Items data block is used to create cost item breakdown structure, where you can assign the default values and resource employments and link the results of the calculated values to the appropriate cost item and resource employment fields. This is where you build a framework of cost items that you want as output from this assembly.

Cost Items for a Cost Item Assembly are created within the Cost Item Assembly Record, not in the CBS Register.

There will be at least one cost item with the following default values which you can override.

- Default Description is equal to the Assembly Description
- Default Forecast (T/O) Qty = 1
- This is the top-level cost item in the assembly. Any additional cost items will need to be created as subordinates to this cost item

#### NOTE

After you complete the values in the **Cost Items** data block, the steps included in the **Calculations** data block need to be completed prior to linking any values to the cost items.

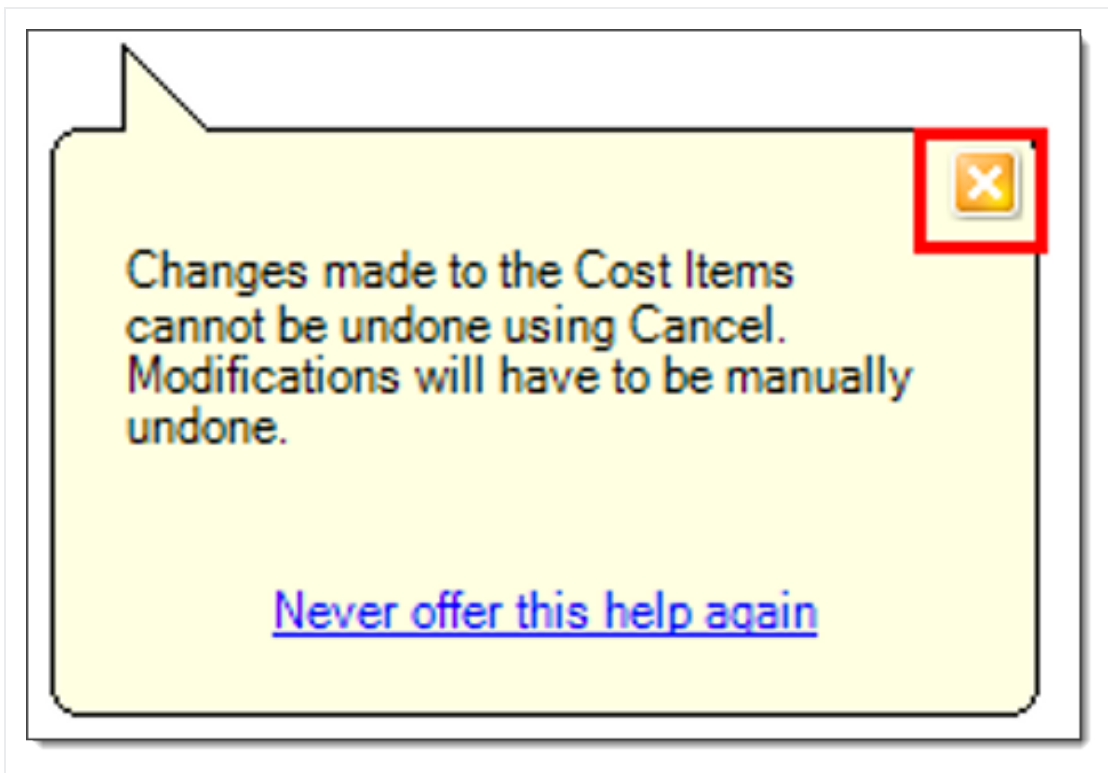


**TIP**

This data block has the same functionality as the CBS register; double-clicking one of the cost items or selecting one of the cost items and choosing **Open** from the menu will open the Cost Item Record. To quickly perform this work, you can easily copy cost items from the CBS Register and paste them into the Cost Items data block of the Cost Item Assembly Record.

## Step by Step — Create Cost Items in an Assembly

1. Click **X** on the pop up.



2. From the Cost Items data block, right click on your cost item and select **Insert Subordinate**.



**Cost Items**

Drag columns here to group

	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity
→ + 1		<b>Test Cost Item Assembly - Ductbank</b>		
*				

1

**Inputs**

0

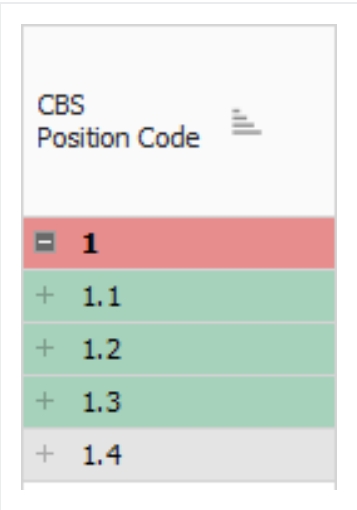
**Calculations**

Drag columns here to group

- Open
- New
- Delete
- Cut
- Copy
- Paste
- Fill Down
- Link this field to Excel
- UnLink from Excel
- Link this field to Calculation Result
- Unlink from Calculation Result
- Indent
- Outdent
- Insert
- Insert Subordinate**
- Split
- Insert Resource
- Insert Resource Assembly
- Toggle Suspended
- Subtotal Calculator

3. Insert 4 subordinates.





4. Enter the descriptions and units of measure as follows:

Cost Item Assembly Register

Cost Item Assembly Record

Cost Item Assembly Record ⓘ

Code: \* TEST - KL

Description: Test Cost Item Assembly - Ductbank

Cost Items

Drag columns here to group

	CBS Position Code ⓘ	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	
☰ 1		Test Cost Item Assembly - Ductbank		1.00	Each	
+ 1.1		Excavate Ductbank		1.00	Each	
+ 1.2		Install Ductbank Conduit		1.00	Each	
+ 1.3		Pour Concrete		1.00	Each	
+ 1.4		Backfill		1.00	Each	

### 15.2.5 Inputs and Tables

The **Inputs** data block is where you define the questions that will be asked of the user when they employ a Cost Item Assembly. Inputs can be value-type or table-type inputs and validation rules can be specified for value-type inputs such as minimum or maximum values that are acceptable, or default values that appear when the Cost Item Assembly is employed. These Inputs will be the parameters used in calculations to drive the Cost Item Assembly outputs.

**Tables** are used for reference data and can provide functionality similar to a lookup field in excel. Tables may contain account codes, production rates, or other reference fields and can be imported from the Library or copied from one assembly to another. Tables can be assembly specific, project level



(Standard), or Enterprise (Library) level (Master Standard). You can populate tables from a project specification list.

## Step by Step — Create Input Values

1. Navigate to the Inputs data block. In the first empty field under Variable Name, type **Length**, then press **Tab**.

The screenshot shows the 'Inputs' data block interface. At the top, there is a header 'Inputs' and a sub-header 'Drag columns here to group'. Below this is a table with the following columns: Variable Name, Display Order, Description, Input Type, Table, Default Value, Data Validation, and Value / Minimum. The first row of the table has the following values: Variable Name is 'LENGTH', Display Order is empty, Description is empty, Input Type is 'Value', Table is empty, Default Value is '0.00', Data Validation is 'None', and Value / Minimum is empty. There is a small icon in the first column of the first row.

	Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum
	LENGTH			Value		0.00	None	

### TIP

The **Variable Name** is how the calculations will reference the input values.

- The Display Order field can be set to control the order in which you are prompted to provide the input values
2. Select the Description field and type **Ductbank Length (ft)**, then press **Tab**.

The screenshot shows the 'Inputs' data block interface after the second step. The table now has two rows. The first row is the same as before. The second row has the following values: Variable Name is 'LENGTH', Display Order is '1', Description is 'Ductbank Length (ft)', Input Type is 'Value', Table is empty, Default Value is '0.00', Data Validation is 'None', and Value / Minimum is empty. There is a small icon in the first column of the first row. Below the table, there is a scroll bar and a tab labeled 'Inputs'.

	Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum
	LENGTH	1	Ductbank Length (ft)	Value		0.00	None	



3. In the Input Type field, select **Value** from the drop-down list. In the Default Value field, type **100**.

Inputs

Drag columns here to group

	Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum
→	LENGTH	1	Ductbank Length (ft)	Value		100.00	None	
*								

1

InputsCalculations

4. Fill out additional fields as shown below:

Inputs

Drag columns here to group

	Variable Name	D... O...	Description	Input Type	Table	Default Value	Data Validation	Value Minimum
	LENGTH	1	Ductbank Length (ft)	Value		100.00	None	
	WIDTH	2	Ductbank Width (ft)	Value		10.00	None	
	DEPTH	3	Ductbank Depth (ft)	Value		6.00	None	
	RADIUS	4	Conduit Radius (ft)	Value		0.33	None	

15.2.5.1 Data Validation

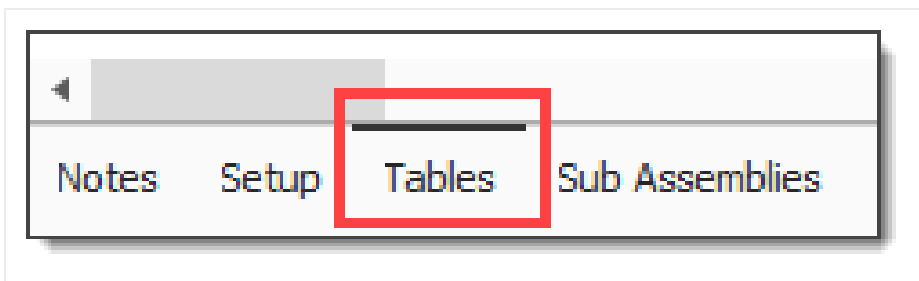
The **Data Validation** field determines what type of data validation is enforced when the Cost Item Assembly is employed. This field is enabled only when the Input Type is *Value*. The data validation options are as follows:



Selection	Description
None	No validation is enforced, and any numeric value is permissible.
Equal	Permits the entry of a value that is equal to the value entered in the <b>Value/Minimum</b> field.
Not Equal	Permits the entry of a value that is not equal to the value entered in the <b>Value/Minimum</b> field.
Greater Than	Permits the entry of a value that is greater than the value entered in the <b>Value/Minimum</b> field.
Greater Than or Equal	Permits the entry of a value that is equal to or greater than the value entered in the <b>Value/Minimum</b> field.
Less Than	Permits the entry of a value that is less than the value entered in the <b>Value/Minimum</b> field.
Less Than or Equal	Permits the entry of a value that is less than or equal to the value entered in the <b>Value/Minimum</b> field.
Between	Permits the entry of a value that falls between the range of numbers defined by the values entered in the <b>Value/Minimum</b> field and the <b>Maximum</b> field.
Not Between	Permits the entry of a value that does not fall between the range of numbers defined by the values entered in the <b>Value/Minimum</b> field and the <b>Maximum</b> field.

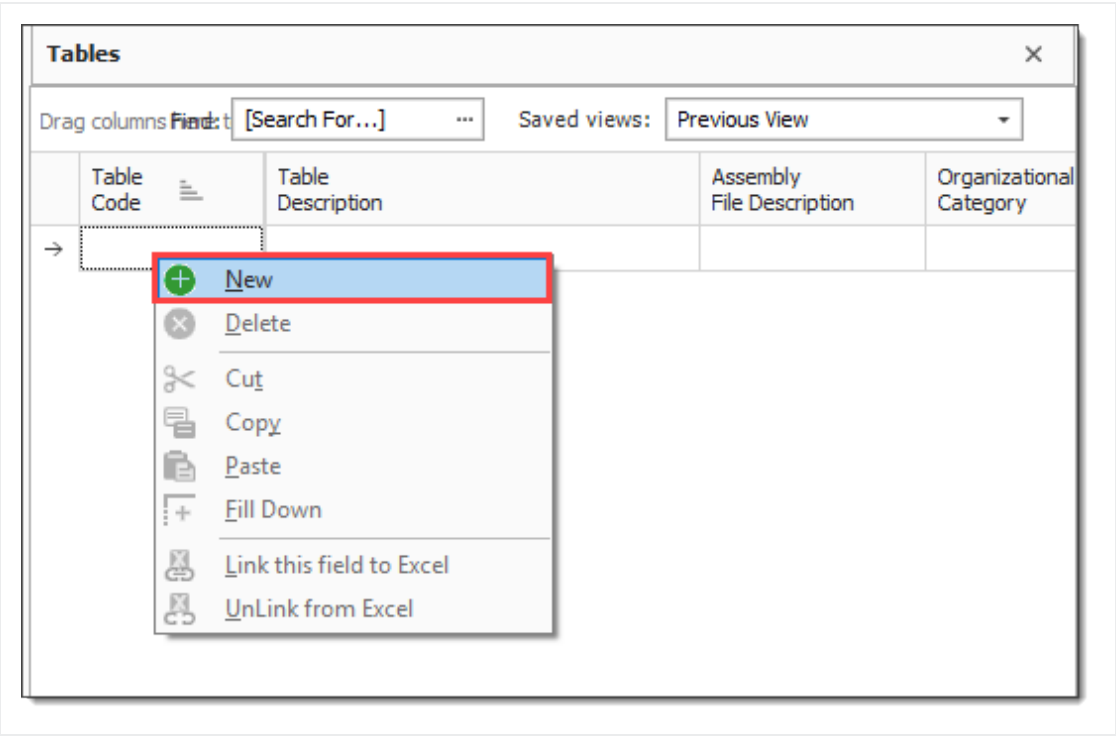
### Step by Step — Create Input Values from a Table

1. In the bottom right corner of the Cost Item Assembly Record, click on **Tables**.

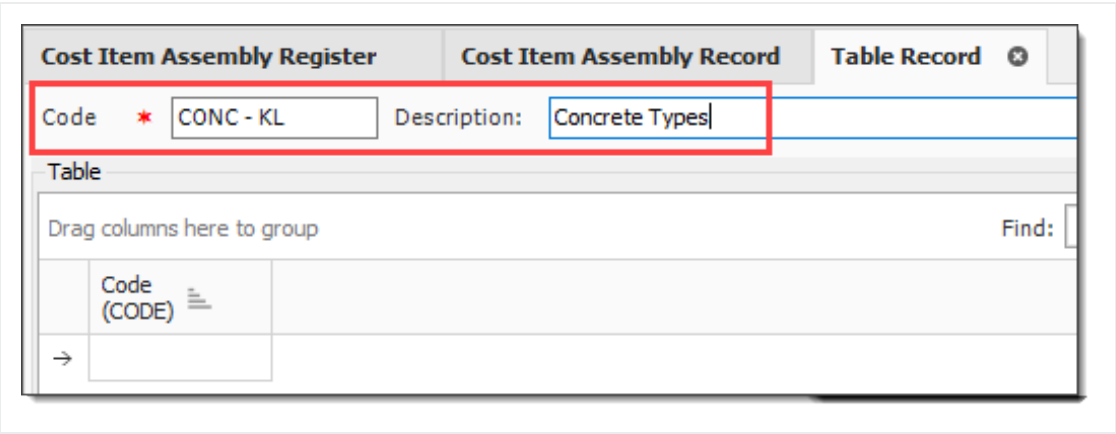


2. Right click in the Table Code field and select **New**.





3. In the Code field, type **CONC – Your Initials**, and in the Description field, type **Concrete Types**.



4. In the Columns section, enter in the following column names and descriptions, choosing the **Text** Type.



**Columns** ×

Drag columns here to group Find:  Saved views:

	Display Order	Column Name	Description	Type	Unique Key	Order By	Default Visibility
	1	CODE	Code	Text	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
→	2	DESC	Description	Text	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*					<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. Click **OK** in the bottom right corner.

6. In the Tables section, enter in the following data for the Concrete resource codes and types:

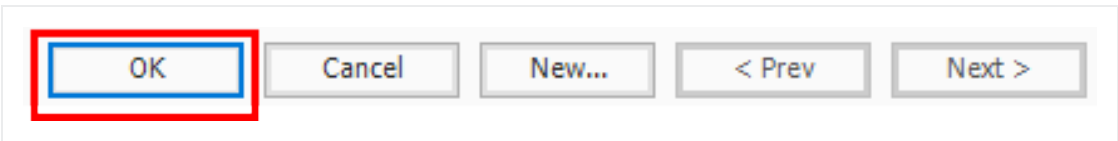
**Tables**

Drag columns here to group Find

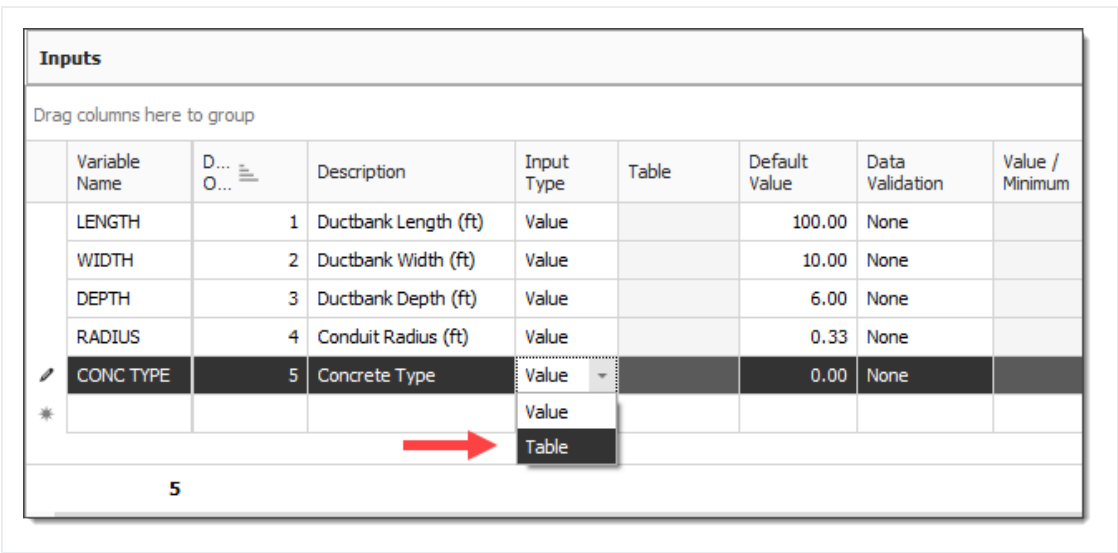
	Table Code	Table Description
	CONC - KL	Concrete Types
	MC3500	3500 PSI
→		



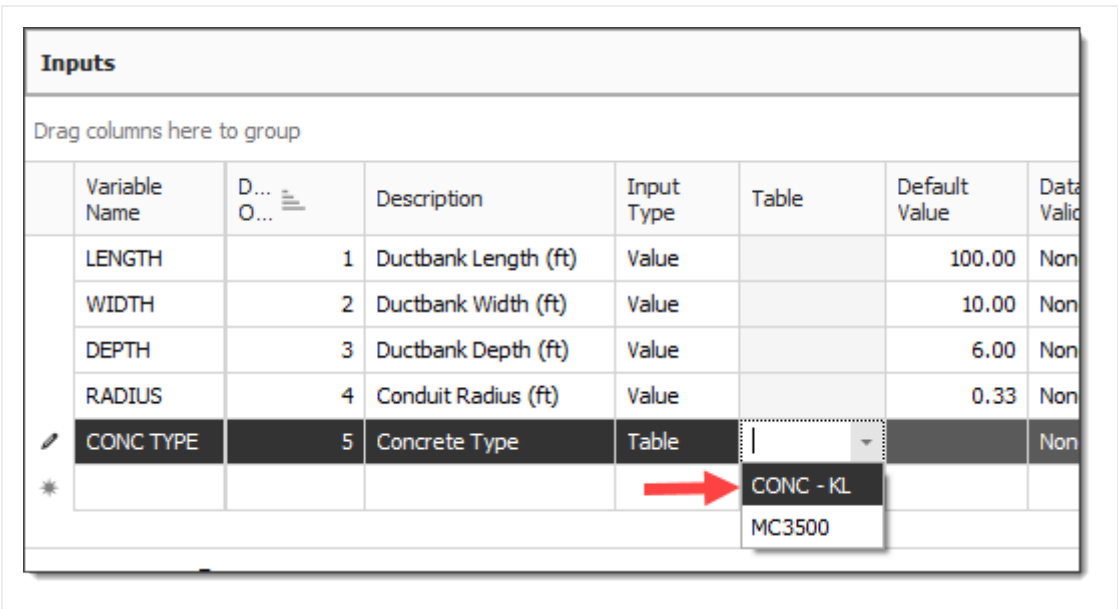
7. Click **OK** in the bottom right corner.



8. Add the following input, selecting **Table** for the Input Value from the drop-down.



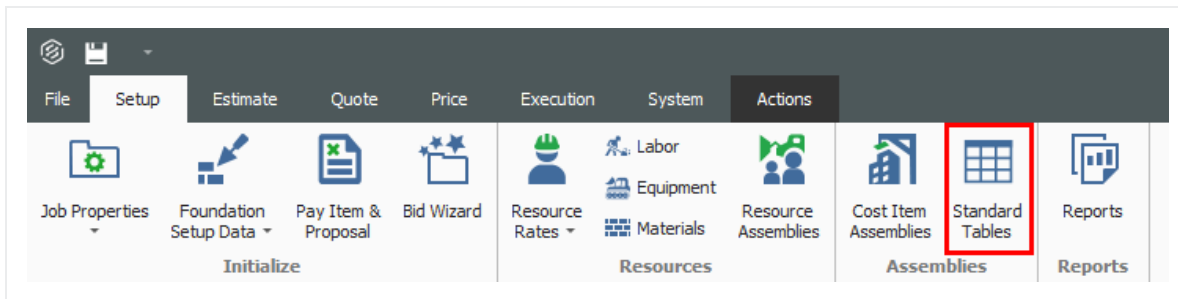
9. From the Table drop-down list, select your **CONC** table.





### 15.2.5.2 Standard Tables

In the Setup tab, you can create standard tables for the project. These are created exactly like tables within the Cost Item Assembly Record. All users in the project have access to the standard tables. These tables can be copied and pasted into the Cost Item Assemblies' tables. You can create, edit, or delete standard tables from the **Standard Table Register**. You can copy Standard tables from the library, to the library, and from another job.



### 15.2.6 Conditional Inputs

Conditional input expressions can include variables that reference other input values or ask simple Yes/No questions. This allows the user to provide answers to inputs, which are then used to determine if the user is asked to provide more answers for additional inputs. The variable **Default Value** is used in the conditional input expression, so the input is always hidden when the Cost Item Assembly is initially employed. Therefore, the **Default Visibility** checkbox is not selected, and when you create an estimate and employ the Cost Item Assembly in the **Cost Item Assembly Inputs** view, the conditional input is hidden.

You can then provide information and enter a dimension or a response to a question. Note that:

- If the value entered changes the expression result to *True*, the conditional input shows
- If you want to see all the inputs in a Cost Item Assembly even if their conditions are not currently evaluating to *True*, you can click **View** in Cost Item Assembly Inputs, and then select Show Hidden Inputs. This will display all the conditional inputs for the Cost Item Assembly
- To make it easier for users to select data from tables, you can hide unnecessary table columns in the Table Row Selection Register
- In both Cost Item Assembly Register and Standard Tables Register, go to the Columns data block



and clear the Default Visibility checkbox to hide columns in the table

The 'Columns' dialog box contains a table with the following data:

Display Order	Column Name	Description	Type	Unique Key	Order By	Default Visibility
1	CODE	Code	Text	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

More user tags and user defined fields are available on the Cost Item Assembly > Inputs data block related to a group of variables or with other similarities. A Standard View also exists, so you can define saved views to make use of the additional tags and fields.

## Step by Step — Set Conditional Inputs

1. Create a new input as follows, choosing **Table** as the Input Type, and selecting **Standard Table** from the drop-down.

The 'Inputs' dialog box contains a table with the following data:

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum
LENGTH	1	Ductbank Length (ft)	Value		100.00	None	
WIDTH	2	Ductbank Width (ft)	Value		10.00	None	
DEPTH	3	Ductbank Depth (ft)	Value		6.00	None	
RADIUS	4	Conduit radius (ft)	Value		0.33	None	
CONC TYPE	5	Concrete Type	Table	CONC - KL		None	
CONC	6	Is Concrete required?	Table	STANDA...		None	

2. Set the Default Value of the CONC variable as **No**, then click **OK**.



**Table Rows - Training Job**

Drag columns here to group Find:

Code (CODE)
→ NO
YES

**2**

OK Cancel

- In the Visibility Condition field for the CONC TYPE variable, click the **fx** button.

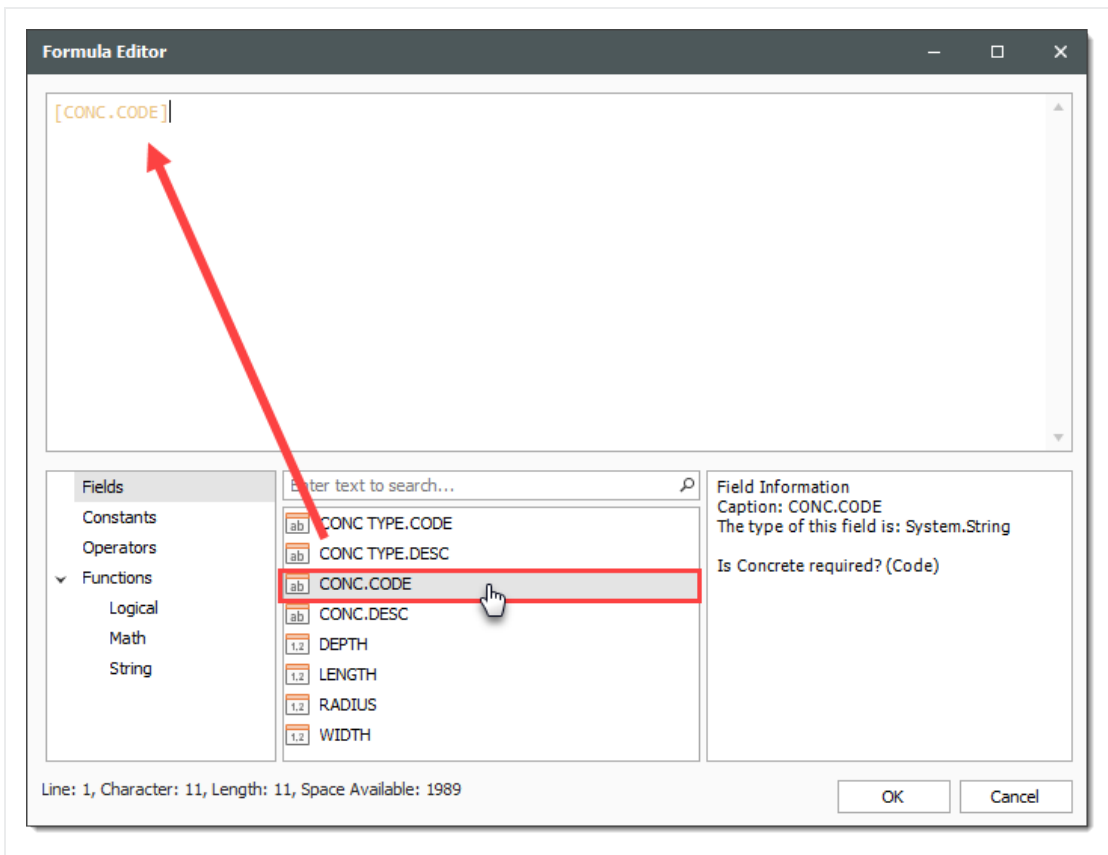
**Inputs**

Drag columns here to group Find:

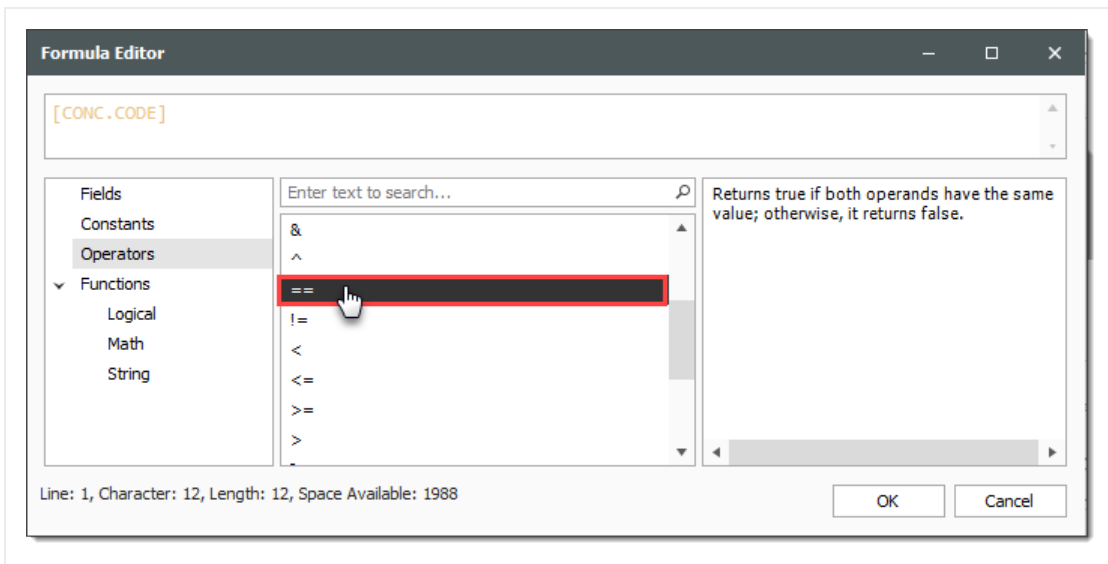
Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility
LENGTH	1	Ductbank Length (ft)	Value		100.00	None				<input checked="" type="checkbox"/>
WIDTH	2	Ductbank Width (ft)	Value		10.00	None				<input checked="" type="checkbox"/>
DEPTH	3	Ductbank Depth (ft)	Value		6.00	None				<input checked="" type="checkbox"/>
RADIUS	4	Conduit radius (ft)	Value		0.33	None				<input checked="" type="checkbox"/>
→ CONC TYPE	5	Concrete Type	Table	CONC - DS		None			<input type="text" value="fx"/>	<input checked="" type="checkbox"/>
CONC	6	Is Concrete required?	Table	STANDARD ...	NO	None				<input checked="" type="checkbox"/>
*										<input type="checkbox"/>

- In the Formula Editor, and from the Fields section, double click **[CONC.CODE]**.



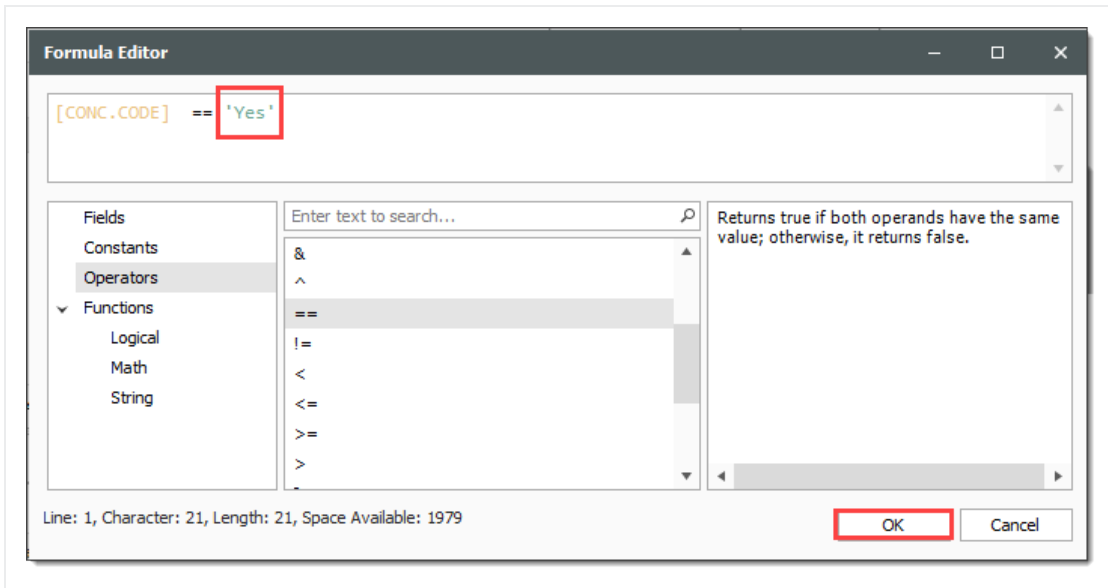


5. In the Operators field, double click on the '=='



6. In the Formula Editor, type 'Yes'.
7. Click **OK**.





- Notice that the Default Visibility field for CONC TYPE becomes unchecked
- This means that only when the answer to Is Concrete required is Yes, the CONC TYPE input will become visible; otherwise, it will stay hidden

Inputs										
Drag columns here to group					Find: [Search For...]		Saved views: Previous View			
Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility
LENGTH	1	Ductbank Length (ft)	Value		100.00	None				<input checked="" type="checkbox"/>
WIDTH	2	Ductbank Width (ft)	Value		10.00	None				<input checked="" type="checkbox"/>
DEPTH	3	Ductbank Depth (ft)	Value		6.00	None				<input checked="" type="checkbox"/>
RADIUS	4	Conduit radius (ft)	Value		0.33	None				<input checked="" type="checkbox"/>
→ CONC TYPE	5	Concrete Type	Table	CONC - DS		None			[CONC.CO...	<input type="checkbox"/>
CONC	6	Is Concrete required?	Table	STANDARD ...	NO	None				<input checked="" type="checkbox"/>
*										<input checked="" type="checkbox"/>

8. In the Tag 1 fields for CONC TYPE and CONC, select **Concrete**.



Inputs

Drag columns here to group

Find: [Search For...] Saved views: Previous View

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility	Tag 1
LENGTH	1	Ductbank Length (ft)	Value		100.00	None				<input checked="" type="checkbox"/>	
WIDTH	2	Ductbank Width (ft)	Value		10.00	None				<input checked="" type="checkbox"/>	
DEPTH	3	Ductbank Depth (ft)	Value		6.00	None				<input checked="" type="checkbox"/>	
RADIUS	4	Conduit radius (ft)	Value		0.33	None				<input checked="" type="checkbox"/>	
→ CONC TYPE	5	Concrete Type	Table	CONC - DS		None			[CONC.CO...	<input type="checkbox"/>	Concrete
* CONC	6	Is Concrete required?	Table	STANDARD ...	NO	None				<input checked="" type="checkbox"/>	Concrete

6

Inputs Calculations

9. In the Find field under Inputs, select **Tag 1**.

Inputs

Drag columns here to group

Find: Find using 'begins with' Find using 'contains' Saved views: Previous View

Find:

Find using 'begins with'  
Find using 'contains'  
~Variable Name  
Data Validation  
Description  
Display Order  
Input Type  
Table  
Tag 1  
Tag 2  
Tag 3  
User Defined 1  
User Defined 2  
User Defined 3  
Visibility Condition

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility	Tag 1
LENGTH	1	Ductbank Length (ft)	Value		100.00	None				<input checked="" type="checkbox"/>	
WIDTH	2	Ductbank Width (ft)	Value		10.00	None				<input checked="" type="checkbox"/>	
DEPTH	3	Ductbank Depth (ft)	Value		6.00	None				<input checked="" type="checkbox"/>	
RADIUS	4	Conduit radius (ft)	Value		0.33	None				<input checked="" type="checkbox"/>	
→ CONC TYPE	5	Concrete Type	Table	CONC - DS		None			[CONC.CO...	<input type="checkbox"/>	Concrete
* CONC	6	Is Concrete required?	Table	STANDARD ...	NO	None				<input checked="" type="checkbox"/>	Concrete

6

Inputs Calculations

10. Begin typing in Concrete and notice that the CONC TYPE row becomes highlighted.

Inputs

Drag columns here to group

Find: conc Saved views: Previous View

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation	Value / Minimum	Maximum	Visibility Condition	Default Visibility	Tag 1
LENGTH	1	Ductbank Length (ft)	Value		100.00	None				<input checked="" type="checkbox"/>	
WIDTH	2	Ductbank Width (ft)	Value		10.00	None				<input checked="" type="checkbox"/>	
DEPTH	3	Ductbank Depth (ft)	Value		6.00	None				<input checked="" type="checkbox"/>	
RADIUS	4	Conduit radius (ft)	Value		0.33	None				<input checked="" type="checkbox"/>	
→ CONC TYPE	5	Concrete Type	Table	CONC - DS		None			[CONC.CO...	<input type="checkbox"/>	Concrete
* CONC	6	Is Concrete required?	Table	STANDARD ...	NO	None				<input checked="" type="checkbox"/>	Concrete

6

Inputs Calculations



## 15.2.7 Calculations

Calculations are values produced from expressions that utilize hard values, input values, and lookup values. They can be numerical, Boolean, and/or character expressions. These calculations will provide the method to produce values to use with the cost item output of the assembly. Variable names can contain these special characters:

- A-Z
- 0-9
- \_
- ? (Null)

### 15.2.7.3 Formulas

The **Formula** field enables you to create your own custom expressions. You can take assembly inputs and calculate results. Calculation results may be used in other calculations or linked to an assembly's cost item register field values. Formulas can be created with numbers, math operators (e.g., + or – for addition or subtraction), input variable values or other calculation results, table lookup values, or any number of functions that are built into the Formula Editor.

The following formula shows an example of how to calculate the cubic foot volume of concrete in a 10' wide by 15' long by 6" thick slab on grade. The resulting answer is 75 cubic feet.

Variable Name ▲	Description	Formula	Default Result
VOL	Volume of Concrete (cuft)	$10 * 15 * (6.0 / 12)$	75.00

To calculate the same volume in cubic yards (there are 27 cubic feet in a cubic yard), the formula can be rewritten as follows. The resulting answer is 2.78 cubic yards.

Variable Name ▲	Description	Formula	Default Result
VOL	Volume of Concrete (CY)	$10 * 15 * (6.0 / 12) / 27$	2.78



### 15.2.7.4 Variables

**Variables** are placeholders for values that can be changed based upon user input or calculation results, and they can be used to simplify a complex formula. Variables require a name that is unique within the Cost Item Assembly, and the syntax for referencing a variable in a formula is to enclose the entire variable name in [brackets]. Using the preceding example, a calculation named [VOL\_CUFT] determines the cubic foot volume of 75. The second formula then references the value stored in the variable [VOL\_CUFT] and divides it by 27 to calculate the cubic yard volume of 2.78.

Variable Name ▲	Description	Formula	Default Result
VOL_CUFT	Volume of Concrete (cuft)	$10 * 15 * (6.0 / 12)$	75.00
VOL_CY	Volume of Concrete (CY)	$[VOL\_CUFT] / 27$	2.78

Input variables are also used to store user inputs as described above. In the following example, three inputs are created in the Inputs section of the Cost Item Assembly and employing this Cost Item Assembly will prompt the user to provide the values for the width, length and thickness of the concrete slab, those values are stored in the variables named [WIDTH], [LENGTH] and [THICK] respectively.

Variable Name	Display Order ≡	Description	Input Type	Table	Default Value
WIDTH	1	Width (ft)	Value		10.00
LENGTH	2	Length (ft)	Value		15.00
THICK	3	Thickness (in)	Value		6.00

The [VOL\_CUFT] calculation in the following example is the same as in the preceding example, but replaces the 10 foot, 15 foot, and 6 inch values with the variable names, which you would provide when the Cost Item Assembly is employed.

Variable Name ≡	Description	Formula	Default Result
VOL_CUFT	Volume of Concrete (cubic foot)	$[WIDTH] * [LENGTH] * ([THICK] / 12)$	75.00

As in the preceding example, the [VOL\_CY] calculation takes the result of the [VOL\_CUFT] calculation and divides by 27 to convert the volume from cubic feet to cubic yards.



### 15.2.7.5 Functions

**Functions** can be used to expand the power of a formula by performing special types of operations on the formula's values. Functions are most commonly used by the name of the function, followed by the values that the function will use to perform the special calculations.

As an example, the Ceiling() function can be used to take the result of a calculation and round it up to the nearest whole number. In using the concrete slab example from above, the calculation [VOL\_BUY] will take the result of the [VOL\_CY] calculation and round it up from 2.78 CY to 3.00 CY using the syntax Ceiling([VOL\_CY]), which represents the amount of concrete you would want to purchase for this work.

Variable Name	Description	Formula	Default Result
VOL_CUFT	Volume of Concrete (cubic foot)	[WIDTH] * [LENGTH] * ([THICK] / 12)	75.00
VOL_CY	Volume of Concrete (CY)	[VOL_CUFT] / 27	2.78
VOL_MBUY	Concrete Material Buy (CY)	Ceiling([VOL_CY])	3.00

### 15.2.7.6 Null Value

Creating valid formulas can be challenging when calculations start to become more complex. Improper referencing of variables, incorrect spelling of functions, or invalid mathematical operations are all examples of ways in which a formula expression can be invalid. When a formula results in an invalid expression it will return a NULL value. A NULL value is displayed using a '?' character and will preclude you from employing the Cost Item Assembly in the job. In the following example, a formula that divides any number by zero generates a mathematically invalid result and is indicated by the '?' character.

Variable Name	Description	Formula	Default Result
CALC1	Formula Error Example	1/0	?

### 15.2.7.7 Formula Editor

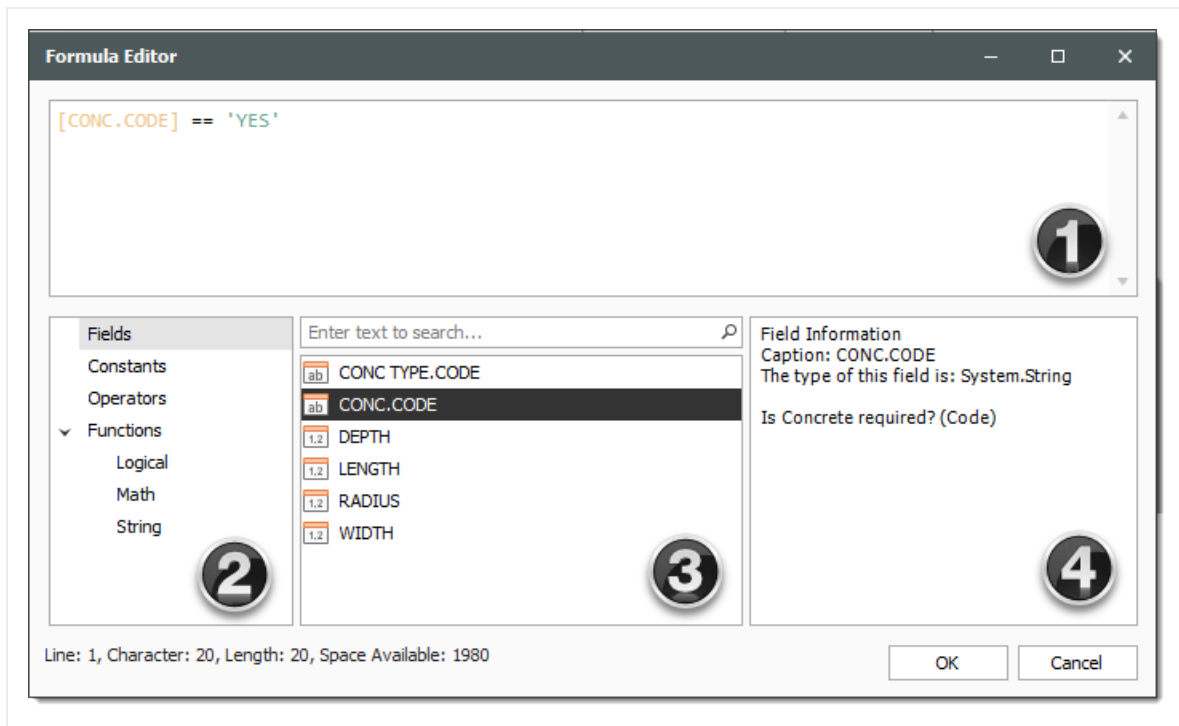
The **Formula Editor** is a tool you can use to assist in the creation of validated formulas that correctly reference variables and ensure the use of proper syntax. Select the fx button to open the Formula Editor.



## Overview - Formula Editor

Element		Description
1	Expression Box	Type your formula expression here or add expression elements by double clicking items in the Expression Values section as described below.
2	Expression Elements	Click on an element type to view its categories in the Expression Values list <b>(3)</b> .
3	Expression Values	<p>Double-click a value to add it to the Expression Box.</p> <ul style="list-style-type: none"> <li>If <b>Functions</b> is the selected Expression Element, a drop-down list of various categories of functions will be displayed so the list can be filtered making it easier to find the desired function.</li> </ul>
4	Information and Help	<p>When an expression is selected from the Expression Values list <b>(3)</b>, an explanation of that expression and how it is used will appear in this window.</p> <ul style="list-style-type: none"> <li>If <b>Fields</b> is the selected Expression Element <b>(2)</b>, the Expression Values section will list all the available variables used in the Cost Item Assembly, as well as displaying the variable type and the Description as provided by the user in the Description Field of the indicated Input or Calculation variable</li> <li>If <b>Constants</b> is the selected Expression Element <b>(2)</b>, then choosing any of the values in the Expression Values section will provide a brief explanation of the constant</li> <li>If <b>Operators</b> is the selected Expression Element <b>(2)</b>, then choosing a mathematical operator in the Expression Values section will display a brief description of what the operator does</li> <li>If <b>Functions</b> is the selected Expression Element <b>(2)</b>, choosing a Function in the Expression Values section will display the selected functions syntax as well as a brief description of how the function is intended to work</li> </ul>





Within the Formula Editor, you can use tables to provide reference data for use in calculations. For example, the following illustration shows a table that stores values for various Concrete Strengths along with their associated resource code values.

Table		
Drag columns here to group		
	Code (CODE)	Description (DESC)
→	MC2000	4000 PSI
	MC3500	3500 PSI
*		



Step by Step — Create Calculations

1. Drag the **Calculations** data block into view.

Cost Breakdown Structure (CBS) RegisterCost Item Assembly RegisterStandard Table RegisterCost Item Assembly Record

Code: TEST - KLDescription: Test Cost Item Assembly - Ductbank

Cost Items

Drag columns here to groupFind: [Search For...]Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00	U.S. Dollar
1.1	Excavate Ductbank		1.00	Each	\$0.00	\$0.00	U.S. Dollar
1.2	Install Ductbank Conduit		1.00	Each	\$0.00	\$0.00	U.S. Dollar
1.3	Pour Concrete		1.00	Each	\$0.00	\$0.00	U.S. Dollar
1.4	Backfill		1.00	Each	\$0.00	\$0.00	U.S. Dollar

Calculations

Drag columns here to groupFind: [Search For...]Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2	User Defined 3

0

InputsCalculations

2. In the Variable name field, type **Volume**, then press **Tab**.

Calculations

Drag columns here to groupFind:

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3
VOLUME						

NOTE

The **Variable Name** field in the Calculations section will be the name that other Calculations can refer or link to and this name must be unique within the context of the Cost Item Assembly, and unique with respect to input variable names.

3. Enter the Description **Ductbank Volume**, then press **Tab**.



Calculations							
Drag columns here to group							
Find:	Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3
	VOLUME	Ductbank Volume					
*							

4. In the Formula field, select the **fx** formula editor button.

Calculations							
Drag columns here to group							
Find:	Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3
	VOLUME	Ductbank Volume	<b>fx</b>				
*							

5. Select the Field values and Operators as indicated below to create the displayed formula, then click **OK**.

Formula Editor

[LENGTH] \* [WIDTH] \* [DEPTH] / 27

Fields

Constants

Operators

Functions
 

Logical

Math

String

Enter text to search...

+

-

\*

/

%

|

&

^

Divides the first operand by the second.

Line: 1, Character: 33, Length: 33, Space Available: 1967

OK

Cancel

- Notice that the Default Result auto calculates using the calculation and input values provided



Calculations						
Drag columns here to group				Find: [Se		
	Variable Name	Description	Formula		Default Result	Tag 1
	VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	fx	222.22	

6. In the blank row under the Variable Name field, type **Conduit** and enter the Description **Conduit Length**, then click the **fx** button to open the formula editor.

Calculations							
Drag columns here to group				Find:			
	Variable Name	Description	Formula		Default Result	Tag 1	Tag 2
	CONDUIT	Conduit Length		fx			
	VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27		222.22		

7. Select the Fields value and Operators as indicated below to create the displayed formula, then click **OK**.

Formula Editor

[LENGTH] \* 2

Fields

Constants

Operators

Functions

- Logical
- Math
- String

Enter text to search...

+

-

\*

/

%

|

&

^

Multiplies the value of two expressions.

Line: 1, Character: 12, Length: 12, Space Available: 1988

OK

Cancel

8. In the blank row under the Variable Name field, type **Volume2** and enter the Description **Conduit Volume**, then click on the **fx** button to open the formula editor.



Calculations							
Drag columns here to group				Find:			
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	
CONDUIT	Conduit Length	[LENGTH] * 2	200.00				
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22				
VOLUME2	Conduit Volume						

9. Enter the following formula, using the PI() function from the Functions > Math tab, the radius and length from the Fields tab, and the available Operators tab, then click **OK**.

Formula Editor

PI()

\*

[RADIUS]

\*

[RADIUS]

\*

[LENGTH]

/

27

Fields

Constants

Operators

Functions
 

Logical

Math

String

Enter text to search...

+

-

\*

/

%

|

&

^

Divides the first operand by the second.

Line: 1, Character: 42, Length: 42, Space Available: 1958

OK

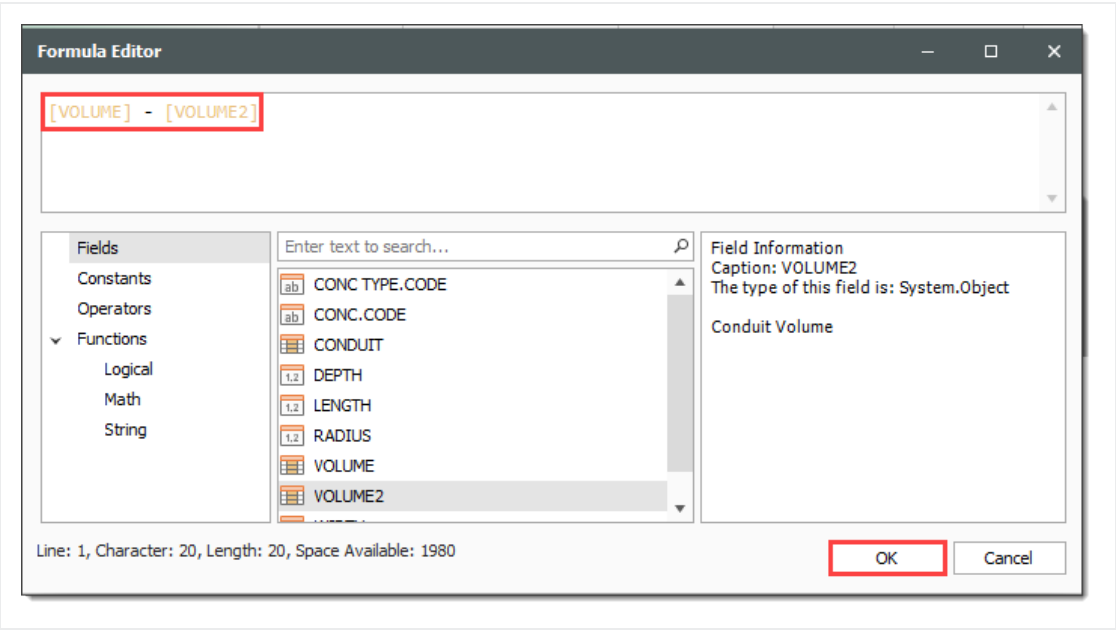
Cancel

10. In the blank row under the Variable Name field, type **Volume3** and enter the Description Backfill/Concrete volume, then click on the **fx** button to open the formula editor.

Calculations							
Drag columns here to group				Find:			
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22				
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.267109...				
VOLUME3	Backfill/Concrete Volume						

11. Enter the following formula, selecting the already created calculations from the Fields section. Click **OK**.



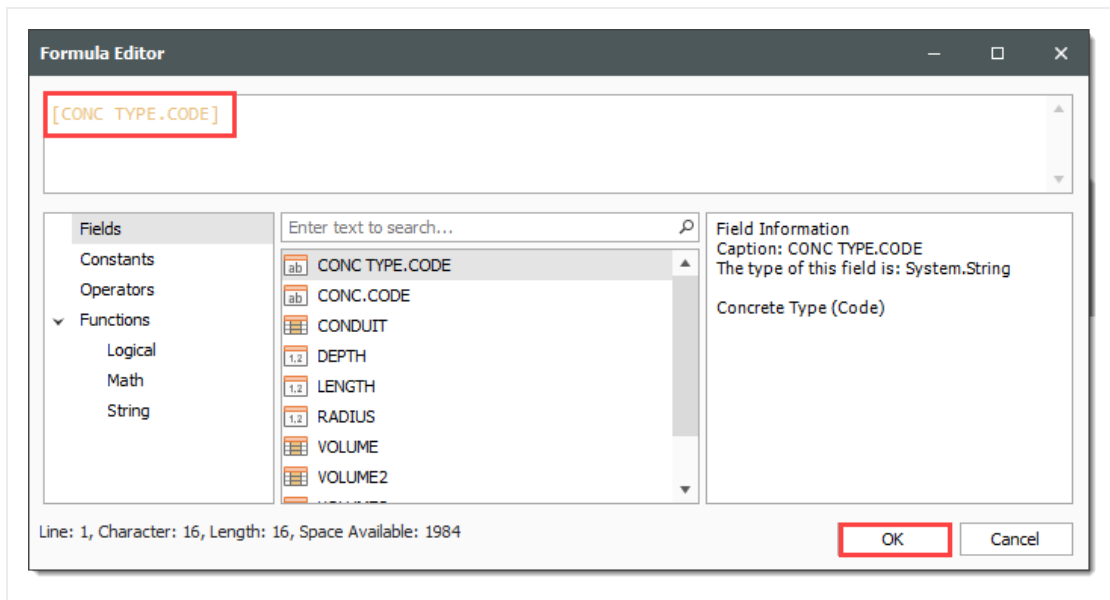


12. In the blank row under the Variable Name field, type **Concrete** and enter the Description Concrete type, then click on the **fx** button to open the formula editor.

Calculations								
Drag columns here to group				Find:				
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3		
CONCRETE	Concrete Type		fx					
CONDUIT	Conduit Length	[LENGTH] * 2	200.00					
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22					
VOLUME2	Conduit Volume	Pi() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.267109...					
VOLUME3	Backfill/Concrete Volume	[VOLUME1] - [VOLUME2]	220.9551					

13. Enter the following formula, selecting the table value from the Fields tab, then click **OK**.





- A default result will not appear because a value from the table has not yet been chosen.

Calculations							
Drag columns here to group							
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	Find:
CONCRETE	Concrete Type	[CONC TYPE.CODE]	fx				
CONDUIT	Conduit Length	[LENGTH] * 2	200.00				
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22				
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.267109...				
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.9551...				

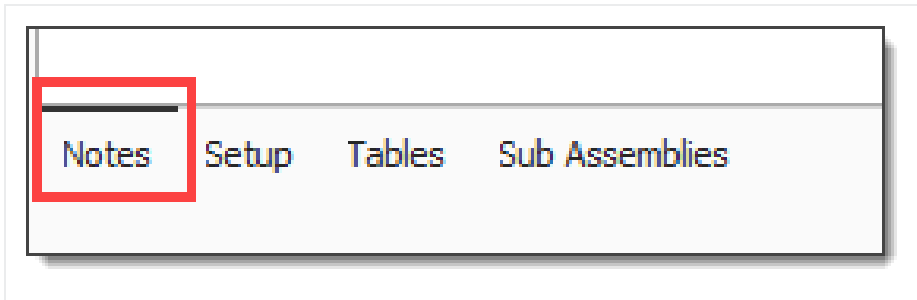
## 15.2.8 Notes

Notes can be utilized to provide guidance to you on how to use the Cost Item Assembly or provide further clarification on what the various inputs are requiring or how the calculations are being performed. This field supports rich text editing, meaning users can copy and paste from an editing tool various graphics or formatted text such as bold text, bulleted or numbered text, hyperlinks to websites, or various fonts. The Notes data block is displayed on the right side of the Cost Item Assembly Record screen.

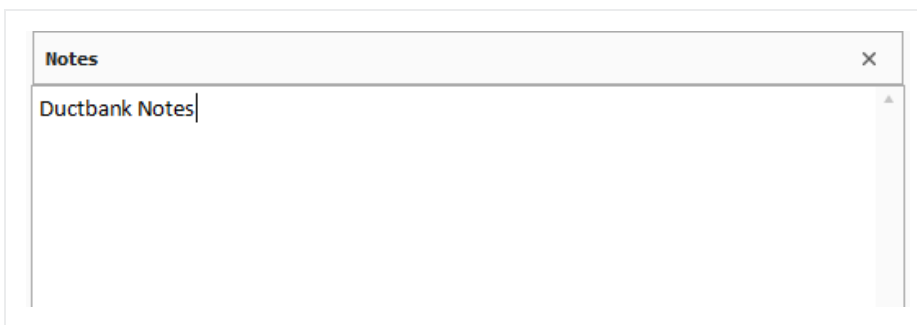


## Step by Step — Add to the Note Section

1. Click on the **Notes** tab in the bottom right corner.

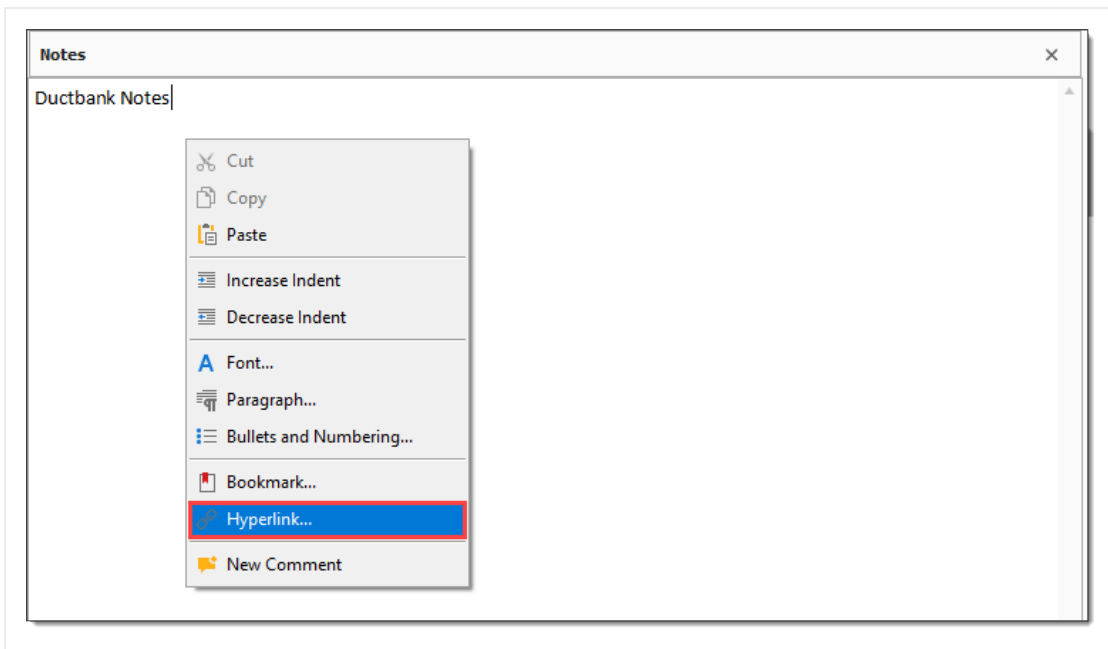


2. In the Notes text box, type **Ductbank Notes**.

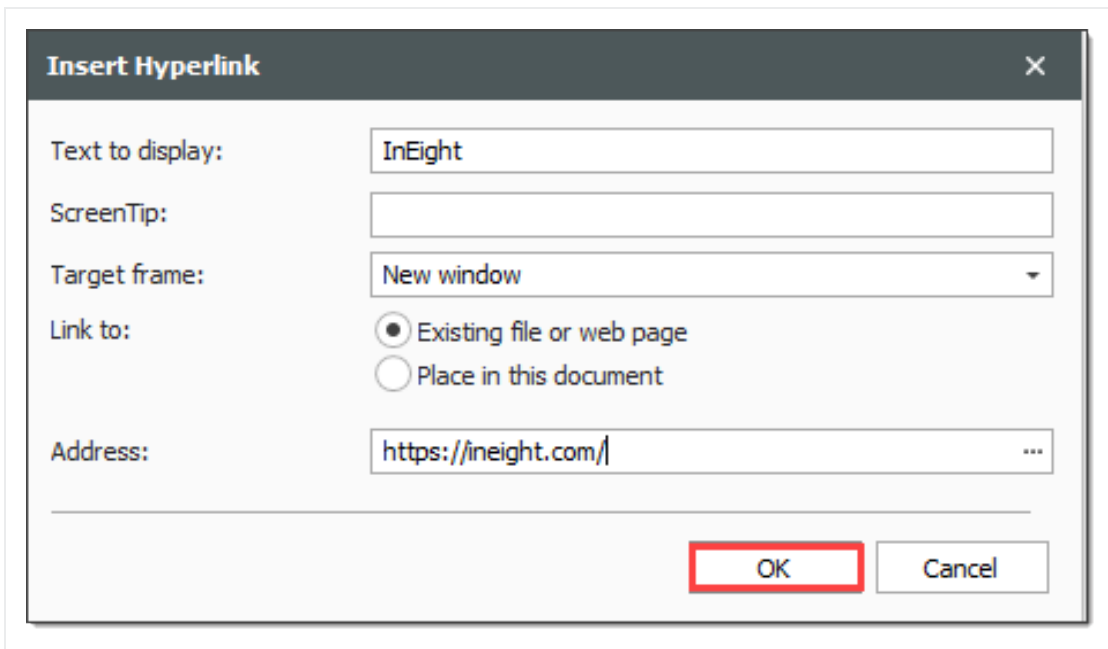


3. Right click within the notes section and select **Hyperlink**.





4. Type in a link to your SharePoint or document sharing site, then click **OK**.

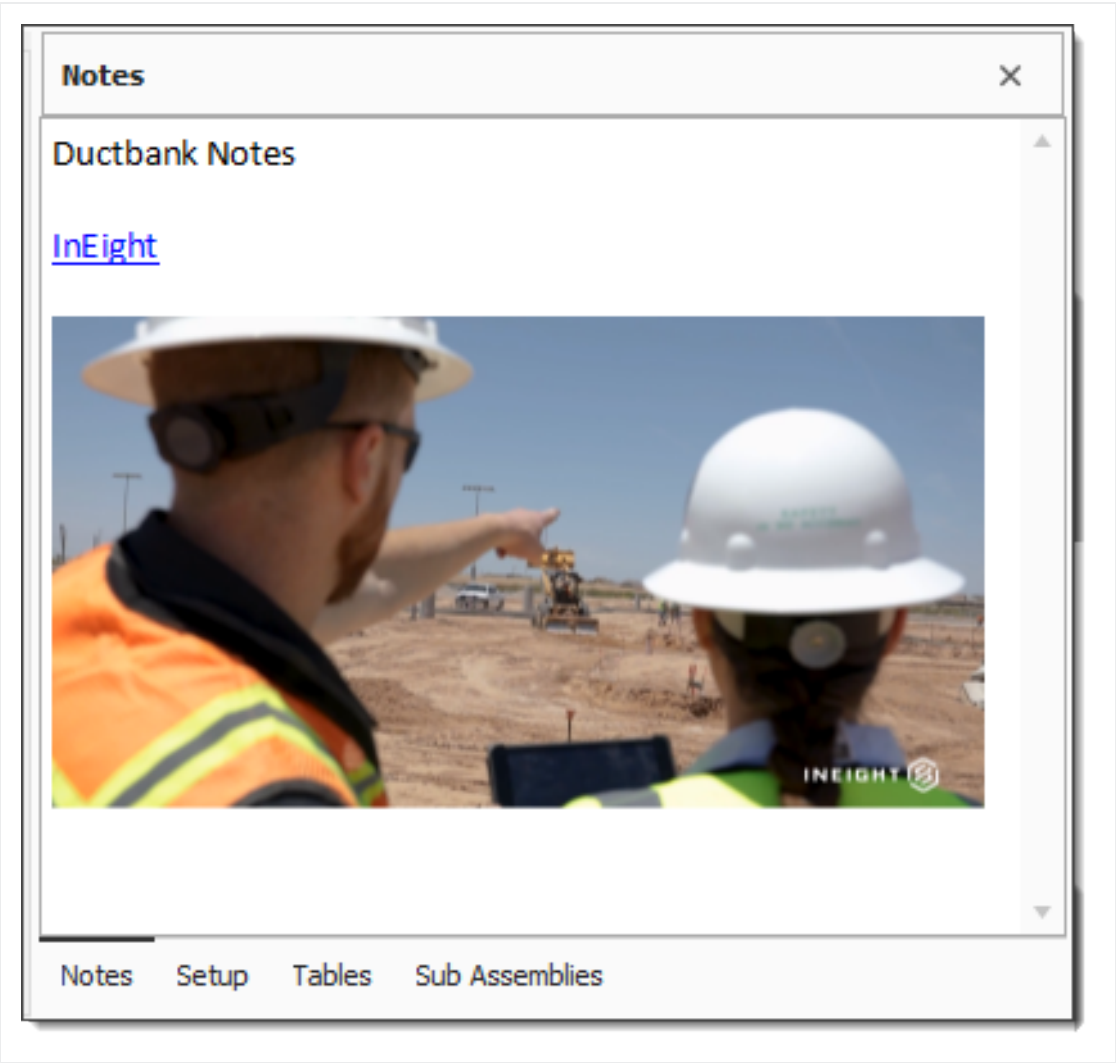




- Note how the hyperlink appears in the notes section.



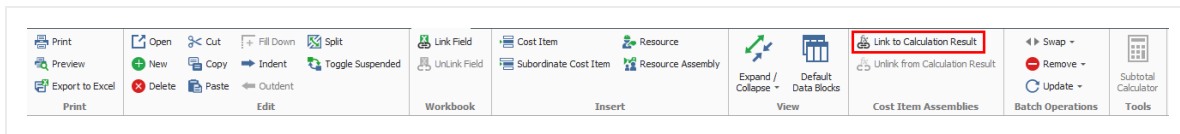
5. Still in Notes, copy a picture or drawing from your computer, then Paste it into the notes section.





## 15.2.9 Linking Calculations to Cost Items

The results of calculations can be assigned to any number of different fields in the Cost Items data block of the Cost Item Assembly record. It is common to link dimensional calculations to the Forecast (T/O) Quantity fields of various cost items, but calculation results can be linked to many other fields such as Productivity fields, Description fields, and even Resource Employment fields such as Quantity or Code. You can link multiple cost item fields to a single calculation by holding the CTRL key. To link a calculation to a cost item, you right click on the cost item field and then either select to link to the calculation result from the context menu or from the ribbon.



### Step by Step — Link Calculations to Cost Items

1. Expand your **Cost Items** window so that you can see all the cost items.

Cost Items										
Drag columns here to group				Find: [Search For...]		Saved views: Previous View				
CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	WBS: CEAS (Civil Engineering Account Code System)	WBS: CEAS (Civil Engineering Account Code System) Description	Pay Item Description	Is Linked To Excel
→ 1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00				<input type="checkbox"/>
→ 1.1	Excavate Ductbank		1.00	CY	\$0.00	\$0.00				<input type="checkbox"/>
→ 1.2	Install Ductbank Conduit		1.00	LP	\$0.00	\$0.00				<input type="checkbox"/>
→ 1.3	Pour Concrete		1.00	CY	\$0.00	\$0.00				<input type="checkbox"/>
→ 1.4	Backfill		1.00	CY	\$0.00	\$0.00				<input type="checkbox"/>
5					\$0.00					

2. Right click on the **Excavate Ductbank** Forecast (T/O) Quantity field and select **Link this field to Calculation Result**.



Cost Items

Drag columns here to group

	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total (For
	1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	
+	1.1	Excavate Ductbank		1.00	CY	\$0.00	
+	1.2	Install Ductbank Conduit					
+	1.3	Pour Concrete					
+	1.4	Backfill					
*							

5

Inputs

Drag columns here to group

	Variable Name	Display Order	Description	Input Type	Table	Default Value	Da Val
→	LENGTH	1	Ductbank Length (ft)	Value		100.00	Non

6

Calculations

Drag columns here to group

	Variable Name	Description	Formula
	CONCRETE	Concrete Type	[CONC TYPE.CODE]
	CONDUIT	Conduit Length	[LENGTH] * 2
→	VOLUME	Ductbank Volume	([LENGTH] * [WIDTH] * [DEPTH] / 27

fx 222.22

Open

New

Delete

Cut

Copy

Paste

Fill Down

Link this field to Excel

UnLink from Excel

Link this field to Calculation Result

Unlink from Calculation Result

Indent

Outdent

Insert

Insert Subordinate

Split

Insert Resource

Insert Resource Assembly

Toggle Suspended

Subtotal Calculator

TIP

You create calculations prior to linking the values field. The linking of calculation results is similar to linking to Excel values except all linked values update automatically.

3. Select **VOLUME**, then click **OK**.



**Link to Calculation Result - Training Job**

Drag columns here to group Find: [Search For...] Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2
CONCRETE	Concrete Type	[CONC TYPE.CODE]			
CONDUIT	Conduit Length	[LENGTH] * 2	200.00		
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22		
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.2671090...		
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.95511...		

5

OK Cancel

- Note how the Forecast (T/O) Quantity field is now populated with a linked quantity


**Cost Items**

Drag columns here to group

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
<b>1</b>	<b>Test Cost Item Assembly - Ductbank</b>		1.00	Each	\$0.00	\$0.00
→ 1.1	Excavate Ductbank		222.22	CY	\$0.00	\$0.00
→ 1.2	Install Ductbank Conduit		1.00	LF	\$0.00	\$0.00
→ 1.3	Pour Concrete		1.00	CY	\$0.00	\$0.00
→ 1.4	Backfill		1.00	CY	\$0.00	\$0.00

4. Right click on the **Install Ductbank Conduit** Forecast (T/O) Quantity field and select **Link this field to Calculation Result**.
5. Select **CONDUIT**, then click **OK**.




**Link to Calculation Result - Training Job**

Drag columns here to group
 

Find: 
 Saved views:

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2
CONCRETE	Concrete Type	[CONC TYPE.CODE]			
→ CONDUIT	Conduit Length	[LENGTH] * 2	200.00		
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22		
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.2671090...		
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.95511...		

5

OK

Cancel

6. Select the Forecast (T/O) Quantity field for **Pour Concrete**, hold down CTRL, and select the Forecast (T/O) Quantity field for **Backfill**.

Cost Items							
Drag columns here to group							
	CBS Position Code	Description	Optional Code	Forecast (T/D) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
	1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00
	+ 1.1	Excavate Ductbank		222.22	CY	\$0.00	\$0.00
	+ 1.2	Install Ductbank Conduit		200.00	LF	\$0.00	\$0.00
	+ 1.3	Pour Concrete		1.00	CY	\$0.00	\$0.00
	+ 1.4	Backfill		1.00	CY	\$0.00	\$0.00

- Right click and select **Link this field to Calculation Result**.
- Select **VOLUME3**, then click **OK**.



**Link to Calculation Result - Training Job**

Drag columns here to group Find: [Search For...] ... Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2
CONCRETE	Concrete Type	[CONC TYPE.CODE]			
CONDUIT	Conduit Length	[LENGTH] * 2	200.00		
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22		
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.2671090...		
→ VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.95511...		

5

OK Cancel

9. In the Inputs data block, select the **Default Value** field for the CONC TYPE input.
10. Select **MC2000**, then click **OK**.

**Table Rows - Training Job**

Drag columns here to group Find: [Search For...] ...

Code (CODE)	Description (DESC)
→ MC2000	4000 PSI
MC3500	3500 PSI

2

OK Cancel



- Notice that this value is now populated in the Default Value field.

Inputs

Drag columns here to group

	Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation
	DEPTH	3	Ductbank Depth (ft)	Value		6.00	None
	RADIUS	4	Conduit Radius (ft)	Value		0.33	None
→	CONC TYPE	5	Concrete Type	Table	CONC - KL	MC2000	None
	CONC	6	Is Concrete required?	Table	CONC - KL		None
*							
		6					

11. Navigate to the **Calculations** data block.

- Note that the Default Result field is now populated

Calculations

Drag columns here to group

Find: [Search For...] Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	User Defined 1	User Defined 2
→ CONCRETE	Concrete Type	[CONC TYPE.CODE]	MC2000					
CONDUIT	Conduit Length	[LENGTH] * 2	200.00					
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22					
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.2671090...					
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.95511...					

Inputs Calculations

12. In the Cost Items data block, right click in the **Optional Code** field for the Pour Concrete cost item, and select **Link to Calculation Result**
13. Select the **CONCRETE** calculation, then click **OK**.



**Link to Calculation Result - Training Job**

Drag columns here to group Find: [Search For...] Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2
→ CONCRETE	Concrete Type	[CONC TYPE.CODE]	MC2000		
CONDUIT	Conduit Length	[LENGTH] * 2	200.00		
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22		
VOLUME2	Conduit Volume	PI() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.2671090...		
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.95511...		

5

OK Cancel

- Note how the optional code for Pour Concrete is now populated

**Cost Items**

Drag columns here to group

	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
1		<b>Test Cost Item Assembly - Ductbank</b>		1.00	Each	\$0.00	\$0.00	U.S. Dollar
+ 1.1		Excavate Ductbank		222.22	CY	\$0.00	\$0.00	U.S. Dollar
+ 1.2		Install Ductbank Conduit		200.00	LF	\$0.00	\$0.00	U.S. Dollar
+ 1.3		Pour Concrete	MC2000	220.95	CY	\$0.00	\$0.00	U.S. Dollar
→ + 1.4		Backfill		220.95	CY	\$0.00	\$0.00	U.S. Dollar

## 15.3 COST ITEM ASSEMBLY EMPLOYMENT

When an estimator wants to estimate a scope of work, they can use any available Cost Item Assemblies that have been included in the job. Cost Item Assemblies are employed in the CBS Register in much the same way a resource is employed on a cost item. Cost Item Assemblies can be imported into a project from the Library via the Setup > Job Properties > Cost Basis tab in the same way that resources can be brought in.



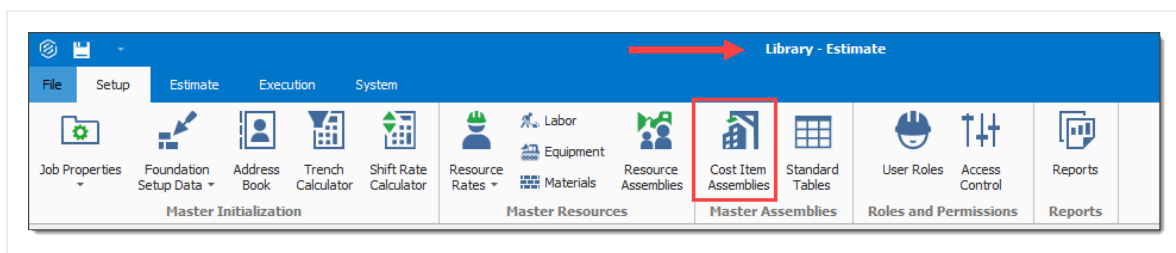
### 15.3.1 Employment

Employing cost item assemblies comes after they have been created by a lead estimator typically. Employing an assembly means an estimator selects a specific assembly to insert into the CBS register as if adding a new cost item. The estimator will be prompted to provide all the inputs or accept the default assumptions required for that assembly.

### 15.3.2 Job Properties

Cost Item Assemblies can effectively be used as a starting point for various components of an estimate. You can import job specific cost item assemblies by navigating to the Setup menu and selecting Setup > Job Properties > Cost Basis > Cost Item Assembly.

You can also import cost item assemblies into the Library the same way as doing it from within a job. You can access the Master Cost Item Assembly Register by navigating to the Library > Cost Item Assembly Register.





### 15.3.3 Insert Cost Item Assemblies

Once your Cost Item Assemblies are created, the cost items must be inserted into the CBS Register. They can be inserted as a subordinate or new cost item anywhere in the CBS hierarchy. To do so, you right click on the position code where you want to place the cost item assembly and select to either insert the assembly as subordinate cost items or as new cost items.

Once the cost items are inserted into the CBS, you can hover over Forecast (T/O) Quantity to see the associated calculation.



## Step by Step — Insert Cost Item Assemblies

1. Navigate to the **CBS Register**.

Cost Breakdown Structure (CBS) Register		Cost Item Assembly Register	Cost Item Assembly Record	Job
CBS Tree (Filter Mode)		Drag columns here to group		
Code	Description	CBS Position Code	Description	Forecast (T/O) Quantity
+	JOB		JOB	20.00
+	Prime Bond		Prime Bond	1.00
+	Price % Add-On		Price % Add-On	1.00
+	Job Financing		Job Financing	1.00
+	Indirect Cost Escalation		Indirect Cost Escalation	1.00
+	Direct Cost Escalation		Direct Cost Escalation	1.00
+	Indirect Cost Add-On		Indirect Cost Add-On	1.00
+	Job Management & Equipment		Job Management & Equipment	1.00
+	General Expense		General Expense	1.00
+	Direct Cost Add-On		Direct Cost Add-On	1.00
+	1 Mobilization		1 Mobilization	1.00
+	2 Clearing & Grubbing		2 Clearing & Grubbing	10.00
+	3 Unclassified Excavation		3 Unclassified Excavation	50,000.00
+	3.1 Excavation		3.1 Excavation	50,000.00
+	3.2 Embankment		3.2 Embankment	50,000.00
+	4 Aggregate Base		4 Aggregate Base	45,000.00
+	4.1 Furnish & Haul Base Material		4.1 Furnish & Haul Base Material	45,000.00
+	4.2 Finegrade Subgrade		4.2 Finegrade Subgrade	400,000.00
+	4.3 Install Aggregate Base		4.3 Install Aggregate Base	45,000.00
+	4.3.1 Place Aggregate Base		4.3.1 Place Aggregate Base	45,000.00
+	4.3.2 Blue Top Aggregate Base		4.3.2 Blue Top Aggregate Base	400,000.00
+	5 Asphalt Concrete Hot Mix Type A		5 Asphalt Concrete Hot Mix Type A	35,000.00
+	5.1 Furnish & Haul Hot Mix		5.1 Furnish & Haul Hot Mix	35,000.00
+	5.2 Install Hot Mix Type A		5.2 Install Hot Mix Type A	35,000.00
+	6 36 Inch RCP Culvert Class III		6 36 Inch RCP Culvert Class III	1,024.00
+	6.1 Furnish RCP Materials		6.1 Furnish RCP Materials	1,024.00
+	6.2 Excavate RCP Trench		6.2 Excavate RCP Trench	1,858.56
+	6.3 Install RCP Pipe		6.3 Install RCP Pipe	1,024.00
+	6.4 Backfill RCP Pipe		6.4 Backfill RCP Pipe	1,587.20
+	7 10 Inch PVC Force Main (SDR21)		7 10 Inch PVC Force Main (SDR21)	12,000.00
+	7.1 Furnish 10 Inch PVC Materials		7.1 Furnish 10 Inch PVC Materials	12,000.00
+	7.2 Excavate-Install-Backfill 10 Inch PVC		7.2 Excavate-Install-Backfill 10 Inch PVC	12,000.00
+	8 24 Inch PVC Gravity Sewer (SDR35)		8 24 Inch PVC Gravity Sewer (SDR35)	3,000.00

2. Right click on the first cost item in the hierarchy and select **Insert Cost Item Assembly as Subordinate**.



Drag columns here to group

	CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
→		<b>JOB</b>	20.00	Mile
+		<b>Prime Bond</b>	1.00	Lump Sum
+		<b>Price % Adjustment</b>	1.00	Lump Sum
+		<b>Job Financials</b>	1.00	Lump Sum
+		<b>Indirect Costs</b>	1.00	Lump Sum
+		<b>Direct Costs</b>	1.00	Lump Sum
+		<b>Indirect Costs</b>	1.00	Lump Sum
+		<b>Job Management</b>	1.00	Lump Sum
+		<b>General Expenses</b>	1.00	Lump Sum
+		<b>Direct Costs</b>	1.00	Lump Sum
+	1	<b>Mobilization</b>	1.00	Lump Sum
+	2	<b>Clearing &amp; Grading</b>	10.00	Acre
+	3	<b>Unclassified</b>	,000.00	Cubic Yard
+	3.1	Excavation	,000.00	Cubic Yard
+	3.2	Embankment	,000.00	Cubic Yard
+	4	<b>Aggregate</b>	,000.00	Ton
+	4.1	Furnish & Install	,000.00	Ton
+	4.2	Finegrade	,000.00	Square Yard
+	4.3	Install Aggregate	,000.00	Ton
+	4.3.1	Place Aggregate	,000.00	Ton
+	4.3.2	Blue Top	,000.00	Square Yard
+	5	<b>Asphalt Concrete</b>	,000.00	Ton
+	5.1	Furnish & Install	,000.00	Ton
+	5.2	Install Hot	,000.00	Ton
+	6	<b>36 Inch RCP</b>	,024.00	Linear Feet
+	6.1	Furnish RCP	,024.00	Linear Feet
+	6.2	Excavate	,858.56	Cubic Yard
+	6.3	Install RCP	,024.00	Linear Feet
+	6.4	Backfill RCP Pipe	1,587.20	Cubic Yard
+	7	<b>10 Inch PVC Force Main (SDR21)</b>	12,000.00	Linear Feet
+	7.1	Furnish 10 Inch PVC Materials	12,000.00	Linear Feet
+	7.2	Excavate-Install-Backfill 10 Inch PVC	12,000.00	Linear Feet
+	8	<b>24 Inch PVC Gravity Sewer (SDR35)</b>	3,000.00	Linear Feet

106



3. Select your Cost Item Assembly, then click **OK**.

Actions

Drag columns here to group

Find:

Saved views: Previous View

Code	Description	Assembly File Description	Default Quantity	Default Unit of Measure	Default Unit Cost	Default Total Cost	Default Currency
RW01	Standard Retaining Wall Assembly	Standard Cost Ite...	20.00	Cubic Yard	\$424.67	\$8,493.38	U.S. Dollar
→ TEST - KL	Test Cost Item Assembly - Ductbank	Standard Cost Ite...	1.00	Each	\$0.00	\$0.00	U.S. Dollar

2

OKCancel

4. Click **OK** again.

Actions

Cost Item Assembly: TEST - KL

Inputs

Drag columns here to group

Find:

Saved views: Previous View


Variable Name	Description	Value
→ LENGTH	Ductbank Length (ft)	100.00
WIDTH	Ductbank Width (ft)	10.00
DEPTH	Ductbank Depth (ft)	6.00
RADIUS	Conduit Radius (ft)	0.33

5

Notes

Ductbank Notes

InEight



Preview

Drag columns here to group

Find:

Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
→ 1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00	U.S. Dollar
+ 1.1	Excavate Ductbank		222.22	CY	\$0.00	\$0.00	U.S. Dollar
+ 1.2	Install Ductbank Conduit		200.00	LF	\$0.00	\$0.00	U.S. Dollar
+ 1.3	Pour Concrete	MC2000	220.95	CY	\$0.00	\$0.00	U.S. Dollar
+ 1.4	Backfill		220.95	CY	\$0.00	\$0.00	U.S. Dollar

5

\$0.00

Preview Calculations

OKCancel

- Your Cost Item Assembly is added to the bottom of the CBS

15.3.4 Edit an Employed Cost Item Assembly

Employed Cost Item Assemblies are read-only cost items in the CBS register, but the inputs that were provided by the user to create the cost items can be modified to update the resulting cost items. If you change one variable in the cost item assembly, it will automatically update all associated cost items.

You can update the values of an Employed Cost Item Assembly in two ways:



- From the CBS Register
- From the Cost Item Assembly Register

### 15.3.5 From the CBS Register

You can edit the entire Cost Item Assembly from within the CBS Register.

#### Step by Step — Edit an Employed Cost Item Assembly from the CBS Register

1. Right click on your **Excavate Ductbank** cost item and select **Edit Cost Item Assembly Inputs**.

17	Toll Booth	1.00	Each	\$25,264.55
+ 17.1	Site Preparation			\$3,664.55
+ 17.2	Concrete Reinforcement			\$1,500.00
+ 17.3	Cast in Place Concrete			\$3,500.00
+ 17.4	Concrete Masonry Units			\$2,900.00
+ 17.5	Paneling			\$2,100.00
+ 17.6	Wood Doors			\$1,000.00
+ 17.7	Wood Flooring			\$1,800.00
+ 17.8	Office Furniture			\$2,100.00
+ 17.9	Fire Protection Piping			\$3,300.00
+ 17.10	Interior Luminaires			\$3,400.00
+ 18	Guardrail Type 2			\$24.00
+ 19	Guardrail Type 3A			\$31.00
+ 20	Type 4 Signs			\$13.00
+ 21	Realignment of Water Line			\$0.00
+ 22	Special Risk Allowance			\$1,000.00
23	Job Overhead - Indirect Costs			\$14,000.00
+ 23.1	Setup Yard			\$4,000.00
+ 23.2	Trailer Rent			\$2,000.00
+ 23.3	Utilities			\$8,000.00
24	Change Orders			\$6,430.12
+ 24.1	Change Order One- Realign the			\$6,430.12
+ 24.1.1	Day One			\$2,785.08
+ 24.1.2	Day Two			\$3,645.03
25	Test Cost Item Assembly - Du			\$0.00
+ 25.1	Excavate Ductbank			\$0.00
+ 25.2	Install Ductbank Conduit			\$0.00
+ 25.3	Pour Concrete			\$0.00

2. Maximize your screen.



3. Change the Length input value to **120**.

Inputs

Drag columns here to group

	Variable Name	Display Order	Description	Value
→	LENGTH	1	Ductbank Length (ft)	120.00
	WIDTH	2	Ductbank Width (ft)	10.00
	DEPTH	3	Ductbank Depth (ft)	6.00
	RADIUS	4	Conduit radius (ft)	0.33
	CONC	6	Is Concrete required?	NO

4. Click **OK**.

OK

Cancel

- Notice how all the quantities for the cost items using the input Length change

25	Test Cost Item Assembly - Ductbank	1.00
+ 25.1	Excavate Ductbank	<a href="#">266.67</a>
+ 25.2	Install Ductbank Conduit	<a href="#">240.00</a>
+ 25.3	Pour Concrete	<a href="#">265.15</a>
+ 25.4	Backfill	<a href="#">265.15</a>

15.3.6 From the Cost Item Assembly Register

You can navigate back to the Cost Item Assembly Register, select your Cost Item Record, and make any changes there. Once the Cost Item Assemblies have been employed, to update the cost items with any changes made in the Cost Item Assembly Register, you need to go back to the CBS Register to update the cost items. You follow the same steps as above except you do not actually change anything in the edit window, you just click OK to see the updated changes.



## 15.3.7 Advanced Options

The following step by step demonstrates some advanced options within Cost Item Assemblies, such as conditional inputs and functions.

### Step by Step — Advanced Options

1. Navigate to your Cost Item Assembly Record.
2. In the **Calculations** data block, click on the formula editor for the “Volume” calculation.

Calculations							
Drag columns here to group				Find:			
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	
CONCRETE	Concrete Type	[CONC TYPE.CODE]					
CONDUIT	Conduit Length	[LENGTH] * 2	200.00				
VOLUME	Ductbank Volume	[LENGTH] * [WIDTH] * [DEPTH] / 27	222.22				
VOLUME2	Conduit Volume	Pi() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.267109...				
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.9551...				

3. Using the Functions tab, select the Round function and put your existing formula within its parenthesis, then click **OK**.

Formula Editor

ROUND([LENGTH] \* [WIDTH] \* [DEPTH] / 27)

Fields

Constants

Operators

Functions
 

Logical
 Math
 String

Enter text to search...

+

-

\*

/

%

|

&

^

Divides the first operand by the second.

Line: 1, Character: 40, Length: 40, Space Available: 1960

OK

Cancel



- You now see a rounded number in the Default Result field

Calculations							
Drag columns here to group				Find:			
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	
CONCRETE	Concrete Type	[CONC TYPE.CODE]					
CONDUIT	Conduit Length	[LENGTH] * 2	200.00				
→ VOLUME	Ductbank Volume	Round([LENGTH] * [WIDTH] * [DEPTH] / 27) <i>fx</i>	222.00				
VOLUME2	Conduit Volume	Pi() * [RADIUS] * [RADIUS] * [LENGTH] / 27	1.267109...				
VOLUME3	Backfill/Concrete Volume	[VOLUME] - [VOLUME2]	220.7328...				
*							

- You now see a rounded number in the Default Result field
- Do the same for the Volume2 and Volume3 calculations.

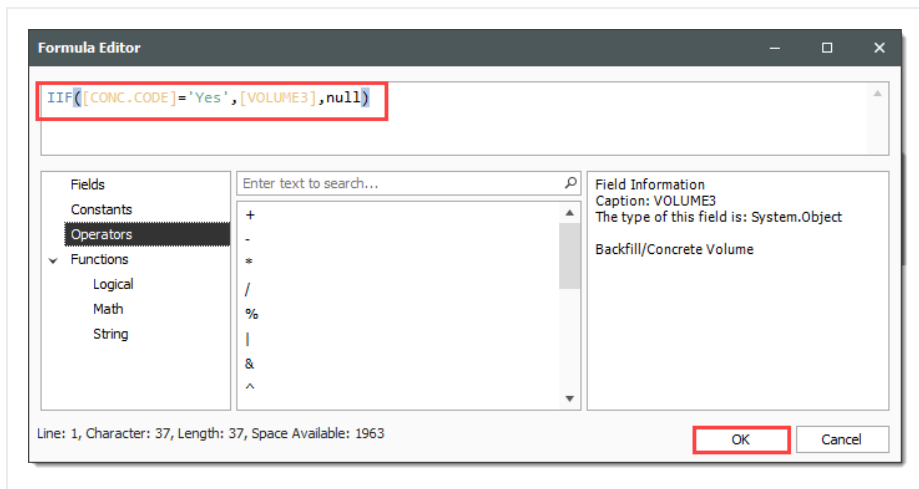
Calculations							
Drag columns here to group				Find:			
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	
CONCRETE	Concrete Type	[CONC TYPE.CODE]					
CONDUIT	Conduit Length	[LENGTH] * 2	200.00				
VOLUME	Ductbank Volume	Round([LENGTH] * [WIDTH] * [DEPTH] / 27)	222.00				
VOLUME2	Conduit Volume	Round(Pi() * [RADIUS] * [RADIUS] * [LENGTH] / 27)	1				
→ VOLUME3	Backfill/Concrete Volume	Round([VOLUME] - [VOLUME2]) <i>fx</i>	221				
*							

- Create a new calculation. In the Variable Name field, type **Include\_Conc**, enter **Include Concrete?** in the Description field, then click on the **fx** button to open the formula editor.

Calculations							
Drag columns here to group				Find:			
Variable Name	Description	Formula	Default Result	Tag 1	Tag 2	Tag 3	
CONCRETE	Concrete Type	[CONC TYPE.CODE]					
CONDUIT	Conduit Length	[LENGTH] * 2	200.00				
✓ INCLUDE_CONC	Include Concrete?	<i>fx</i>					
VOLUME	Ductbank Volume	Round([LENGTH] * [WIDTH] * [DEPTH] / 27)	222.00				
VOLUME2	Conduit Volume	Round(Pi() * [RADIUS] * [RADIUS] * [LENGTH] / 27)	1				
VOLUME3	Backfill/Concrete Volume	Round([VOLUME] - [VOLUME2])	221				
*							

- Using the **if( , )** function from the Functions tab, and the existing Volume3 calculations from the Fields tab, enter in the following formula, then click **OK**.





8. Navigate to the **CBS Register**.
9. Right click on one of your cost assembly items, and select **Edit Cost Item Assembly Inputs**.



17	Toll Booth	1.00	Each	\$25,264.55
+ 17.1	Site Preparation			\$3,664.55
+ 17.2	Concrete Reinforcement			\$1,500.00
+ 17.3	Cast in Place Concrete			\$3,500.00
+ 17.4	Concrete Masonry Units			\$2,900.00
+ 17.5	Paneling			\$2,100.00
+ 17.6	Wood Doors			\$1,000.00
+ 17.7	Wood Flooring			\$1,800.00
+ 17.8	Office Furniture			\$2,100.00
+ 17.9	Fire Protection Piping			\$3,300.00
+ 17.10	Interior Luminaires			\$3,400.00
+ 18	Guardrail Type 2			\$24.00
+ 19	Guardrail Type 3A			\$31.00
+ 20	Type 4 Signs			\$13.00
+ 21	Realignment of Water Line			\$0.00
+ 22	Special Risk Allowance			\$1,000.00
23	Job Overhead - Indirect Costs			\$14,000.00
+ 23.1	Setup Yard			\$4,000.00
+ 23.2	Trailer Rent			\$2,000.00
+ 23.3	Utilities			\$8,000.00
24	Change Orders			\$6,430.12
24.1	Change Order One- Realign the			\$6,430.12
+ 24.1.1	Day One			\$2,785.08
+ 24.1.2	Day Two			\$3,645.03
25	Test Cost Item Assembly - Du			\$0.00
+ 25.1	Excavate Ductbank			\$0.00
+ 25.2	Install Ductbank Conduit			\$0.00
+ 25.3	Pour Concrete			\$0.00

10. On the CONC input, select the ellipses next to the Default Value.



**Inputs**

Drag columns here to group

	Variable Name	Display Order	Description	Value	
	LENGTH	1	Ductbank Length (ft)	120.00	
	WIDTH	2	Ductbank Width (ft)	10.00	
	DEPTH	3	Ductbank Depth (ft)	6.00	
	RADIUS	4	Conduit radius (ft)	0.33	
→	CONC	6	Is Concrete required?	NO	...

11. Select **Yes**.

**Table Rows - Training Job**

Drag columns here to group

Find: [Search For...] ...

Code (CODE)
NO
→ YES

OK Cancel

12. Click **OK**.



- Note how the conditional input CONC TYPE is now displayed

Inputs

Drag columns here to group

	Variable Name	Display Order	Description	Value
	LENGTH	1	Ductbank Length (ft)	120.00
	WIDTH	2	Ductbank Width (ft)	10.00
	DEPTH	3	Ductbank Depth (ft)	6.00
	RADIUS	4	Conduit radius (ft)	0.33
	CONC TYPE	5	Concrete Type	MC2...
→	CONC	6	Is Concrete required?	YES ...

13. Click **OK**.
14. Navigate back to your Cost Item Assembly Record.
15. In the Cost Items data block, right click on the Pour Concrete **Forecast (T/O) Quantity** field.

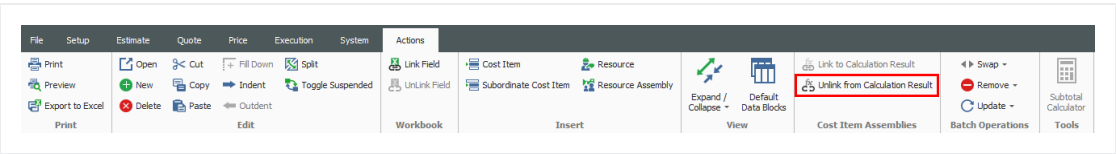
Cost Items

Drag columns here to group

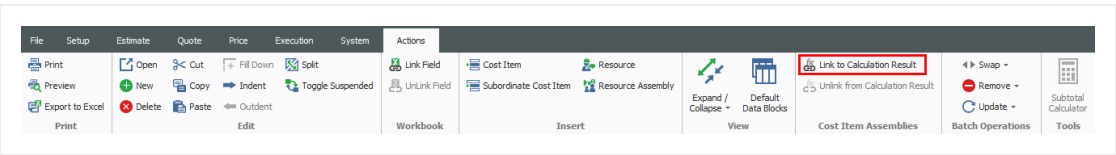
Find: [Search For...] ... Saved view

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00
+ 1.1	Excavate Ductbank		222.00	CY	\$0.00	\$0.00
+ 1.2	Install Ductbank Conduit		200.00	LF	\$0.00	\$0.00
+ 1.3	Pour Concrete	MC2000	221.00	CY	\$0.00	\$0.00
+ 1.4	Backfill		221.00	CY	\$0.00	\$0.00

16. From the ribbon, click the **Unlink from Calculation Result** option.



17. Now click **Link to Calculation result**.





18. Select the **INCLUDE\_CONC** calculation, then click **OK**.

**Link to Calculation Result - Training Job**

Drag columns here to group Find: [Search For...] Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1	Tag 2
CONCRETE	Concrete Type	[CONC.TYPE.CODE]			
CONDUIT	Conduit Length	[LENGTH] * 2	200.00		
→ INCLUDE_CONC	Include Concrete?	If([CONC.CODE] = 'Yes', [VOLUME3], null)			
VOLUME	Ductbank Volume	Round([LENGTH] * [WIDTH] * [DEPTH] / 27)	222.00		
VOLUME2	Conduit Volume	Round(Pi() * [RADIUS] * [RADIUS] * [LENGTH]...	1		
VOLUME3	Backfill/Concrete Volume	Round([VOLUME] - [VOLUME2])	221		

6

OK Cancel

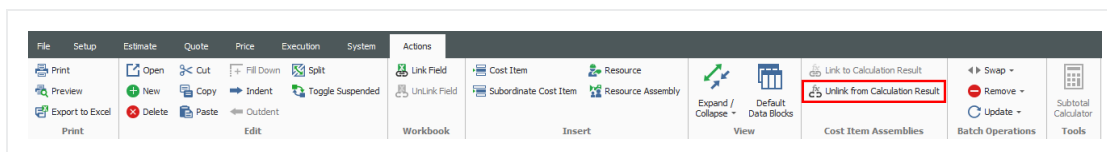
19. Right click on the Pour Concrete **Optional Code** field.

**Cost Items**

Drag columns here to group Find: [Search For...] Saved vie

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
1	Test Cost Item Assembly - Ductbank		1.00	Each	\$0.00	\$0.00
+ 1.1	Excavate Ductbank		222.00	CY	\$0.00	\$0.00
+ 1.2	Install Ductbank Conduit		200.00	LF	\$0.00	\$0.00
+ 1.3	Pour Concrete	MC2000	0.00	CY	\$0.00	\$0.00
+ 1.4	Backfill		221.00	CY	\$0.00	\$0.00

20. From the ribbon, click the **Unlink from Calculation Result** option.



21. Navigate to the **CBS Register**.

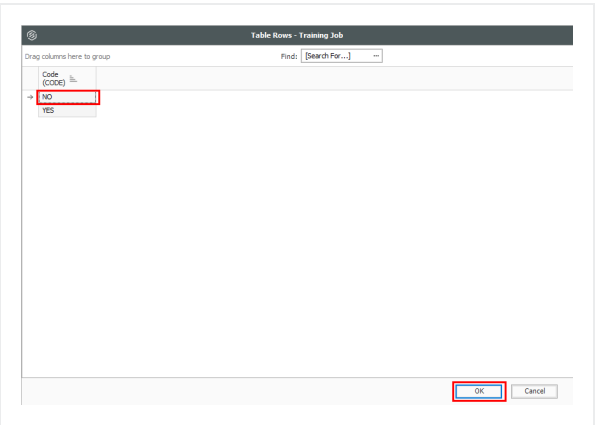
22. Right click on one of your cost assembly items, and select **Edit Cost Item Assembly Inputs**.

23. Click **OK**.

24. Right click on one of your cost assembly items, and select **Edit Cost Item Assembly Inputs**.



25. Change the default value of CONC to **No**.



26. Click **OK**.

27. Click **OK** again.

- Notice that your Pour Concrete cost item now disappears

25	Test Cost Item Assembly - Ductbank	1.00	Each	\$0.00
+ 25.1	Excavate Ductbank	<a href="#">267.00</a>	CY	\$0.00
+ 25.2	Install Ductbank Conduit	<a href="#">240.00</a>	LF	\$0.00
+ 25.3	Backfill	<a href="#">265.00</a>	CY	\$0.00

15.3.8 Breaking the Link to a Cost Item Assembly

To ensure that the logic used in the calculation of a Cost Item Assembly is retained, employed Cost Item Assemblies are not directly editable in the CBS Register. To customize the results of an employed Cost Item Assembly, you can disassociate it from the originating Cost Item Assembly logic as per the following steps.



## Step by Step — Break the Link to a Cost Item Assembly

1. Right click your **Excavate Ductbank** cost item and select **Break Cost Item Assembly Link**.

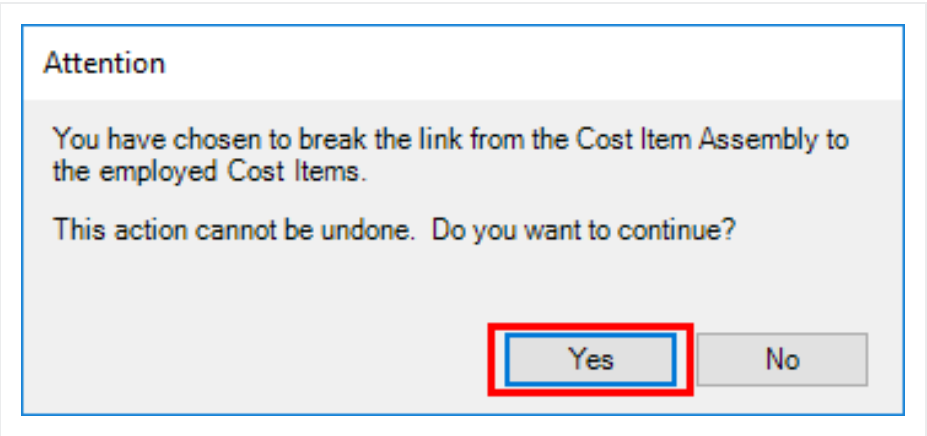
17	Toll Booth	1.00	Each	\$2
+ 17.1	Site Preparation	1.00	Lump Sum	\$
+ 17.2	Concrete Reinforcement	1.00	Lump Sum	\$
+ 17.3	Cast in Place Concrete		Lump Sum	\$
+ 17.4	Concrete Masonry Unit		Lump Sum	\$
+ 17.5	Paneling		Lump Sum	\$
+ 17.6	Wood Doors		Lump Sum	\$
+ 17.7	Wood Flooring		Lump Sum	\$
+ 17.8	Office Furniture		Lump Sum	\$
+ 17.9	Fire Protection Piping		Lump Sum	\$
+ 17.10	Interior Luminaires		Lump Sum	\$
+ 18	Guardrail Type 2		Linear Feet	
+ 19	Guardrail Type 3A		Linear Feet	
+ 20	Type 4 Signs		Square Feet	
+ 21	Realignment of Water		Each	
+ 22	Special Risk Allowance		Each	\$
+ 23	Job Overhead - Indirect		Each	\$1
+ 23.1	Setup Yard		Lump Sum	\$
+ 23.2	Trailer Rent		Month	\$
+ 23.3	Utilities		Month	\$
+ 24	Change Orders		Each	\$
+ 24.1	Change Order One-Phase		Each	\$
+ 24.1.1	Day One		Each	\$
+ 24.1.2	Day Two		Each	\$
+ 25	Test Cost Item Assembly		Each	
+ 25.1	Excavate Ductbank		Y	
+ 25.2	Install Ductbank Concrete		F	
+ 25.3	Backfill		Y	

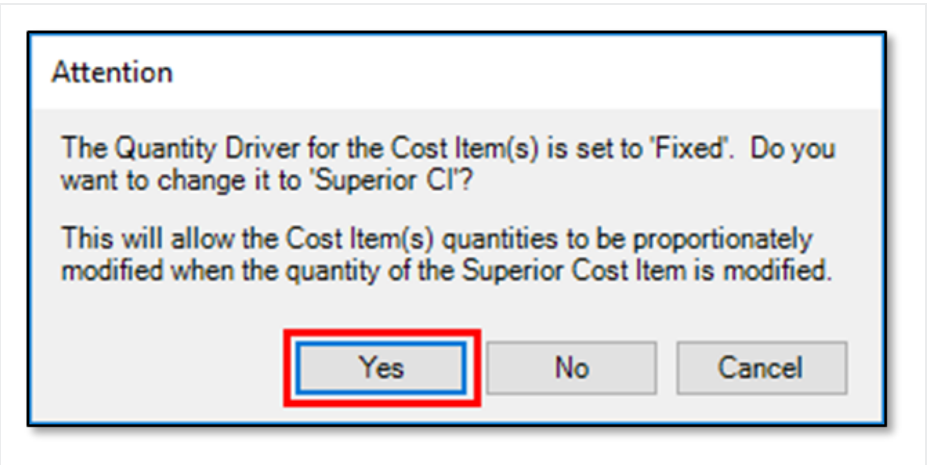
110	
-----	--

2. On the resulting Attention prompt, click **Yes**.





- 3. When prompted about changing the Quantity Driver to Superior CI, click **Yes**.



- Note that the hyperlinks disappear, and the link has been broken

25	Test Cost Item Assembly - Ductbank	1.00	Each
+ 25.1	Excavate Ductbank	267.00	CY
+ 25.2	Install Ductbank Conduit	240.00	LF
+ 25.3	Backfill	265.00	CY



## Exercise 15.1 — Creating and Employing a Cost Item Assembly

Now that you have covered the key tasks related to cost item assemblies, you can practice creating one on your own. You can use your own project (if available) or the training project used in this lesson.

1. Create a cost item assembly with two cost items.  
\_\_\_\_\_
2. Create inputs and calculations and link them to the cost items in your assembly.  
\_\_\_\_\_
3. Employ the assembly in the CBS Register.  
\_\_\_\_\_
4. Break the cost item's link to the assembly.  
\_\_\_\_\_

**Congratulations, you have completed this exercise!**



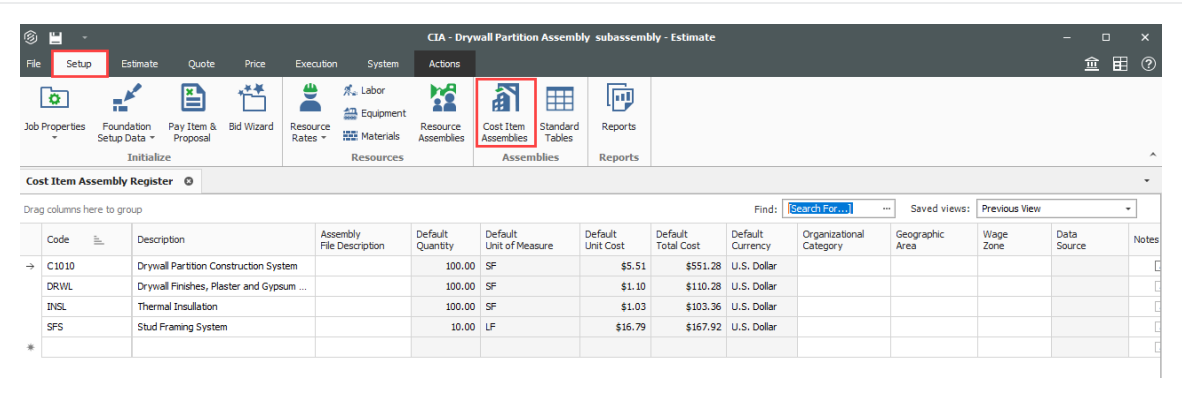
# 15.4 COST ITEM SUB-ASSEMBLIES

With the Sub-Assemblies in the Cost Item Assemblies form, you can easily create and maintain cost item assemblies that model construction systems and contain multiple complex calculations. Sub-assemblies enable the Cost Item Assemblies feature to be more modular, allowing you to maintain smaller, simpler versions of cost item assemblies and reuse them in multiple places.

## 15.4.1 Accessing the Cost Item Assembly Sub Assemblies

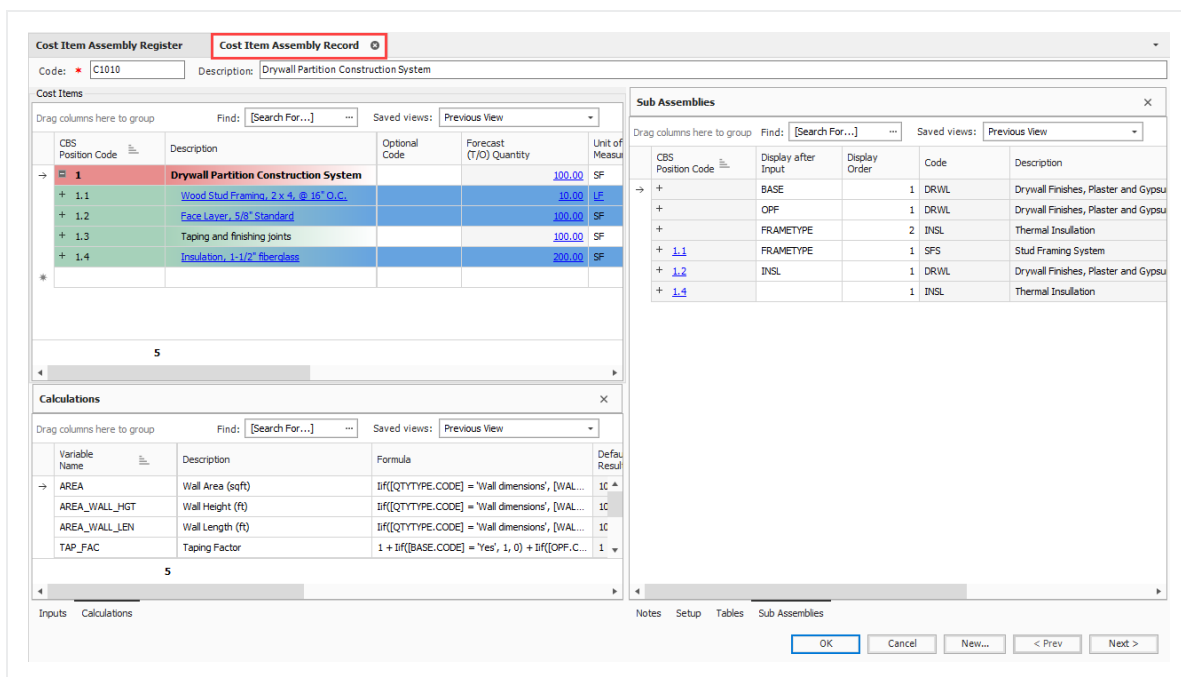
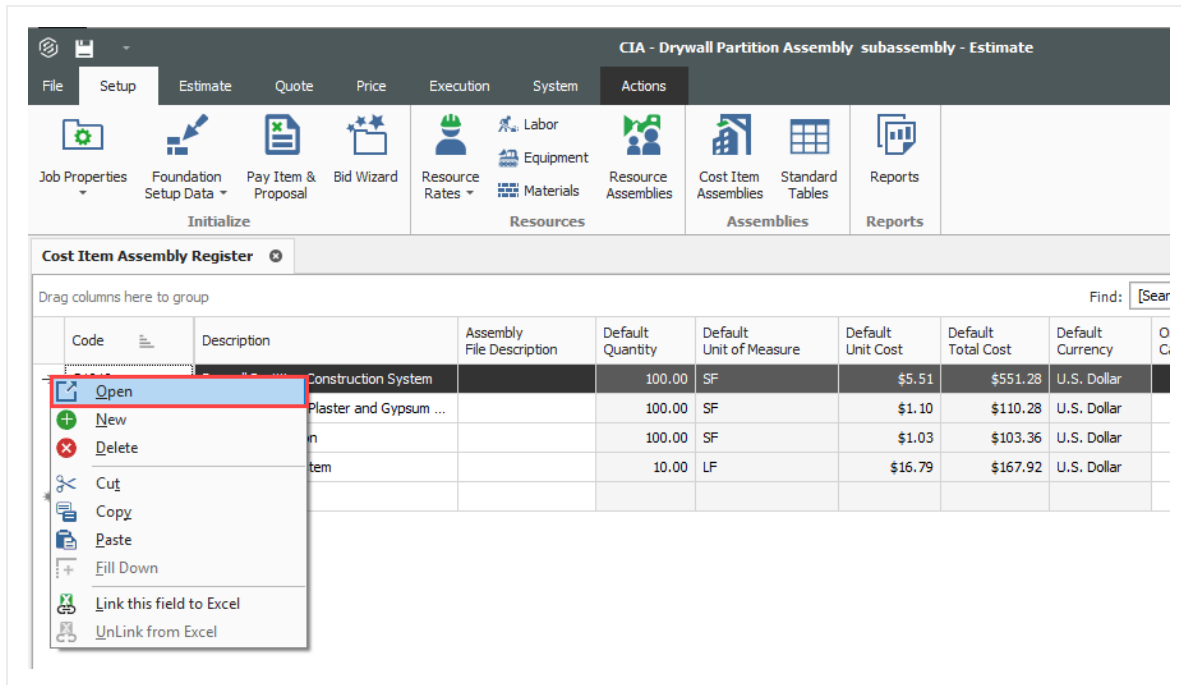
A sub-assembly can be created within a cost item assembly by simply inserting it as a subordinate cost item.

To access a cost item assembly record, select **Setup > Cost Item Assemblies**. The Cost Assembly register will open.



Select the cost item you want to open by double clicking or right click and select **Open**.





## 15.4.2 Overview of the cost item assembly sub assembly

Under the Cost Items window you will see the cost item assemblies listed. On the right side of the screen will be the sub assemblies relating to each cost item.



Cost Item Assembly Register

Cost Item Assembly Record

Code: C1010

Description: Drywall Partition Construction System

Cost Items

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure
1	Drywall Partition Construction System		100.00	SF
+ 1.1	Wood Stud Framing, 2 x 4, @ 16" O.C.		10.00	LF
+ 1.2	Face Layer, 5/8" Standard		100.00	SF
+ 1.3	Taping and finishing joints		100.00	SF
+ 1.4	Insulation, 1-1/2" fiberglass		200.00	SF

5

Calculations

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

Variable Name	Description	Formula	Default Result
AREA	Wall Area (sqft)	If([QTYTYPE.CODE] = 'Wall dimensions', [WAL...	1C
AREA_WALL_HGT	Wall Height (ft)	If([QTYTYPE.CODE] = 'Wall dimensions', [WAL...	1C
AREA_WALL_LEN	Wall Length (ft)	If([QTYTYPE.CODE] = 'Wall dimensions', [WAL...	1C
TAP_FAC	Taping Factor	1 + If([BASE.CODE] = 'Yes', 1, 0) + If([OFF.C...	1

5

Sub Assemblies

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

CBS Position Code	Display after Input	Display Order	Code	Description
+	BASE	1	DRWL	Drywall Finishes, Plaster and Gypsu
+	OFF	1	DRWL	Drywall Finishes, Plaster and Gypsu
+	FRAMETYPE	2	INSL	Thermal Insulation
+ 1.1	FRAMETYPE	1	SFS	Stud Framing System
+ 1.2	INSL	1	DRWL	Drywall Finishes, Plaster and Gypsu
+ 1.4	INSL	1	INSL	Thermal Insulation

When you expand the sub assemblies on the right, it lists all the elements which make up that sub assembly.

Sub Assemblies

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

CBS Position Code	Display after Input	Display Order	Code	Description	
+	BASE	1	DRWL	Drywall Finishes, Plaster and Gypsu	
+	OFF	1	DRWL	Drywall Finishes, Plaster and Gypsu	
+	FRAMETYPE	2	INSL	Thermal Insulation	
→ - 1.1	FRAMETYPE	1	SFS	Stud Framing System	
→	Variable Name	Sub Assembly Code	Display Order	Description	Value
	QTYTYPE	SFS	5.1.1	Enter total quantity or calculate usin...	Total quanti...
	QUANTITY	SFS	5.1.2	Wall Area (sqft)	100.00
	WALL_LEN	SFS	5.1.3	Wall Length (ft)	10.00
	WALL_HGT	SFS	5.1.4	Wall Height (ft)	10.00
	FRAMETYPE	SFS	5.1.5	Framing Type	Wood Stud
	FRAME	SFS	5.1.6	Framing	2 x 4, @ 16...
+ 1.2	INSL	1	DRWL	Drywall Finishes, Plaster and Gypsu	
+ 1.4		1	INSL	Thermal Insulation	

On the Cost Item Assembly Record screen there are three windows. Below are their functions:



	Windows	Description
1	Cost Items	These are the component cost items that will be inserted when the assembly is employed. Fields on the cost items can be linked to Calculations, which are driven by the Input values in window 2.
2	Inputs / Calculations	<p><b>Inputs:</b> These are the inputs the user will specify during employment of the assembly. These input values drive the Calculations which can be linked to the cost items in window 1.</p> <p><b>Calculations:</b> This is where Calculations are defined. Calculations can be based on Input values and other Calculations, and the Calculation results can be linked to fields on the assembly's cost items and resource employments.</p>
3	Sub Assemblies	<p>Four tabs appear: Notes, Setup, Tables, and Osub Assemblies.</p> <ul style="list-style-type: none"> <li>• <b>Notes</b> are displayed when the assembly is employed</li> <li>• <b>Setup</b> shows file and Tag information</li> <li>• <b>Tables</b> link to individual Table Records by Table Code</li> <li>• <b>Sub Assemblies</b> list all the elements which make up that sub assembly</li> </ul>

The screenshot displays the 'Cost Item Assembly Record' window for assembly C1010, 'Drywall Partition Construction System'. It is divided into three main sections:

- Cost Items (1):** A table listing components of the assembly.
 

CBS Position Code	Description	Optional Code	Forecast (T/D) Quantity	Unit of Measure
1	Drywall Partition Construction System		100.00	SF
1.1	Wood Stud Framing, 2x4, @ 16" O.C.		10.00	LF
1.2	Face Layer, 5/8" Standard		100.00	SF
1.3	Taping and finishing joints		100.00	SF
1.4	Insulation, 1-1/2" Fiberglass		200.00	SF
- Inputs (2):** A table defining input variables for calculations.
 

Variable Name	Display Order	Description	Input Type	Table	Default Value	Data Validation
QTYTYPE	1	Enter total quantity or calculat...	Table	TBL_TAKEOF...	Total quantity (sqft)	None
QUANTITY	2	Wall Area (sqft)	Value		100.00	None
WALL_LEN	3	Wall Length (ft)	Value		10.00	None
WALL_HGT	4	Wall Height (ft)	Value		10.00	None
FRAMETYPE	5	Framing System	Table	TBL_FRAME...	Wood Stud	None
INSUL	6	Install Insulation?	Table	TBL_INSUL...	No	None
- Notes (3):** A text area containing notes about the assembly.
 

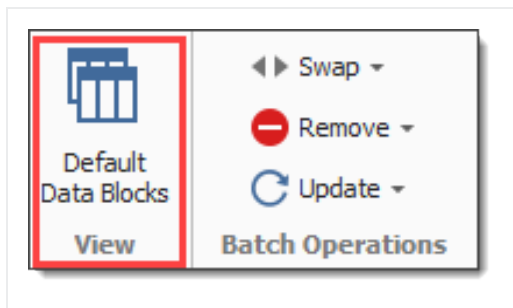
**C1010 124 Drywall Partitions/Wood Stud Framing**  
**C1010 126 Drywall Partitions/Metal Stud Framing**  
 Drywall Partitions/Stud Framing Systems are defined by type of Drywall and number of layers, type and spacing of stud framing, and treatment on the opposite face. Components include taping and finishing.

Cost differences between regular and fire resistant drywall are negligible, and terminology is interchangeable. In some cases fiberglass insulation is included for additional sound deadening.

Diagrams for Wood Stud Framing and Metal Stud Framing are shown.

Selecting the **Default Data Blocks** icon in the top left of the screen will change the view of the Cost Item Assembly Record.





The cost item assemblies input values can then be assigned to the sub-assembly input values for you to answer a question only one time. For example, when providing the total square footage of a wall system, the single input can be used by the cost item assembly and its sub-assemblies. Adjusting values in the questions, will change the preview, as shown below.

From the Cost Item Assembly Record > Sub Assemblies tab, compare how changes affect the Cost Breakdown Structure (CBS) Register:

Cost Item Assembly Inputs - Training					
Actions					
Cost Item Assembly: RW01					
Inputs					
Drag columns here to group Find: [Search For...] ... Saved views: Previous View					
Variable Name	Description	Value	Visible	Visibility Condition	
LENGTH	Wall Length (ft)	100	✓		
FTG_WIDTH	Footing Width (ft)	3.33	✓		
FTG_THICK	Footing Thickness (in)	9.67	✓		
WALL_HEIGHT	Wall Height, Avg (ft)	2.40	✓		
WALL_WIDTH	Wall Width (in)	12.00	✓		
CSTR	Concrete Strength	4000 PSI	✓		

Changing these values will...

adjust these totals.



Preview						
Drag columns here to group				Find: [Search For...]	...	Si
CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit	
+ 1	Standard Retaining Wall Assembly		20.00	Cubic Yard		
+ 1.1	Furnish Retaining Wall Materials		20.00	Cubic Yard		
+ 1.2	Retaining Wall Footings		10.00	Cubic Yard		
+ 1.2.1	Form Footing		200.00	Square Feet		
+ 1.2.2	Pour Footing		10.00	Cubic Yard		
+ 1.2.3	Strip Footing		200.00	Square Feet		
+ 1.3	Retaining Wall Wall		10.00	Cubic Yard		
10						

Sub-assembly input values can be sorted and shown conditionally based upon your inputs. Then you can employ a cost item assembly which only views the questions that are relevant. For example, a question in the cost item assembly could be, "Is insulation required?". If the answer to the question is yes, then a sub-assembly that defines the cost of installing insulation gets included in the cost item assembly. If the answer is no, then the sub-assembly is not included.

To view the formulas used to calculate the values of the cost items, in the **Cost Breakdown Structure (CBS) Register** hover over the Forecast (T/O) Quantity line items. This will help you to understand how these values were determined.

Preview								
Drag columns here to group				Find: [Search For...]	...	Saved views: Previous View		
CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency	
+ 1	Standard Retaining Wall Assembly		20.00	Cubic Yard	\$424.67	\$8,493.38	U.S. Dollar	
+ 1.1	Furnish Retaining Wall Materials		20.00	Cubic Yard	\$150.65	\$3,013.08	U.S. Dollar	
+ 1.2	Retaining Wall Footings		10.00	Cubic Yard	\$194.56	\$1,945.56	U.S. Dollar	
+ 1.2.1	Form Footing		200.00	Square Feet	\$1,257.77	\$1,257.77	U.S. Dollar	
+ 1.2.2	Pour Footing		10.00	Cubic Yard	\$269.52	\$2,695.20	U.S. Dollar	
+ 1.2.3	Strip Footing		200.00	Square Feet	\$2.10	\$419.26	U.S. Dollar	
+ 1.3	Retaining Wall Wall		10.00	Cubic Yard	\$353.37	\$3,533.75	U.S. Dollar	
10						\$8,493.38		

When your Input questions require answers as Yes/No, Unit of Measure, etc., select the field's ellipse to open the table screen. Here you can select the item(s) which relate to your initial selection. When OK is selected, the line item will update with the new selection.



Cost Item Assembly: RW01

Inputs

Drag columns here to groupFind: [Search For...] Saved views: Previous View

Variable Name	Description	Value	Visible	Visibility Condition
LENGTH	Wall Length (ft)	100.00	✓	
FTG_WIDTH	Footing Width (ft)	3.33	✓	
FTG_THICK	Footing Thickness (in)	9.67	✓	
WALL_HEIGHT	Wall Height, Avg (ft)	2.40	✓	
WALL_WIDTH	Wall Width (in)	12.00	✓	
CSTR	Concrete Strength	4000 PSI	...	✓

Table Rows - Training Job

Drag columns here to groupFind: [Search For...]

Concrete Strength (STRENGTH)	Resource Code (RESOURCE)
→ 3500 PSI	MC3500
4000 PSI	MC2000

2

Step by Step — Creating a Cost Item Assembly Sub Assembly

- 1. Navigate to **Setup > Cost Item Assemblies**.
- 2. Select a cost item assembly.

File **Setup** Estimate Quote Price Execution System Actions

Job Properties

Foundation Setup Data

Pay Item & Proposal

Bid Wizard

Resource Rates

Labor

Equipment

Materials

Resource Assemblies

**Cost Item Assemblies**

Standard Tables

Reports

InitializeResourcesAssembliesReports

Cost Item Assembly Register

Drag columns here to group

Code	Description	Assembly File Description	Default Quantity	Default Unit of Measure	Default Unit Cost	Default Total Cost	Default Currency	O C
C1010	Drywall Partition Construction System		100.00	SF	\$5.51	\$551.28	U.S. Dollar	
DRWL	Drywall Finishes, Plaster and Gypsum ...		100.00	SF	\$1.10	\$110.28	U.S. Dollar	
INSL	Thermal Insullation		100.00	SF	\$1.03	\$103.36	U.S. Dollar	
SFS	Stud Framing System		10.00	LF	\$16.79	\$167.92	U.S. Dollar	

- The cost item assembly record will open



**Cost Item Assembly Register** **Cost Item Assembly Record**

Codes: C1010 Description: Drywall Partition Construction System

**Cost Items**

Drag columns here to group Find: [Search For...] Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (Y10) Quantity	Unit of Measure	Unit Cost
1	<b>Drywall Partition Construction System</b>		100.00	SF	\$
+ 1.1	Wood Stud Framing, 2 x 4 @ 16" O.C.		10.00	LF	\$
+ 1.2	Face Layer, 5/8" Standard		100.00	SF	\$
+ 1.3	Taping and finishing joints		100.00	SF	\$
+ 1.4	Insulation, 1-1/2" fiberglass		100.00	SF	\$
+ 1.5	Walls		100.00	SF	\$

6

**Calculations**

Drag columns here to group Find: [Search For...] Saved views: Previous View

Variable Name	Description	Formula	Default Result	Tag 1
AREA	Wall Area (sqft)	IF([QTYTYPE.CODE] = 'Wall dimensions', [WAL...	100.00	
AREA_WALL_HGT	Wall Height (ft)	IF([QTYTYPE.CODE] = 'Wall dimensions', [WAL...	10	
AREA_WALL_LEN	Wall Length (ft)	IF([QTYTYPE.CODE] = 'Wall dimensions', [WAL...	10.00	
TAP_FAC	Taping Factor	1 + IF([BASE.CODE] = 'Yes', 1, 0) + IF([OFF.C...	1	

5

Inputs Calculations

**Sub Assemblies**

Drag columns here to group Find: [Search For...] Saved views: Previous View

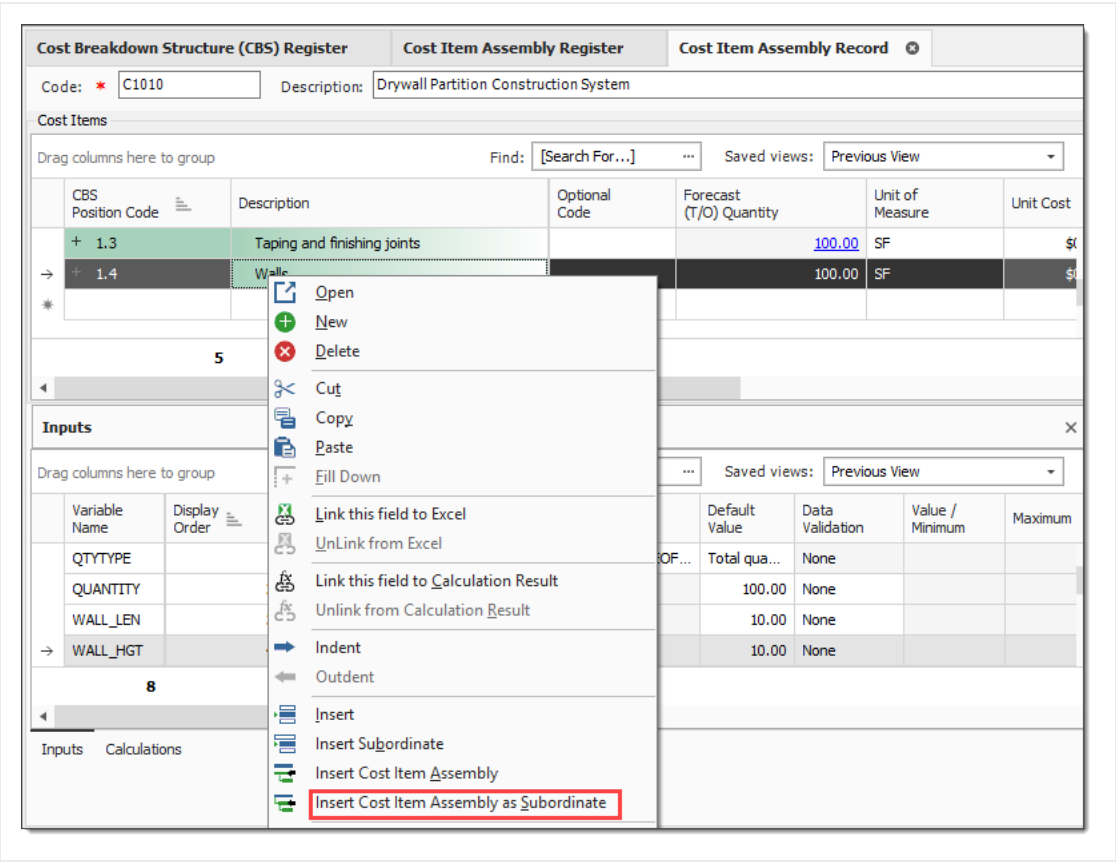
CBS Position Code	Display after Input	Display Order	Code	Description	Empty Cond
+	BASE	1	DRWL	Drywall Finishes, Plaster and Gypsum Board	[BASE
+	OFF	1	DRWL	Drywall Finishes, Plaster and Gypsum Board	[OFF,
+	FRAMETYPE	2	INSL	Thermal Insulation	[INSL
+ 1.1	FRAMETYPE	1	SPS	Stud Framing System	
+ 1.2	INSL	1	DRWL	Drywall Finishes, Plaster and Gypsum Board	
+ 1.4	INSL	1	INSL	Thermal Insulation	

Notes Setup Tables Sub Assemblies

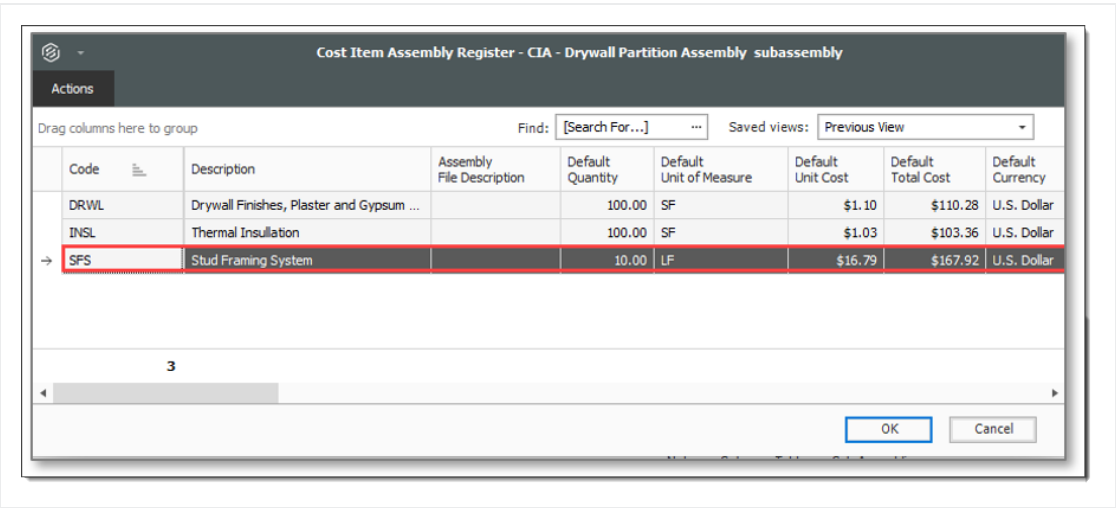
OK Cancel New... < Prev Next >

- With the addition of "Walls" as our example, select a blank line in the **Cost Item Assembly** and give it a number and description.
- Right click on the line item and select **Insert Cost Item Assembly as Subordinate**.





- The Cost Item Assembly Register sub assembly opens
5. From this screen, select a sub assembly to add and click **OK**.





- The window for the sub assembly will open with its details
- Complete any changes to the values

6. Click **OK**.

The cost item sub assembly has been added:

Code: C1010

Description: Drywall Partition Construction System

Cost Items

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O)	Quantity	Unit of Measure	Unit Cost				
+ 1.2	Face Layer, 5/8" Standard			100.00	SF	\$1				
+ 1.3	Taping and finishing joints			100.00	SF	\$0				
+ 1.4	Walls			100.00	SF	\$1				
+ 1.4.1	Wood Stud Framing, 2 x 4 @ 16" O.C.			10.00	LF	\$14				
Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Work Hours	Pay Hours	Unit Cost
1	CARP	Carpenters		2.00		2.00	Each	1.60	1.60	\$75.45
2	WFS	Wood framing for par...		10.00	0.00	10.00	LF			\$4.72

Sub Assemblies

Drag columns here to group

Find: [Search For...]

Saved views: Previous View

CBS Position Code	Display after Input	Display Or...	C...	Description	Employment Condition
+ BASE	1	DRWL		Drywall Finishes, Plaster and Gypsum Board	[BASE.CODE]=Yes'
+ OPP	1	DRWL		Drywall Finishes, Plaster and Gypsum Board	[OPP.CODE]=Yes'
+ FRAMETYP	2	INSL		Thermal Insulation	[INSL.CODE]=Yes'
+ 1.1	FRAMETYP	1	SFS	Stud Framing System	
+ 1.2	INSL	1	DRWL	Drywall Finishes, Plaster and Gypsum Board	
+ 1.4.1		1	SFS	Stud Framing System	



## Lesson 15 Review

1. Where do you create new cost items for the cost item assembly?
  - a. CBS Register
  - b. Cost Item Assembly Record
  - c. Job Properties
  - d. Cost Item Assembly Register
2. From where can you edit an employed cost item assembly?
  - a. CBS Register
  - b. Cost Item Assembly Record
  - c. Resource Rate Register
  - d. Both a & b
3. Match each function to its correct definition:

Term	Definition
lif	Rounds the given value to the nearest integer
Round	Returns the maximum value for the specified values
Pi	Returns the value of Pi
Max	Returns either TruePart or FalsePart depending on the Boolean expression

## Lesson 15 Summary

As a result of this lesson, you can:

- Explain what a cost item assembly is and why it is used
- Create and edit a cost item assembly
- Employ a cost item assembly



## 15.5 ADVANCED JOB SNAPSHOTS

A job Snapshot is a copy of an Estimate job that provides read only access to the job as it existed at a specific point in time.

You can use a Job Snapshot to do the following

- Freeze your estimate at various points for audit purposes, such as after take-off is complete, after bid review is complete, or after final subcontractor/supplier prices have been entered.
- Give access to users that need access to the information but are not permitted to modify the data.
- Enable users to access a job while eliminating the concern that someone may inadvertently change live data.
- Copy data from a snapshot version of a job and paste it back into the live job or any other project.
- Create a new job from a snapshot version of a job.

Behind the scenes, the job is saved and maintained as an archive. When a snapshot is loaded, the archive is restored as a local copy. A snapshot can be modified, but changes cannot be saved. Snapshots are managed in the Snapshot Register.

### 15.5.1 Creating A New Job Snapshot

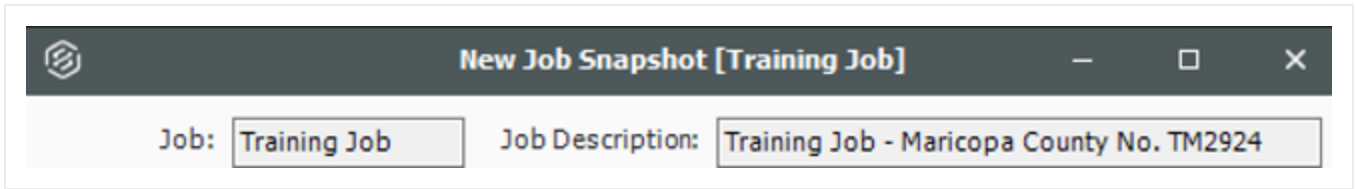
User access can be set for each snapshot as follows:

- Use job's current User Access restrictions for the snapshot
- Remove all User Access restrictions for the snapshot
- Specify User Access restrictions for the snapshot

#### Step by Step — Creating a New Job Snapshot

1. Click on the File tab. From the Backstage View, select **Snapshots** from the left navigation pane.
2. Select **Create Snapshot**.
3. The job name and description display at the top of the dialog.

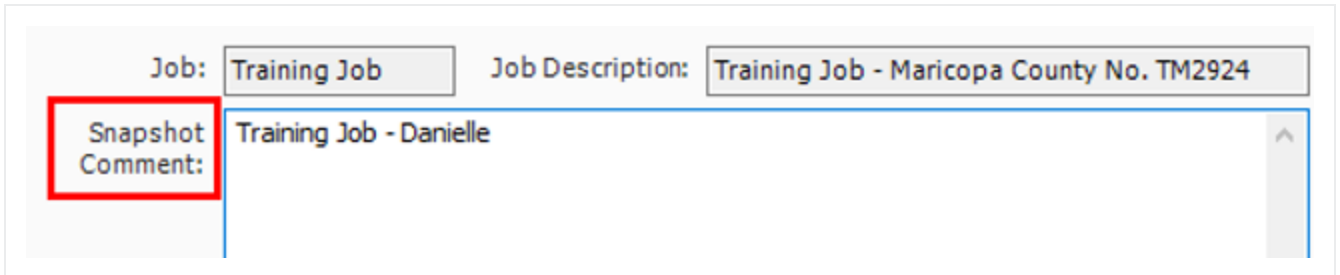




New Job Snapshot [Training Job]

Job: Training Job Job Description: Training Job - Maricopa County No. TM2924

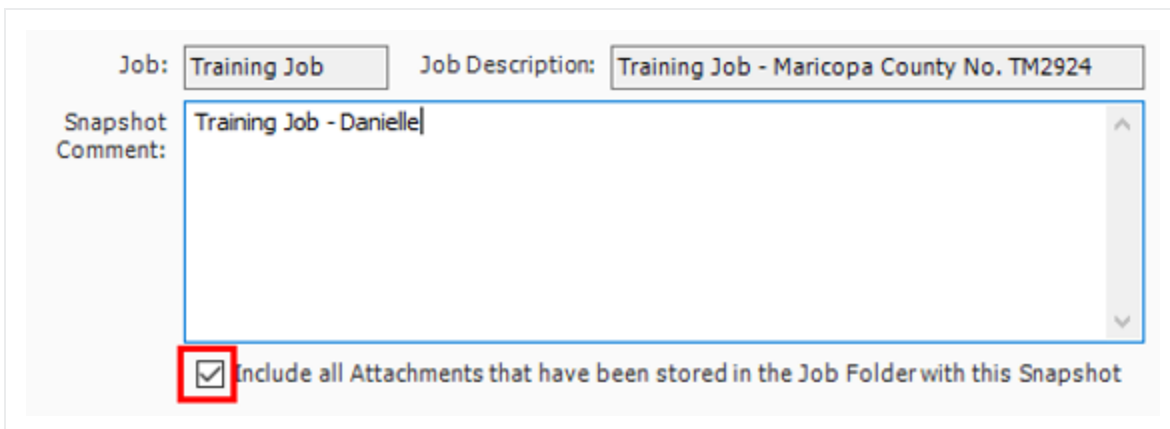
4. In the **Snapshot Comment** area, enter a short description of the snapshot. This comment will be used to identify the snapshot on the **Snapshot Register** form.



Job: Training Job Job Description: Training Job - Maricopa County No. TM2924

Snapshot Comment: Training Job - Danielle

5. To include all attachments that have been stored in the job folder with this Snapshot, select the check box.



Job: Training Job Job Description: Training Job - Maricopa County No. TM2924

Snapshot Comment: Training Job - Danielle

☒ Include all Attachments that have been stored in the Job Folder with this Snapshot

6. Select the **Specify User Access restrictions for this Snapshot** option.



User Access

☐ Use Job's current User Access restrictions for this Snapshot

☐ Remove all User Access restrictions for this Snapshot

☒ Specify User Access restrictions for this Snapshot

User - [redacted]@[redacted]

Add...

Remove

OK

Cancel

7. Ensure that your name is selected, otherwise click the “Add” button and select yourself. Click OK.

User Access

☐ Use Job's current User Access restrictions for this Snapshot

☐ Remove all User Access restrictions for this Snapshot

☒ Specify User Access restrictions for this Snapshot

User - [redacted]@[redacted]

Add...

Remove

OK

Cancel

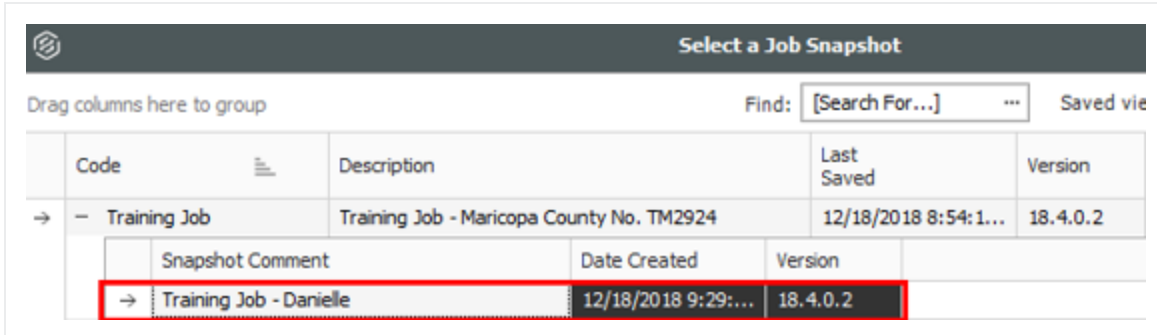
## 15.5.2 To Create a New Job from a Snapshot

New jobs can be created from existing job snapshots using the following steps.

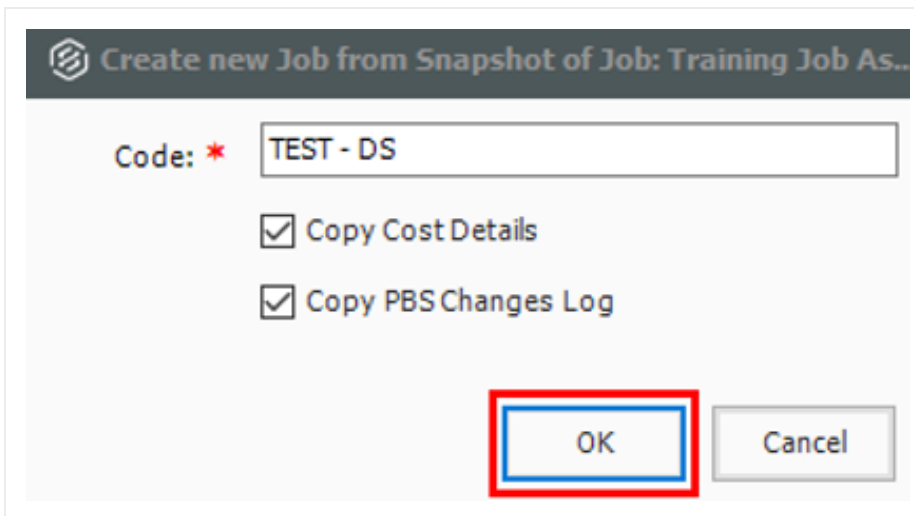


## Step by Step — Creating a New Job from a Snapshot

1. Click on the File tab. From the Backstage View, select **New** from the left navigation pane.
2. Select **Create Snapshot**.
3. Select Create a new Job from... **Snapshot**.
4. Select a snapshot from which to create the job. Click **OK**.

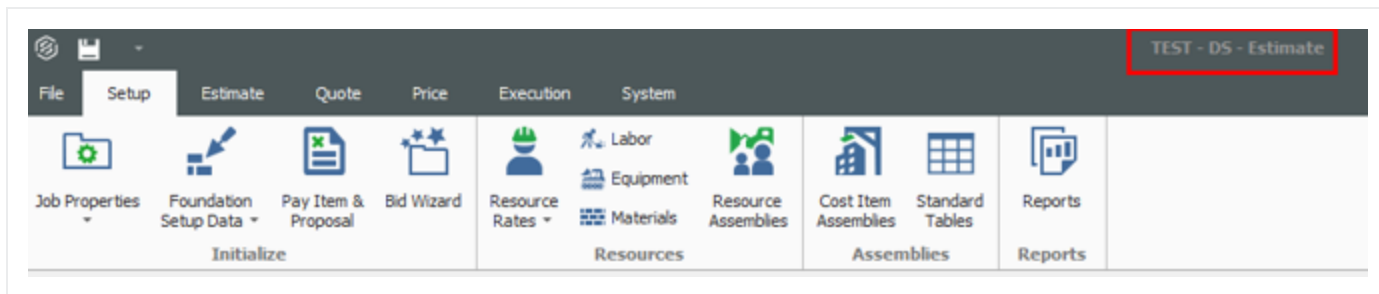


5. Enter in a unique code for the new job **TEST – Your Initials**. Check both boxes to copy cost details and PBS changes log into the new job. Click **OK**.



6. Your job will pop up in a new window. Close out of your job and navigate back to the training job.





7. Click **OK** to save.

### 15.5.3 Load a Job Snapshot


When you load an existing Snapshot, it loads into Estimate like any other job. You can use it for reference and copy data from it to other jobs. A snapshot can be modified, but changes cannot be saved. To identify it in Estimate as a read-only snapshot:

- The job name is preceded by **SNAPSHOT:** in the job tab
- A red banner displays the specific snapshot information in the Current Job area at the bottom of the screen.


#### Step by Step — Load a Job Snapshot

1. Click on the File tab. From the Backstage View, select **Snapshots** from the left navigation pane.
2. Select **Snapshot Register**.
3. Select the snapshot that you would like to load.

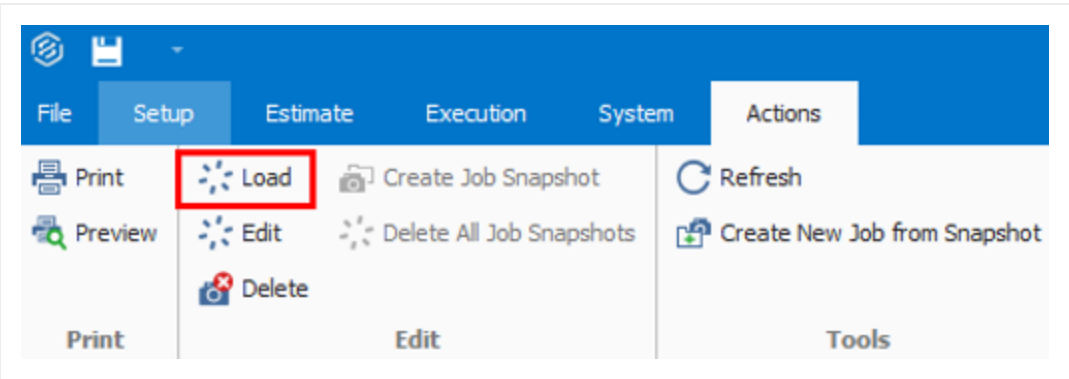


Snapshot Register 

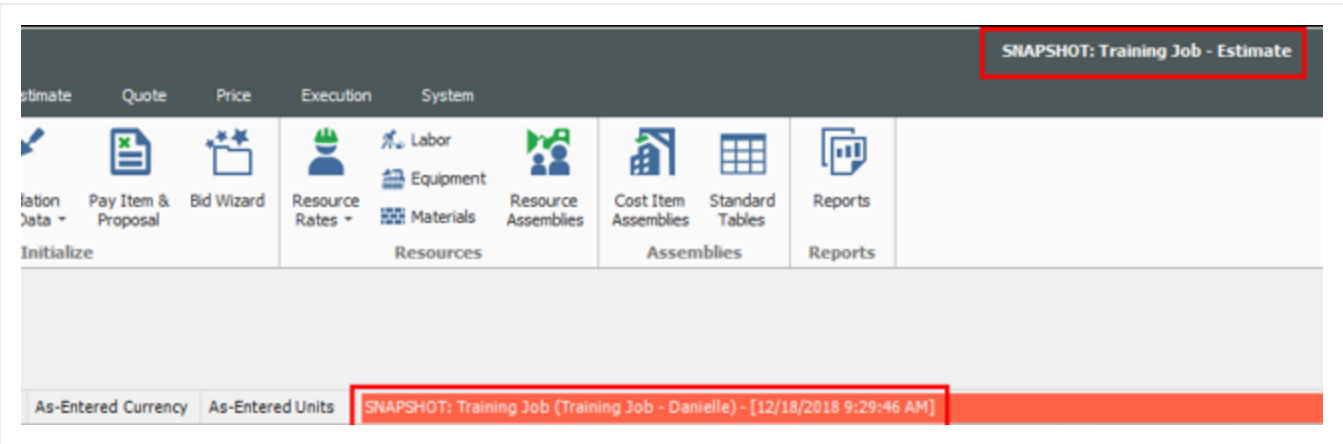
Drag columns here to group

	Code 	Description	Last Saved		
	+ TEST - DS	Training Job - Maricopa County No. TM2924	12/18/2018 9:33:2...		
→	- Training Job	Training Job - Maricopa County No. TM2924	12/18/2018 8:54:1...		
		Snapshot Comment	Date Created	Version	
	→	Training Job - Danielle	12/18/2018 9:29:...	18.4.0.2	

4. From the Ribbon, select the Actions tab. Then under the Edit section, select **Load**.



5. Your snapshot opens as indicated by the top and bottom of the screen.



6. Close out of the snapshot. Close out of the Library.

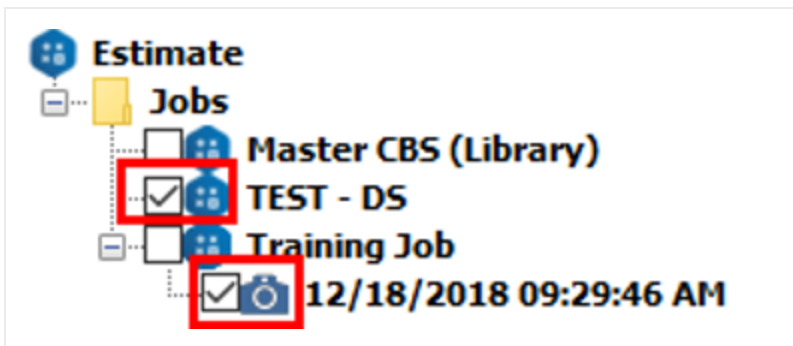


## 15.5.4 Compare Snapshots in Job Explorer

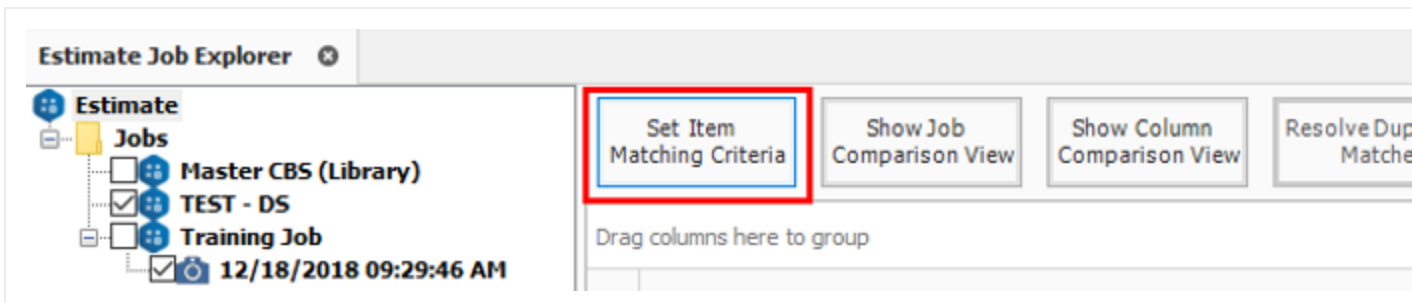
In Estimate Job Explorer, you are able to now compare a snapshot to another snapshot, or a snapshot to a job by selecting them in the tree view.

### Step by Step — Compare Snapshots in Job Explorer

1. Click on the File tab. From the Backstage View, select **Job** from the left navigation pane.
2. Select **Compare Jobs**.
3. Select a job and a snapshot from the Estimate Job Explorer.




4. Click **Set Item Matching Criteria**.



5. From the Item Matching Criteria window, select **Account Code**. Then click **OK**.





Item Matching Criteria

Matching Criteria

Indicate which fields you wish to use to match cost items across jobs. For cost items to be considered a match, they must have matching values for ALL of the fields you check below.

☐ Match cost items based on the 'Maintain CBS Structure' rules.

☒ Match cost items using any combination of the following fields:

☐ CBSPosition Code

☐ Tag 1

☐ Tag 12

☐ Tag 23

☐ Description

☐ Tag 2

☐ Tag 13

☐ Tag 24

☐ Optional Code

☐ Tag 3

☐ Tag 14

☐ Tag 25

☐ Unit of Measure

☐ Tag 4

☐ Tag 15

☒ Account Code

☐ Tag 5

☐ Tag 16

☐ Cost Source

☐ Tag 6

☐ Tag 17

☐ Pay Item Assignment

☐ Tag 7

☐ Tag 18

☐ Phase Code

☐ Tag 8

☐ Tag 19

☐ Quote Group

☐ Tag 9

☐ Tag 20

☐ Suspend

☐ Tag 10

☐ Tag 21

☐ Worker's Comp Override

☐ Tag 11

☐ Tag 22

Toggle Include All

Display

Show all items

OK

Cancel

6. On the Estimate Job Explorer, click **Show Column Comparison View**. Once done, click **OK**.

Estimate Job Explorer

Estimate

Jobs

Master CBS (Library)

TEST - DS

Training Job

12/18/2018 09:29:46 AM

Set Item Matching Criteria

Show Job Comparison View

Show Column Comparison View

Reso

Drag columns here to group



7. You can now compare the snapshot and the job column by column. Close out of the Library when done.

Drag columns here to group

	CBS Position Code	Description	Qty Training Job (12/18/2018 9:29:46 AM)	Qty TEST - DS	UM Training Job (12/18/2018 9:29:46 AM)
→	0.2	Prime Bond	1.00		Lump Sum
	0.2	Prime Bond		1.00	
	0.3	Price % Add-On	1.00		Lump Sum
	0.3	Price % Add-On		1.00	
	0.4	Job Financing	1.00		Lump Sum
	0.4	Job Financing		1.00	
	0.5	Indirect Cost Escalation	1.00		Lump Sum
	0.5	Indirect Cost Escalation		1.00	



### 15.5.5 Delete a Job Snapshot

If you decide that you no longer need a snapshot or if you want to delete it for any other reason, you can do so following this step by step.

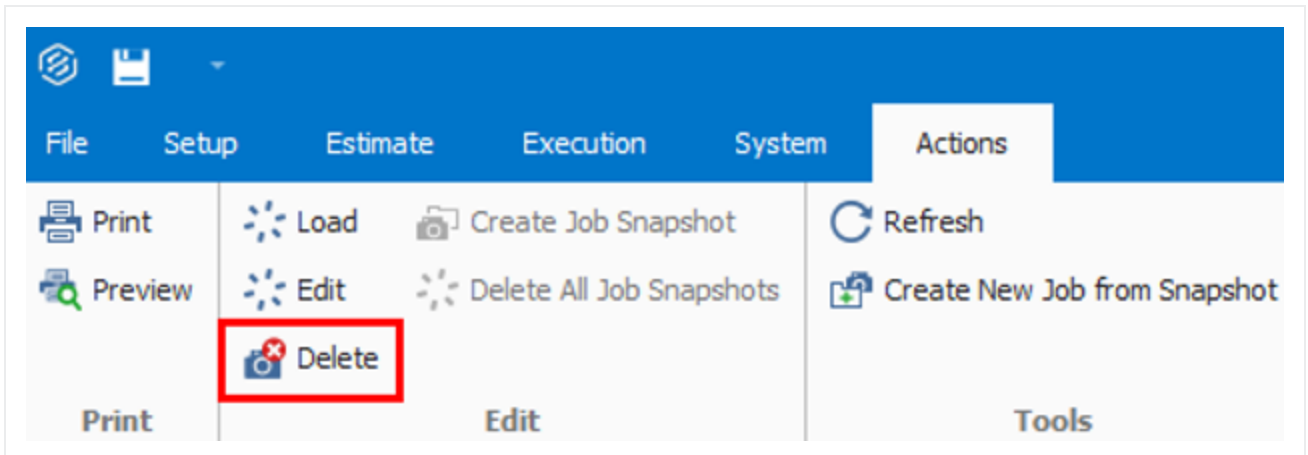
#### Step by Step — Delete a Job Snapshot

1. Click on the File tab. From the Backstage View, select **Snapshots** from the left navigation pane.
2. Select **Snapshot Register**.
3. Select the snapshot you want to delete.



Snapshot Register 				
Drag columns here to group				
	Code 	Description	Last Saved	
	+ TEST - DS	Training Job - Maricopa County No. TM2924	12/18/2018 9:33:2...	
→	- Training Job	Training Job - Maricopa County No. TM2924	12/18/2018 8:54:1...	
	Snapshot Comment	Date Created	Version	
→	Training Job - Danielle	12/18/2018 9:29:...	18.4.0.2	

4. From the Ribbon, select the **Actions** tab. Under the Edit section, select **Delete**.



5. Click **OK** to complete the deletion of the snapshot.

### 15.5.6 Upgrade Snapshot Version

When a snapshot is selected in the Snapshot Register that is not the same as the Estimate system version, a prompt opens for the user to upgrade the snapshot. The snapshot must be upgraded to be viewed. The snapshot opens automatically after the upgrade is completed, which shows the updated version in the status bar.



## 15.6 VALIDATED TAGS

Tags are used to identify or mark records for filtering, sorting and reporting purposes. Think of them as you would any paper tag that you attach to an object to better identify it or find it when you need it.

Tags can be created and made available to all Tags fields throughout the system or can be created for specific Tags fields on specific forms. When created for a specific Tags field on a specific form, the list of available Tags for that field will be limited to those Tags assigned to that field and form. Tags that have not been assigned to a specific field and form will be available to all Tags fields on all forms. After data is tagged, it can be filtered, sorted, and grouped using the filtering and grouping features on the register containing the data.

### 15.6.1 Validate Field Examples

Examples	Description
Area	Assign construction area to cost items
Phase	Assign construction phase to cost items
Work Type	Assign construction work types to cost items
Estimator	Assign an estimator's name to a cost item for responsibility/tracking
Estimate Scope	Cost item tagging for secondary reporting scope needs
Issues	Issues to discuss during estimate reviews
Risk Level	Assign risk level to cost items for estimate reviews
Division/District/Region Tags	Division/District/Region tags
Review Status	Sections of the estimate that have been reviewed
Contract Type	Contract types
Bid Review Date	Date organization reviewed the bid
Bid Award Date	Date the bid was awarded




Examples	Description
Bid Place	Track how the bid placed against competitors if not won
Quantity Verification	Cost item takeoff validation complete

Users can take advantage of validated and non-validate tags in every register within estimate. It will be up to the organization on how they want to best leverage tags in each register.



### 15.6.1.1 Register Examples



 Description
Accounts
Attachments
Changes
Commitments
Competitors
Contacts
Cost Item Assemblies
Cost Item Assembly Calculations
Cost Item Assembly Inputs
Cost Items
Dependent Cost Item Lines
Employees & Machines
Jobs
Pay Item Budget Items
Pay Items
Payment Approvals
PBS Changes
Progress Item Detail Expenses
Progress Item Details
Quotes
Resource Assemblies
Resource Employments
Resources
RFQs
Shift / Rate Calculators
Tables
Timesheet Details
Timesheet Expenses
Timesheets
Trench Calculators
User Account Role Assignments
User Accounts

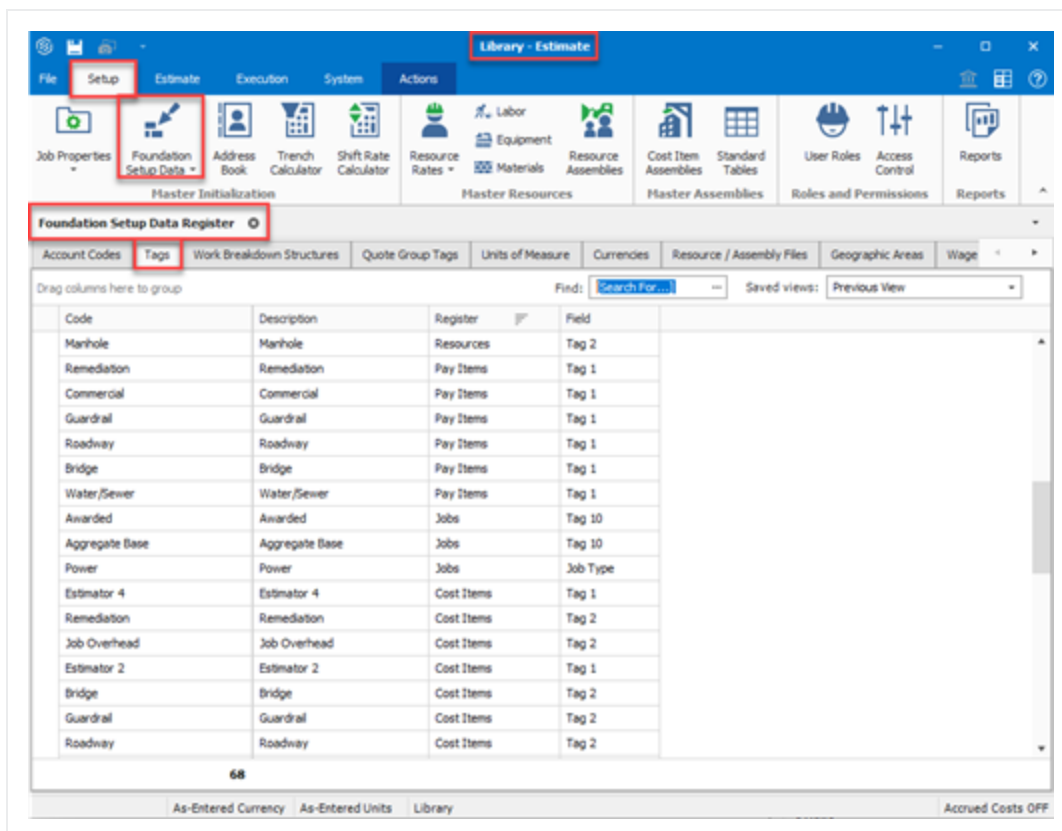


## 15.6.2 Master Foundation Setup Data – Validated Tags

A master set of Tags is created and stored in the **Master Foundation Setup Data - Tags** tab of the Library. When you create a new folder, the master set is automatically copied from the Library to the new folder. If you feel the current job requires new or different Tags to adequately categorize its cost items and resources, you can change, create, or delete them any time you want.

### Step by Step — Validated Register Tags

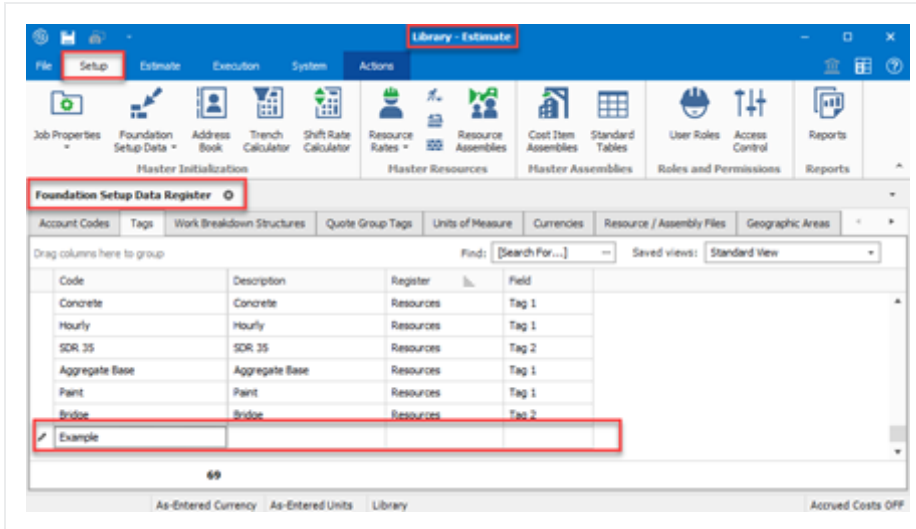
1. From the Backstage View, select **Library** from the left pane navigation.
2. From the Ribbon, select the **Setup** tab.
3. Under the section Master Initialization, select the **Foundation Setup Data** button. The Foundation Setup Data Register opens.
4. From the Foundation Setup Data Register, select the **Tags** tab.



5. Click in the first blank cell in the **Code** column. Then enter the code that defines the tag.



6. In the **Description** field, enter a description for the tag.
7. In the **Register** field, define the type of item to associate with this tag.
8. In the **Field** column, define the tag field to associate with this tag.



9. Repeat the previous steps to add additional tags.

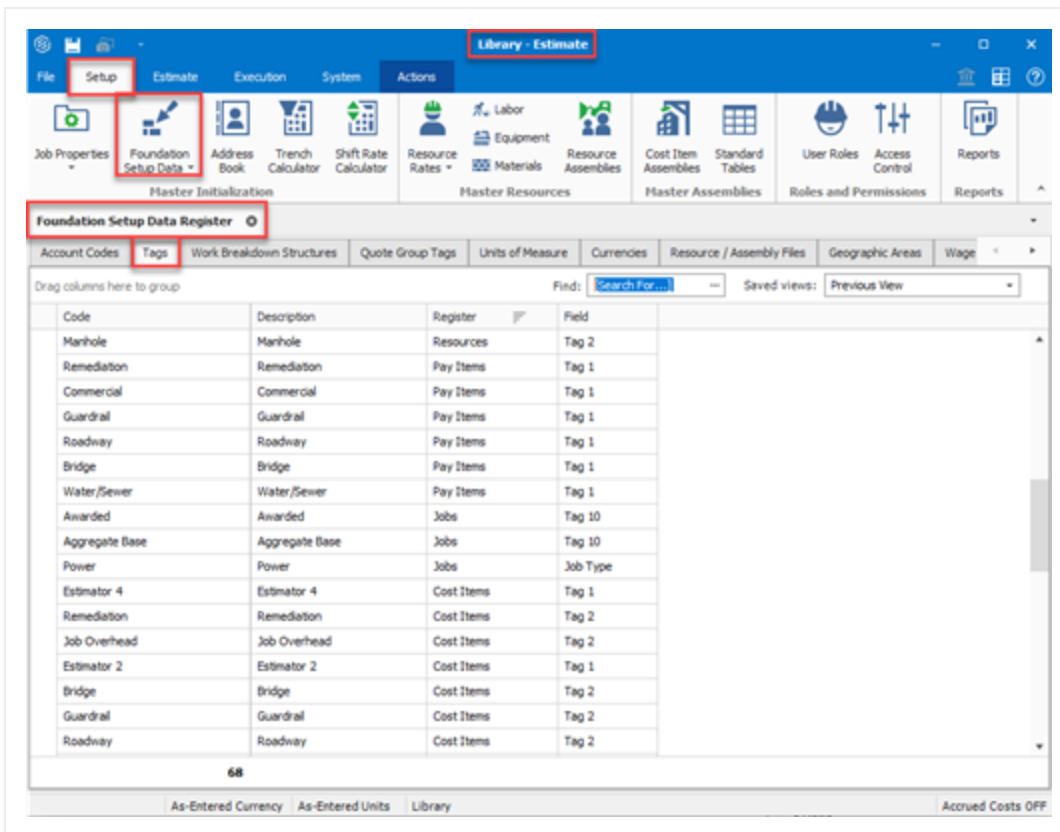
### 15.6.3 Creating Validate Tags in the Record

The following steps walk you through how to create validated tags within a User Tag Record.

#### Step by Step — Validated Record Tags

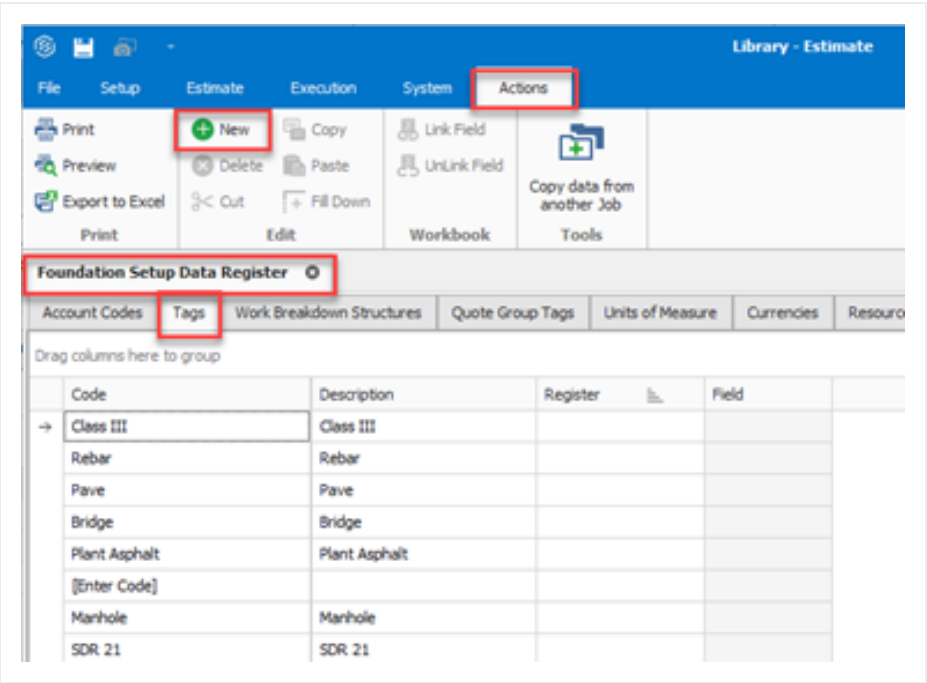
1. From the Backstage View, select **Library** from the left pane navigation.
2. From the Ribbon, select the **Setup** tab.
3. Under the section Master Initialization, select the **Foundation Setup Data** button. The Foundation Setup Data Register opens.
4. From the Foundation Setup Data Register, select the **Tags** tab.





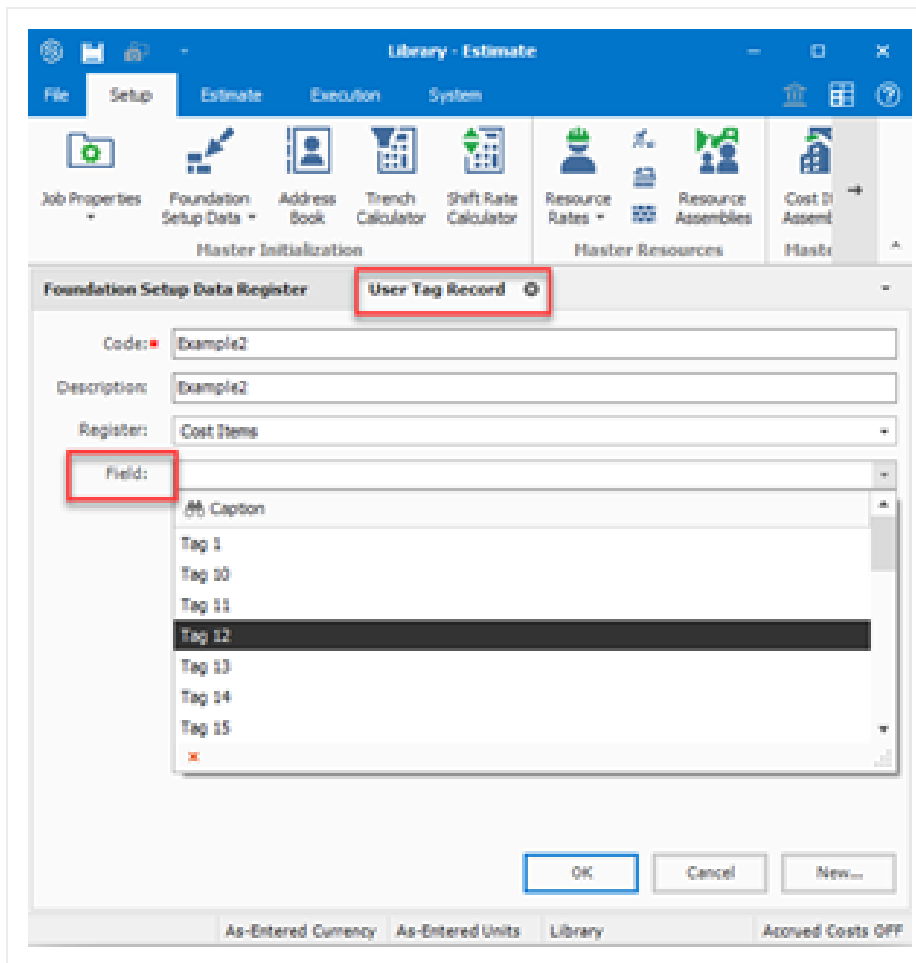
5. Select the **Actions** tab.
6. Under the Edit section, select **New**. A new **User Tag Record** opens.





7. In the **Code** column, enter the code that defines the tag.
8. In the **Description** field, enter a description for the tag.
9. In the **Register** drop down, define the type of item to associate with this tag.
10. In the **Field** drop down, define the tag field to associate with this tag.
11. When you are finished, click **OK** to close this record and return to the register.





12. Repeat the previous steps to add additional tags.
13. To edit pre-existing tags, select the tag you want to edit. Then, in the **Actions** tab, click **Open**. The User Tag Record opens.

### 15.6.4 Assigning Validate Tags to Cost Items

The following steps walk you through how to assign validated tags to cost items.

#### Step by Step — Assigning Validate Tags to Cost Items

1. From the Ribbon, select the **Estimate** tab.
2. Then select **Cost Breakdown Structure (CBS)**.



3. Double-click the row that you want to assign tags. The Cost Item Record for that row opens.
  - e.g., Direct Cost Add-On, Indirect Cost Escalation, etc.
4. Select the Cost Item Setup default data block in the lower right portion of the record.
5. Select a tag to add to the **Tag 1** field drop down.
6. Select the Cost Item Setup default data block in the lower right portion of the record.

**Cost Breakdown Structure (CBS) Register** **Cost Item Record**

CBS Code: Optional Code: Description: Forecast (T/O)

PI Assignment: PI Line Number: PI Description:

Cost Item Summary Detail: \$11,909.51 Plug: \$500.00 Quot

Default Shift Arrangements: Work Hours per Shift: 8.00 Shifts per Day: 1.00 Days per Week: 5.00 Job Tracking Allow As-Built:

Default Properties: Account Code: 1020 Cost Curve: Linear Worker's Comp Override: Tag 1: Estimator 1 Tag 2: Roadway Tag 3: Tag 4: Tag 5: Quantity Driver: Pay Item Quote Group Tag: Minority Goal Allowance: 100.00 Phase Code: When man-count changes: ☒ Change UM / Man-Hour ☐ Change Days Suspend: ☐ Security Last Changed By: Ray.Banning

Employment Setup Notes **Cost Item Setup** Production Man-Ho

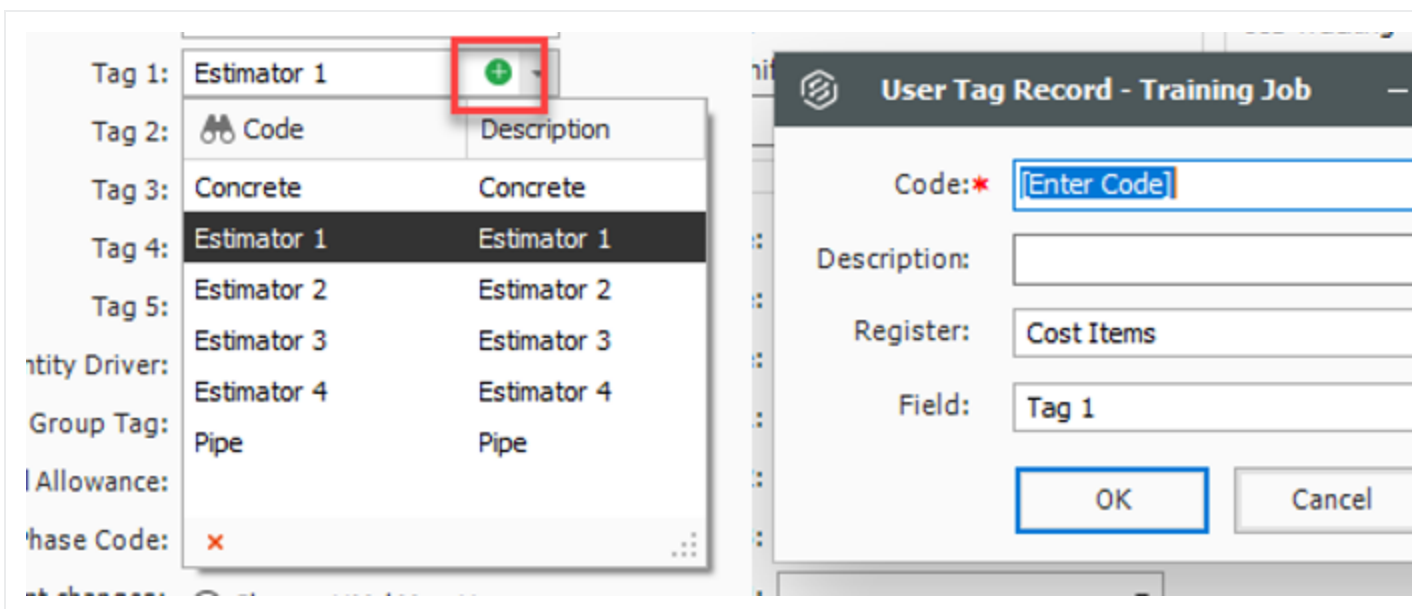
Row Number	Code	Resource Assembly	Description	Quant (Less)
1	LT1		Teamster	
3	ETTT		Tractor Truck	
2	ETLT		Lowboy Trailer	

Tag 6:  
Tag 7:  
Tag 8:  
Tag 9:  
Tag 10:  
Tag 11:  
Tag 12:  
Tag 13:  
Tag 14:  
Tag 15:  
Tag 16:  
Tag 17:  
Tag 18:  
Tag 19:  
Tag 20:



**NOTE**

If the tag that you want to assign does not display in the drop-down list, you have the ability to add a new tag by clicking on the green plus button that shows to the left of the validation button and adding the new tag to your job's foundation data



7. Repeat the previous steps to add additional tags.

### 15.6.5 Assigning Validated Tags to an Employed Resource

The following steps walk you through how to assign validated tags to an employed resource.

Estimate provides you with the ability to assign specific tags on a resource-by-resource basis for each employed resource on a cost item.

Tags are master codes and descriptions that are used, generally, for sorting and filtering purposes and allow you to group like data for reporting and review purposes.

#### Step by Step — Assigning Validate Tags to Employed Resources

1. From the Ribbon, select the **Estimate** tab.
2. Then select **Cost Breakdown Structure (CBS)**.
3. Double-click the row that you want to assign tags. The Cost Item Record for that row opens.



- e.g., Direct Cost Add-On, Indirect Cost Escalation, etc.
4. In the Cost Item Record, select the **Detail** tab.
  5. Select a resource row in the Detail tab and then select the **Employment Setup** default data block in the lower right portion of the record.
  6. Select a tag for the **Tag 1** field using the drop down list.

**NOTE**

If the tag that you want to assign does not display in the drop-down list, you have the ability to add a new tag by clicking on the green plus button that shows to the left of the validation button and adding the new tag to your job's foundation data.

7. Repeat the previous steps to add additional tags.

## 15.6.6 Assigning Validated Tags to Pay Items

Tags are master codes and descriptions that are generally used for sorting and filtering purposes, and they allow you to group like data for reporting and review purposes.

### Step by Step — Assigning Validate Tags in Pay Item Register

1. From the Ribbon, select the **Price** tab.
2. Under the Pay Items section, select **Pay Item & Proposal**. The Pay Item & Proposal Register opens.
3. In the register, select the pay item that you want to assign a tag.
4. Find and click into the **Tag 1** field. Then select a tag from the drop down list.

**NOTE**

If the tag that you want to assign does not display in the drop-down list, you have the ability to add a new tag by clicking on the green plus button that shows to the left of the validation button and adding the new tag to your job's foundation data.

5. Repeat the previous steps to add additional tags.



### 15.6.6.2 Assign Tags on the Pay Item Record

#### Step by Step — Assigning Validate Tags in Pay Item Record

1. From the Ribbon, select the **Price** tab.
2. Under the Pay Items section, select **Pay Item & Proposal**. The Pay Item & Proposal Register opens.
3. In the register, select the pay item that you want to assign a tag.
4. On the Actions tab, click **Open** to open the Pay Item Record.
5. From the Pay Item Record, select the **Tags / User Defined Fields** tab.
6. Click the **Tag 1** field. Then select a tag from the drop down list.

**NOTE**

If the tag that you want to assign does not display in the drop-down list, you have the ability to add a new tag by clicking on the green plus button that shows to the left of the validation button and adding the new tag to your job's foundation data.

7. Repeat the previous steps to add additional tags. Once done, click **OK**.

### 15.6.7 Assigning Validated Tags to Price % Add-On

#### Step by Step — Assigning Validated Tags to Price % Add-On

1. From the Ribbon, select the **Estimate** tab.
2. Under the Breakdown Structure section, select **Cost Breakdown Structure (CBS)**.
3. Double-click on the **PRICE % ADD-ON** row.
4. Under the Cost Item Setup default data block, click in the **Tag 1** field. Then, select an account code using the drop down list.

**NOTE**

If the tag that you want to assign does not display in the drop-down list, you have the ability to add a new tag by clicking on the green plus button that shows to the left of the validation button and adding the new tag to your job's foundation data.

5. Repeat the previous steps to add additional tags. Once done, click **OK**.



Cost Breakdown Structure (CBS) Register   Pay Item & Proposal Register   Pay Item Record   **Price % Add-On Record**

CBS Code:   Description:   Price % Add-On   Total Cost: \$314,705.28

Description   Dependency

Drag columns here to find: [Search For...]   Saved views: Previous View

Description	Rate	Account Code
→ AGC Dues	0.50	
* Office Overhead	4.00	

Cost Item Setup

Properties

Currency: U.S. Dollar

Account Code:

Cost Curve: Linear

Tag 1:

Tag 2: AB Code   Description

Tag 3: Concrete   Concrete

Phase Code: Estimator 1   Estimator 1

Suspend: ☐ Estimator 2   Estimator 2

Job Tracking: Estimator 3   Estimator 3

Allow As-Built: Estimator 4   Estimator 4

Pipe   Pipe

Security

Last Changed By: Ray.Banning

Last Changed On: 4/2/2019 2:21:13 PM

Cost Item Setup   Notes   Schedule

OK   Cancel   < Prev   Next >

As-Entered Currency   As-Entered Units   Training Job   Accrued Costs OFF

### 15.6.8 Assigning Validated Tags to a Quote Record

Tags are master codes and descriptions that are generally used for sorting and filtering purposes, and they allow you to group like data for reporting and review purposes.

#### Step by Step — Assigning Validated Tags to Quote Record

1. From the Ribbon, select the **Quote** tab.
2. Under the Quote Management section, select **Quotes**.
3. Open the preferred **Request for Quote Record** by highlighting it on the Quote Register.
4. Then select the **Actions** tab. Under the Edit section, select **Open**. The Quote Record opens.



- Under the Setup default data block, click in the **Tag 1** field. Then, select a tag using the drop down list.

**NOTE**

If the tag that you want to assign does not display in the drop-down list, you have the ability to add a new tag by clicking on the green plus button that shows to the left of the validation button and adding the new tag to your job's foundation data.

- Repeat the previous steps to add additional tags. Once done, click **OK**.

The screenshot shows the 'Request for Quote (RFQ) Record' form. At the top, the title bar reads 'Cost Breakdown Structure (CBS) Register' and 'Request for Quote (RFQ) Record'. Below this, the 'Description' field contains 'Guardrail Items'. To the right, the 'Status' is 'New' and the 'Published Date' is empty. Below these, the 'Response Deadline Date' is '8/4/2020' and the 'Response Deadline Time' is '12:00 PM'. A tabbed interface shows 'Line Items', 'Terms & Conditions', 'Seller Companies', 'Attachments', and 'Setup'. The 'Setup' tab is active, showing 'Tag 1:', 'Tag 2:', and 'Tag 3:' fields, each with a dropdown arrow. Below these is the 'RFQ Publication Settings' section, which includes a 'Cost Item Identifier' dropdown set to 'CBS Position Code' and several checkboxes: 'Include RFQ Instructions' (checked), 'Include Buyer's Special Terms & Conditions' (checked), 'Include Notes' (checked), 'Include Attachments' (unchecked), 'Publish Item Quantities' (checked), 'Publish By Fax' (checked), and 'Publish By Email' (checked). To the right of the tags is a large 'Notes' text area. At the bottom, there are buttons for 'OK', 'Cancel', 'New...', '< Prev', and 'Next >'.

## 15.7 NON-VALIDATED TAGS

Tags are used to identify or mark records for filtering, sorting, and reporting purposes.

Tags can be created and made available to all Tags fields throughout the system or can be created for specific Tags fields on specific forms. When created for a specific Tags field on a specific form, the list



of available Tags for that field will be limited to those Tags assigned to that field and form. Tags that have not been assigned to a specific field and form will be available to all Tags fields on all forms. After data is tagged, it can be filtered, sorted, and grouped using the filtering and grouping features on the register containing the data.

### 15.7.1 Non-Validate Field Examples


Examples	Description
Risk description	Identify specific risks against cost items
Superintendent	Identifies responsible person for operations and forecasting
Commodities	Grouping cost items for roll-up and review for specific commodities
Client Tagging	Specific cost item tagging for client
External System Flag	External flags for integration
AWP Planning	Assign a cost item to a Work Plan for operations

Users can take advantage of validated and non-validate tags in every register within estimate. It will be up to the organization on how they want to best leverage tags in each register.



### 15.7.1.1 Register Examples



 Description
Accounts
Attachments
Changes
Commitments
Competitors
Contacts
Cost Item Assemblies
Cost Item Assembly Calculations
Cost Item Assembly Inputs
Cost Items
Dependent Cost Item Lines
Employees & Machines
Jobs
Pay Item Budget Items
Pay Items
Payment Approvals
PBS Changes
Progress Item Detail Expenses
Progress Item Details
Quotes
Resource Assemblies
Resource Employments
Resources
RFQs
Shift / Rate Calculators
Tables
Timesheet Details
Timesheet Expenses
Timesheets
Trench Calculators
User Account Role Assignments
User Accounts



## 15.7.2 Creating Non-Validate Tags

The following steps walk you through how to create non-validate tags within a Cost Item Record.

### Step by Step — Non-Validate Tags in Cost Item Record

1. From the Ribbon, select the **Estimate** tab.
2. Then select **Cost Breakdown Structure (CBS)**.
3. Double-click the row that you want to assign tags. The Cost Item Record for that row opens.
  - e.g., Direct Cost Add-On, Indirect Cost Escalation, etc.
4. Select the **User Defined** default data block in the lower right portion of the record.
5. Click into the **User Defined 1** field and type in the value needed for the cost item.

The screenshot displays the 'Cost Breakdown Structure (CBS) Register' window. The 'Cost Item Record' tab is active, showing details for a 'Mobilization' cost item. The 'User Defined' data block is highlighted, showing a list of fields from 'User Defined 1' to 'User Defined 15'. The 'User Defined 1' field is the first field in the list.

Row Number	Code	Resource Assembly	Description	Unit	Qty	Unit Cost	Total Cost	Currency
1	LT1		Tractor					
2	ETTY		Tractor Truck					
3	ETLY		Lumber Trailer					

The following steps walk you through how to create non-validate tags within the register.

**NOTE** Cell select and fill down shortcuts can expedite the assigning process.



## Step by Step — Non-Validate Tags in Register

1. From the Ribbon, select the **Estimate** tab.
2. Then select **Cost Breakdown Structure (CBS)**.
3. Go to the cost item that you want to add tags and scroll to the User Defined 1 field.
4. Type in the value needed for the cost item.

CBS Position Code	Description	User Defined 1	User Defined 2	User Defined 3	User Defined 4	Mu Dr
000	Job					
+	Prime Bond					
+	Price % Add-On					
+	Job Financing					
+	Indirect Cost Escalation					
+	Direct Cost Escalation					
+	Indirect Cost Add-On					
+	Job Management & Equipment					
+	General Expense					
+	Direct Cost Add-On					
1	Mobilization	Example	Super	Mob	AWP-001	
2	Clearing & Grubbing	Example	Super	Mob	AWP-001	
3	Unclassified Excavation	Example	Super	Mob	AWP-001	
3.1	Excavation	Example	Super	Mob	AWP-001	
3.2	Embankment	Example	Super	Mob	AWP-001	
4	Aggregate Base	Example	Super	SiteWork	AWP-002	
4.1	Furnish & Haul Base Material	Example	Super	SiteWork	AWP-002	
4.2	Finergrade Subgrade	Example	Super	SiteWork	AWP-002	
4.3	Install Aggregate Base	Example	Super	SiteWork	AWP-002	
4.3.1	Place Aggregate Base	Example	Super	SiteWork	AWP-002	
4.3.2	Blue Top Aggregate Base	Example	Super	SiteWork	AWP-002	
5	Asphalt Concrete Hot Mix Type A	Example	Super2	SiteWork	AWP-002	
5.1	Furnish & Haul Hot Mix	Example	Super2	SiteWork	AWP-002	
5.2	Install Hot Mix Type A	Example	Super2	SiteWork	AWP-002	
6	36 Inch RCP Culvert Class III	Example	Super2	SiteWork	AWP-002	
6.1	Furnish RCP Materials	Example	Super2	SiteWork	AWP-002	
6.2	Excavate RCP Trench	Example	Super2	SiteWork	AWP-002	
6.3	Install RCP Pipe	Example	Super2	SiteWork	AWP-002	
6.4	Backfill RCP Pipe	Example	Super2	SiteWork	AWP-002	
7	36 Inch PVC Force Main (NDS21)					

5. Changing the caption can also assist in notating how the field is to be used.



Code	Description	CBS Position Code	Description	User Defined 1	User Defined 2	User Defined 3	User Defined 4	Man-Hours (Duration driven)	CB-Ma...
+	Prime Bond		Prime Bond					25,213.30	
+	Price % Add-On		Price % Add-On						
+	Job Financing		Job Financing						
+	Indirect Cost Escalation		Indirect Cost Escalation						
+	Direct Cost Escalation		Direct Cost Escalation						
+	Indirect Cost Add-On		Indirect Cost Add-On						
+	Job Management & Equipment		Job Management & Equipment					2,400.00	
+	General Expense		General Expense					0.00	
+	Direct Cost Add-On		Direct Cost Add-On						
+	Mobilization		Mobilization	Example			AIIP-001	80.00	
+	Clearing & Grubbing		Clearing & Grubbing	Example			AIIP-001	720.00	
+	Unclassified Excavation		Unclassified Excavation	Example			AIIP-001	960.00	
+	Aggregate Base		Aggregate Base	Example			AIIP-001	800.00	
+	36 Inch RCP Culvert		36 Inch RCP Culvert	Example			AIIP-001	160.00	
+	30 Inch PVC Forst		30 Inch PVC Forst	Example			AIIP-002	3,413.33	
+	24 Inch PVC Gravel		24 Inch PVC Gravel	Example			AIIP-002	640.00	
+	4 Foot Diameter M		4 Foot Diameter M	Example			AIIP-002	1,137.79	
+	Structural Excavation		Structural Excavation	Example			AIIP-002	1,635.96	
+	Steel Reinforcement		Steel Reinforcement	Example			AIIP-002	1,066.67	
+	Retaining Wall		Retaining Wall	Example			AIIP-002		
+	Paint Existing Steel		Paint Existing Steel	Example			AIIP-002		

## 15.8 ADVANCED JOB SNAPSHOTS

A job Snapshot is a copy of an Estimate job that provides read only access to the job as it existed at a specific point in time.

You can use a Job Snapshot to do the following

- Freeze your estimate at various points for audit purposes, such as after take-off is complete, after bid review is complete, or after final subcontractor/supplier prices have been entered.
- Give access to users that need access to the information but are not permitted to modify the data.
- Enable users to access a job while eliminating the concern that someone may inadvertently change live data.
- Copy data from a snapshot version of a job and paste it back into the live job or any other project.
- Create a new job from a snapshot version of a job.

Behind the scenes, the job is saved and maintained as an archive. When a snapshot is loaded, the archive is restored as a local copy. A snapshot can be modified, but changes cannot be saved. Snapshots are managed in the Snapshot Register.



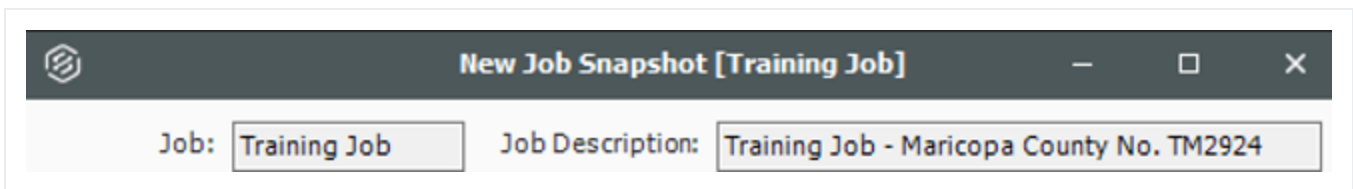
## 15.8.1 Creating A New Job Snapshot

User access can be set for each snapshot as follows:

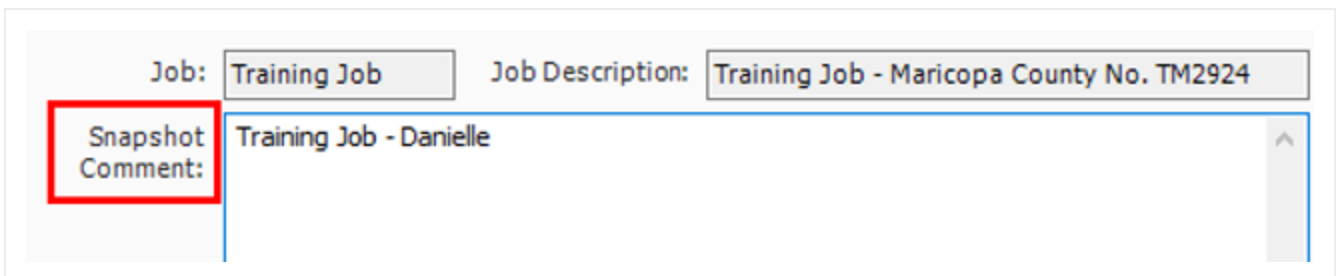
- Use job's current User Access restrictions for the snapshot
- Remove all User Access restrictions for the snapshot
- Specify User Access restrictions for the snapshot

### Step by Step — Creating a New Job Snapshot

1. Click on the File tab. From the Backstage View, select **Snapshots** from the left navigation pane.
2. Select **Create Snapshot**.
3. The job name and description display at the top of the dialog.

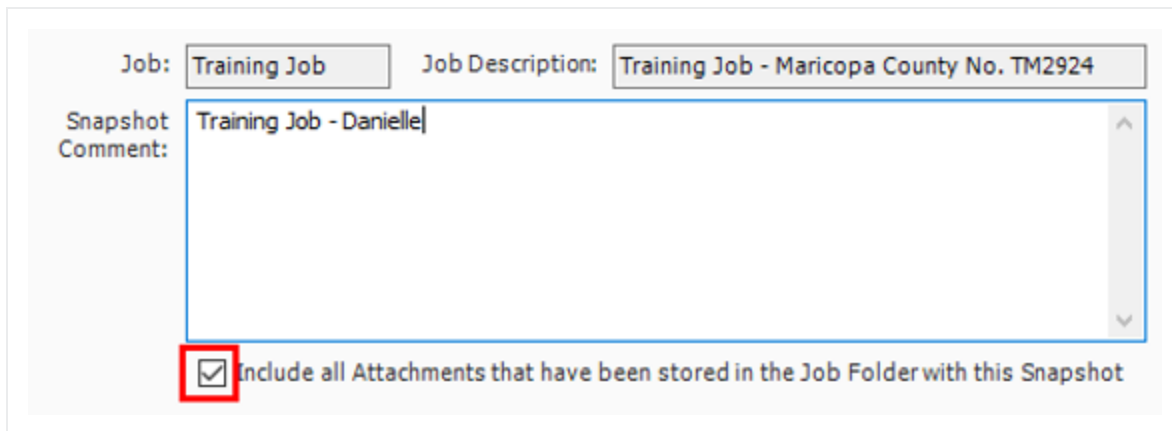


4. In the **Snapshot Comment** area, enter a short description of the snapshot. This comment will be used to identify the snapshot on the **Snapshot Register** form.



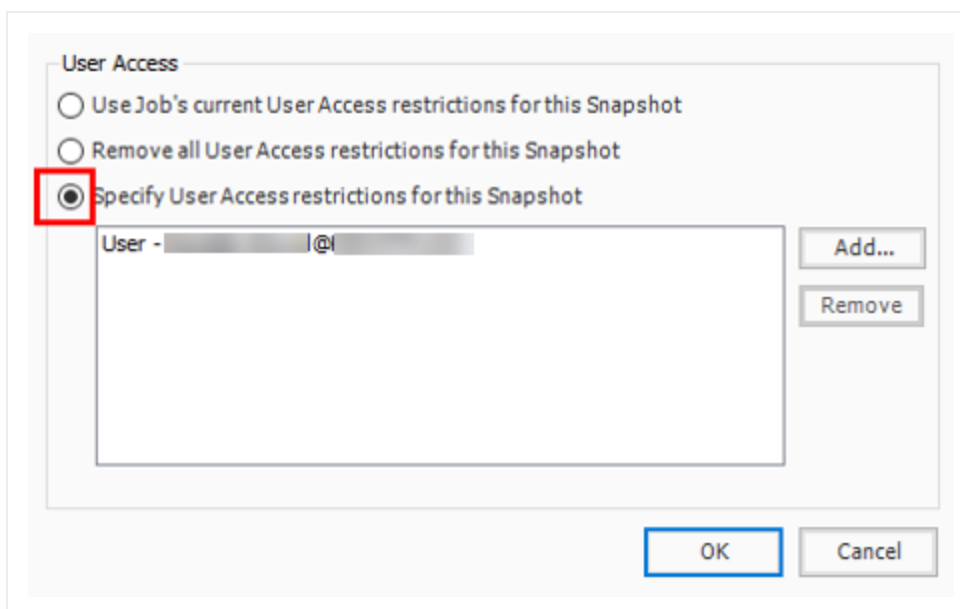
5. To include all attachments that have been stored in the job folder with this Snapshot, select the check box.





The screenshot shows a configuration window for a job snapshot. At the top, there are two text boxes: "Job:" containing "Training Job" and "Job Description:" containing "Training Job - Maricopa County No. TM2924". Below these is a larger text box labeled "Snapshot Comment:" containing "Training Job - Danielle". At the bottom, there is a checkbox labeled "Include all Attachments that have been stored in the Job Folder with this Snapshot", which is checked and highlighted with a red square.

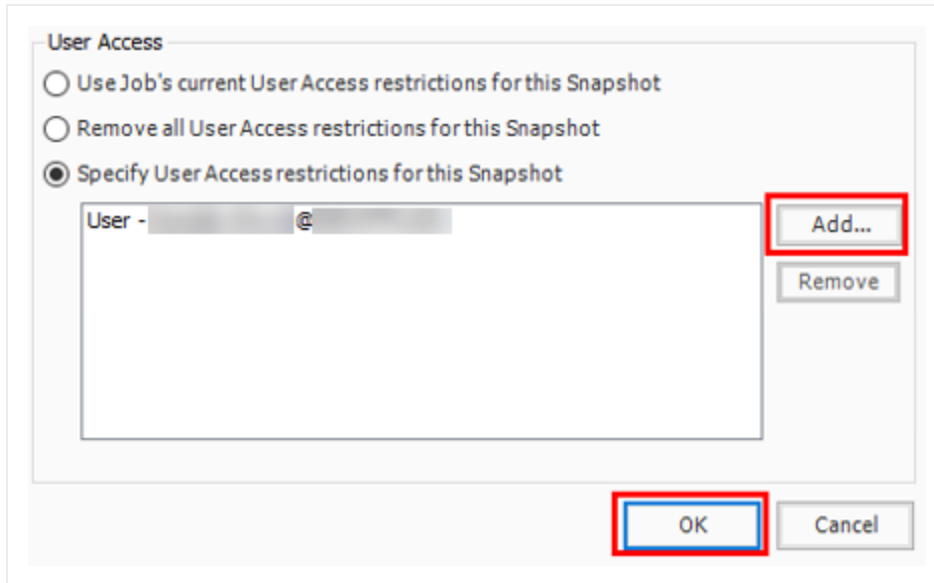
6. Select the **Specify User Access restrictions for this Snapshot** option.



The screenshot shows a "User Access" configuration window. It has three radio button options: "Use Job's current User Access restrictions for this Snapshot", "Remove all User Access restrictions for this Snapshot", and "Specify User Access restrictions for this Snapshot". The third option is selected and highlighted with a red square. Below the radio buttons is a list box containing the text "User -" followed by a blurred name and an email address. To the right of the list box are "Add..." and "Remove" buttons. At the bottom of the window are "OK" and "Cancel" buttons.

7. Ensure that your name is selected, otherwise click the "Add" button and select yourself. Click OK.





**User Access**

☐ Use Job's current User Access restrictions for this Snapshot  
☐ Remove all User Access restrictions for this Snapshot  
☒ Specify User Access restrictions for this Snapshot

User - [ ] @ [ ]

[Add...]  
[Remove]


[OK] [Cancel]

## 15.8.2 To Create a New Job from a Snapshot

New jobs can be created from existing job snapshots using the following steps.

### Step by Step — Creating a New Job from a Snapshot

1. Click on the File tab. From the Backstage View, select **New** from the left navigation pane.
2. Select **Create Snapshot**.
3. Select Create a new Job from... **Snapshot**.
4. Select a snapshot from which to create the job. Click **OK**.



Select a Job Snapshot

Drag columns here to group

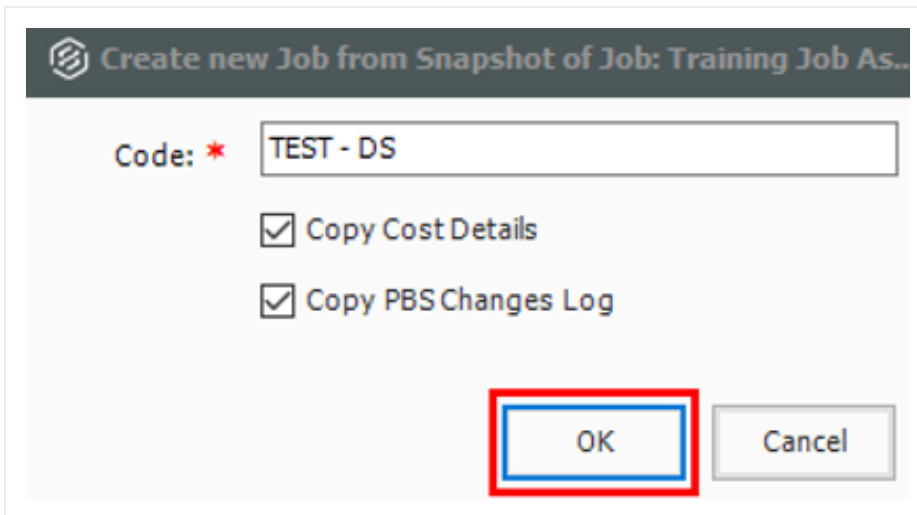
Find:

Saved via

Code	Description	Last Saved	Version					
→ - Training Job	Training Job - Maricopa County No. TM2924	12/18/2018 8:54:1...	18.4.0.2					
	<table> <tr> <th>Snapshot Comment</th> <th>Date Created</th> <th>Version</th> </tr> <tr> <td>→ Training Job - Danielle</td> <td>12/18/2018 9:29:...</td> <td>18.4.0.2</td> </tr> </table>	Snapshot Comment	Date Created	Version	→ Training Job - Danielle	12/18/2018 9:29:...	18.4.0.2	
Snapshot Comment	Date Created	Version						
→ Training Job - Danielle	12/18/2018 9:29:...	18.4.0.2						



5. Enter in a unique code for the new job **TEST – Your Initials**. Check both boxes to copy cost details and PBS changes log into the new job. Click **OK**.



Create new Job from Snapshot of Job: Training Job As..

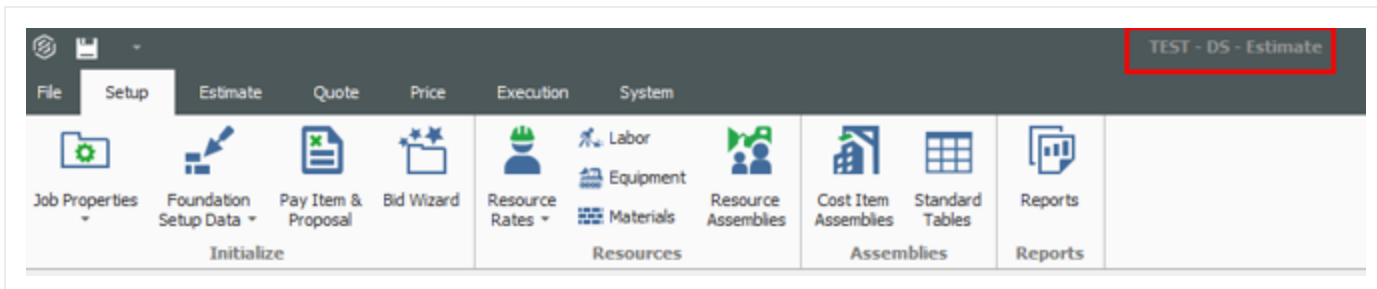
Code: \* TEST - DS

☒ Copy Cost Details

☒ Copy PBS Changes Log

OK Cancel

6. Your job will pop up in a new window. Close out of your job and navigate back to the training job.



7. Click **OK** to save.

### 15.8.3 Load a Job Snapshot

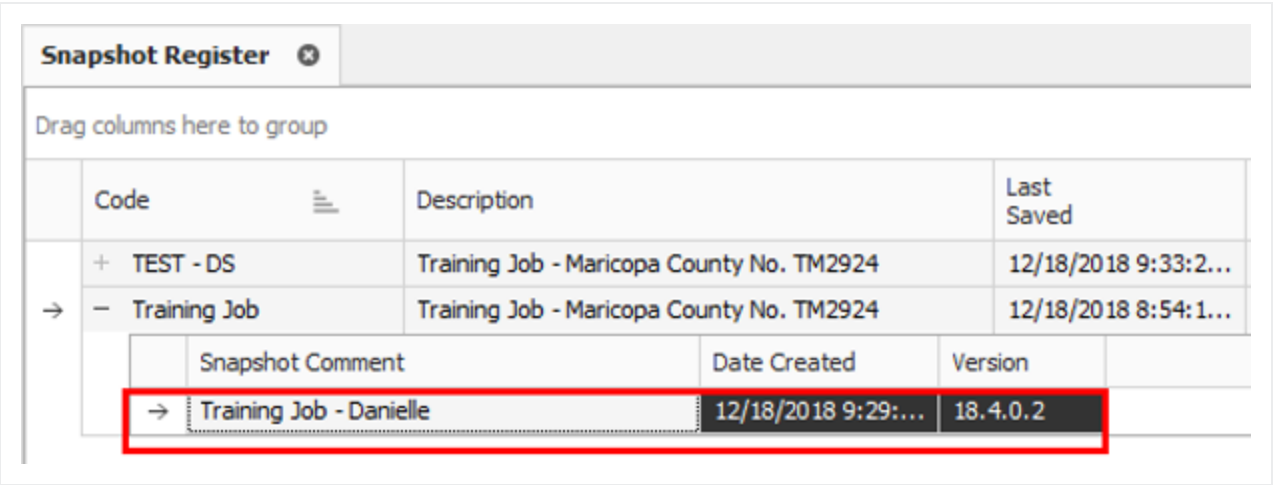
When you load an existing Snapshot, it loads into Estimate like any other job. You can use it for reference and copy data from it to other jobs. A snapshot can be modified, but changes cannot be saved. To identify it in Estimate as a read-only snapshot:

- The job name is preceded by SNAPSHOT: in the job tab
- A red banner displays the specific snapshot information in the Current Job area at the bottom of the screen.

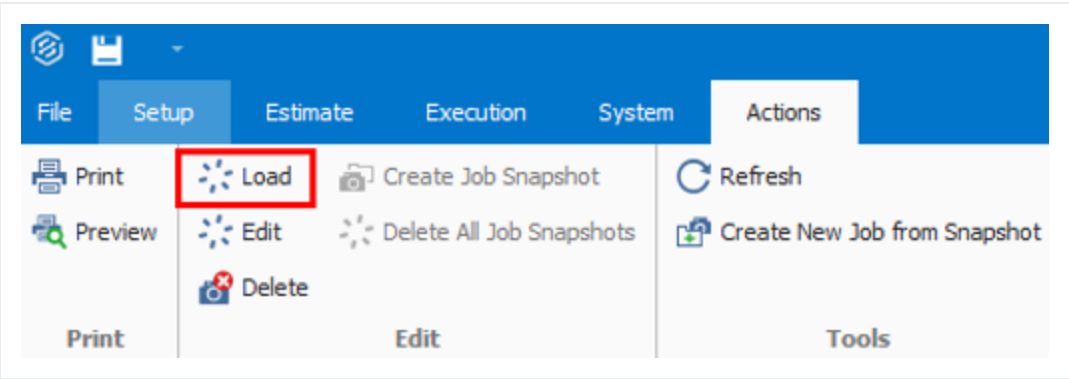


Step by Step — Load a Job Snapshot

- 1. Click on the File tab. From the Backstage View, select **Snapshots** from the left navigation pane.
- 2. Select **Snapshot Register**.
- 3. Select the snapshot that you would like to load.

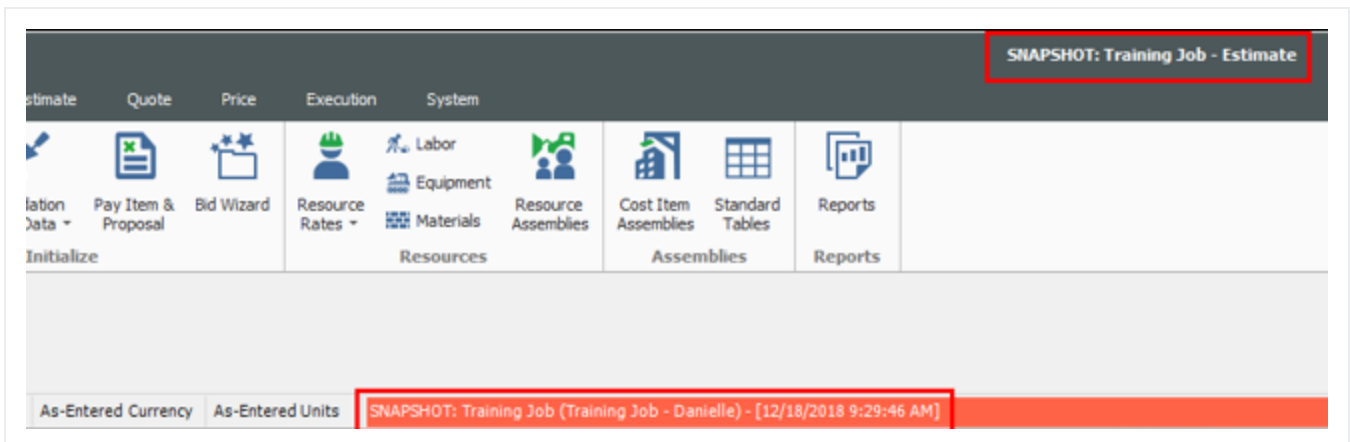


- 4. From the Ribbon, select the Actions tab. Then under the Edit section, select **Load**.



- 5. Your snapshot opens as indicated by the top and bottom of the screen.





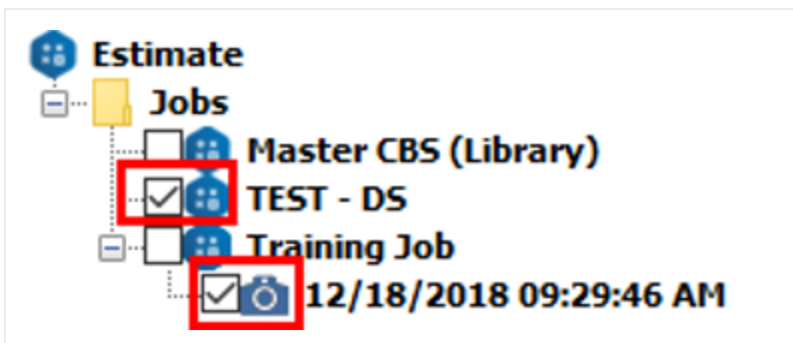
6. Close out of the snapshot. Close out of the Library.

### 15.8.4 Compare Snapshots in Job Explorer

In Estimate Job Explorer, you are able to now compare a snapshot to another snapshot, or a snapshot to a job by selecting them in the tree view.

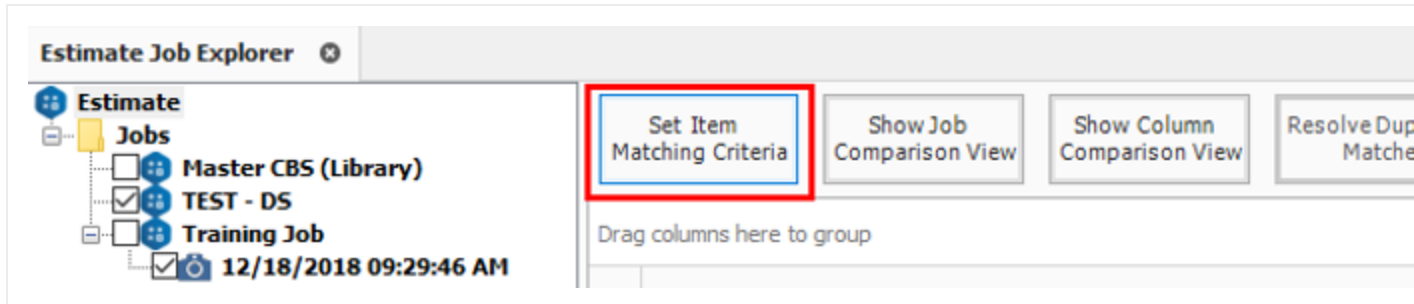
#### Step by Step — Compare Snapshots in Job Explorer

1. Click on the File tab. From the Backstage View, select **Job** from the left navigation pane.
2. Select **Compare Jobs**.
3. Select a job and a snapshot from the Estimate Job Explorer.

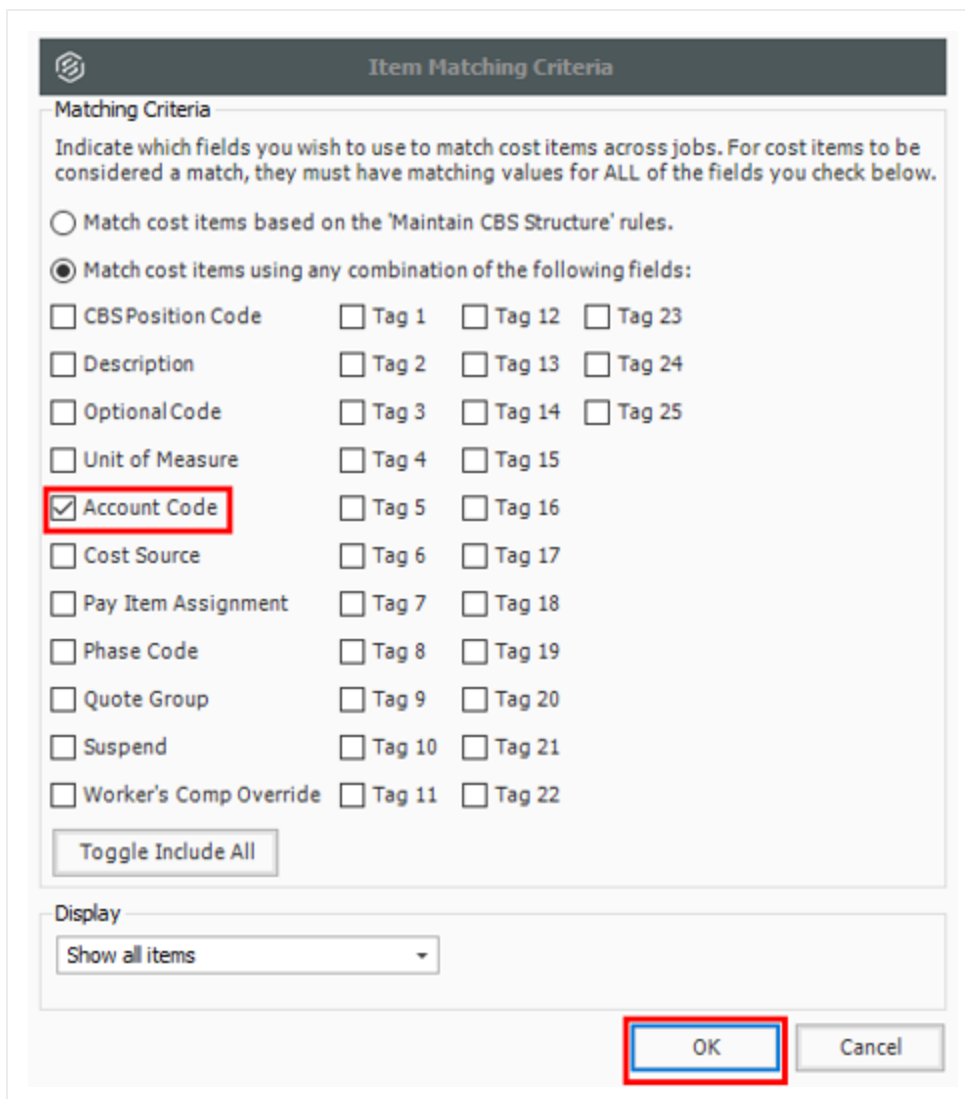


4. Click **Set Item Matching Criteria**.



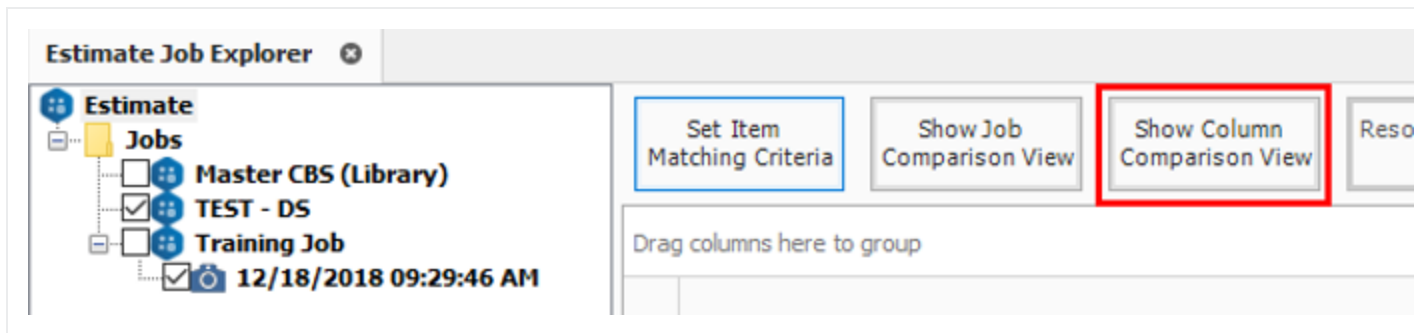


5. From the Item Matching Criteria window, select **Account Code**. Then click **OK**.



6. On the Estimate Job Explorer, click **Show Column Comparison View**. Once done, click **OK**.





7. You can now compare the snapshot and the job column by column. Close out of the Library when done.

Drag columns here to group

	CBS Position Code	Description	Qty Training Job (12/18/2018 9:29:46 AM)	Qty TEST - DS	UM Training Job (12/18/2018 9:29:46 AM)
→	0.2	Prime Bond	1.00		Lump Sum
	0.2	Prime Bond		1.00	
	0.3	Price % Add-On	1.00		Lump Sum
	0.3	Price % Add-On		1.00	
	0.4	Job Financing	1.00		Lump Sum
	0.4	Job Financing		1.00	
	0.5	Indirect Cost Escalation	1.00		Lump Sum
	0.5	Indirect Cost Escalation		1.00	



### 15.8.5 Delete a Job Snapshot

If you decide that you no longer need a snapshot or if you want to delete it for any other reason, you can do so following this step by step.

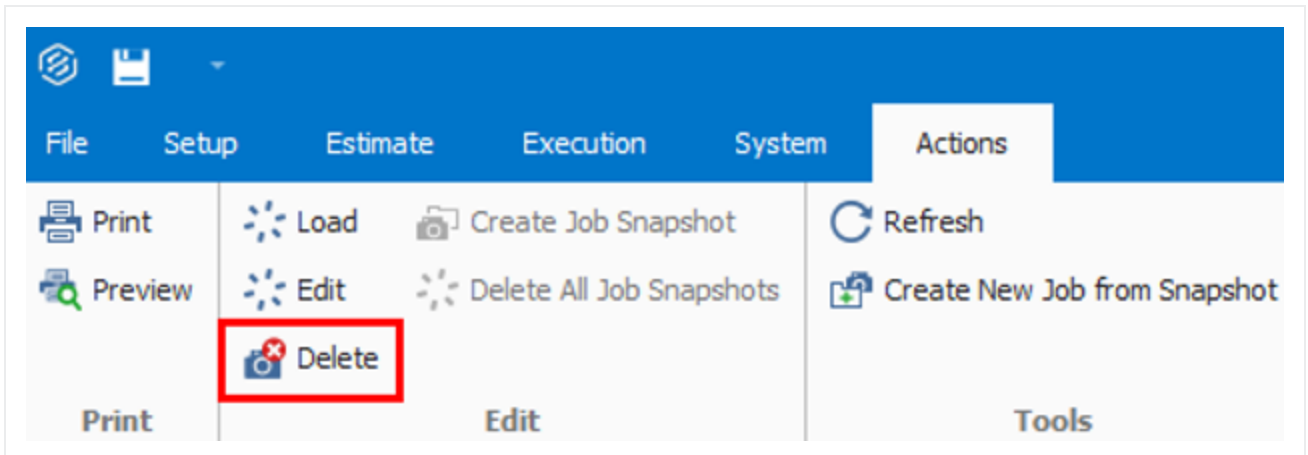
#### Step by Step — Delete a Job Snapshot

1. Click on the File tab. From the Backstage View, select **Snapshots** from the left navigation pane.
2. Select **Snapshot Register**.
3. Select the snapshot you want to delete.



Snapshot Register 				
Drag columns here to group				
	Code 	Description	Last Saved	
	+ TEST - DS	Training Job - Maricopa County No. TM2924	12/18/2018 9:33:2...	
→	- Training Job	Training Job - Maricopa County No. TM2924	12/18/2018 8:54:1...	
	Snapshot Comment	Date Created	Version	
→	Training Job - Danielle	12/18/2018 9:29:...	18.4.0.2	

4. From the Ribbon, select the **Actions** tab. Under the Edit section, select **Delete**.



5. Click **OK** to complete the deletion of the snapshot.

## 15.8.6 Upgrade Snapshot Version

When a snapshot is selected in the Snapshot Register that is not the same as the Estimate system version, a prompt opens for the user to upgrade the snapshot. The snapshot must be upgraded to be viewed. The snapshot opens automatically after the upgrade is completed, which shows the updated version in the status bar.



## 15.9 ARCHIVE AND RESTORE JOBS

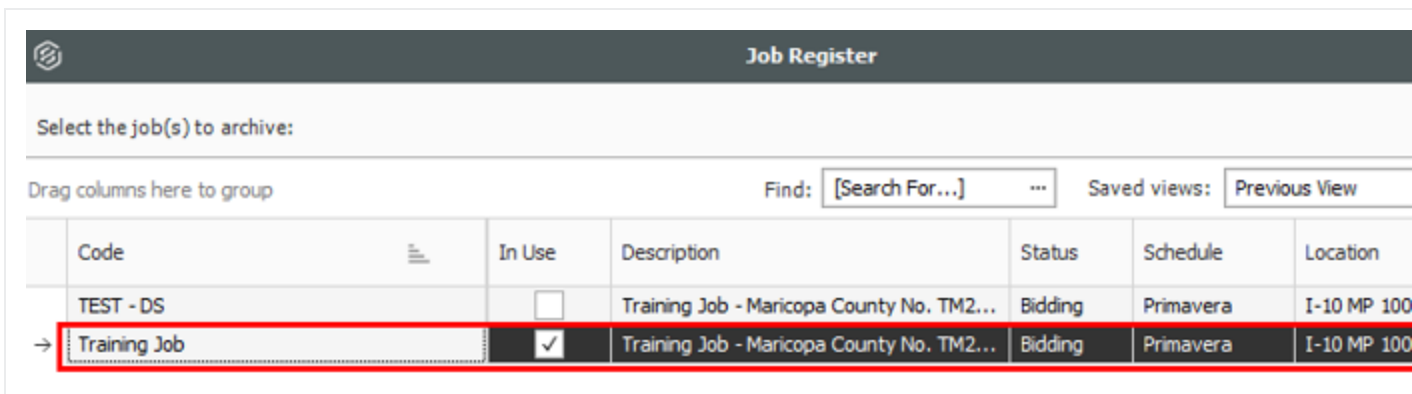
One of the most useful features within Estimate is the ability to archive job folders. This feature is used to store job folders that you create in Estimate in a compressed format. This feature is particularly useful when you want to create a backup copy of one or many jobs.

By archiving Estimate job data you are not only creating a copy for safekeeping but you are also allowing yourself the ability to free up additional hard drive space by subsequently deleting the data that you have backed up. Archiving jobs can also be useful for moving a job from one environment to another, such as sending a job file to another Estimate user in a different office or a different company.

Once you have backed up Estimate job data you always have the ability to restore that data at any time by using the Restore feature.

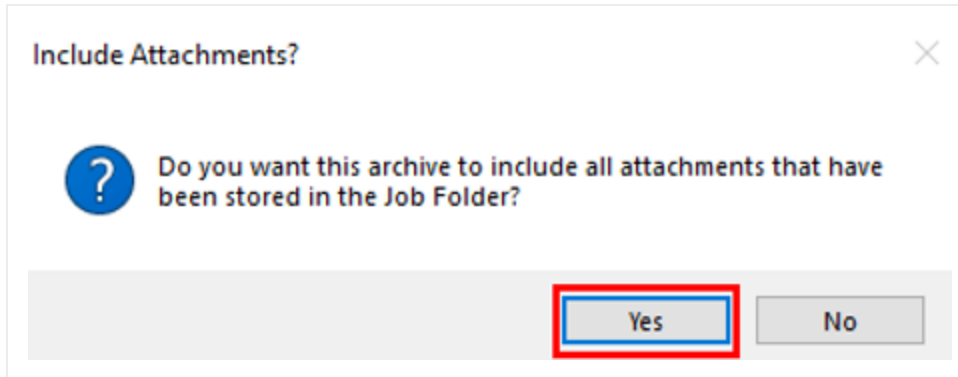
### Step by Step — Archiving a Job

1. Click on the File tab. From the Backstage View, select **Archive/Restore** from the left navigation pane.
2. Select **Archive Job**.
3. From the Job Register, select a job to archive. Click **OK**.



4. An **Include Attachments** warning appears. Click **Yes** to continue.





5. Save this job on your desktop. Click **Save**. Then click **OK**.

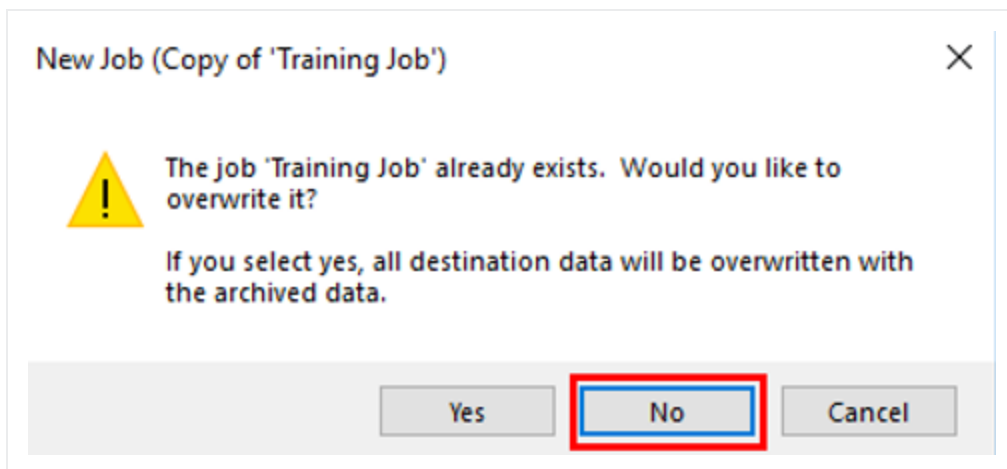
### 15.9.1 Restore Job Archive

Once you have archived an Estimate job, you always have the ability to restore that data at any time by using the Restore Job Archive feature. This feature de-compresses a specified archive file and provides you with the ability to overwrite an existing job or specify a new job code where you want to restore your job data.

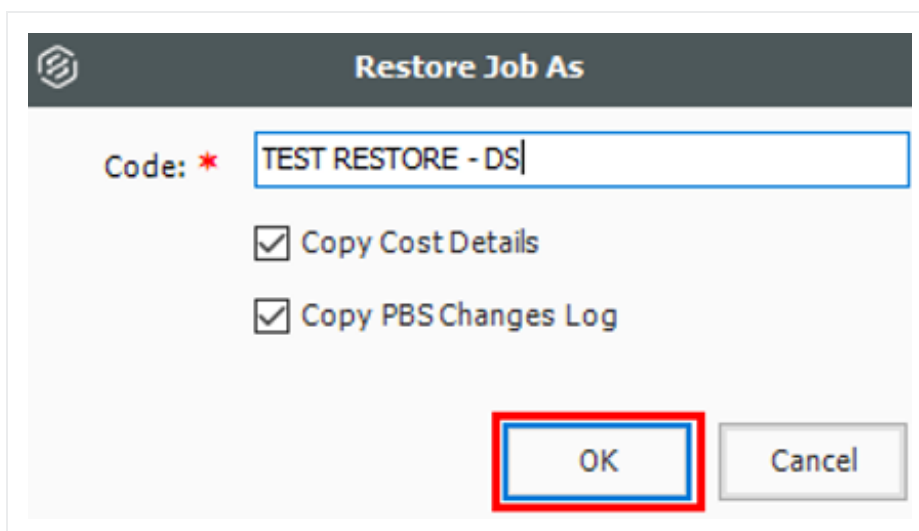
#### Step by Step — Restore Job Archive

1. Click on the File tab. From the Backstage View, select **Archive/Restore** from the left navigation pane.
2. Select **Restore Job Archive**.
3. Select the archive that you previously saved to your desktop. Click **Open**. Then when prompted, select No.



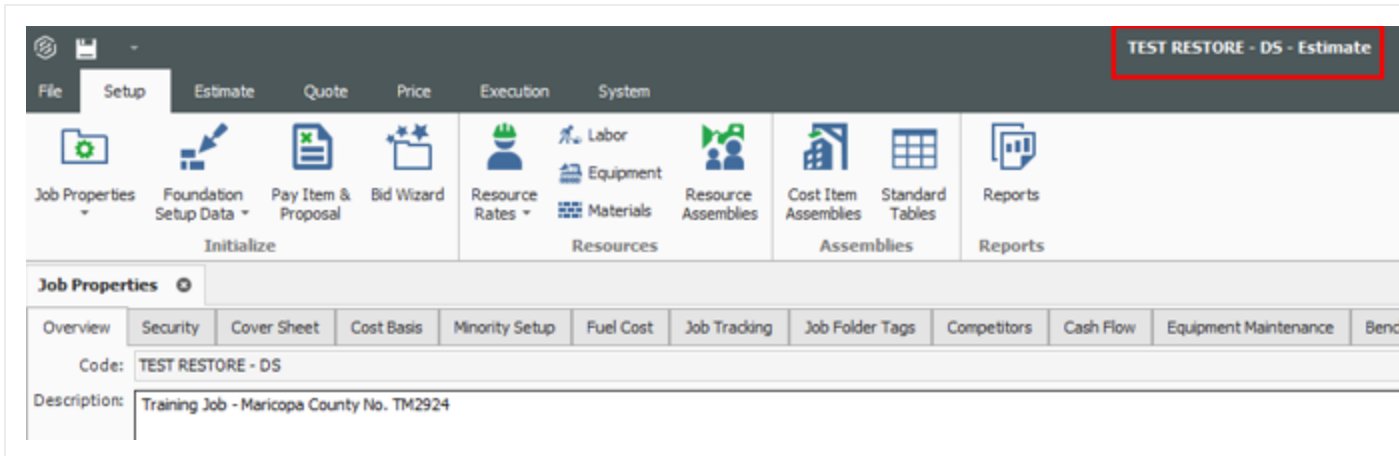


4. Enter a code **TEST RESTORE – Your Initials**. Check both boxes to copy cost details and PBS changes log into the new job. Click **OK**.



5. Your restored job will open in a new window. Close out of the restored job.





## 15.9.2 Merge Job with Archive

Once you have archived a job, you have the ability to merge that data with existing job data at any time by using the **Merge Job Archive** feature.

When merging job data, the system looks at your existing job data for matching codes or descriptions. If the system finds a match, the existing data is overwritten (updated) to reflect the data in the archive file. If the system does not find a match, the data is added to the job.

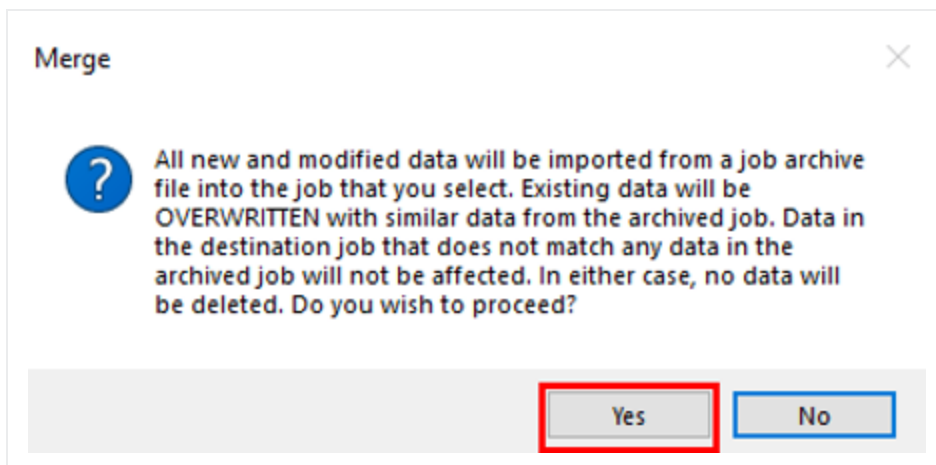
The Merge Job Archive feature does not merge all of the data in the job. The data that is included/merged is as follows:

- Foundation Setup Data
- Resource Rates
- Resource Assemblies

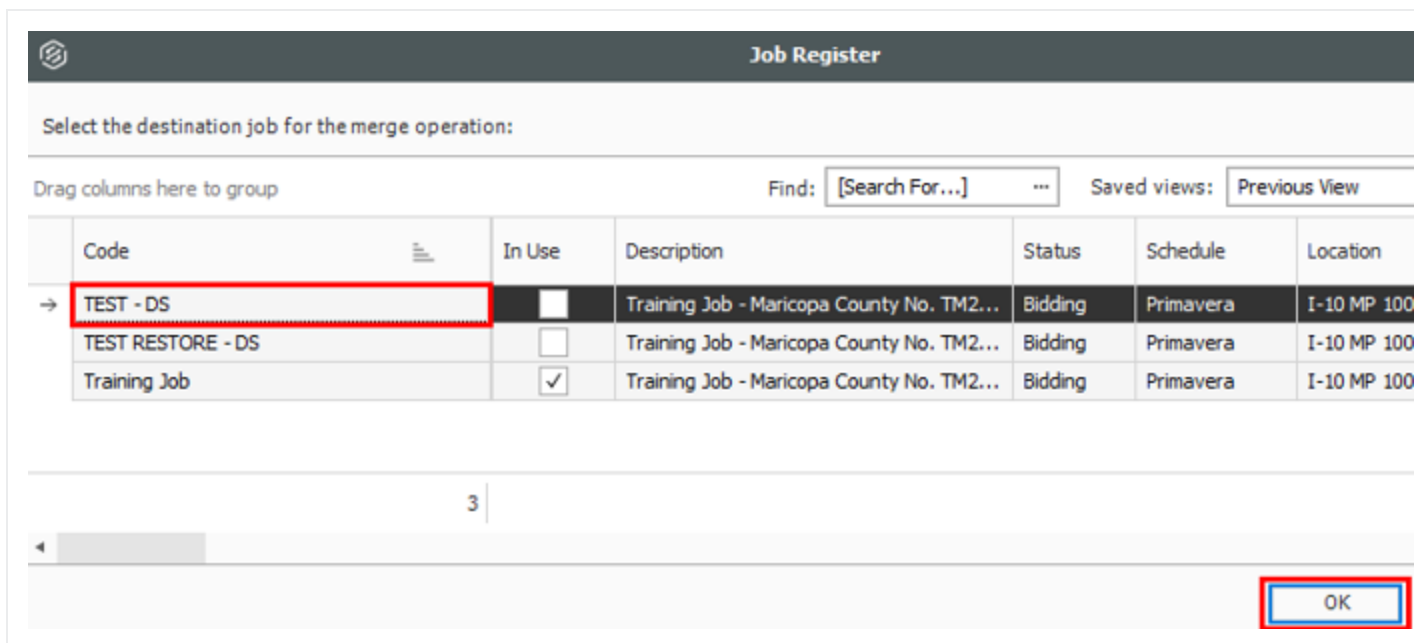
### Step by Step — Merge Job with Archive

1. Click on the File tab. From the Backstage View, select **Archive/Restore** from the left navigation pane.
2. Select **Merge Job with Archive**.
3. When prompted, select **Yes** to continue.





4. Select your test job, then click **OK**.



5. Select the archive saved to your desktop, then click **Open**.
6. Click on the **File** tab. From the Backstage View, select **Start** from the left navigation pane.
7. Select your test job from the **Open a recent Job** section.





8. From the Ribbon, select the **Setup** tab. Then select **Job Properties**.
9. You can now see that your archive and test job have merged data by viewing **Resource Rates**, **Resource Assemblies**, and **Foundation Setup Data**.

## 15.10 WORK BREAKDOWN STRUCTURES

### 15.10.1 WBS Overview

The Work Breakdown Structure (WBS) feature lets you create a job in one format and present in a multitude of other formats depending on the need. This can be beneficial when the estimating team or the proposal team needs to present the estimate in a preferred format to a design firm, engineering company, client or any other stakeholders. WBS retains the same relationship between items as in the original estimate and only changes the view and how items are arranged in the hierarchy.

### 15.10.2 Format Creation

The Work Breakdown Structure provides flexibility to create other formats, such as Construction Specific Institute (CSI) MasterFormat or UniFormat. Use WBS formats when you need to have multiple variations and summary reports of an estimate. This is useful in cases where you want to show different estimates in one particular way, perhaps for a repeat client or designer.

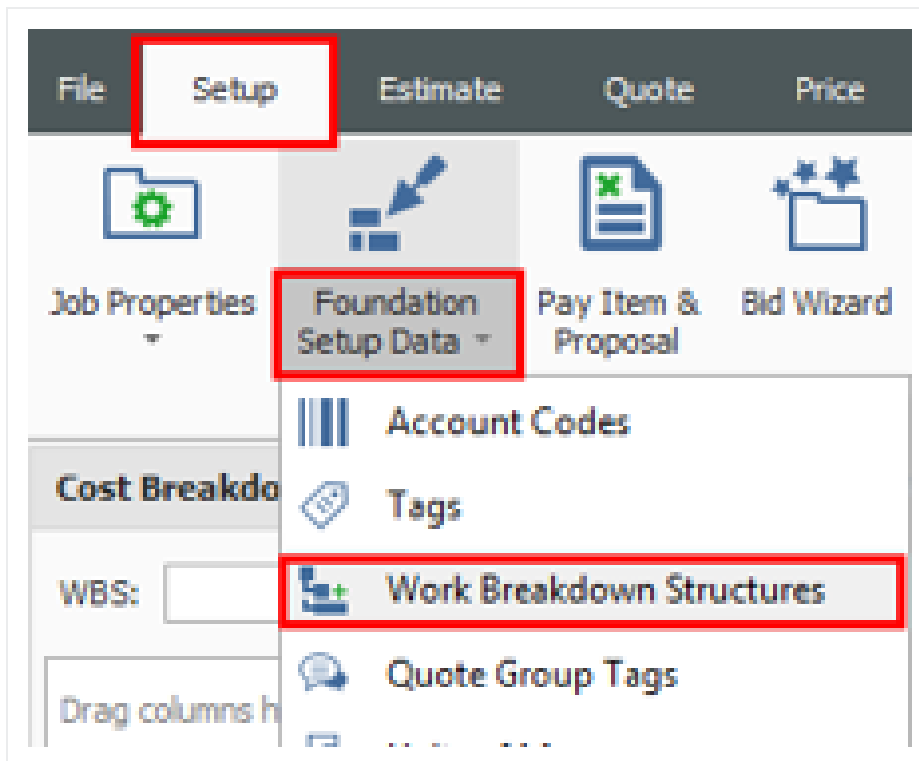
Once you have your general information entered and set up for a format, you can build your hierarchy. This lets you organize and define the information in a format that works best for you. You have the ability to build your hierarchy from scratch or you can use a template. The default Quantity (1.00) &



Unit of Measure (Each) are populated in the WBS hierarchies. You are able to change these two items as needed. After a WBS item has been created, it is listed in the Foundation Setup Data Register.

## Step by Step — Create a WBS Item

1. From the Ribbon, select the **Setup** tab.
2. Select **Foundation Setup Data** drop down and then select **Work Breakdown Structure**.



3. From the Work Breakdown Structure, select the **Actions** tab.
4. Under the Edit section, select **New**. A new Work Breakdown Structure Record opens.

The screenshot shows the 'Work Breakdown Structure Record' form, which is highlighted with a red box. The form has a header with four tabs: 'Cost Breakdown Structure (CBS) Register', 'Work Breakdown Structure View Register', 'Foundation Setup Data Register', and 'Work Breakdown Structure Record'. Below the tabs, there are input fields for 'Code' (with a placeholder '[Enter Code]') and 'Description'. A 'Details' section follows, containing a table with columns: 'Is Utilized', 'Code', 'Description', 'Quantity', 'Unit of Measure', 'Currency', and an empty column. The 'Is Utilized' column has a checkbox, and the 'Code' column has a dropdown arrow. The table is currently empty.



- 5. Enter a **Code** and **Description** for the WBS item.
- 6. From the Setup data block, enter a **Period** in the Hierarchy Separator field.

Setup

Hierarchy Separator:

.

Tag 1:

Last Changed By:

Tag 2:

Last Changed:

12/18/2018 2:03:57 PM

Tag 3:

Notes:

NOTE

The Hierarchy Separator is used to separate the parent cost items from the subordinate and terminal cost items.

- 7. Select the Tag 1 drop down arrow and select **Concrete**.
- 8. In the Details data block, build your hierarchy by entering items into the **Code** and **Description** fields.

Details

Drag columns here to group

	Is Utilized	Code		Description
	<input type="checkbox"/>	10		General Provisions
	<input type="checkbox"/>	10.10		Project Setup
	<input type="checkbox"/>	10.10.100		Yard
	<input type="checkbox"/>	10.10.200		Office Facilities
	<input type="checkbox"/>	10.10.300		Communications
	<input type="checkbox"/>	10.10.400		Supplies/Services
	<input type="checkbox"/>	10.10.500		Utilities
	<input type="checkbox"/>	10.10.600		Security

- 9. In the Details data block, leave the **Quantity** as the default. Enter in a **Unit of Measure** for each item.



Details

Drag columns here to group

	Is Utilized	Code	Description	Quantity	Unit of Measure	Currency
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10	General Provisions	1.00	Lump Sum	U.S. Dollar
<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.10	Project Setup	1.00	Each	U.S. Dollar
<input type="checkbox"/>	<input type="checkbox"/>	10.10.100	Yard	1.00	Each	U.S. Dollar
<input type="checkbox"/>	<input type="checkbox"/>	10.10.200	Office Facilities	1.00	Each	U.S. Dollar
<input type="checkbox"/>	<input type="checkbox"/>	10.10.300	Communications	1.00	Each	U.S. Dollar
<input type="checkbox"/>	<input type="checkbox"/>	10.10.400	Supplies/Services	1.00	Each	U.S. Dollar
<input type="checkbox"/>	<input type="checkbox"/>	10.10.500	Utilities	1.00	Each	U.S. Dollar

10. Once done, click **OK**.

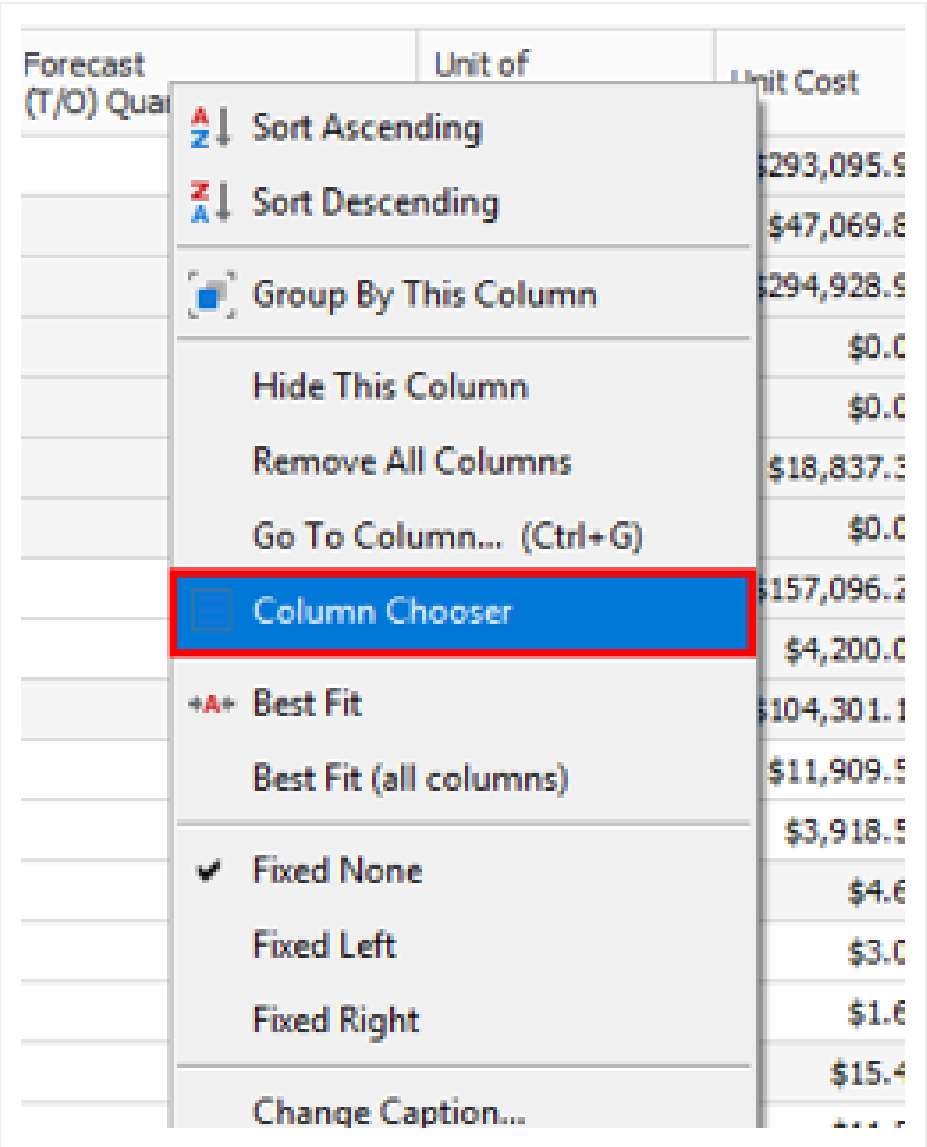
### 15.10.3 Assign WBS to CBS

The Cost Breakdown Structure (CBS) Register shows you the WBS Code and Description fields. From here, you can assign your WBS items to any of your CBS items.

#### Step by Step — Assign WBS item to CBS item

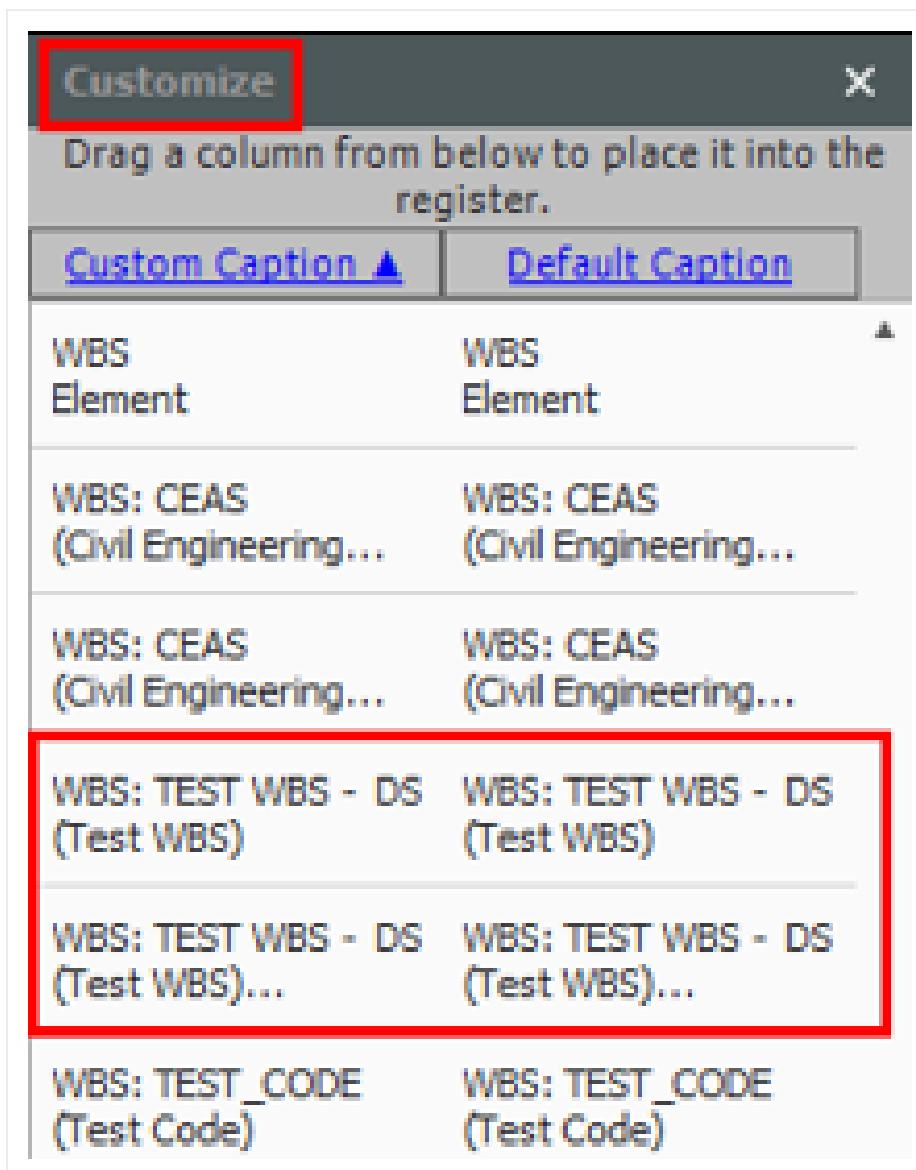
1. From the Ribbon, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
3. Right click on any column header and select **Column Chooser**.





- 4. In the Customize window, scroll down until you find **WBS: Test WBS**.





5. Drag and drop both columns into the CBS column headers.





Forecast (T/O) Quantity		WBS: TEST WBS - DS (Test WBS)	Unit of Measure	Unit Cost	Account Description	Labor Total Cost	Owned Equipment
45,000.00			Ton	\$15.40	Aggregate Base	\$112,269.30	
45,000.00			Ton	\$11.54	Furn and Haul Base Material	\$22,045.61	
400,000.00			Square Yard	\$0.19	Finegrade Subgrade	\$39,464.36	
45,000.00			Ton	\$2.17	Aggregate Base	\$50,759.33	
45,000.00			Ton	\$1.63	Place Aggregate Base	\$33,884.92	
400,000.00			Square Yard	\$0.06	Place Aggregate Base	\$16,874.42	
35,000.00			Ton	\$42.62	Asphalt Concrete	\$108,952.25	
35,000.00			Ton	\$39.27	Furnish and Haul Asphalt Concrete	\$50,010.87	
35,000.00			Ton	\$3.34	Install Asphalt Concrete	\$58,941.38	
1,024.00			Linear Feet	\$67.54	36 Inch RCP	\$20,073.46	
1,024.00			Linear Feet	\$33.48	Furnish 36 RCP Materials	\$0.00	
1,858.56			Cubic Yard	\$4.51	Excavate 36 RCP	\$4,963.56	
1,024.00			Linear Feet	\$11.74	Install 36 RCP	\$6,605.19	
1,587.20			Cubic Yard	\$9.12	Backfill 36 RCP	\$8,504.71	
12,000.00			Linear Feet	\$23.62	10 Inch PVC Force Main	\$54,705.77	
12,000.00			Linear Feet	\$14.33	10 Inch PVC Force Main	\$0.00	
12,000.00			Linear Feet	\$9.28	10 Inch PVC Force Main	\$54,705.77	
3,000.00			Linear Feet	\$49.67	24 Inch PVC Gravity Sewer	\$40,869.88	
3,000.00			Linear Feet	\$3.00	Excavate 24 PVC Gravity Sewer	\$2,973.89	
1,390.00			Cubic Yard	\$1.95	Excavate 24 PVC Gravity Sewer 0-6 ft Depth	\$1,008.84	
3,610.00			Cubic Yard	\$1.74	Excavate 24 PVC Gravity Sewer 6-10 ft De...	\$1,965.05	
3,000.00			Linear Feet	\$32.93	Furnish and Install 24 PVC Gravity Sewer	\$13,676.44	
4,520.00			Cubic Yard	\$9.12	Backfill 24 PVC Gravity Sewer	\$24,219.55	
16.00			Each	\$3,594.03	4 Ft Manhole	\$13,717.27	
16.00			Each	\$2,001.50	4 Ft Manhole	\$0.00	

6. Select a cost item and then click into the empty field from the WBS column you dragged and dropped into the CBS. Click the arrow icon that appears to the right of that field. The **Work Breakdown Structure Detail Register** opens.



CBS Position Code	Description	Forecast (T/O) Quantity	WBS: TEST WBS - DS (Test WBS)	WBS: TEST WBS - DS (Test WBS) Description
+	<b>Direct Cost Add-On</b>	1.00		
+ 1	<b>Mobilization</b>	1.00		
+ 2	<b>Clearing &amp; Grubbing</b>	10.00		
= 3	<b>Unclassified Excavation</b>	50,000.00		
+ 3.1	Excavation	50,000.00		
+ 3.2	Embankment	50,000.00		
= 4	<b>Aggregate Base</b>	45,000.00		

7. Select the WBS item to assign to the cost item. Once done, click **OK**.

Work Breakdown Structure Detail Register - Training Job					
<div>  </div> <div> <div>Actions</div> <div>           Drag columns here to group           <div>Find: <input type="text" value="[Search For...]"/></div> <div>Saved views: <input type="text" value="P"/></div> </div> </div>					
	Is Utilized	Code	Description	Quantity	Unit Measure
	<input type="checkbox"/>	10	General Provisions	1.00	Lun
	<input type="checkbox"/>	10.10	Project Setup	1.00	Eac
	<input type="checkbox"/>	10.10.100	Yard	1.00	Eac
	<input type="checkbox"/>	10.10.200	Office Facilities	1.00	Eac
	<input type="checkbox"/>	10.10.300	Communications	1.00	Eac
	<input type="checkbox"/>	10.10.400	Supplies/Services	1.00	Eac
	<input type="checkbox"/>	10.10.500	Utilities	1.00	Eac
	<input type="checkbox"/>	10.10.600	Security	1.00	Eac
	<input type="checkbox"/>	10.20.100	Mobilization	1.00	Loa

8. The WBS selected in the previous step is now populated in that cost item's WBS field.



CBS Position Code	Description	Forecast (T/O) Quantity	WBS: T DS (Test W
+	<b>Direct Cost Add-On</b>	1.00	
+ 1	<b>Mobilization</b>	1.00	
+ 2	<b>Clearing &amp; Grubbing</b>	10.00	
= 3	<b>Unclassified Excavation</b>	50,000.00	
+ 3.1	Excavation	50,000.00	
+ 3.2	Embankment	50,000.00	10.10.5
= 4	<b>Aggregate Base</b>	45,000.00	
+ 4.1	Furnish & Haul Base Material	45,000.00	
+ 4.2	Finegrade Subgrade	400,000.00	

### 15.10.4 View WBS Items

In the Work Breakdown Structure View Register you can:

- Select from the list of WBS formats that you want to view your estimate. You can easily change to a different format as needed.
- See the total cost roll up of assigned cost items and subordinate detailed items.
- Select from the hierarchy structure and show utilized cost items and associated resources in a separate panel
- Change quantities of a WBS item.

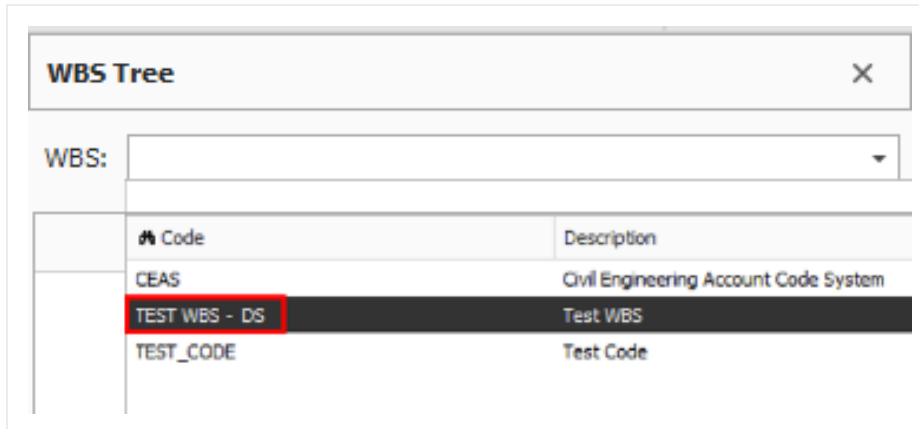
**NOTE** Only the unit cost is affected when the quantity has been changed.

When you are creating multiple WBS items, you are able to group the data and view the Work Breakdown Structure Hierarchy.



## Step by Step — View WBS Items

1. From the Ribbon, select the **Estimate** tab.
2. In the Breakdown Structure section, select **Work Breakdown Structure**. The Work Breakdown Structure View Register opens.
3. From the WBS tree, click the WBS drop down arrow and select your WBS item.



4. In the Cost Items data block, you can view which cost items utilized by a WBS item that you select. You can also view the total cost roll up of assigned cost items

Cost Items

Drag columns here to group

Find:

Saved views:

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Hours (Duration driven)	Hours (Non-Duration driven)	Hours (Total)
→ + 3.2	Embankment	3.2	50,000.00	Cubic Yard	\$1.68	\$83,992.94	166.67		0.00
1			50,000.00			\$83,992.94	166.67		0.00

5. Expand your utilized cost item by clicking the + icon in the CBS Position Code. You can now view the associated resources to your cost item and WBS item.



Cost Items										
Drag columns here to group										
	CBS Position Code	Description			Optional Code	Forecast (T/O) Quantity			Unit of Measur	
→	3.2	Embankment			3.2	50,000.00			Cubic Y	
		Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Pro Fac
→	+	1	LO4		Operator Foreman			1.00	Each	
	+	2	LL2		Laborer			1.00	Each	
	+	3	LO1		Operator Class 1			3.00	Each	
	+	4	EG14G		Grader 14G			1.00	Each	
	+	5	ED8		Dozer D8			1.00	Each	
	+	6	ECO...		Compactor Sheeps F...			1.00	Each	
	+	7	ETWT		Water Truck			1.00	Each	
	+	8	LT1		Teamster			1.00	Each	

## 15.11 COPY JOB RESOURCES TO LIBRARY

Resources are created in the Resource Rate Register. This register is the location where you build out the structure of those resources.

**NOTE** Use of this lesson will draw from other sections of InEight Estimating Manual. Basic understanding of the resources is required.

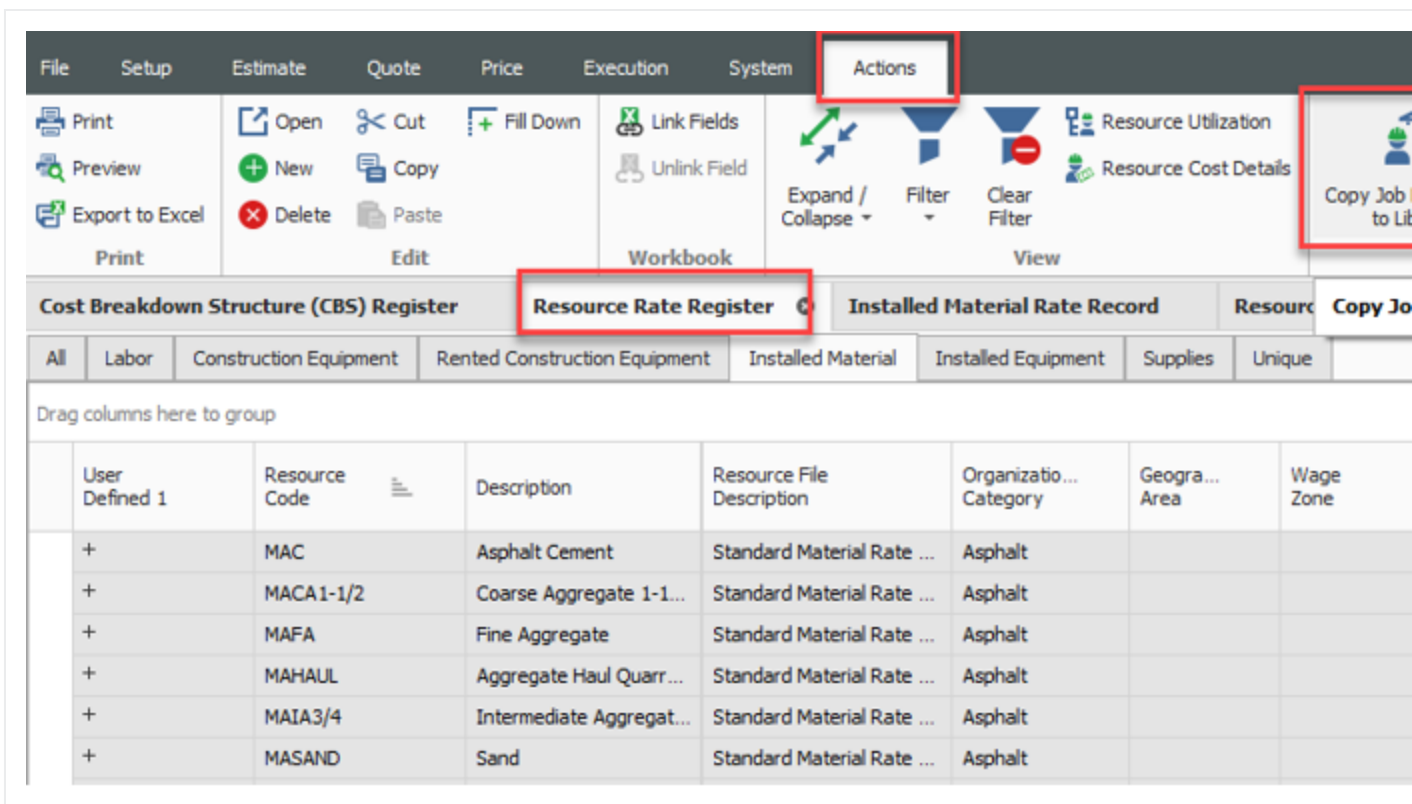
The following procedure is going to guide you through copying resources from a project back to your library in InEight Estimate.

### Step by Step — Copying Job Resources to Library

1. From the Backstage View, select **Open** from the left pane navigation.
2. From the Job Register, select the job that you want to copy resources.
3. Select the **Estimate** tab.
4. Under the Resources section, select **Resource Rates**. The Resource Rate Register opens.



5. Select the **Actions** tab.
6. Under the Tools section, select the option **Copy Job Resources to Library**.



7. A new window appears prompting you to make a few choices on what is to be updated into the library.



Copy 'Training Job' Data to 'Library'

Resources

Status

Status

Copy to Library

Resource Type

Resource Code

Description

Resource File Description

Unit of Measure

Status: Modified

Modified

Modified

Modified

Modified

Modified

Installed Material Rate

Labor Rate

Labor Rate

Labor Rate

Labor Rate

MAAM

LC1

LC2

LC3

LREM 01

Asphalt Mix (Finish)

Carpenter Apprentice

Carpenter Journeyman

Carpenter Foreman

Principal Eng/Scientist

Standard Material Rate File

Standard Labor Rate File

Standard Labor Rate File

Standard Labor Rate File

Standard Labor Rate File

Ton

Hour

Hour

Hour

Hour

New or Modified Resources in 'Training Job'

Toggle Include All

Toggle Include All

New Resources:

Modified Resources:

Total

10

27

Selected

0

0

Quoted Values

☐ Use quoted values for awarded resources

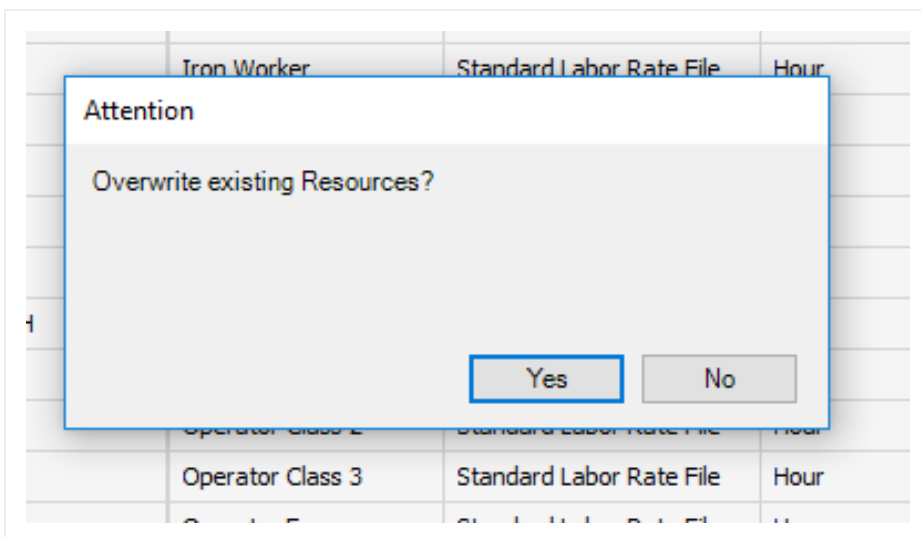
If any awarded resources are selected, the awarded price will become the

8. 

NOTE

The system is grouped by status letting you know what has been modified from the library resources.
9. In the main grid, you can select which resources to bring to the library. The bottom of the window has a toggle that allows you to include all the modified or new resources that you wish to bring into the library. If preferred, select **Toggle Include All** located in the New or Modified Resources data block.
10. The quoted values allows a user to update the resource rates based on the pricing that came back to be the new value in the library during quotation. If preferred, select the **Use quoted values for awarded resources** check box in the Quoted Values data box.
11. Once done, click **OK**.
12. A pop-up will appear asking **Overwrite existing Resources?**. To confirm the changes, select **Yes**.





## 15.12 COPY JOB RESOURCES TO LIBRARY

Resources are created in the Resource Rate Register. This register is the location where you build out the structure of those resources.

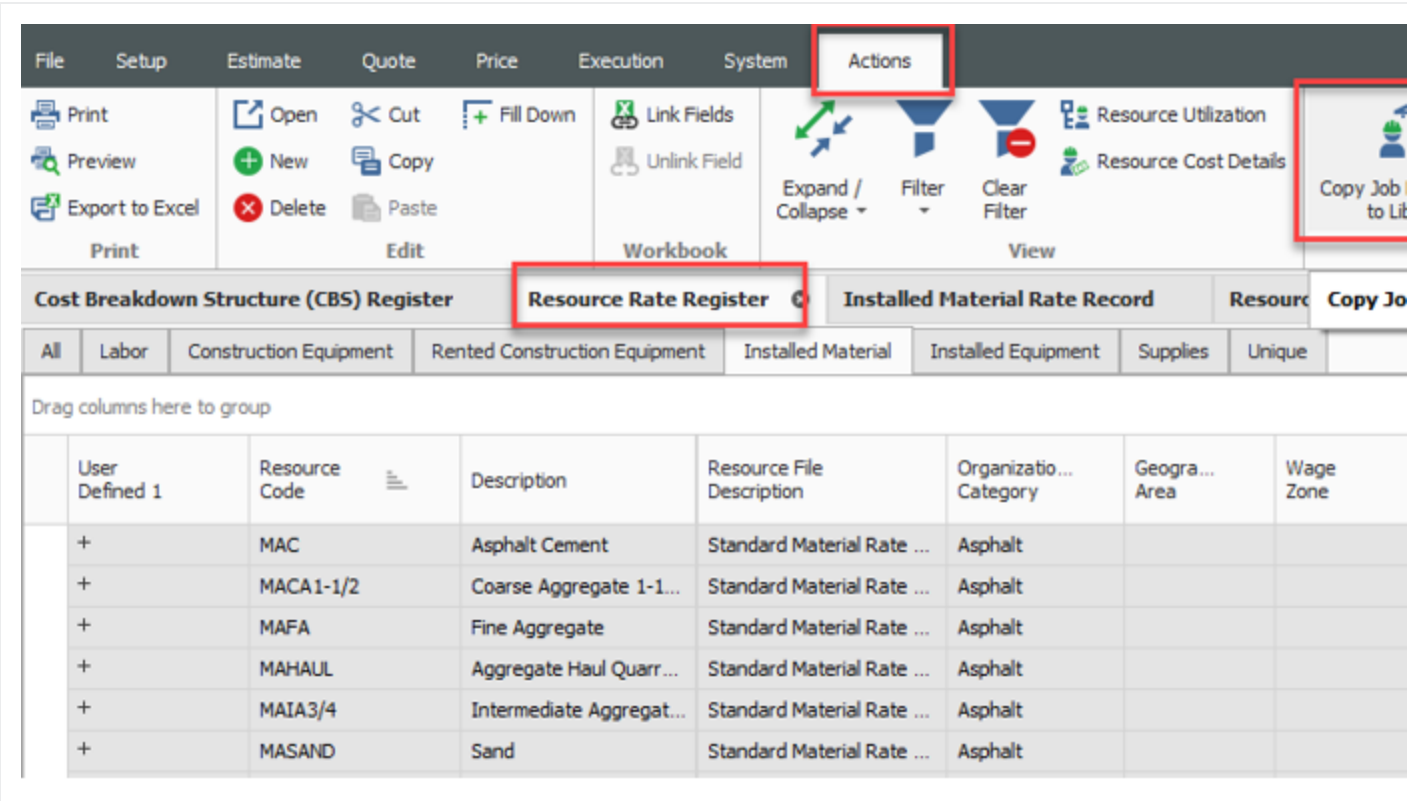
**NOTE** Use of this lesson will draw from other sections of InEight Estimating Manual. Basic understanding of the resources is required.

The following procedure is going to guide you through copying resources from a project back to your library in InEight Estimate.

### Step by Step — Copying Job Resources to Library

1. From the Backstage View, select **Open** from the left pane navigation.
2. From the Job Register, select the job that you want to copy resources.
3. Select the **Estimate** tab.
4. Under the Resources section, select **Resource Rates**. The Resource Rate Register opens.
5. Select the **Actions** tab.
6. Under the Tools section, select the option **Copy Job Resources to Library**.





7. A new window appears prompting you to make a few choices on what is to be updated into the library.



Copy 'Training Job' Data to 'Library'

Resources

Status

Find:

Status	Copy to Library	Resource Type	Resource Code	Description	Resource File Description	Unit of Measure
<b>Status: Modified</b>						
Modified	<input type="checkbox"/>	Installed Material Rate	MAAM	Asphalt Mix (Finish)	Standard Material Rate File	Ton
Modified	<input type="checkbox"/>	Labor Rate	LC1	Carpenter Apprentice	Standard Labor Rate File	Hour
Modified	<input type="checkbox"/>	Labor Rate	LC2	Carpenter Journeyman	Standard Labor Rate File	Hour
Modified	<input type="checkbox"/>	Labor Rate	LC3	Carpenter Foreman	Standard Labor Rate File	Hour
Modified	<input type="checkbox"/>	Labor Rate	LREM 01	Principal Eng/Scientist	Standard Labor Rate File	Hour

New or Modified Resources in 'Training Job'

	Total	Selected
New Resources:	10	0
Modified Resources:	27	0

Quoted Values

☐ Use quoted values for awarded resources

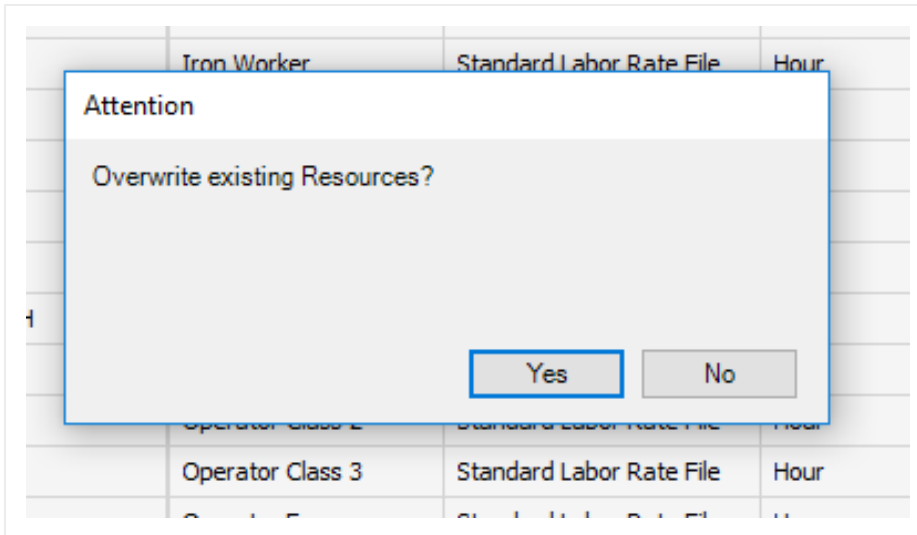
If any awarded resources are selected, the awarded price will become the

Toggle Include All

Toggle Include All

8. **NOTE** The system is grouped by status letting you know what has been modified from the library resources.
9. In the main grid, you can select which resources to bring to the library. The bottom of the window has a toggle that allows you to include all the modified or new resources that you wish to bring into the library. If preferred, select **Toggle Include All** located in the New or Modified Resources data block.
10. The quoted values allows a user to update the resource rates based on the pricing that came back to be the new value in the library during quotation. If preferred, select the **Use quoted values for awarded resources** check box in the Quoted Values data box.
11. Once done, click **OK**.
12. A pop-up will appear asking **Overwrite existing Resources?**. To confirm the changes, select **Yes**.





## 15.13 MULTI-EDIT OF RESOURCES

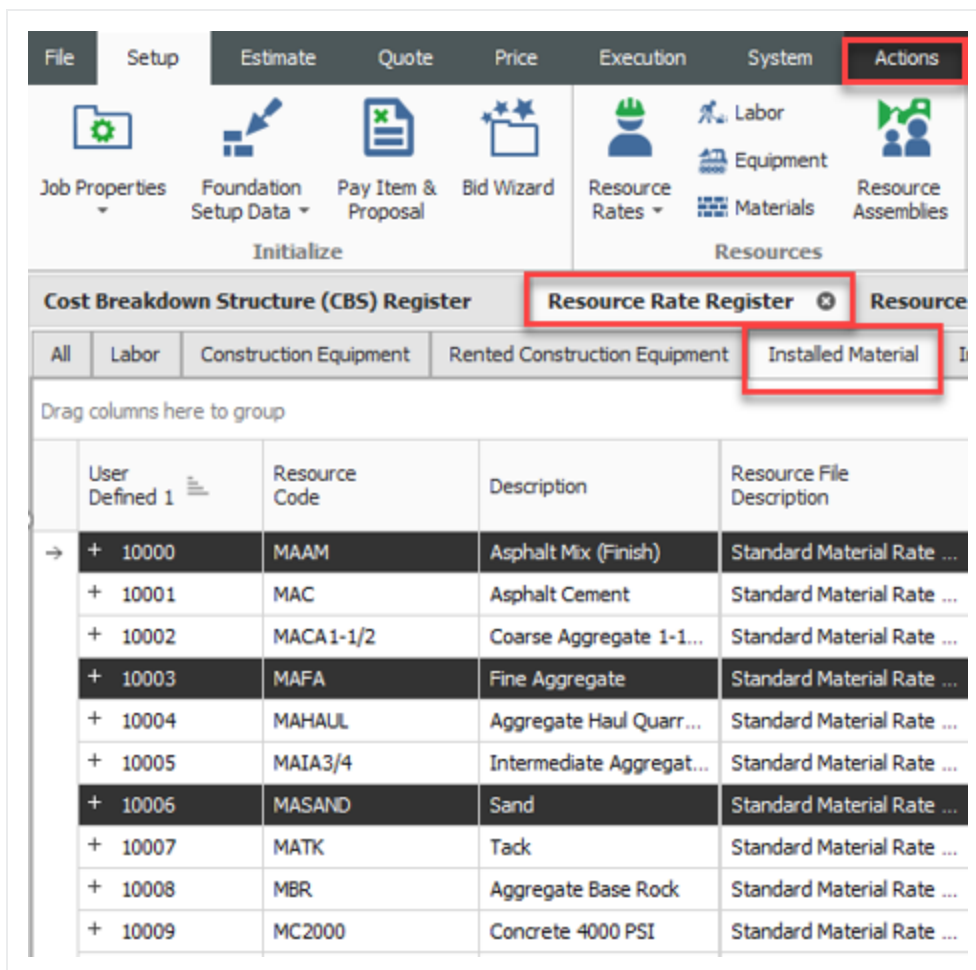
The following procedure is going to guide you through editing multiple resources at one time in InEight Estimate.

**NOTE** Use of this lesson will draw from other sections of InEight Estimating Manual. Basic understanding of the resources is required.

### Step by Step — Mutli-Edit Resources

1. From the Backstage View, select **Open** from the left pane navigation.
2. From the Job Register, select the job that you want to copy resources.
3. Select the **Estimate** tab.
4. Under the Resources section, select **Resource Rates**. The Resource Rate Register opens.
5. Select resources to edit.
  - Use **CTRL + Click** to select many specific individual resources.
  - Use **CTRL + SHIFT + Click** to select multiple resources above or below your first selection.
6. In the Ribbon, select the **Actions** tab.
7. Under the Edits section, select **Open**.






8. **NOTE** Many of the fields show with the title VARIES. This is caused by different values being present in the same fields.
9. You can edit your chosen resources to be associated with a specific quote group if that option is available in the record. You can update records in bulk for other fields within the InEight Estimate resources. To updated the quote group, select the **Setup** tab in the record.
10. Select the **Quote Group Tag** drop down. Then select the specific Quote Group Tag to associate to your chosen resources.




Cost Breakdown Structure (CBS) RegisterResource Rate RegisterResource Cost Details RegisterIn

Code: \*VARIESDescription:Varies

Setup

 Charge Rate

 Quote

Billing Rate

Resource File:Standard Material Rate FileUser Defined 1:Varies

Geographic Area:User Defined 2:Varies

Wage Zone:User Defined 3:

Org. Category:AsphaltUser Defined 4:

Account Code:User Defined 5:

Cost Driver:CI QuantityUser Defined 6:

Cost Curve:Employed Cost ItemUser Defined 7:

Tag 1:VariesUser Defined 8:

Tag 2:User Defined 9:

Tag 3:User Defined 10:

Quote Group Tag: +

Notes:

Minority Percent:DescriptionAward Stat...Utilized In Quot...Review...Last Review...Quote Last Chang...

Waste % Add-on:AggregatesCompleteNoNo

Asphalt MaterialsCompleteNoNo

Bridge WorkCompleteNoNo

CablesCompleteNoNo

Default Quantity:Commercial WorkCompleteNoNo

Currency:Concrete BeamsCompleteNoNo

Concrete MaterialsCompleteNoNo

11. Once done, click **OK**. Your chosen resources are now associated to the specified quote group.



Cost Breakdown Structure (CBS) Register			Resource Rate Register		Resource Cost Details Register		
All	Labor	Construction Equipment	Rented Construction Equipment	Installed Material	Installed Equipment	Supplies	Unique
Drag columns here to group							
	User Defined 1	Resource Code	Description	Quote Group	Resource File Description	Geogra... Area	
→	+ 10000	MAAM	Asphalt Mix (Finish)	Aggregates	Standard Material Ra...		
	+ 10001	MAC	Asphalt Cement		Standard Material Rate ...		
	+ 10002	MACA1-1/2	Coarse Aggregate 1-1...		Standard Material Rate ...		
	+ 10003	MAFA	Fine Aggregate	Aggregates	Standard Material Rate ...		
	+ 10004	MAHAUL	Aggregate Haul Quarr...		Standard Material Rate ...		
	+ 10005	MAIA3/4	Intermediate Aggregat...		Standard Material Rate ...		
	+ 10006	MASAND	Sand	Aggregates	Standard Material Rate ...		
	+ 10007	MATK	Tack		Standard Material Rate ...		
	+ 10008	MBR	Aggregate Base Rock		Standard Material Rate ...		
	+ 10009	MC2000	Concrete 4000 PSI		Standard Material Rate ...		

## 15.14 IMPORTING RESOURCES

The following procedures inform you how to setup resources in InEight Estimate from an excel sheet.

### NOTE

Use of this lesson will draw from other sections of InEight Estimating Manual. Basic understanding of the Sort, Group, Filter, Excel integration functionality in InEight Estimate is required.

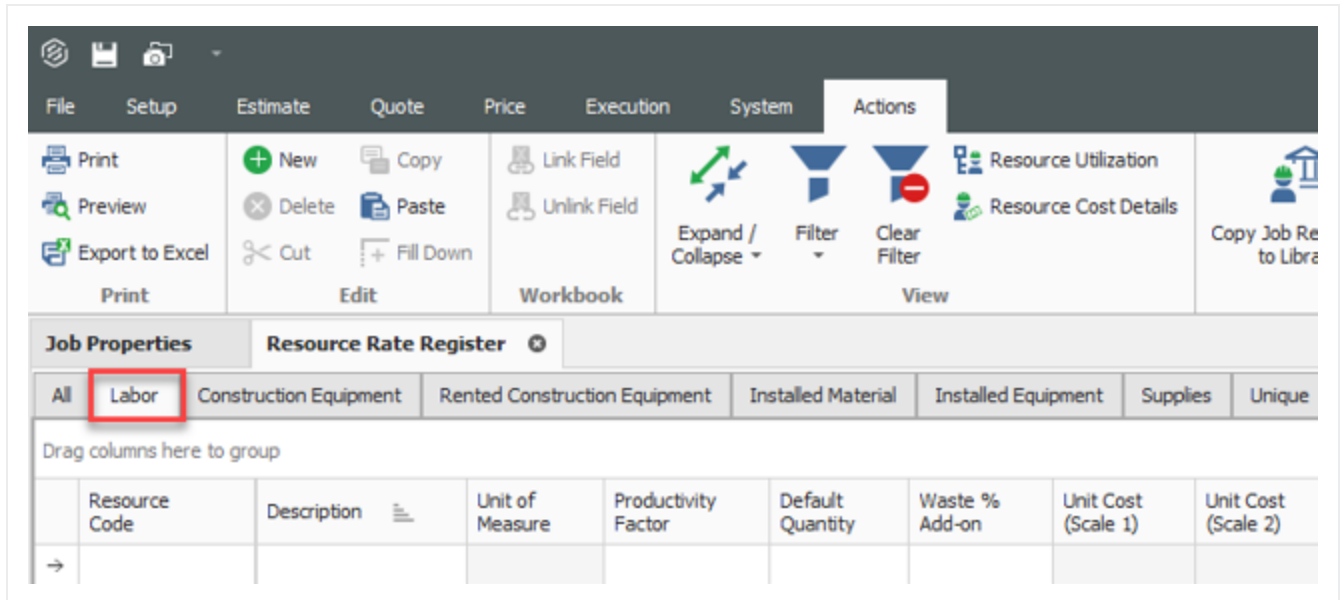
### 15.14.1 Open Resource Rate Register

You can create resources within the Resource Rate Register. This is the location to build out the structure of those resources.

#### Step by Step — Opening the Labor tab

1. Open the Job Folder or Library that you're going to be working in.
2. From the Ribbon, select the **Setup** tab.
3. Under the Resources section, select **Resource Rates**. The Resource Rate Register opens.
4. Select the tab you want to add resources to.





The layout of this register and excel file is up to the organization and the decisions that are made during the detail design phase. A basic excel file will be provided to your organization as a starting point to work from. If that can't be located, you can easily build one utilizing the views within InEight Estimate.

#### 15.14.1.1 Creating A Labor Saved View - Resource Rate Register

You can create a view to mirror both the register and excel sheets to easily bring information back and forth from the two applications.

##### Example of columns:

- User Defined 1
- Resource Code
- Description
- Resource File Description - Validated field
- Geographic Area - Validated field
- Wage Zone - Validated field
- Organizational Category - Validated field
- Tag 1 - Validated field
- Tag 2 - Validated field
- Currency - Validated field

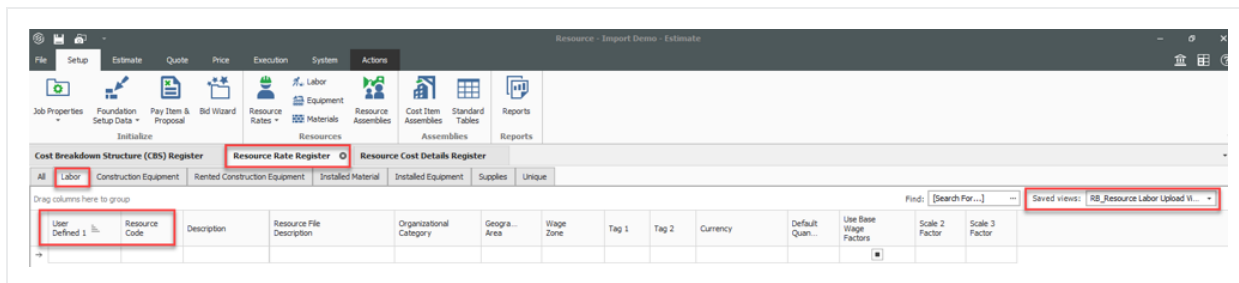


- Default Quantity
- Use Base Wage Factors - Scale Factors
- Scale Factor 2 - Scale Factors
- Scale Factor 3 - Scale Factors

**NOTE**

For more information on Validated Tags field, see Validated Tags topic. Scale Factors aren't required if you are manually applying rates to each cost category scale.

The view should appear as shown below with **User Defined 1** in the first column. This field is used for sorting and arranging data accurately moving between Estimate and Excel. You are not limited to UDF 1 and can choose to utilize a field of their choice for sorting.



## 15.14.2 Setting up the excel file

Go to the Excel sheet and make sure the information in the columns shown in the screenshot are filled out. Basic concepts to keep in mind regarding the excel file:

**Sort Code** - This column needs to have a high sequential number such as **10000**. This is very important to assign as it will help us authenticate all the labor rates.

**Resource Code** - A unique Naming convention to be assigned to every labor resource. In this example we have all labor resource starting with a **L** followed by the letters that represent the resource description.

**Labor Base** - The base wage of the labor resource is entered here. Estimate does not allow \$ sign to be pasted, which is why the cells for the Base column are formatted to **Number**.



K38																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Required															
2	Validated Field															
3	Not Required															
4	Column Headers may differ based on Design Decision Item #67															
5	Resource Rate Register															
6	UDF1	Resource Code	Description	Resource File Description	Organizational Category	Geographic Area	Wage Zone	Tag 1	Tag 2	Currency	Default Quantity	Use Base Wage Factors	Scale Factor 2	Scale Factor 3	Total	Resource Cost Details Register
7	10000 LC2	Carpenter Journeyman	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$28.92	22.10
8	10002 LSWP	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$29.92	23.10
9	10002 LSWI	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$30.92	24.10
10	10003 LSWC	Foreman Civil	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$31.92	25.10
11	10004 LSUBM	Foreman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$32.92	26.10
12	10005 LPF1	Lead Pipe Fabricator	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$33.92	27.10
13	10006 LPF2	Journeyman Pipefitter	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$34.92	28.10
14	10007 LPF3	Pipefitter A	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$35.92	29.10
15	10008 LPF4	Pipefitter B	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$36.92	30.10
16	10009 LBM1	Lead Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$37.92	31.10
17	10010 LBM2	Journeyman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$38.92	32.10
18																

### 15.14.2.2 Creating the resource

Follow this procedure once you have information filled out in excel.

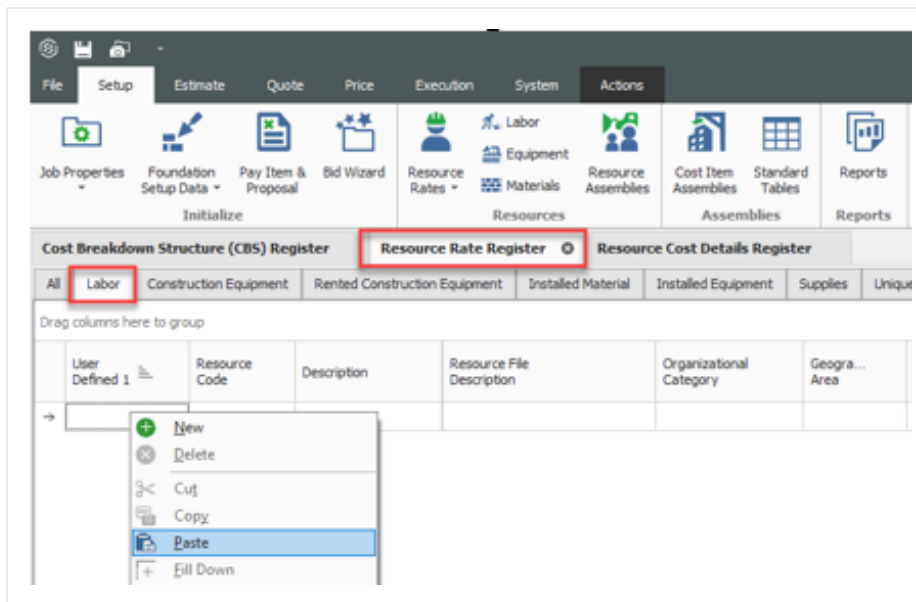
#### Step by Step — Creating the Resource

1. Open the excel file.
2. Sort the sheet by sequential number in the **Sort Code** field.
3. Highlight the cells you want to bring into the estimate.
4. Copy the cells using right click and selecting **Copy** from the context menu.

A7																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Required															
2	Validated Field															
3	Not Required															
4	Column Headers may differ based on Design Decision Item #67															
5	Resource Rate Register															
6	User Defined 1	Resource Code	Description	Resource File Description	Organizational Category	Geographic Area	Wage Zone	Tag 1	Tag 2	Currency	Default Quantity	Use Base Wage Factors	Scale Factor 2	Scale Factor 3	Total	Resource Cost Details Register
7	10000 LC2	Carpenter Journeyman	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$28.92	22.10
8	10002 LSWP	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$29.92	23.10
9	10002 LSWI	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$30.92	24.10
10	10003 LSWC	Foreman Civil	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$31.92	25.10
11	10004 LSUBM	Foreman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$32.92	26.10
12	10005 LPF1	Lead Pipe Fabricator	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$33.92	27.10
13	10006 LPF2	Journeyman Pipefitter	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$34.92	28.10
14	10007 LPF3	Pipefitter A	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$35.92	29.10
15	10008 LPF4	Pipefitter B	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$36.92	30.10
16	10009 LBM1	Lead Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$37.92	31.10
17	10010 LBM2	Journeyman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1	TRUE	1.50	2.00	2.00	\$38.92	32.10
18																

5. Open Estimate to the **Resource Rate Register**.
6. Select the **User Defined 1** column in the Labor tab of the Resource Rate Register.





7. Right click the empty cell and select **Paste** from the context menu. A pop up will appear asking **Are you sure you want to insert the selected values?**
8. Select **Yes** to confirm inserting the selected values.
9. The cells you copied from the excel sheet are now copied into the Resource Rate Register. The Sort code data is pasted in the User defined 1 column. Resource Code & Resource description data is pasted as well.

The screenshot shows the 'Resource Rate Register' tab with data imported. The 'Labor' tab is selected, and the data table is visible. The table has columns for User Defined 1, Resource Code, Description, Resource File Description, Organizational Category, Geographical Area, Wage Zone, Tag 1, Tag 2, Currency, Default Quantity, Use Base Wage Factors, Scale 2 Factor, and Scale 3 Factor.

User Defined 1	Resource Code	Description	Resource File Description	Organizational Category	Geographical Area	Wage Zone	Tag 1	Tag 2	Currency	Default Quantity	Use Base Wage Factors	Scale 2 Factor	Scale 3 Factor
+ 10000	LC2	Carpenter Journey...	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10001	LSUPP	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10002	LSUEW	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10003	LSUC	Foreman Civil	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10004	LSBM	Foreman Boilemaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10005	LPF1	Lead Pipe Fabricator	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10006	LPF2	Journeyman Pipefitter	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10007	LPF3	Pipefitter A	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10008	LPF4	Pipefitter B	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10009	LBM1	Lead Boilemaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00
+ 10010	LBK2	Journeyman Boile...	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	Non Union	Hourly	U.S. Dollar	1.00	<input checked="" type="checkbox"/>	0.00	0.00



- 10.

## NOTE

For Make sure the sorting is on User Defined 1 column. This allows us to see the information being sorted similar to our data in excel file. Base Wage Factors need to be flagged to turn on with the check box. Your first copy and paste should have activated them. You need to copy and paste again in order to apply the factors.

Resource Cost Breakdown Structure (CBS) Register			
Resource Rate Register			
Resource Cost Details Register			
All	Labor	Construction Equipment	Rented Construction Equipment
Drag columns here to group			
User Defined 1	Resource Code	Description	Resource File Description
+	10000	LC2	Carpenter Journey...
+	10001	LSUFF	Foreman Pipe
+	10002	LSUW	Foreman Iron
+	10003	LSUC	Foreman Civil
+	10004	LSBM	Foreman Boilermaker
+	10005	LPF1	Lead Pipe Fabricator
+	10006	LPF2	Journeyman Pipefitter
+	10007	LPF3	Pipefitter A
+	10008	LPF4	Pipefitter B
+	10009	LBM1	Lead Boilermaker
+	10010	LBM2	Journeyman Boilerm...

### 15.14.2.3 Resource Cost Details

Labor resources are now in the system a user can apply rates to those resources.

## Step by Step — Resource Cost Detail

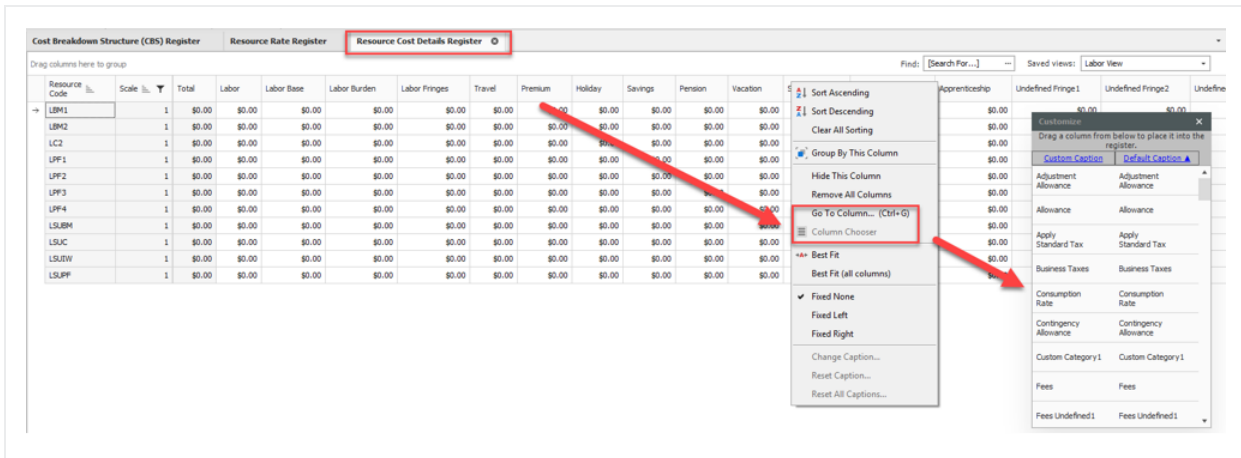
1. From the Ribbon, select the **Actions** tab.
2. Under the View section, select the Resource **Cost Details** option. The **Resource Cost Details Register** opens.

- 
- 
- NOTE

Create a view to mirror the accompanying excel sheet or create one to bring in the associated resource cost in the details register.
- From the Saved views drop down, select the **Labor** view to filter down to only labor resources.



5. Right click a column header and select **Column Chooser**.
6. Drag and drop the columns into the view identified below.



**Example of columns** – The level of detail and utilization of specific cost categories is a decision for each organization:

- User Defined 1 - Non editable fields from resource rates register
- Resource Code - Non editable fields from resource rates register
- Description - Non editable fields from resource rates register
- Resource File Description - Non editable fields from resource rates register
- Geographic Area - Non editable fields from resource rates register
- Wage Zone - Non editable fields from resource rates register
- Organizational Category - Non editable fields from resource rates register
- Scale - Non editable fields from resource rates register
- Labor Base
- Travel
- Premium
- Holiday
- Savings
- Pension
- Vacation
- Subsistence



- Health & Welfare
- Apprenticeship
- Undefined Fringe 1
- Undefined Fringe 2
- Undefined Labor Fringes
- Bodily Injury & Property Damage
- Workers Compensation
- Undefined Insurance1
- Undefined Insurance2
- Undefined Labor Insurance
- FICA
- FUTA
- SUTA
- Undefined Tax1
- Undefined Labor Taxes
- Undefined Labor Burden
- Undefined Labor
- Construction Supplies
- Undefined Materials
- Undefined
- Billing Rate
- Billing Rate Markup
- Billing Rate Markup %

### 15.14.3 Filter/Sort/Paste - Resource Cost Details Register

The Labor upload view brings in the columns required to enter Labor base, burdens etc. Every Labor resource has three rows created with Scales 1,2,3. The Scale Column is used to setup Straight time, Over time, Double time.



Cost Breakdown Structure (CBS) Register

Resource Rate Register

Resource Cost Details Register

Drag columns here to group

Resource Code	Scale	Total	Labor	Labor Base	Labor Burden	Labor Fringes	Travel
LBM1	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0
LBM1	2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0
LBM1	3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0
LBM2	1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0

## Step by Step — Filter Resource Cost Detail Register

1. From the Scale column header, click the filter icon..
2. Set the From and To values to **1**.

Cost Breakdown Structure (CBS) Register

Resource Rate Register

Resource Cost Details Register

Labor Rate Record

Drag columns here to group

User Defined 1	Resource Code	Description	Resource File Description	Organizational Category	Geographic Area	Wage Zone	Scale	Total	Labor Base	Travel	Pre
→ 10009	LBM1	Lead Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10010	LBM2	Journeyman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10000	LC2	Carpenter Journeyman	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10005	LPF1	Lead Pipe Fabricator	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10006	LPF2	Journeyman Pipefitter	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10007	LPF3	Pipefitter A	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10008	LPF4	Pipefitter B	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10004	LSUBM	Foreman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10003	LSUC	Foreman Civil	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10002	LSUIW	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00
10001	LSUPF	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A					\$0.00

Values

Numeric Filters

From 1 To 1

Clear Filter

Custom

Close

3. Back on the excel spreadsheet, highlight the base rates to bring in.
4. Right click and select **Copy** in the context menu.



[illegible]

5. Go to Estimate. Right click and select **Paste** from the context menu.

[illegible]

6. You will be prompted with a **Are you sure you want to insert these values?** message as before. Select **Yes** to continue.

#### 15.14.4 Manual Set-Up of Scales 2 & 3 – Optional

If the organization wants to have more in-depth cost details for each scale rather than using scale factors the same procedure will be utilized to copy Labor burden, fringes, and other add-ons to setup Scale 2 & Scale 3.

**NOTE** For Base Wage Factor Columns will not be active if your organization is using method 2.



### 15.14.4.4 Resource Rate Register

Cost Breakdown Structure (CBS) Register								Resource Rate Register		Resource Cost Details Register		Labor Rate Record	
All	Labor	Construction Equipment	Rented Construction Equipment	Installed Material	Installed Equipment	Supplies	Unique						
Drag columns here to group													
Resource Code	Resource Type	Description	Resource File Description	Unit of Measure	Productivity Factor	Default Quantity	Waste % Add-on	Unit Cost (Scale 1)	Unit Cost (Scale 2)	Unit Cost (Scale 3)	Currency	Use Base Wage Factors	
+ LBM1	Labor Rate	Lead Boilermaker	Standard Labor Rate File	Hour	1.00	1.00		\$37.90	\$46.65	\$62.20	U.S. Dollar	<input type="checkbox"/>	
+ LBM2	Labor Rate	Journeyman Boilermaker	Standard Labor Rate File	Hour	1.00	1.00		\$38.90	\$48.15	\$64.20	U.S. Dollar	<input type="checkbox"/>	
+ LC2	Labor Rate	Carpenter Journeyman	Standard Labor Rate File	Hour	1.00	1.00		\$28.90	\$33.15	\$44.20	U.S. Dollar	<input type="checkbox"/>	
+ LPF1	Labor Rate	Lead Pipe Fabricator	Standard Labor Rate File	Hour	1.00	1.00		\$33.90	\$40.65	\$54.20	U.S. Dollar	<input type="checkbox"/>	
+ LPF2	Labor Rate	Journeyman Pipefitter	Standard Labor Rate File	Hour	1.00	1.00		\$34.90	\$42.15	\$56.20	U.S. Dollar	<input type="checkbox"/>	
+ LPF3	Labor Rate	Pipefitter A	Standard Labor Rate File	Hour	1.00	1.00		\$35.90	\$43.65	\$58.20	U.S. Dollar	<input type="checkbox"/>	
+ LPF4	Labor Rate	Pipefitter B	Standard Labor Rate File	Hour	1.00	1.00		\$36.90	\$45.15	\$60.20	U.S. Dollar	<input type="checkbox"/>	
+ LSUBM	Labor Rate	Foreman Boilermaker	Standard Labor Rate File	Hour	1.00	1.00		\$32.90	\$39.15	\$52.20	U.S. Dollar	<input type="checkbox"/>	
+ LSUC	Labor Rate	Foreman Civil	Standard Labor Rate File	Hour	1.00	1.00		\$31.90	\$37.65	\$50.20	U.S. Dollar	<input type="checkbox"/>	
+ LSUIW	Labor Rate	Foreman Iron	Standard Labor Rate File	Hour	1.00	1.00		\$30.90	\$36.15	\$48.20	U.S. Dollar	<input type="checkbox"/>	
+ LSUPF	Labor Rate	Foreman Pipe	Standard Labor Rate File	Hour	1.00	1.00		\$29.90	\$34.65	\$46.20	U.S. Dollar	<input checked="" type="checkbox"/>	

### 15.14.4.5 Resource Cost Details Register

Cost Breakdown Structure (CBS) Register									
Resource Rate Register									
Resource Cost Details Register									
Labor Rate Record									
Drag columns here to group									
User Defined 1	Resource Code	Description	Resource File Description	Organizational Category	Geographic Area	Wage Zone	Scale	Total	
→ 10000	LC2	Carpenter Journeyman	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$33.15	
10001	LSUPF	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$34.65	
10002	LSUIW	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$36.15	

## Step by Step — Manual Setup of Scales

1. From the Scale column header, click the filter icon..
2. Set the From and To values to 2.

Cost Breakdown Structure (CBS) Register									
Resource Rate Register									
Resource Cost Details Register									
Labor Rate Record									
Drag columns here to group									
User Defined 1	Resource Code	Description	Resource File Description	Organizational Category	Geographic Area	Wage Zone	Scale	Total	
→ 10000	LC2	Carpenter Journeyman	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$33.15	
10001	LSUPF	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$34.65	
10002	LSUIW	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$36.15	
10003	LSUC	Foreman Civil	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$37.65	
10004	LSUBM	Foreman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$39.15	
10005	LPF1	Lead Pipe Fabricator	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$40.65	
10006	LPF2	Journeyman Pipefitter	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$42.15	
10007	LPF3	Pipefitter A	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$43.65	
10008	LPF4	Pipefitter B	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$45.15	
10009	LBM1	Lead Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$46.65	
10010	LBM2	Journeyman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$48.15	

Scale 2

Values Numeric Filters

From 2 To 2

Clear Filter Custom Close



- Back on the excel spreadsheet, highlight the base rates to bring in.
- Right click and select **Copy** in the context menu.

V30

✖

✓

f<sub>x</sub>

1

A

2

Required

3

Validated Field

4

Not Required

5

6

Resource Rate Register

7

User Defined 1

8

Resource Code

9

Description

10

\*Scale Factor 2

11

\*Scale Factor 3

12

Total

13

Labor Base

14

Travel

15

Premium

16

Holiday

17

Savings

18

Pension

19

Vacation

20

Subsistence

21

Health & Welfare

22

Apprenticeship

23

Undefined Fringe 1

24

Undefined Fringe 2

25

10000

LC2

Carpenter Journeyman

1.50

2.00

\$28.92

22.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

0.00

26

10001

LSUPF

Foreman Pipe

1.50

2.00

\$29.92

23.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

27

10002

LSUW

Foreman Iron

1.50

2.00

\$30.92

24.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

28

10003

LSUC

Foreman Civil

1.50

2.00

\$31.92

25.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

29

10004

LSUBM

Foreman Boilermaker

1.50

2.00

\$32.92

26.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

30

10005

LPF1

Lead Pipe Fabricator

1.50

2.00

\$33.92

27.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

31

10006

LPF2

Journeyman Pipefitter

1.50

2.00

\$34.92

28.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

32

10007

LPF3

Pipefitter A

1.50

2.00

\$35.92

29.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

33

10008

LPF4

Pipefitter B

1.50

2.00

\$36.92

30.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

34

10009

LBM1

Lead Boilermaker

1.50

2.00

\$37.92

31.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

35

10010

LBM2

Journeyman Boilermaker

1.50

2.00

\$38.92

32.10

0.00

0.00

0.22

0.00

0.66

0.44

0.00

0.66

0.00

- Go to Estimate. Right click and select **Paste** from the context menu.

Cost Breakdown Structure (CBS) Register

Resource Rate Register

Resource Cost Details Register

Labor Rate Record

Drag columns here to group

User Defined 1

Resource Code

Description

Resource File Description

Organizational Category

Geographic Area

Wage Zone

Scale

Total

Labor Base

Travel

Premium

Holiday

Find: [Search For...]

→	10000	LC2	Carpenter Journeyman	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$33.15	\$33.15	\$0.00	\$0.00	\$0.00
	10001	LSUPF	Foreman Pipe	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$34.65				\$0.00
	10002	LSUW	Foreman Iron	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$36.15				\$0.00
	10003	LSUC	Foreman Civil	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$37.65				\$0.00
	10004	LSBM	Foreman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$39.15				\$0.00
	10005	LPF1	Lead Pipe Fabricator	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$40.65				\$0.00
	10006	LPF2	Journeyman Pipefitter	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$42.15				\$0.00
	10007	LPF3	Pipefitter A	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$43.65				\$0.00
	10008	LPF4	Pipefitter B	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$45.15				\$0.00
	10009	LBM1	Lead Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$46.65	\$46.65	\$0.00	\$0.00	\$0.00
	10010	LBM2	Journeyman Boilermaker	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A	2	\$48.15	\$48.15	\$0.00	\$0.00	\$0.00

New

Delete

Cut

Copy

Paste

Fill Down

Link this field to Excel

UnLink from Excel

- You will be prompted with a **Are you sure you want to insert these values?** message as before. Select **Yes** to continue.
- Follow the same procedure for scale 3.

### 15.14.4.6 Non Labor Resource Setup

The same principles can be applied for the other resource types within InEight Estimate. This procedure covers installed material, but can also be used for the other six resource types.

## 15.14.5 Creating A Materials Saved View - Resource Rate Register

Create a view to mirror both the register and excel sheets to easily bring information back and forth from the two applications.

### Example of columns



- User Defined 1
- Resource Code
- Description
- Resource File Description - Validated Tag field
- Geographic Area - Validated Tag field
- Wage Zone - Validated Tag field
- Organizational Category - Validated Tag field
- Tag 1 - Validated Tag field
- Tag 2 - Validated Tag field
- Currency - Validated Tag field
- Apply Standard Tax - Validated Tag field
- Unique Sales Tax
- Unit of Measure - Validated Tag field

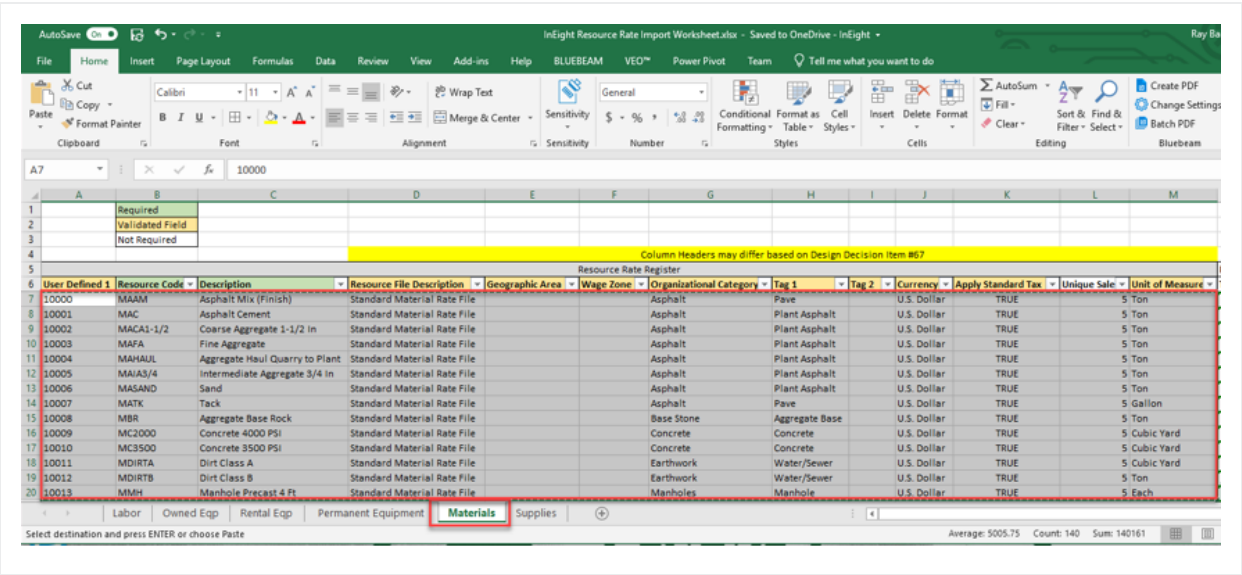
### 15.14.6 Creating A Material Resource

Follow the step by step once you have information filled out in excel.

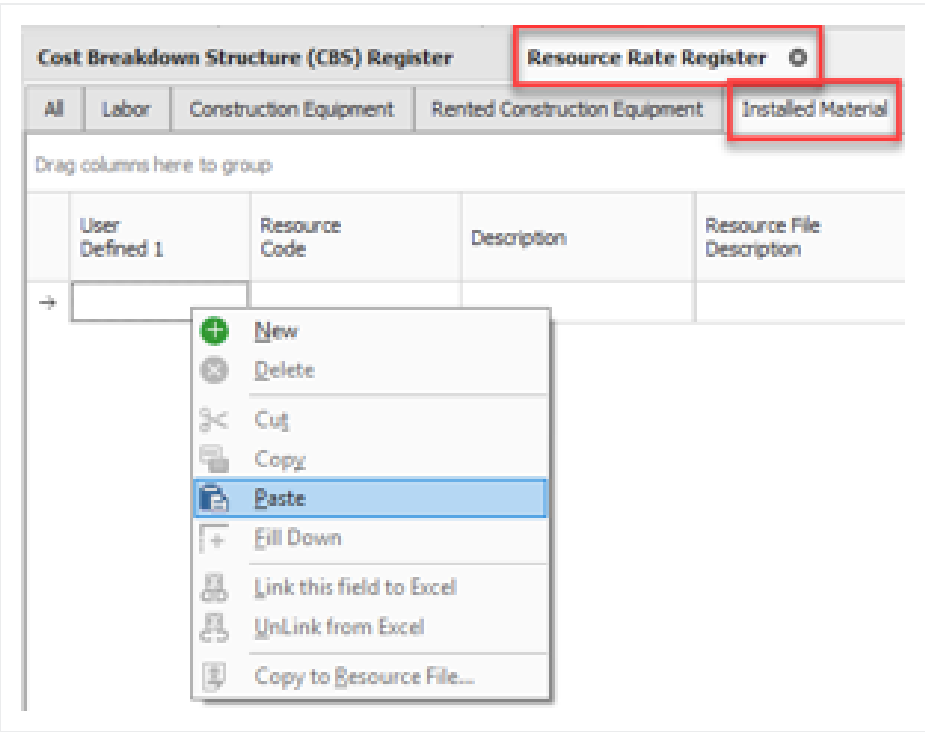
#### Step by Step — Creating the Resource

1. Open the excel file.
2. Sort the sheet by sequential number in the **Sort Code** field.
3. Highlight the cells you want to bring into the estimate.
4. Copy the cells using right click and selecting **Copy** from the context menu.





- 5. Open Estimate to the **Resource Rate Register**.
- 6. Select the **User Defined 1** column in the Installed Material tab of the Resource Rate Register.



- 7. Right click the empty cell and select **Paste** from the context menu. A pop up will appear asking **Are you sure you want to insert the selected values?**



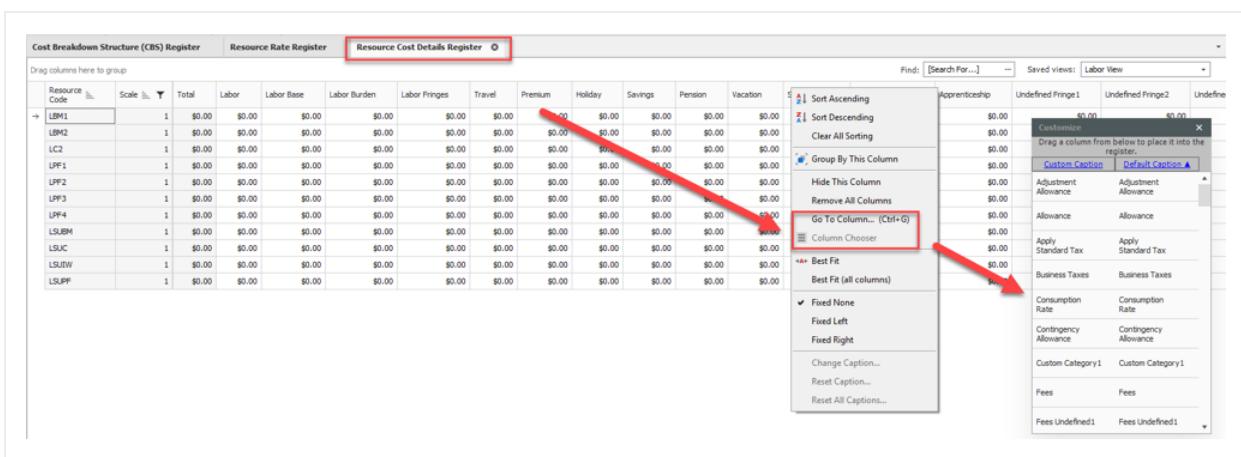
- You will be prompted with a **Are you sure you want to insert these values?** message. Click **Yes** to continue.

### 15.14.7 Create A Material Saved View - Resource Cost Details Register

Installed Material Resources are now in the system. You can apply rates to those resources. Create a view to mirror the accompanying excel sheet or create one to bring in the associated resource cost in the details register.

#### Step by Step — Material Saved View

- From the Ribbon, select the **Actions** tab.
- Under the View section, select the Resource **Cost Details** option. The **Resource Cost Details Register** opens.
- NOTE** Create a view to mirror the accompanying excel sheet or create one to bring in the associated resource cost in the details register.
- From the Saved views drop down, select the **Installed material** view to filter down to only material resources.
- Right click a column header and select **Column Chooser**.
- Drag and drop the columns into the view identified below.





**Example of columns** – The level of detail and utilization of specific cost categories is a decision for each organization:

- User Defined 1 - Non editable fields from resource rates register
- Resource Code - Non editable fields from resource rates register
- Description - Non editable fields from resource rates register
- Resource File Description - Non editable fields from resource rates register
- Geographic Area - Non editable fields from resource rates register
- Wage Zone - Non editable fields from resource rates register
- Organizational Category - Non editable fields from resource rates register
- Unit of Measure - Non editable fields from resource rates register
- Currency - Non editable fields from resource rates register
- Total - Non editable fields from resource rates register
- Installed Materials
- Undefined Materials
- Sales Taxes
- Undefined Fees
- Undefined
- Billing Rate
- Billing Rate Markup
- Billing Rate Markup %

## 15.15 QUANTITY CHECKING

The Quantity Checking feature allows you to compare the quantity of a superior cost item to the sum of its relevant subordinate cost item quantities. This setting enables the use of the **Quantity Check** and **Quantity Warning** columns in the Cost Breakdown Structure. The use of these columns can assist in confirming whether or not your quantities are correct.

**NOTE** The subordinate cost item quantities need to have the same unit of measure as the superior cost item before you are able to choose the Quantity Check column.

In the example below, break a concrete pour cost item into four subordinate parts. The Forecast (T/O) Quantity of the superior item will be 156875.00 tons of concrete. Start by dividing each of the four parts into 35000.00 tons each. Once you have broken out this concrete pour, determine if you need a



fifth pour or if you should distribute the remaining quantity to the four pours. The factors you keep in mind are the trips and time involved in the extra pour vs capacity of equipment.

## Step by Step — Quantity Checking

1. From the Ribbon, select the **Setup** tab.
2. Under the section Initialize, select **Job Properties**. Then select the **Cost Basis** tab.

### NOTE

Quantity checking starts by turning the feature on in the Job Properties. If you want to have quantity checking turned on for all jobs in Estimate, then this setting needs to be turned on in the **Master Job Properties**. The Master Job Properties is located in the **Library**.

3. From the Rules data box, select the **Activate Quantity Checking** check box.

The screenshot shows the software interface with the **Setup** tab selected. Under the **Initialize** section, **Job Properties** is highlighted. The **Cost Basis** tab is selected within the **Job Properties** section. The **Rules** section is visible, and the **Activate Quantity Checking** checkbox is checked and highlighted with a red box. Other settings visible include **Standard Shift Arrangements** (Work Hours per Shift: 8.00, Pay Hours per Shift: 8.00, Shifts per Day: 1.00, Days per Week: 5.00), **Standard Wage Rate Composite** (Scale 1: 100.00 %, Scale 2: 0.00 %, Scale 3: 0.00 %), and **Rules** (Lock Cost Items to Pay Items: checked, Pay Item Unit Price Precision: 2, Activate PBS Changes Log: unchecked, Activate Quantity Checking: checked, Maintain CBS Structure at Level: 0, When man-count changes: Change UM / Man-Hour selected).

4. Next bring a couple of columns into your view on the Cost Breakdown Structure (CBS) Register. Right click on the column header and choose **Go To Column**.
5. The Go To Column dialog box appears. Have the **Include columns that are not currently in the view** check box selected.



CBS Position Code	Description	Unit of Measure	Quantity Driver	Cost Source	Cost Segment	Unit Cost	Total Cost (Forecast)	Hours (Duration driven)	Days (Duration driven)	Labor Total Cost
+ 4.2	Finegrade Subgrade	Square Yard	Superior CI	Detail	Direct Cost	\$0.19	\$75,848.36	320.00	40.00	\$39,464.36
+ 4.3	Install Aggregate Base	Ton	Superior CI	Detail	Direct Cost	\$2.17	\$97,567.33	560.00	70.00	\$50,759.33
+ 4.3.1	Place Aggregate Base	Ton	Superior CI	Detail	Direct Cost	\$1.63	\$73,460.92	240.00	30.00	\$33,884.92
+ 4.3.2	Blue Top Aggregate Base	Square Yard	Superior CI	Detail	Direct Cost	\$0.06	\$24,106.42	320.00	40.00	\$16,874.42
5	Asphalt Concrete Hot Mix Type A	Ton	Pay Item	Detail	Direct Cost	\$42.62	\$1,491,580.59	466.67	52.50	\$108,952.25
+ 5.1	Furnish & Haul Hot Mix	Ton	Superior CI	Detail	Direct Cost	\$39.27	\$1,374,562.54	233.33	29.17	\$50,010.87
+ 5.2	Install Hot Mix Type A	Ton	Superior CI	Detail	Direct Cost	\$3.34	\$117,018.05	233.33	23.33	\$58,941.38
6	36 Inch RCP Culvert Class III	Linear Feet	Pay Item	Detail	Direct Cost	\$67.54	\$69,159.49	149.30	18.66	\$20,073.46
+ 6.1	Furnish RCP Materials	Linear Feet	Superior CI	Detail	Direct Cost			0.00	0.00	\$0.00
+ 6.2	Excavate RCP Trench	Cubic Yard	Superior CI	Detail	Direct Cost			37.17	4.65	\$4,963.56
+ 6.3	Install RCP Pipe	Linear Feet	Superior CI	Detail	Direct Cost					
+ 6.4	Backfill RCP Pipe	Cubic Yard	Superior CI	Detail	Direct Cost					
7	Concrete Pour	Ton	Superior CI	Detail	Direct Cost					
+ 7.1	Concrete Batch One	Ton	Fixed	Detail	Direct Cost					
+ 7.2	Concrete Batch Two	Ton	Fixed	Detail	Direct Cost					
+ 7.3	Concrete Batch Three	Ton	Fixed	Detail	Direct Cost					
+ 7.4	Concrete Batch Four	Ton	Fixed	Detail	Direct Cost					
8	10 Inch PVC Force Main (SDR21)	Linear Feet	Pay Item	Detail	Direct Cost					

6. Click **OK** when you have selected your preferred columns.

Next, toggle the check box for the **Quantity Check** column.

7	Concrete Pour	156,875.00	Ton	<input checked="" type="checkbox"/>		Superior CI
+ 7.1	Concrete Batch One	35,000.00	Ton	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fixed
+ 7.2	Concrete Batch Two	35,000.00	Ton	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fixed
+ 7.3	Concrete Batch Three	35,000.00	Ton	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fixed
+ 7.4	Concrete Batch Four	35,000.00	Ton	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Fixed

7. **NOTE** As you check Quantity Check for the four batches of Concrete, the superior cost item Quantity Warning turns yellow. This is indicating a quantity warning. Hover your mouse over the superior cost item Quantity Warning column. Then, an overlay message appears showing the quantity discrepancy. Apply this discrepancy to the Subordinate cost items. That way, the superior cost item will be the sum of the parts.

8. The remaining quantity is 16875.00 tons which does not warrant a fifth pour.

## 15.16 COST ESCALATION OVERVIEW

Escalation is the provision in a cost estimate for increases in the cost of labor, equipment, material due to continuing price changes over time. Escalation is used to estimate the future cost of a project or to bring historical costs to the present. Most cost estimating is done in current dollars and then escalated to the time when the project will be accomplished. A good example could be the employment of union



labor over the duration of broader time scope. Often union labor will increase from one year to the next. Another could be weather changes, from summer to winter conditions.

Cost Escalation is based on a schedule and can be applied to any direct cost category by date range. Date range escalation is calculated based on each cost item's scheduled earliest start and finish dates. In this way, escalation changes when the job schedule changes, which means that if you change the schedule at any time and shift any escalated cost items and their costs from one date range to another, the value of escalation and the effective rate changes.

As a user, you have complete control over the subject cost that you would like Direct Cost Escalation to be calculated. In essence, you can override the default settings and choose any of the cost items on the CBS, or define a rule (filter) that uses all cost items matching that rule as your subject cost. For example, you can specify that the subject cost used in the calculation of Direct Cost Escalation will be all cost items in the CBS that are assigned to a pay item and whose unit of measure is cubic yards. Hand picking cost items or defining rules on which subject cost are defined is done on the Dependency tab of the Direct Cost Escalation Record.

The escalation layers represent, in the Price Breakdown Structure (PBS), cost changes that accrue over time across a cost category, based upon when the costs are scheduled to occur using the Schedule module. For example, it represents forecast wage increases that occur midway through construction, or the cost of installed material price inflation in the economy.

You can escalate a job's direct cost two ways:

1. Specify a fixed amount to any one or all of the cost categories.



Cost Breakdown				
Cost Category	Subject Cost	Rate		Cost
▼ Total	\$579,862.35	0.26		\$1,500.00
▼ Labor	\$47,100.53	3.18		\$1,500.00
Labor Base	\$35,995.82	0.00	→	\$0.00
> Labor Burden	\$11,104.71	0.00		\$0.00
Sub Labor	\$0.00	0.00	→	\$1,500.00
> Owned Equipment	\$108,878.13	0.00		\$0.00
> Rented Equipment	\$0.00	0.00		\$0.00
> Supplies	\$0.00	0.00		\$0.00
> Materials	\$403,698.75	0.00		\$0.00
> Subcontract	\$0.00	0.00		\$0.00
> Fees	\$20,184.94	0.00		\$0.00
> Allowance	\$0.00	0.00		\$0.00
Custom Category 1	\$0.00	0.00	→	\$0.00
Undefined	\$0.00	0.00	→	\$0.00

2. Specify a fixed rate to any one or all of the cost categories.

Cost Breakdown				
Cost Category	Subject Cost	Rate		Cost
▼ Total	\$579,862.35	0.24		\$1,413.02
▼ Labor	\$47,100.53	3.00		\$1,413.02
Labor Base	\$35,995.82	3.00	←	\$1,079.87
> Labor Burden	\$11,104.71	3.00		\$333.14
Sub Labor	\$0.00	3.00	←	\$0.00
> Owned Equipment	\$108,878.13	0.00		\$0.00
> Rented Equipment	\$0.00	0.00		\$0.00
> Supplies	\$0.00	0.00		\$0.00
> Materials	\$403,698.75	0.00		\$0.00
> Subcontract	\$0.00	0.00		\$0.00
> Fees	\$20,184.94	0.00		\$0.00
> Allowance	\$0.00	0.00		\$0.00
Custom Category 1	\$0.00	0.00	→	\$0.00
Undefined	\$0.00	0.00	→	\$0.00



When you specify a fixed rate, the amount varies with the cost total that it is applied. When you specify a fixed amount, the amount remains the same and the rate changes as cost totals change. The last input you make designates which method you prefer. For example, if you last input a figure in the rate field of a cost category, then it is understood that the rate is to be fixed. The specified method is indicated on the form with an arrow symbol.

To open a Direct Cost Escalation Record, follow the step by step below.

### Step by Step — Direct Cost Escalation Record

1. From the Ribbon, select the **Estimate** tab.
2. Under the Breakdown Structures section, select **Cost Breakdown Structure (CBS)**.
3. Double-click the **Direct Cost Add-On** row. The Dependent Cost Item Record opens.
4. Under Saved Views, select the **Date Range View**.
5. Setup the escalation by giving the description a time period name (Quarters for this example). Use the FromDate and ToDate field for each escalation period.

Cost Breakdown Structure (CBS) Register

Direct Cost Add-On Record

CBS Position Code:

Description:

Escalation



Description

Dependency

Cost Categorization

Allocation

Drag columns here to group

	Description	From Date	To Date	Total Cost (Forecast)	Account Code	Cost Driver
	Quarter One	2/13/2014	3/13/2014	\$2,842.30		
	Quarter Two	3/13/2014	6/13/2014	\$4,239.05		
*						

## 15.17 COST ESCALATION OVERVIEW

Escalation is the provision in a cost estimate for increases in the cost of labor, equipment, material due to continuing price changes over time. Escalation is used to estimate the future cost of a project or to bring historical costs to the present. Most cost estimating is done in current dollars and then escalated to the time when the project will be accomplished. A good example could be the employment of union



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The escalation layers represent, in the Price Breakdown Structure (PBS), cost changes that accrue over time across a cost category, based upon when the costs are scheduled to occur using the Schedule module. For example, it represents forecast wage increases that occur midway through construction, or the cost of installed material price inflation in the economy.

You can escalate a job's direct cost two ways:

1. Specify a fixed amount to any one or all of the cost categories.



Cost Breakdown				
Cost Category	Subject Cost	Rate		Cost
▼ Total	\$579,862.35	0.26		\$1,500.00
▼ Labor	\$47,100.53	3.18		\$1,500.00
Labor Base	\$35,995.82	0.00	→	\$0.00
> Labor Burden	\$11,104.71	0.00		\$0.00
Sub Labor	\$0.00	0.00	→	\$1,500.00
> Owned Equipment	\$108,878.13	0.00		\$0.00
> Rented Equipment	\$0.00	0.00		\$0.00
> Supplies	\$0.00	0.00		\$0.00
> Materials	\$403,698.75	0.00		\$0.00
> Subcontract	\$0.00	0.00		\$0.00
> Fees	\$20,184.94	0.00		\$0.00
> Allowance	\$0.00	0.00		\$0.00
Custom Category 1	\$0.00	0.00	→	\$0.00
Undefined	\$0.00	0.00	→	\$0.00

2. Specify a fixed rate to any one or all of the cost categories.

Cost Breakdown				
Cost Category	Subject Cost	Rate		Cost
▼ Total	\$579,862.35	0.24		\$1,413.02
▼ Labor	\$47,100.53	3.00		\$1,413.02
Labor Base	\$35,995.82	3.00	←	\$1,079.87
> Labor Burden	\$11,104.71	3.00		\$333.14
Sub Labor	\$0.00	3.00	←	\$0.00
> Owned Equipment	\$108,878.13	0.00		\$0.00
> Rented Equipment	\$0.00	0.00		\$0.00
> Supplies	\$0.00	0.00		\$0.00
> Materials	\$403,698.75	0.00		\$0.00
> Subcontract	\$0.00	0.00		\$0.00
> Fees	\$20,184.94	0.00		\$0.00
> Allowance	\$0.00	0.00		\$0.00
Custom Category 1	\$0.00	0.00	→	\$0.00
Undefined	\$0.00	0.00	→	\$0.00



When you specify a fixed rate, the amount varies with the cost total that it is applied. When you specify a fixed amount, the amount remains the same and the rate changes as cost totals change. The last input you make designates which method you prefer. For example, if you last input a figure in the rate field of a cost category, then it is understood that the rate is to be fixed. The specified method is indicated on the form with an arrow symbol.

To open a Direct Cost Escalation Record, follow the step by step below.

## Step by Step — Direct Cost Escalation Record

1. From the Ribbon, select the **Estimate** tab.
2. Under the Breakdown Structures section, select **Cost Breakdown Structure (CBS)**.
3. Double-click the **Direct Cost Add-On** row. The Dependent Cost Item Record opens.
4. Under Saved Views, select the **Date Range View**.
5. Setup the escalation by giving the description a time period name (Quarters for this example). Use the FromDate and ToDate field for each escalation period.

Cost Breakdown Structure (CBS) Register

Direct Cost Add-On Record

CBS Position Code:

Description:

Escalation



Description

Dependency

Cost Categorization

Allocation

Drag columns here to group

	Description	From Date	To Date	Total Cost (Forecast)	Account Code	Cost Driver
	Quarter One	2/13/2014	3/13/2014	\$2,842.30		
	Quarter Two	3/13/2014	6/13/2014	\$4,239.05		
*						

## 15.18 DEPENDENT COST ITEMS

Like the default dependent cost items you can add your own.

### NOTE

If you need to use additional dependent cost items, you can create your own, but you must delete all the existing default dependent cost items first.



The following steps walk you through deleting your existing default indirect costs so you can create your own.

## Step by Step — Deleting Existing Default Indirect Costs

1. From the Ribbon, select the **Estimate** tab.
2. Under the Breakdown Structure section, select **Cost Breakdown Structure (CBS)**.
3. Select the **Prime Bond** indirect cost item by clicking on its row header.
4. Then press and hold the Shift key while selecting the **Job Financing** indirect cost item. All your dependent indirect cost items are now selected.

Cost Breakdown Structure (CBS) Register							
Drag columns here to group							
CBS Position Code	Description	Phase Code	Allow As-Built	Cost Source	Cost Segment	Forecast (T/O)	
+	JOB						
+	Prime Bond				Office Overhead		
+	Price % Add-On				Office Overhead		
+	Direct Cost Add-On				Job Overhead		
→ +	Job Financing				Office Overhead		

5. Right click on the selection and select **Delete**.
6. Select **Yes** to confirm you want to delete the selected Cost Items. Your indirect cost items are now deleted.

You can also control which default dependent cost items are copied into new jobs from scratch. You do this in the Library from the Master CBS.

The following steps walk you through toggling the inclusion of default dependent cost items in new jobs from scratch.



## Step by Step — Toggling Default Dependent Cost Items

1. From the Ribbon, select the **File** tab.
2. Select **Library** from the left pane navigation.
3. From the Library's Ribbon, select the **Estimate** tab.
4. Under the Master Breakdown Structures section, select **Cost Breakdown Structure (CBS)**.
5. Use Column Chooser or Go To Column to bring the **Auto-Include** column into your view.
6. A check mark in the Auto-Include column indicates that those cost items in the Master CBS will be included in new jobs from scratch.

CBS Position Code	Description	Auto-Include	Cost Source	Cost Segment	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
→	JOB	<input checked="" type="checkbox"/>			1.00	Lump Sum	\$0.00	\$0.00
+	Prime Bond	<input checked="" type="checkbox"/>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Price % Add-On	<input checked="" type="checkbox"/>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Job Financing	<input checked="" type="checkbox"/>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Indirect Cost Escalation	<input type="checkbox"/>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Direct Cost Escalation	<input type="checkbox"/>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Indirect Cost Add-On	<input type="checkbox"/>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Job Management & Equipment	<input checked="" type="checkbox"/>	Detail	Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	General Expense	<input checked="" type="checkbox"/>	Detail	Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Direct Cost Add-On	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	CBS Man Hour Add-On	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	CBS Equipment Hour Add-On	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Resource Utilization Add-On	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Assembly Utilization Add-On	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Direct Cost Contingency	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00
+	Indirect Cost Adjustment	<input type="checkbox"/>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00

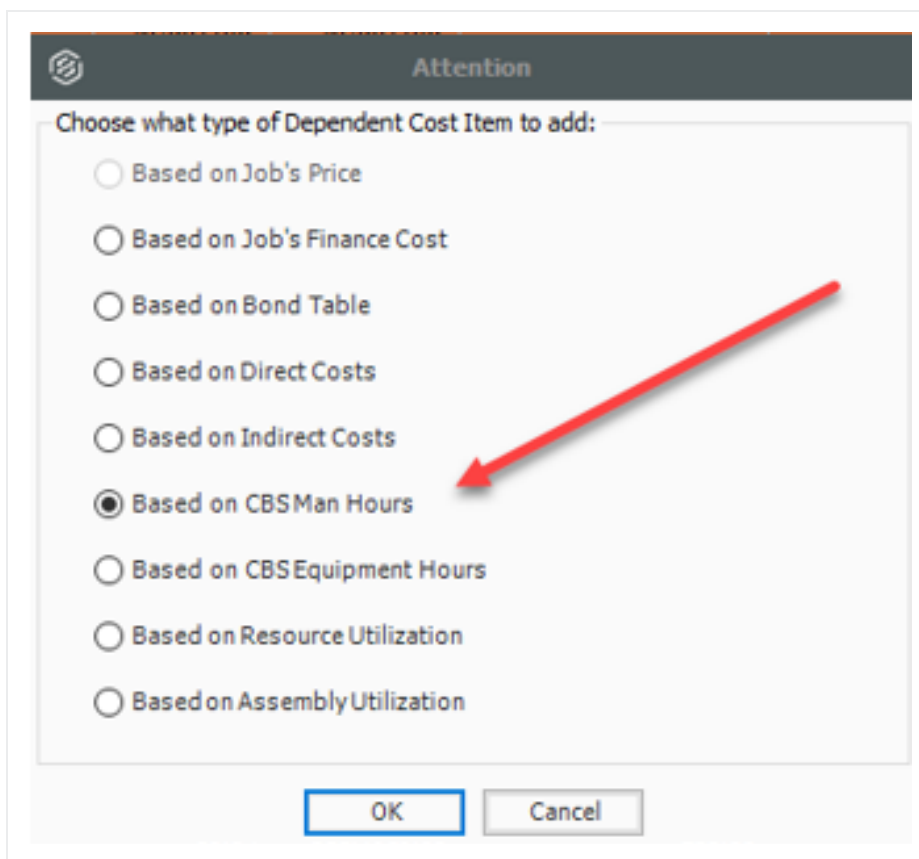
### 15.18.1 Define a Contingency Add-On based on Man Hours

The following steps walk you through adding and defining contingency based on man hours for the job.



## Step by Step — Define a Contingency Add-On

1. From the Ribbon, select the **Estimate** tab.
2. Under the Master Breakdown Structures section, select **Cost Breakdown Structure (CBS)**.
3. From the Cost Breakdown Structure (CBS) Register, right click on the row header for any cost item and select **Insert Dependent Cost Item**.
4. On the resulting Attention prompt, select **Based on CBS Man Hours**.



5. Once you are done with the Attention dialog box, Click **OK**.
6. Double click on the **CBS Man Hour Add-On** description to highlight the description title.



Cost Breakdown Structure (CBS) Register								
Drag columns here to group								
CBS Position Code	Description	Cost Source	Cost Segment	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	
	<b>JOB</b>			1.00	Lump Sum	\$5,604,903...	\$5,604,903.26	
	<b>CBS Man Hour Add-On</b>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00	
	<b>Price % Add-On</b>		Office Overhead	1.00	Lump Sum	\$0.00	\$0.00	
	<b>Direct Cost Add-On</b>		Job Overhead	1.00	Lump Sum	\$75,611.02	\$75,611.02	
	<b>Escalation</b>		Job Overhead	1.00	Lump Sum	\$0.00	\$0.00	
1	<b>Mobilization</b>	Detail	Direct Cost	1.00	Lump Sum	\$11,909.51	\$11,909.51	
2	<b>Clearing &amp; Grubbing</b>	Detail	Direct Cost	10.00	Acre	\$3,918.50	\$39,184.97	
3	<b>Undersized Excavation</b>	Detail	Direct Cost	50.000.00	Cubic Yard	\$4.68	\$233,916.81	

7. You can customize the visibility by changing the description to **Contingency**.

Drag columns here to group					
CBS Position Code	Description	Cost Source	Cost Segment	Forecast (T/O) Quantity	
	<b>JOB</b>			1.00	
	<b>Contingency</b>		Job Overhead	1.00	
	<b>Price % Add-On</b>		Office Overhead	1.00	
	<b>Direct Cost Add-On</b>		Job Overhead	1.00	
	<b>Escalation</b>		Job Overhead	1.00	

8. Double click on the newly named **Contingency** row header to open the CBS Man Hour Add-On Record.

9. From the Description tab, add a description to the Man Hour Add-On Detail.



Cost Breakdown Structure (CBS) Register

CBS Man Hour Add-On Record ✕

CBS Position Code: Description:

Contingency

Description	Dependency	Cost Categorization	Allocation		
Drag columns here to group					
	Description	Total Man-Hours	Add-on Cost/Man-Hour	Currency	Total Cost
→	Man Hour Contingency	25,948.86	\$0.00	U.S. Dollar	
*					

10. The description allows the total Man-Hours for the job to display.
11. From the record, select the Dependency tab to see what contributes to your subject to cost.

You can also refine how you build your contingency. It can be based on costs where man hours is over 10 hours. You can do this by setting a filter on the Hours (Duration driven) column and choosing **Define Subject Cost using column filtering**.

Hours (Duration driven) ▼

Forecast (T/O) Quantity

Unit Meas

Values    Numeric Filters

From 10.00    To 360.00

Clear Filter

Filter Editor

Close

☐ Define Subject Cost using the Include checkbox for the desired

☒ Define Subject Cost using column filtering
 

- All current and future items that match the filter will be included
- The filter is evaluated using the default currency and UM View

11. Define the Contingency Add-On by designating Add-On Cost/Man-Hour column.



Cost Breakdown Structure (CBS) RegisterCBS Man Hour Add-On Record

CBS Position Codes:Description:

Contingency

Description

Dependency

Cost Categorization

Allocation

Drag columns here to group

Find: [Search For...]Saved views: Prev

Description	Total Man-Hours	Add-on Cost/ Man-Hour	Currency	Total Cost (Forecast)	Tag 3	Cost Curve	Cost Driver	Account Code
Man Hour Contingency	25,812.86	\$5.00	U.S. Dollar	\$129,064.30		Employed Co...		

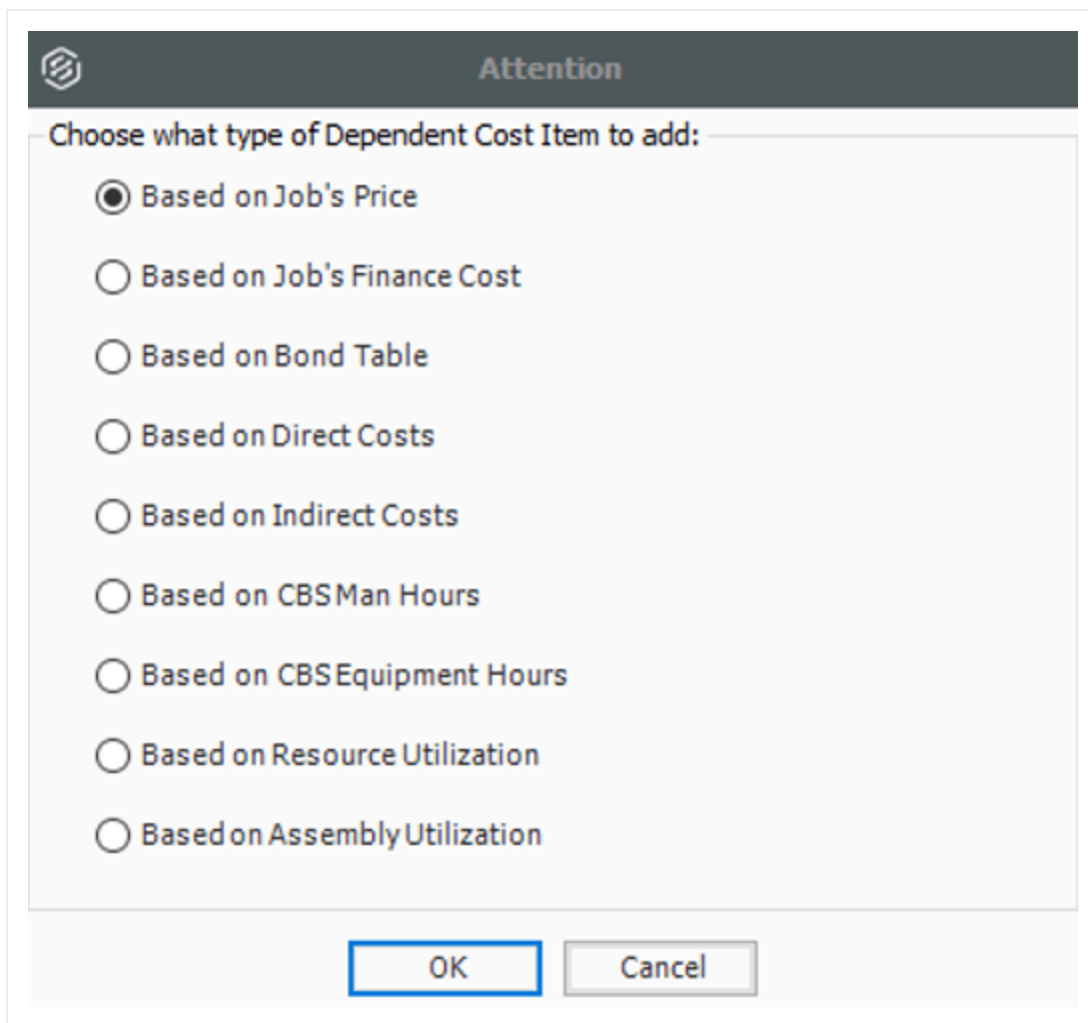
15.18.2 Defining a Price % Add-On

The following steps walk you through adding and defining Price % Add-On for the job.

Step by Step — Defining Price Add-On

- 1. From the Cost Breakdown Structure (CBS) Register, right click on the row header for any cost item and select **Insert Dependent Cost Item**.
- 2. On the resulting Attention prompt, select **Based on Job’s Price**.





The image shows a software dialog box titled "Attention" with a warning icon. It contains a list of radio buttons for selecting a "Dependent Cost Item" type. The first option, "Based on Job's Price", is selected. At the bottom are "OK" and "Cancel" buttons.

**Attention**

Choose what type of Dependent Cost Item to add:

- ☒ Based on Job's Price
- ☐ Based on Job's Finance Cost
- ☐ Based on Bond Table
- ☐ Based on Direct Costs
- ☐ Based on Indirect Costs
- ☐ Based on CBS Man Hours
- ☐ Based on CBSEquipment Hours
- ☐ Based on Resource Utilization
- ☐ Based on Assembly Utilization

OK Cancel

3. Once you are done with the Attention prompt, click **OK**.
4. Double click on the **Price % Add On** row header to open the record.
5. The Price % Add-on Record opens to the **Description** tab. Type **Office Overhead** in the Description field and type a rate of 4.
  - Office Overhead is now defined with a rate of 4% of the job's price.



Cost Breakdown Structure (CBS) Register						
Drag columns here to group						
	CBS Position Code	Description	Phase Code	Allow As-Built	Cost Source	Cost Segment
		JOB				
→	+	Price % Add-On				Office Over
	+ 1	Mobilization			Detail	Direct Cost
	+ 2	Clearing & Grubbing			Detail	Direct Cost
	+ 3	Unclassified Excavation			Detail	Direct Cost

6. Once done, click **OK** to close the record.

### 15.18.3 Defining a Direct Cost Add-On

The following steps walk you through creating a Direct Cost Add-On dependent cost item.

#### Step by Step — Define a Direct Cost Add-On

1. From the Ribbon, select the **Estimate** tab.
2. Under the Master Breakdown Structures section, select **Cost Breakdown Structure (CBS)**.
3. From the Cost Breakdown Structure (CBS) Register, right click on the row header for any cost item and select **Insert Dependent Cost Item**.
4. On the resulting Attention prompt, select **Based on Direct Costs**.
5. Once you are done with the Attention dialog box, Click **OK**.
6. Double click on the **Direct Cost Add-On** row header to open the record.
7. On the Description tab, type **Small Tools** in the blank row under the Description column.



**Cost Breakdown Structure (CBS) Register**
**Direct Cost Add-On Record**

CBS Position Code:    Description:

Direct Cost Add-On

Description	Dependency	Cost Categorization	Allocation
Drag columns here to group			
Description		Currency	Total Cost (Forecast)
→ Small Tools		U.S. Dollar	\$0.00
*			

8. You can define additional rows for other add-on costs as needed.

- The Dependency Cost Breakdown appears on the right.
- The Subject Cost is the cost that the cost item depends on, based on what is defined on the cost item's Dependency tab.



Total Cost:Alternate

\$0.00BASE

Cost Breakdown					
Cost Category	Subject Cost	Rate		Cost	
▼ Total	\$5,508,862.12	0.00		\$0.00	
> Labor	\$756,110.21	0.00		\$0.00	
> Owned Equipment	\$998,389.70	0.00		\$0.00	
> Rented Equipment	\$6,639.52	0.00		\$0.00	
> Supplies	\$25,687.50	0.00		\$0.00	
> Materials	\$3,432,341.75	0.00		\$0.00	
> Subcontract	\$113,700.00	0.00		\$0.00	
> Fees	\$172,893.44	0.00		\$0.00	
> Allowance	\$1,500.00	0.00		\$0.00	
Custom Category1	\$1,600.00	0.00	→	\$0.00	
Undefined	\$0.00	0.00	→	\$0.00	

9. Click on the Dependency tab to see what contributes to your subject cost.



**Cost Breakdown Structure (CBS) Register**
**Direct Cost Add-On Record**

CBS Position Code:    Description:

Direct Cost Add-On

Description	Dependency	Cost Categorization	Allocation
Drag columns here to group			
CBS Position Code	Description	Include	User Defined 1
<b>1</b>	<b>Mobilization</b>	<input checked="" type="checkbox"/>	
→ <b>2</b>	<b>Clearing &amp; Grubbing</b>	<input checked="" type="checkbox"/>	
3.1	Excavation	<input checked="" type="checkbox"/>	
3.2	Embankment	<input checked="" type="checkbox"/>	
4.1	Furnish & Haul Base Material	<input checked="" type="checkbox"/>	
4.2	Finegrade Subgrade	<input checked="" type="checkbox"/>	
4.3.1	Place Aggregate Base	<input checked="" type="checkbox"/>	
4.3.2	Blue Top Aggregate Base	<input checked="" type="checkbox"/>	
5.1	Furnish & Haul Hot Mix	<input checked="" type="checkbox"/>	
⚠ 5.2	Install Hot Mix Type A	<input checked="" type="checkbox"/>	
6.1	Furnish RCP Materials	<input checked="" type="checkbox"/>	
6.2	Excavate RCP Trench	<input checked="" type="checkbox"/>	

- There are a couple of options at the bottom to control how dependency items are selected. By default, the bottom radio button is selected.
  - The bottom radio button allows you to use column filtering to control what items are included.
  - The top button allows you to manually select the cost items you would like to include.

10. For this activity, leave the default (lower) button selected.



☐ Define Subject Cost using the Include checkbox for the desired items

☒ Define Subject Cost using column filtering

- All current and future items that match the filter will be included automatically.
- The filter is evaluated using the default currency and UM View Mode.

To

11. Select the **Description** tab. You can define an add-on Rate (percentage) or Cost at any of the cost category levels in the Dependency Cost Breakdown on the right side of the record.
  - You can also add a rate at the Total level to have it apply to all your cost categories.
12. Type 10 in the Rate field at the Labor cost category level, then press Tab.

Hours  
(Duration driven)

Forecast  
(T/O) Quantity

Unit  
Meas

Values

Numeric Filters

From

10.00

To

360.00

Clear Filter

Filter Editor

Close

☐ Define Subject Cost using the Include checkbox for the desired

☒ Define Subject Cost using column filtering

- All current and future items that match the filter will be includ
- The filter is evaluated using the default currency and UM Vie

13. Once you are done, click **OK** to close the record.

## 15.19 SPLIT COST ITEMS

You have miles of trench work that you need to break up into phases. You have already defined this trench cost item and entered the details defining the total cost to perform the work. You can split this cost item into 4 phases of work by using the Split feature.

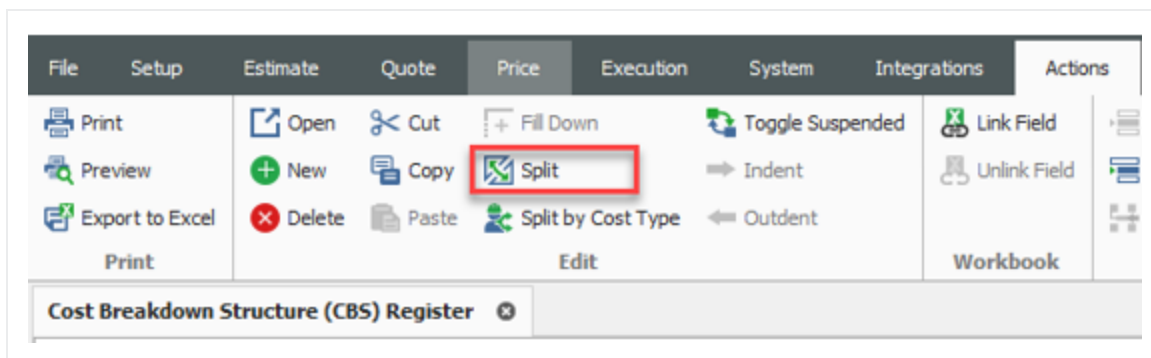


**NOTE**

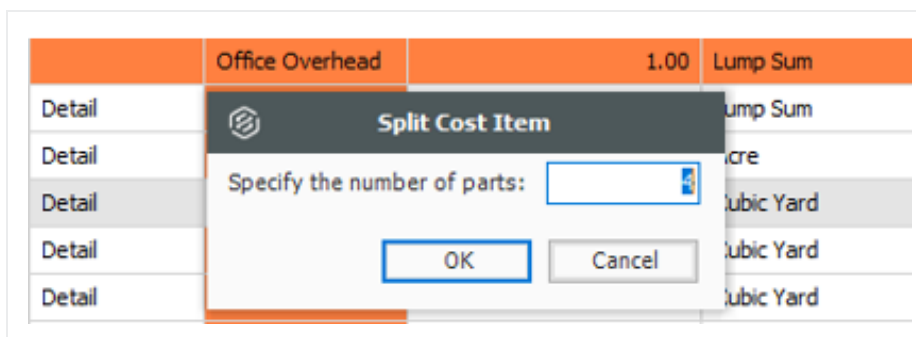
The Split feature changes your Cost Breakdown Structure. Before performing these steps, be sure you have the correct cost item selected for splitting and whether or not the change is needed.

## Step by Step — Split Cost Items

1. From the CBS Register, select the cost item you want to split.
2. From the Ribbon, select the **Actions** tab.
3. Under the Edit section, select the option.



4. When the Split Cost Item data box appears, enter in the number of parts that you want to split the selected cost item into.



5. Select **OK** to copy the previously selected cost item into 4 subordinate cost items with the same description.



3	Trench Excavation	Detail	Direct Cost
3.1	Trench Excavation - Phase I	Detail	Direct Cost
+ 3.1.1	Excavation	Detail	Direct Cost
+ 3.1.2	Embankment	Detail	Direct Cost
3.2	Trench Excavation - Phase II	Detail	Direct Cost
+ 3.2.1	Excavation	Detail	Direct Cost
+ 3.2.2	Embankment	Detail	Direct Cost
3.3	Trench Excavation - Phase III	Detail	Direct Cost
+ 3.3.1	Excavation	Detail	Direct Cost
+ 3.3.2	Embankment	Detail	Direct Cost
3.4	Trench Excavation Phase IV	Detail	Direct Cost
+ 3.4.1	Excavation	Detail	Direct Cost
+ 3.4.2	Embankment	Detail	Direct Cost

**NOTE**

If there are subordinate cost items in the split cost item, those subordinate cost items are then copied into each of the 4 new cost items. The cost item Total Forecast (T/O) Quantity is divided into 4 even quantities. This subsequently divides the cost into 4 even amounts. Add the incremental **Phase** title to the description of the 4 new subordinate Cost Items to identify them later.

## 15.20 SWAP RESOURCES

Any resource assembly on the Cost Breakdown Structure (CBS) Register or the Master Cost Breakdown Structure (CBS) Register can be swapped for any other resource. In practice, this feature is useful for making universal adjustments to the cost details. For example, you can swap a Laborer Class 1 for an Operator Class 1 or Corrugated Metal Pipe for Reinforced Concrete Pipe.

You have a great deal of control over the instances (cost items) in which you want to swap one resource for another. You can:

- Swap all instances of one resource for another on all cost items where that resource is employed, whether or not the resource employment is designated as unique.



- Swap one resource for another on all cost items where that resource is not designated as a unique resource employment.
- Swap instances of one resource for another on a select set of cost items where that resource is employed, whether or not the resource employment is designated as unique.
- Swap one resource for another on a select set of cost items where that resource is not designated as a unique resource employment.

In the original estimate, you had employed Dozer D8 for all of the Excavation work. A month after first draft of the estimate, you want to replace all of your employed Dozer D8 resources with the less expensive Dozer D6. To make this resource swap in InEight Estimate, you need to use the Resource Swap tool.

**NOTE**

Making changes in the Cost Breakdown Structure (CBS) Register can cause unexpected results. It is good practice to perform an **Archive** of the Job or confirming the changes being committed prior to swapping resources.

## Step by Step — Swapping Resources

1. From the Ribbon, select the **Actions** tab.
2. Under the View section, select the **Filter** drop down. Then select the **Filter by Resource** option.



The screenshot displays the 'Estimate' application interface. The 'More Actions' menu is open, showing the 'Filter' option highlighted. The 'Filter' dropdown menu is expanded, listing various filtering criteria. The 'Filter by Resource' option is highlighted with a red box. A red arrow points from the 'Filter' button to the 'Filter by Resource' option. Another red arrow points from the 'Filter by Resource' option to the 'Dozer D8' resource code in the 'Escavate Trench' table.

CBS Position Code	Description	Forecast (T/O) Quantity	Pay Quantity
3.1	Excavation	50,000.00	50,000.00
3.2	Embankment	50,000.00	50,000.00
27.1.3	Escavate Trench	500,000.00	500,000.00

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity
1	ETWT		Water Truck			1.0
2	ED8		Dozer D8			1.0
3	ES623		Scraper 623			2.0
4	ECO...		Compactor Smooth Dr...			1.0
5	ECO...		Compactor Sheeps Fo...			1.0
6	LL2		Laborer			1.0
7	LO4		Operator Foreman			1.0
8	ES621		Scraper 621			2.0
9	EG14G		Grader 14G			1.0
10	LO1		Operator Class 1			4.0
11	LO2		Operator Class 2			4.0

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Productivity Factor	Work Hours	Pay Hours	Unit Cost
1	CTRUCK		Truck Excavate-Load-...			1.00	Hour	0.00	900.00	900.00	\$618.72
2	OD8		Dozer D8 - Operated			1.00	Hour	0.00	200.00	200.00	\$204.22

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Productivity Factor	Work Hours
1	ED8	OD8	Dozer D8			1.00	Each		1.00
2	LO3	OD8	Operator Class 3			1.00	Each		1.00

3. When the Filter by Resource window opens, select the **Dozer D8** Resource Code.



**Resource Rate Register - Training Job**

Actions: All, Labor, Construction Equipment, Rented Construction Equipment, Installed Material, Installed Equipment

Find: Search For... Saved views: Previous View

Resource Code	Description	Resource File Description	Unit of Measure	Productivity Factor	Default Quantity
+ ED6	Dozer D6	Standard Equipment Rate ...	Hour	1.00	
+ ED8	Dozer D8	Standard Equipment Rate ...	Hour	1.00	
+ ETDT	Dump Truck	Standard Equipment Rate ...	Hour	1.00	
+ EX225	Excavator 225	Standard Equipment Rate ...	Hour	1.00	
+ EX245	Excavator 245	Standard Equipment Rate ...	Hour	1.00	
+ ETFT	Flatbed Truck	Standard Equipment Rate ...	Hour	1.00	
+ EMGEN	Generator 700 Watt	Standard Equipment Rate ...	Hour	1.00	
+ EG14G	Grader 14G	Standard Equipment Rate ...	Hour	1.00	
+ EG160H	Grader 160H	Standard Equipment Rate ...	Hour	1.00	
+ ECRHC	Hydraulic Crane 25 Ton	Standard Equipment Rate ...	Hour	1.00	

Filter By Resource

Enter the resource code of the employed resource that you want to filter to.

Resource Code:

OK Cancel

Pay Hours	Unit Cost	Total Cost (Forecast)	Currency	Tag 1	Total
900.00	\$618.72	\$61,872.46	U.S. Dollar		
200.00	\$204.22	\$20,421.89	U.S. Dollar		

Activity or Work Hours Pay Hours Unit Cost Total Cost (Forecast)

36

OK

- Once you have this filter applied, you can see all cost items that have the Dozer D8 employed. From the CBS Register, select the **More Actions** tab.
- From the Batch Operations section, select the **Swap** drop down. Then select **Swap Resource**.



File

Setup

Estimate

Quote

Price

Execution

System

Integrations

Actions

More Actions

◀▶ Swap

Remove

Update

Bid Wizard

Quantity Checking

Unit / Total Confirmation

Refresh Benchmarks

Haul Calculator

Resource Period

Import / Update CBS

Data Source

Batch Operations

Tools

Cost Breakdown Structure (CBS) Register

Drag columns here to group

CBS Position Code	Description	Forecast (T/O) Quantity	Pay Quantity	Unit of Measure
+ Direct Cost Add-On		1.00		Lump Sum
+ Job Financing		1.00		Lump Sum
+ 1 Mobilization		1.00	1.00	Lump Sum
+ 2 Clearing & Grubbing		10.00	10.00	Acre
+ 3 Unclassified Excavation		50,000.00	50,000.00	Cubic Yard
→ - 3.1 Excavation		50,000.00	50,000.00	Cubic Yard

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure
+ 1 FTWT			Water Truck			1.00	Each
→ + 2 ED8			Dozer D8			1.00	Each
+ 3 ES623			Scraper 623			2.00	Each
+ 4 ECO...			Compactor Smooth Dr...			1.00	Each
+ 5 ECO...			Compactor Sheeps Fo...			1.00	Each
+ 6 LL2			Laborer			1.00	Each
+ 7 LO4			Operator Foreman			1.00	Each
+ 8 ES621			Scraper 621			2.00	Each
+ 9 EG14G			Grader 14G			1.00	Each
+ 10 LO1			Operator Class 1			4.00	Each
+ 11 LO2			Operator Class 2			4.00	Each
+ 3.2 Embankment				50,000.00		50,000.00	Cubic Yard

File

Setup

◀▶ Swap

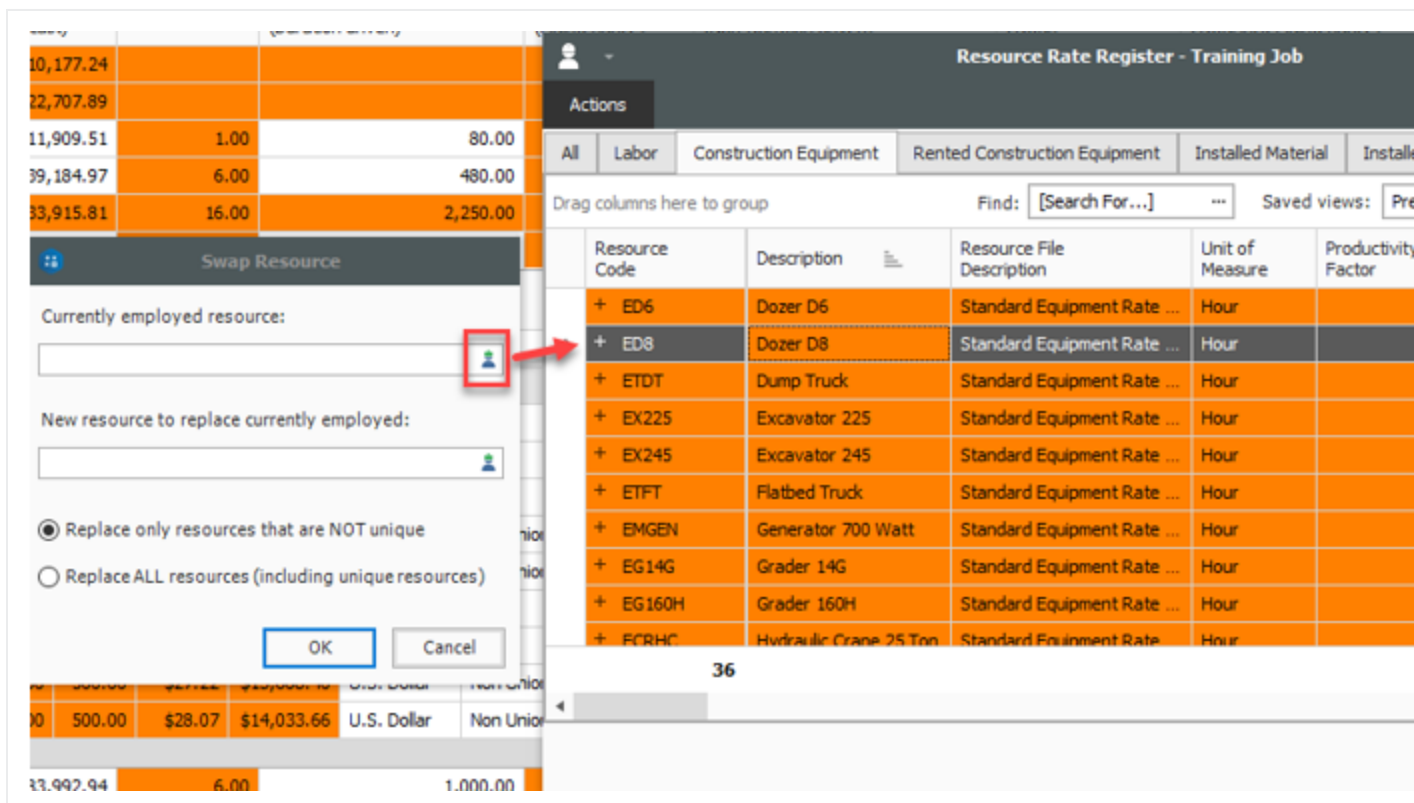
◀▶ Swap

Batch Operat

Cost Breakdo

- From the Swap Resource window, select the icon in the **Currently employed resource** section. Then choose the **Dozer D8** resource code.





7. Next Choose the **Dozer D6** resource code for the **New resource to replace currently employed** entry.
8. The radio buttons in the Swap Resource window determines if you want to replace unique resources or not. For this example, select **Replace only resources that are NOT unique**.

**NOTE**

Unique is referring to resources that have defaults overridden from what was originally designated in the Resource Rate Register. If you choose **Replace only resources that are NOT unique**, then the unique Dozers D8 resource in the cost structure will not be replaced. If you choose **Replace ALL resources (including unique resources)**, then all of the Dozers D8 resources are replaced.

9. In the next step, choose which cost items to perform the swap of Dozer D8 for Dozer D6.



3.1

Excavation

Detail

Direct Cost

50,000.00

Cubic Yard

\$3.00

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Productivity Factor	Work Hours	Pay Hours
+	1	ETWT	Water Truck			1.00	Each	1.00	44.00	44.00
→	2	ED8	Dozer D8							
+	3	ES623	Scraper 623							
+	4	ECO...	Compactor Smooth Dr...							
+	5	ECO...	Compactor Sheeps Fo...							
+	6	LL2	Laborer							
+	7	LO4	Operator Foreman							
+	8	ES621	Scraper 621							
+	9	EG14G	Grader 14G							
+	10	LO1	Operator Class 1							
+	11	LO2	Operator Class 2							

Selection Register

Drag columns here to group

Find:

Save

Include	CBS Position Code	Description	Opti Code
<input checked="" type="checkbox"/>	3.1	Excavation	3.1
<input checked="" type="checkbox"/>	3.2	Embankment	3.2
<input checked="" type="checkbox"/>	27.1.3	Excavate Trench	

Toggle Include All

Toggle Hierarchy

3.2

Embankment

Detail

Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	Unit of Measure	Productivity Factor	Work Hours	Pay Hours
+	1	LO4	Operator Foreman			3.00	Each	1.00	500.00	500.00
+	2	LL2	Laborer							
+	3	LO1	Operator Class 1			1.00	Each	1.00	166.67	166.67
→	4	EG14G	Grader 14G			1.00	Each	1.00	166.67	166.67
+	5	ED8	Dozer D8			1.00	Each	1.00	166.67	166.67
+	6	ECO...	Compactor Sheeps Fo...			1.00	Each	1.00	166.67	166.67
+	7	ETWT	Water Truck			1.00	Each	1.00	166.67	166.67
+	8	LT1	Teamster			1.00	Each	1.00	166.67	166.67

27.1.3

Excavate Trench

Detail

Direct Cost

500,000.00

Cubic Yard

\$0.17

10. For this example, choose all three cost items which have the Dozer D8 employed.
11. Click **OK** to continue.

NOTE

Because it can be difficult to revert any changes in the CBS Register you are prompted one more time as a review of the Cost Items which will be affected by the swap.



15

### Swap Resource Effect

The following Cost Items will be affected by this swap resource command:

3.1 Excavation  
3.2 Embankment  
27.1.3 Excavate Trench

OK

Cancel

Print


12. Select **OK** to continue. The CBS Register can appear blank. Remember that you have the filter applied to only show Cost Items that have the Dozer D8 employed. Remove the filter.

**Cost Breakdown Structure (CBS) Register**

Drag columns here to group

CBS Position Code	Description	Cost Source	Cost Segment	Forecast (T/O) Quantity	Unit of Measure	Unit Cost
+						

x
([Employed Resource] ED8)



13. The Dozer D6 now shows in place of the D8 Dozer.



- 3.1		Excavation			Detail	Direct Cost	
	Row Number	Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity
⚠	+	1	ETWT	Water Truck			1
	+	2	ED6	Dozer D6			1
	+	3	ES623	Scraper 623			2
	+	4	ECO...	Compactor Smooth Dr...			1
	+	5	ECO...	Compactor Sheeps Fo...			1
	+	6	LL2	Laborer			1
	+	7	LO4	Operator Foreman			1
	+	8	ES621	Scraper 621			2
	+	9	EG14G	Grader 14G			1
	+	10	LO1	Operator Class 1			4
	+	11	LO2	Operator Class 2			4

### 15.20.1 Employment Details in Swapped Resources

When swapping resources, you have the option to select the Use Default Employment Resources check box. When selected, this check box updates the employment setup values with the defaults from the new resource. This feature lets you use the default employment set up while swapping the resources.

Cost Breakdown Structure (CBS) Register				Swap Resource			
Drag columns here to group				Currently employed resource:			
CBS Position Code	Description	Fi	(T)	ETDT	Total Cost (Forecast)	Currency	
+ 3.2	Embankment				\$77,459.60	U.S. Dollar	
- 4	Aggregate Base				\$702,391.54	U.S. Dollar	
→ - 4.1	Furnish & Haul Base Material			ECRBT	\$520,575.85	U.S. Dollar	
	Row Number	Resource Assembly	Description	Quantity (Less Waste)	Total Cost (Forecast)	Currency	Tag 1
	+	3	MBR	Aggregate Bas...	\$423,88...	U.S. Dollar	Aggreg
	+	1	LT1	Teamster	\$22,290...	U.S. Dollar	Non Un
	→ +	2	ETDT	Dump Truck	\$74,401...	U.S. Dollar	Concre
	+ 4.2	Finegrade Subgrade	400,000.00	Square Yard	\$0.20	\$79,208.36	U.S. Dollar
	- 4.3	Install Aggregate Base	45,000.00	Ton	\$2.28	\$102,607.33	U.S. Dollar
	+ 4.3.1	Place Aggregate Base	45,000.00	Ton	\$1.74	\$78,500.92	U.S. Dollar



## 15.20.2 CBS Hierarchy View for Resource/Resource Assembly Swap

Toggle Hierarchy is added to the Swap Resource and Swap Resource Assembly selection registers. When selected, it allows you to view the superior cost items of your selections in the context of the CBS Register Hierarchy. This enhancement makes it easier for you to determine when the cost items you intended to select are the correct cost items.

00	Each	\$68,690,789...	\$68,690,789.87	<input type="checkbox"/>	U.S. Dollar	520,482.37	12
00	Lump Sum	\$11,909.51	\$11,909.51	<input type="checkbox"/>	U.S. Dollar	80.00	10.20.100
00	Acre	<b>Selection Register</b>					
00	Cubic						
00	Cubic						
00	Cubic	Drag columns here to group					
00	Cubic	Saved views: Standard View					
00	Ton	Include	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure
00	Ton	→ <input checked="" type="checkbox"/>	4.1.1.1	Install Feeder Controls	4.1.1.1	2.00	Each
00	Square	<input checked="" type="checkbox"/>	4.1.1.2	Raw Materials Tanks	4.1.1.2	4.00	Each
00	Ton	<input checked="" type="checkbox"/>	4.1.1.3	Blended Materials Tanks	4.1.1.3	3.00	Each
00	Ton	<input checked="" type="checkbox"/>	4.1.2.1	Install Heating System	4.1.2.1	1.00	Each
00	Square	<input checked="" type="checkbox"/>	4.1.2.2	Separator Tank	4.1.2.2	2.00	Each
00	Ton	<input checked="" type="checkbox"/>	4.1.2.3	High Pressure Pumps	4.1.2.3	4.00	Each
00	Ton	<input checked="" type="checkbox"/>	4.1.3.1	Install Recovery System	4.1.3.1	1.00	Each
00	Ton	<input checked="" type="checkbox"/>	4.1.3.2	Install Recovery System	4.1.3.2	1.00	Each
00	Each						
00	Linear	Toggle Include All Toggle Hierarchy					
00	Linear	OK Cancel					
00	Linear						
56	Cubic Yard	\$160.00	\$297,369.60	<input type="checkbox"/>	U.S. Dollar	1,319.11	17.50.120

## 15.21 COST ALLOCATION

The **Cost Item Record - Allocation** tab lets you to spread costs from a single Cost Item Record to one or more other cost items in the Cost Breakdown Structure (CBS) Register.

- **Allocation Item** - The cost item to be allocated, where you define the quantities, resource employments and the logic that determines how to allocate the item throughout the bid.



- **Allocation Target** - A cost item to be the recipient of allocated cost, as defined within the Allocation Item. There may be one or many Allocation Targets for one Allocation Item.
- **Distribution** - A read-only cost item in the CBS representing an Allocation Target's proportional share of the Allocation Item.

You can choose from several methods to determine specifically where and how much cost to spread:

- **Quantity** - Specify the amount of the Allocation Item to be spread to each Allocation Target.
- **Proportionately based on another field** - Allocate proportionately by one of many available cost item values, usually based on time or cost.
- **Percentage** - Specify the percentage of the Allocation Item to spread to each Allocation Target.
- **Unit Cost** - Use the unit cost from the Allocation Item and the quantity of each Allocation Target to drive the Forecast (T/O) Quantity of the Allocation Item.

Cost Item Allocation is a good means of spreading costs throughout a bid for the purpose of determining appropriate bid prices. You can then compare unit price in **Quote Comparison & Award**.

**NOTE**

Only Level 1 cost items can be allocated, including Add-On and Escalation dependent cost items. A subordinate cost item cannot be allocated, and a cost item that is assigned to a pay item cannot be allocated.

## 15.21.1 Cost Allocation

With Cost Item Allocation, you can track the cost of one broad cost item by distributing the cost of that item to other cost items, so that the cost can be tracked on a more detailed level. This gives better visibility into the cost that makes up an item. For example, you can spread ST&S from one cost item to multiple cost items that will use ST&S.

Imagine that a large portion of your scope of work for the job you are bidding has concrete. You face the options of batching your own raw materials or purchasing the materials from a supplier. You can use cost allocation to create the cost of a batch plant and allocate it to different items, and then compare this unit cost to the unit cost of purchasing the materials from a supplier.

The Allocation tab allows you to spread costs from an Allocation Item to one or more Allocation Target (s).

**NOTE**

In the Allocation Target list, the **[Unit of Measure] Quantity** column caption displays the Unit of Measure of the Allocation Item. For instance, if the Allocation Item's Unit of Measure is **Cubic Yards (CY)**, then the caption displayed for this column is **CY Quantity**.

A Distribution cost item is created as a read-only subordinate cost item under each Allocation Target. It is copied proportionally with the quantity/cost defined to each different item in CBS.



## 15.21.2 View Filter Excludes Cost Item Allocation Details

A View Filter option is added to show only the level 1 cost item distribution in the allocation destinations to provide you with a clear and comprehensive view of the CBS register, especially when there are many allocations. When you are allocating cost items, the allocations are created in the destination cost item by creating a copy of the entire allocated cost items structure. This filter allows you to simplify the view by displaying only the parent level allocation cost item.

File

Setup

Estimate

Quote

Price

Execution

System

Actions

More Actions

Print

Preview

Export to Excel

Print

Open

New

Delete

Open

Cut

Copy

Paste

Cut

Fill Down

Split

Split by Cost Type

Fill Down

Toggle Suspended

Indent

Outdent

Toggle Suspended

Edit

Link Field

Unlink Field

Workbook

Cost Item

Subordinate Cost Item

Dependent Cost Item

Cost Item

Assembly

Subordinate Assembly

Assembly

Resource

Resource

Resource

Insert

Job Properties

Cost Breakdown Structure (CBS) Register

Drag columns here to group

	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Allocated	Current
		JOB		20.00	Mile	\$3,996,575.15	\$79,931,503.08	<input checked="" type="checkbox"/>	U.S. D
	+	Prime Bond	PRIME BOND	1.00	Lump Sum	\$312,587.53	\$312,587.53	<input type="checkbox"/>	U.S. D
	+	Price % Add-On	PRICE % ADD-ON	1.00	Lump Sum	\$3,785,175.55	\$3,785,175.55	<input type="checkbox"/>	U.S. D
	+	Job Financing	FINANCE EXPENSE	1.00	Lump Sum	\$974,798.06	\$974,798.06	<input type="checkbox"/>	U.S. D
	+	Indirect Cost Escalation	INDIRECT COST ESCALAT...	1.00	Lump Sum	\$2,131.11	\$2,131.11	<input type="checkbox"/>	U.S. D
	+	Direct Cost Escalation	DIRECT COST ESCALATION	1.00	Lump Sum	\$687,306.87	\$687,306.87	<input type="checkbox"/>	U.S. D
	+	Indirect Cost Add-On		1.00	Lump Sum	\$46,251.26	\$46,251.26	<input type="checkbox"/>	U.S. D
	+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum	\$1,449,959.93	\$1,449,959.93	<input type="checkbox"/>	U.S. D
	1	SITEWORK & ROADWAY	200	1.00	Each	\$68,690,789...	\$68,690,789.87	<input type="checkbox"/>	U.S. D
→	+ 1.1	Mobilization	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51	<input checked="" type="checkbox"/>	U.S. D
	+ 1.2	Clearing & Grubbing	201 0102	10.00	Acre	\$3,918.50	\$39,184.97	<input type="checkbox"/>	U.S. D
	1.3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard	\$4.68	\$233,915.81	<input type="checkbox"/>	U.S. D
	+ 1.3.1	Excavation	1.3.1	50,000.00	Cubic Yard	\$3.00	\$149,922.88	<input type="checkbox"/>	U.S. D
	+ 1.3.2	Embankment	1.3.2	50,000.00	Cubic Yard	\$1.68	\$83,992.94	<input type="checkbox"/>	U.S. D
	1.4	Aggregate Base	303 5912	45,000.00	Ton	\$1,487.10	\$66,919,557.30	<input type="checkbox"/>	U.S. D
	+ 1.4.1	Furnish & Haul Base Material	1.4.1	45,000.00	Ton	\$11.54	\$519,513.30	<input type="checkbox"/>	U.S. D
	+ 1.4.2	Finegrade Subgrade	1.4.2	400,000.00	Square Yard	\$100.00	\$40,000,000.00	<input type="checkbox"/>	U.S. D

✖

[(Is Allocation Distribution Subordinate) EQUAL False]



## Step by Step — Cost Allocation

1. From the Ribbon, select the **Estimate** tab.
2. Under the Breakdown Structures section, select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure Register opens.
3. Select the **Concrete Batch Plant** cost item.

8	Project Indirect Costs	1.00	Lump Sum
+ 8.1	Crane Service	30.00	Day
9	<b>Concrete Batch Plant</b>	1,000.00	CY
+ 9.1	Buy Raw Materials	1,000.00	CY
+ 9.2	Batch/Mix/Haul Concrete	18.00	Day
10	Equipment Related Indirects	1.00	Each
+ 10.1	Maintenance	1.00	Each

4. From the Ribbon, select the Actions tab. Under the Edit section, select **Open**. The Cost Item Record opens.
5. Select the **Allocation** tab.
6. Check the box for **Allocate this Item's Cost**. Keep the **By Quantity** option selected.

☒ **Allocate this Item's Cost**

☒ Allocation distributions inherit target Pay Item Assignment

How do you want to determine allocation percentages?

☒ by Quantity

☐ proportionately based on

☐ by Percentage

☐ by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)

7. Check the **Include** box for the cost item **Box Culvert Footing** to allocate cost to it.



Drag columns here to group

	CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity
	<b>1</b>	<b>Roadway Excavation</b>	<input type="checkbox"/>	CY	344,820.24
	1.1	Short Haul Excavation	<input type="checkbox"/>	CY	74,883.28
	1.2	Medium Haul Excavation	<input type="checkbox"/>	CY	109,740.72
	1.3	Long Haul Excavation	<input type="checkbox"/>	CY	160,196.24
	<b>2</b>	<b>Structural Concrete (Class S) (FC=3,...</b>	<input type="checkbox"/>	CY	229.87
	<b>2.1</b>	<b>Box Culvert Footing</b>	<input checked="" type="checkbox"/>	CY	52.84
	2.1.1	Erect & Strip Footer	<input type="checkbox"/>	SFCA	597.00

**NOTE**

Take note of the **Allocation Percentage** and **Total Cost to be Allocated** columns. This shows the percent of the total allocation qty allocated to that cost item and the total cost to be allocated to that item (notice that is the total cost of the Concrete Batch Plant).

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity	CY Quantity	Allocation Percentage	Percent of Total Cost
<b>1</b>	<b>Roadway Excavation</b>	<input type="checkbox"/>	CY	344,820.24	0.00	0.00	0.00
1.1	Short Haul Excavation	<input type="checkbox"/>	CY	74,883.28	0.00	0.00	0.00
1.2	Medium Haul Excavation	<input type="checkbox"/>	CY	109,740.72	0.00	0.00	0.00
1.3	Long Haul Excavation	<input type="checkbox"/>	CY	160,196.24	0.00	0.00	0.00
<b>2</b>	<b>Structural Concrete (Class S) (FC=3,...</b>	<input type="checkbox"/>	CY	229.87	0.00	0.00	0.00
<b>2.1</b>	<b>Box Culvert Footing</b>	<input checked="" type="checkbox"/>	CY	52.84	52.84	5.28	100.00
2.1.1	Erect & Strip Footer	<input type="checkbox"/>	SFCA	597.00	0.00	0.00	0.00

8. The **Box Culvert Footing** item just gained all of the **Concrete Batch Plant's** distribution cost items (highlighted in purple). Navigate back to the **CBS Register**.



Drag columns here to group

	CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity	CY Quantity	Allocation Percentage
	1.3	Long Haul Excavation	<input type="checkbox"/>	CY	160,196.24	0.00	
	<b>2</b>	<b>Structural Concrete (Class S) (FC=3,...</b>	<input type="checkbox"/>	CY	229.87	0.00	
→	2.1	Box Culvert Footing	<input checked="" type="checkbox"/>	CY	52.84	52.84	
	2.1.1	Erect & Strip Footer	<input type="checkbox"/>	SFCA	597.00	0.00	
	2.1.2	Place Footer Concrete	<input type="checkbox"/>	CY	52.84	0.00	
	2.1.3	Concrete Batch Plant	<input type="checkbox"/>	CY	52.84	0.00	
	2.1.3.1	Buy Raw Materials	<input type="checkbox"/>	CY	52.84	0.00	
	2.1.3.2	Batch/Mix/Haul Concrete	<input type="checkbox"/>	Day	0.95	0.00	
	2.2	Box Culvert Walls	<input type="checkbox"/>	CY	87.86	0.00	
	2.2.1	Erect & Strip Wall	<input type="checkbox"/>	SFCA	5,757.00	0.00	
	2.2.2	Erect & Strip Bulkheads	<input type="checkbox"/>	SFCA	131.79	0.00	

9. Find the **Box Culvert** Footing cost item. The distribution cost items are added as its subordinates.

	CBS Position Code	Description	Forecast (T/O) Quantity
→		<b>JOB</b>	1.00
	<b>1</b>	<b>Roadway Excavation</b>	344,820.24
+	1.1	Short Haul Excavation	74,883.28
+	1.2	Medium Haul Excavation	109,740.72
+	1.3	Long Haul Excavation	160,196.24
	<b>2</b>	<b>Structural Concrete (Class S) (FC=3,00...</b>	229.87
	2.1	Box Culvert Footing	52.84
+	2.1.1	Erect & Strip Footer	597.00
+	2.1.2	Place Footer Concrete	52.84
	2.1.3	Concrete Batch Plant	52.84
+	2.1.3.1	Buy Raw Materials	52.84
+	2.1.3.2	Batch/Mix/Haul Concrete	0.95

10. In the Cost Item Record, check the **Include** box for the cost items, **Box Culvert Walls** and **Box Culvert Deck**.
11. In the Account Code column, click on the **Filter** icon. Filter to account code **13** for all of the concrete items. Once done, click OK.



Account Code	Alternate	Alternate Description
<input type="checkbox"/>	(Custom)	
<input type="checkbox"/>	(Blanks)	
<input type="checkbox"/>	(Non blanks)	
<input type="checkbox"/>	11.22.100	
<input type="checkbox"/>	11.22.200	
<input type="checkbox"/>	11.22.300	
<input checked="" type="checkbox"/>	13	
<input type="checkbox"/>	13.2.1	
<input type="checkbox"/>	13.3.2	
<input type="checkbox"/>	13.3.3	
<input type="checkbox"/>	13.3.4	
<input type="checkbox"/>	13.8.1	
<input type="checkbox"/>	13.8.2	



12. Select the **Erect and Strip Deck** code, hold <Shift>, and select the Footer code to multi-select all of the codes in between. Then, tight click and select **Toggle Included**.
13. Check the **Include** box in the Include column for the cost item **Column, round**. The **CY Quantity** is now highlighted yellow. This is because this cost item's UoM is **Each** and not **CY**.

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity	CY Quantity
4.2.4	East Wing Wall	<input checked="" type="checkbox"/>	CY	4.22	4.22
4.2.5	West Wing Wall	<input checked="" type="checkbox"/>	CY	4.93	4.93
4.3.1	Footer	<input checked="" type="checkbox"/>	CY	41.67	41.67
4.3.2	Column, round	<input checked="" type="checkbox"/>	Each	3.00	0.00
4.3.3	Pier cap	<input type="checkbox"/>	CY	18.67	0.00
4.4.1	Footer	<input type="checkbox"/>	CY	41.67	0.00
4.4.2	Column, round	<input type="checkbox"/>	Each	3.00	0.00

14. Right click on the Account Code column, and select **Clear Filter** from the context menu.
15. Under the cost item **Column, round**, the subordinate cost item **Place Column Concrete** has a UoM of **CY**. Manually enter that cost item's Forecast (T/O) Quantity into the Column, round's **CY Quantity** field.

	CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity
✎	4.3.2	Column, round	<input checked="" type="checkbox"/>	Each	
	4.3.2.1	Erect & Strip column forms	<input type="checkbox"/>	SFCA	50
	4.3.2.2	Install embeds	<input type="checkbox"/>	EA	
	4.3.2.3	Place Column Concrete	<input type="checkbox"/>	CY	6
	4.3.2.4	Rub & Patch	<input type="checkbox"/>	SF	50
	4.3.3	Pier cap	<input type="checkbox"/>	CY	18

16. Select the Account Code filter and reselect the option **13**.
17. In the Include column, check the **Include** box for all of the remaining cost items with this filter. Then, remove the Account Code filter.



CBS Position Code	Description	Include	Unit of Measure
4.2.5	West Wing Wall	<input checked="" type="checkbox"/>	CY
4.3.1	Footer	<input checked="" type="checkbox"/>	CY
4.3.2	Column, round	<input checked="" type="checkbox"/>	Each
4.3.3	Pier cap	<input checked="" type="checkbox"/>	CY
4.4.1	Footer	<input checked="" type="checkbox"/>	CY
4.4.2	Column, round	<input checked="" type="checkbox"/>	Each
4.4.3	Pier cap	<input checked="" type="checkbox"/>	CY
6	Drilled Shaft Foundation (60") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF
7	Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF

18. Fix the CY quantity for the other **Column, round** cost item.

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity
4.4.1.3.1	Buy Raw Materials	<input type="checkbox"/>	CY	4
4.4.1.3.2	Batch/Mix/Haul Concrete	<input type="checkbox"/>	Day	
4.4.2	Column, round	<input checked="" type="checkbox"/>	Each	
4.4.2.1	Erect & Strip column forms	<input type="checkbox"/>	SFCA	50
4.4.2.2	Install embeds	<input type="checkbox"/>	EA	
4.4.2.3	Place Column Concrete	<input type="checkbox"/>	CY	6
4.4.2.4	Rub & Patch	<input type="checkbox"/>	SF	50
4.4.3	Pier cap	<input checked="" type="checkbox"/>	CY	1
4.4.3.1	Erect & Strip Pier	<input type="checkbox"/>	SFCA	38
4.4.3.2	Erect & Strip Bulkheads	<input type="checkbox"/>	SFCA	2
4.4.3.3	Install embeds	<input type="checkbox"/>	EA	

19. Fix the CY quantity for the **Drilled Shaft Foundation (60")** cost item.



CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quant
<b>5</b>	<b>Reinforcing Steel (Structure #2929)</b>	<input type="checkbox"/>	lb	175,
5.1	Reinforcing Steel	<input type="checkbox"/>	lb	175,
<b>6</b>	<b>Drilled Shaft Foundation (60") (Structure # 2929 - Drilled Shaft Foundation)</b>	<input checked="" type="checkbox"/>	LF	
6.1	Buy Reinforcing Steel	<input type="checkbox"/>	lb	47,
6.2	Drill Abutment Shafts	<input type="checkbox"/>	LF	
6.3	Erect Rebar Cage	<input type="checkbox"/>	EA	
6.4	Place Rebar Cage	<input type="checkbox"/>	EA	
6.5	Pour Concrete	<input type="checkbox"/>	CY	
<b>7</b>	<b>Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)</b>	<input checked="" type="checkbox"/>	LF	
7.1	Buy Reinforcing Steel	<input type="checkbox"/>	lb	58,

20. 20. Fix the CY quantity for the **Drilled Shaft Foundation (72")** cost item.

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quant
6.5	Pour Concrete	<input type="checkbox"/>	CY	
<b>7</b>	<b>Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)</b>	<input checked="" type="checkbox"/>	LF	
7.1	Buy Reinforcing Steel	<input type="checkbox"/>	lb	58,
7.2	Drill Abutment Shafts	<input type="checkbox"/>	LF	
7.3	Erect Rebar Cage	<input type="checkbox"/>	EA	
7.4	Place Rebar Cage	<input type="checkbox"/>	EA	
7.5	Pour Concrete	<input type="checkbox"/>	CY	
<b>8</b>	<b>Project Indirect Costs</b>	<input type="checkbox"/>	Lump Sum	

21. Notice in the **Allocation Details** section, that we have over-allocated this cost item. The **Concrete Batch Plant** quantity is 1,000 CY, whereas we have allocated 1,172.59 CY.



**Allocation Details**

To Be Allocated  
 $\$81,895.53 \div 1,000.00 \text{ CY} = \$81.90/\text{CY}$

Current Allocation  
 $\$81,895.53 \div 1,172.59 \text{ CY} = \$69.84/\text{CY}$

**Over-Allocation of 172.5939369 CY**

### 15.21.3 Cost Allocation to By Unit Cost

Having an under allocation or over allocation is ok, but it can be fixed by updating the Forecast (T/O) Quantity of the **Concrete Batch Plant**. To do this, change the cost allocation to **by Unit Cost**.

**How do you want to determine allocation percentages?**

☐ by Quantity

☐ proportionately based on

☐ by Percentage

☒ by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)

#### Step by Step — Cost Allocation by Unit Cost

1. Change the cost allocation to **by Unit Cost**. When the Attention dialog box appears, click **Yes** to continue.
2. Now the **Allocation Details** warning states the quantities are fully allocated.



Allocation Details

To Be Allocated

$\$96,030.20 \div 1,172.59 \text{ CY} = \$81.90/\text{CY}$

Current Allocation

$\$96,030.20 \div 1,172.59 \text{ CY} = \$81.90/\text{CY}$

Quantities Fully Allocated

3. Notice also that the Forecast (T/O) Quantity of the **Concrete Batch Plant** has updated to 1,172.59 CY to match the allocated quantity, and the Total Cost has updated to \$96,030.20 to keep the unit cost at the original \$81.90/CY.

Forecast (T/O) Qty:	Unit of Measure:	Unit Cost:	Total Cost:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1,172.59"/>	<input type="text" value="CY"/>	<input type="text" value="\$81.90"/>	<input type="text" value="\$96,030.20"/>
Cost Segment:		Pay Quantity:	Cost Source:
<input type="text"/>	<input type="text" value="Job Overhead"/>	<input type="text" value="1,172.59"/>	<input type="text" value="Detail"/>

4. Return to the CBS Register. The distributed cost items all have a unit cost of \$81.90.



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
<b>JOB</b>		1.00	Lump Sum	\$1,121,620...	\$1,121,620.
<b>1</b>	<b>Roadway Excavation</b>	344,820.24	CY	\$1.55	\$535,419.
+ 1.1	Short Haul Excavation	74,883.28	CY	\$0.58	\$43,695.
+ 1.2	Medium Haul Excavation	109,740.72	CY	\$0.81	\$88,620.
+ 1.3	Long Haul Excavation	160,196.24	CY	\$2.52	\$403,103.
<b>2</b>	<b>Structural Concrete (Class 5) (FC=3,00...</b>	229.87	CY	\$377.25	\$86,719.
2.1	Box Culvert Footing	52.84	CY	\$209.15	\$11,051.
+ 2.1.1	Erect & Strip Footer	597.00	SFCA	\$10.26	\$6,123.
+ 2.1.2	Place Footer Concrete	52.84	CY	\$11.37	\$600.
2.1.3	Concrete Batch Plant	52.84	CY	\$81.90	\$4,327.
+ 2.1.3.1	Buy Raw Materials	52.84	CY	\$35.62	\$1,882.

5. The original "Concrete Batch Plant" cost item has a total cost of \$96,030.20.

+ 8.1	Crane Service	30.00	Day	\$1,871.89	\$56,156.73	U.S. Dollar
<b>9</b>	<b>Concrete Batch Plant</b>	1,172.59	CY	\$81.90	\$96,030.20	U.S. Dollar
+ 9.1	Buy Raw Materials	1,172.59	CY	\$35.62	\$41,765.74	U.S. Dollar
+ 9.2	Batch/Mix/Haul Concrete	21.11	Day	\$2,570.96	\$54,264.46	U.S. Dollar

6. Navigate to the CBS Register. Double click the **Project Indirect Costs** cost item to open it.
7. Select the **Allocation** tab. Check the box for **Allocate this Item's Cost**.

☒ **Allocate this Item's Cost**

☒ Allocation distributions inherit target Pay Item Assignment

How do you want to determine allocation percentages?
 

☒ by Quantity
 

☐ proportionately based on

☐ by Percentage
 ☐ by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)



8. Select the **proportionately based on** radio button. From the drop down, select **Shifts (Total)**.

How do you want to determine allocation percentages?

☐ by Quantity

☒ proportionately based on

☐ by Percentage

☐ by Unit Cost (drives the Allocation)

drag columns here to group

CBS Position Code	Description
----------------------	-------------

Shifts (Duration driven)

Shifts (Non-Duration driven)

Shifts (Total)

Subcontract Total Billing Amount

Subcontract Total Cost

Supplies Total Billing Amount

Supplies Total Cost

9. Filter the Account Code column to **13**. Once done, click **OK**.



Account Code	Alternate	Alternate Description
<input type="checkbox"/>	(Custom)	
<input type="checkbox"/>	(Blanks)	
<input type="checkbox"/>	(Non blanks)	
<input type="checkbox"/>	11.22.100	
<input type="checkbox"/>	11.22.200	
<input type="checkbox"/>	11.22.300	
<input checked="" type="checkbox"/>	13	
<input type="checkbox"/>	13.2.1	
<input type="checkbox"/>	13.3.2	
<input type="checkbox"/>	13.3.3	
<input type="checkbox"/>	13.3.4	
<input type="checkbox"/>	13.8.1	
<input type="checkbox"/>	13.8.2	

OK Cancel



10. Select all of the cost items. Then, right click on the selected cost items and select **Toggle included**. Ensure that all of the **Included** boxes are checked.

CBS Position Code	Description	Include	Unit of Measure
4.2.5	West Wing Wall	<input checked="" type="checkbox"/>	CY
4.3.1	Footer	<input checked="" type="checkbox"/>	CY
4.3.2	Column, round	<input checked="" type="checkbox"/>	Each
4.3.3	Pier cap	<input checked="" type="checkbox"/>	CY
4.4.1	Footer	<input checked="" type="checkbox"/>	CY
4.4.2	Column, round	<input checked="" type="checkbox"/>	Each
4.4.3	Pier cap	<input checked="" type="checkbox"/>	CY
6	Drilled Shaft Foundation (60") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF
7	Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF

11. On the CBS Register, verify that all of the items have cost items distributed proportionately by shifts.



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
+ 2.2.3	Place Wall Concrete	87.86	CY
+ 2.2.4	Rub & Patch	922.51	SF
▣ 2.2.5	Project Indirect Costs	0.29	Lump Sum
+ 2.2.5.1	Crane Service	8.67	Day
▣ 2.3	Box Culvert Deck	48.53	CY
+ 2.3.1	Erect & Strip Deck	1,310.21	SFCA
+ 2.3.2	Place Deck Concrete	48.53	CY
▣ 2.3.3	Project Indirect Costs	0.06	Lump Sum
+ 2.3.3.1	Crane Service	1.87	Day
▣ 2.4	Box Culvert Wing Walls	40.65	CY
+ 2.4.1	Erect & Strip Footings	563.67	SFCA
+ 2.4.2	Erect & Strip Wingwalls	1,067.56	SFCA
+ 2.4.3	Place Wing Wall Concrete	40.65	CY
▣ 2.4.4	Project Indirect Costs	0.16	Lump Sum
+ 2.4.4.1	Crane Service	4.82	Day
▣ 3	Reinforcing Steel (CBC Extn at STA 395...	35,372.00	lb
+ 3.1	Reinforcing Steel	35,372.00	lb
▣ 4	Structural Concrete (Class S) (FC=3,50...	306.00	CY
▣ 4.1	Abutment 1 (south)	84.00	CY
▣ 4.1.1	Footer	44.44	CY
+ 4.1.1.1	Erect & Strip Footer	300.00	SFCA
+ 4.1.1.2	Place Footer Concrete	48.88	CY
▣ 4.1.1.3	Project Indirect Costs	0.03	Lump Sum
+ 4.1.1.3.1	Crane Service	0.91	Day

## 15.22 COST ALLOCATION

The **Cost Item Record - Allocation** tab lets you to spread costs from a single Cost Item Record to one or more other cost items in the Cost Breakdown Structure (CBS) Register.

- **Allocation Item** - The cost item to be allocated, where you define the quantities, resource employments and the logic that determines how to allocate the item throughout the bid.
- **Allocation Target** - A cost item to be the recipient of allocated cost, as defined within the Allocation Item. There may be one or many Allocation Targets for one Allocation Item.



- **Distribution** - A read-only cost item in the CBS representing an Allocation Target's proportional share of the Allocation Item.

You can choose from several methods to determine specifically where and how much cost to spread:

- **Quantity** - Specify the amount of the Allocation Item to be spread to each Allocation Target.
- **Proportionately based on another field** - Allocate proportionately by one of many available cost item values, usually based on time or cost.
- **Percentage** - Specify the percentage of the Allocation Item to spread to each Allocation Target.
- **Unit Cost** - Use the unit cost from the Allocation Item and the quantity of each Allocation Target to drive the Forecast (T/O) Quantity of the Allocation Item.

Cost Item Allocation is a good means of spreading costs throughout a bid for the purpose of determining appropriate bid prices. You can then compare unit price in **Quote Comparison & Award**.

**NOTE**

Only Level 1 cost items can be allocated, including Add-On and Escalation dependent cost items. A subordinate cost item cannot be allocated, and a cost item that is assigned to a pay item cannot be allocated.

## 15.22.1 Cost Allocation

With Cost Item Allocation, you can track the cost of one broad cost item by distributing the cost of that item to other cost items, so that the cost can be tracked on a more detailed level. This gives better visibility into the cost that makes up an item. For example, you can spread ST&S from one cost item to multiple cost items that will use ST&S.

Imagine that a large portion of your scope of work for the job you are bidding has concrete. You face the options of batching your own raw materials or purchasing the materials from a supplier. You can use cost allocation to create the cost of a batch plant and allocate it to different items, and then compare this unit cost to the unit cost of purchasing the materials from a supplier.

The Allocation tab allows you to spread costs from an Allocation Item to one or more Allocation Target (s).

**NOTE**

In the Allocation Target list, the **[Unit of Measure] Quantity** column caption displays the Unit of Measure of the Allocation Item. For instance, if the Allocation Item's Unit of Measure is **Cubic Yards (CY)**, then the caption displayed for this column is **CY Quantity**.

A Distribution cost item is created as a read-only subordinate cost item under each Allocation Target. It is copied proportionally with the quantity/cost defined to each different item in CBS.



## 15.22.2 View Filter Excludes Cost Item Allocation Details

A View Filter option is added to show only the level 1 cost item distribution in the allocation destinations to provide you with a clear and comprehensive view of the CBS register, especially when there are many allocations. When you are allocating cost items, the allocations are created in the destination cost item by creating a copy of the entire allocated cost items structure. This filter allows you to simplify the view by displaying only the parent level allocation cost item.

File

Setup

Estimate

Quote

Price

Execution

System

Actions

More Actions

Print

Preview

Export to Excel

Open

New

Delete

Cut

Copy

Paste

Fill Down

Split

Split by Cost Type

Toggle Suspended

Indent

Outdent

Link Field

Unlink Field

Cost Item

Subordinate Cost Item

Dependent Cost Item

Assembly

Subordinate Assembly

Resource

Resource

Print

Edit

Workbook

Insert

Job Properties

Cost Breakdown Structure (CBS) Register

Drag columns here to group

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Allocated	Current
	JOB		20.00	Mile	\$3,996,575.15	\$79,931,503.08		U.S. D
+	Prime Bond	PRIME BOND	1.00	Lump Sum	\$312,587.53	\$312,587.53		U.S. D
+	Price % Add-On	PRICE % ADD-ON	1.00	Lump Sum	\$3,785,175.55	\$3,785,175.55		U.S. D
+	Job Financing	FINANCE EXPENSE	1.00	Lump Sum	\$974,798.06	\$974,798.06		U.S. D
+	Indirect Cost Escalation	INDIRECT COST ESCALAT...	1.00	Lump Sum	\$2,131.11	\$2,131.11		U.S. D
+	Direct Cost Escalation	DIRECT COST ESCALATION	1.00	Lump Sum	\$687,306.87	\$687,306.87		U.S. D
+	Indirect Cost Add-On		1.00	Lump Sum	\$46,251.26	\$46,251.26		U.S. D
+	Direct Cost Add-On	DIRECT COST ADD-ON	1.00	Lump Sum	\$1,449,959.93	\$1,449,959.93		U.S. D
1	SITEWORK & ROADWAY	200	1.00	Each	\$68,690,789...	\$68,690,789.87		U.S. D
→ + 1.1	Mobilization	641 0100	1.00	Lump Sum	\$11,909.51	\$11,909.51		U.S. D
+ 1.2	Clearing & Grubbing	201 0102	10.00	Acre	\$3,918.50	\$39,184.97		U.S. D
1.3	Unclassified Excavation	202 0183	50,000.00	Cubic Yard	\$4.68	\$233,915.81		U.S. D
+ 1.3.1	Excavation	1.3.1	50,000.00	Cubic Yard	\$3.00	\$149,922.88		U.S. D
+ 1.3.2	Embankment	1.3.2	50,000.00	Cubic Yard	\$1.68	\$83,992.94		U.S. D
1.4	Aggregate Base	303 5912	45,000.00	Ton	\$1,487.10	\$66,919,557.30		U.S. D
+ 1.4.1	Furnish & Haul Base Material	1.4.1	45,000.00	Ton	\$11.54	\$519,513.30		U.S. D
+ 1.4.2	Finegrade Subgrade	1.4.2	400,000.00	Square Yard	\$100.00	\$40,000,000.00		U.S. D

✖ ([Is Allocation Distribution Subordinate] EQUAL False)



## Step by Step — Cost Allocation

1. From the Ribbon, select the **Estimate** tab.
2. Under the Breakdown Structures section, select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure Register opens.
3. Select the **Concrete Batch Plant** cost item.

8	Project Indirect Costs	1.00	Lump Sum
+ 8.1	Crane Service	30.00	Day
9	<b>Concrete Batch Plant</b>	1,000.00	CY
+ 9.1	Buy Raw Materials	1,000.00	CY
+ 9.2	Batch/Mix/Haul Concrete	18.00	Day
10	Equipment Related Indirects	1.00	Each
+ 10.1	Maintenance	1.00	Each

4. From the Ribbon, select the Actions tab. Under the Edit section, select **Open**. The Cost Item Record opens.
5. Select the **Allocation** tab.
6. Check the box for **Allocate this Item's Cost**. Keep the **By Quantity** option selected.

☒ **Allocate this Item's Cost**

☒ Allocation distributions inherit target Pay Item Assignment

How do you want to determine allocation percentages?

☒ by Quantity

☐ proportionately based on

☐ by Percentage

☐ by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)

7. Check the **Include** box for the cost item **Box Culvert Footing** to allocate cost to it.



Drag columns here to group

	CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity
	<b>1</b>	<b>Roadway Excavation</b>	<input type="checkbox"/>	CY	344,820.24
	1.1	Short Haul Excavation	<input type="checkbox"/>	CY	74,883.28
	1.2	Medium Haul Excavation	<input type="checkbox"/>	CY	109,740.72
	1.3	Long Haul Excavation	<input type="checkbox"/>	CY	160,196.24
	<b>2</b>	<b>Structural Concrete (Class S) (FC=3,...</b>	<input type="checkbox"/>	CY	229.87
	2.1	Box Culvert Footing	<input checked="" type="checkbox"/>	CY	52.84
	2.1.1	Erect & Strip Footer	<input type="checkbox"/>	SFCA	597.00

**NOTE**

Take note of the **Allocation Percentage** and **Total Cost to be Allocated** columns. This shows the percent of the total allocation qty allocated to that cost item and the total cost to be allocated to that item (notice that is the total cost of the Concrete Batch Plant).

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity	CY Quantity	Allocation Percentage	Percent of Total Cost
<b>1</b>	<b>Roadway Excavation</b>	<input type="checkbox"/>	CY	344,820.24	0.00	0.00	0.00
1.1	Short Haul Excavation	<input type="checkbox"/>	CY	74,883.28	0.00	0.00	0.00
1.2	Medium Haul Excavation	<input type="checkbox"/>	CY	109,740.72	0.00	0.00	0.00
1.3	Long Haul Excavation	<input type="checkbox"/>	CY	160,196.24	0.00	0.00	0.00
<b>2</b>	<b>Structural Concrete (Class S) (FC=3,...</b>	<input type="checkbox"/>	CY	229.87	0.00	0.00	0.00
2.1	Box Culvert Footing	<input checked="" type="checkbox"/>	CY	52.84	52.84	5.28	100.00
2.1.1	Erect & Strip Footer	<input type="checkbox"/>	SFCA	597.00	0.00	0.00	0.00

8. The **Box Culvert Footing** item just gained all of the **Concrete Batch Plant's** distribution cost items (highlighted in purple). Navigate back to the **CBS Register**.



Drag columns here to group

	CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity	CY Quantity	Allocation Percentage
	1.3	Long Haul Excavation	<input type="checkbox"/>	CY	160,196.24	0.00	
	<b>2</b>	<b>Structural Concrete (Class S) (FC=3,...</b>	<input type="checkbox"/>	CY	229.87	0.00	
→	2.1	Box Culvert Footing	<input checked="" type="checkbox"/>	CY	52.84	52.84	
	2.1.1	Erect & Strip Footer	<input type="checkbox"/>	SFCA	597.00	0.00	
	2.1.2	Place Footer Concrete	<input type="checkbox"/>	CY	52.84	0.00	
	2.1.3	Concrete Batch Plant	<input type="checkbox"/>	CY	52.84	0.00	
	2.1.3.1	Buy Raw Materials	<input type="checkbox"/>	CY	52.84	0.00	
	2.1.3.2	Batch/Mix/Haul Concrete	<input type="checkbox"/>	Day	0.95	0.00	
	2.2	Box Culvert Walls	<input type="checkbox"/>	CY	87.86	0.00	
	2.2.1	Erect & Strip Wall	<input type="checkbox"/>	SFCA	5,757.00	0.00	
	2.2.2	Erect & Strip Bulkheads	<input type="checkbox"/>	SFCA	131.79	0.00	

9. Find the **Box Culvert** Footing cost item. The distribution cost items are added as its subordinates.

	CBS Position Code	Description	Forecast (T/O) Quantity
→		<b>JOB</b>	1.00
	<b>1</b>	<b>Roadway Excavation</b>	344,820.24
+	1.1	Short Haul Excavation	74,883.28
+	1.2	Medium Haul Excavation	109,740.72
+	1.3	Long Haul Excavation	160,196.24
	<b>2</b>	<b>Structural Concrete (Class S) (FC=3,00...</b>	229.87
	2.1	Box Culvert Footing	52.84
+	2.1.1	Erect & Strip Footer	597.00
+	2.1.2	Place Footer Concrete	52.84
	2.1.3	Concrete Batch Plant	52.84
+	2.1.3.1	Buy Raw Materials	52.84
+	2.1.3.2	Batch/Mix/Haul Concrete	0.95

10. In the Cost Item Record, check the **Include** box for the cost items, **Box Culvert Walls** and **Box Culvert Deck**.
11. In the Account Code column, click on the **Filter** icon. Filter to account code **13** for all of the concrete items. Once done, click OK.



Account Code	Alternate	Alternate Description
<input type="checkbox"/>	(Custom)	
<input type="checkbox"/>	(Blanks)	
<input type="checkbox"/>	(Non blanks)	
<input type="checkbox"/>	11.22.100	
<input type="checkbox"/>	11.22.200	
<input type="checkbox"/>	11.22.300	
<input checked="" type="checkbox"/>	13	
<input type="checkbox"/>	13.2.1	
<input type="checkbox"/>	13.3.2	
<input type="checkbox"/>	13.3.3	
<input type="checkbox"/>	13.3.4	
<input type="checkbox"/>	13.8.1	
<input type="checkbox"/>	13.8.2	



12. Select the **Erect and Strip Deck** code, hold **<Shift>**, and select the Footer code to multi-select all of the codes in between. Then, tight click and select **Toggle Included**.
13. Check the **Include** box in the Include column for the cost item **Column, round**. The **CY Quantity** is now highlighted yellow. This is because this cost item's UoM is **Each** and not **CY**.

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity	CY Quantity
4.2.4	East Wing Wall	<input checked="" type="checkbox"/>	CY	4.22	4.22
4.2.5	West Wing Wall	<input checked="" type="checkbox"/>	CY	4.93	4.93
4.3.1	Footer	<input checked="" type="checkbox"/>	CY	41.67	41.67
4.3.2	Column, round	<input checked="" type="checkbox"/>	Each	3.00	0.00
4.3.3	Pier cap	<input type="checkbox"/>	CY	18.67	0.00
4.4.1	Footer	<input type="checkbox"/>	CY	41.67	0.00
4.4.2	Column, round	<input type="checkbox"/>	Each	3.00	0.00

14. Right click on the Account Code column, and select **Clear Filter** from the context menu.
15. Under the cost item **Column, round**, the subordinate cost item **Place Column Concrete** has a UoM of **CY**. Manually enter that cost item's Forecast (T/O) Quantity into the Column, round's **CY Quantity** field.

	CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity
✎	4.3.2	Column, round	<input checked="" type="checkbox"/>	Each	
	4.3.2.1	Erect & Strip column forms	<input type="checkbox"/>	SFCA	50
	4.3.2.2	Install embeds	<input type="checkbox"/>	EA	
	4.3.2.3	Place Column Concrete	<input type="checkbox"/>	CY	6
	4.3.2.4	Rub & Patch	<input type="checkbox"/>	SF	50
	4.3.3	Pier cap	<input type="checkbox"/>	CY	18

16. Select the Account Code filter and reselect the option **13**.
17. In the Include column, check the **Include** box for all of the remaining cost items with this filter. Then, remove the Account Code filter.



CBS Position Code	Description	Include	Unit of Measure
4.2.5	West Wing Wall	<input checked="" type="checkbox"/>	CY
4.3.1	Footer	<input checked="" type="checkbox"/>	CY
4.3.2	Column, round	<input checked="" type="checkbox"/>	Each
4.3.3	Pier cap	<input checked="" type="checkbox"/>	CY
4.4.1	Footer	<input checked="" type="checkbox"/>	CY
4.4.2	Column, round	<input checked="" type="checkbox"/>	Each
4.4.3	Pier cap	<input checked="" type="checkbox"/>	CY
6	Drilled Shaft Foundation (60") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF
7	Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF

18. Fix the CY quantity for the other **Column, round** cost item.

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quantity
4.4.1.3.1	Buy Raw Materials	<input type="checkbox"/>	CY	4
4.4.1.3.2	Batch/Mix/Haul Concrete	<input type="checkbox"/>	Day	
4.4.2	Column, round	<input checked="" type="checkbox"/>	Each	
4.4.2.1	Erect & Strip column forms	<input type="checkbox"/>	SFCA	50
4.4.2.2	Install embeds	<input type="checkbox"/>	EA	
4.4.2.3	Place Column Concrete	<input type="checkbox"/>	CY	6
4.4.2.4	Rub & Patch	<input type="checkbox"/>	SF	50
4.4.3	Pier cap	<input checked="" type="checkbox"/>	CY	1
4.4.3.1	Erect & Strip Pier	<input type="checkbox"/>	SFCA	38
4.4.3.2	Erect & Strip Bulkheads	<input type="checkbox"/>	SFCA	2
4.4.3.3	Install embeds	<input type="checkbox"/>	EA	

19. Fix the CY quantity for the **Drilled Shaft Foundation (60")** cost item.



CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quant
<b>5</b>	<b>Reinforcing Steel (Structure #2929)</b>	<input type="checkbox"/>	lb	175,
5.1	Reinforcing Steel	<input type="checkbox"/>	lb	175,
<b>6</b>	<b>Drilled Shaft Foundation (60") (Structure # 2929 - Drilled Shaft Foundation)</b>	<input checked="" type="checkbox"/>	LF	
6.1	Buy Reinforcing Steel	<input type="checkbox"/>	lb	47,
6.2	Drill Abutment Shafts	<input type="checkbox"/>	LF	
6.3	Erect Rebar Cage	<input type="checkbox"/>	EA	
6.4	Place Rebar Cage	<input type="checkbox"/>	EA	
6.5	Pour Concrete	<input type="checkbox"/>	CY	
<b>7</b>	<b>Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)</b>	<input checked="" type="checkbox"/>	LF	
7.1	Buy Reinforcing Steel	<input type="checkbox"/>	lb	58,

20. 20. Fix the CY quantity for the **Drilled Shaft Foundation (72")** cost item.

CBS Position Code	Description	Include	Unit of Measure	Forecast (T/O) Quant
6.5	Pour Concrete	<input type="checkbox"/>	CY	
<b>7</b>	<b>Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)</b>	<input checked="" type="checkbox"/>	LF	
7.1	Buy Reinforcing Steel	<input type="checkbox"/>	lb	58,
7.2	Drill Abutment Shafts	<input type="checkbox"/>	LF	
7.3	Erect Rebar Cage	<input type="checkbox"/>	EA	
7.4	Place Rebar Cage	<input type="checkbox"/>	EA	
7.5	Pour Concrete	<input type="checkbox"/>	CY	
<b>8</b>	<b>Project Indirect Costs</b>	<input type="checkbox"/>	Lump Sum	

21. Notice in the **Allocation Details** section, that we have over-allocated this cost item. The **Concrete Batch Plant** quantity is 1,000 CY, whereas we have allocated 1,172.59 CY.



**Allocation Details**

To Be Allocated  
 $\$81,895.53 \div 1,000.00 \text{ CY} = \$81.90/\text{CY}$

Current Allocation  
 $\$81,895.53 \div 1,172.59 \text{ CY} = \$69.84/\text{CY}$

**Over-Allocation of 172.5939369 CY**

### 15.22.3 Cost Allocation to By Unit Cost

Having an under allocation or over allocation is ok, but it can be fixed by updating the Forecast (T/O) Quantity of the **Concrete Batch Plant**. To do this, change the cost allocation to **by Unit Cost**.

**How do you want to determine allocation percentages?**

☐ by Quantity

☐ proportionately based on

☐ by Percentage

☒ by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)

#### Step by Step — Cost Allocation by Unit Cost

1. Change the cost allocation to **by Unit Cost**. When the Attention dialog box appears, click **Yes** to continue.
2. Now the **Allocation Details** warning states the quantities are fully allocated.



Allocation Details

To Be Allocated

$\$96,030.20 \div 1,172.59 \text{ CY} = \$81.90/\text{CY}$

Current Allocation

$\$96,030.20 \div 1,172.59 \text{ CY} = \$81.90/\text{CY}$

Quantities Fully Allocated

3. Notice also that the Forecast (T/O) Quantity of the **Concrete Batch Plant** has updated to 1,172.59 CY to match the allocated quantity, and the Total Cost has updated to \$96,030.20 to keep the unit cost at the original \$81.90/CY.

Forecast (T/O) Qty:	Unit of Measure:	Unit Cost:	Total Cost:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1,172.59"/>	<input type="text" value="CY"/>	<input type="text" value="\$81.90"/>	<input type="text" value="\$96,030.20"/>
Cost Segment:		Pay Quantity:	Cost Source:
<input type="text"/>	<input type="text" value="Job Overhead"/>	<input type="text" value="1,172.59"/>	<input type="text" value="Detail"/>

4. Return to the CBS Register. The distributed cost items all have a unit cost of \$81.90.



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
<b>JOB</b>		1.00	Lump Sum	\$1,121,620...	\$1,121,620.
<b>1</b>	<b>Roadway Excavation</b>	344,820.24	CY	\$1.55	\$535,419.
+ 1.1	Short Haul Excavation	74,883.28	CY	\$0.58	\$43,695.
+ 1.2	Medium Haul Excavation	109,740.72	CY	\$0.81	\$88,620.
+ 1.3	Long Haul Excavation	160,196.24	CY	\$2.52	\$403,103.
<b>2</b>	<b>Structural Concrete (Class 5) (FC=3,00...</b>	229.87	CY	\$377.25	\$86,719.
2.1	Box Culvert Footing	52.84	CY	\$209.15	\$11,051.
+ 2.1.1	Erect & Strip Footer	597.00	SFCA	\$10.26	\$6,123.
+ 2.1.2	Place Footer Concrete	52.84	CY	\$11.37	\$600.
2.1.3	Concrete Batch Plant	52.84	CY	\$81.90	\$4,327.
+ 2.1.3.1	Buy Raw Materials	52.84	CY	\$35.62	\$1,882.

5. The original "Concrete Batch Plant" cost item has a total cost of \$96,030.20.

+ 8.1	Crane Service	30.00	Day	\$1,871.89	\$56,156.73	U.S. Dollar
<b>9</b>	<b>Concrete Batch Plant</b>	1,172.59	CY	\$81.90	\$96,030.20	U.S. Dollar
+ 9.1	Buy Raw Materials	1,172.59	CY	\$35.62	\$41,765.74	U.S. Dollar
+ 9.2	Batch/Mix/Haul Concrete	21.11	Day	\$2,570.96	\$54,264.46	U.S. Dollar

6. Navigate to the CBS Register. Double click the **Project Indirect Costs** cost item to open it.
7. Select the **Allocation** tab. Check the box for **Allocate this Item's Cost**.

☒ **Allocate this Item's Cost**

☒ Allocation distributions inherit target Pay Item Assignment

How do you want to determine allocation percentages?
 

☒ by Quantity
 ☐ proportionately based on 
☐ by Percentage
 ☐ by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)



8. Select the **proportionately based on** radio button. From the drop down, select **Shifts (Total)**.

How do you want to determine allocation percentages?

☐ by Quantity

☒ proportionately based on

☐ by Percentage

☐ by Unit Cost (drives the Allocation)

drag columns here to group

CBS Position Code	Description
----------------------	-------------

Shifts (Duration driven)

Shifts (Non-Duration driven)

Shifts (Total)

Subcontract Total Billing Amount

Subcontract Total Cost

Supplies Total Billing Amount

Supplies Total Cost

9. Filter the Account Code column to **13**. Once done, click **OK**.



Account Code	Alternate	Alternate Description
<input type="checkbox"/>	(Custom)	
<input type="checkbox"/>	(Blanks)	
<input type="checkbox"/>	(Non blanks)	
<input type="checkbox"/>	11.22.100	
<input type="checkbox"/>	11.22.200	
<input type="checkbox"/>	11.22.300	
<input checked="" type="checkbox"/>	13	
<input type="checkbox"/>	13.2.1	
<input type="checkbox"/>	13.3.2	
<input type="checkbox"/>	13.3.3	
<input type="checkbox"/>	13.3.4	
<input type="checkbox"/>	13.8.1	
<input type="checkbox"/>	13.8.2	

OK Cancel



10. Select all of the cost items. Then, right click on the selected cost items and select **Toggle included**. Ensure that all of the **Included** boxes are checked.

CBS Position Code	Description	Include	Unit of Measure
4.2.5	West Wing Wall	<input checked="" type="checkbox"/>	CY
4.3.1	Footer	<input checked="" type="checkbox"/>	CY
4.3.2	Column, round	<input checked="" type="checkbox"/>	Each
4.3.3	Pier cap	<input checked="" type="checkbox"/>	CY
4.4.1	Footer	<input checked="" type="checkbox"/>	CY
4.4.2	Column, round	<input checked="" type="checkbox"/>	Each
4.4.3	Pier cap	<input checked="" type="checkbox"/>	CY
6	Drilled Shaft Foundation (60") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF
7	Drilled Shaft Foundation (72") (Structure # 2929 - Drilled Shaft Foundation)	<input checked="" type="checkbox"/>	LF

11. On the CBS Register, verify that all of the items have cost items distributed proportionately by shifts.




CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
+ 2.2.3	Place Wall Concrete	87.86	CY
+ 2.2.4	Rub & Patch	922.51	SF
▣ 2.2.5	Project Indirect Costs	0.29	Lump Sum
+ 2.2.5.1	Crane Service	8.67	Day
▣ 2.3	Box Culvert Deck	48.53	CY
+ 2.3.1	Erect & Strip Deck	1,310.21	SFCA
+ 2.3.2	Place Deck Concrete	48.53	CY
▣ 2.3.3	Project Indirect Costs	0.06	Lump Sum
+ 2.3.3.1	Crane Service	1.87	Day
▣ 2.4	Box Culvert Wing Walls	40.65	CY
+ 2.4.1	Erect & Strip Footings	563.67	SFCA
+ 2.4.2	Erect & Strip Wingwalls	1,067.56	SFCA
+ 2.4.3	Place Wing Wall Concrete	40.65	CY
▣ 2.4.4	Project Indirect Costs	0.16	Lump Sum
+ 2.4.4.1	Crane Service	4.82	Day
▣ 3	Reinforcing Steel (CBC Extn at STA 395...	35,372.00	lb
+ 3.1	Reinforcing Steel	35,372.00	lb
▣ 4	Structural Concrete (Class S) (FC=3,50...	306.00	CY
▣ 4.1	Abutment 1 (south)	84.00	CY
▣ 4.1.1	Footer	44.44	CY
+ 4.1.1.1	Erect & Strip Footer	300.00	SFCA
+ 4.1.1.2	Place Footer Concrete	48.88	CY
▣ 4.1.1.3	Project Indirect Costs	0.03	Lump Sum
+ 4.1.1.3.1	Crane Service	0.91	Day

## 15.23 DEPENDENT COST ITEM ALLOCATION

### Step by Step — Dependent Cost Item Allocation

1. From the CBS Register, right click on the first cost item and select **Insert Dependent Cost Item** from the context menu.
2. When the Attention dialog box shows, select **Based on Direct Costs**. Once done, click **OK**.





Attention

Choose what type of Dependent Cost Item to add:

☐

Based on Job's Price

☐

Based on Job's Finance Cost☐☒☐☐☐☐☐

OK

Cancel

3. Find your new cost item. Then double click to open the cost item record.

8	Project Indirect Costs	1.00	Lump Sum	\$56,156.73	\$56,156.73
+ 8.1	Crane Service	30.00	Day	\$1,871.89	\$1,871.89
9	Concrete Batch Plant	1,172.59	CY	\$81.90	\$81.90
+ 9.1	Buy Raw Materials	1,172.59	CY	\$35.62	\$35.62
+ 9.2	Batch/Mix/Haul Concrete	21.11	Day	\$2,570.96	\$2,570.96
10	Equipment Related Indirects	1.00	Each	\$76,467.24	\$76,467.24
+ 10.1	Maintenance	1.00	Each	\$76,467.24	\$76,467.24
	Direct Cost Add-On	1.00	Lump Sum	\$0.00	\$0.00

4. In the CBS Position Code Description, enter the description **Small Tools & Supplies**.
5. Enter in the cost item, "ST&S".



Drag columns here to group

	Description	Currency	Total Cost (Forecast)
→	ST&S	U.S. Dollar	\$0.00
*			

6. In the Cost Breakdown default data block, set the labor rate as **5%**.

Cost Breakdown					×
Cost Category	Subject Cost	Rate		Cost	
▼ Total	\$1,003,3...	0.00		\$0.00	
▶ Labor	\$217,258...	5		\$0.00	
▶ Owned Equipment	\$545,478...	0.00		\$0.00	
▶ Rented Equipment	\$0.00	0.00		\$0.00	

7. In the Cost Item Record, select the **Cost Categorization** tab.
8. Under the Cost Categorization Method, select the **Use Custom Categorization** radio button.

Cost Segment: Job Overhead

Cost Categorization Method: ☐ Use Default Categorization

☒ Use Custom Categorization

9. Find the **Supplies** Cost Category and check the box next to **Supplies**.
10. Select the **Allocation** tab. Then, check the box for **Allocate this Item's Cost**.
11. Select the **proportionately based on** radio button. From the drop down, select **Labor Total Cost**.



DescriptionDependencyCost CategorizationAllocation

☒ Allocate this Item's Cost

☒ Allocation distributions inherit target Pay Item Assignment

How do you want to determine allocation percentages?

☐ by Quantity

☒ proportionately based on

☐ by Percentage

☐ by Unit Cost (drives the Allocation)

Forecast (T/O) Quantity

Hours (Duration driven)

Hours (Non-Duration driven)

Hours (Total)

Labor Total Billing Amount

Labor Total Cost

Man Count

Drag columns here to group

CBS  
Position Code

Description

12. In the Cost Item Record, filter the **Account Code** column to **13**. Once you are done selecting the filter, click **OK**.



Account Code	Alternate	Alternate Description
<input type="checkbox"/> (Custom)		
<input type="checkbox"/> (Blanks)		
<input type="checkbox"/> (Non blanks)		
<input type="checkbox"/> 11.22.100		
<input type="checkbox"/> 11.22.200		
<input type="checkbox"/> 11.22.300		
<input checked="" type="checkbox"/> 13		
<input type="checkbox"/> 13.2.1		
<input type="checkbox"/> 13.3.2		
<input type="checkbox"/> 13.3.3		
<input type="checkbox"/> 13.3.4		
<input type="checkbox"/> 13.8.1		
<input type="checkbox"/> 13.8.2		

13. In the Cost Item Record, check the **Include** box in the Include column for every cost item.
14. Return to the CBS Register. The ST&S is distributed to all of the selected cost items.



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
	<b>JOB</b>	1.00	Lump Sum	\$1,132,483...	\$1,132,483.91
	<b>Small Tools &amp; Supplies</b>	1.00	Lump Sum	\$10,862.95	\$10,862.95
<b>1</b>	<b>Roadway Excavation</b>	344,820.24	CY	\$1.55	\$535,419.74
+ 1.1	Short Haul Excavation	74,883.28	CY	\$0.58	\$43,695.89
+ 1.2	Medium Haul Excavation	109,740.72	CY	\$0.81	\$88,620.58
+ 1.3	Long Haul Excavation	160,196.24	CY	\$2.52	\$403,103.26
<b>2</b>	<b>Structural Concrete (Class S) (FC=3,00...</b>	229.87	CY	\$429.05	\$98,628.03
2.1	Box Culvert Footing	52.84	CY	\$136.60	\$7,218.11
+ 2.1.1	Erect & Strip Footer	597.00	SFCA	\$10.26	\$6,123.68
+ 2.1.2	Place Footer Concrete	52.84	CY	\$11.37	\$600.65
+ 2.1.3	Small Tools & Supplies	0.05	Lump Sum	\$10,862.95	\$493.77
2.2	Box Culvert Walls	87.86	CY	\$572.99	\$50,341.83
+ 2.2.1	Erect & Strip Wall	5,757.00	SFCA	\$5.13	\$29,525.99
+ 2.2.2	Erect & Strip Bulkheads	131.79	SFCA	\$15.39	\$2,027.69
+ 2.2.3	Place Wall Concrete	87.86	CY	\$17.05	\$1,498.08
+ 2.2.4	Rub & Patch	922.51	SF	\$0.61	\$561.08
2.2.5	Project Indirect Costs	0.29	Lump Sum	\$56,156.73	\$16,235.20
+ 2.2.5.1	Crane Service	8.67	Day	\$1,871.89	\$16,235.20
+ 2.2.6	Small Tools & Supplies	0.05	Lump Sum	\$10,862.95	\$493.77
2.3	Box Culvert Deck	48.53	CY	\$237.72	\$11,535.59
+ 2.3.1	Erect & Strip Deck	1,310.21	SFCA	\$5.13	\$6,719.68
+ 2.3.2	Place Deck Concrete	48.53	CY	\$17.05	\$827.43
2.3.3	Project Indirect Costs	0.06	Lump Sum	\$56,156.73	\$3,494.71
+ 2.3.3.1	Crane Service	1.87	Day	\$1,871.89	\$3,494.71
+ 2.3.4	Small Tools & Supplies	0.05	Lump Sum	\$10,862.95	\$493.77
2.4	Box Culvert Wing Walls	40.65	CY	\$726.51	\$29,532.50
+ 2.4.1	Erect & Strip Footings	563.67	SFCA	\$5.13	\$2,890.88
+ 2.4.2	Erect & Strip Wingwalls	1,067.56	SFCA	\$15.39	\$16,425.66
+ 2.4.3	Place Wing Wall Concrete	40.65	CY	\$17.05	\$693.13
2.4.4	Project Indirect Costs	0.16	Lump Sum	\$56,156.73	\$9,029.05
+ 2.4.4.1	Crane Service	4.82	Day	\$1,871.89	\$9,029.05
+ 2.4.5	Small Tools & Supplies	0.05	Lump Sum	\$10,862.95	\$493.77
<b>3</b>	<b>Reinforcing Steel (CBC Extn at STA 395...</b>	35,372.00	lb	\$0.73	\$25,750.82

## 15.23.1 Turning Off Cost Allocation

If you determine that you no longer want to spread the cost of an Allocation Item, you can turn off cost allocation for that cost item. The logic that you created to spread the costs are retained, so you can easily turn it back on later.

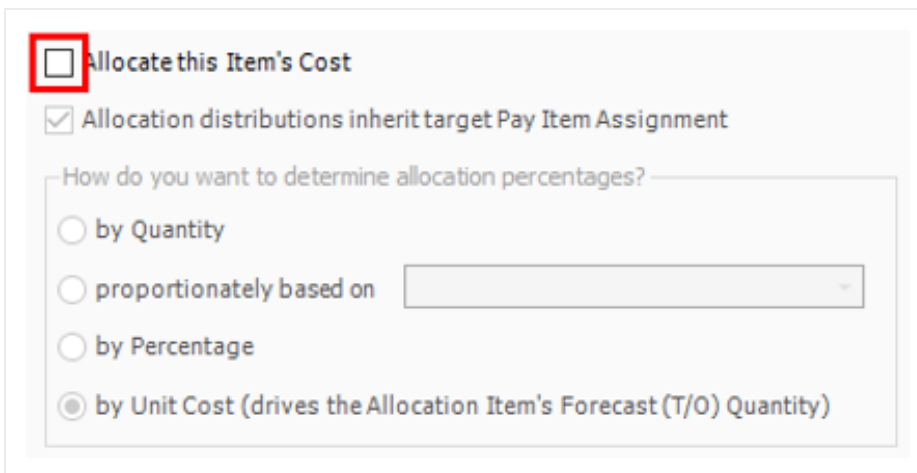


**NOTE**

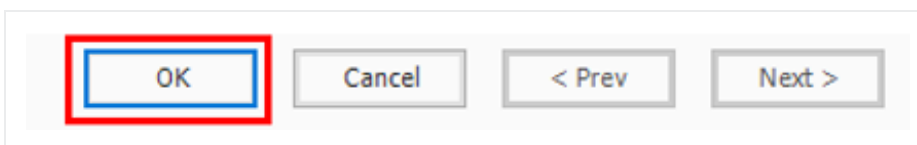
Distributions cannot exist in the CBS when a job is published for Job Tracking. To remove Distributions, either break the Cost Allocation link or uncheck the **Allocate this Item's Cost** check box on the **Cost Item Record - Allocation** tab.

**Step by Step — Turning Off Cost Allocation**

1. From the CBS Register, select the **Concrete Batch Plant** Cost Item Record.
2. From the Ribbon, select the **Actions** tab. Under the Edit section, select **Open**. The Cost Item Record opens.
3. Select the **Allocation** tab. Uncheck the box for **Allocate this Item's Cost**.



4. Once done, click **OK** to return to the CBS Register.



5. All of the distribution cost items are gone, but the quantity and the total cost of the **Concrete Batch Plant** has not changed.



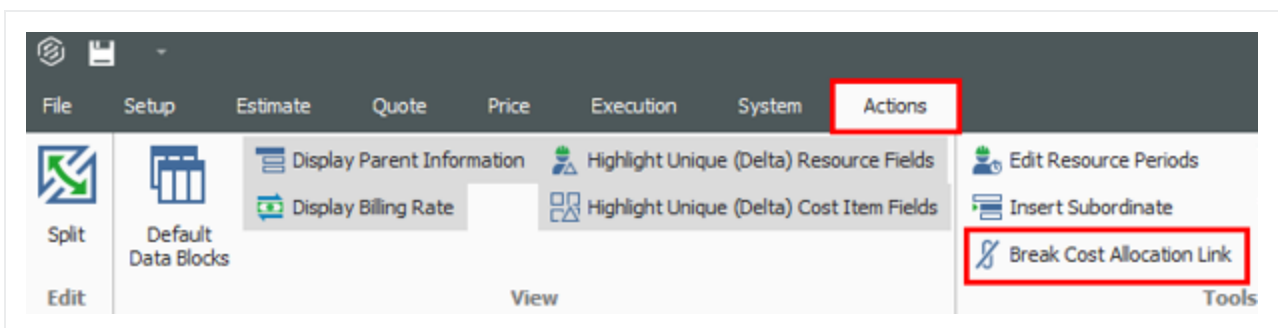
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
<b>8</b>	<b>Project Indirect Costs</b>	1.00	Lump Sum	\$56,156.73	\$56,156.73	U.S. Dollar
+ 8.1	Crane Service	30.00	Day	\$1,871.89	\$56,156.73	U.S. Dollar
<b>9</b>	<b>Concrete Batch Plant</b>	1,172.59	CY	\$81.90	\$96,030.20	U.S. Dollar
+ 9.1	Buy Raw Materials	1,172.59	CY	\$35.62	\$41,765.74	U.S. Dollar
+ 9.2	Batch/Mix/Haul Concrete	21.11	Day	\$2,570.96	\$54,264.46	U.S. Dollar
<b>10</b>	<b>Equipment Related Indirects</b>	1.00	Each	\$76,467.24	\$76,467.24	U.S. Dollar
+ 10.1	Maintenance	1.00	Each	\$76,467.24	\$76,467.24	U.S. Dollar

## 15.23.2 Breaking a Cost Allocation Link

To make a Distribution a permanent part of the CBS, and permit its costs and quantities to be directly editable under the cost item(s) to which it has been distributed, break the Cost Allocation link.

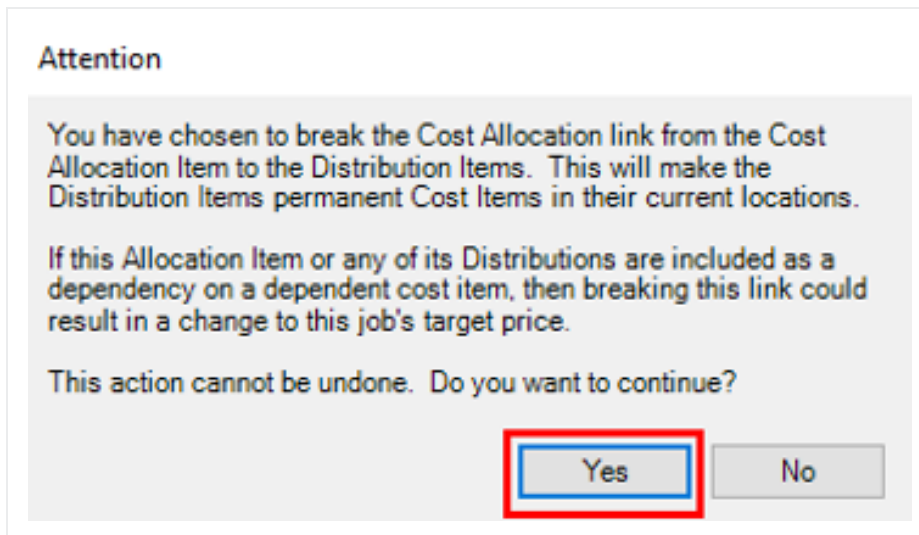
### Step by Step — Breaking a Cost Allocation Link

1. From the CBS Register, select the **Project Indirect Costs** Cost Item Record.
2. From the Ribbon, select the **Actions** tab. Under the Edit section, select **Open**. The Cost Item Record opens.
3. Select the **Allocation** tab. Then go to the CBS Register in the record.
4. Select the cost item with a Cost Allocation Link. Then from the Ribbon, select the **Actions** tab.
5. Under Tools, select **Break Cost Allocation Link**.



6. When the Attention dialog box shows, click **Yes** to continue.





7. The original cost item still exists and is now becomes editable. All the distribution cost items are now editable as well. They are now permanent items and are no longer highlighted in purple either.







6	Drilled Shaft Foundation (60") (Struct...	306.00	LF
+ 6.1	Buy Reinforcing Steel	47,482.52	lb
+ 6.2	Drill Abutment Shafts	306.00	LF
+ 6.3	Erect Rebar Cage	4.00	EA
+ 6.4	Place Rebar Cage	4.00	EA
+ 6.5	Pour Concrete	222.53	CY
6.6	Project Indirect Costs	0.03	Lump Sum
+ 6.6.1	Crane Service	0.82	Day
7	Drilled Shaft Foundation (72") (Struct...	300.00	LF
+ 7.1	Buy Reinforcing Steel	58,189.36	lb
+ 7.2	Drill Abutment Shafts	300.00	LF
+ 7.3	Erect Rebar Cage	4.00	EA
+ 7.4	Place Rebar Cage	4.00	EA
+ 7.5	Pour Concrete	314.16	CY
7.6	Project Indirect Costs	0.04	Lump Sum
+ 7.6.1	Crane Service	1.15	Day
8	Project Indirect Costs	1.00	Lump Sum
+ 8.1	Crane Service	30	Day
9	Concrete Batch Plant	1,172.59	CY
+ 9.1	Buy Raw Materials	1,172.59	CY

### 15.23.3 Pay Item Assignment for Allocation Distribution in an Unlocked Job

In the **Cost Item Record - Allocation** tab, the check box **Allocation distributions inherit target Pay Item Assignment** was added. When the check box is selected in an unlocked job, the system uses the same allocation distribution for the cost item's costs anytime the cost item is copied and added to a job. For a locked job, this is the normal system behavior. This option is always selected and cannot be edited.



Cost Breakdown Structure (CBS) Register		Cost Item Record <span>✕</span>
CBS Code:	Optional Code:	Description:
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
 9	<input type="text"/>	Concrete Batch Plant
PI Assignment:	PI Line Number:	PI Description:
<input type="text"/>	<input type="text"/>	<input type="text"/>
<div> <div>Cost Item Summary</div> <div> Detail : \$81.90</div> <div> Plug : \$0.00</div> <div> Quote : \$0.00</div> <div>Allocation</div> </div>		
<input type="checkbox"/> Allocate this Item's Cost <input checked="" type="checkbox"/> Allocation distributions inherit target Pay Item Assignment		
How do you want to determine allocation percentages? <div> <input type="radio"/> by Quantity  <input type="radio"/> proportionately based on <input type="text"/>  <input type="radio"/> by Percentage  <input checked="" type="radio"/> by Unit Cost (drives the Allocation Item's Forecast (T/O) Quantity)           </div>		

## 15.24 ALARM LIMITS

The Alarm Limits lets you establish limits to specific pay items to make sure the pricing is within certain limits, i.e. percentage or unit price. The Alarm Limits do not do any calculations. It informs you if either of the limit types are outside the range. If outside the limits, the row is then colored red.

For example, when pricing Mobilization, there can be limits as to the amount that can be entered and how soon to receive payment. In the screen shot below, you can enter up to 10% of the contract price and receive that amount when 5 or 10% of the work is completed.

**Pay Item and Proposal register:**



Drag columns here to group

	Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Unit Price (current)	Total Price (current)	% Jo Max.
→	+ 641 0100	<input type="checkbox"/>	1	10	Mobilization	1.00	Lump Sum	\$386,800.00	\$386,800.00	
	+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	Acre	\$6,120.00	\$61,200.00	
	+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	Cubic Yard	\$8.50	\$425,000.00	

In this case, the limits are between 8 and 10%. The row is colored red to indicate that the Unit Price is not within the percentage limits.

The screen shot below is the record view for Mobilization.

Pay Item Number: \* 641 0100

Description: Mobilization

Quantity

Lock Quantity: ☐ Pay Quantity: 1.00 Forecast (T/O) Qty: 1.00 Unit of Measure: Lump Sum Qty Variance: 0.00

Price

Lock Price: ☐ Unit Price Precision: -2 Unit Price: \$386,800.00 Total Price: \$386,800.00 Currency: U.S. Dollar

Overview Earnings Rules Tags / User Defined Fields

Alarm Limits

	Minimum	Maximum
Percentage of Job:	8.00	10.00
Unit Price:	\$0.00	\$0.00

Assignments

Account: 1020

The following is an example for Steel Reinforcement as a Unit Price range.



Drag columns here to group

Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Unit Price (current)	Total Price (current)	% Ma
+ 800 0400	<input type="checkbox"/>		9 90	4 Foot Diameter Manhole	16.00	Each	\$4,500.00	\$72,000.00	
+ 501(A) 1306	<input type="checkbox"/>		10 100	Structural Excavation & Backfill	800.00	Cubic Yard	\$30.00	\$24,000.00	
+ 506(A) 1322	<input type="checkbox"/>		11 110	Steel Reinforcement	30,000.00	Pound	\$1.60	\$48,000.00	
+ 503(A) 1313	<input type="checkbox"/>		12 120	Retaining Wall	850.00	Cubic Yard	\$535.00	\$454,750.00	

Based on the screen shots, the Unit Price is not within the \$1.00 to \$1.50 range. It is \$1.60.

The record view is now shown.

Pay Item Number: \* 506(A) 1322

Description: Steel Reinforcement

Quantity

Lock Quantity: ☐ Pay Quantity: 30,000.00 Forecast (T/O) Qty: 30,000.00 Unit of Measure: Pound Qty Variance: 0.00

Price

Lock Price: ☐ Unit Price Precision: 2 Unit Price: \$1.60 Total Price: \$48,000.00 Currency: U.S. Dollar

Overview Earnings Rules Tags / User Defined Fields

Alarm Limits

	Minimum	Maximum
Percentage of Job:	0.00	0.00
Unit Price:	\$1.00	\$1.50

Assignments

Account: 1330



## 15.25 ALARM LIMITS

The Alarm Limits lets you establish limits to specific pay items to make sure the pricing is within certain limits, i.e. percentage or unit price. The Alarm Limits do not do any calculations. It informs you if either of the limit types are outside the range. If outside the limits, the row is then colored red.

For example, when pricing Mobilization, there can be limits as to the amount that can be entered and how soon to receive payment. In the screen shot below, you can enter up to 10% of the contract price and receive that amount when 5 or 10% of the work is completed.

### Pay Item and Proposal register:

Drag columns here to group

	Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Unit Price (current)	Total Price (current)	% Jo Max.
→	+ 641 0100	<input type="checkbox"/>	1	10	Mobilization	1.00	Lump Sum	\$386,800.00	\$386,800.00	
	+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	Acre	\$6,120.00	\$61,200.00	
	+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	Cubic Yard	\$8.50	\$425,000.00	

In this case, the limits are between 8 and 10%. The row is colored red to indicate that the Unit Price is not within the percentage limits.

The screen shot below is the record view for Mobilization.



Pay Item Number: \* **641 0100**

Description: **Mobilization**

Quantity

Lock Quantity: ☐ Pay Quantity: **1.00** Forecast (T/O) Qty: **1.00** Unit of Measure: **Lump Sum** Qty Variance: **0.00**

Price

Lock Price: ☐ Unit Price Precision: **-2** Unit Price: **\$386,800.00** Total Price: **\$386,800.00** Currency: **U.S. Dollar**

Overview Earnings Rules Tags / User Defined Fields

Alarm Limits

	Minimum	Maximum
Percentage of Job:	<b>8.00</b>	<b>10.00</b>
Unit Price:	<b>\$0.00</b>	<b>\$0.00</b>

Assignments

Account: **1020**

The following is an example for Steel Reinforcement as a Unit Price range.

Drag columns here to group

Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Unit Price (current)	Total Price (current)	% Ma
+ <b>800 0400</b>	<input type="checkbox"/>		<b>9 90</b>	<b>4 Foot Diameter Manhole</b>	<b>16.00</b>	<b>Each</b>	<b>\$4,500.00</b>	<b>\$72,000.00</b>	
+ 501(A) 1306	<input type="checkbox"/>		10 100	Structural Excavation & Backfill	800.00	Cubic Yard	\$30.00	\$24,000.00	
+ <b>506(A) 1322</b>	<input type="checkbox"/>		<b>11 110</b>	<b>Steel Reinforcement</b>	<b>20,000.00</b>	<b>Pound</b>	<b>\$1.60</b>	<b>\$48,000.00</b>	
+ 503(A) 1313	<input type="checkbox"/>		12 120	Retaining Wall	850.00	Cubic Yard	\$535.00	\$454,750.00	

Based on the screen shots, the Unit Price is not within the \$1.00 to \$1.50 range. It is \$1.60.

The record view is now shown.



Pay Item Number: \*506(A) 1322

Description:Steel Reinforcement

Quantity

Lock Quantity:

Pay Quantity:

Forecast (T/O) Qty:

Unit of Measure:

Qty Variance:

Qty Vari

☐

30,000.00

30,000.00

Pound

0.00

Price

Lock Price:

Unit Price Precision:

Unit Price:

Total Price:

Currency:

☐

2

\$1.60

\$48,000.00

U.S. Dollar

Overview

Earnings Rules

Tags / User Defined Fields

Alarm Limits

Assignments

Minimum

Maximum

Percentage of Job:

0.00

0.00

Unit Price:

\$1.00

\$1.50

Account:

1330

## 15.26 SUBTOTALS

The subtotal feature is for situations where the Owner wanted subtotals on the proposal form of pay item groups.

The following screen shot is using the supplied Subtotal register view:



Drag columns here to group

Row Number	Pay Item Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Unit Price (current)	Total Price (current)	Subtotal	Subtotal Description
+	1 641 0100	Mobilization	1.00	1.00	Lump Sum	\$386,800.00	\$386,800.00	<input type="checkbox"/>	
+	2 201 0102	Clearing & Grubbing	10.00	10.00	Acre	\$6,120.00	\$61,200.00	<input type="checkbox"/>	
+	3 202 0183	Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	\$8.50	\$425,000.00	<input type="checkbox"/>	
+	4 303 5912	Aggregate Base	40,000.00	45,000.00	Ton	\$22.00	\$880,000.00	<input type="checkbox"/>	
+	5 303 4263	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	\$35.00	\$1,330,000.00	<input type="checkbox"/>	
+	6 413(B) 0464	36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet	\$100.00	\$100,000.00	<input checked="" type="checkbox"/>	SUBTOTAL: SITE
+	7 800 0220	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet	\$28.00	\$336,000.00	<input type="checkbox"/>	
+	8 800 0330	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	3,000.00	Linear Feet	\$64.00	\$192,000.00	<input type="checkbox"/>	
+	9 800 0400	4 Foot Diameter Manhole	16.00	16.00	Each	\$4,500.00	\$72,000.00	<input checked="" type="checkbox"/>	SUBTOTAL: WATER
+	10 501(A) 1306	Structural Excavation & Backfill	800.00	800.00	Cubic Yard	\$30.00	\$24,000.00	<input type="checkbox"/>	

From the Subtotal column, the last item in the subtotal group is where the box is checked. Once the box is checked, then a description may be entered. After the box is checked, the **Subtotal Amount** and **Running Subtotal Amounts** are then displayed in a bold font.

In our standard Proposal Report, there is an option to printout the subtotals.

Reports - Standard Proposal

Settings: Default

Print Details Layout Header/Footer

Pay Item Numbers

☒ Show Line Number

☒ Show Pay Item Number

Show these fields above the pay items:

☐ Job Code ☐ Job City

☐ Job Description ☐ Job County

☐ Bid Date ☐ Job State

☐ Bid Time ☐ Job Country

☐ Job Location

Filter by currency: No Filter

Term for Document

☒ Proposal/Bid

☐ Tender

☐ Custom

Show

☒ Show Subtotals

☐ Show Running Totals

☐ Show Suspended Items

Unit Price Precision

☒ Truncate values based on decimal precision

☐ Do not truncate values (show decimal values)

Reports

Job Properties

Foundation Setup Data

Resources

Resource Register

Resource Changes

Resource Rate Details

Resource Utilization

Resource Utilization (Excel)

Resource Currency Comparison

Resource Assemblies

Cost Breakdown Structure

Quotes

Price Breakdown Structure

Pay Item & Proposal

Standard Proposal

DOT Proposal

Pay Item Summary

Pay Item Currency Comparison

Pay Item Price Breakdown

Include

☐ Include Cover Sheet

☐ Include Preferences Sheet



## 15.26.1 Earnings Rules:

The Earnings Rules let you decide how much can be paid where certain work is completed. The cost items assigned to the pay items are where you can decide when to ask for payment.

The application is used in the Job Tracking form. The Earnings Rules also determine how the Cash Flow curve is generated.

In the following screen shot, the record for 36 inch RCP Culvert Class III from the Training Job is open.

Pay Item Number: \* 413(B) 0464

Description: 36 Inch RCP Culvert Class III

Quantity

Lock Quantity: ☐ Pay Quantity: 1,000.00 Forecast (T/O) Qty: 1,024.00 Unit of Measure: Linear Feet Qty Variance: 24.00 Qty Variance %: 2.40

Price

Lock Price: ☐ Unit Price Precision: 2 Unit Price: \$100.00 Total Price: \$100,000.00 Currency: U.S. Dollar Payme: Unit P

Overview Earnings Rules Tags / User Defined Fields

Use Default Earnings Rules? ☒

Assigned Earnings (Forecast)		Unassigned Earnings (Forecast)	
%	Amount:	%	Amount:
100.00	\$102,400.00	0.00	\$0.00

Drag columns here to group

	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure
	<b>6</b>	<b>36 Inch RCP Culvert Class III</b>	413(B) 0464	<u>1,024.00</u>	Linear Feet
→	6.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet
	6.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard
	6.3	Install RCP Pipe	6.3	1,024.00	Linear Feet
	6.4	Backfill RCP Pipe	6.4	1,587.20	Cubic Yard



By default, the cost items in the Earnings % column are calculated based on the cost distribution. In this case where all the Materials are furnished and completed the Excavation, you have earned \$49.58 and \$12.12 for a total of 61.7% revenue.

There may be times when you can only receive revenue when you have only completed the Backfill of the Pipe. In that case I can uncheck the **Use Default Earnings Rules** box, as seen in the previous screen shot, and enter 100%. You can then decide when to account for the revenue by changing the **Earnings Timing**.

The following screen shot show this option.

Cost Breakdown Structure (CBS) Register

Pay Item & Proposal Register

Pay Item Record

Pay Item Number: \*

413(B) 0464

Description:

36 Inch RCP Culvert Class III

Quantity

Lock Quantity:

☐

Pay Quantity:

1,000.00

Forecast (T/O) Qty:

1,024.00

Unit of Measure:

Linear Feet

Qty Variance:

24.00

Qty Variance %:

2.40

Qty Variance

Over Run

Price

Lock Price:

☐

Unit Price Precision:

2

Unit Price:

\$100.00

Total Price:

\$100,000.00

Currency:

U.S. Dollar

Payment Method:

Unit Price

Overview

Earnings Rules

Tags / User Defined Fields

Use Default Earnings Rules? ☐

Assigned Earnings (Forecast)

%	Amount:
100.00	\$102,400.00

Unassigned Earnings (Forecast)

%	Amount:
0.00	\$0.00

Drag columns here to group

	CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Unit of Measure	Earnings %
	6.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet	0
	6.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard	0
	6.3	Install RCP Pipe	6.3	1,024.00	Linear Feet	0
	6.4	Backfill RCP Pipe	6.4	1,587.20	Cubic Yard	100



Another example is when you can get full payment for material on hand, such as Precast Girders. Then you can choose the start for the Earnings Timing. This way, the Cash Flow shows costs and revenue occurring at the start of the item.

## 15.27 ROUNDING PRECISION

Rounding Precision lets you change the decimal position of the Unit Prices instead of manually entering the values.

You can preset the Unit Price decimals, then using this feature, round up or down the decimals. The job’s default Unit Price decimal is set to 2.

There are two decimal selections to understand. In the **Settings** form from the Backstage View, Decimal Precision lets you to calculate how many decimals to display.

Settings	
<b>Options</b>	
General	
<b>Decimal Precision</b>	
Fax Mail	
Account Code Settings	
<b>Network</b>	
Deployment Mode	
SQL Security	
Security Roles	
Attachment Settings	
Timesheet Warehouse Settings	
Licenses	
Currency	

Decimal Precision	
Cost Summary Precision	2
Unit Cost Precision	2
Quantity Precision	2
Short Percent Precision	2
Long Percent Precision	2
Currency Rate Precision	5

In the **Cost Basis** form from Job Properties, lets the Unit Price decimal to calculate the Total Price.



Cost Breakdown Structure (CBS) Register				Pay Item & Proposal Register			Pay Item Record		Job Prop
Overview	Security	Cover Sheet	Cost Basis	Minority Setup	Fuel Cost	Job Tracking	Job Folder Tags	Competit	
<b>Standard Shift Arrangements</b>			<b>Standard Wage Rate Composite</b>			<b>Rules</b>			
Work Hours per Shift: <input type="text" value="8.00"/>			Scale 1: <input type="text" value="100.00"/> %			<input checked="" type="checkbox"/> Lock Cost Items to Pay Items			
Pay Hours per Shift: <input type="text" value="8.00"/>			Scale 2: <input type="text" value="0.00"/> %			<div>Pay Item Unit Price Precision: <input type="text" value="2"/></div>			
Shifts per Day: <input type="text" value="1.00"/>			Scale 3: <input type="text" value="0.00"/> %			<input type="checkbox"/> Activate PBS Changes Log			
Days per Week: <input type="text" value="5.00"/>			<input type="button" value="Shift / Rate Calculator"/>			<input type="checkbox"/> Activate Quantity Checking			
						<input type="checkbox"/> Maintain CBS Structure at Level: <input type="text" value="0"/>			
						When man-count changes: <input checked="" type="radio"/> Change UM <input type="radio"/> Change Da			

In the following screen shot, the Rounding Precision column is set to 2 for each pay item with the exception of Mobilization, which was changed to -2. The -2 means to the nearest \$100.



**Proposal Recap - Copy of Training Job**
×

	Current	Target	Forecast	Variance	
Price:	<b>\$6,430,844.00</b>	\$6,430,805.34	\$6,444,775.04	\$38.66	<b>CUT</b>
Profit:	\$631,629.85	\$631,591.19	\$695,313.98	\$63,722.79	<b>CUT</b>
Margin%:	9.82	9.82	10.79	\$69,141.39	<b>CUT</b>

Drag columns here to group

	Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Rounding Precision
	+ 641 0100	<input type="checkbox"/>	1	10	Mobilization	1.00	Lump Sum	-2
	+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	Acre	2
→	+ 202 0183	<input checked="" type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	Cubic Yard	2
	+ 303 5912	<input type="checkbox"/>	4	40	Aggregate Base	40,000.00	Ton	2
	+ 303 4263	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	38,000.00	Ton	2
	+ 413(B) 0464	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	1,000.00	Linear Feet	2
	+ 800 0220	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	12,000.00	Linear Feet	2
	+ 800 0330	<input type="checkbox"/>	8	80	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	Linear Feet	2
	+ 800 0400	<input type="checkbox"/>	9	90	4 Foot Diameter Manhole	16.00	Each	2

Change the 2 and 3 pay item row's Rounding Precision to 0 and 1. The Unit Price changed accordingly. In doing so, you are moving the decimal to show tenth, zero, ten dollars, or in the Mobilizations case to the nearest \$100.



Cost Breakdown Structure (CBS) Register

Pay Item & Proposal Register

Job Properties

Proposal Recap - Copy of Training Job

	Current	Target	Forecast	Variance	
Price:	\$6,428,844.70	\$6,430,805.34	\$6,442,775.74	\$1,960.64	ADD
Profit:	\$629,630.55	\$631,591.19	\$693,314.68	\$61,723.49	CUT
Margin%:	9.79	9.82	10.76	\$67,142.09	CUT

Un

Drag columns here to group

	Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Rounding Precision
	+ 641 0100	<input type="checkbox"/>	1	10	Mobilization	1.00	Lump Sum	-2
	+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	Acre	0
	+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	Cubic Yard	1
	+ 303 5912	<input type="checkbox"/>	4	40	Aggregate Base	40,000.00	Ton	2
	+ 303 4263	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	38,000.00	Ton	2
	+ 413(B) 0464	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	1,000.00	Linear Feet	2
	+ 900 0100	<input type="checkbox"/>	7	70	10 Inch RCP Edge Main (500 31)	17,000.00	Linear Feet	2

## 15.28 PAYMENT METHODS

There are three different Payment Methods:

- Unit Price
- Fixed Final Pay
- Time and Expense



Pay Item Number: *	202 0183						
Description:	Unclassified Excavation						
<b>Quantity</b>							
Lock Quantity:	Pay Quantity:	Forecast (T/O) Qty:	Unit of Measure:	Qty Variance:	Qty Variance %:	Qty Variance Group:	
<input type="checkbox"/>	50,000.00	50,000.00	Cubic Yard	0.00	0.00	Even Run	
<b>Price</b>							
Lock Price:	Unit Price Precision:	Unit Price:	Total Price:	Currency:	Payment Method:	% Margin:	
<input type="checkbox"/>	1	\$6.30	\$315,000.00	U.S. Dollar	Unit Price	12.05	
<div> <div>Overview</div> <div>Earnings Rules</div> <div>Tags / User Defined Fields</div> </div>				<div> <div>Type Name</div> <div>Fixed Final Price</div> <div>Time &amp; Expenses</div> <div>Unit Price</div> </div>			
<b>Alarm Limits</b>				<b>Assignments</b>			
	Minimum		Maximum		Account: 1122		
Percentage of Job:	0.00	0.00					
Unit Price:	\$0.00	\$0.00					
<b>Proposal Layout Settings</b>							
Insert Subtotal after this Pay Item? <input type="checkbox"/>				Subtotal Description:			

The Unit Price is the default Payment Method. This option multiplies the Unit Price to the Pay Quantity to calculate the Total Price.

The Fixed Final Pay method has two applications:

- display contingency type pay items.
- accurately calculate the over/under run pay items that are paid as if they were lump sum items.

Contingency type pay items is where the owner provided the pay item and entered their own value. This becomes part of the proposal where it may or may not be used. To identify this type of pay item, select the **Fixed Final Pay** method, as displayed in the following screen shot. Then, enter \$10,000 for example.



	Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Unit Price (current)	Total Price (current)	Payment Method
	+ 503(A) 1313	<input type="checkbox"/>		12 120	Retaining Wall	850.00	Cubic Yard	\$539.91	\$458,923.50	Unit Price
	+ 600 0300	<input type="checkbox"/>		13 130	Paint Existing Steel Bridge Structure	1.00	Lump Sum	\$102,683.94	\$102,683.94	Unit Price
	+ 700	<input type="checkbox"/>		14 140	Process Equipment	1.00	Each	\$1,920,341.67	\$1,920,341.67	Unit Price
	+ 1000	<input type="checkbox"/>		15 150	Removal of Underground Storage Tanks	2.00	Each	\$12,504.82	\$25,009.64	Unit Price
	+ 1010	<input type="checkbox"/>		16 160	Disposal of Contaminated Soil	800.00	Cubic Yard	\$25.96	\$20,768.00	Unit Price
	+ 1200 0100	<input type="checkbox"/>		17 170	Toll Booth	1.00	Each	\$29,665.47	\$29,665.47	Unit Price
	+ 1500 0100	<input type="checkbox"/>		18 180	Guardrail Type 2	1,000.00	Linear Feet	\$27.29	\$27,290.00	Unit Price
→	+ 1500 0200	<input checked="" type="checkbox"/>		19 190	Guardrail Type 3A	200.00	Linear Feet	\$35.25	\$7,050.00	Unit Price
	+ 1600 0230	<input type="checkbox"/>		20 200	Type 4 Signs	1,000.00	Square Feet	\$14.78	\$14,780.00	Unit Price
	+ 11	<input type="checkbox"/>		21 21	Contingency Pay item	1.00	Each	\$10,000.00	\$10,000.00	Fixed Fee
*		<input checked="" type="checkbox"/>								

If this were a real pay item, lock the \$10,000 because it must be part of the proposal. However, then the issue is how to account for any costs, overhead, or profit to this Pay Item. Assuming you did not want to add any overhead and profit dollars to the \$10,000, enter a plug source of \$10,000 in the CBS. This offsets the Price of \$10,000 but charges the \$10,000 to a Cost Category that won't be used in any overhead of profit dollars. Now, the \$10,000 is not markup.

The second application the Fixed Final Pay method has is to accurately calculate the over/under run pay items that are paid as if they were lump sum items. An issue occurs where a pay item is provided with a quantity, such as a Superstructure Bridge of 10,000 CY, and you must enter a Unit Price against the 10,000 CY.

However, the fine print says that this Pay Item can not be measured and can be paid as if it was a Lump Sum item, but your quantity takeoff convinced you that you use more or less than the 10,000 CY. Say your takeoff came to 12,000 CY and you entered the Forecast (TO) Quantity with the 12,000 CY.

Now the CBS is calculated on the 12,000 CY. Now normally in an over/run quantity, InEight Estimate can help you decide how best to price out these items. In this case, you cannot take advantage of this situation. The system converts that total cost based on the 12,000 CY. However, you divide by the 10,000 CY to give a different Unit Cost in the Pay Item and Proposal form. This way, when you get paid, you get the cost as developed in the CBS.

The following screen shot shows the situation where you have an overrun normally. In this example, you developed the CBS direct cost as \$4.00 times 12000 CY for \$48,000. (the system shows more accuracy). Notice the direct costs of \$40,000 and the balanced unit of \$5.51. This is the normal calculation if this was a true overrun pay item.



Drag columns here to group

Pay Item Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Payment Method	Unit Price (current)	Total Price (current)	Total Direct Cost (bid qty)
+ 700	Process Equipment	1.00	1.00	Each	Unit Price	\$1,920,341.67	\$1,920,341.67	\$1,600,196.15
+ 1000	Removal of Underground Storage Tanks	2.00	2.00	Each	Unit Price	\$12,504.82	\$25,009.64	\$15,833.33
+ 1010	<b>Disposal of Contaminated Soil</b>	<b>800.00</b>	<b>800.00</b>	<b>Cubic Yard</b>	<b>Unit Price</b>	<b>\$25.96</b>	<b>\$20,768.00</b>	<b>\$13,721.50</b>
+ 1200 0100	<b>Toll Booth</b>	<b>1.00</b>	<b>1.00</b>	<b>Each</b>	<b>Unit Price</b>	<b>\$29,665.47</b>	<b>\$29,665.47</b>	<b>\$25,269.40</b>
+ 1500 0100	Guardrail Type 2	1,000.00	1,000.00	Linear Feet	Unit Price	\$27.29	\$27,290.00	\$24,004.60
+ 1500 0200	Guardrail Type 3A	200.00	200.00	Linear Feet	Unit Price	\$35.25	\$7,050.00	\$6,201.15
+ 1600 0230	<b>Type 4 Signs</b>	<b>1,000.00</b>	<b>1,000.00</b>	<b>Square Feet</b>	<b>Unit Price</b>	<b>\$14.78</b>	<b>\$14,780.00</b>	<b>\$13,002.40</b>
+ 11	Contingency Pay item	1.00	1.00	Each	Fixed Final Price	\$10,000.00	\$10,000.00	\$0.00
→ + [Enter Pay It...	Superstructure Bridge	10,000.00	12,000.00	CY	Unit Price	\$0.00	\$0.00	\$40,007.67

When you change the Payment Method to **Fixed Final Pay**, the CBS cost of \$48,000 is now shown. Then when you price out the pay item, you get your \$48,000 return.

Drag columns here to group

Pay Item Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Payment Method	Unit Price (current)	Total Price (current)	Total Direct Cost (bid qty)
+ 700	Process Equipment	1.00	1.00	Each	Unit Price	\$1,920,341.67	\$1,920,341.67	\$1,600,195.70
+ 1000	Removal of Underground Storage Tanks	2.00	2.00	Each	Unit Price	\$12,504.82	\$25,009.64	\$15,833.33
+ 1010	<b>Disposal of Contaminated Soil</b>	<b>800.00</b>	<b>800.00</b>	<b>Cubic Yard</b>	<b>Unit Price</b>	<b>\$25.96</b>	<b>\$20,768.00</b>	<b>\$13,721.50</b>
+ 1200 0100	<b>Toll Booth</b>	<b>1.00</b>	<b>1.00</b>	<b>Each</b>	<b>Unit Price</b>	<b>\$29,665.47</b>	<b>\$29,665.47</b>	<b>\$25,269.39</b>
+ 1500 0100	Guardrail Type 2	1,000.00	1,000.00	Linear Feet	Unit Price	\$27.29	\$27,290.00	\$24,004.60
+ 1500 0200	Guardrail Type 3A	200.00	200.00	Linear Feet	Unit Price	\$35.25	\$7,050.00	\$6,201.15
+ 1600 0230	<b>Type 4 Signs</b>	<b>1,000.00</b>	<b>1,000.00</b>	<b>Square Feet</b>	<b>Unit Price</b>	<b>\$14.78</b>	<b>\$14,780.00</b>	<b>\$13,002.40</b>
+ 11	Contingency Pay item	1.00	1.00	Each	Fixed Final Price	\$10,000.00	\$10,000.00	\$0.00
✎ + [Enter Pay It...	Superstructure Bridge	10,000.00	12,000.00	CY	Fixed Final Price	\$0.00	\$0.00	\$48,009.10

Now for the Time and Expense payment method. This option is used with the Job Tracking form. Each resource type can enter a Billing rate. For Force Account/Time and Material/Time and Expense work, by changing the pay item to this method, the actual costs are entered in the Job Tracking form. Then there is an Excel report that lists the actual costs using the Billing rates, plus the profit entered in the Job Tracking tab in the Job Properties form.

## 15.29 UNBALANCED PRICING

The pay items are provided along with the Pay Quantities. If the pay items are to be measured and paid on the final measured quantity, then we can provide information to price the pay items to maximize the return. Some specifications are written that if an over/under pay item runs a certain



percent, then the Unit Price is negotiated. Now, understanding this, you can forecast the final revenue result.

The following screen shot shows a typical over and under run situation. The overrun quantities are shown in green and the underrun is shown in red. I have balanced priced the job where all pay items are using their Balanced Unit Price. In the Variance box, the Profit row, there is an ADD of \$4153 dollars.

Proposal Recap - Copy of Training Job									
	Current	Target	Forecast	Variance					
Price:	\$6,430,805.34	\$6,430,805.34	\$6,376,898.78	\$0.00					
Profit:	\$631,591.19	\$631,591.19	\$627,437.72	\$4,153.47	ADD				
Margin%:	9.82	9.82	9.84	\$1,265.13	CUT				

Item Recap - 303 5912 Aggregate Base									
	Balanced Unit Price								
Price:	\$18.88								
Profit:	\$1.13								
Total Cost:	\$16.75								
Business Overhead:	\$1.00								
Job Overhead:	\$0.00								
Unassigned Direct Cost:	\$0.00								
Assigned Direct Cost:	\$14.75								

drag columns here to group

Pay Item Number	Lock Quantity	Lock Price	Row Number	Line Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Unit Price (current)	Unit Price (forecast)
+ 641 0100	<input type="checkbox"/>	<input type="checkbox"/>	1	10	Mobilization	1.00	1.00	Lump Sum	\$18,300.00	
+ 201 0102	<input type="checkbox"/>	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	10.00	Acre	\$5,836.00	
+ 202 0183	<input type="checkbox"/>	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	\$6.30	
→ + 303 5912	<input type="checkbox"/>	<input type="checkbox"/>	4	40	Aggregate Base	40,000.00	45,000.00	Ton	\$18.88	
+ 303 4263	<input type="checkbox"/>	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	\$50.13	
+ 413(B) 0464	<input type="checkbox"/>	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet	\$86.81	
+ 800 0220	<input type="checkbox"/>	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet	\$28.92	

This means that if your Forecast Quantities become the final measure amount, I lose the \$4153 dollars. This is the difference between the Target Profit and the Forecast Profit. The issue is the underrun quantity is priced at its Balanced Price, meaning there is 3000 Ton that I will not be paid for if my 35000 Ton is what I am expecting.

Now, I will use the system's Unbalanced feature to price all the pay items. See the following screen shot.



Proposal Recap - Copy of Training Job						Item Recap - 303 5912 Aggregate Base			
	Current	Target	Forecast	Variance				Balanced Unit	
Price:	\$6,428,844.70	\$6,430,805.34	\$6,442,775.74	\$1,960.64	ADD			Price:	\$18.87
Profit:	\$629,630.55	\$631,591.19	\$693,314.68	\$61,723.49	CUT			Profit:	\$1.95
Margin%:	9.79	9.82	10.76	\$67,142.09	CUT			Total Cost:	\$16.91
								Business Overhead:	\$1.01
								Job Overhead:	\$0.95
								Unassigned Direct Cost:	\$0.00
								Assigned Direct Cost:	\$14.95

Drag columns here to group										
Pay Item Number	Lock Quantity	Lock Price	Row Number	Line Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Unit Price (current)	Total (current)
+ 641 0100	<input type="checkbox"/>	<input type="checkbox"/>	1	10	Mobilization	1.00	1.00	Lump Sum	\$18,300.00	
+ 201 0102	<input type="checkbox"/>	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	10.00	Acre	\$5,834.00	
+ 202 0183	<input type="checkbox"/>	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	50,000.00	Cubic Yard	\$6.30	
→ + 303 5912	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	4	40	Aggregate Base	40,000.00	45,000.00	Ton	\$26.73	\$11,892.00
+ 303 4263	<input type="checkbox"/>	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	\$40.89	\$15,538.20
+ 413(B) 0464	<input type="checkbox"/>	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	1,000.00	1,024.00	Linear Feet	\$122.96	\$123,000.00
+ 800 0220	<input type="checkbox"/>	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet	\$28.91	\$346,872.00

What the Unbalanced Autoprice did was to price out the underrun with it's Direct Cost only. The overhead and profit share of the underrun was spread proportionately to the overrun items. The underrun was priced lower than normal and the Overrun items were price higher than normal.

Now look at the Variance block and see the Profit row where it now says CUT, meaning if my forecast quantities in up being the final measured quantities, I will pick up an additional \$61,723 dollars in profit.

The CUT simple allows you to decide if you want to keep the final Proposal price as shown, or to CUT the \$61,000 OR ANY PORTION of it from the final Proposal amount to get the job believing your Forecast Quantities is the final measured quantities. Of course you can enter any preferred Unit Price.

## 15.30 ALTERNATE SCENARIOS

The Alternate scenarios feature allows a contractor to effectively evaluate multiple approaches to an estimate, and quickly identify the most cost efficient way of performing the proposed work. Both owners and contractors need more visibility to see the impact of changes made to the assumption made on the cost model.

For example, a contractor might want to estimate the cost of hauling excavation material using a scraper hauling machine(s). Alternatively, a contractor may want to compare the cost of loading and



hauling that same excavation material with a loader truck(s). You should be able to estimate both approaches quickly and switch between various scenarios.

Owners are increasingly requiring contractors to provide alternative items within the bid proposal. Contractors should consider the cost impact of alternative estimate approaches, while also contemplating how to effectively price their work.

The primary purpose for using Alternate Scenarios is to create 'What If' type of scenarios to gain a better view of estimating 'like' situations. By defining Alternates, you have the ability to compare multiple scenarios within an estimate, in which you can suspend or unsuspend various records.

**TIP**

Manually suspending and unsuspending items can be time consuming and error prone, and can require maintenance of several versions of the estimate. Creating Alternate Scenarios is a solution to this problem.

### 15.30.1 Base Alternate

Base Alternate refers to your base or anchor estimate and is part of the estimate's cost.

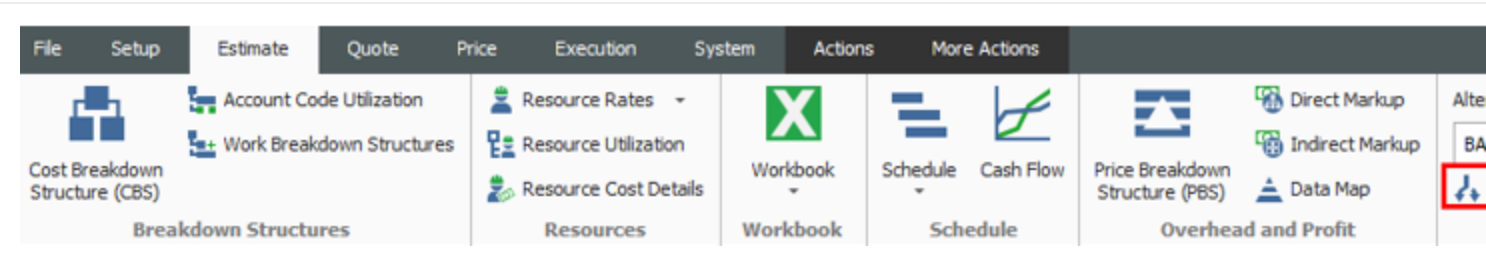
CBS Pos... Code	Description	Forecast (T/O) Quantity	Unit of Mea...	Unit Cost	Total Cost (Forecast)	Alternate
	<b>JOB</b>	20.00	Mile	\$298,546.40	\$5,970,927.99	BASE
+	<b>Prime Bond</b>	1.00	Lump Sum	\$47,745.51	\$47,745.51	BASE
+	<b>Price % Add-On</b>	1.00	Lump Sum	\$301,009.62	\$301,009.62	BASE
+	<b>Job Financing</b>	1.00	Lump Sum	\$0.00	\$0.00	BASE
+	<b>Indirect Cost Escalat...</b>	1.00	Lump Sum	\$0.00	\$0.00	BASE
+	<b>Direct Cost Escalation</b>	1.00	Lump Sum	\$11,026.79	\$11,026.79	BASE
+	<b>Indirect Cost Add-On</b>	1.00	Lump Sum	\$0.00	\$0.00	BASE
+	<b>Job Management &amp; ...</b>	1.00	Lump Sum	\$157,096.28	\$157,096.28	BASE
+	<b>General Expense</b>	1.00	Lump Sum	\$4,200.00	\$4,200.00	BASE
+	<b>Direct Cost Add-On</b>	1.00	Lump Sum	\$106,459.21	\$106,459.21	BASE
+ 1	<b>Mobilization</b>	1.00	Lump Sum	\$75,000.00	\$75,000.00	BASE
+ 2	<b>Clearing &amp; Grubbing</b>	10.00	Acre	\$0.00	\$0.00	BASE
3	<b>Unclassified Excavati...</b>	50,000.00	Cubic Yard	\$6.36	\$317,915.81	BASE
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard	\$3.00	\$149,922.88	BASE



## 15.30.2 Alternates Records

Alternate records are used to define alternate scenarios so that you can assess the impact of those scenarios.

To access the Alternates form select the **Estimate** tab. Under the Alternates section, select **Alternates**.



This action opens up the **Alternate Record Details** form.

Names	Description
1. Code	Code of Alternate Scenario.
2. Description	Description of Alternate Scenario.
3. Active	Determines if Alternate Scenario is active within CBS or not.
4. Total Cost (Added)	When Alternate is set to active, it will not be suspended, and its CBS Total Cost will be added to the estimate’s Total Cost Forecast. Below example shows the full \$84,000 will be included in the estimate.
5. Total Cost (Suspended)	When Alternate is set to active, Total Cost Suspended will be \$0 because alternate is active part of bid.
6. Total Cost (Net Change)	Difference between Total Cost Added and Total Cost Suspended.



The screenshot shows the 'Training Job - Estimate' software interface. The 'Setup' tab is active, displaying various setup options like Job Properties, Foundation Setup Data, Pay Item & Proposal, Bid Wizard, Resource Rates, Labor, Equipment, Materials, Resource Assemblies, and Cost Items. The 'Job Properties' sub-tab is selected, showing a table of alternates. The table has columns for Code, Description, Active, Total Cost (Added), and Total Cost (Suspended). The first three columns are numbered 1, 2, and 3 respectively. The last two columns are numbered 4 and 5 respectively. The table contains three rows of data: BASE, ROCK1, and test 1. The ROCK1 row shows a total cost of \$84,000.00 added and \$0.00 suspended. The test 1 row shows \$0.00 added and \$0.00 suspended. A search bar and a 'Find' button are visible above the table.

Code	Description	Active	Total Cost (Added)	Total Cost (Suspended)
BASE	BASE	<input checked="" type="checkbox"/>		
ROCK1	Rock Excacation	<input checked="" type="checkbox"/>	\$84,000.00	\$0.00
test 1	testing 1	<input type="checkbox"/>	\$0.00	\$0.00

### 15.30.3 Alternates Record Details

Drill down into an Alternate Record to view and edit its attributes. The Alternate Record details form provides you with a way to setup rules for auto suspending and unsuspending groups of cost items.



Names	Description
1. Assigned to Alternate	Code of Alternate Scenario.
2. Suspended by Alternate	Description of Alternate Scenario.

Cost Breakdown Structure (CBS) RegisterJob PropertiesAlternate Record

Code:ROCK2Description:Rock ExcavationActive:

Pay ItemsCost Items

Assigned to Alternate1

Find:[Search For...]Saved views:Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Hours (Duration driven)	Hours (Non-Duration driven)	Hours (Total)	Days (Duration driven)
3.2	Excavation, trucks	3.1	50,000.00	142.86	44.00	142.86	

Total Cost (Added):\$179,550.75

Suspended by Alternate2

Find:[Search For...]Saved views:Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Hours (Duration driven)	Hours (Non-Duration driven)	Hours (Total)	Days (Duration driven)
3.1	Excavation, scrapers	3.1	50,000.00	125.00	44.00	125.00	

Total Cost (Suspended):\$149,922.88

OKCancelNew...

Step by Step — Create Alternate Scenario in CBS

1. From the Ribbon, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
3. Using the Unclassified Excavation cost item, type in **Rock Excavation** as a new subordinate.
4. Then type in **3000** in the Forecast T/O Quantity column.
5. Under the Unit of Measure column, select **Cubic Yard**.



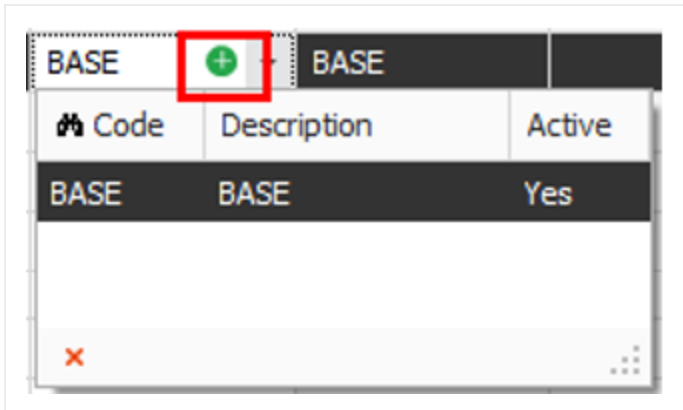
3	Unclassified Excavation	50,000.00	Cubic Yard
+ 3.1	Excavation	50,000.00	Cubic Yard
+ 3.2	Embankment	50,000.00	Cubic Yard
+ 3.3	Rock Excavation	3,000.00	Cubic Yard

- Double click the Rock Excavation cost item to open the cost item's record.
- Select the **Plug** tab. Under the Subcontract section click into the Unit Cost field for the Subcontract Price.
- Type **\$28.00** in the Plug Unit Cost column for the Subcontract Price. Once done, click **OK**.

Cost Item Summary		Detail : \$0.00	Plug : \$28.00	
Cost Category		Unit Cost	Total Cost	
▼	Total	\$28.00	\$84,000.00	
>	Labor	\$0.00	\$0.00	
>	Owned Equipment	\$0.00	\$0.00	
>	Rented Equipment	\$0.00	\$0.00	
>	Supplies	\$0.00	\$0.00	
>	Materials	\$0.00	\$0.00	
▼	Subcontract	\$28.00	\$84,000.00	
	Subcontract Price	\$28.00	\$84,000.00	
	Subcontract Conditions	\$0.00	\$0.00	
	Subcontract Taxes	\$0.00	\$0.00	
	Subcontract Bond	\$0.00	\$0.00	
	Undefined Subcontract	\$0.00	\$0.00	
>	Fees	\$0.00	\$0.00	

- On the CBS Register, change your Saved Views to **Alternates View**.
- Select the Rock Excavation cost item. Under the Alternate column, select the drop down arrow, and then select the **Add** icon. This will open up a new form to create a new Alternate record.





11. Type **ROCK1** in the Code field, and type **Rock Excavation** in the Description field. Once done, click **OK**.

Code: \* **ROCK1** Description: **Rock Excavation**

12. An Attention message will appear alerting you the item will be suspended once you move off the field.

**Attention**

You are ordering a scheduled cost item to be suspended. If you continue, this cost item and any subordinates will be removed from the schedule. If you later decide to un-suspend the cost item, it will return to the schedule beginning on the project start date, and any scheduling logic will be lost. Do you want to continue?

☐ Never ask me this question again

13. Select **Yes**. You see the Rock Excavation item is now in suspended status.

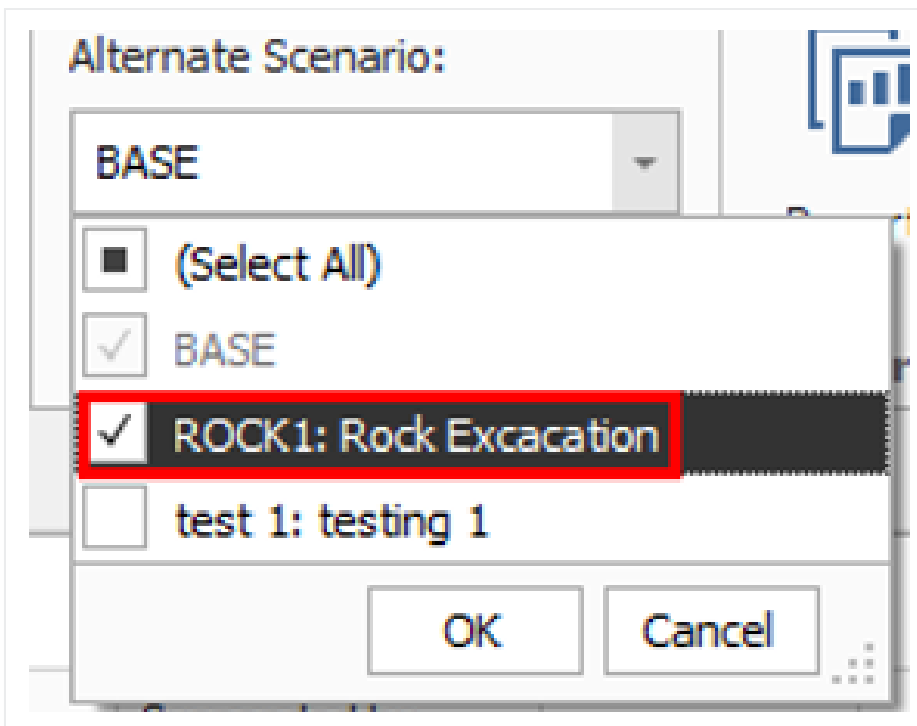


Description	Forecast (T/O) Quantity	Unit Cost	Total Cost (Forecast)	Currency	Alternate
Rock Excavation	3,000.00	\$28.00	\$84,000.00	U.S. Dollar	BASE

**NOTE**

Suspended status is the default status for alternate items.

14. In order to activate this alternate item, select the **Estimate** tab in the Ribbon and go the **Alternate Scenario** drop down in the Alternates section.
15. Then select the **ROCK1** scenario. Once done, click **OK**. The Suspend check box fields is no longer checked for Rock Excavation.

**NOTE**

Alternate Scenario's BASE and ROCK1 are now both included in the Total Cost Forecast in your estimate. This is also known as additive type of alternate, meaning that when it's active it will be added to the estimate. When Alternate Scenario Base + ROCK1 are both checked, the cost item assigned to the ROCK1 alternate is included in the Total Cost (Forecast).



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Curr
<b>3</b>	<b>Unclassified Excavation</b>	50,000.00	Cubic Yard	\$9.95	\$497,466.56	U.S.
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard	\$3.00	\$149,922.88	U.S.
+ 3.2	Excavation, trucks	50,000.00	Cubic Yard	\$3.59	\$179,550.75	U.S.
+ 3.4	Rock Excavation	3,000.00	Cubic Yard	\$28.00	\$84,000.00	U.S.
4		103,000.00			<b>\$413,473.62</b>	

16. When only the Base Alternate Scenario is checked, the cost item assigned to the ROCK1 alternate is NOT included in the Total Cost (Forecast). Only base alternates are including the estimate's cost.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit Cost	Total Cost (Forecast)	Alternate	Altern Descr
<b>3</b>	<b>Unclassified Excavation</b>	50,000.00	\$8.27	\$413,466.56	BASE	BASE
+ 3.1	Excavation, scrapers	50,000.00	\$3.00	\$149,922.88	BASE	BASE
+ 3.2	Excavation, trucks	50,000.00	\$3.59	\$179,550.75	BASE	BASE
+ 3.4	Rock Excavation	3,000.00	\$28.00	\$84,000.00	ROCK1	Rock
4		100,000.00		<b>\$329,473.62</b>		

**TIP**

When a cost item is assigned to an alternate, it's then considered an alternate item in the estimate and does not contribute to the job's cost until the alternate is 'activated'.

### 15.30.4 Assigning multiple cost items to one alternate

Any number of cost items can be assigned to a single alternate item. The alternate feature can be used to quickly suspend and unsuspend groups of items. Another manner in which alternates can be used would be to consider two different approaches to completing the same scope of work. In this case the activation of an alternate would replace the preselected cost items.



Imagine you are a contractor and want to assign an Alternate Scenario to your 3.2 Excavation Trucks cost item, and at the same time automatically suspend your 3.1 Excavation Scrapers cost item. You need an Alternate Scenario view showing what would happen when you suspend Excavation Scrapers, but want to keep your Excavation Trucks active. You'd like to evaluate this pricing scenario, especially your Total Cost Forecast.

### Step by Step — Multiple Cost Items to an Alternate

1. From the Ribbon, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
3. Create a copy of cost item Excavation and rename it **Excavation, scrapers**.
4. Rename the original Excavation cost item to **Excavation, trucks**.
5. Under the Unit of Measure column, select **Cubic Yard**.

3	Unclassified Excavation	50,0
+ 3.1	Excavation, scrapers	50,0
+ 3.2	Excavation, trucks	50,0
+ 3.3	Embankment	50,0
+ 3.4	Rock Excavation	3,0

6. Double click to open the cost item **Excavation, trucks**.
7. Add a new Construction Equipment Resource: code **ETDT Dump Truck**, then select **OK**.
8. Add a new Construction Equipment Resource: code **EL950 Loader 950**, select **OK**.
9. Change the quantity of ETDT Dump Truck to **5**.
10. Add a new Labor Resource: code **LT1 Teamster**, then select **OK**.
11. Change the quantity for LT1 Teamster to **5**.
12. Remove resources **ES621 Scraper 621**, **ES623 Scraper 623**, **L01 Operator Class 1**.
13. Change the quantity for L02 Operator Class to **5**.
14. Change the Cubic Yard/Day to **2800** on the Production tab.



15. Your results should look like this:

Row Number		Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	U
+	1	ETWT		Water Truck			1.00	E
+	2	ED8		Dozer D8			1.00	E
+	3	ECOMP1		Compactor Smooth ...			1.00	E
+	4	ECOMP2		Compactor Sheeps ...			1.00	E
+	5	LL2		Laborer			1.00	E
+	6	LO4		Operator Foreman			1.00	E
+	7	EG14G		Grader 14G			1.00	E
+	8	LO2		Operator Class 2			5.00	E
+	9	EL950		Loader 950			1.00	E
+	10	ETDT		Dump Truck			5.00	E
+	11	LT1		Teamster			5.00	E

16. The Unit and Total Cost are now recalculated. Once you are done with all your changes, click **OK** to return to the CBS register.

Unit of Measure:	Unit Cost:	Total Cost:	Currency:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cubic Yard	\$9.95	\$497,466.56	U.S. Dollar
Cubic Yard	<b>\$3.59</b>	<b>\$179,550.75</b>	U.S. Dollar
Cost Segment:	Pay Quantity:	Cost Source:	Alternate:
Direct Cost	50,000.00	Detail	BASE

X

Qty Driven

17. Your Excavation, truck cost item is now worth \$3.59 a Cubic Yard, while your Excavation, scraper cost item is worth \$3.00 a Cubic Yard.



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
3	<b>Unclassified Excavation</b>	50,000.00	Cubic Yard
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard
+ 3.2	Excavation, trucks	50,000.00	Cubic Yard

**NOTE**

In order to make these two cost items mutually exclusive, meaning that you want one or the other in the bid, you can set this up via an alternate item. You can set this up so that one is automatically suspended, while the other is active

18. For **Excavation, truck**, add a new Alternate by click on the Alternate field and selecting the **new** icon.

BASE		BASE	
Code	Description	Active	
ALT 3	ALT 3	Yes	
BASE	BASE	Yes	
ROCK1	Rock Excavation	Yes	

19. Type **ROCK2** in the Code.
20. Type in **Trucking Excavation** for the description.
21. Click on the Cost Items tab. In the CBS Position Code field, select the **Excavation, scrapers**.  
Excavation, scrapers will now be suspended when Alternate Excavation, trucks is active.



Code: \* **ROCK2** Description: **Rock Excavation**

Pay Items Cost Items

Assigned to Alternate

Drag columns here to group

CBS Position Code	Description	Optional Code

Suspended by Alternate

Drag columns here to group

CBS Position Code	Description	Optional Code
<b>3.1</b>	Excavation, scrapers	3.1

22. An Attention message will appear alerting you the item will be suspended once you move off the field. Select **Yes** to continue. On the CBS Register, you now see that **Excavation, trucks** is suspended while Excavation, scrapers is activated.

**Attention**

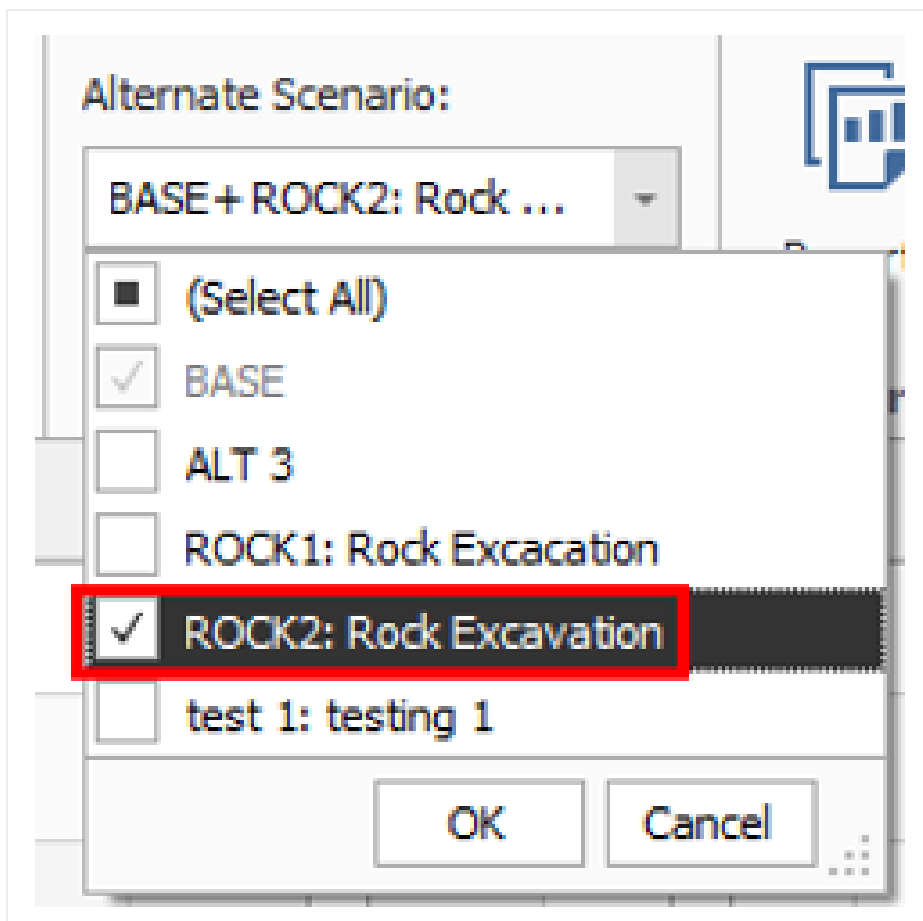
You are ordering a scheduled cost item to be suspended. If you continue, this cost item and any subordinates will be removed from the schedule. If you later decide to un-suspend the cost item, it will return to the schedule beginning on the project start date, and any scheduling logic will be lost. Do you want to continue?

☐ Never ask me this question again

**Yes** **No**

23. In order to activate this alternate item, select the **Estimate** tab in the Ribbon and go the **Alternate Scenario** drop down in the Alternates section.
24. Then select the **ROCK2** scenario. Once done, click **OK**.





25. The trucks cost item is now active and scrapers has automatically been suspended. Now the Suspended by Alternate column is checked for cost item **Excavation, trucks**.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
3	Unclassified Excavation	50,000.00	Cubic Yard	\$6.95	\$347,543.68	U.S. Dollar
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard	\$3.00	\$149,922.88	U.S. Dollar
+ 3.2	Excavation, trucks	50,000.00	Cubic Yard	\$3.59	\$179,550.75	U.S. Dollar

## 15.31 ALTERNATE SCENARIOS

The Alternate scenarios feature allows a contractor to effectively evaluate multiple approaches to an estimate, and quickly identify the most cost efficient way of performing the proposed work. Both owners and contractors need more visibility to see the impact of changes made to the assumption made on the cost model.



For example, a contractor might want to estimate the cost of hauling excavation material using a scraper hauling machine(s). Alternatively, a contractor may want to compare the cost of loading and hauling that same excavation material with a loader truck(s). You should be able to estimate both approaches quickly and switch between various scenarios.

Owners are increasingly requiring contractors to provide alternative items within the bid proposal. Contractors should consider the cost impact of alternative estimate approaches, while also contemplating how to effectively price their work.

The primary purpose for using Alternate Scenarios is to create 'What If' type of scenarios to gain a better view of estimating 'like' situations. By defining Alternates, you have the ability to compare multiple scenarios within an estimate, in which you can suspend or unsuspend various records.

**TIP**

Manually suspending and unsuspending items can be time consuming and error prone, and can require maintenance of several versions of the estimate. Creating Alternate Scenarios is a solution to this problem.

## 15.31.1 Base Alternate

Base Alternate refers to your base or anchor estimate and is part of the estimate's cost.

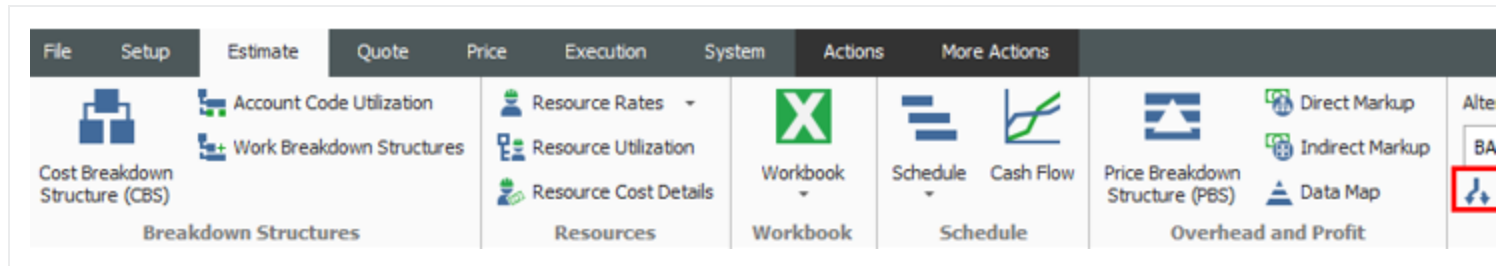
CBS Pos... Code	Description	Forecast (T/O) Quantity	Unit of Mea...	Unit Cost	Total Cost (Forecast)	Alternate
	<b>JOB</b>	20.00	Mile	\$298,546.40	\$5,970,927.99	BASE
+	<b>Prime Bond</b>	1.00	Lump Sum	\$47,745.51	\$47,745.51	BASE
+	<b>Price % Add-On</b>	1.00	Lump Sum	\$301,009.62	\$301,009.62	BASE
+	<b>Job Financing</b>	1.00	Lump Sum	\$0.00	\$0.00	BASE
+	<b>Indirect Cost Escalat...</b>	1.00	Lump Sum	\$0.00	\$0.00	BASE
+	<b>Direct Cost Escalation</b>	1.00	Lump Sum	\$11,026.79	\$11,026.79	BASE
+	<b>Indirect Cost Add-On</b>	1.00	Lump Sum	\$0.00	\$0.00	BASE
+	<b>Job Management &amp; ...</b>	1.00	Lump Sum	\$157,096.28	\$157,096.28	BASE
+	<b>General Expense</b>	1.00	Lump Sum	\$4,200.00	\$4,200.00	BASE
+	<b>Direct Cost Add-On</b>	1.00	Lump Sum	\$106,459.21	\$106,459.21	BASE
+ 1	<b>Mobilization</b>	1.00	Lump Sum	\$75,000.00	\$75,000.00	BASE
+ 2	<b>Clearing &amp; Grubbing</b>	10.00	Acre	\$0.00	\$0.00	BASE
3	<b>Unclassified Excavati...</b>	50,000.00	Cubic Yard	\$6.36	\$317,915.81	BASE
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard	\$3.00	\$149,922.88	BASE



## 15.31.2 Alternates Records

Alternate records are used to define alternate scenarios so that you can assess the impact of those scenarios.

To access the Alternates form select the **Estimate** tab. Under the Alternates section, select **Alternates**.



This action opens up the **Alternate Record Details** form.

Names	Description
1. Code	Code of Alternate Scenario.
2. Description	Description of Alternate Scenario.
3. Active	Determines if Alternate Scenario is active within CBS or not.
4. Total Cost (Added)	When Alternate is set to active, it will not be suspended, and its CBS Total Cost will be added to the estimate's Total Cost Forecast. Below example shows the full \$84,000 will be included in the estimate.
5. Total Cost (Suspended)	When Alternate is set to active, Total Cost Suspended will be \$0 because alternate is active part of bid.
6. Total Cost (Net Change)	Difference between Total Cost Added and Total Cost Suspended.



Training Job - Estimate

File

Setup

Estimate

Quote

Price

Execution

System

Job Properties

Foundation Setup Data

Pay Item & Proposal

Bid Wizard

Resource Rates

Labor

Equipment

Materials

Resource Assemblies

Cost It Assembl

Initialize

Resources

As

Job Properties

Job Folder Tags

Competitors

Pricing

Schedule

Cash Flow

Equipment Maintenance

Benchma

Drag columns here to group

Find: [Search For...] ...

Saved views: Pre

	Code 1	Description 2	Active 3	Total Cost (Added) 4	Total Cost (Suspended) 5	T (0)
	BASE	BASE	<input checked="" type="checkbox"/>			
	ROCK1	Rock Excacation	<input checked="" type="checkbox"/>	\$84,000.00	\$0.00	
	test 1	testing 1	<input type="checkbox"/>	\$0.00	\$0.00	
→			<input type="checkbox"/>			

3

### 15.31.3 Alternates Record Details

Drill down into an Alternate Record to view and edit its attributes. The Alternate Record details form provides you with a way to setup rules for auto suspending and unsuspending groups of cost items.



Names	Description
1. Assigned to Alternate	Code of Alternate Scenario.
2. Suspended by Alternate	Description of Alternate Scenario.

**Cost Breakdown Structure (CBS) Register** | Job Properties | Alternate Record

Code: \* ROCK2 | Description: Rock Excavation | Active: ☐

Pay Items | Cost Items

**Assigned to Alternate** 1 | Total Cost (Added): \$179,550.75

Drag columns here to group | Find: [Search For...] | Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Hours (Duration driven)	Hours (Non-Duration driven)	Hours (Total)	Days (Duration driven)
→ 3.2	Excavation, trucks	3.1	50,000.00	142.86	44.00	142.86	

**Suspended by Alternate** 2 | Total Cost (Suspended): \$149,922.88

Drag columns here to group | Find: [Search For...] | Saved views: Previous View

CBS Position Code	Description	Optional Code	Forecast (T/O) Quantity	Hours (Duration driven)	Hours (Non-Duration driven)	Hours (Total)	Days (Duration driven)
→ 3.1	Excavation, scrapers	3.1	50,000.00	125.00	44.00	125.00	

OK Cancel New...

## Step by Step — Create Alternate Scenario in CBS

1. From the Ribbon, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
3. Using the Unclassified Excavation cost item, type in **Rock Excavation** as a new subordinate.
4. Then type in **3000** in the Forecast T/O Quantity column.
5. Under the Unit of Measure column, select **Cubic Yard**.



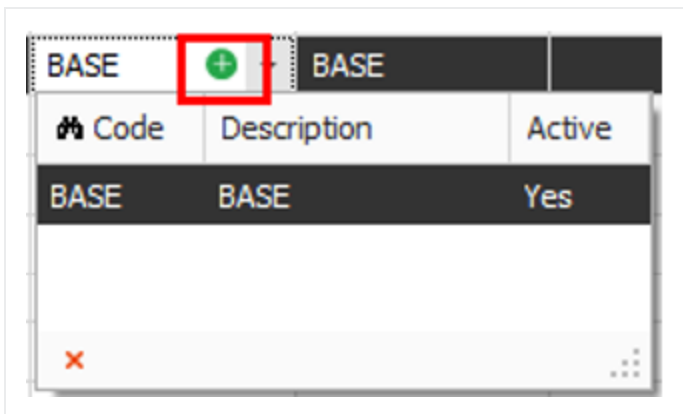
3	Unclassified Excavation	50,000.00	Cubic Yard
+ 3.1	Excavation	50,000.00	Cubic Yard
+ 3.2	Embankment	50,000.00	Cubic Yard
+ 3.3	Rock Excavation	3,000.00	Cubic Yard

- Double click the Rock Excavation cost item to open the cost item's record.
- Select the **Plug** tab. Under the Subcontract section click into the Unit Cost field for the Subcontract Price.
- Type **\$28.00** in the Plug Unit Cost column for the Subcontract Price. Once done, click **OK**.

Cost Item Summary		Detail : \$0.00	Plug : \$28.00	
Cost Category		Unit Cost	Total Cost	
▼	Total	\$28.00	\$84,000.00	
>	Labor	\$0.00	\$0.00	
>	Owned Equipment	\$0.00	\$0.00	
>	Rented Equipment	\$0.00	\$0.00	
>	Supplies	\$0.00	\$0.00	
>	Materials	\$0.00	\$0.00	
▼	Subcontract	\$28.00	\$84,000.00	
	Subcontract Price	\$28.00	\$84,000.00	
	Subcontract Conditions	\$0.00	\$0.00	
	Subcontract Taxes	\$0.00	\$0.00	
	Subcontract Bond	\$0.00	\$0.00	
	Undefined Subcontract	\$0.00	\$0.00	
>	Fees	\$0.00	\$0.00	

- On the CBS Register, change your Saved Views to **Alternates View**.
- Select the Rock Excavation cost item. Under the Alternate column, select the drop down arrow, and then select the **Add** icon. This will open up a new form to create a new Alternate record.





11. Type **ROCK1** in the Code field, and type **Rock Excavation** in the Description field. Once done, click **OK**.

Code: \* **ROCK1** Description: **Rock Excavation**

Pay Items Cost Items

12. An Attention message will appear alerting you the item will be suspended once you move off the field.

**Attention**

You are ordering a scheduled cost item to be suspended. If you continue, this cost item and any subordinates will be removed from the schedule. If you later decide to un-suspend the cost item, it will return to the schedule beginning on the project start date, and any scheduling logic will be lost. Do you want to continue?

☐ Never ask me this question again

Yes No

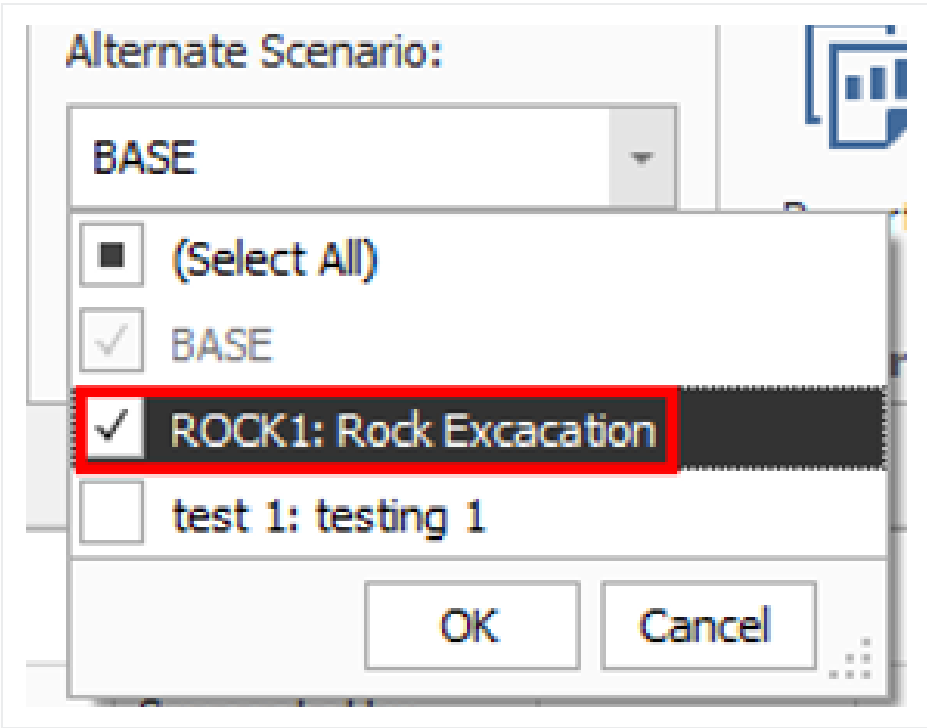
13. Select **Yes**. You see the Rock Excavation item is now in suspended status.



Description	Forecast (T/O) Quantity	Unit Cost	Total Cost (Forecast)	Currency	Alternate
Rock Excavation	3,000.00	\$28.00	\$84,000.00	U.S. Dollar	BASE

**NOTE** Suspended status is the default status for alternate items.

- 14. In order to activate this alternate item, select the **Estimate** tab in the Ribbon and go the **Alternate Scenario** drop down in the Alternates section.
- 15. Then select the **ROCK1** scenario. Once done, click **OK**. The Suspend check box fields is no longer checked for Rock Excavation.



**NOTE** Alternate Scenario’s BASE and ROCK1 are now both included in the Total Cost Forecast in your estimate. This is also known as additive type of alternate, meaning that when it’s active it will be added to the estimate. When Alternate Scenario Base + ROCK1 are both checked, the cost item assigned to the ROCK1 alternate is included in the Total Cost (Forecast).



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Curr
3	Unclassified Excavation	50,000.00	Cubic Yard	\$9.95	\$497,466.56	U.S.
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard	\$3.00	\$149,922.88	U.S.
+ 3.2	Excavation, trucks	50,000.00	Cubic Yard	\$3.59	\$179,550.75	U.S.
+ 3.4	Rock Excavation	3,000.00	Cubic Yard	\$28.00	\$84,000.00	U.S.
4		103,000.00			\$413,473.62	

16. When only the Base Alternate Scenario is checked, the cost item assigned to the ROCK1 alternate is NOT included in the Total Cost (Forecast). Only base alternates are including the estimate's cost.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit Cost	Total Cost (Forecast)	Alternate	Altern Descr
3	Unclassified Excavation	50,000.00	\$8.27	\$413,466.56	BASE	BASE
+ 3.1	Excavation, scrapers	50,000.00	\$3.00	\$149,922.88	BASE	BASE
+ 3.2	Excavation, trucks	50,000.00	\$3.59	\$179,550.75	BASE	BASE
+ 3.4	Rock Excavation	3,000.00	\$28.00	\$84,000.00	ROCK1	Rock
4		100,000.00		\$329,473.62		

**TIP**

When a cost item is assigned to an alternate, it's then considered an alternate item in the estimate and does not contribute to the job's cost until the alternate is 'activated'.

### 15.31.4 Assigning multiple cost items to one alternate

Any number of cost items can be assigned to a single alternate item. The alternate feature can be used to quickly suspend and unsuspend groups of items. Another manner in which alternates can be used would be to consider two different approaches to completing the same scope of work. In this case the activation of an alternate would replace the preselected cost items.



Imagine you are a contractor and want to assign an Alternate Scenario to your 3.2 Excavation Trucks cost item, and at the same time automatically suspend your 3.1 Excavation Scrapers cost item. You need an Alternate Scenario view showing what would happen when you suspend Excavation Scrapers, but want to keep your Excavation Trucks active. You'd like to evaluate this pricing scenario, especially your Total Cost Forecast.

## Step by Step — Multiple Cost Items to an Alternate

1. From the Ribbon, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
3. Create a copy of cost item Excavation and rename it **Excavation, scrapers**.
4. Rename the original Excavation cost item to **Excavation, trucks**.
5. Under the Unit of Measure column, select **Cubic Yard**.

3	Unclassified Excavation	50,000
+ 3.1	Excavation, scrapers	50,000
+ 3.2	Excavation, trucks	50,000
+ 3.3	Embankment	50,000
+ 3.4	Rock Excavation	3,000

6. Double click to open the cost item **Excavation, trucks**.
7. Add a new Construction Equipment Resource: code **ETDT Dump Truck**, then select **OK**.
8. Add a new Construction Equipment Resource: code **EL950 Loader 950**, select **OK**.
9. Change the quantity of ETDT Dump Truck to **5**.
10. Add a new Labor Resource: code **LT1 Teamster**, then select **OK**.
11. Change the quantity for LT1 Teamster to **5**.
12. Remove resources **ES621 Scraper 621**, **ES623 Scraper 623**, **L01 Operator Class 1**.
13. Change the quantity for L02 Operator Class to **5**.
14. Change the Cubic Yard/Day to **2800** on the Production tab.
15. Your results should look like this:



Row Number		Code	Resource Assembly	Description	Quantity (Less Waste)	Waste % Add-on	Quantity	U
+	1	ETWT		Water Truck			1.00	E
+	2	ED8		Dozer D8			1.00	E
+	3	ECOMP1		Compactor Smooth ...			1.00	E
+	4	ECOMP2		Compactor Sheeps ...			1.00	E
+	5	LL2		Laborer			1.00	E
+	6	LO4		Operator Foreman			1.00	E
+	7	EG14G		Grader 14G			1.00	E
+	8	LO2		Operator Class 2			5.00	E
+	9	EL950		Loader 950			1.00	E
+	10	ETDT		Dump Truck			5.00	E
+	11	LT1		Teamster			5.00	E

16. The Unit and Total Cost are now recalculated. Once you are done with all your changes, click **OK** to return to the CBS register.

Unit of Measure:	Unit Cost:	Total Cost:	Currency:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cubic Yard	\$9.95	\$497,466.56	U.S. Dollar
Cubic Yard	<b>\$3.59</b>	<b>\$179,550.75</b>	U.S. Dollar
Cost Segment:	Pay Quantity:	Cost Source:	Alternate:
Direct Cost	50,000.00	Detail	BASE

X

Qty Driven

17. Your Excavation, truck cost item is now worth \$3.59 a Cubic Yard, while your Excavation, scraper cost item is worth \$3.00 a Cubic Yard.





CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
3	Unclassified Excavation	50,000.00	Cubic Yard
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard
+ 3.2	Excavation, trucks	50,000.00	Cubic Yard

NOTE

In order to make these two cost items mutually exclusive, meaning that you want one or the other in the bid, you can set this up via an alternate item. You can set this up so that one is automatically suspended, while the other is active

18. For **Excavation, truck**, add a new Alternate by click on the Alternate field and selecting the **new** icon.

BASE		BASE	
 Code	Description	Active	
ALT 3	ALT 3	Yes	
BASE	BASE	Yes	
ROCK1	Rock Excacation	Yes	

19. Type **ROCK2** in the Code.
20. Type in **Trucking Excavation** for the description.
21. Click on the Cost Items tab. In the CBS Position Code field, select the **Excavation, scrapers**.  
Excavation, scrapers will now be suspended when Alternate Excavation, trucks is active.



Code: \* **ROCK2** Description: **Rock Excavation**

Pay Items Cost Items

Assigned to Alternate

Drag columns here to group

CBS Position Code	Description	Optional Code

Suspended by Alternate

Drag columns here to group

CBS Position Code	Description	Optional Code
<b>3.1</b>	Excavation, scrapers	3.1

22. An Attention message will appear alerting you the item will be suspended once you move off the field. Select **Yes** to continue. On the CBS Register, you now see that **Excavation, trucks** is suspended while Excavation, scrapers is activated.

**Attention**

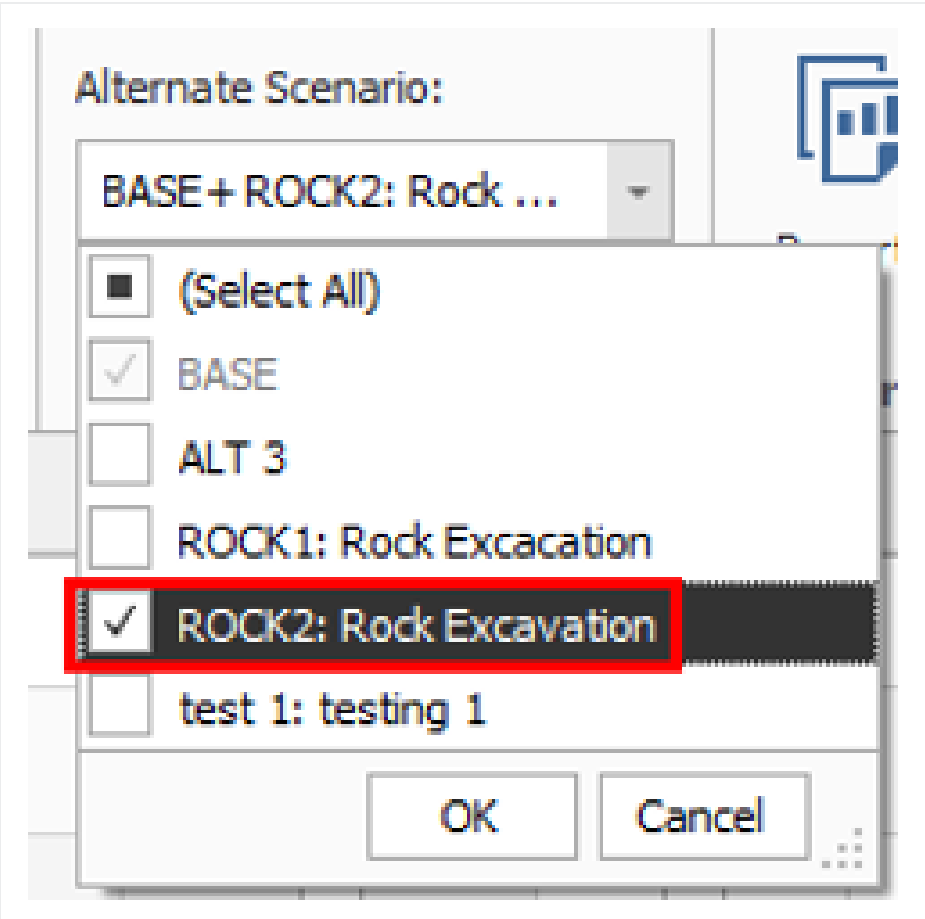
You are ordering a scheduled cost item to be suspended. If you continue, this cost item and any subordinates will be removed from the schedule. If you later decide to un-suspend the cost item, it will return to the schedule beginning on the project start date, and any scheduling logic will be lost. Do you want to continue?

☐ Never ask me this question again

**Yes** **No**

23. In order to activate this alternate item, select the **Estimate** tab in the Ribbon and go the **Alternate Scenario** drop down in the Alternates section.
24. Then select the **ROCK2** scenario. Once done, click **OK**.





25. The trucks cost item is now active and scrapers has automatically been suspended. Now the Suspended by Alternate column is checked for cost item **Excavation, trucks**.

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
3	Unclassified Excavation	50,000.00	Cubic Yard	\$6.95	\$347,543.68	U.S. Dollar
+ 3.1	Excavation, scrapers	50,000.00	Cubic Yard	\$3.00	\$149,922.88	U.S. Dollar
+ 3.2	Excavation, trucks	50,000.00	Cubic Yard	\$3.59	\$179,550.75	U.S. Dollar

## 15.32 PAY ITEM ALTERNATES

An Alternate Scenario is a set of active Alternates that can also be used with Pay Items. It’s reasonable for the owner to include pay items as alternates within a job. The owner will most likely base the bid selection criteria primarily on the base bid items, but may also include alternate items in addition.



The contractor will want to understand the cost impact of an alternate if it is awarded. Contractors may not know ahead of time which combination of alternates an owner may choose to award. This feature will help the contractor understand how to spread markup to various bid item prices using different scenarios. This permits easy comparisons between different scenarios.

Imagine you are a contractor and bidding a job where the owner has included a security guard booth pay item as an alternate item in the job. The owner bases the base bid selection criteria on the base bid items, however, the owner elects to include alternate items in the award of the contract too. You as the contractor need to add the new security guard toll booth pay item to analyze the cost impact of adding this alternate, among other scenarios.

**TIP**

Suspending an item is the same as 'Deducting' an item.

The owner's bid could look like this below, where the first eight pay items are base pay items. The last Toll Booth pay item is the owner's Alternate. All items the owner is requesting to see in the contractor's bid.

The one Alternate Construction item below represents a bid item the owner would like to have as part of the bid as well. However, this one alternate is more of a 'would like to have'. The Alternate item(s) help to give the owner the option to accept the Alternates if it still falls within the owner's budget.

SCHEDULE OF UNIT PRICES					
Pay Item #	Description	Qty	UofM	Unit Price	Amount
503(A) 1313	Retaining Wall	850	CY	\$	\$
600 0300	Paint Existing Steel Bridge Structure	1	LS	\$	\$
700	Process Equipment	1	EA	\$	\$
1000	Removal of Underground Storage Tanks	2	EA	\$	\$
1010	Disposal of Contaminated Soil	800	CY	\$	\$
1500 0100	Guardrail Type 2	1,000	LF	\$	\$
1500 0200	Guardrail Type 3A	200	LF	\$	\$
1600 0230	Type 4 Signs	1,000	SF	\$	\$
<b>TOTAL AMOUNT OF BID: \$</b>					

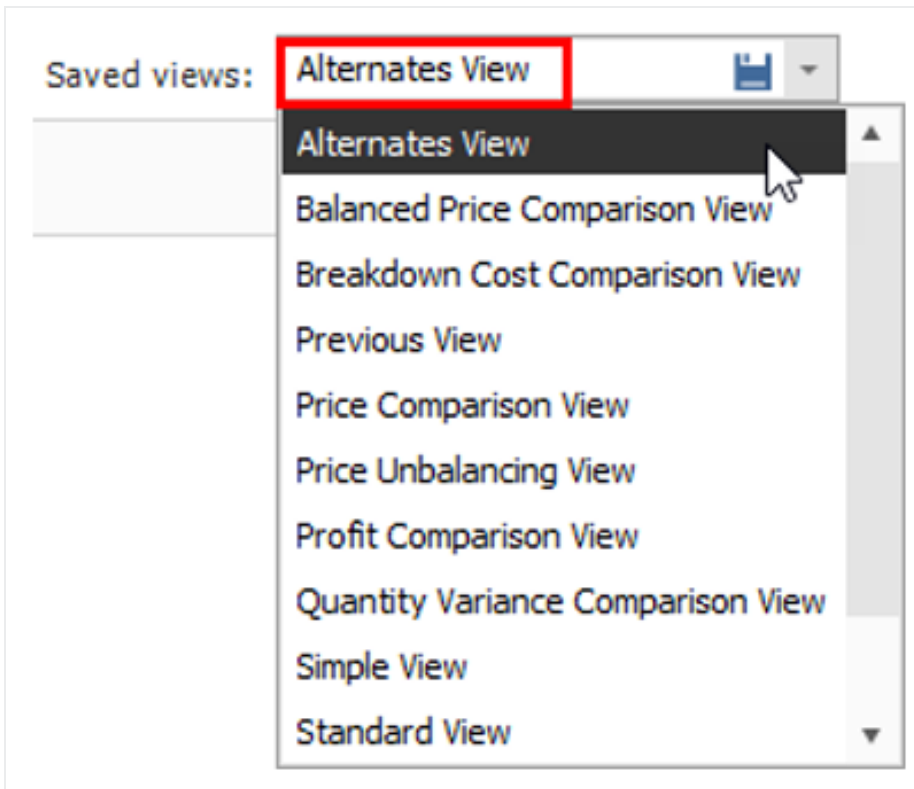
  

SCHEDULE OF UNIT PRICES					
Pay Item #	Description	Qty	UofM	Unit Price	Amount
1200 0100	Guard Toll Booth	1	EA	\$	\$
<b>TOTAL AMOUNT FOR ALTERNATE CONSTRUCTION: \$</b>					



## Step by Step — Create Pay Item and Proposal Alternate Scenario

1. From the Ribbon, select the **Price** tab.
2. Under the Pay Items section, select **Pay Item & Proposal**. The Pay Item & Proposal Register opens.
3. Select the Saved Views drop down arrow and select **Alternates View**.





4. At the bottom of the register, create a new pay item labeled as **Security Guard Booth** in the Description field. Then in the Pay Item Number field, type in **SG1**.



Pay Item Number	Lock Price	Row Number	Line Number	Description	Pay Quantity	Unit of Measure	Currency	Alternate	Alternate Description
+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	10.00	Acre	U.S. Dollar	BASE	BASE
+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	50,000.00	Cubic Yard	U.S. Dollar	BASE	BASE
+ 303 5912	<input type="checkbox"/>	4	40	Aggregate Base	40,000.00	Ton	U.S. Dollar	BASE	BASE
+ 303 4263	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	38,000.00	Ton	U.S. Dollar	BASE	BASE
+ 413(B) 0464	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	1,000.00	Linear Feet	U.S. Dollar	BASE	BASE
+ 800 0220	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	12,000.00	Linear Feet	U.S. Dollar	BASE	BASE
+ 800 0330	<input type="checkbox"/>	8	80	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	Linear Feet	U.S. Dollar	BASE	BASE
+ 800 0400	<input type="checkbox"/>	9	90	4 Foot Diameter Manhole	16.00	Each	U.S. Dollar	BASE	BASE
+ 501(A) 1306	<input type="checkbox"/>	10	100	Structural Excavation & Backfill	800.00	Cubic Yard	U.S. Dollar	BASE	BASE
+ 506(A) 1322	<input type="checkbox"/>	11	110	Steel Reinforcement	30,000.00	Pound	U.S. Dollar	BASE	BASE
+ 503(A) 1313	<input type="checkbox"/>	12	120	Retaining Wall	850.00	Cubic Yard	U.S. Dollar	BASE	BASE
+ 600 0300	<input type="checkbox"/>	13	130	Paint Existing Steel Bridge Struct...	1.00	Lump Sum	U.S. Dollar	BASE	BASE
+ 700	<input type="checkbox"/>	14	140	Process Equipment	1.00	Each	U.S. Dollar	BASE	BASE
+ 1000	<input type="checkbox"/>	15	150	Removal of Underground Storage Tanks	2.00	Each	U.S. Dollar	BASE	BASE
+ 1010	<input type="checkbox"/>	16	160	Disposal of Contaminated Soil	800.00	Cubic Yard	U.S. Dollar	BASE	BASE
+ 1200 0100	<input type="checkbox"/>	17	170	Toll Booth	1.00	Each	U.S. Dollar	BASE	BASE
+ 1500 0100	<input type="checkbox"/>	18	180	Guardrail Type 2	1,000.00	Linear Feet	U.S. Dollar	BASE	BASE
+ 1500 0200	<input type="checkbox"/>	19	190	Guardrail Type 3A	200.00	Linear Feet	U.S. Dollar	BASE	BASE
+ 1600 0230	<input type="checkbox"/>	20	200	Type 4 Signs	1,000.00	Square Fe...	U.S. Dollar	BASE	BASE
+ CO1	<input type="checkbox"/>	21	21	Realignment of Water Line	1.00	Each	U.S. Dollar	BASE	BASE
+ SG1	<input type="checkbox"/>	22	22	Security Guard Booth	1.00	Each	U.S. Dollar	BASE	BASE

- Now create a new Alternate for the Security Guard Booth pay item using the same steps for your new cost item.
- Click in the Alternates field for the Security Guard Booth Alternate. Select the **add** icon. An Alternate Record opens.
- In the Code field, type in code **ALT3**.
- In the Description field type in **Security Guard Booth Alternate**.

Alternate Record 

Code: 

ALT 3

Description:

Security Guard Booth

- Go into the CBS and copy all of the subordinate cost items for the existing **Toll Booth** cost item. (We will assume the same Toll Booth resources are needed for a Security Guard Booth).



 <b>17</b>	<b>Toll Booth</b>	1.00	Each	\$
 17.1	Site Preparation	1.00	Lump Sum	
 17.2	Concrete Reinforcement	1.00	Lump Sum	
 17.3	Cast in Place Concrete	1.00	Lump Sum	
 17.4	Concrete Masonry Units	1.00	Lump Sum	
 17.5	Paneling	1.00	Lump Sum	
 17.6	Wood Doors	1.00	Lump Sum	
 17.7	Wood Flooring	1.00	Lump Sum	
 17.8	Office Furniture	1.00	Lump Sum	
 17.9	Fire Protection Piping	1.00	Lump Sum	
 17.10	Interior Luminaires	1.00	Lump Sum	

10. Paste the copied cost items into the new **Security Guard Booth** cost item you just created in the PIP.

 <b>22</b>	<b>Security Guard Booth</b>	1.00	Each	\$
 22.1	Site Preparation	1.00	Lump Sum	
 22.2	Concrete Reinforcement	1.00	Lump Sum	
 22.3	Cast in Place Concrete	1.00	Lump Sum	
 22.4	Concrete Masonry Units	1.00	Lump Sum	
 22.5	Paneling	1.00	Lump Sum	
 22.6	Wood Doors	1.00	Lump Sum	
 22.7	Wood Flooring	1.00	Lump Sum	
 22.8	Office Furniture	1.00	Lump Sum	
 22.9	Fire Protection Piping	1.00	Lump Sum	
 22.10	Interior Luminaires	1.00	Lump Sum	

11. The cost items have all been automatically suspended in the CBS. This is because the Security Guard Booth pay item is suspended as well



CBS Position Code	Description	Forecast (T/O) Quantity	Unit Cost	Total Cost (Forecast)	Suspended by Alternate	Suspend
<b>22</b>	<b>Security Guard Booth</b>	1.00	\$25,264.55	\$25,264.55	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.1	Site Preparation	1.00	\$3,664.55	\$3,664.55	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.2	Concrete Reinforcement	1.00	\$1,500.00	\$1,500.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.3	Cast in Place Concrete	1.00	\$3,500.00	\$3,500.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.4	Concrete Masonry Units	1.00	\$2,900.00	\$2,900.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.5	Paneling	1.00	\$2,100.00	\$2,100.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.6	Wood Doors	1.00	\$1,000.00	\$1,000.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.7	Wood Flooring	1.00	\$1,800.00	\$1,800.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.8	Office Furniture	1.00	\$2,100.00	\$2,100.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.9	Fire Protection Piping	1.00	\$3,300.00	\$3,300.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+ 22.10	Interior Luminaires	1.00	\$3,400.00	\$3,400.00	<input type="checkbox"/>	<input checked="" type="checkbox"/>

12. In the Pay Item & Proposal Register, activate alternate pay item Security Guard Booth by selecting **Alternate Scenario Base + ALT3** at that top of the form.

The screenshot displays the 'Pay Item & Proposal Register' tab. The 'Alternate Scenario' dropdown menu is open, showing 'BASE+ ALT 3' selected. The 'Cost Breakdown Structure (CBS) Register' shows a 'Proposal Recap - Training Job' with a total price of \$6,337,826.19.

	Current	Target	Forecast	Variance	
Price:	\$6,337,826.19	\$6,834,120.16	\$6,279,104.35	\$496,293.97	<b>ADD</b>

13. The **Security Guard Booth** is now activated. You can now see that all of the pay items have been priced including the Security Guard Booth Alternate pay item.

**NOTE**

You may need to establish your pay item price first if a price does not yet exist

14. From the register, select the **Actions** tab. Then under the Auto Price section, select the **Balance Bid** drop down.



15. Select the option Hit Target Goal in order to auto price the job. Now all of the pay items have been priced, including the Security Guard Booth Alternate pay item.

Pay Item Number	Lock Price	Row Number	Line Number	Description	Unit Price (current)	Total Price (current)	Total Profit (current)	% Margin
+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	\$0.00	\$0.00	\$0.00	0.00
+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	\$0.00	\$0.00	\$0.00	0.00
+ 303 5912	<input type="checkbox"/>	4	40	Aggregate Base	\$19.52	\$780,800.00	\$78,216.54	10.02
+ 303 4263	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	\$52.80	\$2,006,400.00	\$200,601.14	10.00
+ 413(B) 0464	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	\$86.59	\$86,590.00	\$8,669.56	10.01
+ 800 0220	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	\$29.80	\$357,600.00	\$35,731.53	9.99
+ 800 0330	<input type="checkbox"/>	8	80	24 Inch PVC Gravity Sewer (SDR35)	\$63.73	\$191,190.00	\$19,149.92	10.02
+ 800 0400	<input type="checkbox"/>	9	90	4 Foot Diameter Manhole	\$4,557.94	\$72,927.04	\$7,297.96	10.01
+ 501(A) 1306	<input type="checkbox"/>	10	100	Structural Excavation & Backfill	\$27.88	\$22,304.00	\$2,235.53	10.02
+ 506(A) 1322	<input type="checkbox"/>	11	110	Steel Reinforcement	\$1.79	\$53,700.00	\$5,259.72	9.80
+ 503(A) 1313	<input type="checkbox"/>	12	120	Retaining Wall	\$536.21	\$455,778.50	\$45,676.40	10.02
+ 600 0300	<input type="checkbox"/>	13	130	Paint Existing Steel Bridge Struct...	\$101,279.27	\$101,279.27	\$10,163.56	10.04
+ 700	<input type="checkbox"/>	14	140	Process Equipment	\$1,949,552...	\$1,949,552.96	\$194,662.95	9.99
+ 1000	<input type="checkbox"/>	15	150	Removal of Underground Storage Tanks	\$13,363.93	\$26,727.86	\$2,710.77	10.14
+ 1010	<input type="checkbox"/>	16	160	Disposal of Contaminated Soil	\$30.51	\$24,408.00	\$2,479.23	10.16
+ 1200 0100	<input type="checkbox"/>	17	170	Toll Booth	\$31,068.28	\$31,068.28	\$3,103.76	9.99
+ 1500 0100	<input type="checkbox"/>	18	180	Guardrail Type 2	\$28.96	\$28,960.00	\$2,886.42	9.97
+ 1500 0200	<input type="checkbox"/>	19	190	Guardrail Type 3A	\$37.41	\$7,482.00	\$746.33	9.98
+ 1600 0230	<input type="checkbox"/>	20	200	Type 4 Signs	\$15.69	\$15,690.00	\$1,566.81	9.99
+ CO1	<input type="checkbox"/>	21	21	Realignment of Water Line	\$0.00	\$0.00	\$0.00	0.00
+ [Enter Pay I...	<input type="checkbox"/>	22	22	Security Guard Booth	\$31,068.28	\$31,068.28	\$3,103.76	9.99

### 15.32.1 Compare Alternate Scenarios

You can price and analyze the impact of each Alternate Scenario to the estimate's Total Price on the Pay Item & Proposal Register. This is after the Alternate Scenarios have been defined, assigned, and activated.

Each Alternate and combination of Alternates represents a different scenario, and prices need to be established for every scenario that you want to compare.

For example, if you have defined Alternate Scenarios 1, 2 and 3, you may wish to price each of them separately, and price any combination of them, and/or you may wish to price the combination of all three.

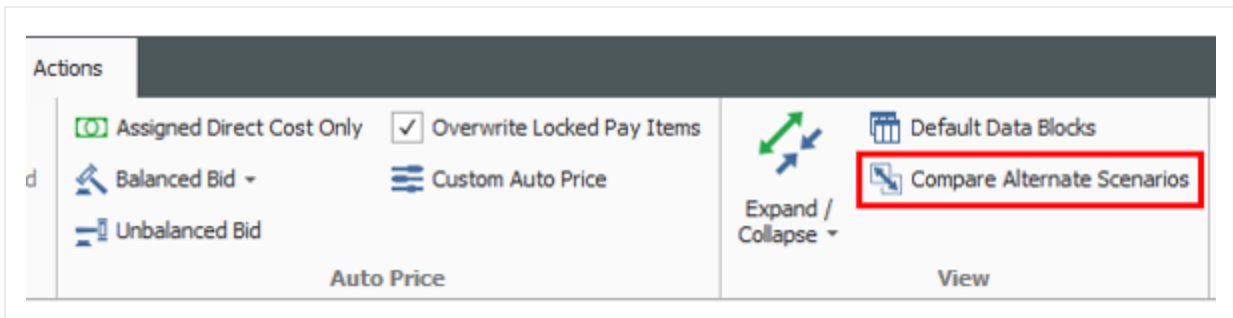
#### TIP

Be sure to establish bid prices for every alternate or combination of alternates.



## Step by Step — Compare Alternate Scenarios

1. From the Ribbon, select the **Price** tab.
2. Under the Pay Items section, select **Pay Item & Proposal**. The Pay Item & Proposal Register opens.
3. On the Pay Item & Proposal Register, select the **Actions** tab. Under the View section, select **Compare Alternative Scenarios**. This action performs a comparison among the various Alternative Scenarios you've priced so far.



4. After selecting Compare Alternative Scenarios, new columns appear on the pay item form. These columns show a comparison of the base bid, plus Alternate Scenarios that have been priced so far.

Pay Item Number	Lock Price	Row Number	Line Number	Description	Unit Price (current)	Total Price (current)	Unit Price (BASE+ALT 3)	Total Price (BASE+ALT 3)	Total Profit (current)
+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
+ 303 5912	<input type="checkbox"/>	4	40	Aggregate Base	\$19.52	\$780,800.00	\$19.52	\$780,800.00	\$78,103.35
+ 303 4263	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	\$52.80	\$2,006,400.00	\$52.80	\$2,006,400.00	\$200,421.84
+ 413(B) 0464	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	\$86.61	\$86,610.00	\$86.59	\$86,590.00	\$8,672.35
+ 800 0220	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	\$29.81	\$357,720.00	\$29.80	\$357,600.00	\$35,796.91
+ 800 0330	<input type="checkbox"/>	8	80	24 Inch PVC Gravity Sewer (SDR35)	\$63.74	\$191,220.00	\$63.73	\$191,190.00	\$19,142.05
+ 800 0400	<input type="checkbox"/>	9	90	4 Foot Diameter Manhole	\$4,558.81	\$72,940.96	\$4,557.94	\$72,927.04	\$7,299.86
+ 501(A) 1306	<input type="checkbox"/>	10	100	Structural Excavation & Backfill	\$27.88	\$22,304.00	\$27.88	\$22,304.00	\$2,231.24
+ 506(A) 1322	<input type="checkbox"/>	11	110	Steel Reinforcement	\$1.79	\$53,700.00	\$1.79	\$53,700.00	\$5,257.72
+ 503(A) 1313	<input type="checkbox"/>	12	120	Retaining Wall	\$536.35	\$455,897.50	\$536.21	\$455,778.50	\$45,689.19
+ 600 0300	<input type="checkbox"/>	13	130	Paint Existing Steel Bridge Struct...	\$101,314.33	\$101,314.33	\$101,279.27	\$101,279.27	\$10,167.93
+ 700	<input type="checkbox"/>	14	140	Process Equipment	\$1,949,681.16	\$1,949,681.16	\$1,949,552.96	\$1,949,552.96	\$194,688.74
+ 1000	<input type="checkbox"/>	15	150	Removal of Underground Storage Tanks	\$13,367.94	\$26,735.88	\$13,363.93	\$26,727.86	\$2,711.80
+ 1010	<input type="checkbox"/>	16	160	Disposal of Contaminated Soil	\$30.52	\$24,416.00	\$30.51	\$24,408.00	\$2,481.93
+ 1200 0100	<input type="checkbox"/>	17	170	Toll Booth	\$31,071.32	\$31,071.32	\$31,068.28	\$31,068.28	\$3,104.28
+ 1500 0100	<input type="checkbox"/>	18	180	Guardrail Type 2	\$28.97	\$28,970.00	\$28.96	\$28,960.00	\$2,895.65
+ 1500 0200	<input type="checkbox"/>	19	190	Guardrail Type 3A	\$37.41	\$7,482.00	\$37.41	\$7,482.00	\$746.13
+ 1600 0230	<input type="checkbox"/>	20	200	Type 4 Signs	\$15.69	\$15,690.00	\$15.69	\$15,690.00	\$1,566.40
+ CO1	<input type="checkbox"/>	21	21	Realignment of Water Line	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
+ [Enter Pay I...	<input type="checkbox"/>	22	22	Security Guard Booth	\$0.00	\$0.00	\$31,068.28	\$31,068.28	\$0.00



5. The current scenario base price Total Price is \$6,307,253.15, however the Alternate Price scenario for the additional Security Guard Booth is \$6,337,826.19

Pay Item Number	Lock Price	Row Number	Line Number	Description	Unit Price (current)	Total Price (current)	Unit Price (BASE+ALT 3)	Total Price (BASE+ALT 3)
+ 201 0102	<input type="checkbox"/>	2	20	Clearing & Grubbing	\$0.00	\$0.00	\$0.00	\$0.00
+ 202 0183	<input type="checkbox"/>	3	30	Unclassified Excavation	\$0.00	\$0.00	\$0.00	\$0.00
+ 303 5912	<input type="checkbox"/>	4	40	Aggregate Base	\$19.52	\$780,800.00	\$19.52	\$780,800.00
+ 303 4263	<input type="checkbox"/>	5	50	Asphalt Concrete Hot Mix Type A	\$52.80	\$2,006,400.00	\$52.80	\$2,006,400.00
+ 413(B) 0464	<input type="checkbox"/>	6	60	36 Inch RCP Culvert Class III	\$86.61	\$86,610.00	\$86.59	\$86,590.00
+ 800 0220	<input type="checkbox"/>	7	70	10 Inch PVC Force Main (SDR21)	\$29.81	\$357,720.00	\$29.80	\$357,600.00
+ 800 0330	<input type="checkbox"/>	8	80	24 Inch PVC Gravity Sewer (SDR35)	\$63.74	\$191,220.00	\$63.73	\$191,190.00
+ 800 0400	<input type="checkbox"/>	9	90	4 Foot Diameter Manhole	\$4,558.81	\$72,940.96	\$4,557.94	\$72,927.04
+ 501(A) 1306	<input type="checkbox"/>	10	100	Structural Excavation & Backfill	\$27.88	\$22,304.00	\$27.88	\$22,304.00
+ 506(A) 1322	<input type="checkbox"/>	11	110	Steel Reinforcement	\$1.79	\$53,700.00	\$1.79	\$53,700.00
+ 503(A) 1313	<input type="checkbox"/>	12	120	Retaining Wall	\$536.35	\$455,897.50	\$536.21	\$455,778.50
+ 600 0300	<input type="checkbox"/>	13	130	Paint Existing Steel Bridge Struct...	\$101,314.33	\$101,314.33	\$101,279.27	\$101,279.27
+ 700	<input type="checkbox"/>	14	140	Process Equipment	\$1,949,681...	\$1,949,681.16	\$1,949,552.96	\$1,949,552.96
+ 1000	<input type="checkbox"/>	15	150	Removal of Underground Storage Tanks	\$13,367.94	\$26,735.88	\$13,363.93	\$26,727.86
+ 1010	<input type="checkbox"/>	16	160	Disposal of Contaminated Soil	\$30.52	\$24,416.00	\$30.51	\$24,408.00
+ 1200 0100	<input type="checkbox"/>	17	170	Toll Booth	\$31,071.32	\$31,071.32	\$31,068.28	\$31,068.28
+ 1500 0100	<input type="checkbox"/>	18	180	Guardrail Type 2	\$28.97	\$28,970.00	\$28.96	\$28,960.00
+ 1500 0200	<input type="checkbox"/>	19	190	Guardrail Type 3A	\$37.41	\$7,482.00	\$37.41	\$7,482.00
+ 1600 0230	<input type="checkbox"/>	20	200	Type 4 Signs	\$15.69	\$15,690.00	\$15.69	\$15,690.00
+ CO1	<input type="checkbox"/>	21	21	Realignment of Water Line	\$0.00	\$0.00	\$0.00	\$0.00
+ [Enter Pay I...	<input type="checkbox"/>	22	22	Security Guard Booth	\$0.00	\$0.00	\$31,068.28	\$31,068.28
						\$6,307,253.15		\$6,337,826.19

## 15.33 BENCHMARKING

Benchmarking is used to validate an estimate's cost and productivity values by comparing them to relevant historical data, specifically as-built and as-estimated information captured from past jobs in Estimate. Unit cost and unit man-hour benchmark data points are displayed graphically in relation to the current estimate.

### NOTE

Using the Benchmarking feature requires the installation of the Data Warehouse. For additional information, see the Data Warehouse topic.



## 15.33.1 Benchmarking Master Job Properties Form

The **Master Job Properties - Benchmarking** form is used to establish the historical data to be used for benchmarking the current job, and to define the default benchmark graph display and calculations.

The **Master Job Properties - Benchmarking** form includes:

- **Historical Data Source** - Select **As-Estimated** and **As-Built** data from the Data Warehouse.
- **Default Cost Item Matching Criteria**, **Default Account Code Matching Criteria** and **Default Jobs Filter** - Define which cost items, account codes and jobs should be included.
- **Benchmark Graph display Options** - Define the data to be represented on both the **X-Axis** and the **Y-Axis** of the graph.
- **Calculate "Average" as-** Define the calculation method as either **Average** or **Weighted Avg (weighted by current Qty)**.
- **Benchmark** - Select a benchmark value of **Cost per Unit**, **Man-Hours / Unit**, or **Units / Man-Hour**.
- **Flag an item's variance relative to the benchmark data when** - Define the breakpoints for low, medium and high variance ranges.
- **Don't benchmark items with fewer than <number> historical data points** - Designate the minimum number of data points needed to benchmark an item.

### NOTE

The data in the Master Job Properties - Benchmarking form is automatically copied to any newly created jobs. If all of the jobs that you create in Estimate will use the same rules, defining the data in the Master Job Properties form will save time when you create new job folders in Estimate.

In addition to the primary **Forecast (T/O) Quantity** and **Unit of Measure** on each cost item, **Secondary Quantity** and **Secondary Unit** fields in the Cost Item Record can be used to capture a meaningful, alternative quantity and unit on which to analyze **As-estimated** data.

You can establish the historical data to be used for benchmarking the current job, define the default benchmark graph display, and define high, low and medium variance ranges on the **Job Properties - Benchmarking** form.



## Step by Step — Benchmarking Master Job Properties Form

1. From the Backstage View, select **Library** from the left pane navigation.
2. From the Ribbon, select the **Setup** tab. Under the section Master Initialization, select **Job Properties**. The Job Properties register opens.
3. On the Job Properties form, select the **Benchmarking** tab.
4. The **Historical Data Source** defaults to Data Warehouse. Select the historical data to use: **As-Estimated**, **As-Built**, or both.
5. To define **Default Cost Item Matching Criteria**, click the **Edit** button and define your criteria for matching cost items. You can select one or many fields and relate them using AND/OR logic.
6. To define **Default Account Code Matching Criteria**, click the **Edit** button and define your criteria for matching cost items. You can select one or many fields and relate them using AND/OR logic.

**NOTE**

A matching benchmark data point will be excluded if its unit of measure type (e.g., area, length, etc.) is different than the unit of measure type of the matching item in the current estimate.

7. To filter the jobs to include, click the Edit button on the **Default Jobs Filter** and define your job filtering criteria.
8. Choose your Benchmark Graph Display Options:
  - Select the data to be represented on the X-Axis:
    - Date
    - Item Quantity (Primary)
    - Item Quantity (Secondary)
    - Ratio (Primary / Secondary)
    - Ratio (Secondary / Primary)
  - Select the data to be represented on the Y-Axis:
    - \$ / Primary Unit
    - Man-Hrs / Primary Unit
    - Primary Units / Man-hr
    - \$ / Secondary Unit



- Man-Hrs / Secondary Unit
  - Secondary Units / Man-hr
9. Define your average calculation method as either **Average** or **Weighted Avg (weighted by current Qty)**.
  10. Define the **Benchmark** values that will be calculated from the historical data set by selecting **Cost per Unit, Man-Hours / Unit** and **Units / Man-Hour**.
  11. Define the variance ranges to be used for flagging an item relative to the benchmark data:
    - To flag an item's variance from the average, select **Its % variance from the average exceeds** and choose the **Low, Medium, and High** percentages to flag (values are incremented by 1%).
    - To flag an item's standard deviations from the norm, select **Its standard deviations from the norm (using SSTDEVP method) exceeds** and choose the **Low, Medium and High** values to flag (values are incremented by .1).
  12. To customize the display colors for the **Low, Medium** and **High** ranges, click on a color block and choose a different color.
  13. To set a minimum number of benchmark data points required for an item to be benchmarked, select a number in the **Don't benchmark items with fewer than historical data points** field.

**NOTE**

NOTE: The data in the Master Job Properties form is automatically copied to any newly created jobs. If all of the jobs that you create in Estimate will use the same data, descriptive information and rules, defining the data in the Master Job Properties form will save time when you create new job folders in Estimate.



The screenshot shows the 'Job Properties' form within a software application. The top navigation bar includes 'File', 'Setup', 'Estimate', 'Execution', and 'System'. Below this is a ribbon with various icons for different setup areas like 'Job Properties', 'Foundation Setup Data', 'Address Book', 'Trench Calculator', 'Shift Rate Calculator', 'Resource Rates', 'Labor', 'Equipment', 'Materials', 'Resource Assemblies', 'Cost Item Assemblies', 'Standard Tables', and 'User Roles'. The 'Job Properties' tab is selected and highlighted with a red box. Below the ribbon, there are several sub-tabs: 'Overview', 'Security', 'Cover Sheet', 'Cost Basis', 'Minority Setup', 'Fuel Cost', 'Job Tracking', 'Job Folder Tags', 'Competitors', 'Pricing', and 'S'. The 'Overview' sub-tab is active. The form is divided into two main sections: 'As-Estimated' and 'As-Built'. The 'As-Estimated' section includes fields for 'Historical Data Source' (set to 'Data Warehouse'), 'Default Cost Item Matching Criteria' (with an 'Edit...' button), 'Default Account Code Matching Criteria' (with an 'Edit...' button), and 'Default Jobs Filter' (set to 'ALL JOBS'). The 'As-Built' section has similar fields, but 'Historical Data Source' is set to 'None'. Below these sections, there are options for 'Benchmark Graph Display Options', including 'X-Axis' (set to 'Item Quantity (Primary)') and 'Y-Axis' (set to 'Cost/Primary Unit'). There are also radio buttons for 'Calculate "Average" as:' (set to 'Average') and checkboxes for 'Benchmark:' (set to 'Cost per Unit'). At the bottom, there are options to 'Flag an item's variance relative to the benchmark data when:' with radio buttons for 'Its % variance from the average exceeds:' and 'Its standard deviations from the norm (using STDEVP method) exceeds:'. The first option is selected, and there are input fields for 'Low', 'Medium', and 'High' values. The 'Low' value is set to 0, 'Medium' to 5, and 'High' to 10. There are also color-coded boxes (green, yellow, red) corresponding to these levels. Finally, there is a field for 'Don't benchmark items with fewer than' set to 0 'historical data points'.

### 15.33.2 Benchmarking Job Properties Form

The Job Properties - Benchmarking form is used to establish the historical data to be used for benchmarking the job, and to define the default benchmark graph display and calculations.

The Job Properties - Benchmarking form includes:



- Historical Data Source - Select As-Estimated and As-Built data from the Data Warehouse.
- Default Cost Item Matching Criteria, Default Account Code Matching Criteria and Default Jobs Filter - Define which cost items and which jobs should be included.
- Benchmark Graph display Options - Define the data to be represented on both the X-Axis and the Y-Axis of the graph.
- Calculate "Average" as- Define the calculation method as either Average or Weighted Avg (weighted by current Qty).
- Benchmark - Select a benchmark value of Cost per Unit, Man-Hours / Unit, or Units / Man-Hour.
- Flag an item's variance relative to the benchmark data when - Define the breakpoints for low, medium and high variance ranges.
- Don't benchmark items with fewer than <number> historical data points - Designate the minimum number of data points needed to benchmark an item.

How to Open this Form:

1. On the Estimate ribbon, select the Setup tab.
2. Under the Initialize section, select Job Properties drop down arrow.
3. On the drop down list, select Benchmarking.

### Step by Step — Opening the Job Properties Form

1. On the Ribbon, select the **Setup** tab.
2. Under the Initialize section, select the **Job Properties** drop down arrow.
3. On the drop down list, select **Benchmarking**.



**Job Properties**

**As-Estimated**

Historical Data Source: Data Warehouse

Default Cost Item Matching Criteria: [Description] EQUAL

Default Account Code Matching Criteria: [Account Code] EQUAL

Default Jobs Filter: ALL JOBS

**As-Built**

Historical Data Source: None

Default Cost Item Matching Criteria: Edit ...

Default Account Code Matching Criteria: Edit ...

Default Jobs Filter: Edit ... ALL JOBS

Benchmark Graph Display Options: X-Axis: Item Quantity (Primary) Y-Axis: Cost/Primary Unit

Calculate "Average" as: ☒ Average ☐ Weighted Avg (weighted by current Qty)

Benchmark: ☒ Cost per Unit ☒ Man-Hours / Unit ☒ Units / Man-Hour

Flag an item's variance relative to the benchmark data when:

☒ Its % variance from the average exceeds: 0 5 10

☐ Its standard deviations from the norm (using STDEVP method) exceeds: 0.0 0.5 1.0

Don't benchmark items with fewer than 0 historical data points

### 15.33.3 Benchmarking Graph

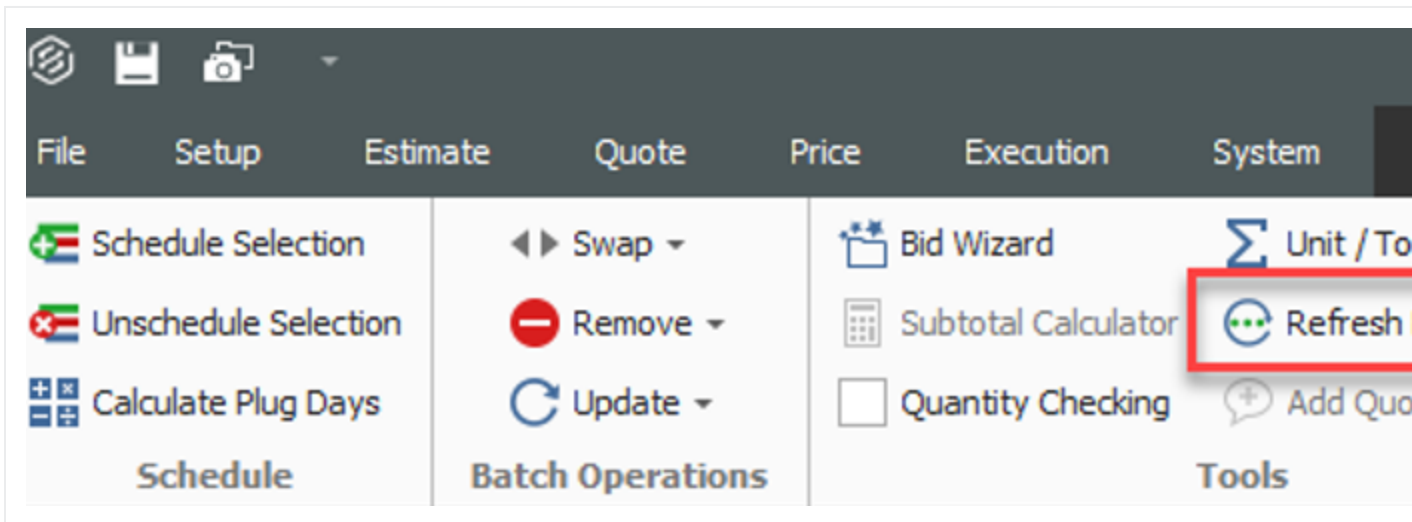
The defaults for the benchmarking graph are defined on the **Job Properties - Benchmarking** form, but on the **Cost Item Record - Benchmarking** form you have the ability to override the default criteria in order to expand or contract the amount of historical data being used to calculate benchmark values for a specific cost item. This way, you can filter the historical data sources to only the past jobs that are relevant to that cost item.



Before starting this procedure, make sure to set up your default benchmarking options, as outlined in the Benchmarking Options topic.

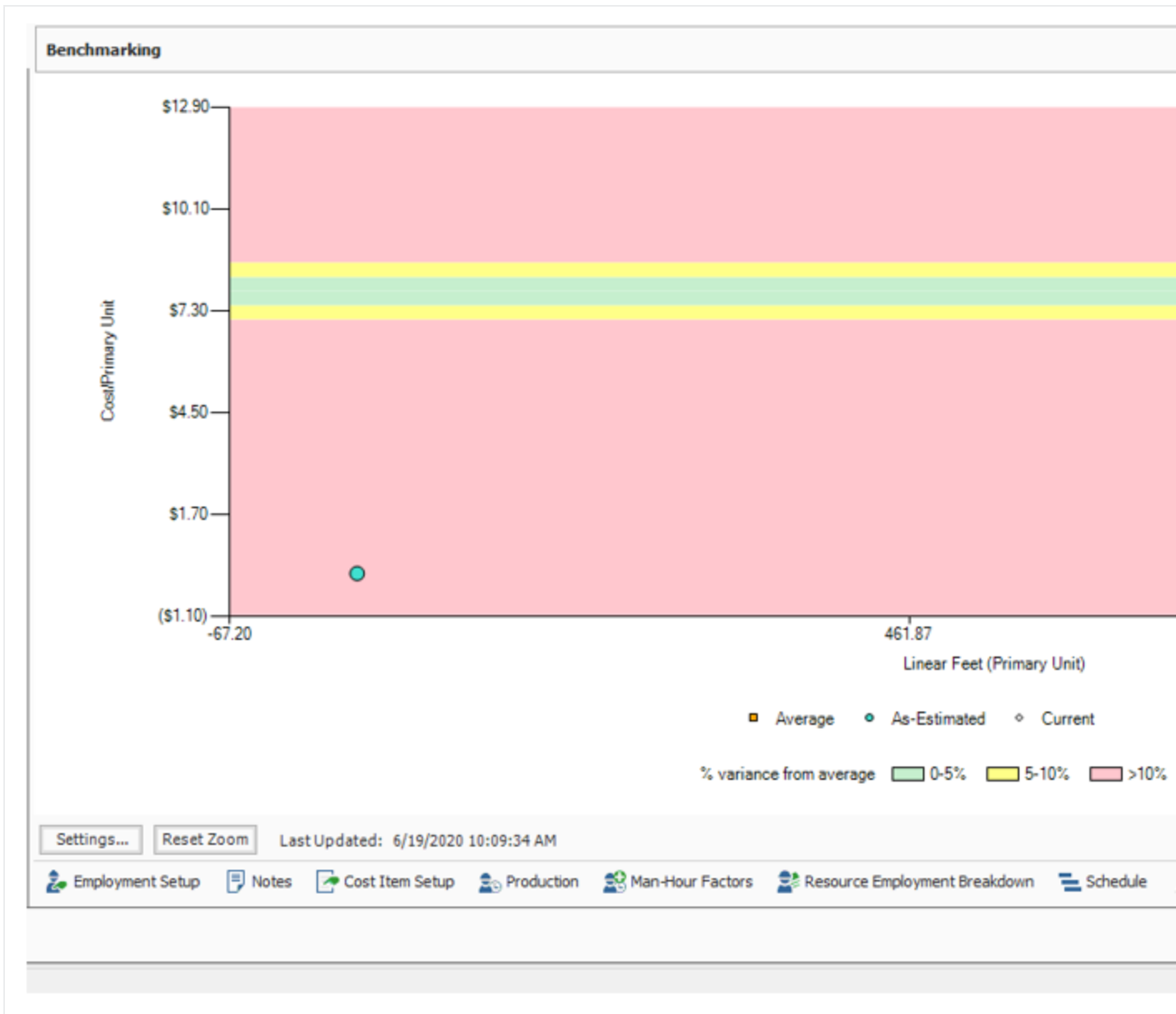
## Step by Step — Benchmarking Graph

1. From the Ribbon, select the Estimate tab. Under Breakdown Structures, select **Cost Breakdown Structure (CBS)**.
2. On the Cost Breakdown Structure (CBS) Register, select the **More Actions** tab. Under the Tools section, select **Refresh Benchmarks**.



3. The Refresh Benchmarks dialog shows the Last refresh date and the number of Jobs matching filter criteria.
  - If the number of matching jobs is too large or too small, return to step 1 and expand or contract your filtering options.
  - If the number of matching jobs is acceptable, click Refresh Now to proceed.
4. Open the Cost Item Record of any preferred cost item.
5. Click on the **Benchmarking** default data block located in the lower right portion of the Cost Item Record.
6. The benchmarking graph shows the historical benchmark values for this cost item, along with the Current value, the Average value, and the variance ranges represented by each color. This information is calculated and displayed as specified on the Job Properties - Benchmarking form.





7. To refine the values that contribute to this cost item's graph, click the Settings button to display the Settings dialog:
  - To override the job filter for this cost item, click the Edit button in the Override Jobs Filter field and define the filter to use for benchmarking this cost item.
  - To override the Display Options for this cost item, select the desired values from the X-Axis and Y-Axis drop-down boxes.



- To override the list of jobs that contribute to the Included Historical Data for this cost item, use the Auto include all matching data points toggle to include all or exclude all, and select the individual Include check boxes for the jobs you want to include.
- When you have completed your customizations for this cost item's benchmarking, click OK to save your changes and return to the Cost Item Record - Benchmarking form.

**Register** **Cost Item Record**

Description:

**Cost Item '6.3' Benchmark Settings - Training Job**

**As-Estimated**

Inherited Jobs Filter: (From Job Properties) ALL JOBS

Override Jobs Filter:  NO OVERRIDE

Items Filter: [Description] EQUAL Install RCP Pipe

**As-Built**

Inherited Jobs Filter: (From Job Properties) ALL JOBS

Override Jobs Filter:  NO OVERRIDE

Items Filter:

Display Options: X-Axis: Item Quantity (Primary) Y-Axis: Cost/Primary Unit

Included Historical Data: ☒ Auto include all matching data points

Drag columns here to group Find:  Saved views: Previous View

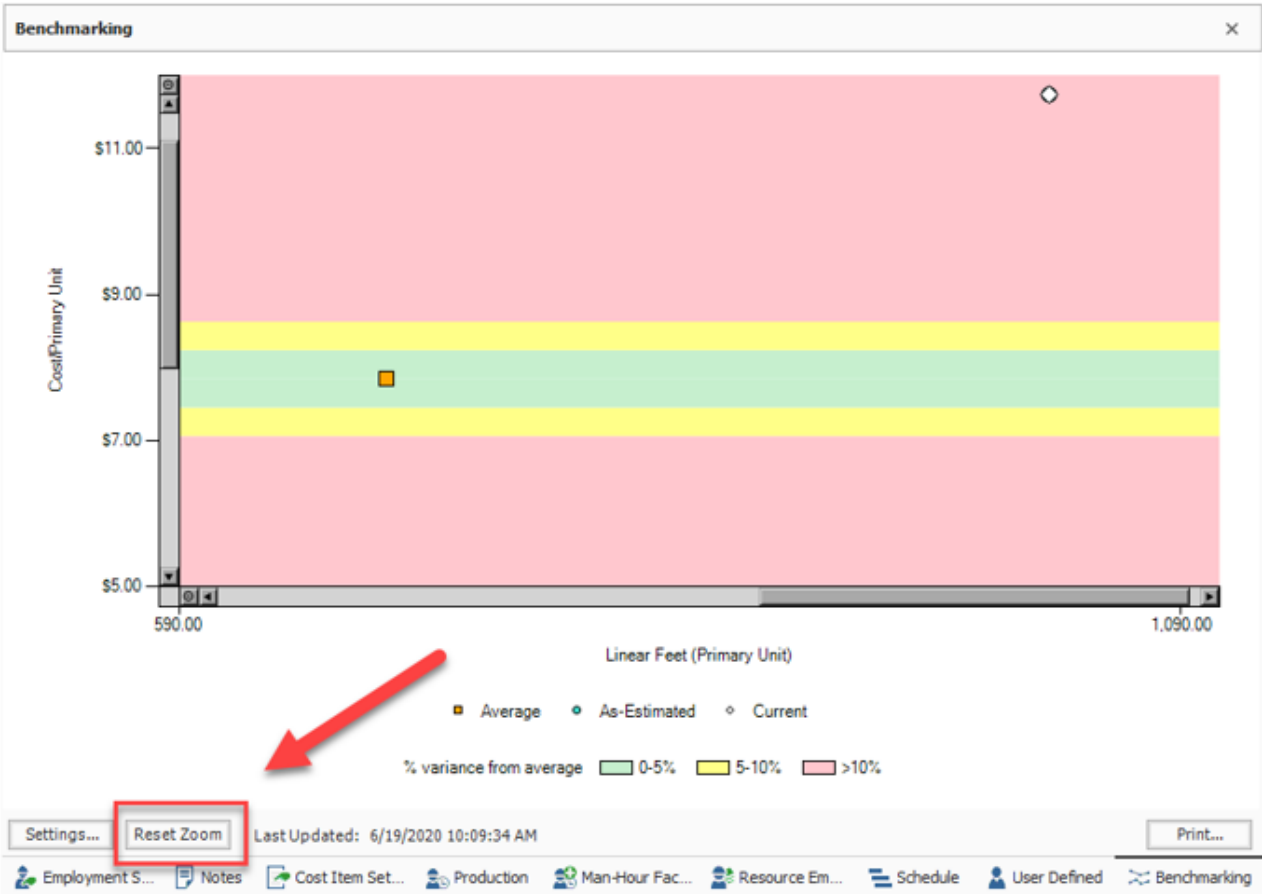
	Code	Description	Ind...	T...	Date	Item Quantity (Primary)	Unit (Prima...	Cost/Pri... Unit	Man-Hrs/ Primary Unit	Prim. Unit Man
→	E201 Training ...	Training Job - Maricopa County No. T...	<input checked="" type="checkbox"/>	As-Estima...	1/6/2014	1,024.00	Linear Feet	\$11.74	0.22	
	Training Job - ...	Training Job - Maricopa County No. T...	<input checked="" type="checkbox"/>	As-Estima...	1/6/2014	1,024.00	Linear Feet	\$11.74	0.22	
	Training Job-CIA	Training Job - Maricopa County No. T...	<input checked="" type="checkbox"/>	As-Estima...	2/25/2019	32.00	Linear Feet	\$0.06	0.00	

Last Updated: 6/19/2020 10:09:34 AM

Employment Setup Notes Cost Item Setup Production Man-Hour Fa

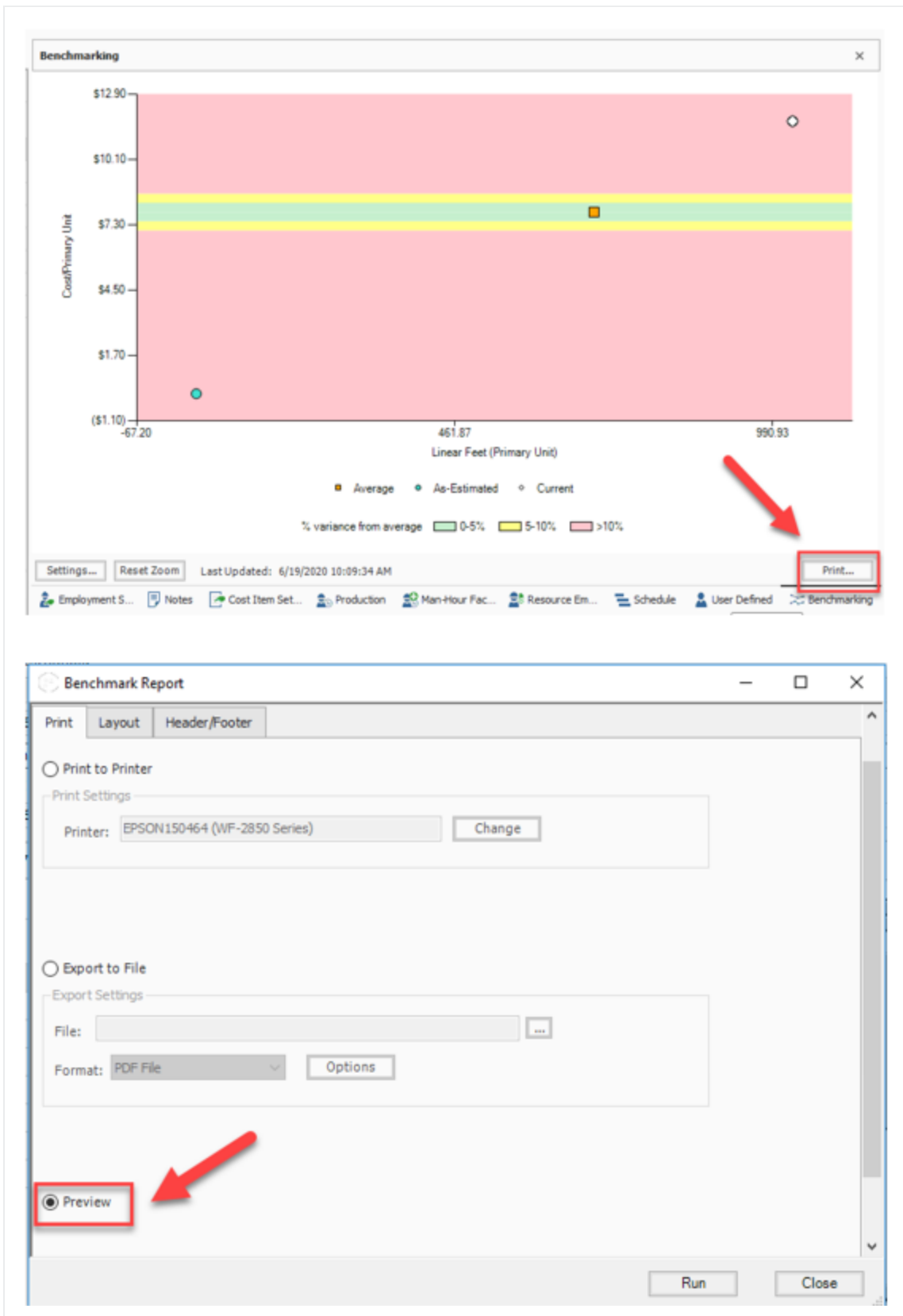
- To zoom in on a portion of the graph, click and drag across the portion of the graph that you want to enlarge. To view the entire graph again, click Reset Zoom.



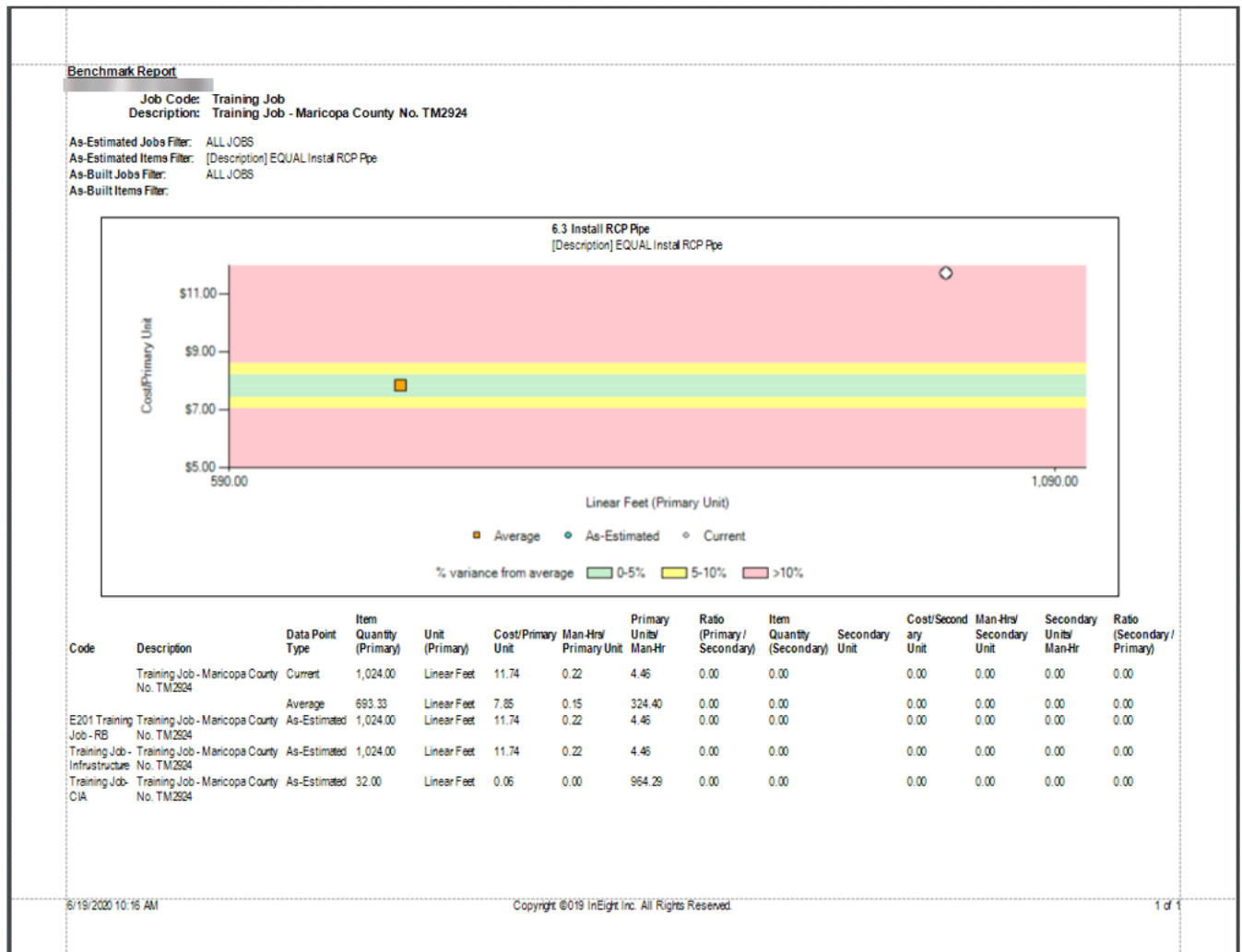


- 9. To print a Benchmark Report, click the Print button, change any options as necessary on the Benchmark Report dialog, and click Run.









### 15.33.4 Account Code Utilization Register

The Account Code Utilization Register is used to roll estimate line items into an account code hierarchy, with the ability to control which cost items contribute quantity to their parent, in order to benchmark against historical projects in a way that is consistent across projects.

The Account Code Utilization Register is similar to the **Cost Breakdown Structure (CBS)** and the **Master Cost Breakdown Structure (CBS)**, with the following exceptions:

- The rows in the Account Code Utilization Register represent Account Codes rather than individual Cost Items, so the tree structure reflects the Account Code hierarchy rather than the CBS hierarchy.
- The detail rows in the Account Code Utilization Register reflect a terminal Account Code's assigned Cost Items.



- The terminal rows in the Account Code Utilization Register represent each utilized Account Code in the CBS.
- If the Account Code's **Auto-Quantity** setting is set to **Yes**, then the Quantity of the terminal row is equal to the Quantity (Primary or Secondary) of all the cost items in the CBS with that assigned Account Code, and the cost items in the CBS employing resources with that assigned Account Code, provided that they have the same Unit of Measure type as the Account Code.
- Detail rows for each terminal row represent the cost items assigned to the terminal Account Code, including cost items employing resources that are assigned to the terminal Account Code.
- The Account Code Utilization Register can be filtered to display only terminal items by clicking the drop down arrow on the Is Terminal column and selecting Checked.
- When a Fuel Account Code is assigned to an employed resource, the resource's Fuel Total Cost is removed from the Account Code associated with the cost item and placed instead in the Fuel Account Code.

The parent-child hierarchy for Account Codes is based on the **Account Code Hierarchy Separator**, which is located from the Backstage View **Settings** under the **Options** drop down labeled as **Account Code Settings**. The Hierarchy Separator defines the parent-child relationship within the Account Code structure.

The Account Code Utilization Register is used primarily for analysis, and most of the columns are read-only. Most of these columns originate on the Account Codes tab in the **Foundation Setup Data Register** and the **Master Foundation Setup Data Register**. Modifying an editable column on this form has the same effect as modifying the same field on the Account Codes tab of the Foundation Setup Data Register or on the Account Record. For further information, see **Creating Account Codes**.

The Benchmarking portion of the form is similar to the **Benchmarking** data block on the Cost Item Record, with the following exceptions:

- The Item Matching criteria is always Account Code.
- Parent account codes will include all matching data points for their child account codes, based on the Hierarchy Separator.
- Account Code rows can be benchmarked at the terminal row level or at any superior row level in the Account Code Utilization Register, meaning that both current estimate values and benchmark values can be compared at any level since both include the values rolled up from their children.

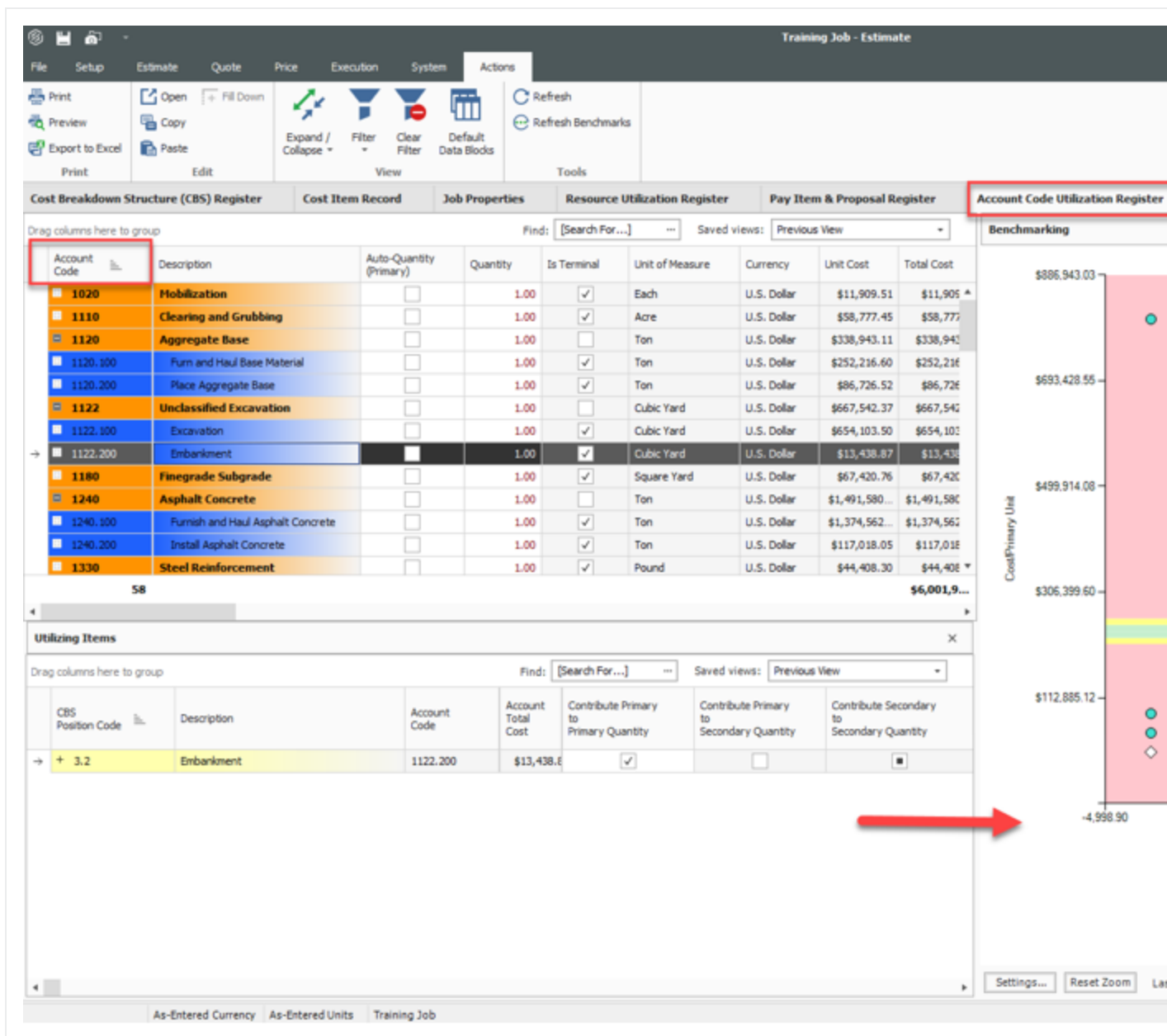


### 15.33.4.1 Opening the Account Code Utilization Register

#### Step by Step — Opening the Account Code Utilization Register

1. From the Backstage View, select **Library** from the left pane navigation.
2. From the Ribbon, select the **Estimate** tab.
3. Under the section Master Breakdown Structures, select **Account Code Utilization**. The Account Code Utilization Register opens.





## 15.34 BENCHMARKING

Benchmarking is used to validate an estimate's cost and productivity values by comparing them to relevant historical data, specifically as-built and as-estimated information captured from past jobs in Estimate. Unit cost and unit man-hour benchmark data points are displayed graphically in relation to the current estimate.



**NOTE**

Using the Benchmarking feature requires the installation of the Data Warehouse. For additional information, see the Data Warehouse topic.

### 15.34.1 Benchmarking Master Job Properties Form

The **Master Job Properties - Benchmarking** form is used to establish the historical data to be used for benchmarking the current job, and to define the default benchmark graph display and calculations.

The **Master Job Properties - Benchmarking** form includes:

- **Historical Data Source** - Select **As-Estimated** and **As-Built** data from the Data Warehouse.
- **Default Cost Item Matching Criteria, Default Account Code Matching Criteria and Default Jobs Filter** - Define which cost items, account codes and jobs should be included.
- **Benchmark Graph display Options** - Define the data to be represented on both the **X-Axis** and the **Y-Axis** of the graph.
- **Calculate "Average" as-** Define the calculation method as either **Average** or **Weighted Avg (weighted by current Qty)**.
- **Benchmark** - Select a benchmark value of **Cost per Unit, Man-Hours / Unit, or Units / Man-Hour**.
- **Flag an item's variance relative to the benchmark data when** - Define the breakpoints for low, medium and high variance ranges.
- **Don't benchmark items with fewer than <number> historical data points** - Designate the minimum number of data points needed to benchmark an item.

**NOTE**

The data in the Master Job Properties - Benchmarking form is automatically copied to any newly created jobs. If all of the jobs that you create in Estimate will use the same rules, defining the data in the Master Job Properties form will save time when you create new job folders in Estimate.

In addition to the primary **Forecast (T/O) Quantity** and **Unit of Measure** on each cost item, **Secondary Quantity** and **Secondary Unit** fields in the Cost Item Record can be used to capture a meaningful, alternative quantity and unit on which to analyze **As-estimated** data.

You can establish the historical data to be used for benchmarking the current job, define the default benchmark graph display, and define high, low and medium variance ranges on the **Job Properties - Benchmarking** form.



## Step by Step — Benchmarking Master Job Properties Form

1. From the Backstage View, select **Library** from the left pane navigation.
2. From the Ribbon, select the **Setup** tab. Under the section Master Initialization, select **Job Properties**. The Job Properties register opens.
3. On the Job Properties form, select the **Benchmarking** tab.
4. The **Historical Data Source** defaults to Data Warehouse. Select the historical data to use: **As-Estimated**, **As-Built**, or both.
5. To define **Default Cost Item Matching Criteria**, click the **Edit** button and define your criteria for matching cost items. You can select one or many fields and relate them using AND/OR logic.
6. To define **Default Account Code Matching Criteria**, click the **Edit** button and define your criteria for matching cost items. You can select one or many fields and relate them using AND/OR logic.

**NOTE**

A matching benchmark data point will be excluded if its unit of measure type (e.g., area, length, etc.) is different than the unit of measure type of the matching item in the current estimate.

7. To filter the jobs to include, click the Edit button on the **Default Jobs Filter** and define your job filtering criteria.
8. Choose your Benchmark Graph Display Options:
  - Select the data to be represented on the X-Axis:
    - Date
    - Item Quantity (Primary)
    - Item Quantity (Secondary)
    - Ratio (Primary / Secondary)
    - Ratio (Secondary / Primary)
  - Select the data to be represented on the Y-Axis:
    - \$ / Primary Unit
    - Man-Hrs / Primary Unit
    - Primary Units / Man-hr
    - \$ / Secondary Unit



- Man-Hrs / Secondary Unit
  - Secondary Units / Man-hr
9. Define your average calculation method as either **Average** or **Weighted Avg (weighted by current Qty)**.
  10. Define the **Benchmark** values that will be calculated from the historical data set by selecting **Cost per Unit, Man-Hours / Unit** and **Units / Man-Hour**.
  11. Define the variance ranges to be used for flagging an item relative to the benchmark data:
    - To flag an item's variance from the average, select **Its % variance from the average exceeds** and choose the **Low, Medium, and High** percentages to flag (values are incremented by 1%).
    - To flag an item's standard deviations from the norm, select **Its standard deviations from the norm (using SSTDEVP method) exceeds** and choose the **Low, Medium and High** values to flag (values are incremented by .1).
  12. To customize the display colors for the **Low, Medium and High** ranges, click on a color block and choose a different color.
  13. To set a minimum number of benchmark data points required for an item to be benchmarked, select a number in the **Don't benchmark items with fewer than historical data points** field.

**NOTE**

NOTE: The data in the Master Job Properties form is automatically copied to any newly created jobs. If all of the jobs that you create in Estimate will use the same data, descriptive information and rules, defining the data in the Master Job Properties form will save time when you create new job folders in Estimate.



**Job Properties** ⓘ

Overview | Security | Cover Sheet | Cost Basis | Minority Setup | Fuel Cost | Job Tracking | Job Folder Tags | Competitors | Pricing | S

**As-Estimated**

Historical Data Source: Data Warehouse

Default Cost Item Matching Criteria: [Edit...](#) [Account Code] EQUAL

Default Account Code Matching Criteria: [Edit...](#)

Default Jobs Filter: [Edit...](#) ALL JOBS

**As-Built**

Historical Data Source: None

Default Cost Item Matching Criteria: [Edit ...](#)

Default Account Code Matching Criteria: [Edit ...](#)

Default Jobs Filter: [Edit ...](#) ALL JOBS

Benchmark Graph Display Options: X-Axis: Item Quantity (Primary) Y-Axis: Cost/Primary Unit

Calculate "Average" as: ☒ Average ☐ Weighted Avg (weighted by current Qty)

Benchmark: ☐ Cost per Unit ☐ Man-Hours / Unit ☐ Units / Man-Hour

Flag an item's variance relative to the benchmark data when:

	Low	Medium	High
<input checked="" type="radio"/> Its % variance from the average exceeds:	0	5	10
<input type="radio"/> Its standard deviations from the norm (using STDEVP method) exceeds:	0.0	0.5	1.0

Don't benchmark items with fewer than 0 historical data points

### 15.34.2 Benchmarking Job Properties Form

The Job Properties - Benchmarking form is used to establish the historical data to be used for benchmarking the job, and to define the default benchmark graph display and calculations.

The Job Properties - Benchmarking form includes:



- Historical Data Source - Select As-Estimated and As-Built data from the Data Warehouse.
- Default Cost Item Matching Criteria, Default Account Code Matching Criteria and Default Jobs Filter - Define which cost items and which jobs should be included.
- Benchmark Graph display Options - Define the data to be represented on both the X-Axis and the Y-Axis of the graph.
- Calculate "Average" as- Define the calculation method as either Average or Weighted Avg (weighted by current Qty).
- Benchmark - Select a benchmark value of Cost per Unit, Man-Hours / Unit, or Units / Man-Hour.
- Flag an item's variance relative to the benchmark data when - Define the breakpoints for low, medium and high variance ranges.
- Don't benchmark items with fewer than <number> historical data points - Designate the minimum number of data points needed to benchmark an item.

How to Open this Form:

1. On the Estimate ribbon, select the Setup tab.
2. Under the Initialize section, select Job Properties drop down arrow.
3. On the drop down list, select Benchmarking.

### Step by Step — Opening the Job Properties Form

1. On the Ribbon, select the **Setup** tab.
2. Under the Initialize section, select the **Job Properties** drop down arrow.
3. On the drop down list, select **Benchmarking**.



**Job Properties**

**As-Estimated**

Historical Data Source: Data Warehouse

Default Cost Item Matching Criteria: [Description] EQUAL

Default Account Code Matching Criteria: [Account Code] EQUAL

Default Jobs Filter: ALL JOBS

**As-Built**

Historical Data Source: None

Default Cost Item Matching Criteria: Edit ...

Default Account Code Matching Criteria: Edit ...

Default Jobs Filter: Edit ... ALL JOBS

Benchmark Graph Display Options: X-Axis: Item Quantity (Primary) Y-Axis: Cost/Primary Unit

Calculate "Average" as: ☒ Average ☐ Weighted Avg (weighted by current Qty)

Benchmark: ☒ Cost per Unit ☒ Man-Hours / Unit ☒ Units / Man-Hour

Flag an item's variance relative to the benchmark data when:

☒ Its % variance from the average exceeds: 0 5 10

☐ Its standard deviations from the norm (using STDEVP method) exceeds: 0.0 0.5 1.0

Don't benchmark items with fewer than 0 historical data points

### 15.34.3 Benchmarking Graph

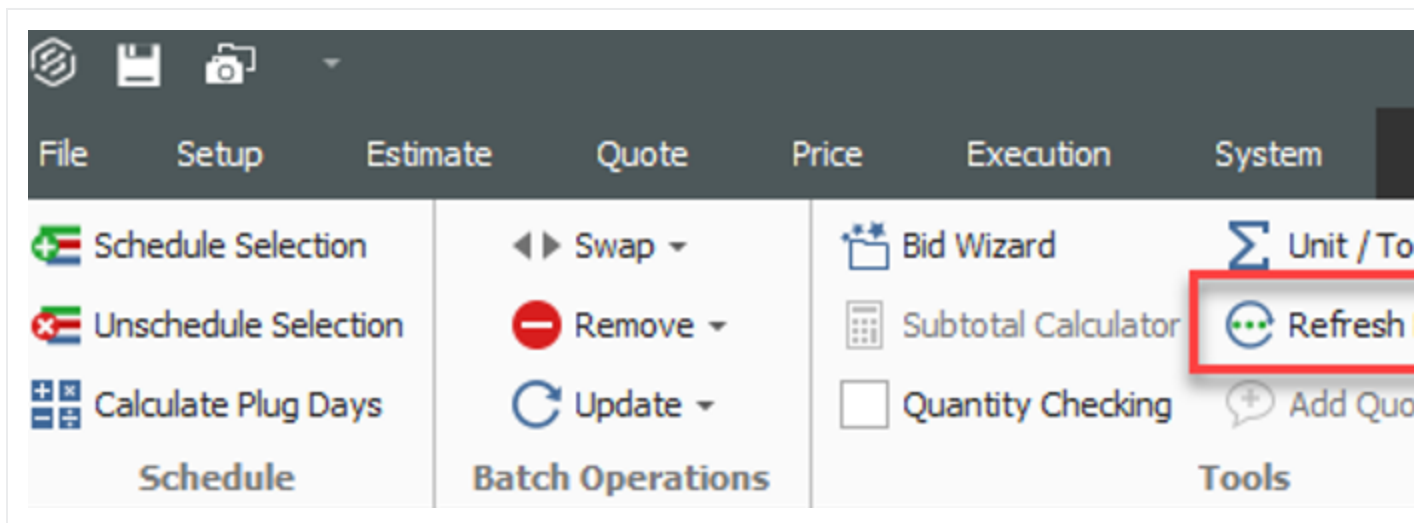
The defaults for the benchmarking graph are defined on the **Job Properties - Benchmarking** form, but on the **Cost Item Record - Benchmarking** form you have the ability to override the default criteria in order to expand or contract the amount of historical data being used to calculate benchmark values for a specific cost item. This way, you can filter the historical data sources to only the past jobs that are relevant to that cost item.



Before starting this procedure, make sure to set up your default benchmarking options, as outlined in the Benchmarking Options topic.

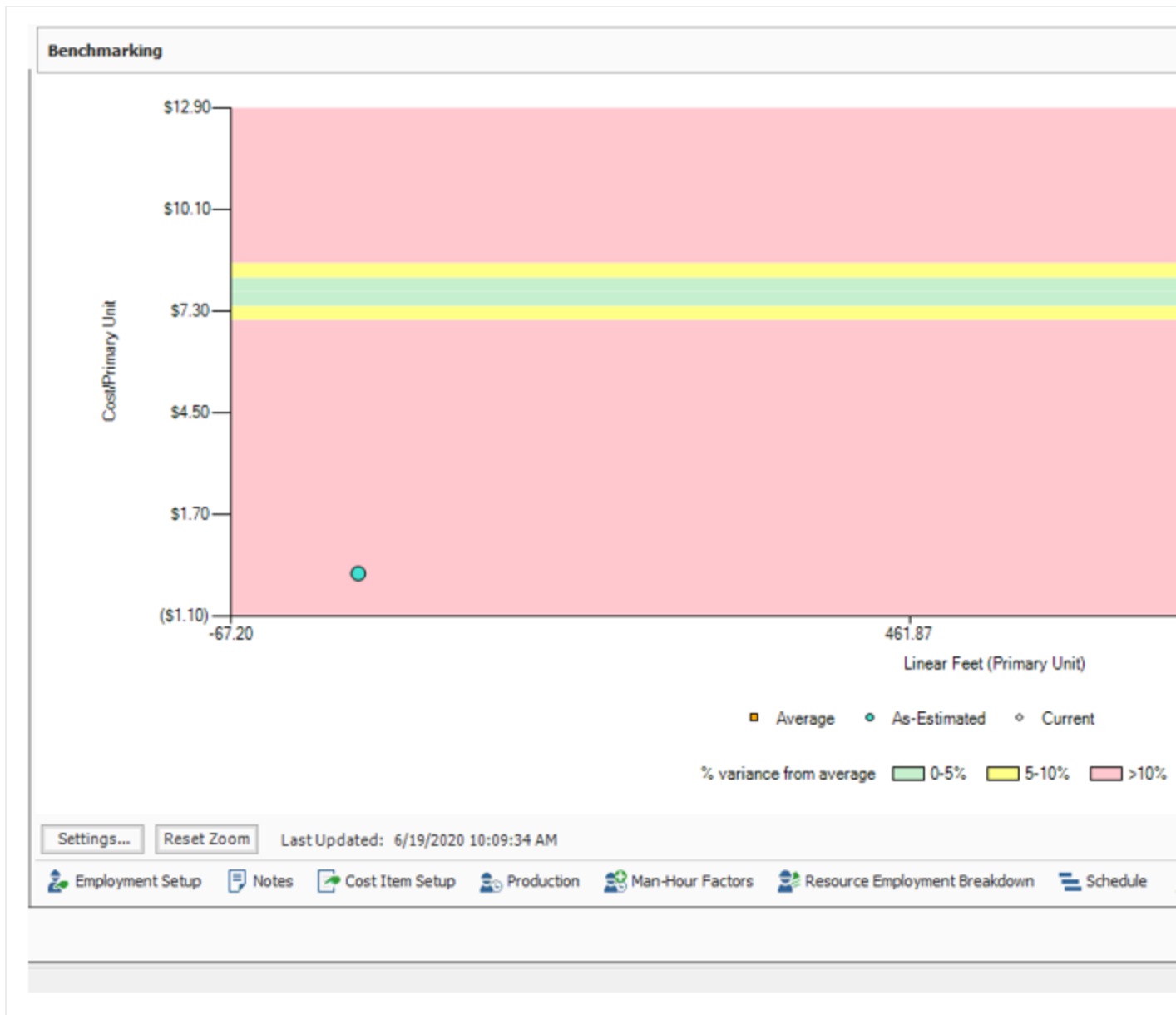
## Step by Step — Benchmarking Graph

1. From the Ribbon, select the Estimate tab. Under Breakdown Structures, select **Cost Breakdown Structure (CBS)**.
2. On the Cost Breakdown Structure (CBS) Register, select the **More Actions** tab. Under the Tools section, select **Refresh Benchmarks**.



3. The Refresh Benchmarks dialog shows the Last refresh date and the number of Jobs matching filter criteria.
  - If the number of matching jobs is too large or too small, return to step 1 and expand or contract your filtering options.
  - If the number of matching jobs is acceptable, click Refresh Now to proceed.
4. Open the Cost Item Record of any preferred cost item.
5. Click on the **Benchmarking** default data block located in the lower right portion of the Cost Item Record.
6. The benchmarking graph shows the historical benchmark values for this cost item, along with the Current value, the Average value, and the variance ranges represented by each color. This information is calculated and displayed as specified on the Job Properties - Benchmarking form.





- To refine the values that contribute to this cost item's graph, click the Settings button to display the Settings dialog:
  - To override the job filter for this cost item, click the Edit button in the Override Jobs Filter field and define the filter to use for benchmarking this cost item.
  - To override the Display Options for this cost item, select the desired values from the X-Axis and Y-Axis drop-down boxes.



- To override the list of jobs that contribute to the Included Historical Data for this cost item, use the Auto include all matching data points toggle to include all or exclude all, and select the individual Include check boxes for the jobs you want to include.
- When you have completed your customizations for this cost item's benchmarking, click OK to save your changes and return to the Cost Item Record - Benchmarking form.

Register Cost Item Record

Description:

**Cost Item '6.3' Benchmark Settings - Training Job**

**As-Estimated**

Inherited Jobs Filter: (From Job Properties) ALL JOBS

Override Jobs Filter:  NO OVERRIDE

Items Filter: [Description] EQUAL Install RCP Pipe

**As-Built**

Inherited Jobs Filter: (From Job Properties) ALL JOBS

Override Jobs Filter:  NO OVERRIDE

Items Filter:

Display Options: X-Axis: Item Quantity (Primary) Y-Axis: Cost/Primary Unit

Included Historical Data: ☒ Auto include all matching data points

Drag columns here to group Find:  Saved views: Previous View

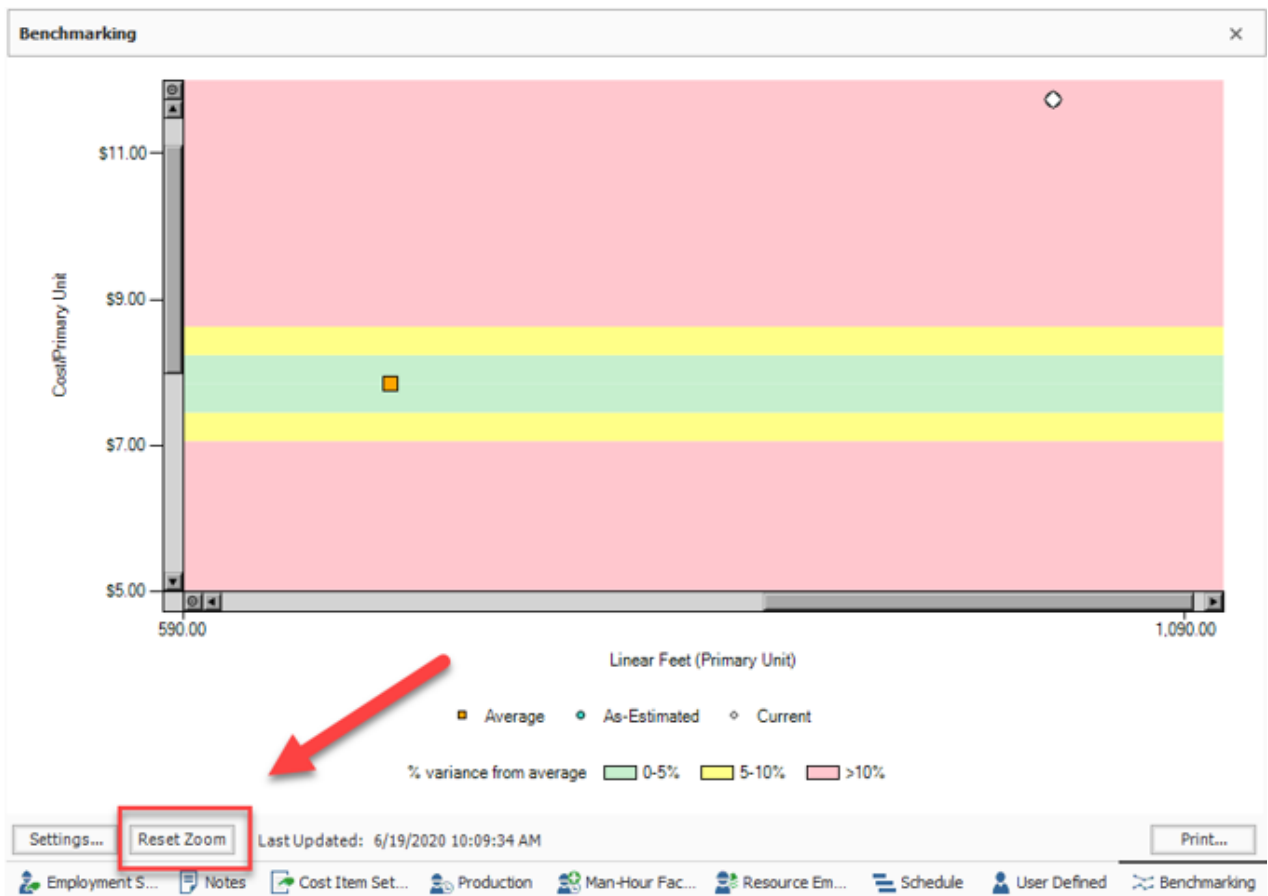
	Code	Description	Incl...	T...	Date	Item Quantity (Primary)	Unit (Prima...	Cost/Pri... Unit	Man-Hrs/ Primary Unit	Prim. Unit Man
→	E201 Training ...	Training Job - Maricopa County No. T...	<input checked="" type="checkbox"/>	As-Estima...	1/6/2014	1,024.00	Linear Feet	\$11.74	0.22	
	Training Job - ...	Training Job - Maricopa County No. T...	<input checked="" type="checkbox"/>	As-Estima...	1/6/2014	1,024.00	Linear Feet	\$11.74	0.22	
	Training Job-CIA	Training Job - Maricopa County No. T...	<input checked="" type="checkbox"/>	As-Estima...	2/25/2019	32.00	Linear Feet	\$0.06	0.00	

Last Updated: 6/19/2020 10:09:34 AM

Employment Setup Notes Cost Item Setup Production Man-Hour Fa

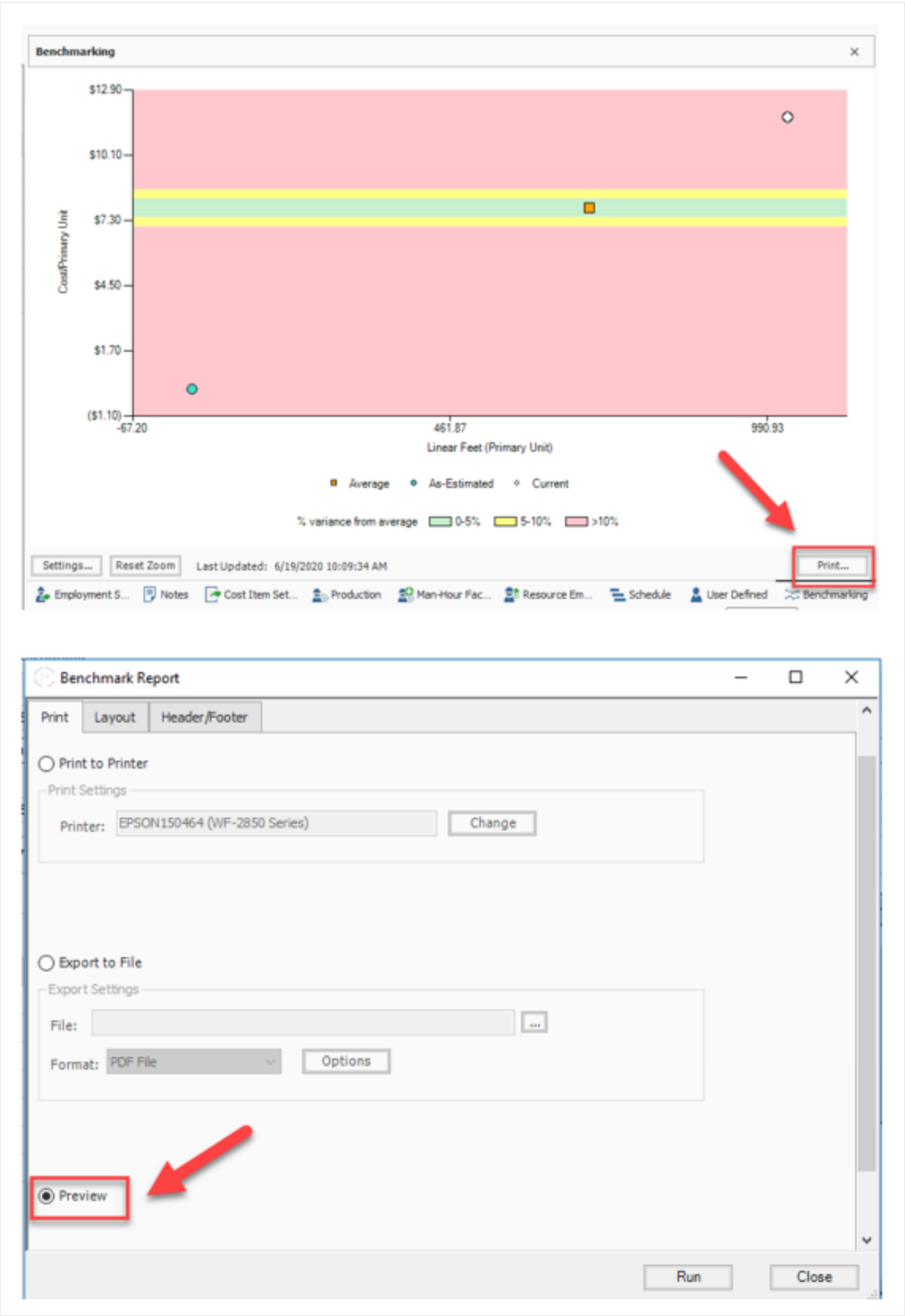
- To zoom in on a portion of the graph, click and drag across the portion of the graph that you want to enlarge. To view the entire graph again, click Reset Zoom.



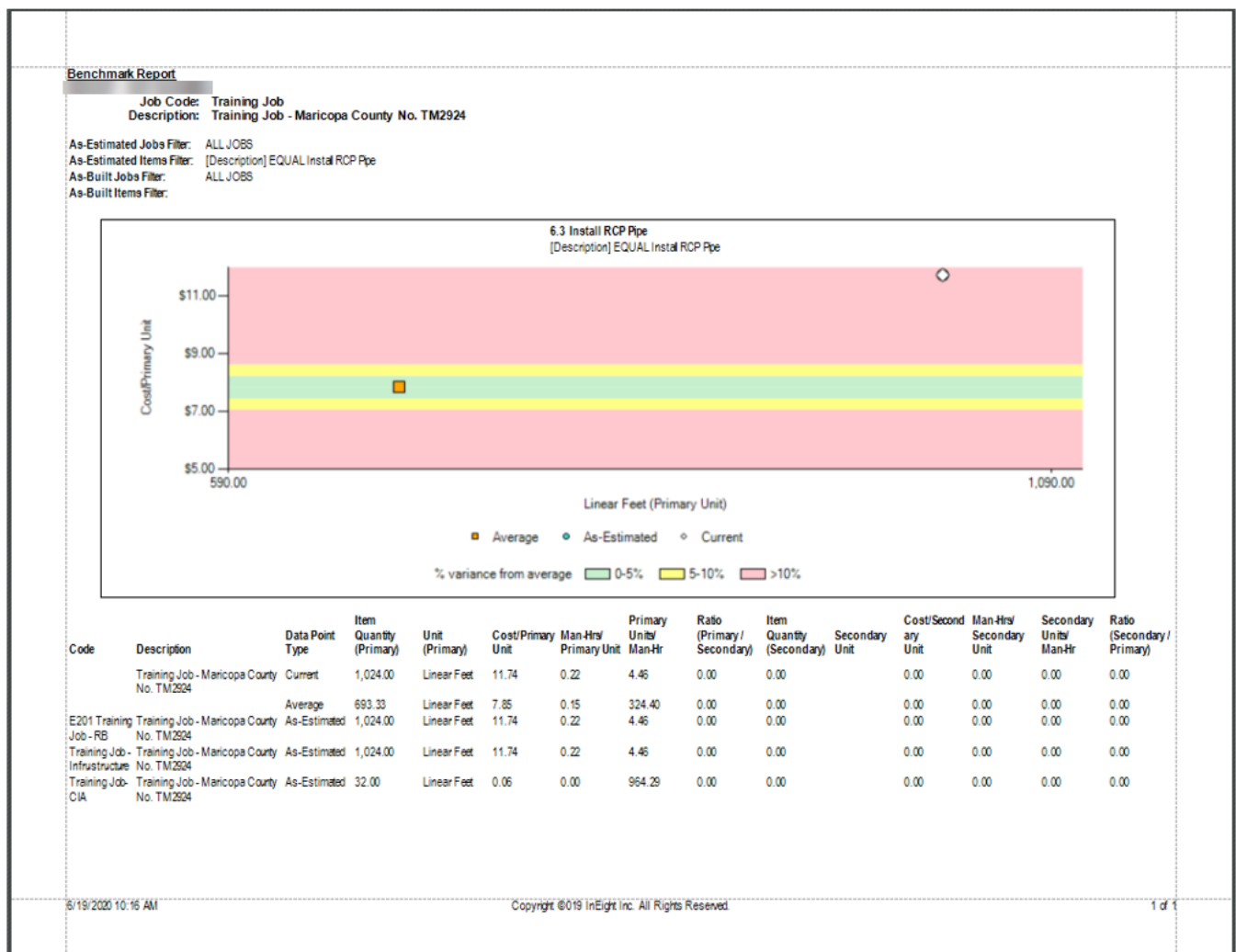


9. To print a Benchmark Report, click the Print button, change any options as necessary on the Benchmark Report dialog, and click Run.









## 15.34.4 Account Code Utilization Register

The Account Code Utilization Register is used to roll estimate line items into an account code hierarchy, with the ability to control which cost items contribute quantity to their parent, in order to benchmark against historical projects in a way that is consistent across projects.

The Account Code Utilization Register is similar to the **Cost Breakdown Structure (CBS)** and the **Master Cost Breakdown Structure (CBS)**, with the following exceptions:

- The rows in the Account Code Utilization Register represent Account Codes rather than individual Cost Items, so the tree structure reflects the Account Code hierarchy rather than the CBS hierarchy.



- The detail rows in the Account Code Utilization Register reflect a terminal Account Code's assigned Cost Items.
- The terminal rows in the Account Code Utilization Register represent each utilized Account Code in the CBS.
- If the Account Code's **Auto-Quantity** setting is set to **Yes**, then the Quantity of the terminal row is equal to the Quantity (Primary or Secondary) of all the cost items in the CBS with that assigned Account Code, and the cost items in the CBS employing resources with that assigned Account Code, provided that they have the same Unit of Measure type as the Account Code.
- Detail rows for each terminal row represent the cost items assigned to the terminal Account Code, including cost items employing resources that are assigned to the terminal Account Code.
- The Account Code Utilization Register can be filtered to display only terminal items by clicking the drop down arrow on the Is Terminal column and selecting Checked.
- When a Fuel Account Code is assigned to an employed resource, the resource's Fuel Total Cost is removed from the Account Code associated with the cost item and placed instead in the Fuel Account Code.

The parent-child hierarchy for Account Codes is based on the **Account Code Hierarchy Separator**, which is located from the Backstage View **Settings** under the **Options** drop down labeled as **Account Code Settings**. The Hierarchy Separator defines the parent-child relationship within the Account Code structure.

The Account Code Utilization Register is used primarily for analysis, and most of the columns are read-only. Most of these columns originate on the Account Codes tab in the **Foundation Setup Data Register** and the **Master Foundation Setup Data Register**. Modifying an editable column on this form has the same effect as modifying the same field on the Account Codes tab of the Foundation Setup Data Register or on the Account Record. For further information, see **Creating Account Codes**.

The Benchmarking portion of the form is similar to the **Benchmarking** data block on the Cost Item Record, with the following exceptions:

- The Item Matching criteria is always Account Code.
- Parent account codes will include all matching data points for their child account codes, based on the Hierarchy Separator.
- Account Code rows can be benchmarked at the terminal row level or at any superior row level in the Account Code Utilization Register, meaning that both current estimate values and benchmark values can be compared at any level since both include the values rolled up from their children.

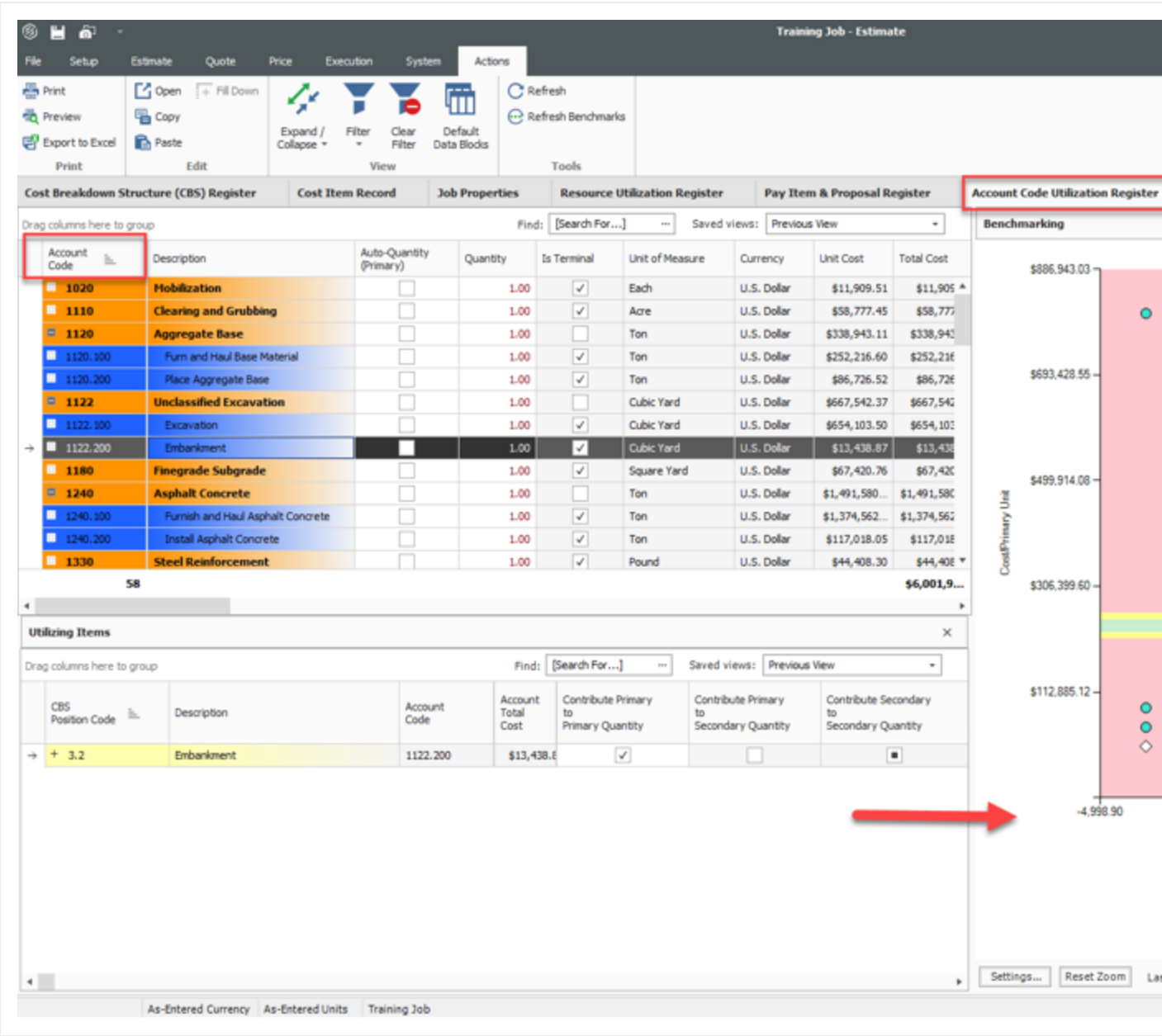


### 15.34.4.1 Opening the Account Code Utilization Register

#### Step by Step — Opening the Account Code Utilization Register

1. From the Backstage View, select **Library** from the left pane navigation.
2. From the Ribbon, select the **Estimate** tab.
3. Under the section Master Breakdown Structures, select **Account Code Utilization**. The Account Code Utilization Register opens.





# 15.35 DATA WAREHOUSE

The Data Warehouse combines data from individual jobs into a single data warehouse. The Data Warehouse allows you to combine data from multiple, individual job databases into a single database for reporting purposes. You select which jobs to include, and Estimate takes care of populating the consolidated database with all the data from each job.



You can choose to update the Data Warehouse automatically when any of the included jobs are saved, or manually at your discretion. With the data consolidated into the Data Warehouse, you can then use Crystal Reports, Microsoft Access, or any other SQL-compatible reporting tool to create user-defined reports that span across jobs. You can also use this consolidated data for benchmarking purposes.

**NOTE**

The amount of time that it will take to update the Data Warehouse database is highly dependent on the number of jobs included, the amount of data in those jobs, and the number of users updating the database at any given time.

**NOTE**

The Data Warehouse requires the installation of additional components. For information contact [support.ineight.com](mailto:support.ineight.com).

### 15.35.1 Changing the Update Method for Jobs in the Data Warehouse

The Data Warehouse allows you to select which of your jobs you want to include in the consolidated Data Warehouse. After you have used the Data Warehouse Register to select the jobs you want to update, you can define the method you prefer to use to update the database when job and library data is saved.

- **Update** - This method indicates that you will decide when you want to update the Data Warehouse database. This method requires that you manually execute the Update command from the Data Warehouse Register register each time you want to update the Data Warehouse database.

**NOTE**

Jobs set to use the manual update method are designated by a check mark in the Included column and the absence of a check mark in the Auto Update column.

- **Auto-Update** - This method indicates that the Data Warehouse database will automatically be updated each time you save an included job or library. No manual intervention is required.

**NOTE**

Jobs set to use the Auto-Update method are designated by a check mark in the Included column and a check mark in the Auto Update column.

In order for an update of the Data Warehouse to be successful, the server containing the Job Consolidation Server application must be available and the BID-BUILD Job Consolidation service must be running.

**NOTE**

The amount of time that it takes to update the Data Warehouse database is highly dependent on the number of jobs included, the amount of data in those jobs, and the number of users updating the database at any given time.



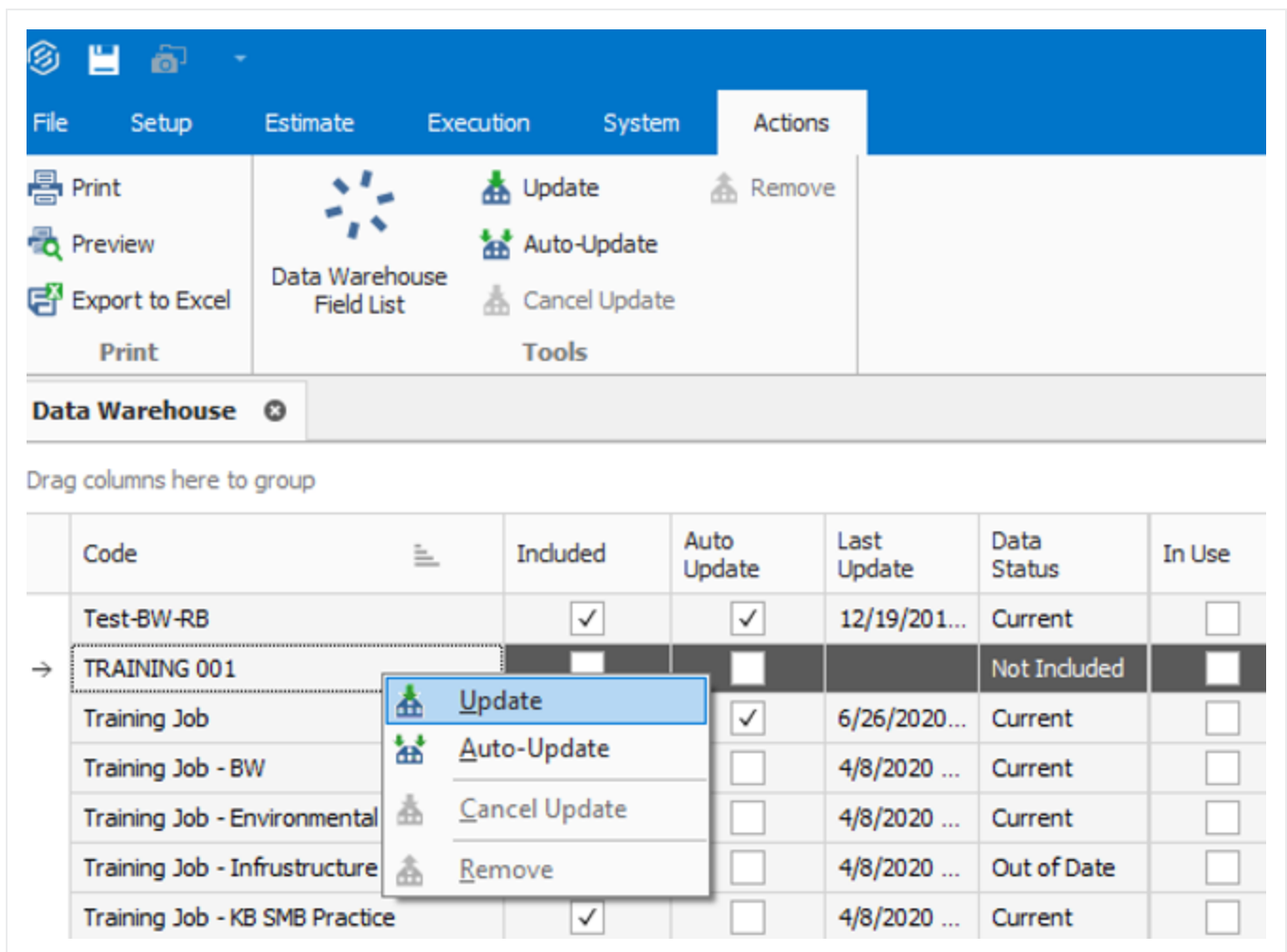
Regardless of the method you chose when you initially defined which of your jobs you wanted to include in the Data Warehouse database, you can change that method at any time.

#### 15.35.1.1 Update method include as a manual update:

##### Step by Step — Benchmarking Updating Method

1. Select **File** to open the Backstage View. Select **Jobs** from the left navigation pane.
2. Under Jobs, select **Data Warehouse**.
3. On the Data Warehouse register, select the job that is currently set to **Auto-Update**.
4. Select the **Actions** tab.
5. Under Tools, select **Update**. This include the job as a manual run with a specific date identified in the last update column. Notice the data status column to assist with identifying changes.





The screenshot shows the 'Data Warehouse' section of the software. At the top, there is a ribbon with tabs: File, Setup, Estimate, Execution, System, and Actions. The 'Actions' tab is active, displaying a 'Data Warehouse Field List' and a 'Tools' section with buttons for 'Update', 'Auto-Update', 'Cancel Update', and 'Remove'. Below the ribbon, there is a table with columns: Code, Included, Auto Update, Last Update, Data Status, and In Use. The table lists several data warehouse jobs, including 'Test-BW-RB', 'TRAINING 001', 'Training Job', 'Training Job - BW', 'Training Job - Environmental', 'Training Job - Infrastructure', and 'Training Job - KB SMB Practice'. A context menu is open over the 'TRAINING 001' row, showing options: 'Update', 'Auto-Update', 'Cancel Update', and 'Remove'.

Code	Included	Auto Update	Last Update	Data Status	In Use
Test-BW-RB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12/19/201...	Current	<input type="checkbox"/>
→ TRAINING 001	<input type="checkbox"/>	<input type="checkbox"/>		Not Included	<input type="checkbox"/>
Training Job	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6/26/2020...	Current	<input type="checkbox"/>
Training Job - BW	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
Training Job - Environmental	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
Training Job - Infrastructure	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Out of Date	<input type="checkbox"/>
Training Job - KB SMB Practice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>

### 15.35.1.2 Update method from manual update to auto-update

**NOTE** When defining jobs to Auto Update, the Data Warehouse database is updated any time the included job or library is saved.

#### Step by Step — Benchmarking Manual to Auto Update

1. Select **File** to open the Backstage View. Select **Jobs** from the left navigation pane.
2. Under Jobs, select **Data Warehouse**.
3. On the Data Warehouse register, select the job that is currently set to **Auto-Update**.



4. Select the **Actions** tab.
5. Under Tools, select **Auto-Update**. This enables the Auto-Update selection while also leaving a check mark in the Included column.

**Data Warehouse**

Drag columns here to group

	Code	Included	Auto Update	Last Update	Data Status	In Use
	Test-BW-RB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12/19/201...	Current	<input type="checkbox"/>
	TRAINING 001	<input type="checkbox"/>	<input type="checkbox"/>		Not Included	<input type="checkbox"/>
	Training Job	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6/26/2020 ...	Current	<input type="checkbox"/>
	Training Job - BW	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - Environmental	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - Infrastructure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Out of Date	<input type="checkbox"/>
	Training Job - KB SMB Practice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - Mining	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Out of Date	<input type="checkbox"/>
	Training Job - Oil and Gas Pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - Power and Process	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - RB	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - STO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job RB	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job-CCC	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job-CIA	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Out of Date	<input type="checkbox"/>
	Training Job-CIA 1	<input type="checkbox"/>	<input type="checkbox"/>		Not Included	<input type="checkbox"/>
	Training Job-Dwight	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>

Update  
**Auto-Update**  
 Cancel Update  
 Remove

## 15.35.2 Printing a Data Warehouse Database Field List

### NOTE

The Data Warehouse requires an Enterprise License and installation of additional components. For information contact support.ineight.com.

With the data consolidated into the Data Warehouse, you can then use Crystal Reports, Microsoft Access, or any other SQL-compatible reporting tool to create user-defined reports that span across jobs. Whenever you use a third party application to extract data from a database for reporting, it is helpful to know what tables are included in the database, the column names, and the data that populates each of these columns.

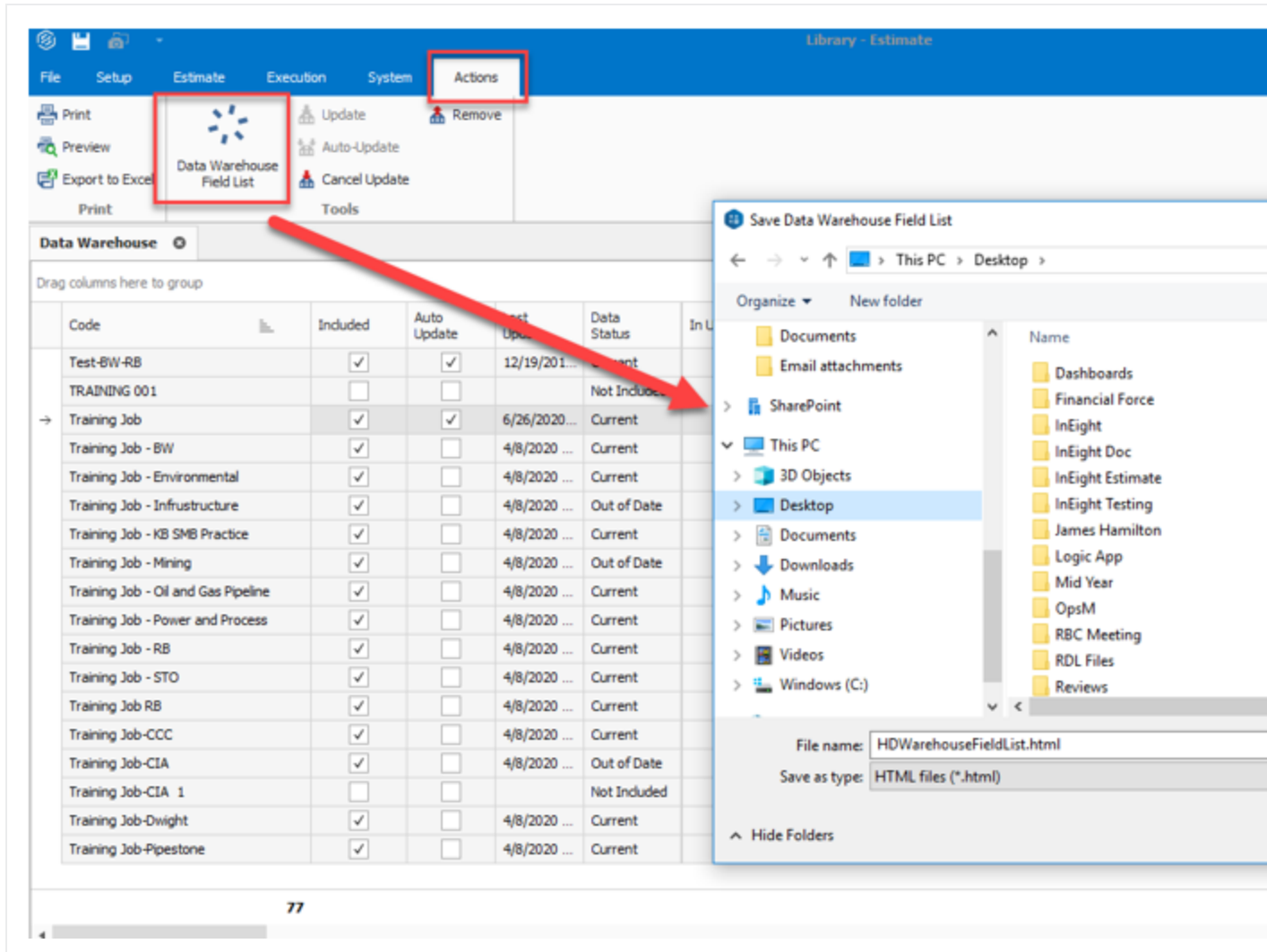


To assist you with this, you can generate a Data Warehouse Field List that defines each of the tables, columns, and data in the Data Warehouse database.

### Step by Step — Printing Data Warehouse Database Field List

1. Select **File** to open the Backstage View. Select **Jobs** from the left navigation pane.
2. Under Jobs, select **Data Warehouse**.
3. On the Data Warehouse register, select the job that you want to generate a report for.
4. Select the **Actions** tab.
5. Under Tools, select the **Data Warehouse Field List**.
6. On the **Save Data Warehouse Field List** dialog, browse to the destination folder on your computer where you want to save the report and click Save. The report will display after saving.





### 15.35.3 Canceling an Update of the Data Warehouse

#### NOTE

The Data Warehouse requires an Enterprise license and installation of additional components. For information contact [support.ineight.com](mailto:support.ineight.com).

Regardless of the update method you have chosen, you can cancel a job update that is in queue or is set to Auto-Update when job or library data is saved. When an update of the Data Warehouse is in queue, or is set to Auto-Update when job or library data is saved, the Data Status column shows the current status.

The Cancel Update command applies to jobs with a status of In Queue or jobs that are set to Auto-Update. These jobs are removed from the queue, and jobs set to Auto-Update are set to manual update.



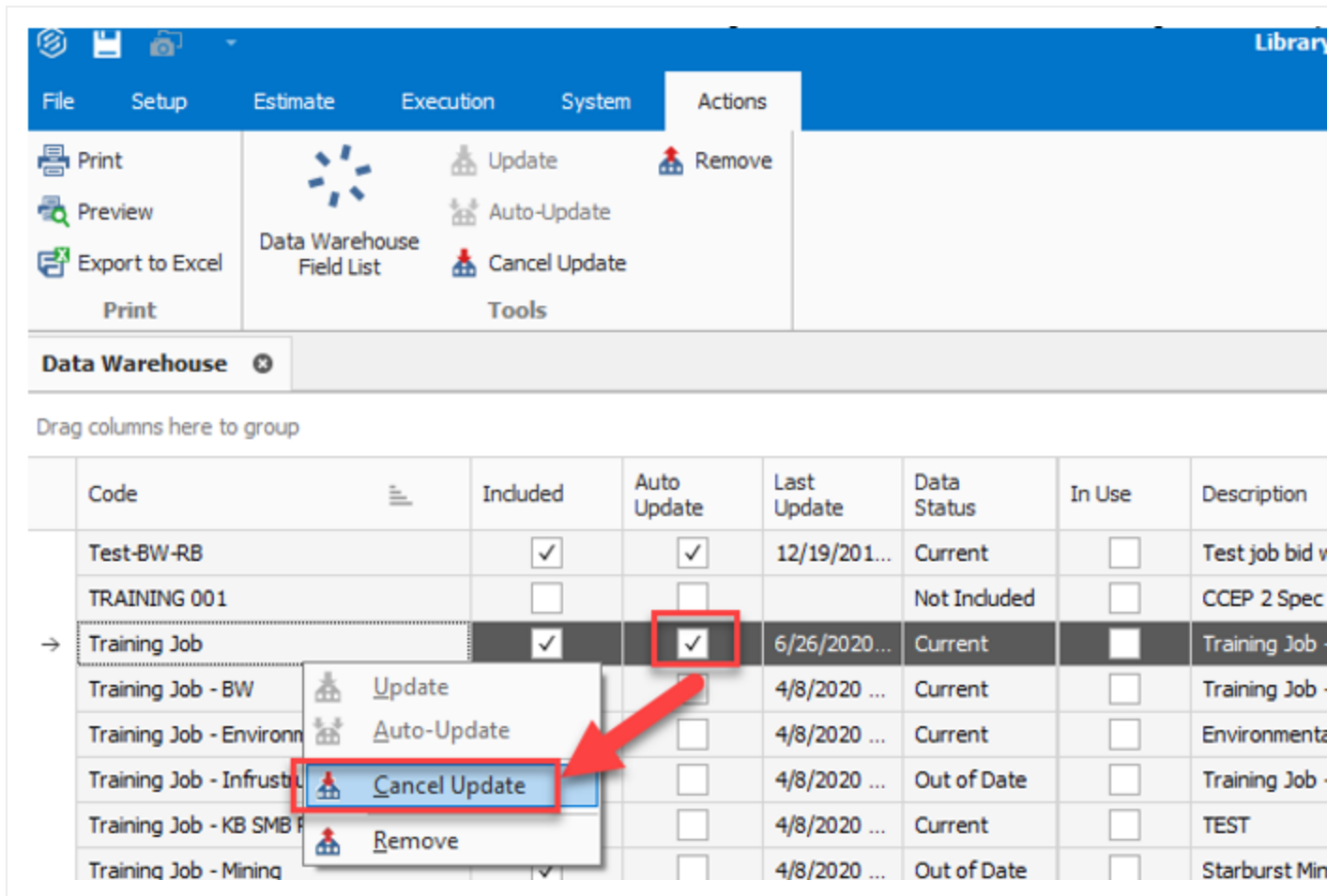
- **Updating** - Indicates that an update of the data warehouse is in progress for the subject job. Jobs with a status of Updating cannot be canceled.
- **In Queue** - Indicates that an update of the data warehouse is waiting to be processed for the subject job.
- **Current** - Indicates that the data warehouse update for that job is complete as of the last update.

When canceling an update for a job that is set to Auto-Update, the result is that the job's update method is set to manual even if the current Reporting Status is Current.

### Step by Step — Cancelling an Update of the Data Warehouse

1. Select **File** to open the Backstage View. Select **Jobs** from the left navigation pane.
2. Under Jobs, select **Data Warehouse**.
3. On the Data Warehouse register, select the jobs you want to cancel updates for and then select the **Actions** tab.
4. Under the Tools section, select the **Cancel Update** button to cancel the preferred job update.





### 15.35.4 Removing Jobs from the Data Warehouse

**NOTE** The Data Warehouse requires an Enterprise license and installation of additional components. For information contact [support.ineight.com](mailto:support.ineight.com).

The Data Warehouse allows you to select which of your jobs you want to include in the consolidated data warehouse. You do not have to include all of your jobs. In the event that you want to remove a currently included job, you can do so on the Data Warehouse Register.

Jobs currently included for updating the Data Warehouse are designated as such by the presence of a check mark in the Included column on the Data Warehouse Register.

The Remove command applies to jobs with a status of In Queue, Updating, Current, or Out of Date. The result of executing this command is that currently included jobs are removed.



## Step by Step — Removing Jobs from the Data Warehouse

1. Select **File** to open the Backstage View. Select **Jobs** from the left navigation pane.
2. Under Jobs, select **Data Warehouse**.
3. On the Data Warehouse register, select the job you want to remove and then select the **Actions** tab.
4. Under Tools, select **Remove** to remove the job from the Data Warehouse database.

The screenshot shows the 'Data Warehouse' section of the software. At the top, there is a ribbon with tabs: File, Setup, Estimate, Execution, System, and Actions. The 'Actions' tab is active, displaying a 'Tools' section with icons for 'Update', 'Auto-Update', 'Cancel Update', and 'Remove'. Below the ribbon, a table lists various jobs. The 'Training Job' row is selected, and a context menu is open over it, showing the same 'Update', 'Auto-Update', 'Cancel Update', and 'Remove' options. The 'Remove' option is highlighted with a red rectangle.

	Code	Included	Auto Update	Last Update	Data Status	In Use
	Test-BW-RB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	12/19/201...	Current	<input type="checkbox"/>
	TRAINING 001	<input type="checkbox"/>	<input type="checkbox"/>		Not Included	<input type="checkbox"/>
→	Training Job	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	6/26/2020...	Current	<input type="checkbox"/>
	Training Job - BW	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - Env	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>
	Training Job - Inf	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Out of Date	<input type="checkbox"/>
	Training Job - KB	<input type="checkbox"/>	<input type="checkbox"/>	4/8/2020 ...	Current	<input type="checkbox"/>



## 15.36 ACCOUNT CODE MANAGEMENT

The make-up of account codes is dictated by the specifications of your cost accounting system. Each code represents one cost account. Account codes are used for cross-referencing Cost Breakdown Structure (CBS) cost items and the budget line items of your accounting system. Multiple CBS cost items can be coded to the same account code if they fall under the same category.

Once an account code has been assigned to each cost item in a job's Cost Breakdown Structure (CBS), the software can automatically or manually summarize all like assignments into one budget line (for each account). Budgets can be captured for both primary and secondary quantities.

Account codes are often used to summarize cost items into standardized categories for use in benchmarking and estimating applications.

They are useful for large company that use multiple levels of accounting-related cost codes for their budget. They are extremely useful for benchmarking purposes. Account Codes provide a common language (set of codes) that you can use across systems.

Account codes can be used to track: quantity, budget, account code tags, unit cost.

### 15.36.1 Account Code Setup

Account Codes can be setup for a project from the **Foundation Setup Data Register** under the **Account Codes** tab. The columns for populating account code information are as follows:

Column	Description
Utilized	This is a checkbox denoting whether or not the account code is assigned to a cost item in the project.
Account Code	The alpha numeric sequence assigned as the code.
Description	Description detailing the account code's scope.
Unit of Measure	The primary unit of measure for the account code.
Secondary Unit of Measure	The secondary unit of measure for the account code.
Currency	The currency assigned to the account code.



Column	Description
Auto-Quantity (Primary)	Automatically roll up cost item quantities if the cost items and this account code have the same primary UoMs. It can also be set on a project specific basis.
Quantity	The default quantity for the account code.
Auto-Quantity (Secondary)	Automatically roll up cost item quantities if the cost items and this account code have the same secondary UoMs. It can also be set on a project specific basis.
Secondary Quantity	The secondary quantity for the account code.
Tag 1-20	Tags that can be associated to account codes to enable them to be categorized.
User Defined Field 1-10	Optional open-text fields you can use to add information related to the account code.

### 15.36.1.1 Create an Account Code

Account Codes can be created for the project level within a project or for multiple projects within the **Library**. Account Codes should be as detailed as possible to most accurately benchmark work. Only lead estimators or estimators with a lot of experience should create new account codes.

The master set of Account Codes is created and stored in the **Library** on the **Master Foundation Setup Data** under the **Account Codes** tab. When a new folder is created, the master set is automatically copied from the Library to the new folder.

If you feel the current job requires new or different Account Codes to adequately organize the job's budget, you can change, create, or delete them any time you wish. Account Codes can also be created on-the-fly in the folder.

#### Step by Step — Create an Account Code

1. From the Setup tab, select the **Foundation Setup Data** drop down and then **Account Codes**.
2. From the **Actions** tab, under the Edit section, select **New**.



- 3. Enter a unique account code **TEST – Your Initials**. Enter the description **Test Account Code**. Select a Unit of Measure. Enter a quantity.

Info

Tags / User Defined Fields

Account Code: \*

TEST DS

Description:

Test Account Code

Unit of Measure:

Day

Quantity:

Currency:

U.S. Dollar

Quantity Contributor:

☐ Primary to Primary

☐ Primary to Secondary

☐ Secondary to Secondary

Utilized:

☐

Auto-Quantity:

☐ Primary

☐ Secondary

Notes:

- 4. When you are done, click **OK**.
- 5. Your account code is added to the bottom of the register. The **Utilized** column is unchecked because your account code has not yet been utilized.

Account Codes							
Tags							
Work Breakdown Structures							
Quote Group Tags							
Units of Measure							
Currencies							
Resource / Assembly Files							
Drag columns here to group							
	Utilized	Account Code	Description	Unit of Measure	Secondary Unit Of Measure	Currency	Auto-Quantit (Primary)
	<input checked="" type="checkbox"/>	1754.300	Install 36 RCP	Linear Feet		U.S. Dollar	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1754.400	Backfill 36 RCP	Cubic Yard		U.S. Dollar	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1762	10 Inch PVC Force Main	Linear Feet		U.S. Dollar	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1763.300	Backfill 24 PVC Gravity Sewer	Cubic Yard		U.S. Dollar	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	8000	Toll Booths	Each		U.S. Dollar	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	9000	Risk	Each		U.S. Dollar	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	CSI-01800	Facility Operations	Lump Sum		U.S. Dollar	<input type="checkbox"/>
→	<input type="checkbox"/>	TEST DS	Test Account Code	Day		U.S. Dollar	<input type="checkbox"/>
*	<input type="checkbox"/>						<input type="checkbox"/>

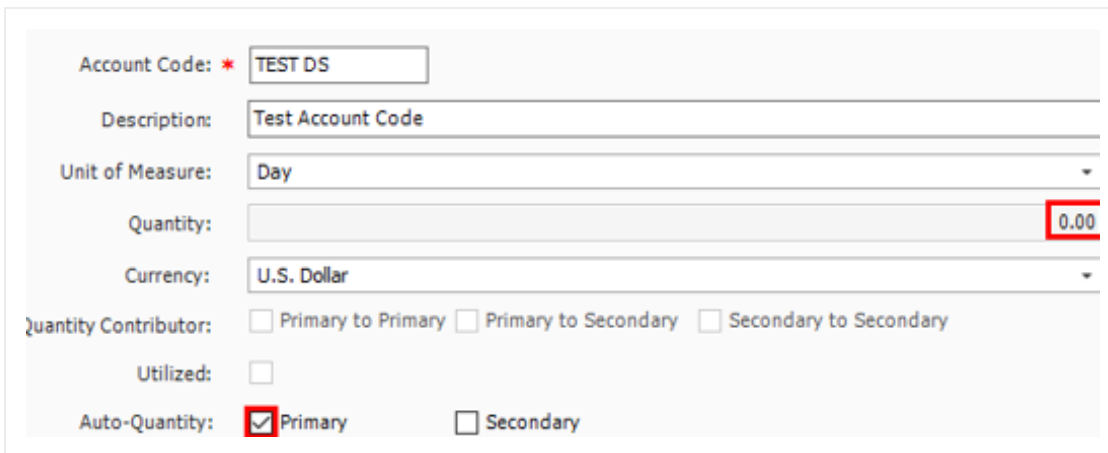


## 15.36.2 Edit an Account Code

Editing an account code is also done through the Foundation Setup Data tab and selecting Account Codes.

### Step by Step — Edit an Account Code

1. Select your account code.
2. From the **Actions** tab, under the Edit section, select **Open**.
3. Select the Auto-Quantity **Primary** check box. Notice that your quantity goes to **0**.



Account Code: \* TEST DS

Description: Test Account Code

Unit of Measure: Day

Quantity: 0.00

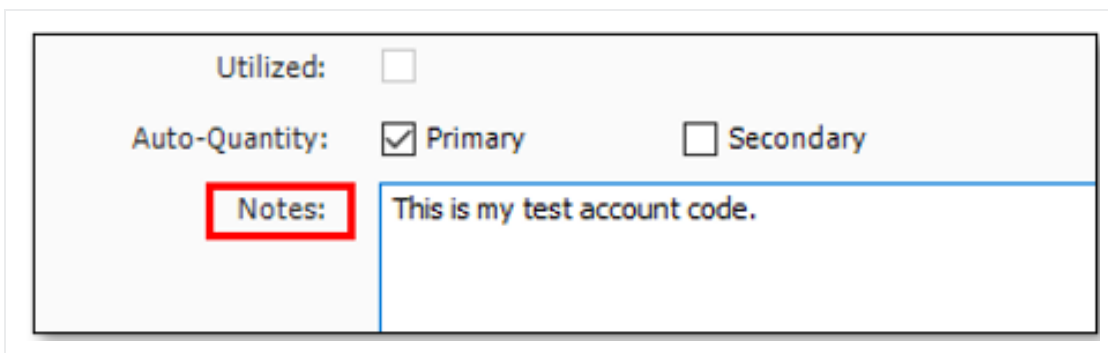
Currency: U.S. Dollar

Quantity Contributor: ☐ Primary to Primary ☐ Primary to Secondary ☐ Secondary to Secondary

Utilized: ☐

Auto-Quantity: ☒ Primary ☐ Secondary

4. Enter some notes in the **Notes** field.



Utilized: ☐

Auto-Quantity: ☒ Primary ☐ Secondary

Notes: This is my test account code.

5. Click on the **Tags/User Defined Fields** tab. From the Tag 1 drop down arrow, select **Concrete**.



Info

Tags / User Defined Fields

Tag 1:	Concrete	
Tag 2:	<div><div>Code</div><div></div></div>	Description
Tag 3:	Concrete	Concrete
Tag 4:	Pipe	Pipe
Tag 5:		
Tag 6:		
Tag 7:		
Tag 8:	<div><div>x</div><div></div></div>	
Tag 9:		
Tag 10:		
User Defined 1:		

6. Enter in **test** in the **User Defined 1** field. Once done, click **OK**.

15.36.3 Quantity Contribution

At the project level, you can manage account codes under the **Account Code Utilization Register** or in **Foundation Setup Data**. In the **Account Code Utilization Register**, you can see the account codes assigned to your cost items, along with account code details and quantity contributors.

Other budget information is automatically pulled into the **Account Code Utilization Register** including, Total Cost, Unit Cost, Unit Rates, Primary and Secondary Quantity Ratios, Man Hours, and Account Code Tags. To access this information, scroll through all of the columns in the **Account Code Utilization Register**.

15.36.4 Account Code Quantity

There are two methods for defining primary and secondary quantities for your account codes:

- Manual entry in the Primary Qty and Secondary Qty fields
- Using the auto-quantity feature to have them automatically inherit the quantities of any cost items that have the same unit of measure as the assigned account code



Foundation Setup Data Register		Cost Breakdown Structure (CBS) Register		Work Breakdown Structure Record		Account Code Utilization		
Drag columns here to group								
	Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure	Auto-Quantity (Secondary)	Secondary Quantity
→	1020	Mobilization	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Each	<input type="checkbox"/>	
	1110	Clearing and Grubbing	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Acre	<input type="checkbox"/>	
	1120	Aggregate Base	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
	1120.100	Furn and Haul Base Material	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
	1120.200	Place Aggregate Base	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
	1122	Unclassified Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	
	1122.100	Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	
	1122.200	Embankment	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	

### 15.36.5 Quantity Contributors

Within your project, you can specify how primary and secondary quantities contribute to your account codes. Specifically, you can indicate how:

- Cost item primary and secondary quantities contribute to assigned account code primary and secondary quantities
- Child account code primary and secondary quantities contribute to parent account code primary and secondary quantities

For both cost item and account code contributions you can have quantities roll up:

- Primary quantity to primary quantity
- Primary quantity to secondary quantity
- Secondary quantity to secondary quantity



Contribute Primary to Primary Quantity	Contribute Primary to Secondary Quantity	Contribute Secondary to Secondary Quantity
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**NOTE**

Account codes will only automatically inherit quantities from cost items/account codes using the same unit of measure.

## 15.36.6 Contribution Options – Cost Item to Account Code

From the **Account Code Utilization Register**, you can specify how cost item quantities roll up to the account code that is assigned to it, by selecting the appropriate checkbox. The total of the contributing cost item(s)'s quantities will roll up to become the account code quantity.

Cost Breakdown Structure (CBS) Register

Job Properties

Foundation Setup Data Register

Account Code Utilization Register

Find: [Search For...]

Saved views: Standard View

Drag columns here to group

Account Code	Benchmark MH/ Unit (low)	Benchmark MH/ Unit (high)	Benchmark MH/ Unit (average)	Benchmark MH/ Unit (% variance)	Benchmark MH/ Unit (std. dev.)	Benchmark Units/ MH (low)	Benchmark Units/ MH (high)	Benchmark Units/ MH (average)	Benchmark Units/ MH (% variance)	Benchmark Units/ MH (std. dev.)	Contribute Primary to Primary Quantity	Contribute Primary to Secondary Quantity	Contribute Secondary to Secondary Quantity
1020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1120.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1120.200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1122.100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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Utilizing Items

Find: [Search For...]

Saved views: Previous View

Drag columns here to group

CBS Position Code	Description	Account Code	Account Total Cost	Account Total Man Hours	Account Total Man Hours (Maintenance)	Account Total Man Hours (w/ Maintenance)	Account Total Man Hours (w/ Maintenance)	Contribute Primary to Primary Quantity	Contribute Primary to Secondary Quantity	Contribute Secondary to Secondary Quantity
3.1	Excavation	1122.100	\$149,922.88	1,250.00	75.00	1,325.00	1,325.00	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## 15.36.7 Account Code Utilization Register

The **Account Code Utilization Register** keeps track of how the account codes are used for the project. It displays the mapping between CBS items and Account Codes.

The Account Code Utilization Register is accessed through the **Estimate** tab from either within the project (for project specific account codes and cost items) or the **Library** (for Master account codes and cost items).

Account code hierarchy rolls up based on your assignments (just like in the CBS). Quantity contributors (discussed above) can be employed from within the Account Code Utilization Register.

The Account Code Utilization Register is used to roll estimate line items into an account code hierarchy, with the ability to control which cost items contribute quantity to their parent, in order to benchmark against historical projects in a way that is consistent across projects.

The Account Code Utilization Register is similar to the **Cost Breakdown Structure (CBS)** and the **Master Cost Breakdown Structure (CBS)**, with the following exceptions:

- The rows in the Account Code Utilization Register represent Account Codes rather than individual Cost Items, so the tree structure reflects the Account Code hierarchy rather than the CBS hierarchy.
- The Utilizing Items data block in the Account Code Utilization Register reflect a terminal Account Code's assigned Cost Items.
- The terminal rows in the Account Code Utilization Register represent each utilized Account Code in the CBS.



Cost Breakdown Structure (CBS) Register

Account Code Utilization Register

Foundation Setup Data Register

Drag columns here to group

Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure
1020	Mobilization	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Each
1110	Clearing and Grubbing	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Acre
1120	Aggregate Base	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
1120.100	Furn and Haul Base Material	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
→ 1120.200	Place Aggregate Base	<input checked="" type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
1122	Unclassified Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard
1122.100	Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard
1122.200	Embankment	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard
1180	Finegrade Subgrade	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Square Yard
1240	Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
1240.100	Furnish and Haul Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
1240.200	Install Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
1330	Steel Reinforcement	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Pound
1340	Retaining Wall	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard

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Utilizing Items

Drag columns here to group

CBS Position Code	Description	Account Code	Account Total Cost	Account Total Man Hours	Account Man Hours
→ + 4.3.1	Place Aggregate Base	1120.200	\$73,460.92	1,200.00	
+ 4.3.2	Blue Top Aggregate Base	1120.200	\$24,106.42	640.00	

- If the Account Code's Auto-Quantity setting is checked, then the Quantity of the terminal row is equal to the Quantity (Primary or Secondary) of all the cost items in the CBS with that assigned Account Code, and the cost items in the CBS employing resources with that assigned Account Code, provided that they have the same Unit of Measure type as the Account Code.



Cost Breakdown Structure (CBS) Register		Account Code Utilization Register		Foundation Setup Data Register		Job Properties	
Drag columns here to group							
Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure	Auto-Quantity (Secondary)	
1020	Mobilization	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Each	<input type="checkbox"/>	
1110	Clearing and Grubbing	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Acre	<input type="checkbox"/>	
1120	Aggregate Base	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
1120.100	Furn and Haul Base Material	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
1120.200	Place Aggregate Base	<input checked="" type="checkbox"/>	45,000.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
1122	Unclassified Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	
1122.100	Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	
1122.200	Embankment	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	
1180	Finegrade Subgrade	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Square Yard	<input type="checkbox"/>	
1240	Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
1240.100	Furnish and Haul Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
1240.200	Install Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	
1330	Steel Reinforcement	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Pound	<input type="checkbox"/>	
1340	Retaining Wall	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	
60							
Utilizing Items							
Drag columns here to group							
CBS Position Code	Description	Account Code	Optional Code	Forecast (T/O) Quantity	Unit of Measure		
+ 4.3.1	Place Aggregate Base	1120.200	1.00	4.3.1	45,000.00	Ton	
+ 4.3.2	Blue Top Aggregate Base	1120.200	1.00	4.3.2	400,000.00	Square	

- The Account Code Utilization Register can be filtered to display only terminal items by clicking the filter icon on the "Is Terminal" column and selecting "Checked".

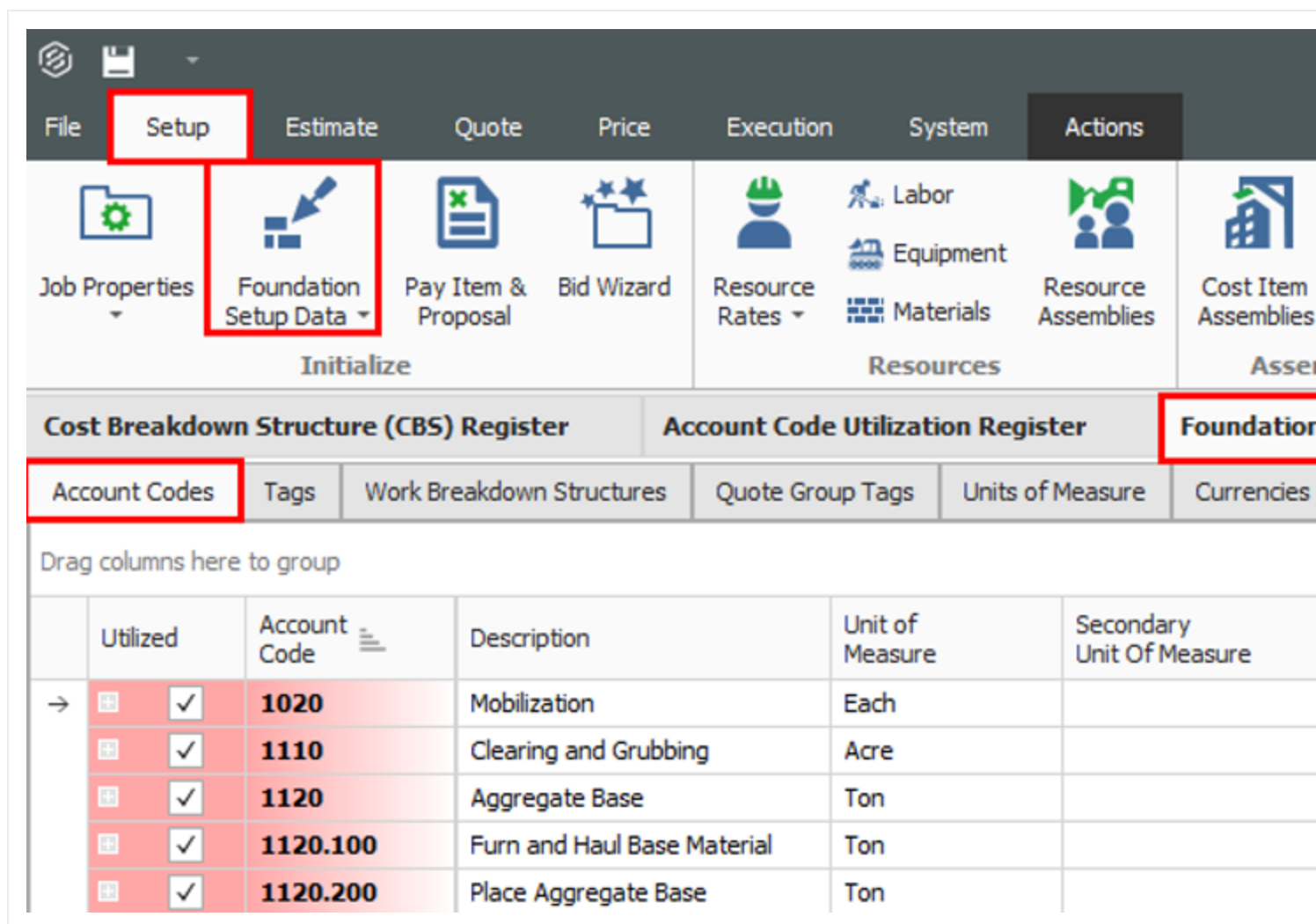


columns here to group

Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure
1122	Unclassified Excavation	<input type="checkbox"/>	1.00	<input type="checkbox"/> (Custom)	
1122.100	Excavation	<input type="checkbox"/>	1.00	<input type="checkbox"/> (Blanks)	
1122.200	Embankment	<input type="checkbox"/>	1.00	<input type="checkbox"/> (Non blanks)	
1180	Finegrade Subgrade	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/> Checked	
1240	Asphalt Concrete	<input type="checkbox"/>	1.00		
1240.100	Furnish and Haul Asphalt Concrete	<input type="checkbox"/>	1.00		
1240.200	Install Asphalt Concrete	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton
1330	Steel Reinforcement	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Pound
1340	Retaining Wall	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard
1340.100	Furnish Retaining Wall Materials	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard
1340.200	Retaining Wall Footings	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard

- The parent-child hierarchy for Account Code is based on the Account Code Hierarchy Separator. The Hierarchy Separator defines the parent-child relationship within the Account Code structure.
- The Account Code Utilization Register is used primarily for analysis, and most of the columns are read-only. Most of these columns originate on the Account Codes tab in the **Foundation Setup Data Register** and the **Master Foundation Setup Data Register**. Modifying an editable column on this form has the same effect as modifying the same field on the Account Codes tab of the Foundation Setup Data Register or on the Account Record.





The screenshot displays the InEight software interface. The top navigation bar includes tabs for File, Setup, Estimate, Quote, Price, Execution, System, and Actions. The 'Setup' tab is active, and the 'Foundation Setup Data' icon is highlighted. Below the navigation bar, there are sections for 'Initialize' (Job Properties, Foundation Setup Data, Pay Item & Proposal, Bid Wizard) and 'Resources' (Resource Rates, Labor, Equipment, Materials, Resource Assemblies). The 'Account Code Utilization Register' is visible, with the 'Account Codes' tab selected. The table below shows the following data:

Utilized	Account Code	Description	Unit of Measure	Secondary Unit Of Measure
<input checked="" type="checkbox"/>	1020	Mobilization	Each	
<input checked="" type="checkbox"/>	1110	Clearing and Grubbing	Acre	
<input checked="" type="checkbox"/>	1120	Aggregate Base	Ton	
<input checked="" type="checkbox"/>	1120.100	Furn and Haul Base Material	Ton	
<input checked="" type="checkbox"/>	1120.200	Place Aggregate Base	Ton	

## Step by Step — Account Code Utilization Register

1. From the Estimate tab under the Breakdown Structures section, select **Account Code Utilization**.
2. Select an account code. You can see the cost items that are using the account code below in the **Utilizing Items** data block.



Cost Breakdown Structure (CBS) Register			Cost Item Assembly Register		Cost Item Assembly Record		Foundation Setup	
Drag columns here to group								
	Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure	Auto-Quantity (Secondary)	
	1020	Mobilization		1.00	<input checked="" type="checkbox"/>	Each		
	1110	Clearing and Grubbing		1.00	<input checked="" type="checkbox"/>	Acre		
→	1120	Aggregate Base		1.00	<input checked="" type="checkbox"/>	Ton		
	1120.100	Furn and Haul Base Material		1.00	<input checked="" type="checkbox"/>	Ton		
	1340.300.200	Pour Wall		1.00	<input checked="" type="checkbox"/>	Cubic Yard		
	1340.300.200	Strip Wall		1.00	<input checked="" type="checkbox"/>	Cubic Yard		
58								
Utilizing Items								
Drag columns here to group								
	CBS Position Code	Description	Account Code	Account Total Cost	Account Total Man Hours	Account Total Man Hours (Maintenance)		
→	+ 4	Aggregate Base	1120	\$0.00	0.00			
	+ 4.3	Install Aggregate Base	1120	\$0.00	0.00			

3. Scroll to the right and find the **Man Hours (w/ Maintenance)** column. This shows the total number of manhours contributing to that account code.
4. Click the ellipses next to the **Find** bar. Select **Unit of Measure**.



<input checked="" type="checkbox"/>	Find using 'begins with'
<input type="checkbox"/>	Find using 'contains'
<hr/>	
<input type="checkbox"/>	*Account Code
<input type="checkbox"/>	Benchmark Data Points
<input type="checkbox"/>	CB-Currency
<input type="checkbox"/>	CB-Unit of Measure
<input type="checkbox"/>	Currency
<input type="checkbox"/>	Description
<input type="checkbox"/>	OB-Currency
<input type="checkbox"/>	OB-Unit of Measure
<input type="checkbox"/>	Secondary Unit Of Measure
<input type="checkbox"/>	Tag 1
<input type="checkbox"/>	Tag 8
<input type="checkbox"/>	Tag 9
<input checked="" type="checkbox"/>	Unit of Measure
<input type="checkbox"/>	Uses Listed In



5. In the **Find** field, type in **Each**. Then press **<Enter>**.

Find: 

Each

 ... ↩

Saved views:

T	Contribute Primary to Primary Quantity	Contribute Primary to Secondary Quantity
---	--	--

6. The first account code that matches that Unit of Measure is highlighted.

Drag columns here to group

Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure	Auto-Quantity (Secondary)	Secondary Quantity	Secondary Unit of Measure
→ 1020	Mobilization	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Each	<input type="checkbox"/>	0.00	
1110	Clearing and Grubbing	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Acre	<input type="checkbox"/>	0.00	
1120	Aggregate Base	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	0.00	
1120.100	Furn and Haul Base Material	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	0.00	
1120.200	Place Aggregate Base	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Ton	<input type="checkbox"/>	0.00	
1122	Unclassified Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	0.00	
1122.100	Excavation	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	0.00	
1122.200	Embankment	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	0.00	
1122.300	Excavate and Backfill	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	0.00	

7. Press **<F3>** to move to the next account code that matches that UoM.

Drag columns here to group

Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure	Auto-Quantity (Secondary)	Secondary Quantity	Secondary Unit of Measure
→ 1370	Paint Steel Bridge Structure	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Each	<input type="checkbox"/>	0.00	
1700	4 Ft Manhole	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Each	<input type="checkbox"/>	0.00	
1754	36 Inch RCP	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Linear Feet	<input type="checkbox"/>	0.00	
1754.100	Furnish 36 RCP Materials	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Linear Feet	<input type="checkbox"/>	0.00	
1754.200	Excavate 36 RCP	<input type="checkbox"/>	1,858.56	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	0.00	
1754.300	Install 36 RCP	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Linear Feet	<input type="checkbox"/>	0.00	
1754.400	Backfill 36 RCP	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Cubic Yard	<input type="checkbox"/>	0.00	
1762	10 Inch PVC Force Main	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Linear Feet	<input type="checkbox"/>	0.00	
1762	34 Inch PVC Force Main	<input type="checkbox"/>	1.00	<input checked="" type="checkbox"/>	Linear Feet	<input type="checkbox"/>	0.00	

8. You can change the quantity contribution of the cost items by checking and unchecking the boxes of the cost items.



Utilizing Items									
Drag columns here to group									
CBS Position Code	Description	Account Code	Account Total Cost	Account Total Man Hours	Account Total Man Hours (Maintenance)	Account Total Man Hours (w/ Maintenance)	Optional Code	Forecast (T/O)	
+ 5.1	Furnish & Haul Hot Mix	1240.100	\$1,374,562.54	1,633.33	0.00	1,633.33	5.1		

### 15.36.8 Benchmarking

Benchmarking is a way for companies to track their productivity on all of their different projects. Since projects have various cost items and pay items, a way to benchmark and track all of these job uniformly is using account codes. When an account code is assigned to a cost item, the account code tracks all benchmarking data such as total manhours, MH/unit, and quantities.

In the Account Code Utilization Register, you can scroll through the columns to find benchmarking data on each account code.

Cost Breakdown Structure (CBS) Register		Job Properties		Foundation Setup Data Register		Account Code Utilization Register ⓘ		
Drag columns here to group								
	Account Code ⓘ	Benchmark MH/ Unit (low)	Benchmark MH/ Unit (high)	Benchmark MH/ Unit (average)	Benchmark MH/ Unit (% variance)	Benchmark MH/ Unit (std. dev.)	Benchmark Units/ MH (low)	Benchmark U MH (high)
→	1020	0.00	0.00	0.00	0.00	0.00	0.00	
	1110	0.00	0.00	0.00	0.00	0.00	0.00	

Another way projects can benchmark is by using account code tag fields. All of the account codes with the same tags can be benchmarked together.

Also in the Account Code Utilization Register, you can use the Benchmarking Data block to view benchmarked data. The Benchmarking portion of the form is similar to the Benchmarking data block on the Cost Item Record, with the following exceptions:

- The Item matching criteria is always Account Code.
- "Parent" account codes will include all matching data points for their "child" account codes, based on the Hierarchy Separator.
- Account Code rows can be benchmarked at the terminal row level or at any superior row level in the Account Code Utilization Register, meaning that both current estimate values and



benchmark values can be compared at any level since both include the values rolled up from their "children".

**Account Code Utilization Register**

Find: [Search For...] Saved views: Previous View

Account Code	Description	Auto-Quantity (Primary)	Quantity	Is Terminal	Unit of Measure	Currency	Unit Cost	Total Cost
1020	Mobilization		1.00	<input checked="" type="checkbox"/>	Each	U.S. Dollar	\$11,909.51	\$11,909.51
1110	Clearing and Grubbing		1.00	<input checked="" type="checkbox"/>	Acre	U.S. Dollar	\$58,777.45	\$58,777.45
1120	Aggregate Base		40,000.00	<input type="checkbox"/>	Ton	U.S. Dollar	\$344,063.11	\$344,063.11
1120.100	Furn and Haul Base Material	<input checked="" type="checkbox"/>	40,000.00	<input checked="" type="checkbox"/>	Ton	U.S. Dollar	\$257,336.60	\$257,336.60
1120.200	Place Aggregate Base	<input checked="" type="checkbox"/>	40,000.00	<input checked="" type="checkbox"/>	Ton	U.S. Dollar	\$86,726.52	\$86,726.52
1122	Unclassified Excavation		1.00	<input type="checkbox"/>	Cubic Yard	U.S. Dollar	\$667,542.37	\$667,542.37
1122.100	Excavation		1.00	<input checked="" type="checkbox"/>	Cubic Yard	U.S. Dollar	\$654,103.50	\$654,103.50
1122.200	Embankment		1.00	<input checked="" type="checkbox"/>	Cubic Yard	U.S. Dollar	\$13,438.87	\$13,438.87
1180	Finegrade Subgrade		1.00	<input checked="" type="checkbox"/>	Square Yard	U.S. Dollar	\$67,420.76	\$67,420.76
1240	Asphalt Concrete		1.00	<input type="checkbox"/>	Ton	U.S. Dollar	\$1,491,580.00	\$1,491,580.00
1240.100	Furnish and Haul Asphalt Concrete		1.00	<input checked="" type="checkbox"/>	Ton	U.S. Dollar	\$1,374,562.00	\$1,374,562.00
1240.200	Install Asphalt Concrete		1.00	<input checked="" type="checkbox"/>	Ton	U.S. Dollar	\$117,018.05	\$117,018.05
1330	Steel Reinforcement		1.00	<input checked="" type="checkbox"/>	Pound	U.S. Dollar	\$44,408.30	\$44,408.30
1340	Retaining Wall		1.00	<input type="checkbox"/>	Cubic Yard	U.S. Dollar	\$349,992.85	\$349,992.85
1340.100	Furnish Retaining Wall Materials		1.00	<input checked="" type="checkbox"/>	Cubic Yard	U.S. Dollar	\$125,719.65	\$125,719.65
1340.200	Retaining Wall Footings		1.00	<input type="checkbox"/>	Cubic Yard	U.S. Dollar	\$73,340.24	\$73,340.24
1340.200.100	Form Footing		1.00	<input checked="" type="checkbox"/>	Square Feet	U.S. Dollar	\$45,908.78	\$45,908.78
1340.200.200	Pour Footing		1.00	<input checked="" type="checkbox"/>	Cubic Yard	U.S. Dollar	\$12,128.54	\$12,128.54
1340.200.300	Finish Footing		1.00	<input checked="" type="checkbox"/>	Cubic Yard	U.S. Dollar	\$12,128.54	\$12,128.54
								<b>\$6,154,200.00</b>

**Utilizing Items**

Find: [Search For...] Saved views: Previous View

CBS Position Code	Description	Account Code	Account Total Cost	Account Total Man Hours	Contribute Primary to Primary Quantity	Contribute Primary to Secondary Quantity	Contribute Secondary to Secondary Quantity
4.3.1	Place Aggregate Base	1120.200	\$65,298.59	1,066.67	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.2	Blue Top Aggregate Base	1120.200	\$21,427.93	568.89	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

As-Entered Currency As-Entered Units Training Job

In the **Setup** tab, under **Job Properties - Benchmarking** tab, you can select where this project will get its historical data. You can set criteria and filters to just pull in certain account codes, certain project data, and certain cost items. You can also configure the Benchmark graph here.

## 15.36.9 Account Code Assignment

An Account Code can be mapped to multiple CBS items, but a CBS item can only be mapped to one Account Code. Assigning Account Code to cost items is done for benchmarking purposes. It is best practice to assign account codes to cost items in the estimate phase rather than after the project is



awarded and work begins. This is beneficial for tracking account codes over the life of the project (from estimate to completion).

Typically every cost item should be assigned an account code whether it is a terminal cost item or parent cost item.

Account Codes can be assigned directly on the individual cost item, job overhead, or pay item forms.

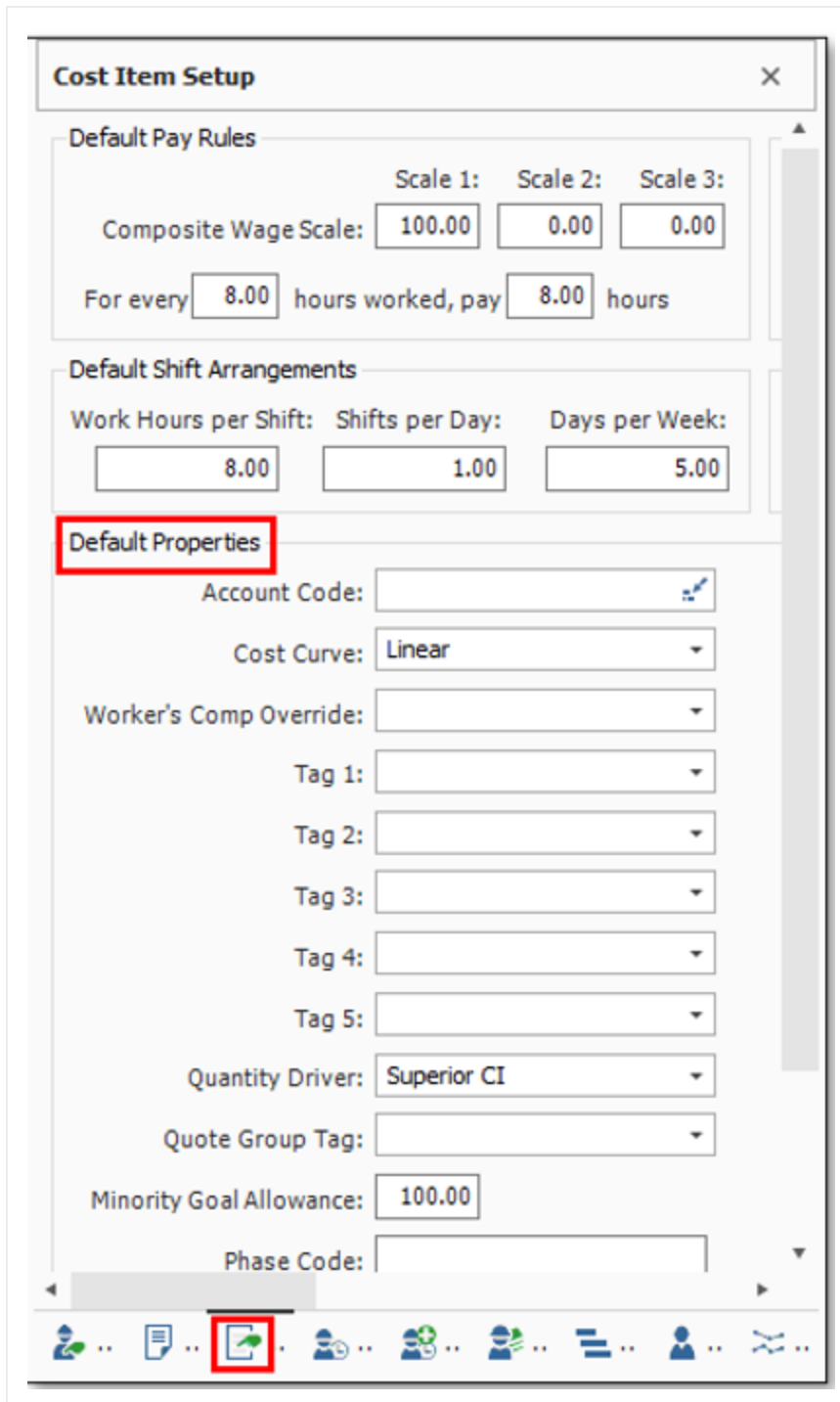
## Step by Step — Assign an Account Code to a Cost Item

1. From the Ribbon, select the **Estimate** tab. Then select **Cost Breakdown Structure (CBS)**.
2. Change the Saved Views to **Account Code View**.
3. Double click on a cost item that has not been assigned an account code.

24.1	Change Order One- Realign the Water	1.00	Each	\$6,430.12	\$6,430.12	U.S. Dollar	
+ 24.1.1	Day One	1.00	Each	\$2,785.08	\$2,785.08	U.S. Dollar	
+ 24.1.2	Day Two	1.00	Each	\$3,645.03	\$3,645.03	U.S. Dollar	
25	Test Cost Item Assembly - Ductbank	1.00	Each	\$0.00	\$0.00	U.S. Dollar	
25.1	Excavate Ductbank Conduit	1.00	Each	\$0.00	\$0.00	U.S. Dollar	

4. In the **Employment Setup** section, click on the **Cost Item Setup** icon, and find **Default Properties**.





**Cost Item Setup** [X]

**Default Pay Rules**

Scale 1: Scale 2: Scale 3:

Composite Wage Scale: 100.00 0.00 0.00

For every 8.00 hours worked, pay 8.00 hours

**Default Shift Arrangements**

Work Hours per Shift: Shifts per Day: Days per Week:

8.00 1.00 5.00

**Default Properties**

Account Code: [Selection Icon]

Cost Curve: Linear

Worker's Comp Override:

Tag 1:

Tag 2:

Tag 3:

Tag 4:

Tag 5:

Quantity Driver: Superior CI

Quote Group Tag:

Minority Goal Allowance: 100.00


Phase Code:

[Selection Icon]

5. Click the icon next to the **Account Code** field. From the Account Codes Register, select your account code. Click **OK**. Once done, click **OK**.



**Default Properties**

Account Code:  

Cost Curve:

Worker's Comp Override:

Tag 1:

6. Find that cost item in the CBS. Notice that the **Account Code** field is now populated.

24	Change Orders	1.00	Each	\$6,430.12	\$6,430.12	U.S. Dollar	
24.1	Change Order One- Realign the Water	1.00	Each	\$6,430.12	\$6,430.12	U.S. Dollar	
+ 24.1.1	Day One	1.00	Each	\$2,785.08	\$2,785.08	U.S. Dollar	TES
+ 24.1.2	Day Two	1.00	Each	\$3,645.03	\$3,645.03	U.S. Dollar	

Estimate provides you with the ability to assign specific account codes to each pay item on the **Pay Item & Proposal Register**.

### Step by Step — Account Code Utilization Register

1. From the Price tab, select **Pay Item & Proposal**.
2. From the **Pay Item & Proposal Register**, select a pay item.
3. Find the **Account Code** field for that item.



Pay Item Number	% Job Max. Alarm	Unit Price Min. Alarm	Unit Price Max. Alarm	Account Code	Tag 1
+ 641 0100	10.00	\$0.00	\$0.00	1020	Roadway
+ 201 0102	0.00	\$0.00	\$0.00	1110	Roadway
+ 202 0183	0.00	\$0.00	\$0.00	1122	Roadway
+ 303 5912	0.00	\$0.00	\$0.00	1120	Roadway
+ 303 4263	0.00	\$0.00	\$0.00	1240	Roadway
+ 413(B) 0464	0.00	\$0.00	\$0.00	1754	Roadway
+ 800 0220	0.00	\$0.00	\$0.00	1762	Water/Sewer
+ 800 0330	0.00	\$0.00	\$0.00	1763	Water/Sewer
+ 800 0400	0.00	\$0.00	\$0.00	1700	Water/Se...
+ 501(A) 1306	0.00	\$0.00	\$0.00		Bridge
+ 506(A) 1322	0.00	\$1.00	\$1.50		Bridge
+ 503(A) 1313	0.00	\$0.00	\$0.00		Bridge

4. Click the icon in the Account Code field.

+ 800 0400	0.00	\$0.00	\$0.00	1700		Water/Se...
+ 501(A) 1306	0.00	\$0.00	\$0.00			Bridge
+ 506(A) 1322	0.00	\$1.00	\$1.50			Bridge

5. Select an account code that you wish to assign to that pay item. Once done, click **OK**.



Actions

Drag columns here to group

Find:

Saved views:

	Utilized	Account Code	Description	Auto-Quantity (Primary)	Quantity	Unit of Measure	Auto-Quantity (Secondary)
	<input checked="" type="checkbox"/>	1110	Clearing and Grubbing	<input type="checkbox"/>	1.00	Acre	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1120	Aggregate Base	<input type="checkbox"/>	1.00	Ton	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1120.100	Furn and Haul Base Material	<input type="checkbox"/>	1.00	Ton	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1120.200	Place Aggregate Base	<input type="checkbox"/>	1.00	Ton	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1122	Unclassified Excavation	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1122.100	Excavation	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1122.200	Embankment	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1180	Finegrade Subgrade	<input type="checkbox"/>	1.00	Square Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1240	Asphalt Concrete	<input type="checkbox"/>	1.00	Ton	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1240.100	Furnish and Haul Asphalt C...	<input type="checkbox"/>	1.00	Ton	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1240.200	Install Asphalt Concrete	<input type="checkbox"/>	1.00	Ton	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1330	Steel Reinforcement	<input type="checkbox"/>	1.00	Pound	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1340	Retaining Wall	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1340.100	Furnish Retaining Wall Mat...	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1340.200	Retaining Wall Footings	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1340.200.100	Form Footing	<input type="checkbox"/>	1.00	Square Feet	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1340.200.200	Pour Footing	<input type="checkbox"/>	1.00	Cubic Yard	<input type="checkbox"/>
	<input checked="" type="checkbox"/>	1340.200.300	Strip Footing	<input type="checkbox"/>	1.00	Square Feet	<input type="checkbox"/>

60

- Notice how the account code you selected is now populated in that pay item's account code field.



Drag columns here to group

	Pay Item Number	% Job Max. Alarm	Unit Price Min. Alarm	Unit Price Max. Alarm	Account Code
	+ 641 0100	10.00	\$0.00	\$0.00	1020
	+ 201 0102	0.00	\$0.00	\$0.00	1110
	+ 202 0183	0.00	\$0.00	\$0.00	1122
	+ 303 5912	0.00	\$0.00	\$0.00	1120
	+ 303 4263	0.00	\$0.00	\$0.00	1240
	+ 413(B) 0464	0.00	\$0.00	\$0.00	1754
	+ 800 0220	0.00	\$0.00	\$0.00	1762
	+ 800 0330	0.00	\$0.00	\$0.00	1763
	+ 800 0400	0.00	\$0.00	\$0.00	1700
→	+ 501(A) 1306	0.00	\$0.00	\$0.00	1330
	+ 506(A) 1322	0.00	\$1.00	\$1.50	

## 15.37 SCOPE SHEETS

A scope sheet is a table of default values pertaining to different scope items within a quote group. It is used to more easily compare quotes.



Cost Breakdown Structure (CBS) Register	Foundation Setup Data Register	Quote Group Tag Record
Description: * <input type="text" value="Painting Materials"/>		
Award Status: Complete		
Reviewed: <input type="checkbox"/>		
Last Reviewed:		
Quote Last Changed:		
Drag columns here to group		
Row Number	Scope Item	Amount % of Total
*		

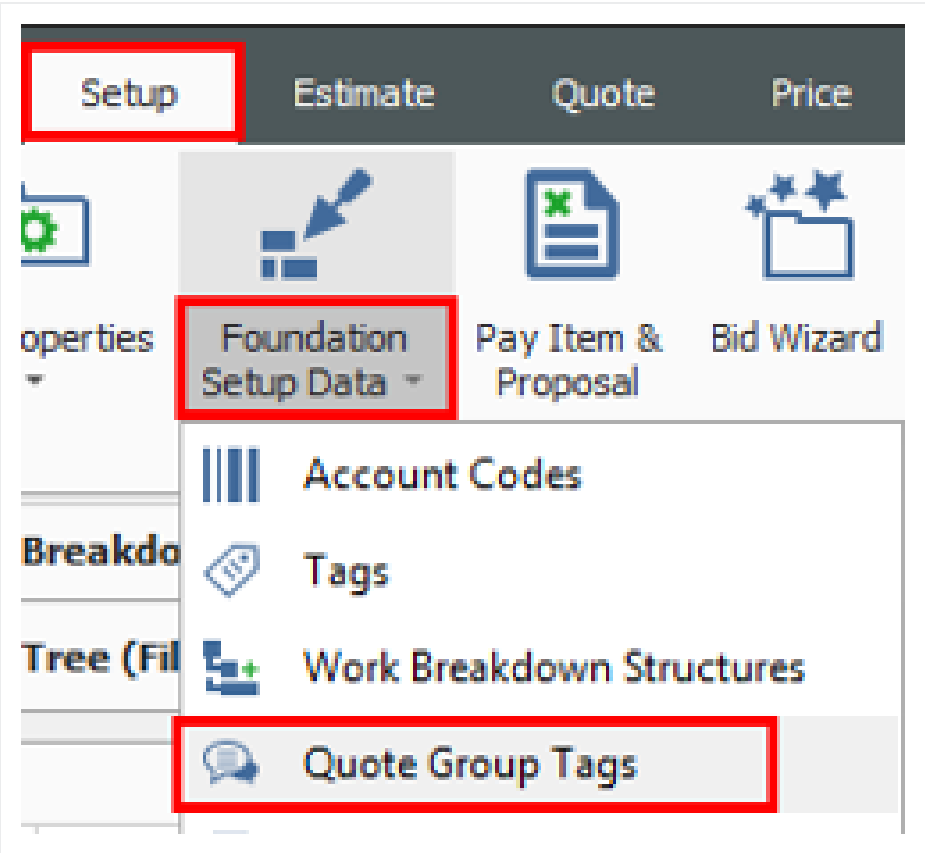
Scope sheets can be created from the **Foundation Setup Data Register - Quote Group Tag Record**. You can optionally define a default Amount or % of Total for each scope item.

This is the amount or percentage of total cost to be applied to the total quote if that Scope Item is not included in the scope of a subcontractor/supplier quote. This amount or percentage can also be entered or modified on each **Quote Record**.

## Step by Step — Create a Scope Sheet

1. From the Ribbon, select the **Setup** tab. Under the Initialize section, select the Foundation Setup Data drop down, and select **Quote Group Tags**.





2. From the Quote Group Tags register, select **Pipe Materials**.
3. Select the **Actions** tab from the Ribbon. Then, under the Edit section, select **Open**.
4. Under **Row Number**, enter **1** in the first blank row.





Drag columns here to group

	Row Number	Scope Item	Amount	% of Total
	1		\$0.00	

5. Under **Scope Item**, enter **5" pipe**.





Drag columns here to group

	Row Number 	Scope Item	Amount	% of Total
	1	5" pipe		
				



6. Under the **Amount** section, enter **1000**.

Drag columns here to group

	Row Number 	Scope Item	Amount	% of Total
→	1	5" pipe	\$1,000.00	
				

7. Fill out the next row as row **2**, **6" pipe**, and 25 as the **% of Total**. Once done, click **OK**.

Drag columns here to group

	Row Number 	Scope Item	Amount	% of Total
	1	5" pipe	\$1,000.00	
→	2	6" pipe		25.00
				

### 15.37.1 Scope Sheet Uses


On the **Quote Record - Special Terms & Conditions** tab, you can exclude any scope item that is not included in the scope of a subcontractor/supplier quote. Any default amounts or percentages entered in the **Quote Group Tag Record** default into this tab. You can enter or modify the **Amount** or **% of Total** to be applied to the total quote due to the exclusion of the scope item.



## Step by Step — Exclude Scope

1. From the Ribbon, select the **Quote** tab. Under the Quote Management section, select **Quotes**. The Quote Register opens.
2. From the Actions tab, under the Edit section, select **New**.
3. When the Attention dialog box shows, select **Create Quote from Quote Group Tag(s)**. In the Description, check the box next to **Pipe Materials**. Once done, click **OK**.



 **Attention**

Please select from the following options:

☐ Create Quote from scratch

☒ Create Quote from Quote Group Tag(s)

☒ Only show Quote Group tags that are currently utilized in this job

☒ On the resulting quote record, only list resources with utilization currently greater than zero

☐ Create Quotes from RFQ

☒ On the resulting quote record, only list resources with utilization currently greater than zero

☐ Create Quotes using Default Seller data

This option scans the job for all Resources and Quote Groups utilized in the job. For any that are listed in the Address Book as 'Default Quotes' for the Sellers you select on the subsequent selection register, a new Quote record will be added using the Seller's default prices and adjustment percentages.

☒ Create separate Quote records for each Quote Group, per seller?

Description

☐ [Uncheck All]

☐ [Blanks]

☐ Aggregates

☐ Asphalt Materials

☐ Commercial Work

☐ Concrete Materials

☐ Guardrail Work

☐ Manhole Materials

☐ None

☐ Painting Materials

☐ Process Equipment Install

☐ Sign Work

☐ Structural Painting

☒ Pipe Materials

OK

Cancel

4. Select the **Special Terms & Conditions** tab. Uncheck the **Inclusions** box for the **6" pipe**.



Item Prices & ConditionsGeneral Terms & ConditionsSpecial Terms & ConditionsSeller's ProfileSetupNotes

Buyer's Special Terms & Conditions

Seller's Special Terms & Conditions

FIXED COST to be added to Seller's awarded total (any combination of items) : \$0.00

Distribute Special Conditions: ☐ Evenly ☒ Using weighted average

☒ Include Special Conditions costs for unawarded quotes in Comparable Totals

Drag columns here to group

	Row Number	Scope Item	Quote Group	Inclusions	Amount
	1	5" pipe	Pipe Materials	<input checked="" type="checkbox"/>	
	2	6" pipe	Pipe Materials	<input type="checkbox"/>	

5. Enter the Amount for the **6" pipe** as **1000**.

Drag columns here to group

	Row Number	Scope Item	Quote Group	Inclusions	Amount	% of Total	N
	1	5" pipe	Pipe Materials	<input checked="" type="checkbox"/>			
	2	6" pipe	Pipe Materials	<input type="checkbox"/>	\$1,000.00	0.00	

6. Notice that the total quote price has adjusted.

Price

Extended:

\$0.00

Item Taxes:

\$0.00

Package Tax Included

Bond Included

Item Conditions:

\$0.00

Special Conditions:

\$1,000.00

Total:

\$1,000.00

7.



## 15.38 SCOPE SHEETS

A scope sheet is a table of default values pertaining to different scope items within a quote group. It is used to more easily compare quotes.

Cost Breakdown Structure (CBS) Register      Foundation Setup Data Register      **Quote Group Tag Record**

Description: \*

Award Status: Complete

Reviewed: ☐

Last Reviewed:

Quote Last Changed:

Drag columns here to group

Row Number	Scope Item	Amount	% of Total
*			

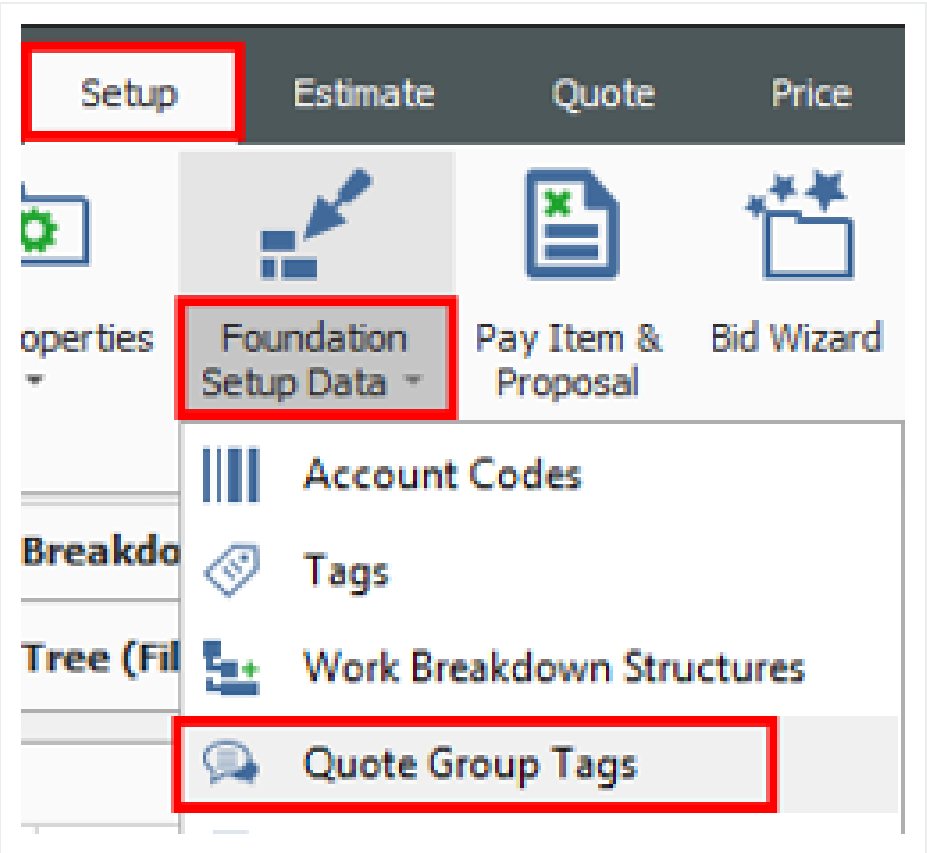
Scope sheets can be created from the **Foundation Setup Data Register - Quote Group Tag Record**. You can optionally define a default Amount or % of Total for each scope item.

This is the amount or percentage of total cost to be applied to the total quote if that Scope Item is not included in the scope of a subcontractor/supplier quote. This amount or percentage can also be entered or modified on each **Quote Record**.

### Step by Step — Create a Scope Sheet

1. From the Ribbon, select the **Setup** tab. Under the Initialize section, select the Foundation Setup Data drop down, and select **Quote Group Tags**.





2. From the Quote Group Tags register, select **Pipe Materials**.
3. Select the **Actions** tab from the Ribbon. Then, under the Edit section, select **Open**.
4. Under **Row Number**, enter **1** in the first blank row.





Drag columns here to group

	Row Number	Scope Item	Amount	% of Total
	1		\$0.00	

5. Under **Scope Item**, enter **5" pipe**.





Drag columns here to group

	Row Number 	Scope Item	Amount	% of Total
	1	5" pipe		
				



6. Under the **Amount** section, enter **1000**.

Drag columns here to group

	Row Number 	Scope Item	Amount	% of Total
→	1	5" pipe	\$1,000.00	
				

7. Fill out the next row as row **2**, **6" pipe**, and 25 as the **% of Total**. Once done, click **OK**.

Drag columns here to group

	Row Number 	Scope Item	Amount	% of Total
	1	5" pipe	\$1,000.00	
→	2	6" pipe		25.00
				

### 15.38.1 Scope Sheet Uses


On the **Quote Record - Special Terms & Conditions** tab, you can exclude any scope item that is not included in the scope of a subcontractor/supplier quote. Any default amounts or percentages entered in the **Quote Group Tag Record** default into this tab. You can enter or modify the **Amount** or **% of Total** to be applied to the total quote due to the exclusion of the scope item.



## Step by Step — Exclude Scope

1. From the Ribbon, select the **Quote** tab. Under the Quote Management section, select **Quotes**. The Quote Register opens.
2. From the Actions tab, under the Edit section, select **New**.
3. When the Attention dialog box shows, select **Create Quote from Quote Group Tag(s)**. In the Description, check the box next to **Pipe Materials**. Once done, click **OK**.



 **Attention**

Please select from the following options:

☐ Create Quote from scratch

☒ Create Quote from Quote Group Tag(s)

☒ Only show Quote Group tags that are currently utilized in this job

☒ On the resulting quote record, only list resources with utilization currently greater than zero

☐ Create Quotes from RFQ

☒ On the resulting quote record, only list resources with utilization currently greater than zero

☐ Create Quotes using Default Seller data

This option scans the job for all Resources and Quote Groups utilized in the job. For any that are listed in the Address Book as 'Default Quotes' for the Sellers you select on the subsequent selection register, a new Quote record will be added using the Seller's default prices and adjustment percentages.

☒ Create separate Quote records for each Quote Group, per seller?

Description

- ☐ [Uncheck All]
- ☐ [Blanks]
- ☐ Aggregates
- ☐ Asphalt Materials
- ☐ Commercial Work
- ☐ Concrete Materials
- ☐ Guardrail Work
- ☐ Manhole Materials
- ☐ None
- ☐ Painting Materials
- ☐ Process Equipment Install
- ☐ Sign Work
- ☐ Structural Painting
- ☒ Pipe Materials

OK

Cancel

4. Select the **Special Terms & Conditions** tab. Uncheck the **Inclusions** box for the **6" pipe**.



Item Prices & ConditionsGeneral Terms & ConditionsSpecial Terms & ConditionsSeller's ProfileSetupNotes

Buyer's Special Terms & Conditions

Seller's Special Terms & Conditions

FIXED COST to be added to Seller's awarded total (any combination of items) : \$0.00

Distribute Special Conditions: ☐ Evenly ☒ Using weighted average

☒ Include Special Conditions costs for unawarded quotes in Comparable Totals

Drag columns here to group

Row Number	Scope Item	Quote Group	Inclusions	Amount
1	5" pipe	Pipe Materials	<input checked="" type="checkbox"/>	
2	6" pipe	Pipe Materials	<input type="checkbox"/>	

5. Enter the Amount for the **6" pipe** as **1000**.

Drag columns here to group

	Row Number	Scope Item	Quote Group	Inclusions	Amount	% of Total	N
	1	5" pipe	Pipe Materials	<input checked="" type="checkbox"/>			
	2	6" pipe	Pipe Materials	<input type="checkbox"/>	\$1,000.00	0.00	

6. Notice that the total quote price has adjusted.

Price

Extended:

\$0.00

Item Taxes:

\$0.00

Package Tax Included

Bond Included

Item Conditions:

\$0.00

Special Conditions:

\$1,000.00

Total:

\$1,000.00

7.



## 15.39 QUOTE COMPARISON AND AWARD REPORTS

On the Quote Comparison & Award form, you can see the inclusions and exclusions related to all cost items in the job that have quote groups assigned to them, as described in the **Special Terms & Conditions**.

The screenshot displays the 'Quote Comparison & Award' form. At the top, there are tabs for 'Cost Breakdown Structure (CBS) Register', 'Foundation Setup Data Register', 'Quote Group Tag Record', 'Quote Register', and 'Quote Comparison'. The 'Cost Breakdown Structure (CBS) Register' tab is active, showing a 'Resource Items' section with 'Show Items:' options: 'By Quote Group(s)' (selected), 'By RFQ(s)', and 'All Items / Column Filtering:'. Below this is a 'Saved views:' dropdown set to 'Previous View'. The main table has columns: 'Description', 'Award Status', 'Reviewed', 'Last', 'Resource Type', 'Resource Code', 'Description', 'Quote Group', 'Awardee', 'Account Code', and 'Cost Driver'. The table lists three items: 'Installed Material ...' with Resource Codes MPP10, MPP24, and MPR36, all with 'Pipe Materials' as the Quote Group and 'Example Ve...' as the Awardee. The 'Pipe Materials' row is highlighted in yellow and has a red box around its checkbox in the 'Reviewed' column. On the right side, there are summary statistics: 'Awarded Total: \$271,471.20', 'Quoted Items Total:', 'Special Conditions:', 'Quoted Total:', 'Last Update:', 'Comparable Total:', and 'Seller:'.

### 15.39.1 Reports

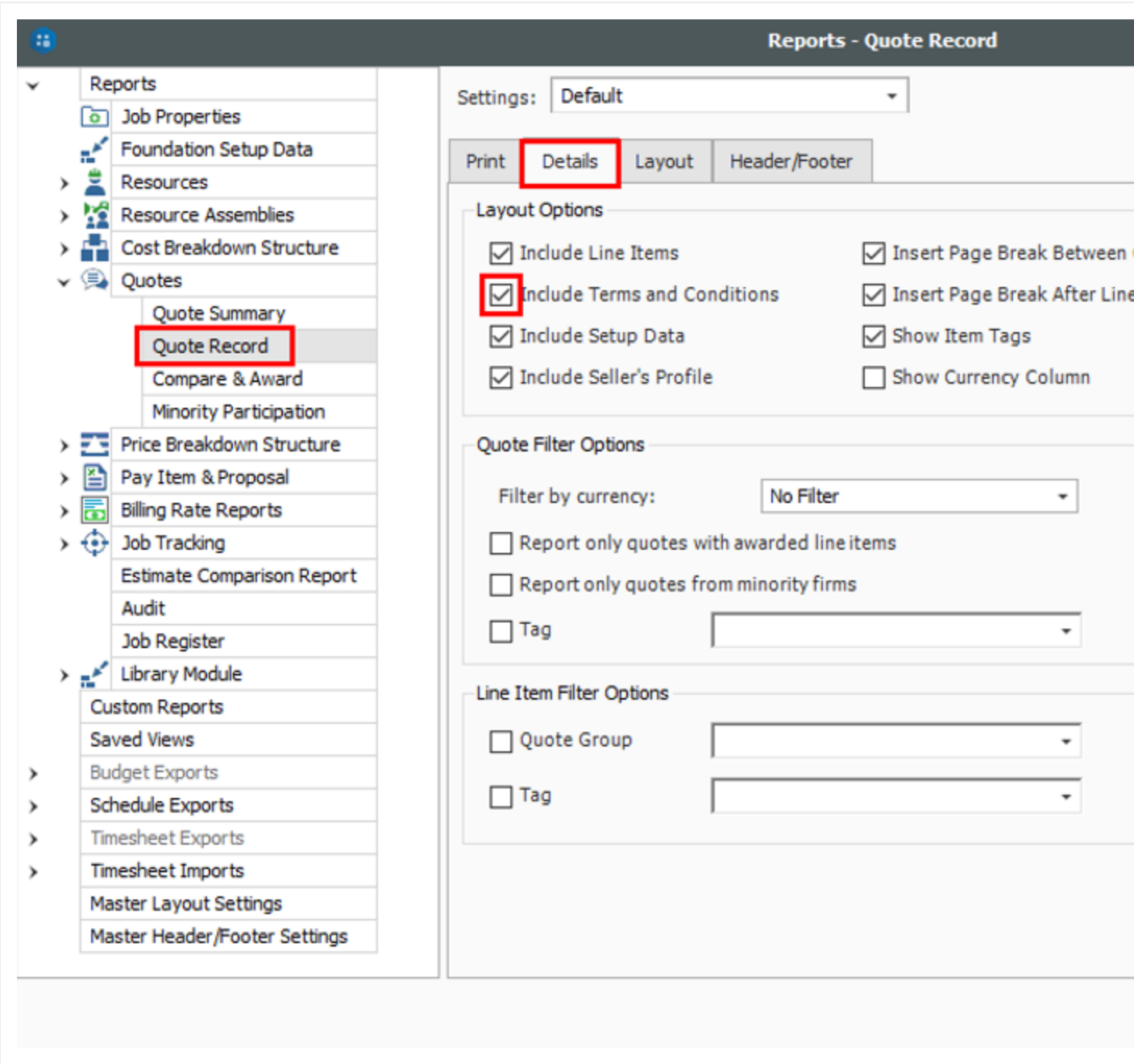
Scope sheets can be seen in two reports:

- Quote Record report
- Compare & Award report

#### Step by Step — Reports

1. From the Ribbon, click on the **Quote** tab. Select the **Reports** option. The Quote Record Report window appears.
2. Under the Quotes drop down, select **Quote Record**. Select the **Details** tab. Check the box next to **Include Terms and Conditions**. Once you are done, click **Run**.





3. Notice how the scope sheet is shown in the report.



**Terms and Conditions**

<b>Ignore</b>	<b>Licensed</b>	<b>Insured</b>	<b>Bonded</b>	<b>Bond Cost Per 10</b>
No	No	No	No	0.00

**Seller's Conditions**

<b>Scope Item Description</b>	<b>Quote Group</b>	<b>Incl</b>
5" pipe	Pipe Materials	
5" pipe	Pipe Materials	

**Seller Setup**

- Under the Quotes report drop down, select **Compare and Award**. Select the **Details** tab. Check the box next to **Include Scope Sheet**. Once you are done, click **Run**.

**Reports - Compare & Award**

Settings: Default

Print **Details** Filter Options Layout Header/Footer

Layout Options

<input checked="" type="checkbox"/> Include Cost Items	<input checked="" type="checkbox"/> Include Substitute Values
<input checked="" type="checkbox"/> Include Resources	<input checked="" type="checkbox"/> Include Special Terms Text
<input checked="" type="checkbox"/> Include Plug and Detail Values	<input type="checkbox"/> Include Minority Type
<input checked="" type="checkbox"/> Include Scope Sheet	

**Run**

- Notice how the scope sheet is shown in the report.



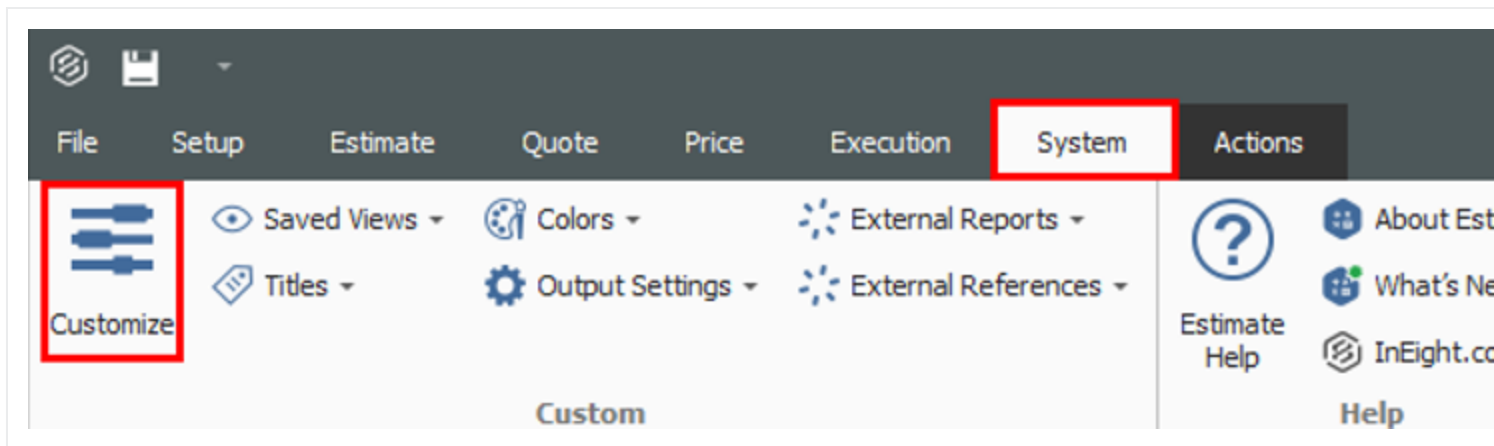
Compare and Award			
HARD DOLLAR - [REDACTED]			
Job Code: Training Job			
Description: Training Job - Maricopa County No. TM2924			
Resource Items			
(1 of 1)			
Quote Description:			
Awarded Total:			
Quoted Items Total:			
Special Conditions:			
Quoted Total:			
Last Update:			
Comparable Total:			
Seller:			
Buyer's Special Terms & Conditions:			
Seller's Special Terms & Conditions:			
Quote Group	Code	Description	Quantity UM
Pipe Materials	MPP10	Pipe 10" PVC SDR21	12,600.00 Linear Feet
Pipe Materials	MPP24	Pipe 24" PVC SDR35	3,000.00 Linear Feet
Pipe Materials	MPR36	Pipe RCP 36 in	1,024.00 Linear Feet
Scope Item			Quote Group
5" pipe			Pipe Materials
6" pipe			Pipe Materials

### 15.39.2 Minority Setup Types

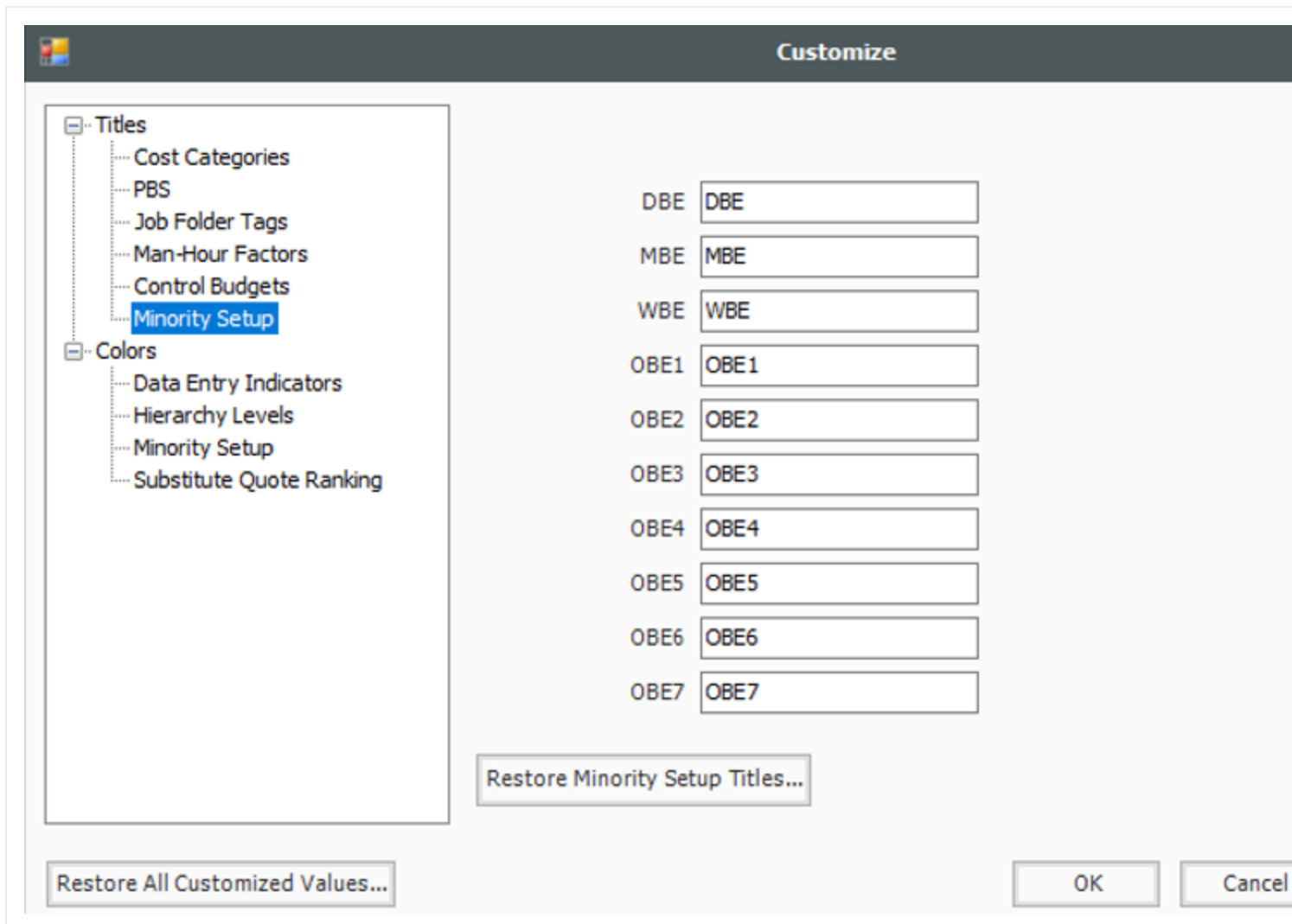
Imagine you are a lead estimator and the job up for bid requires 15% minority participation or good faith efforts. You will want to track this within the estimate to ensure that you are meeting this requirement before executing the bid.

Minority Setup Types can be customized under the **System** tab and clicking on **Customize**.



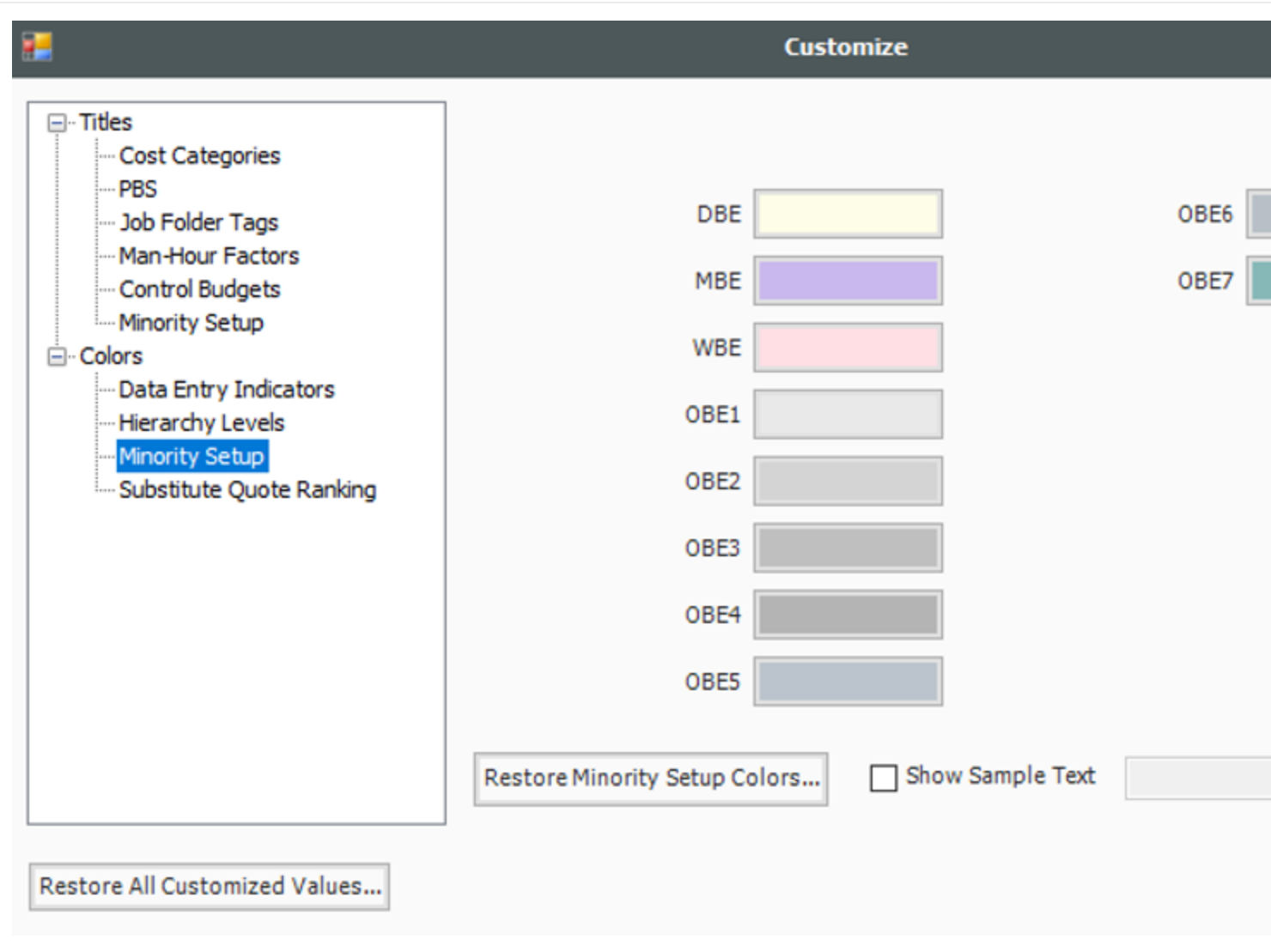


You can then select Minority setup under **Titles** and customize the minority names.





You can select Minority setup under **Colors** and customized various minority types to help identify them easily.



This enables you to recognize the Minority type of a vendor in registers such as **Quote Comparison and Award** just by sight.



Cost Breakdown Structure (CBS) Register    Foundation Setup Data Register    Quote Group Tag Record    Quote Register    Quote Comparison & Award    Quote Record

Resource Items    Cost Items

Show Items:

☒ By Quote Group(s):

☐ By RFQ(s):

☐ All Items / Column Filtering:

Saved views: Previous View

Awarded Total: [sort](#) \$271,471.20

Quoted Items Total: [sort](#) \$137,646.60

Special Conditions: [sort](#) \$0.00

Quoted Total: [sort](#) \$137,646.60

Last Update: [sort](#)

Comparable Total: [sort](#) < \$137,646.60

Seller: [sort](#)

Description	Award Status	Reviewed	Last	Resource Type	Resource Code	Description	Quote Group	Awardee	Account Code	Cost Driver	Cost Curv	Plug	Det
<input type="checkbox"/> [Uncheck All]				Installed Material ...	MPP10	Pipe 10" PVC S...	Pipe Materials	Example Ve...		CI Quan...	Empl	\$3.28	
<input type="checkbox"/> [Blanks]				Installed Material ...	MPP24	Pipe 24" PVC S...	Pipe Materials	Exa					
<input type="checkbox"/> Asphalt Materials	Complete	<input type="checkbox"/>		Installed Material ...	MPR36	Pipe RCP 36 In	Pipe Materials	Exa					
<input checked="" type="checkbox"/> Pipe Materials	Complete	<input type="checkbox"/>											

Titles

- Cost Categories
- PBS
- Job Folder Tags
- Man-Hour Factors
- Control Budgets
- Minority Setup

Colors

- Data Entry Indicators
- Hierarchy Levels
- Minority Setup
- Substitute Quote Ranking

DBE

MBE

WBE

OBE1

OBE2

OBE3

OBE4

OBE5

Restore Minority Setup Col

Restore All Customized Values...

You can select a Minority Business Enterprise to assign to the seller from the General Terms & Conditions within the **Quote Record**.



Cost Breakdown Structure (CBS) Register	Foundation Setup Data Register	Quote Group Tag
<b>Description</b> Pipe Materials		
<b>Seller</b> Contact: <Ad-Hoc Address> First Name: <input type="text"/> Last Name: <input type="text"/> Phone: <input type="text"/> Email: <input type="text"/>		
Item Prices & Conditions	General Terms & Conditions	Special Terms & Conditions
<b>Package Price</b> <input type="checkbox"/> All items are quoted as a package for one price of : <input type="text" value="\$0.00"/>		
<b>Seller Representations</b> <input type="checkbox"/> Seller can provide a BOND for all work quoted <input type="checkbox"/> Seller is INSURED as required by applicable law <input type="checkbox"/> Seller is LICENSED to perform all work quoted		
<b>Bond</b> The cost of BOND is <input checked="" type="radio"/> INCLUDED <input type="radio"/> NOT INCLUDED in the price. Cost of BOND to be added to quoted price : <input type="text" value="\$0.00"/> per 1,000		<b>Minority Business Enterprise</b> <input checked="" type="checkbox"/> Seller qualifies as the following type of <input checked="" type="radio"/> DBE <input type="radio"/> MBE <input type="radio"/> WBE <input type="radio"/> OBE1 <input type="radio"/> OBE2 <input type="radio"/> OBE3 <input type="radio"/> OBE4
		<b>Package Tax</b> The cost of TAXES is <input checked="" type="radio"/> INCLUDED <input type="radio"/> NOT INCLUDED TAXES to be added to awarded TOTAL

You can run a Minority Participation report to easily see the progress towards meeting the minority participation goals for a project.



Reports - Minority Participation

▼ Reports

Job Properties

Foundation Setup Data

Resources

Resource Assemblies

Cost Breakdown Structure

▼ Quotes

Quote Summary

Quote Record

Compare & Award

Minority Participation

Price Breakdown Structure

Pay Item & Proposal

Billing Rate Reports

Job Tracking

Estimate Comparison Report

Audit

Job Register

Library Module

Custom Reports

Saved Views

Budget Exports

Schedule Exports

Timesheet Exports

Timesheet Imports

Master Layout Settings

Master Header/Footer Settings

Settings: Default

Print

Details

Layout

Header/Footer

☐ Print to Printer

Print Settings

Printer: STRT.COPIER

Change

☐ Export to File

Export Settings

File:

Format: PDF File

Options

☒ Preview

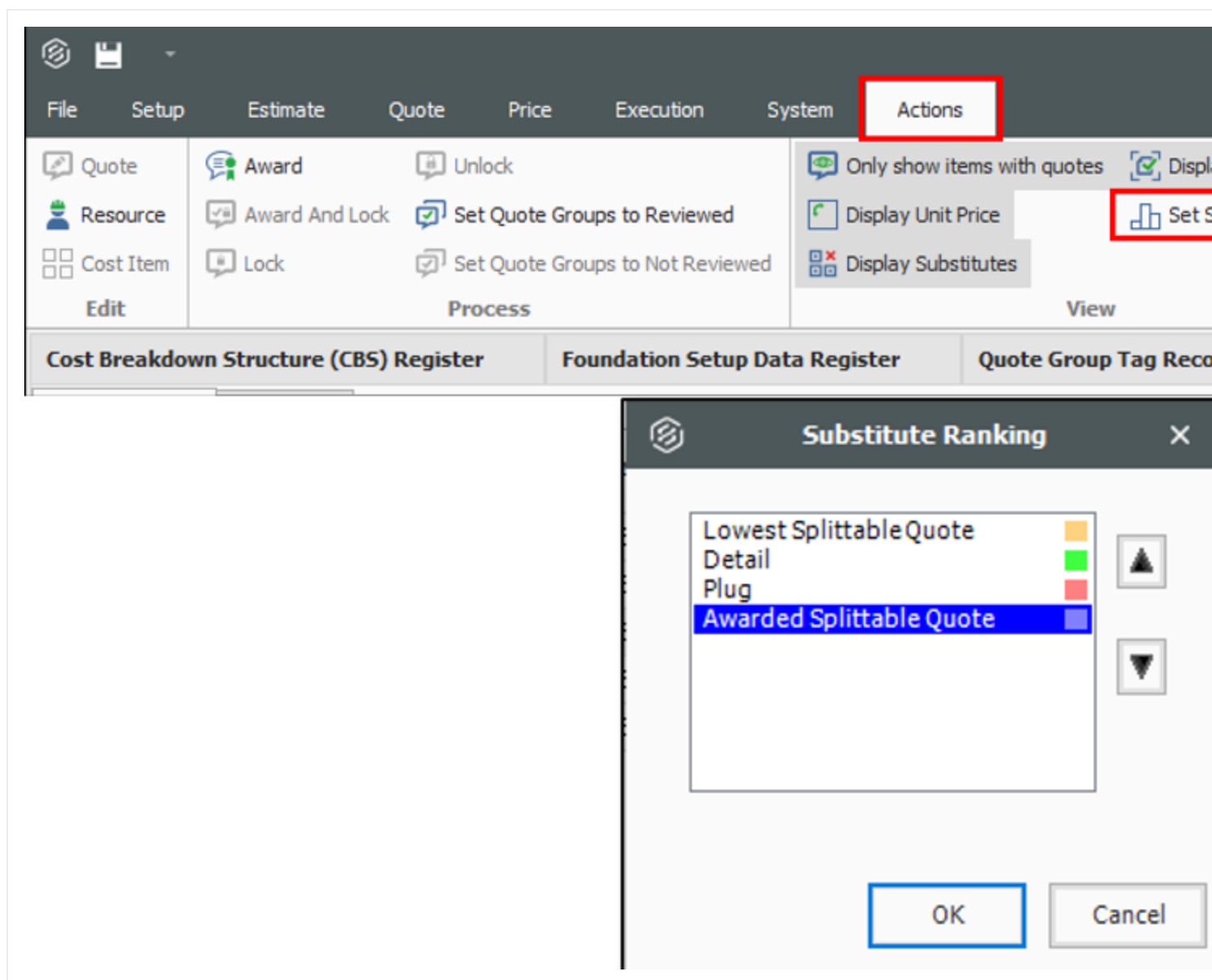


DBE				
Company: Example Vendor 4 DBE				
Street: 400 Fourth Street				
City: Hometown	State: AZ	Postal: 889090	Country:	
Phone: 111-122-1321	Fax: 222-132-1234			
EMail:				
Company: Example Sub #4 DBE				
Street: 900 First Street Suite 9000				
City: Hometown	State: AZ	Postal: 889009	Country:	
Phone: 111-332-4321	Fax: 222-332-4321			
EMail:				

### 15.39.3 Quote Comparison and Award Substitute Rankings

To compare quotes from different vendors where not all items are quoted, you can substitute values using the lowest **Awarded Splittable Quote** for items rather than the un-awarded plug value. This offers a more accurate comparison.





## 15.40 BILLING RATES

In Estimate, the Billing Rate is defined as how much the Contractor is charging your client to utilize one of your resources within the Resource Rate Register. The billing rate can also be viewed as how much money that your client is expected to pay for utilizing one of the resources for a specified amount of time. It's important for you as a contractor to have a way to more quickly see your charge rate to compare against what you will ultimately bill your client, also known as your Billing Rate.



Contractors need a reliable way to price projects utilizing various markup strategies with clear visibility into various costs that drive the markup amounts. It's important for contractors to be able to:

- Apply various costs that drive markups
- Apply billing rate gains (difference between contractor's cost vs billing rates/client cost)
- Have clear visibility into the true margin based on both cost and billing rates
- Compare the cost and billing rates within the CBS

As a result of properly pricing projects, contractors can now create and view various Billing Rate Reports showing:

- A summary of billing rates in lieu of the cost rates for a client to see, **Estimate Summary reports**
- Cost item breakdown that shows associated cost categories, billing unit rates, and total billing amounts, **Billing Rate Summary**
- An analysis of resources and their margins, utilization counts and billing amounts, **Margin Analysis report**

### 15.40.1 Charge Rate

The Charge Rate is the contractor's cost for a resource. These costs include actual labor, any types of fringes, labor taxes plus insurances, and more. These costs are all tracked within the Charge Rate's Cost Category Breakdown in a resource rate. The charge rate is not a cost to the client and does not include any profit, markup or overhead. Charge Rates can be setup for a resource by going to the Setup tab and selecting Resource Rates. Then opening a resource rate record, and selecting the **Charge Rate** tab.

The screenshot displays the 'Resource Rate Register' window. At the top, there are two tabs: 'Resource Rate Register' and 'Labor Rate Record'. Below the tabs, there are input fields for 'Code: \*' (containing 'LC1') and 'Description: ' (containing 'Carpenter Apprentice'). Below these fields, there are three tabs: 'Setup', 'Charge Rate' (which is highlighted with a red box and contains a wrench icon), and 'Billing Rate'. Below the tabs, there are four buttons: 'Scale 1', 'Scale 2', 'Scale 3', and 'All Scales'. Below the buttons, there is a table titled 'Cost Category Breakdown' with two columns: 'Cost Category Breakdown' and 'Amount'. The table contains the following rows:

Cost Category Breakdown	Amount
▼ Total	\$27.48
➤ Labor	\$27.48
➤ Materials	\$0.00
Undefined	\$0.00



## 15.40.2 Billing Rates Setup

Billing Rates have 3 scales where you can determine the appropriate billing and markups rates.

- Scale 1 – regular time
- Scale 2 – overtime
- Scale 3 – double time

You can enter a billing rate markup as a dollar amount in the **Billing Rate Markup** field or as a percentage in the **Billing Rate Markup %** field. After double clicking a resource rate, you will see the resource record.

The screenshot shows the 'Resource Rate Register' window. The 'Billing Rate' tab is active. The 'Code' field contains 'LC1' and the 'Description' field contains 'Carpenter Apprentice'. The 'Billing Rate' tab is highlighted. Below the tabs, there are three columns for Scale 1, Scale 2, and Scale 3. The fields are as follows:

	Scale 1	Scale 2	Scale 3
Charge Rate:	\$27.48	\$41.22	\$54.96
Billing Rate:	\$39.84	\$57.70	\$76.94
Billing Rate Markup:	\$12.37	\$16.49	\$21.98
Billing Rate Markup %:	45.00	40.00	40.00

The Billing Rate tab includes the following fields.

Name	Description
1. Charge Rate	The amount of money it costs a contractor to occupy a resource. Also known as the contractor's cost.



Name	Description
2. Billing Rate	The amount a contractor charges a client to utilize a resource rate. The billing rate can also be viewed as how much money the client is expected to pay for utilizing one of those resources for a specified amount of time.
3. Billing Rate Markup	The dollar value amount of profit added to the charge rate that a contractor generally determines. This can include certain contractor fees that the contractor has deemed to include.
4. Billing Rate Markup %	The percent dollar value amount of profit added to the charge rate that a contractor generally determines. This can include certain contractor fees that the contractor has deemed to include.

The below example shows a contractor's Charge Rate of \$27.48 in Scale 1. The Billing Rate Markup is 45% of the \$27.48 Charge Rate, which is a \$12.37 Billing Rate Markup. The total Billing Rate is \$39.84, which is the price the contractor would charge a client.

**Resource Rate Register** **Labor Rate Record** ✕

Code: \* LC1 Description: Carpenter Apprentice

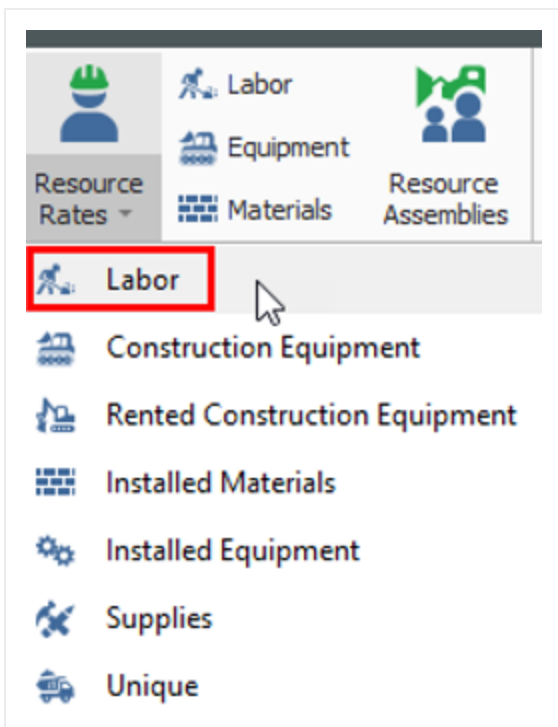
Setup Charge Rate Billing Rate

	Scale 1	Scale 2	Scale 3
Charge Rate:	\$27.48	\$41.22	\$41.22
Billing Rate:	\$39.84	\$41.22	\$41.22
Billing Rate Markup:	\$12.37	\$0.00	\$0.00
Billing Rate Markup %:	45.00	0.00	0.00

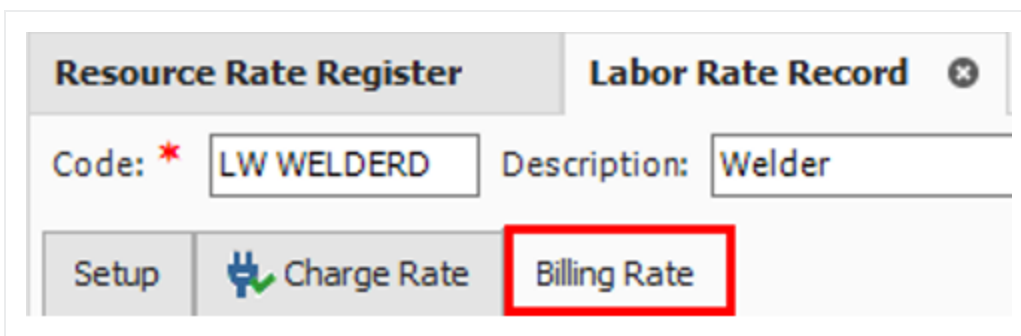


## Step by Step — Billing Rate Setup

1. Use the Training Job for this example. From the Ribbon, select the **Setup** tab.
2. Under the Resources tab, select the **Resource Rates** drop down arrow. Then select **Labor**. The Resource Rate Register opens to the Labor tab.





3. Select the **LW WELDERD** Welder Resource Code from the list. Then select the **Actions** tab. Under the Edit section, select **Open**.
4. After the Labor Rate Record opens, select the **Billing Rate** tab.



5. Change the **Billing Rate Markup %** to 15 for Scale 1, then tab out of the field.



- The system automatically calculates the Billing Rate Markup field to \$6.38.
- This represents 15% of the Charge Rate.
- The Billing Rate is now equal to the Charge Rate plus 15%.

Resource Rate Register		Labor Rate Record 	
Code: *	<input type="text" value="LWD"/>	Description:	<input type="text" value="Welder"/>
Setup	 Charge Rate	Billing Rate	
	Scale 1	Scale 2	Scale 3
Charge Rate:	\$42.56	\$63.83	\$85.11
Billing Rate:	<input type="text" value="\$48.94"/>	<input type="text" value="\$89.37"/>	<input type="text" value="\$119.15"/>
Billing Rate Markup:	<input type="text" value="\$6.38"/>	<input type="text" value="\$25.53"/>	<input type="text" value="\$34.04"/>
Billing Rate Markup %:	<input type="text" value="15.00"/>	<input type="text" value="40.00"/>	<input type="text" value="40.00"/>

6. Change the Billing Rate Markup to \$14.68 for Scale 2.

- The Billing Rate Markup % is now 23% and the Billing Rate is now \$78.51.
- Scale 1 Charge Rate of \$42.56 plus (half of \$42.56) \$21.28 equals a Scale 2 rate of \$63.83.
- Scale 2 rate of \$63.83 plus 23% equals a billing rate of \$78.51

	Scale 1	Scale 2	Scale 3
Charge Rate:	\$42.56	\$63.83	\$85.11
Billing Rate:	<input type="text" value="\$48.94"/>	<input type="text" value="\$78.51"/>	<input type="text" value="\$119.15"/>
Billing Rate Markup:	<input type="text" value="\$6.38"/>	<input type="text" value="\$14.68"/>	<input type="text" value="\$34.04"/>
Billing Rate Markup %:	<input type="text" value="15.00"/>	<input type="text" value="23.00"/>	<input type="text" value="40.00"/>



### 15.40.3 Cost vs. Billing View

The Detail tab in a Cost Item record lets you compare the Unit Cost (charge rate) against the client's Billing Unit Rate.

To view the Cost vs. Billing View within a Cost Item record, select a cost item record, click on the Detail tab, then select the **Billing Rates View**.


The Detail tab includes the following fields.


Name	Description
1. Unit Cost	This is the contractor's cost for this resource rate, also known as the Charge Rate.
2. Billing Unit Rate	The amount a contractor charges a client to utilize a resource rate, also known as the Billing Rate.
3. Total Cost (Forecast)	This is the Unit Cost multiplied by the number of hours utilized.
4. Total Billing Amount	This is the Billing Unit Rate multiplied by the number of hours utilized.


- Below is an example of how to view the Cost vs. Billing View when the Production Days are equal to 1.
- The Unit Cost (Charge Rate) and the Billing Unit Rate values both values derive from your Resource Rate.



Cost Item Summary

 Detail : \$219.83

 Plug : \$0.00

 Quote : \$0.00

Allocation

Production



Drag columns here to group

Find:  ...

Saved views: 

Cost vs. Billing View

Row Number	Productivity Factor	Work Hours	Pay Hours	Unit Cost	Billing Unit Rate	Total Cost (Forecast)	Total Billing Amount
1	1.00	8.00	8.00	\$27.48	\$39.84	\$219.83	\$318.75
				1	2	3	4
						\$219.83	\$318.75

 E...  N.

Step by Step — CBS Cost vs. Billing View

- 1. From the Ribbon, select the **Estimate** tab.
- 2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
- 3. Create a cost item called **Fabrication Work**. Double click on the new cost item to open it.
- 4. Select the **Detail** tab. Then select **LWD Welder** from the Code field.

Cost Item Summary		Detail : \$0.00	Plug : \$0.00	Quote : \$0.00	Allocation
Drag columns here to group					
Row Number	Code	Resource Assembly	Description	Quantity	
1	LWDA		Welder Apprentice	1.00	

- 5. Go to the **Production** default data block. In the **Days** field, enter in **1**.



Production

Duration Driven Resources

Customize Display

Days: 1.00

Shifts: 1.00

Hours: 8.00

Man-Hours: 8.00

Equip-Hours: 0.00





Qty Driven Hourly Resources

0.00

Cost I Sumi

0.00

6. You are now able to compare your **Total Cost** against the **Billing Rate**. Your Total Cost is \$226.96 for 8 hours, while you Total Billing rate to the client is \$317.74.

Cost Item Summary		 Detail : \$226.96	 Plug : \$0.00	 Quote : \$0.00	Allocation			
Drag columns here to group								
	Row Number 	Code	Description	Quantity	Unit of Measure	Productivity Factor	Billing Unit Rate	Total Cost (Forecast)
→	+ 1	LWDA	Welder Apprentice	1.00	Each	1.00	\$39.72	

## 15.40.4 Billing Rate Reports

There are several reports you can run to view resource costs, billing rates, and mark-ups. Some of these reports you may choose to provide to your customer. Other reports, you may choose to use only as a way to view your markup margins prior to submitting to your customer.

To locate these reports, select the **Setup** tab. Then select **Reports**. From the Reports window, select **Billing Rate Reports**.

### 15.40.4.1 Billing Rate Summary report

The Billing Rate Summary report shows cost items including cost category details.



Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	Fees	Allowance	Custom Category1
318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
636.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

The end of the report shows you a total of your Direct and Indirect cost markups, and also includes a **Total Billing Amount** at the bottom far right.

CBS Position Code	Description	Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	Fees	Allowance	Custom Category1
28	Carpenter work	318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Fabrication Work	317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Indirect Total		636.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Direct Cost Markup		85,875.59	78,408.62	529.38	270,092.56	2,064.64	15,448.00	13,503.13	80.00	48.00
Indirect Cost Markup		85,875.59	78,408.62	529.38	270,092.56	2,064.64	15,448.00	13,503.13	80.00	48.00
		10,729.02	5,662.75	160.00	65.52	96.00	0.00	83.28	160.00	640.00
		10,729.02	5,662.75	160.00	65.52	96.00	0.00	83.28	160.00	640.00
Fees Total		96,604.60	84,071.37	689.38	270,158.08	2,160.64	15,448.00	13,586.41	240.00	688.00
Report Total		97,241.10	84,071.37	689.38	270,158.08	2,160.64	15,448.00	13,586.41	240.00	688.00

### 15.40.4.2 Estimate Details with Billing Rate report

The Estimate Details with Billing Rate report shows a selection of resources with associated billing rates and utilization counts.

CBS Position	Resource Code	Description	Billing Unit Rate	Unit of Measure	Utilization Count
28	LC1	Carpenter work Carpenter Apprentice	\$39.84	Hour	8.00
TOTAL					8.00
TOTAL - Carpenter work					8.00
29	LWDA	Fabrication Work Welder Apprentice	\$39.72	Hour	8.00
TOTAL					8.00
TOTAL - Fabrication Work					8.00
GRAND TOTAL					16.00



### 15.40.4.3 Margin Analysis report

The Margin Analysis report is beneficial for displaying both mark-up and margin values for selected resource rates.

CBS Position	Resource Code	Description	Unit Cost	Billing Unit Rate	Unit of Measure	Utilization Count	Total Cost	Total Billing Amount	Ma An
28	LC1	Carpenter work							
		Carpenter Apprentice	\$27.48	\$39.84	Hour	8.00	\$219.83	\$318.75	\$
		TOTAL				8.00	\$219.83	\$318.75	\$
		TOTAL - Carpenter work				8.00	\$219.83	\$318.75	\$
29	LWDA	Fabrication Work							
		Welder Apprentice	\$28.37	\$39.72	Hour	8.00	\$226.96	\$317.74	\$
		TOTAL				8.00	\$226.96	\$317.74	\$
		TOTAL - Fabrication Work				8.00	\$226.96	\$317.74	\$
GRAND TOTAL						16.00	\$446.79	\$636.49	\$1

## 15.41 BILLING RATES

In Estimate, the Billing Rate is defined as how much the Contractor is charging your client to utilize one of your resources within the Resource Rate Register. The billing rate can also be viewed as how much money that your client is expected to pay for utilizing one of the resources for a specified amount of time. It's important for you as a contractor to have a way to more quickly see your charge rate to compare against what you will ultimately bill your client, also known as your Billing Rate.

Contractors need a reliable way to price projects utilizing various markup strategies with clear visibility into various costs that drive the markup amounts. It's important for contractors to be able to:

- Apply various costs that drive markups
- Apply billing rate gains (difference between contractor's cost vs billing rates/client cost)
- Have clear visibility into the true margin based on both cost and billing rates
- Compare the cost and billing rates within the CBS

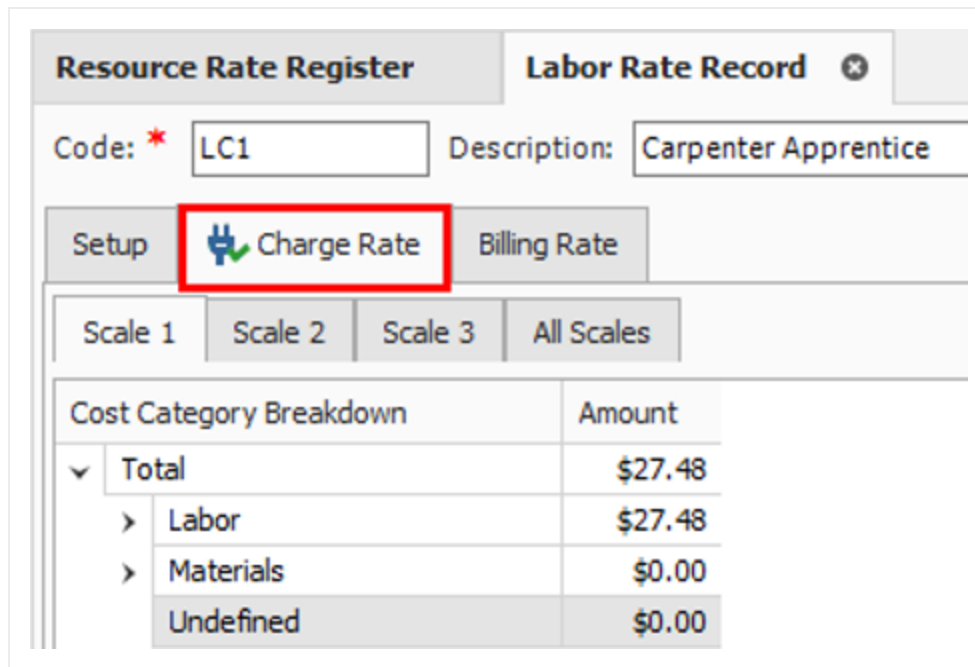
As a result of properly pricing projects, contractors can now create and view various Billing Rate Reports showing:

- A summary of billing rates in lieu of the cost rates for a client to see, **Estimate Summary reports**
- Cost item breakdown that shows associated cost categories, billing unit rates, and total billing amounts, **Billing Rate Summary**
- An analysis of resources and their margins, utilization counts and billing amounts, **Margin Analysis report**



### 15.41.1 Charge Rate

The Charge Rate is the contractor's cost for a resource. These costs include actual labor, any types of fringes, labor taxes plus insurances, and more. These costs are all tracked within the Charge Rate's Cost Category Breakdown in a resource rate. The charge rate is not a cost to the client and does not include any profit, markup or overhead. Charge Rates can be setup for a resource by going to the Setup tab and selecting Resource Rates. Then opening a resource rate record, and selecting the **Charge Rate** tab.



The screenshot shows the 'Resource Rate Register' window. At the top, there are two tabs: 'Resource Rate Register' (active) and 'Labor Rate Record'. Below the tabs, there are input fields for 'Code: \*' (containing 'LC1') and 'Description: ' (containing 'Carpenter Apprentice'). Below these fields are three tabs: 'Setup', 'Charge Rate' (highlighted with a red box), and 'Billing Rate'. Below the tabs are four buttons: 'Scale 1', 'Scale 2', 'Scale 3', and 'All Scales'. Below the buttons is a table titled 'Cost Category Breakdown' with two columns: 'Cost Category Breakdown' and 'Amount'.

Cost Category Breakdown	Amount
▼ Total	\$27.48
➤ Labor	\$27.48
➤ Materials	\$0.00
Undefined	\$0.00

### 15.41.2 Billing Rates Setup

Billing Rates have 3 scales where you can determine the appropriate billing and markups rates.

- Scale 1 – regular time
- Scale 2 – overtime
- Scale 3 – double time

You can enter a billing rate markup as a dollar amount in the **Billing Rate Markup** field or as a percentage in the **Billing Rate Markup %** field. After double clicking a resource rate, you will see the resource record.



The screenshot shows the 'Resource Rate Register' window. The 'Execution' tab is active, and the 'Resource Rates' menu item is highlighted. The 'Billing Rate' tab is selected. The interface displays the following fields and data:

	Scale 1	Scale 2	Scale 3
Charge Rate:	\$27.48	\$41.22	\$54.96
Billing Rate:	\$39.84	\$57.70	\$76.94
Billing Rate Markup:	\$12.37	\$16.49	\$21.98
Billing Rate Markup %:	45.00	40.00	40.00

The Billing Rate tab includes the following fields.

Name	Description
1. Charge Rate	The amount of money it costs a contractor to occupy a resource. Also known as the contractor's cost.
2. Billing Rate	The amount a contractor charges a client to utilize a resource rate. The billing rate can also be viewed as how much money the client is expected to pay for utilizing one of those resources for a specified amount of time.
3. Billing Rate Markup	The dollar value amount of profit added to the charge rate that a contractor generally determines. This can include certain contractor fees that the contractor has deemed to include.
4. Billing Rate Markup %	The percent dollar value amount of profit added to the charge rate that a contractor generally



Name	Description
	determines. This can include certain contractor fees that the contractor has deemed to include.

The below example shows a contractor’s Charge Rate of \$27.48 in Scale 1. The Billing Rate Markup is 45% of the \$27.48 Charge Rate, which is a \$12.37 Billing Rate Markup. The total Billing Rate is \$39.84, which is the price the contactor would charge a client.

Resource Rate Register

Labor Rate Record


Code: \*

LC1

Description:

Carpenter Apprentice

Setup

 Charge Rate

Billing Rate

	Scale 1	Scale 2	Scale 3
Charge Rate:	\$27.48	\$41.22	
Billing Rate:	\$39.84	\$41.22	
Billing Rate Markup:	\$12.37	\$0.00	
Billing Rate Markup %:	45.00	0.00	

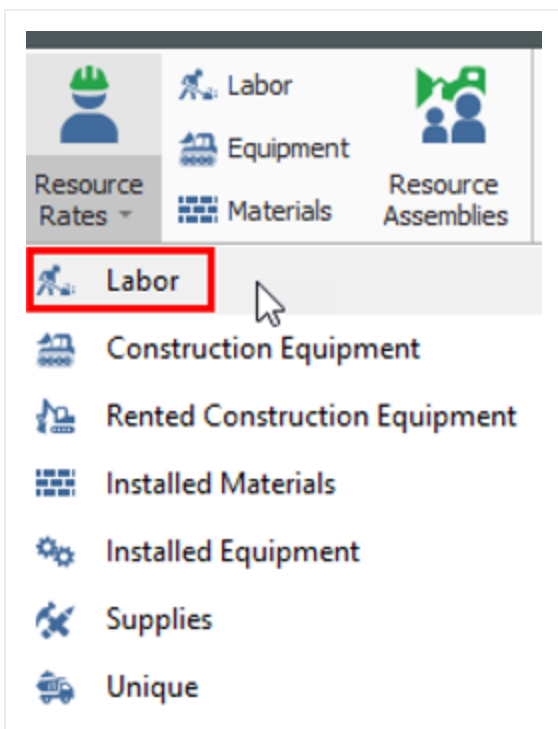
Step by Step — Billing Rate Setup

1.

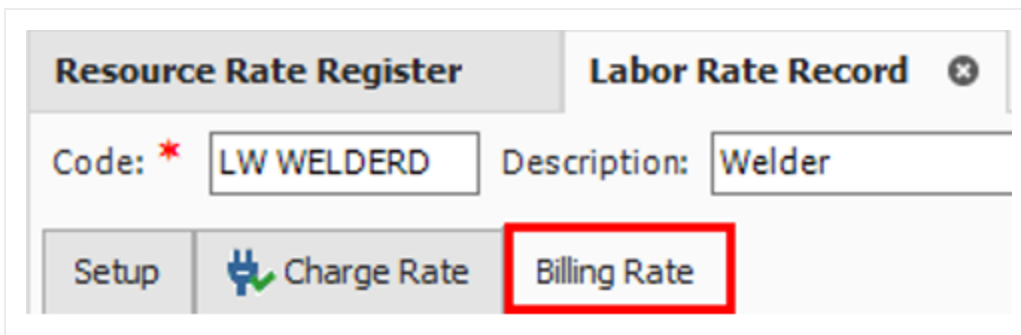
Use the Training Job for this example. From the Ribbon, select the **Setup** tab.
2.

Under the Resources tab, select the **Resource Rates** drop down arrow. Then select **Labor**. The Resource Rate Register opens to the Labor tab.






3. Select the **LW WELDERD** Welder Resource Code from the list. Then select the **Actions** tab. Under the Edit section, select **Open**.
4. After the Labor Rate Record opens, select the **Billing Rate** tab.



5. Change the **Billing Rate Markup %** to 15 for Scale 1, then tab out of the field.
  - The system automatically calculates the Billing Rate Markup field to \$6.38.
  - This represents 15% of the Charge Rate.
  - The Billing Rate is now equal to the Charge Rate plus 15%.



Resource Rate Register		Labor Rate Record <span>✕</span>	
Code: *	LWD	Description:	Welder
Setup	 Charge Rate	Billing Rate	
	Scale 1	Scale 2	Scale 3
Charge Rate:	\$42.56	\$63.83	\$85.11
Billing Rate:	<input type="text" value="\$48.94"/>	<input type="text" value="\$89.37"/>	<input type="text" value="\$119.15"/>
Billing Rate Markup:	<input type="text" value="\$6.38"/>	<input type="text" value="\$25.53"/>	<input type="text" value="\$34.04"/>
Billing Rate Markup %:	<input type="text" value="15.00"/>	<input type="text" value="40.00"/>	<input type="text" value="40.00"/>

6. Change the Billing Rate Markup to \$14.68 for Scale 2.

- The Billing Rate Markup % is now 23% and the Billing Rate is now \$78.51.
- Scale 1 Charge Rate of \$42.56 plus (half of \$42.56) \$21.28 equals a Scale 2 rate of \$63.83.
- Scale 2 rate of \$63.83 plus 23% equals a billing rate of \$78.51

	Scale 1	Scale 2	Scale 3
Charge Rate:	\$42.56	\$63.83	\$85.11
Billing Rate:	<input type="text" value="\$48.94"/>	<input type="text" value="\$78.51"/>	<input type="text" value="\$119.15"/>
Billing Rate Markup:	<input type="text" value="\$6.38"/>	<input type="text" value="\$14.68"/>	<input type="text" value="\$34.04"/>
Billing Rate Markup %:	<input type="text" value="15.00"/>	<input type="text" value="23.00"/>	<input type="text" value="40.00"/>

### 15.41.3 Cost vs. Billing View

The Detail tab in a Cost Item record lets you compare the Unit Cost (charge rate) against the client's Billing Unit Rate.



To view the Cost vs. Billing View within a Cost Item record, select a cost item record, click on the Detail tab, then select the **Billing Rates View**.

The Detail tab includes the following fields.

Name	Description
1. Unit Cost	This is the contractor's cost for this resource rate, also known as the Charge Rate.
2. Billing Unit Rate	The amount a contractor charges a client to utilize a resource rate, also known as the Billing Rate.
3. Total Cost (Forecast)	This is the Unit Cost multiplied by the number of hours utilized.
4. Total Billing Amount	This is the Billing Unit Rate multiplied by the number of hours utilized.

- Below is an example of how to view the Cost vs. Billing View when the Production Days are equal to 1.
- The Unit Cost (Charge Rate) and the Billing Unit Rate values both values derive from your Resource Rate.

Cost Item Summary

Detail : \$219.83

Plug : \$0.00

Quote : \$0.00

Allocation

Production

Drag columns here to group

Find:

Saved views: 

Cost vs. Billing View

Row Number	Productivity Factor	Work Hours	Pay Hours	Unit Cost	Billing Unit Rate	Total Cost (Forecast)	Total Billing Amount
+	1	1.00	8.00	\$27.48	\$39.84	\$219.83	\$318.75
→				1	2	3	4
						\$219.83	\$318.75

E...
 N.



Step by Step — CBS Cost vs. Billing View

- 1. From the Ribbon, select the **Estimate** tab.
- 2. Select **Cost Breakdown Structure (CBS)**. The Cost Breakdown Structure (CBS) Register opens.
- 3. Create a cost item called **Fabrication Work**. Double click on the new cost item to open it.
- 4. Select the **Detail** tab. Then select **LWD Welder** from the Code field.

Cost Item Summary		Detail : \$0.00	Plug : \$0.00	Quote : \$0.00	Allocation
Drag columns here to group					
	Row Number	Code	Resource Assembly	Description	Quantity
	+	1 LWDA		Welder Apprentice	1.00

- 5. Go to the **Production** default data block. In the **Days** field, enter in **1**.

Production

Duration Driven Resources

Customize Display

Days: 1.00

Shifts: 1.00

Hours: 8.00

Man-Hours: 8.00

Equip-Hours: 0.00

Qty Driven Hourly Resources

0.00

0.00

0.00





0.00

0.00

Cost I Sum

- 6. You are now able to compare your **Total Cost** against the **Billing Rate**. Your Total Cost is \$226.96 for 8 hours, while you Total Billing rate to the client is \$317.74.



Cost Item Summary		 <u>Detail</u> : \$226.96	 <u>Plug</u> : \$0.00	 <u>Quote</u> : \$0.00	<u>Allocation</u>			
Drag columns here to group								
	Row Number 	Code	Description	Quantity	Unit of Measure	Productivity Factor	Billing Unit Rate	Total Cost (Forecast)
→	+ 1	LWDA	Welder Apprentice	1.00	Each	1.00	\$39.72	

## 15.41.4 Billing Rate Reports

There are several reports you can run to view resource costs, billing rates, and mark-ups. Some of these reports you may choose to provide to your customer. Other reports, you may choose to use only as a way to view your markup margins prior to submitting to your customer.

To locate these reports, select the **Setup** tab. Then select **Reports**. From the Reports window, select **Billing Rate Reports**.

### 15.41.4.1 Billing Rate Summary report

The Billing Rate Summary report shows cost items including cost category details.

Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	Fees	Allowance	Custom Category1	B
318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
636.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

The end of the report shows you a total of your Direct and Indirect cost markups, and also includes a **Total Billing Amount** at the bottom far right.



CBS Position Code	Description	Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract	Fees	Allowance	Custom Category1
28	Carpenter work	318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		318.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Fabrication Work	317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		317.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Indirect Total		636.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Direct Cost Markup	85,875.59	78,408.62	529.38	270,092.56	2,064.64	15,448.00	13,503.13	80.00	48.00
		85,875.59	78,408.62	529.38	270,092.56	2,064.64	15,448.00	13,503.13	80.00	48.00
	Indirect Cost Markup	10,729.02	5,662.75	160.00	65.52	96.00	0.00	83.28	160.00	640.00
		10,729.02	5,662.75	160.00	65.52	96.00	0.00	83.28	160.00	640.00
Fees Total		96,604.60	84,071.37	689.38	270,158.08	2,160.64	15,448.00	13,586.41	240.00	688.00
Report Total		97,241.10	84,071.37	689.38	270,158.08	2,160.64	15,448.00	13,586.41	240.00	688.00

### 15.41.4.2 Estimate Details with Billing Rate report

The Estimate Details with Billing Rate report shows a selection of resources with associated billing rates and utilization counts.

CBS Position	Resource Code	Description	Billing Unit Rate	Unit of Measure	Utilization Count
28	LC1	Carpenter work	\$39.84	Hour	8.00
		Carpenter Apprentice			8.00
	TOTAL				8.00
	TOTAL - Carpenter work				8.00
29	LWDA	Fabrication Work	\$39.72	Hour	8.00
		Welder Apprentice			8.00
	TOTAL				8.00
	TOTAL - Fabrication Work				8.00
GRAND TOTAL					16.00

### 15.41.4.3 Margin Analysis report

The Margin Analysis report is beneficial for displaying both mark-up and margin values for selected resource rates.



CBS Position	Resource Code	Description	Unit Cost	Billing Unit Rate	Unit of Measure	Utilization Count	Total Cost	Total Billing Amount	Ma
28	LC1	Carpenter work							
		Carpenter Apprentice	\$27.48	\$39.84	Hour	8.00	\$219.83	\$318.75	\$
		TOTAL				8.00	\$219.83	\$318.75	\$
		TOTAL - Carpenter work				8.00	\$219.83	\$318.75	\$
29	LWDA	Fabrication Work							
		Welder Apprentice	\$28.37	\$39.72	Hour	8.00	\$226.96	\$317.74	\$
		TOTAL				8.00	\$226.96	\$317.74	\$
		TOTAL - Fabrication Work				8.00	\$226.96	\$317.74	\$
GRAND TOTAL						16.00	\$446.79	\$636.49	\$1

## 15.42 BILLING RATES REPORTS OVERVIEW

### 15.42.1 Cost Item Summary

The Cost Item Summary tab in a Cost Item Record, allows the estimator to add additional costs to the Resource Billing rates by a percentage or amount. For example, there may have been extra work that a percentage would apply that the owner approves. The Billing reports then lists these for the owner.

The following screen shot shows cost item 3.1 with the adjustment. To see the adjustment, select the **Actions** tab and under the View section, use the **Display Billing Rate** toggle to display the Billing Rate columns.

Review the two columns **Total Billing Amount** and **Unadjusted Total Billing Amount**.



**Cost Breakdown Structure (CBS) Register**

CBS Code: 202 0183 Optional Code: 3.1 Description: Excavation

PI Assignment: 202 0183 PI Line Number: 30 PI Description: Unclassified Excavation

Cost Item Summary: Detail : \$3.05 Plug : \$0.00 Quote : \$0.00 Allocation

Cost Category	Unit Cost	Total Cost	Unadjusted Total Cost	Cost Adjustment Percent	Cost Adjustment Amount	Billing Unit Rate	Total Billing Amount	Unadjusted Total Billing Amount
<b>Total</b>	\$3.05	\$152,320.48	\$152,320.48	0.00	\$0.00	\$3.89	\$194,604.65	\$176,913.3
> Labor	\$0.66	\$33,170.48	\$33,170.48	0.00	\$0.00	\$0.88	\$43,785.03	\$39,804.5
> Owned Equipment	\$2.38	\$119,150.00	\$119,150.00	0.00	\$0.00	\$3.02	\$150,819.62	\$137,108.7
> Rented Equipment	\$0.00	\$0.00	\$0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.0

The following screen shot is the estimate details with Billing Rates report for the 3.1 cost item.



Reports

- Job Properties
- Foundation Setup Data
- Resources
- Resource Assemblies
- Cost Breakdown Structure
  - CBS Summary
  - CBS Details
  - CBS Outline
  - Estimate Summary
  - CBS Currency Comparison
- Quotes
- Price Breakdown Structure
- Pay Item & Proposal
- Billing Rate Reports
  - Billing Rate Summary
  - Estimate Details with Billing Rat (highlighted)
  - Margin Analysis
  - Resource Price List
- Job Tracking
- Estimate Comparison Report

Settings: Previous

Print Cost Item Selection Details Layout Header/Footer

☒ Print a contiguous range of cost items:

From: 3.1 To: 3.1 ☐ Roll-up to CBS Level -1

☐ Select cost items to print from the register below:

Drag columns here to group Find: [Search For...] Saved views: Previous

Include	CBS Position Code	Description	Optional Code
<input type="checkbox"/>		Prime Bond	PRIME BOND
<input type="checkbox"/>		Price % Add-On	PRICE % ADD-ON
<input type="checkbox"/>		Job Financing	FINANCE EXPENSE
<input type="checkbox"/>		Indirect Cost Escalation	INDIRECT COST ESCALATION
<input type="checkbox"/>		Direct Cost Escalation	DIRECT COST ESCALATION
<input type="checkbox"/>		Indirect Cost Add-On	INDIRECT COST ADD-ON
<input type="checkbox"/>		Job Management & Equipment	JOB MANAGEMENT & EQUIPMENT
<input type="checkbox"/>		General Expense	GENERAL EXPENSE

Job Code: Copy of Training Job  
Description: Training Job - Maricopa County No. TM2924

CBS Position	Resource Code	Description	Billing Unit Rate	Unit of Measure	Utilization Count
3.1		Excavation			
	LL2	Laborer	\$31.64	Hour	125.00
	LMECH	Mechanic	\$27.60	Hour	75.00
	LO1	Operator Class 1	\$32.66	Hour	500.00
	LO2	Operator Class 2	\$33.68	Hour	500.00
	LO4	Operator Foreman	\$42.87	Hour	62.50
	ECOMP1	Compactor Smooth Drum	\$41.86	Hour	125.00
	ECOMP2	Compactor Sheeps Foot	\$70.84	Hour	125.00
	ED8	Dozer D8	\$199.64	Hour	125.00
	EG14G	Grader 14G	\$69.23	Hour	125.00
	ES621	Scraper 621	\$186.30	Hour	250.00
	ES623	Scraper 623	\$146.05	Hour	250.00
	ETWT	Water Truck	\$34.04	Hour	125.00
	Adjustment				
		TOTAL			
GRAND TOTAL					

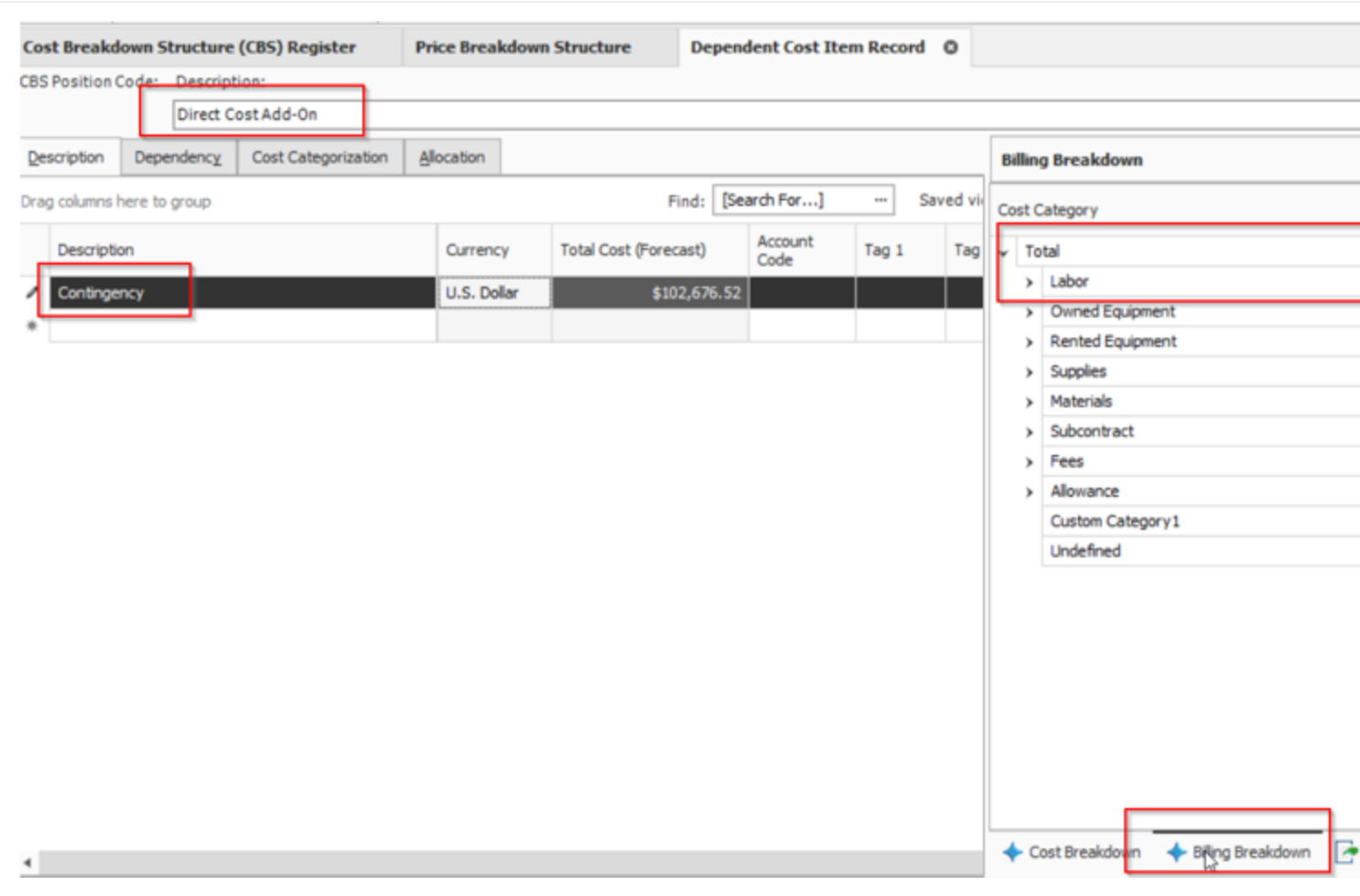
## 15.42.2 Dependent Cost Items

You can use dependent cost items with billing work. For example, the Contractor may have an agreement with the Owner to add additional overhead costs as a percentage of the work or the Owner



allows a contingency for unknown work.

The following screen shot is an example of using a dependent cost item with billing work.



The following screen shot is a sample report that includes the dependent cost item with billing work.



Report is: Settings: Previous

Print Cost Item Selection Details Layout Header/Footer

☐ Print a contiguous range of cost items:

From: 3.1 To: 3.1 ☐ Roll-up to CBS Level -1

☒ Select cost items to print from the register below:

Drag columns here to group Find: [Search For...] Saved views: Previous View

Include	CBS Position Code	Description	Optional Code
<input type="checkbox"/>		Job Management & Equipment	JOB MANAGEMENT & EQUIPMENT
<input type="checkbox"/>		General Expense	GENERAL EXPENSE
<input checked="" type="checkbox"/>		Direct Cost Add-On	DIRECT COST ADD-ON
<input type="checkbox"/>	1	Mobilization	641 0100
<input type="checkbox"/>	2	Clearing & Grubbing	201 0102

Job Code: Copy of Training Job  
Description: Training Job - Maricopa County No. TM2924

CBS Position	Resource Code	Description	Billing Unit Rate	Unit of Measure	Utilization Count
0.10	Dependent	Direct Cost Add-On			
		TOTAL			
		TOTAL - Direct Cost Add-On			
GRAND TOTAL					

### 15.42.3 Additional Markup in the PBS form

Depending how the Resource Billing Rates are determined, to accommodate the Owner, a fee can be applied using the PBS form.

The screen shot is a sample markup for Direct Costs in the PBS form.



Cost Breakdown Structure (CBS) Register

Price Breakdown Structure

Markup Cost Item Record

CBS Position Code:

Description:

Direct Cost Markup

Description

Dependency

Allocation

Drag columns here to group

ed views: Previous View

	Description	(Forecast)	Account Code	Cost Curve	Total Billing Amount
→	Direct Cost Markup	\$620,483.29		Linear	\$581,339.08
*					

Billing Break

Cost Category

Total

Labor

Owne

Rente

Supple

Materia

Subcon

Fees

Allowa

Custom

Undefi

Cost Break

The following screen shot is of a sample report that includes that fee total of the additional markup.



<b>Job Code: Copy of Training Job</b> <b>Description: Training Job - Maricopa No. TM2924</b>							
CBS Position Code	Description	Forecast Unit of (T/O) Quantity Measure	Labor	Owned Equipment	Rented Equipment	Materials	Suppl
3.1	Excavation	50,000.00 Cubic Yard	0.88	3.02	0.00	0.00	0
			43,785.03	150,819.62	0.00	0.00	0
Direct Total			43,785.03	150,819.62	0.00	0.00	0
Direct Cost Markup			83,846.78	102,425.17	727.90	362,406.65	2,697
			83,846.78	102,425.17	727.90	362,406.65	2,697
Fee Total			83,846.78	102,425.17	727.90	362,406.65	2,697
Report Total			127,631.81	253,244.79	727.90	362,406.65	2,697


## 15.43 ESTIMATE SOFTWARE PREREQUISITES


## 15.44 ESTIMATE SOFTWARE COMPATIBILITY

### NOTE

This document is subject to change at any time. This document only covers software directly compatible with InEight Estimate. InEight does not assume the responsibility to verify or guarantee whether any third-party software is compatible with any other third-party software (e.g. MS SQL Server 2005 compatibility with Windows Server 2012R2).

**Qualified = Supported:** You can get support for both Qualified and Compatible platforms from InEight.

**Qualified platform**  : The platforms listed in the qualified category have been systematically tested by InEight as part of the release covered by the InEight Estimate Compatibility document.

**Compatible platform**  : The platforms listed in the compatible category have not been systematically tested by InEight, in this release, but based on testing in previous releases, and knowledge of the platform, InEight expects that the functionality will work and will fully support these platforms.

**Unsupported**  : The platform listed is not supported.



**NOTE**

Before installing/upgrading the Server/Network version of Estimate, please check with your IT or Administrator to confirm the version of Estimate your company is currently running and the version your company will upgrade to. The Server version of Estimate **MUST** match the client versions on the workstations.

## 15.44.1 Compatibility Matrix

InEight Estimate Compatibility Versioning					
3rd Party Software		17.x	18.x	19.x	20.x
Client OS/Windows	Windows 7 (Pro, Ult, Ent) (32/64) <a href="#">1</a>	✓	✓	✓	✗
	Windows 8 (Pro, Ult, Ent) (32/64)	✓	✓	✗	✗
	Windows 8.1 (Pro, Ult, Ent) (32/64)	✓	✓	✓	✓
	Windows 10 <a href="#">2</a>	+	+	+	+
Server OS/Windows	Windows 2003 Server (32/64)	✗	✗	✗	✗
	Windows 2008 Server (32/64)	✓	✗	✗	✗
	Windows 2008R2 (32/64) <a href="#">1</a>	✓	✓	✓	✗
	Windows 2012 Server (32/64)	✓	✓	✓	✓
	Windows 2012 R2 Server (32/64)	✓	✓	✓	✓
	Windows 2016 Server	✗	✓	✓	✓
	Windows 2019 Server	✗	✗	✓	✓
SQL Server	MSDE/SQL 2000	✗	✗	✗	✗
	SQL 2008 (Exp,Std,Ent)(32/64)	✓	✓	✗	✗
	SQL 2008R2 (Exp,Std,Ent)(32/64)	✓	✓	✗	✗
	SQL 2012 (Exp,Std,Ent)(32/64)	✓	✓	✓	✓
	SQL 2012R2 (Exp,Std,Ent)(32/64)	✓	✓	✓	✓
	SQL 2014 (Exp,Std,Ent)(32/64)	✓	✓	✓	✓
	SQL 2016	✗	✓	✓	✓
	SQL 2017	✗	✗	✓	✓
	SQL 2019	✗	✗	✗	✓



InEight Estimate Compatibility Versioning					
3rd Party Software		17.x	18.x	19.x	20.x
.NET	MS .NET Framework 4.5.1	✓	✓	✗	✗
	MS .NET Framework 4.7	✗	✗	✓	✓
	MS .NET Framework 4.8 <a href="#">3</a>	✗	✗	✗	✗
MS Project	MS Project Pro 2003	✗	✗	✗	✗
	MS Project Pro 2007	✗	✗	✗	✗
	MS Project Pro 2010	✓	✓	✓	✓
	MS Project Pro 2013	✓	✓	✓	✓
	MS Project Pro 2016	✓	✓	✓	✓
	MS Project Pro 2019	✗	✗	✓	✓
	MS Project Standard 2013	✓	✓	✓	✓
MS Office	Office 2003	✗	✗	✗	✗
	Office 2007	✓	✗	✗	✗
	Office 2010	✓	✓	✓	✓
	Office 2013	✓	✓	✓	✓
	Office PWA (Progressive Web Apps)	✗	✗	✗	✗
	Office 2016	✓	✓	✓	✓
	Office 365 <a href="#">4</a>	+	+	+	+
	Office 2019	✓	✓	✓	✓

InEight Estimate Compatibility Versioning						
3rd Party Software		17.x	18.x	19.x	20.1	20.2
Primavera P6	Primavera 6.0 Enterprise	✗	✗	✗	✗	✗
	Primavera 6.x Enterprise	✓	✓	✗	✗	✗
	Primavera 7 Enterprise	✓	✓	✓	+	+
	Primavera 8 Enterprise	✓	✓	✓	+	+
	Primavera 8.1 Enterprise	✓	✓	✓	+	+
	Primavera 8.2 Enterprise	✓	✓	✓	✓	✓
	Primavera 8.3 Ent/Professional	✓	✓	✓	✓	✓
	Primavera 8.4 Ent/Professional	✓	✓	✓	✓	✓
	Primavera 15.1 Ent/Professional	✓	✓	✓	✓	✓
	Primavera 16.x Ent/Professional	✓	✓	✓	✓	✓
	Primavera 17.7 Ent/Professional	✗	✓	✓	✓	✓
	Primavera 17.12 Ent/Professional	✗	✗	✓	✓	✓
	Primavera 18.8 Ent/Professional	✗	✗	✓	✓	✓
	Primavera 19.12 Ent/Professional	✗	✗	✗	✓	✓
	Primavera 20.12 Ent/Professional	✗	✗	✗	✗	✓



InEight Estimate Compatibility Versioning					
InEight Application versions		InEight Estimate Version			
		19.1	19.2	20.1	20.2
Project Suite	InEight Project Suite 20.5	✓	✗	✓	✓
	InEight Project Suite 20.7	✗	✓	✓	✓
	InEight Project Suite 20.9	✗	✗	✓	✓
	InEight Project Suite 20.11	✗	✗	✓	✓
	InEight Project Suite 21.1	✗	✗	✓	✓
	InEight Project Suite 21.3	✗	✗	✗	✓

InEight Estimate 20.2 Compatibility Support				
Windows 10 versions		MS supported (PRO)	MS supported (Enterprise)	InEight Supported
Windows 10 <sup>5</sup>	Versions 1507, 1511, 1607, 1703, 1709	✗	✗	✗
	Version 1803 (April 2018 Update)	✗	✓	+
	Version 1809 (October 2018 Update)	✗	✓	✓
	Version 1903 (May 2019 Update)	✗	✗	✗
	Version 1909 (November 2019 Update)	✓	✓	+
	Version 2004 (May 2020 Update)	✓	✓	✓
	Version 20H2 (October 2020 Update)	✓	✓	+

## 15.44.2 Legend Index

These numbers are outlined in blue in the Matrix.

- 1** – Microsoft has ended support for this OS. It is no longer supported by InEight.
- 2** – Not all versions of Windows 10 are tested. Only versions supported by Microsoft are supported by InEight.
- 3** – InEight Estimate has not been tested against newer versions of .NET.
- 4** – The installed version of Office 365 has not been tested but is compatible.
- 5** – InEight Estimate does not support Home editions of Microsoft Windows.



## 15.45 MINIMUM SYSTEM REQUIREMENTS

Estimate uses specific versions of SQL, Windows, and other third party software such as Microsoft Excel for basic functionality. To install the latest version of Estimate, you will first need to confirm the minimum requirements needed to run Estimate on your machine.

### NOTE

Before installing/upgrading the Server/Network version of Estimate, please check with your IT or Administrator to confirm the version of Estimate your company is currently running and the version your company will upgrade to. The Server version of Estimate MUST match the client versions on the workstations.

### 15.45.1 Application (Estimate Server)

#### Minimum

**CPU**- Dual-Core Processor w/ 2.0 GHz (x86/x64)

**Storage** - 100 GB hard-disk space <sub>1</sub>

**Memory** - 4 GB RAM <sub>1</sub>

**Display** - 1024x768 32-Bit Color

**Software** - Windows 2012 Server with latest service pack,  
Windows 2012 R2 Server with latest service pack,  
Windows 2016 Server with latest service pack, or  
Windows 2019 Server with latest service pack  
.NET Framework 4.76 <sub>4</sub>

#### Recommended

Quad-Core Processor w/ 3.0 GHz (x86/x64)

N/A

8 GB RAM <sub>1</sub>

1920x1080 32-Bit Color

N/A

#### 15.45.1.1 Workstation (Estimate Server)

#### Minimum

**CPU**- Dual-Core Processor w/ 2.0 GHz (x86/x64)

**Storage** - 50 GB hard-disk space <sub>1</sub>

**Memory** - 4 GB RAM <sub>1</sub>

**Display** - 1024x768 32-Bit Color

**Other** - Network/internet connectivity

Internet connection required for web- based modules and/or  
synchronization

**Software** - Windows 8.1 Professional, Ultimate, or Enterprise (32-

#### Recommended

Quad-Core Processor w/ 3.0 GHz  
(x86/x64)

N/A

16 GB RAM <sub>1</sub>

1920x1080 32-Bit Color

N/A

N/A



bit and 64-bit<sub>2</sub>) Windows 10 Professional or Enterprise (32-bit and 64-bit<sub>2</sub>) .NET Framework 4.7

### 15.45.1.2 Database (SQL Server)

Minimum	Recommended
<b>CPU</b> - Dual-Core Processor w/ 2.0 GHz (x86/x64)	N/A
<b>Storage</b> -250 GB hard-disk space <sub>1</sub>	N/A
<b>Memory</b> - 4 GB RAM <sub>1</sub>	N/A
<b>Display</b> - 1024x768 32-Bit Color	N/A
<b>Software</b> - Windows 2012 – 2019 Server with latest service pack, and SQL Server 2012 Standard & Enterprise, or Express (32-bit and 64-bit), or SQL Server 2014 Standard & Enterprise, or Express <sub>3</sub> (32-bit and 64-bit), or SQL Server 2016 Standard & Enterprise, or Express <sub>3</sub> , or SQL Server 2017 Standard & Enterprise, or Express <sub>3</sub> , or SQL Server 2019 Standard & Enterprise, or Express <sub>3</sub>	N/A

### 15.45.1.3 Web

Minimum	Recommended
<b>CPU</b> - Dual-Core Processor w/ 2.0 GHz (x86/x64)	N/A
<b>Storage</b> -25 GB hard-disk space <sub>1</sub>	N/A
<b>Memory</b> - 4 GB RAM <sub>1</sub>	N/A
<b>Display</b> - 1024x768 32-Bit Color	N/A
<b>Software</b> - Windows 2012 - 2019 Server with latest service pack, and IIS (Internet Information Services) 7.0, or 7.5 .NET Framework 4.7	N/A

1. Additional RAM, and/or hard disk space may be required based on load and amount of data
2. Beginning with HD PCM version 10.0, support is provided for 64-bit operating systems
3. Additional web servers, processors, RAM, and/or hard disk space may be required based on load and amount of data.
4. Additional processors, RAM, and/or hard disk space may be required based on load and amount of



data.

5. SQL Server 2014 requires Windows 7 or later.

6. .NET 4.7 Requires Windows 8.1 Professional/Ultimate/Enterprise, Windows 10 Professional/Enterprise w/ Anniversary Update

**NOTE**

IA64 operating systems are not currently supported.

**15.45.1.4**

## LESSON 15 – INSTALLING ESTIMATE

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### 15.1 UPGRADE AN EXISTING ESTIMATE STANDALONE CLIENT

An upgrade install of an existing Estimate Standalone client application must be performed on all client workstations where the current Estimate application is installed.



If you have multiple Estimate client applications installed on the same workstation, all applications can be upgraded at the same time.

**NOTE** When upgrading an existing Estimate installation, security permissions for the InEight Estimate folder in the installation path *C:\Program Files\InEight\InEight Estimate* are automatically set to grant **full control** to all authenticated users.

Use the following step-by-step at the workstation where the Estimate Standalone client application is installed.

### Step by Step — Upgrade existing Standalone Client

1. Start Windows as you normally would and exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select the **I Accept the Agreement** check box. Then, click **Continue**.
7. At the Upgrade or Install screen, select the **Upgrade or Repair** radio button. Then click **Next** to continue.
8. Click **Next** to start the upgrade process.
9. At the Ready to Install screen, click **Install** to continue.
10. Follow the prompts to upgrade all installed applications.
11. At the Installation Summary screen, click **Next** to continue.
12. Click **Finish** to complete the installation, and then exit the setup program.

Repeat these steps as needed on all client workstations that has the Estimate Standalone client application installed.



## 15.2 UPGRADE AN EXISTING ESTIMATE SERVER

Use the following instructions to upgrade your existing Estimate server application. If you have multiple Estimate server applications installed on the same server, all applications can be upgraded at the same time.

**NOTE** All existing installations of the Estimate server applications must be upgraded.

Use the following step-by-step at the server console where the Estimate server application is installed.

**NOTE** Before installing/upgrading the Server/Network version of Estimate, please check with your IT or Administrator to confirm the version of Estimate your company is currently running and the version your company will upgrade to. The Server version of Estimate **MUST** match the client versions on the workstations.

### Step by Step — Upgrade existing Server

1. Start Windows as you normally would and exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select the **I Accept the Agreement** check box. Then click **Continue**.
7. At the Upgrade or Install screen, select the **Upgrade or Repair** radio button. Then click **Next** to continue.
8. At the Components screen, you a list of all client applications currently installed on the server appears. Click **Next** to start the upgrade process.
9. Follow the prompts to upgrade all currently installed applications.
10. At the Select Additional Tasks dialog under Additional Shortcuts, select **Desktop/Quick Launch** shortcut. Select **Next** to continue.
11. Follow the prompts to upgrade all currently installed applications.



12. At the Installation Summary screen, click **Next** to continue.
13. Click **Finish** to complete the installation, then exit the setup program.

Repeat these steps as needed on all servers that have the Estimate server applications installed.

## 15.3 UPGRADE AN EXISTING HDEXECUTE DATABASE

Use the following instructions to update your existing HDExecute database.

### NOTE

All existing installations of the HDExecute database must be upgraded. Any Estimate server applications must be upgraded prior to upgrading the HDExecute database. In addition, the Estimate client and all library data must be upgraded prior to upgrading the HDExecute database.

Use the following step-by-step at the database server console where the HDExecute database is installed.

### Step by Step — Upgrade existing HDExecute Database

1. Start Windows as you normally would and exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Databases** to continue.
6. At the License Agreement screen, select the **I Accept the Agreement** check box. Then click **Continue**.
7. At the Install Databases screen, define the **Database Selection** by selecting the radio button of the preferred database.
8. On the Install Databases screen, define the **SQL Server Instance** a by selecting it from the drop down list.
9. Determine the SQL Authentication login and password. The default for both the login and password is **bidbuilduser**.



10. On the Install Databases screen, define the Jobs/Databases Folder Path by selecting the **Browse** button.
11. Select **Create** to continue.
12. At the Confirm Connection Settings screen, select **Yes** to continue.
13. At the Create Database Results screen, select **OK** to complete the upgrade and exit the setup.

## 15.4 MIGRATING ESTIMATE TO A DIFFERENT SERVER

**NOTE** SQL Management Studio needs to be installed on the new server.

### 15.4.1 Detach Estimate Databases on old server

Use the following step-by-step at the old server to detach Estimate Databases.

#### Step by Step — Detach Estimate Databases

1. On the old server, open the Services Manager by going to Control Panel and selecting **Administrative Tools**.
2. Select **Services**. Stop the **InEight Estimate Server** service.
3. Go to *C:\Program Files\InEight\InEight Estimate* and run the **Detach Utility** to detach any existing Estimate databases.
  - If any Estimate databases are attached, select the check box next to the databases. Then select **Detach Selected Databases**.
  - The status then changes to **Detached**.
4. Select **Exit** to close the Detach Utility.

**NOTE** If you have databases for other products installed on the same SQL database instance as Estimate, **DO NOT** use the Detach Utility to detach these databases. Consult with a Database Administrator or the other products' vendors for guidance.

### 15.4.2 Attach Estimate Databases on new server

Use the following step-by-step at the old server to attach Estimate Databases.



## Step by Step — Attach Estimate Databases

1. On the new server, install InEight Estimate Server.

**NOTE**

If you are installing Estimate version 15.0 or later, SQL Express 2014 is included. You have the option to install the database engine when installing Estimate. If you did not choose to install the database engine while installing Estimate, then install SQL.

2. Open the Services Manager by going to Control Panel and selecting **Administrative Tools**.
3. Select **Services**. Stop the **InEight Estimate Server** service.
4. Go to *C:\Program Files\InEight\InEight Estimate* and run the **Detach Utility** to confirm no existing Estimate databases are attached.
  - If any Estimate databases are attached, select the check box next to the databases. Then select **Detach Selected Databases**.
  - The status then changes to **Detached**.
5. Select **Exit** to close the Detach Utility.
6. Go to *C:\Program Files\InEight\InEight Estimate* and rename the Jobs folder to **Jobs.old**.
7. Copy the Jobs folder from the old server to the new server into the following folder path *C:\Program Files\InEight\InEight Estimate*.

You should now have two Job folders appear in the InEight Estimate folder on the new server. The new Jobs folder labeled **Jobs**, and the second labeled **Jobs.old**. The Jobs folder should have all of your Estimate data in it.
8. Delete the **BidMaster\_Log.ldf** file from the following path, *C:\Program Files\InEight\InEight Estimate\Jobs*.
9. Delete the **HDLibrary\_Log.ldf** file from the following path, *C:\Program Files\InEight\InEight Estimate\Jobs\HDLibrary*.
10. Open the Estimate Configuration Tool.
11. Go to the Control Panel and select **Administrative Tools**.
12. Select **Services**. Start the **InEight Estimate Server** service.
13. Open InEight Estimate and when prompted, click **OK** to upgrade your existing job(s) and Library data.



### 15.4.3 Manually Attach the HDLibrary and BidMaster Databases

Use the following step-by-step if the InEight Estimate Server service does not start.

#### Step by Step — Manually Attach the HDLibrary and BidMaster Databases

1. Start the **SQL Management Studio**.
2. Connect to the instance name used for Estimate.
3. Right-click the database folder and select **Attach**.
4. Go to the Jobs folder, *C:\Program Files\InEight\InEight Estimate\Jobs*.
5. From the root of the *InEight Estimate\Jobs* folder, select **BidMaster\_Data.mdf** and attach it.
6. Go to the HDLibrary folder, *C:\Program Files\InEight\InEight Estimate\Jobs\HDLibrary*.
7. From the **Estimate\Jobs\HDLibrary** sub-folder, select **HDLibrary\_Data.mdf** and attach it.
8. In Services, select **InEight Estimate Server**.
9. Select **Restart** to restart the InEight Estimate service.

## 15.5 ESTIMATE SYSTEM REQUIREMENTS

Listed on our website are the Compatibility and Minimum System Requirements topics. Any software versions not listed on those articles are to be assumed incompatible with Estimate unless explicitly stated elsewhere in the InEight software documentation.

#### NOTE

Estimate will not function on any Home Editions of MS Windows, nor any version of Apple Mac OS.

### 15.5.1 Verifying the new Estimate Version

Before you install the latest version of Estimate, you need to confirm you are installing your company's recommended version of Estimate.



## Step by Step — Verifying Estimate version

1. Select the **System** tab.
2. Select the **About Estimate** option under the Help section.

### 15.5.2 Planning the Estimate Installation

To install Estimate, you must determine the client and server components necessary. You will also need to determine where the components will reside on the servers and workstations. Standalone installations reside on a single workstation. Smaller network installations typically employ one or a few servers along with a collection of workstations, each supporting one client. Large Enterprise installations require numerous, dedicated servers determined by CPU, network, database and storage needs. Most server components must be installed on systems that reside on a single, protected network. A few server components interact with workstations located across LAN/WAN boundaries. Installation of these components requires extra diligence considering system and network traffic exposure.

Administrative credentials are required to install, repair or upgrade any Estimate component.

Product licensing controls how modules operate but does not limit installation. Activation or changes to licensing may require administrative elevation. It is recommended that one obtain suitable licensing prior to starting the installation process.

#### 15.5.2.1 Client Applications

**Estimate Standalone Client** - An isolated client whose executables and data reside on a single workstation. Standalone installation includes an option that may be used to install SQL Server Express Edition. While a more capable installation of SQL Server may be substituted, it is typically not necessary. Standalone clients do not interact with network-based Estimate services. A minimum standalone installation consists of 1) the Standalone Client and 2) Microsoft SQL Server Express. One host running Windows Professional is required.

Administrators should understand that the Standalone and Network Client installations are just two modes of operation. Differences lie in where user data is located and how that data may be shared. In the case of Standalone operation, all data and licensing must be constrained to the system where the client is installed. No user data is shared or synchronized.



**NOTE**

Diligence must be exercised when transitioning a workstation between Network and Standalone modes of operation. The SQL Server instances involved inherently differ. User data that resides on one SQL Server instance must be manually taken offline, moved and later returned by a system administrator. Estimate makes no provisions for synchronizing user data during such changes. Incorrect actions taken may lead to a loss or overwrite of critical data. There is no magic undo pill, but Estimate does offer backup and archival functionality that one should always use before venturing down this path.

One or both of the following are required for multi-user, Estimate implementations:

- **Network Client** is a full installation on each user's workstation, interacting via one EstimateServer.
- **Remote Client** fetches and dynamically installs Network client executables from one or more Estimate Servers upon Remote client launch. If multiple servers are employed, they may be different versions of InEight Estimate.

**Estimate Network Client** - A full, client whose purpose is to interact with Estimate Server and License Server, accessing advanced functionality and sharing data with other clients. Network Client installations do not need SQL Server locally installed on the client workstation. As such, no option to install SQL Server Express is provided when installing the Network Client.

User data resides with the Estimate Server or on a dedicated SQL Server accessed by Estimate Server. The Network Client never directly interacts with SQL Server.

Network Clients authenticate with the Estimate License Server (a Windows Service) upon launch. A minimum network installation consists of 1) the Network Client, 2) Estimate Server, 3) Estimate License Server and 4) Microsoft SQL Server. Two to four hosts (or more) running Windows Professional or Server are required.

### 15.5.2.2 Server Applications

**Estimate Server** - Facilitates collaborative use of Estimate clients. Interacts with SQL Server and exposes Estimate clients to advanced functionality in a network environment. Network traffic to and from Estimate Server is not encrypted nor has Estimate Server been hardened to support WAN-based operation. It must be installed on a host that resides entirely within a protected LAN.

**License Server** - Facilitates management and distribution of Estimate module licenses when running the Estimate application in a network environment. Network traffic to and from Estimate License Server is not encrypted nor has Estimate License Server been hardened to support WAN-based operation. It must be installed on a host that resides entirely within a protected LAN.



**NOTE**

It is recommended that the Estimate Server and License Server be installed on a dedicated host to achieve optimal performance.

### 15.5.3 Installation Requirements

In addition to the Estimate installation package, what you'll need depends upon the nature of your license, whether you'll be installing in a Standalone, Small Network or Enterprise network environment. Enterprise installations can be quite complex and are not discussed in this document.

**NOTE**

The Estimate Server is also required for Primavera Integration, Mobile Timesheets, and the Data Warehouse.

When installing the Estimate Server, you will have the option to install SQL Server 2014 Express Edition as the database for Estimate. You also have the option to not install SQL Server 2014 if you intend to use an installation of the full SQL Server for Estimate. It is recommended that the Estimate Application Server be a dedicated server for the Estimate application to achieve optimal performance.

Your client workstations and servers must meet or exceed the minimum system requirements. To view the minimum system requirements, visit the support site and review the **Minimum System Requirements** document.

Standalone Installation:

- Estimate Client (Standalone)

Small Network Installation:

- Estimate Server
- License Server
- Estimate Client (Network)

Enterprise Installation:

- Estimate Server
- License Server
- Estimate Client (Network or Remote)



## 15.6 INSTALLING THE ESTIMATE SERVER

**NOTE**

When installing the server application, security permissions for the INEIGHT ESTIMATE folder in the installation path *C:\Program Files\InEight\InEight Estimate* are automatically set to grant full control to all authenticated users.

Use the following step-by-step to install the Estimate Server.

### Step by Step — Installing Estimate

1. Launch the Estimate installer downloaded from the InEight website.
2. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
3. On the Installation Package screen, click **Install** to continue.
4. Click **Install Estimate** to continue.
5. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue**.
6. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog and click **Next** to continue.
7. At the Components screen under User Workstation Components, select the **Estimate Client** check box, then select the **Network** radio button.
8. On the Components screen under Enterprise Server Components, select the **Estimate Server** check box.
9. If you intend to use SQL Server 2014 Express Edition as the database for Estimate, select **Install SQL Express Edition with HDBID instance**.
10. If you choose not to use SQL Server 2014 Express Edition because you are using a different edition or version of SQL Server instead, deselect the **Install SQL Express Edition with HDBID instance**. If you don't select this option, another version of SQL Server must be installed manually.
11. Click **Next** to continue.
12. On the Select Destination Location screen, define the installation folder for the Estimate Framework. To accept the default installation folder, you do not need to do anything. To define a different installation folder, click on the **Browse** button and navigate to the desired folder.



13. Click **Next** to continue.
14. On the Ready to Install screen, click **Install** to continue.
15. On the Installation Summary screen, click **Next** to continue.
16. Click **Finish** to complete the Estimate Server installation and Exit the setup program.

## 15.7 SHARE ATTACHMENT FOLDER WITH NETWORK USERS

When running Estimate in network mode, if you want the ability to make a copy of attachment files inside the Job Folder you will be required to set the appropriate **Sharing and Security** permissions for the Attachments folder on the Estimate server *C:\Program Files\InEight\InEight Estimate\Attachments*.

### NOTE

You have the ability to define an attachments path other than the default path *C:\Program Files\InEight\InEight Estimate\Attachments*.

Use the following step-by-step to share the attachment folder with other network users.

### Step by Step — Sharing the Attachment folder

1. Using Windows Explorer, browse to the Attachments folder on the Estimate server machine *C:\Program Files\InEight\InEight Estimate\Attachments*.
2. Right-click on the Attachments folder *C:\Program Files\InEight\InEight Estimate\Attachments* and select **Properties**.
3. Select the **Sharing** tab.
4. Click Permissions, and then select **Advanced Sharing**.
5. Select the check box for **Share this folder**. Under Settings, you can change the default share name, add comments, or limit the number of simultaneous users to a specific number of people.
6. Select **Permissions** under the Comments section. Select the Group or user names you would like to share the Attachments folder with.
7. For the group or user names to which you want to provide access, select **Full Control** in the Allow column under the Permissions for Everyone section.
8. On the Permissions for Attachments dialog, click **Apply**.



9. On the Permissions for Attachments dialog, click **OK**.
10. Click on the **Security** tab.
11. For each group or user name make sure that Full Control is selected in the **Allow** column.
12. On the Attachments Properties dialog, click **Apply**.
13. On the Attachments Properties dialog, click **OK**.

## 15.8 INSTALL ESTIMATE LICENSE SERVER

The Estimate License Server can be installed on any machine connected to the network to which all Estimate users have access. It can be, but does not need to be, installed on the same server that contains the Estimate Server application. The Estimate License Server and the associated server service must be running in order for users to access the licenses to the modules that you have purchased.

Use the following step-by-step at the computer or server console where the Estimate License Server will be installed.

### Step by Step — Installing Estimate License server

1. Start Windows as you normally would, then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue**.
7. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog. Then click **Next** to continue.
8. At the Components screen under Enterprise Server Components, select the Estimate License Server check box. Click **Next** to continue.
9. At the Ready to Install screen, click **Install** to install the Estimate License Server.
10. After the Installation Summary screen appears, click **Next** to continue.



11. At the Installation Summary screen, click **Next** to continue.
12. Click **Finish** to complete the Estimate License Server installation and exit the setup program.

**NOTE**

To complete the Estimate License Server installation, you will be required to activate your license. You can activate your license over the Internet or by importing a license file. For additional instructions on activation, see the document **Activating the Estimate License**.

## 15.9 INSTALL ESTIMATE STANDALONE CLIENT

The Estimate Standalone Client installation is installed when the primary purpose of the user is to work with the Estimate client application, including web-based applications. A Standalone Client installation includes the installation of a database engine (SQL Server 2014 Express Edition) which allows the client to work in both a disconnected mode (not connected to a network) or connected mode.

**NOTE**

When installing the standalone client application, security permissions for the INEIGHT ESTIMATE folder in the installation path *C:\Program Files\InEight\InEight Estimate* are automatically set to grant **full control** to all authenticated users.

Use the following step-by-step at each client workstation where the Estimate Standalone Client will be installed.

### Step by Step — Installing Estimate Standalone Client

1. Start Windows as you normally would, then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue**.
7. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog. Then, click **Next** to continue.



- 8. At the Components screen under User Workstation Components, select the **Estimate Client** check box, then select the **Standalone** radio button. Click **Next** to continue.
- 9. On the Select Destination Location screen, define the installation folder. To accept the default installation folder, you do not need to do anything. To define a different installation folder, click on the **Browse** button and navigate to the desired folder.
- 10. On the Ready to Install screen, click **Install** to continue.
- 11. On the Select Additional Tasks screen, select the additional shortcuts you would like to install you're your machine. Click **Next** to continue.
- 12. On the Installation Summary screen, click **Next** to continue.
- 13. Click **Finish** to complete the installation and exit the setup program.

# LESSON 15 – INSTALLING SOFTWARE COMPONENTS

## LESSON 15 – DATA WAREHOUSE

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### 15.1 DATA WAREHOUSE PREREQUISITES

The Data Warehouse allows you to combine data from multiple, individual job databases into a single database for reporting purposes. You select which jobs to include and whether you want to update the Data Warehouse automatically when any of the selected jobs are saved, or manually at your discretion. With the data consolidated into the Data Warehouse, you can then use Crystal Reports, Microsoft



Access, or any other SQL-compatible reporting tool to create user-defined reports that span across jobs.

The Data Warehouse requires three additional components to an existing Estimate network environment:

- **Database** – On the database server, an additional database named HDWarehouse is created. This database can become very large, and is a heavy consumer of system memory and disk I/O. For optimal performance, the HDWarehouse database should reside on a SQL Server computer separate from the SQL Server computer where Estimate jobs and the HDExecute database are stored.
- **Job Consolidation Server** – On an application server, run the Job Consolidation Server installer to set up the Job Consolidation Server.
- **Job Consolidation** – Runs as a service, connects as a client to the InEight Estimate Server, just as Estimate users do when they run the main application. You can use the Data Warehouse feature within the Estimate client application to select which jobs should be consolidated into the Data Warehouse.

For optimal performance, the Job Consolidation Server should be installed on a dedicated server. It can also be installed on the same application server where other Estimate services run. For example, the License Server, the Timesheet Integration Server, or the InEight Estimate Server.

### 15.1.1 Preparing for Installation of the Data Warehouse

The Data Warehouse database should be installed after the main Estimate client/server application has been installed. The installation and setup instructions that follow needs a functioning environment that includes:

- An installation of the **Estimate Server** running the InEight Estimate Server service.
- An **Estimate Database Server** running full SQL Server 2005 – SQL Server 2017.
- An installation of the **License Server** running InEight Estimate License Server service.

#### NOTE

A full SQL Server instance on a dedicated database server is required for the Data Warehouse.

### 15.1.2 Backup Considerations

The Estimate client/server application has user initiated System Backup and Restore features. These features are not appropriate for Estimate Enterprise implementations, where job and library databases reside on a separate SQL Server, and additional databases exist for modules such as Mobile Timesheets



and the Data Warehouse. After you install the Data Warehouse, you will need to rely on external Backup/Restore software to back up Estimate database files.

## 15.2 DATA WAREHOUSE SECURITY CONSIDERATIONS

Estimate installations may span across multiple servers which must be able to communicate with one other. For example:

- Services and Web applications require read & write access to databases.
- Services that attach and detach database files require the SQL Server sysadmin role.
- Services that start and stop SQL Server require the SQL Server sysadmin role.
- Services and Web applications require read access to folders where application files reside.

Every service and Web application is assigned an identity under which it runs.

- For a Service – the identity is defined on the Log On tab in the service's Properties dialog box.
- For a Web Application – the identity is defined by assigning the application to an application pool, and then defining the application pool's identity in the pool's Advanced Settings.

By default, services use identities that only have access to the local machine, such as the local System account. Local accounts cannot access resources on other computers. Since Estimate components must access resources (e.g., folders, files or service commands) on other computers, the default identities for all Estimate services must be changed.

It is recommended that you create a single network account for Estimate in Active Directory, and use it for all Estimate services. Give the account **Log on as a service** rights. On the Estimate SQL Server, add this account as a **SQL Login** and grant it the sysadmin role.

For Estimate Web applications, use the ASP.NET v4.0 application pool or create a new one just like it, and let that application pool use its own Application Pool Identity. Define credentials for accessing SQL Server in the application's web.config file.

### 15.2.1 Job Consolidation Settings Considerations

Consider these questions as a planning worksheet prior to installing the Data Warehouse.

Section	Description
RW. 1	What is the name of the Estimate application server where the Job Consolidation service will be installed?



Section	Description
RW. 2	What is the name of the computer where the InEight Estimate Server service runs?
RW. 3	What is the name of the database server computer where HDWarehouse will be stored? This database can become very large, and is a heavy consumer of system memory and disk I/O. For optimal performance, the HDWarehouse database should reside on a SQL Server computer separate from the SQL Server computer where Estimate jobs and the HDExecute database are stored.
RW. 4	What is the SQL Server instance name?
RW. 5	Do you want to allow the Job Consolidation service to attach the HDWarehouse database if it becomes detached? This requires sharing the data folder on the SQL Server, and giving access to the Job Consolidation login identity. It also requires granting the sysadmin role, in SQL Server, to this login identity.
RW. 5.1	If yes, share the data folder in advance, and document the share name. Permit the Estimate network login Full Control.
RW. 5.2	If no, be aware that the Job Consolidation service will fail to start whenever HDWarehouse is not attached. An error will appear in the JobConsolidationServer.log file.
RW. 6	Where will your Data Warehouse data be stored? Create a folder to contain database data and log files. You will most likely want to select a different location than the default application folder, because Estimate applications are not likely to be installed on the database server.
RW. 6.1	What is the path to this data folder, from the database server's perspective? For example, if the files on the SQL Server are at C:\HD Data, then from the SQL Server's perspective, the path is exactly that: C:\HD Data.
RW. 6.2	What is the path to this data folder, from the application server's perspective? For example, if the files on the SQL Server are at C:\Estimate Data, and that folder is shared as EstimateData, then from the application server's perspective the file path is \\<dbserver>\estimatedata.
RW. 7	How many jobs should the Job Consolidation server be allowed to update in the Data Warehouse, at one time? By default, Job Consolidation will update two jobs in one time. Other jobs wait in queue. Larger jobs require more memory, so this setting can be adjusted according to the typical size of your Estimate jobs, and according to how much memory is available on your Job Consolidation server. The default is 2 (minimum 1, maximum 10).



## 15.3 INSTALLING THE JOB CONSOLIDATION SERVER

The Job Consolidation Server is required for the Estimate Benchmarking feature and the Data Warehouse database. The Job Consolidation Server can be installed on a dedicated server or on a server that contains other Estimate applications.

When Job Consolidation is used to update the Data Warehouse, installing Job Consolidation on its own server computer is strongly recommended.

### Step by Step — Installing Job Consolidation Server

1. Start Windows as you normally would, and then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue** to continue.
7. If other Estimate client/server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog box. Then click **Next** to continue.
8. At the Components screen under Enterprise Server Components, select the **Job Consolidation Server** check box. Then click **Next** to continue.
9. If you are installing the Job Consolidation Server on a server where no other Estimate applications are installed, at the Select Destination Location screen, define the installation folder for the Job Consolidation Server.

To accept the default installation folder, you do not need to do anything. To define a different installation folder, click the **Browse** button and navigate to the desired folder. Click **Next** to continue.

10. Click **Install** to start the installation.

#### NOTE

If you are installing the Job Consolidation Server on a dedicated server, the Estimate Framework will also be installed.



11. On the Configuration Tool dialog box, select the **Network** tab.
12. In the Server IP Address or DNS Name field, enter the name of the computer where the InEight Estimate Server service runs.  
Reference Job Consolidation Settings Considerations topic line RW.2.
13. Select the **Job Consolidation** tab.
14. Select the **Enable Data Warehouse** check box.
15. In the Maximum Concurrent Jobs field, choose the number of jobs that can be updated concurrently in the Data Warehouse.  
Reference Job Consolidation Settings Considerations topic line RW.7.
16. If applicable, check the box to **Use Separate Database Server**.
17. If applicable, in the Server Host Name field, enter the name of the database server computer where the HDWarehouse database will be stored.  
Reference Job Consolidation Settings Considerations topic line RW.3.
18. If applicable, in the Instance name field, enter the SQL Server instance name.  
Reference Job Consolidation Settings Considerations topic line RW.4.
19. If preferable, in the Database Security data block. If you want the Job Consolidation Server service to connect to the database using its runtime identity, select **Use Window Authentication**.  
Reference Job Consolidation Settings Considerations topic line RW.5.1 for the runtime identity.
20. If you prefer, go to the Database Security data block. If you want the Job Consolidation Server service to connect to the database using SQL Server Authentication, un-check **Use Window Authentication** and enter the database **User Name** and database **User Password**.  
Reference Job Consolidation Settings Considerations topic line RW.5.2.
21. In the Data Warehouse Paths data block, enter the **Server Data** file path from a database server perspective.  
Reference Job Consolidation Settings Considerations topic line RW.6.1.
22. In the Data Warehouse Paths data block, enter the **Local Data** file path from a Job Consolidation Server perspective.  
Reference Job Consolidation Settings Considerations topic line RW.6.2.
23. Click **OK** to continue.



24. At the Installation Summary screen, click **Next** to continue.
25. Click **Finish** to complete the installation and exit the setup program.

## LESSON 15 – PRIMAVERA INTEGRATION

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### 15.1 SETTING UP PRIMAVERA INTEGRATION

#### NOTE

Primavera integration with Estimate is supported with Primavera v6.x, P6 v7, and P6 v8 - P6 v15.1. When installing and configuring Primavera, it is necessary that all Primavera applications installed on your environment are the same version. This includes the database server, client application, and Integration API.

Primavera integration with Estimate requires that you have an existing implementation of Primavera v6.x or P6 in your network environment. This includes but is not limited to the following:

- A Microsoft SQL Server or Oracle Database for Primavera (Primavera Database Server).
- A named user license for the Primavera Integration API. (Contact Primavera to obtain this license).

Prior to installing the Estimate Primavera Integration Server, you will be required to install additional applications and define configuration settings to complete the integration with Estimate.



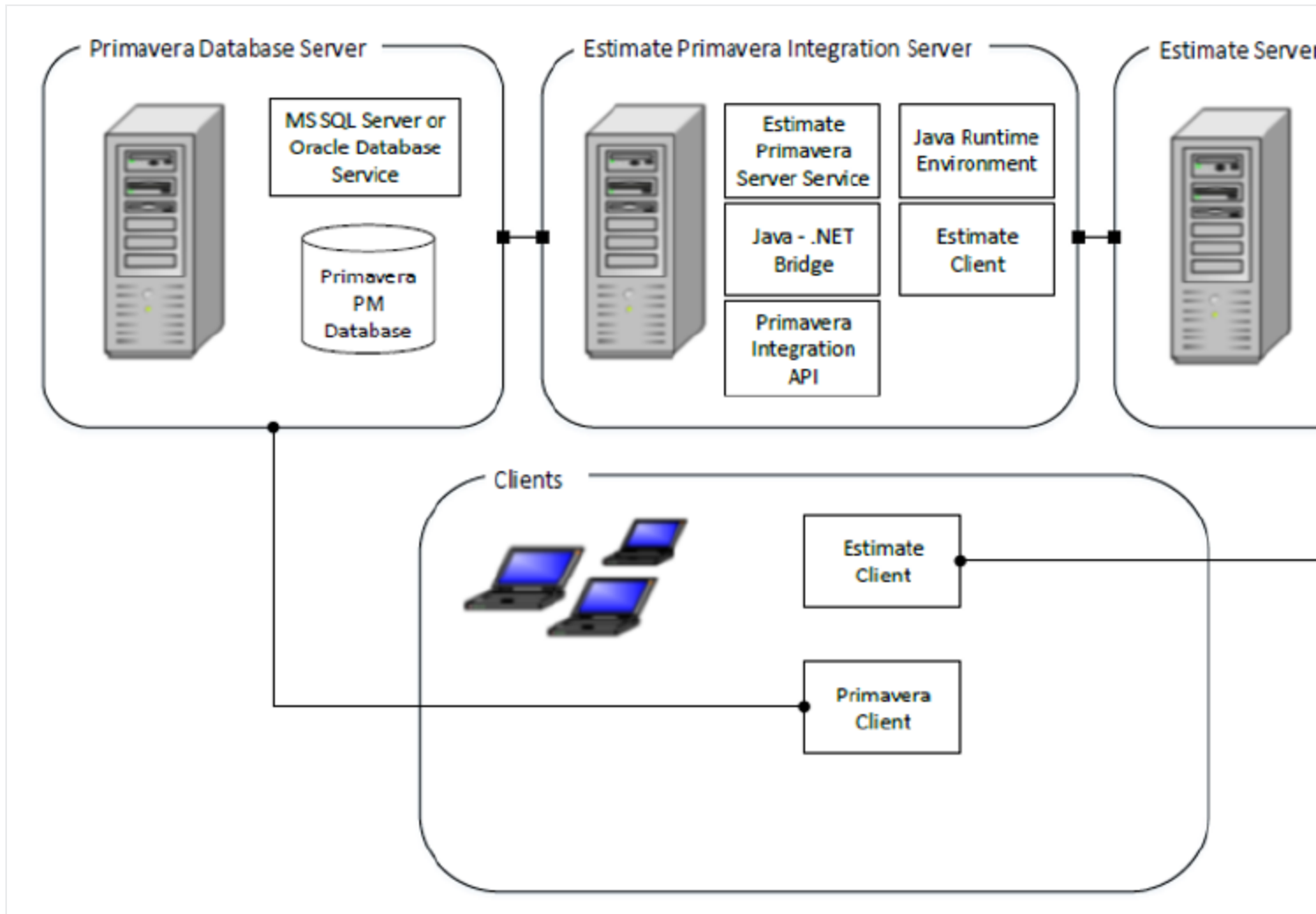
### 15.1.1 Server Configuration and Setup

While all server components can be installed on the same physical server, they can also be installed on separate servers. There can be three different servers when setting up the Primavera integration with Estimate:

- **Primavera Database Server** – This server runs the Microsoft SQL Server or Oracle database service and holds the Primavera Project Management (PM) database.
- **Estimate Primavera Integration Server** – This server contains the Java Developer's Kit (JDK), the Java Runtime Environment (JRE), Primavera Integration API, InEight Estimate Primavera Integration Server service, Java .NET Bridge components, and the JNBridge license file.
- **Estimate Server** – This server contains the Microsoft SQL Server database instance for Estimate (HDBID), and as a result, the Microsoft SQL Server HDBID service and the InEight Estimate Server service.

The screenshot below shows how the Primavera Integration with Estimate would look if the deployment method chosen were to occur on three separate servers.





## 15.2 DETERMINE THE TCP/IP PORT NUMBER OF THE PRIMavera DATABASE

The Estimate Primavera Integration connects to the Primavera database using a host name and port number. You will need to know what port number to use in a later setup step.

Use the following step-by-step to view the Primavera TCP/IP Port Number.



## Step by Step — Find the TCP/IP Primavera Port Number

1. From the main Primavera client menu, choose **Help**.
2. Then select **About**.
3. Select the **System** tab.
4. Locate the **Bre Database** line.

**NOTE**

Primavera v6.x and P6 v7 require Java Runtime Environment (JRE) version 1.4 or above. P6 v8 - P6 v8.4 require the i586 version of the Java Developer's Kit (JDK) version 1.6.0\_23 or above. The Primavera integration with Estimate will not function correctly with older versions of Java.

5. The port number displays after the server (host) name and before the database instance name.
  - In the following example, the port number for the Microsoft SQL Server Primavera Database Server is **49251**:
    - BRE Database: com.microsoft.sqlserver.jdbc.SQLServerDriver,  
jdbc:sqlserver://server1:**49251**;database=pmdb; 8.0, INTERNAL\_PLUGINS)
  - In this example, the port number for the Oracle Database Server is **1521**:
    - BRE Database: oracle.jdbc.driver.OracleDriver,  
jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=Server2)  
(PORT=**1521**))(CONNECT\_DATA=(SERVER=DEDICATED)(SERVICE\_NAME=XE))) (, 7.0,  
INTERNAL\_PLUGINS)
6. Take note of the port number. Then select **Close** to exit the About Primavera dialog box.

**NOTE**

The integration of Primavera v6.x or P6 v7 with Estimate requires the Java Runtime Environment (JRE) to be installed on the Primavera Integration Server machine. The integration of P6 v8 - P6 v8.4 with Estimate requires the Java Developer's Kit (JDK) to be installed on the Primavera Integration Server machine. If you are running 64-bit Windows, a 64-bit JDK is required. Install these files after following the previous step-by-step.



## 15.3 INSTALLING THE PRIMAVERA INTEGRATION API

The version of the Primavera Integration API application that is required for Primavera to interact with Estimate depends on the version of the Primavera database server that you have installed. You must install the same version of all Primavera components. For example, if you installed version 8.1 of the P6 EPPM database server, you are required to install version 8.1 of the P6 EPPM Integration API.

**NOTE**

The installation files for this application can be found on your Primavera installation media.

Use the following step-by-step at the server console where the Estimate Primavera Integration Server will be installed.

### Step by Step — Install the Primavera Integration

1. Locate and start the **setup.exe** file on your installation media for the Primavera Integration API.

**NOTE**

If you get the Media Pack from the Oracle e-delivery website, you will find the Integration API in the Web Services download.

2. On the Welcome to the Primavera Integration API Installer screen, click **Next** to continue.
3. If prompted on the Software License screen, select **I Agree**. Click **Next** to continue.
4. On the Installation Type screen, select **Local Mode Packages Only**. Click **Next** to continue.
5. Browse to the location of where you want to install the Primavera Integration API.
6. On the Select Components screen, select both **Demo Applications** and **Integration API Javadoc**.
7. If prompted, specify the location of the **JRE** or **JDK** file that you installed. Click **Next** to continue.
  - Example JRE Java.exe file location: *C:\Program Files\Java\jre6\bin\java.exe*
  - Example JDK folder location: *C:\Program Files\Java\jdk1.6.0\_23*
8. Click **Next** and then **Install** to continue the installation.
9. On the Database Configuration screen, select either **Oracle** or **Microsoft SQL** as appropriate. Click **Next** to continue.
10. In the User Name field, enter the Primavera database user name **pubuser**.
11. In the Password field, enter the Primavera database password **pubuser**.



12. In the Database Name field, enter the Primavera database name **pmdb** or **pmdb\$primavera**.
13. For Oracle, enter the SID name **XE**.
14. In the Database Host Address field, enter the **IP address** or **DNS** name of the server where the Primavera database resides.
15. In the Database Port field, enter the port number you documented in the TCP IP Port Number topic.
16. Click **Next** to continue.
17. If you have an existing Primavera database configuration, you can select the existing configuration or create a new one. Click **Next** to continue.
18. Click **Exit** to complete the Primavera Integration API installation.

## 15.4 TIMEOUT SETTING AND EXPIRATION CHECK RATE

Use the following step-by-step at the server console where the Estimate Primavera Integration Server will be installed.

### Step by Step — Set the Timeout Setting

1. Browse to the **Primavera Integration API [version No.]** folder. Then select **Primavera Administrator**.
2. Enter your privileged user name **privuser** for the Primavera database.
3. Enter your password **privuser** for the Primavera database and click **OK**.
4. On the Primavera Administrator form, select the **Configuration** tab.
5. Click the **+** icon to expand the Primavera P6 Configuration folder.
6. Click the **+** icon to expand the Services folder.
7. Clicking on the **+** icon to expand the License Service or Module Access Service.
8. Triple-click **Expiration checkrate** to edit it. Change the value to **30s**.
9. Select another folder in the tree list to exit the field.
10. Further down the tree list, click the **+** icon to expand the Integration API Server folder and RMI folder.



11. Triple-click **Session Timeout** to edit it. Change the value to **24d**.
12. Select another folder in the tree list to exit the field.
13. Click **Save Changes** located to the lower right of the form.
14. Click **OK** on the dialog box.
15. Click on the **x** in the upper right to close the Primavera Administrator.

## 15.5 CREATE A NAMED USER FOR PRIMAVERA INTEGRATION API

### 15.5.1 Set Up a Named User for the Primavera Integration API (Primavera v6.x or P6 v7)

Use the following step-by-step at the server console where the Estimate Primavera Integration Server will be installed.

#### Step by Step — Set a Named User (P6 version 6.x or 7)

1. Launch Primavera Project Management. From the Primavera menu, select **Admin**, and then **Users** to open the Users dialog box.

2. Highlight the **Admin login name** in the list of users.

You can also choose a special user designated for use by the Estimate Primavera integration. This is the user that is specified in Job Properties for every job configured to send updates to Primavera. You can avoid permission problems by making this user an **Admin Super User**. The special user does not need access to any module besides the Integration API.

3. In the bottom portion of the dialog, select the **Licensing** tab.
4. Select the **Named User** check box in the Integration API row.
5. Click **Close** to exit the dialog box.

### 15.5.2 Set Up a Named User for the Primavera Integration API (P6 v8 – P6 v15.1)

Use the following step-by-step in a web browser.



## Step by Step — Set a Named User (P6 v8 – v15.1)

1. Launch the Primavera P6 Web Application. At the top of the screen, choose **Administer**. Then select **User Access**.
2. Highlight the Admin login name in the list of users.

You can also choose a special user designated for use by Estimate Primavera integration. This is the user that will be specified in Job Properties for every job configured to send updates to Primavera. You can avoid permission problems by making this user an **Admin Super User**. The special user does not need access to any module besides the Integration API.
3. In the lower portion of the dialog box, view the **Module Access** tab.
4. Double-click the **Access** check box in the Integration API row.
5. Click **Save**.

## 15.6 INSTALLING THE PRIMAVERA INTEGRATION SERVER

The Primavera Integration Server network component is required to allow for the dynamic integration of Primavera with Estimate. The Primavera Integration Server can be installed on a dedicated server or on a server that contains other Estimate applications.

Estimate supports manual configuration of the Primavera Integration API using **admin.cmd** to connect to multiple Primavera databases. This advanced configuration allows a single Primavera Integration Server to sync with more than one Primavera database.

**NOTE** Do not connect more than one Primavera Integration Server instance to the same Primavera database.

If your enterprise uses multiple Primavera databases in locations distant from each other, it is better to install multiple Primavera Integration Server services. Each must be installed on a different computer, and you must give them unique instance names.

**NOTE** Java and the Primavera Integration API applications must be installed on each Primavera Integration Server.

Use the following step-by-step at the server console where the Estimate Primavera Integration Server will be installed.



## Step by Step — Install Primavera Integration Server

1. Start Windows as you normally would, and then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click the **Install** button to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue** to continue.
7. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog. Then click **Next** to continue.
8. At the Components screen under Third Party Integration Components, select the **Primavera Integration Server** check box, and then click **Next** to continue.
9. If you are installing the Primavera Integration Server on a server where no other Estimate applications are installed, at the Select Destination Location screen, **define the installation folder** where the Primavera Integration Server application will be installed.
  - To accept the default installation folder, you do not need to do anything.
  - To define a different installation folder, click on the **Browse** button and navigate to the desired folder.
  - Click **Next** to continue.
10. At the Ready to Install dialog, click **Install** to continue.

**NOTE**

If you are installing the Primavera Integration Server network component on a dedicated server, the Estimate Framework will also be installed.

11. On the Estimate Configuration dialog, select the **Primavera Integration** tab.
12. In the Paths data block:
  - **If you are using 32-bit Windows:** Click the **Find Paths** button. Define the paths to the Java Virtual Machine DLL file and the Primavera Integration API Folder.



**NOTE**

In the event that either of the paths is not defined after clicking on the Find Paths button, you can click on the **browse** button next to each path field to browse to the appropriate location.

- **If you are using 64-bit Windows:** Click on the **Find Paths** button. Define the path to the Primavera Integration API Folder. Then define your path for the Java Virtual Machine DLL by browsing to the jvm.dll file.

**NOTE**

Your path for the Java Virtual Machine DLL will be similar to *C:\Program Files\Java\jre6\bin\server\jvm.dll*. With the Java JDK installed, your path for the Java Virtual Machine DLL will be similar to *C:\Program Files\Java\jdk1.7.0\_45\jre\bin\server\jvm.dll*.

13. In the Java data block, **define the maximum memory setting** from the Predefined Value drop down list. The Java memory setting defines how much you want to allow Java to use for the Primavera integration with Estimate. The default value is **512**.

**NOTE**

If you have not yet installed Java and/or the Primavera Integration API, click **OK** to continue the installation of the Primavera Integration Server. Once you have completed the installation of Java and/or the Primavera Integration API, you can use the Estimate Configuration Tool to open this dialog again and define the paths and Java memory settings.

14. In the Instance data block, specify the **Instance Name** if more than one Primavera Integration Server connects to the same Estimate Server.

**NOTE**

If you have only one Primavera database, this field may be left blank.

15. Click **OK** to continue.
16. On the Attention dialog, click **OK** to continue.
17. At the Update Registry and Finalize screen, click **Next** to continue.
18. Click **Finish** to complete the Primavera Integration Server installation and exit the setup program.



# LESSON 15 – TIMESHEET COLLECTOR COMPONENTS

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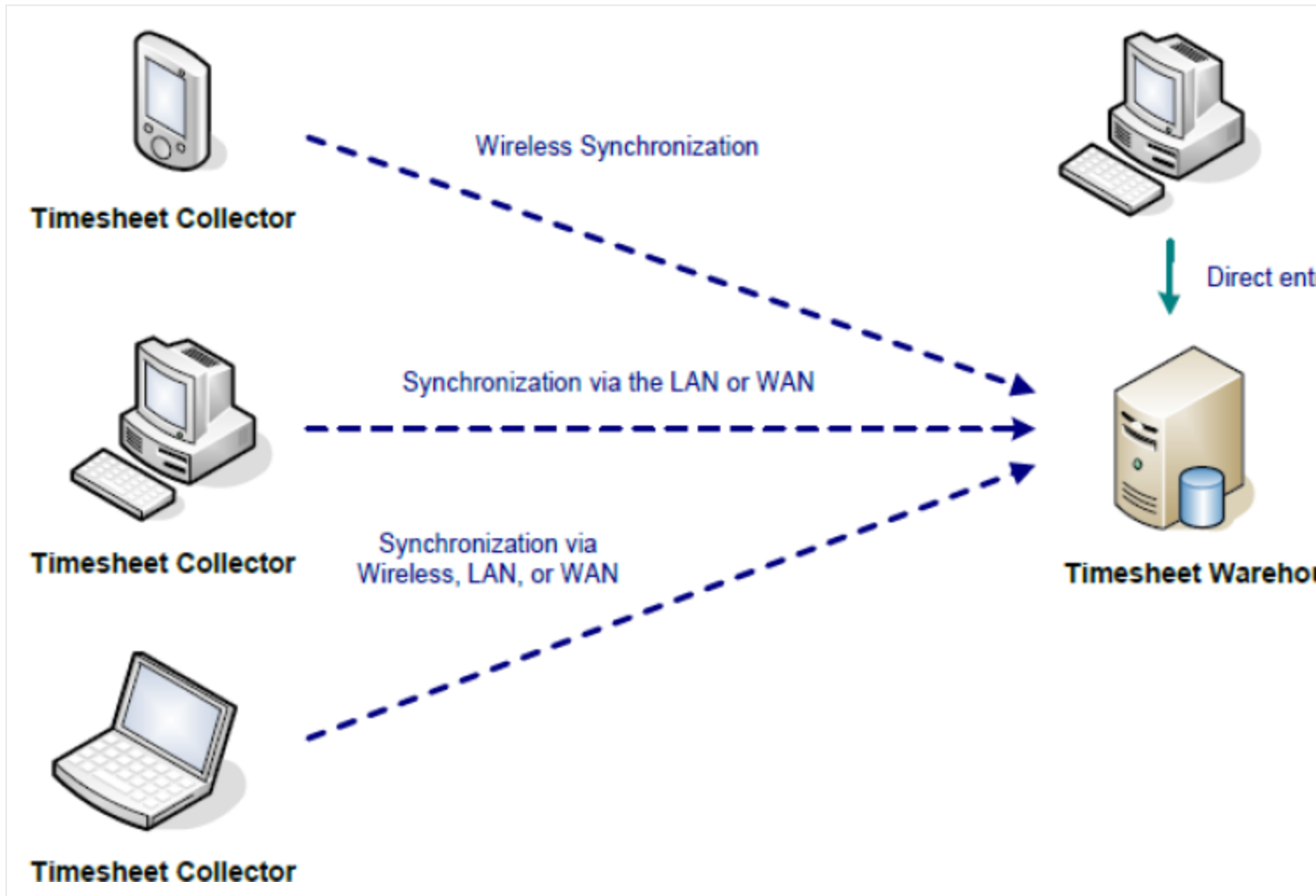
# 15.1 MOBILE TIMESHEETS MODULE PREREQUISITES

The **Mobile Timesheets** module enables you to collect employee, machine and period quantity data on the spot at the jobsite and instantly transmit that information back to the home office.

The **Timesheet Collector Client** application can track employee and machine hours and charge them to specific job’s cost items or cost accounts instantaneously.

The **Timesheet Collector** application includes synchronization capability that loads the master data from Estimate projects, such as standard codes for cost items, accounts, employees and machines (for example, employee codes, payroll types and resource rate codes) and tags. You never have to memorize the codes and can easily enter data from the display's lists.





The **Timesheet Collector** application allows you to enter timesheet data using a disconnected laptop, then synchronize the data to the home office once a connection to either the Internet or the company network is available. For example, a foreman can enter timesheet data while at the jobsite, and then synchronize with the home office at the end of the day. This can be done either by initiating a wireless Internet connection, connecting to the Internet from home, or returning to the office and connecting to the company network.

The **Timesheet Collector Client** allows timesheets to be recorded electronically, off-line, and requires only a minimal, temporary connection to the Internet or the company network to synchronize with the home office and transmit timesheet data. Once synchronized into the Timesheet Warehouse, the timesheet data is immediately available for approval and analysis by other Estimate users on the network.

The **Mobile Timesheets** module requires three additional components to an existing Estimate network environment:



- **Database** – On the database server, running the Databases installer creates an additional database named HDExecute. The HDExecute database must reside in the same SQL Server instance used by the main Estimate application to hold jobs and the library. Physical database files must reside in the same folder where jobs are stored.
- **Timesheet Integration Server** – On an application server, running the Timesheet Integration Server installer sets up the Timesheet Integration Server.
- **Timesheet Synch Handler** – On the Web server, running the Timesheet Synch Handler installer sets up a web application under your default website. By default, the application is named HDTime, but it can be renamed during installation if you choose. The Timesheet Synch Handler application is accessible only to authenticated network users. The site can be made accessible outside the firewall or can be limited to access by users with an internal network connection.

### 15.1.1 Preparing for Installation of Mobile Timesheets

The Mobile Timesheets module should be installed after the main Estimate client/server application has been installed. The installation and setup instructions that follow require a functioning environment that includes:

- An installation of the Estimate server running the InEight Estimate Server service.
- An installation of SQL Server 2014 Express Edition which can be installed when installing the Estimate server application or an Estimate Database Server running full SQL Server 2005 – 2014.

#### NOTE

If you will also be installing the Data Warehouse modules, you will be required to have a dedicated database server running full SQL Server 2005 – 2014. This database server will also be used for the Mobile Timesheets module.

- An installation of the License Server running the InEight Estimate License Server service.

If you are currently using a local Express Edition HDBID instance and will be moving to a full SQL Server instance on a dedicated database server, you will be required to migrate all job and library databases from the Express Edition instance to the full SQL Server instance on the dedicated database server.

Once you have migrated the jobs and library databases to the dedicated SQL Server database server, verify that you can still run the Estimate application on client computers, and work with jobs and library data now residing on the dedicated database server.

### 15.1.2 Pre-Configured Web Server

The Mobile Timesheets module requires a Web server running IIS. The installation instructions assume you have a Windows Server with IIS already installed. The server must have network connectivity with



the Estimate Database Server or the Estimate Server if you are using SQL Server 2014 Express Edition.

### 15.1.3 Backup Considerations

The Estimate client/server application has user initiated System Backup and Restore features. If you are using a full SQL Server instance and a dedicated database server for the Mobile Timesheets module rather than SQL Server Express Edition, these features are not appropriate when job and library databases are installed on a separate SQL Server.

If you are using a full SQL Server instance and a dedicated database server for the Mobile Timesheets module rather than SQL Server Express Edition, after you install the Mobile Timesheets module, you will need to rely on external Backup/Restore software to back up Estimate database files.

## 15.2 MOBILE TIMESHEETS MODULE SECURITY CONSIDERATIONS

Estimate installations may span across multiple servers which must be able to communicate with one other. For example:

- Services and Web applications require read and write access to databases.
- Services that attach and detach database files require the SQL Server sysadmin role.
- Services that start and stop SQL Server require the SQL Server sysadmin role.
- Services and Web applications require read access to folders where application files reside.

Every service and Web application is assigned an identity under which it runs.

- For a Service – the identity is defined on the Log On tab in the service's Properties dialog box.
- For a Web Application – the identity is defined by assigning the application to an application pool, and then defining the application pool's identity in the pool's Advanced Settings.

By default, services use identities that only have access to the local machine, such as the local System account. Local accounts cannot access resources on other computers. Since Estimate components must access resources (e.g., folders, files or service commands) on other computers, the default identities for all Estimate services must be changed.

It is recommended that you create a single network account for Estimate in Active Directory, and use it for all Estimate services. Give the account **Log on as a service** rights. On the Estimate SQL Server, add this account as a SQL Login and grant it the sysadmin role.



For Estimate Web applications, use the ASP.NET v4.0 application pool or create a new one just like it, and let that application pool use its own Application Pool Identity. Define credentials for accessing SQL Server in the application's web.config file.

### 15.2.1 Timesheet Synchronization Web User Authentication Method

The Timesheet Synchronization web application is designed to use Integrated Windows Authentication to allow user access. To access the site, a user who is not already logged on to the network (or the web server itself) will have to provide a user name and password.

### 15.2.2 Database Connections Planning Considerations

Consider these questions as a planning worksheet prior to installing the Mobile Timesheets Module.

Section	Description
DB. 1	What is the name of your Estimate database server computer?
DB. 2	What is the SQL Server instance name?
DB. 3	Where will your data be stored? Your database and log files must reside in the same folder where your Estimate jobs and library data reside. The default location is <i>C:\Program Files\InEight\ InEight Estimate\Jobs</i> on the database server.
DB. 4	What SQL Server login will your Mobile Timesheets Web server use to connect to the SQL Server? Create this SQL Server login in advance. Make note of the user name and password.

### 15.2.3 Mobile Timesheets Application Settings Considerations

Section	Description
W.1	What is the name of your Estimate Web server computer?
W.2	Under what website will you create the Mobile Timesheets application? By default, the Default Web Site will be used, but you can specify a different site during installation.
W.3	What will you name the Mobile Timesheets application? (The default name is HDTime).



Section	Description
W.4	What application pool will the application be assigned to?
W.5	Where will you place the Mobile Timesheets home directory? The default location is <i>C:\inetpub\wwwroot\Hard Dollar\TimesheetSyncHandler</i> .
W.6	What is the name of the computer where the InEight Estimate License Server runs? By default, the License Server uses port 8010.

## 15.3 INSTALLING THE TIMESHEET INTEGRATION SERVER

The Timesheet Integration Server is required for the Mobile Timesheets module. The Timesheet Integration Server can be installed on a dedicated server or on a server that contains other Estimate applications.

Use the following step-by-step at the server console where the Estimate Timesheet Integration Server will be installed.

### Step by Step — Install Estimate Timesheet Integration Server

1. Start Windows as you normally would, and then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then, click **Continue** to continue.
7. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog. Then, click **Next** to continue.



8. At the Components screen under Third Party Integration Components, select the **Timesheet Integration Server** check box. Then, click **Next** to continue.
9. If you are installing the Timesheet Integration Server on a server where no other Estimate applications are installed, at the Select Destination Location screen, define the installation folder for the Timesheet Integration Server.

To accept the default installation folder, you do not need to do anything. To define a different installation folder, click the **Browse** button and navigate to the desired folder. Click **Next** to continue.

10. Click **Install** to start the installation.
11. At the Ready to Install dialog box, click **Install** to continue.
12. At the Update Registry and Finalize screen, click **Next** to continue.
13. Click **Finish** to complete the Timesheet Integration Server installation and exit the setup program.

## 15.4 INSTALLING THE HDEXECUTE DATABASE

Where indicated, refer to your planning considerations.

**NOTE** The Estimate HDLibrary database must be attached in order for the new HDExecute database to install successfully. Normally, if the InEight Estimate Server service is started, HDLibrary will be attached. Use SQL Server Enterprise Manager or SQL Server Management Studio, depending on the version of SQL Server that you are using, to verify HDLibrary is attached.

Use the following step-by-step to install the HDExecute database.

### Step by Step — Install Estimate HDExecute Database

1. Log on to the database server as the machine administrator.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.



5. Click the **Install Databases** button.
6. At the License Agreement screen, select **I Accept the Agreement** and click **Next** to continue.
7. At the Install Databases screen under the Database Selections section, select the **HDExecute database** check box.
8. Under the Connection Information section, enter the **SQL Server Host Name**, and the **SQL Server Instance**.

Refer to Database Connections Planning Considerations topic with line items DB.1 and DB.2.

9. At the Jobs/Databases folder path screen, enter the location for the HDExecute database files. Then, click **Next** to continue

Refer to Database Connections Planning Considerations topic with line items DB.3.

10. At the Components screen, verify that Timesheet Collection Data is enabled and selected. Then, click **Next** to continue.
11. Select **Install**. Setup installs the HDExecute database and runs scripts to create stored procedures and initialize tables.
12. When the installation has completed successfully, click **Finish**. Then exit to leave the setup program.

## 15.5 INSTALLING THE TIMESHEET SYNCH HANDLER

The Timesheet Synch Handler is required for the Mobile Timesheets module. The Timesheet Synch Handler should not be installed on any Estimate server system. It can be installed on a dedicated Web server or on a Web server that contains other Estimate Web applications.

### NOTE

IIS must be installed and present on the client machines first for Estimate to allow you to install the Timesheet Synch Handler. To install IIS, go to your Windows Start Menu search bar, search for Turn Windows Features On or Off. Scroll down to the section Internet Information Services. Select the + sign to the left of the IIS section. Then select all items within the drop down. Windows will then install IIS.

Use the following step-by-step to install the Timesheet Synch Handler.



## Step by Step — Install Timesheet Synch Handler

1. Start Windows as you normally would, then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then, click **Continue** to continue.
7. If other Estimate client or server applications have already been installed on the server, select **Install on the Upgrade or Install dialog** and click **Next** to continue.
8. At the Components screen under Timesheet Collector Components, select the **Timesheet Synch Handler** check box, and click **Next** to continue.
9. At the Select Destination Location screen, define the installation folder where the Timesheet Synch Handler application will be installed.

To accept the default installation folder, you do not need to do anything. To define a different installation folder, click on the **Browse** button and navigate to the desired folder.
10. At the Ready to Install dialog box, click **Install** to continue.
11. At the Timesheet Sync Handler / IIS Preparation screen, configure the **Web Site**, **Protocol**, **Port**, and **Application** settings.
12. Select **Next** to continue with the install.
13. At the Start Web Site? dialog box, you can choose to either:

Confirm the configuration of the Default Web Site by overriding the recommendation and starting the site now by selecting **Yes**. This will complete the Timesheet Synch Handler installer and Launch the IIS Management Console.
14. View **Advanced Settings** for the HDTime application. Set the Application Pool according to your planning worksheet line W.4.
15. Open the **Authentication** feature for the HDTime application. Verify that **Anonymous Authentication** is disabled and **Windows Authentication** is enabled.



16. In the menu on the right, under Actions, click **Explore**. This opens the `C:\inetpub\wwwroot\HardDollar\TimesheetSyncHandler` folder.
17. Edit the `web.config` file. Near the bottom is a section that points to your HDExecute database:

```
<appSettings>

<add key="HDExecuteConnectionString" value="SERVER=(local)\HDBid;User
ID=bidbuilduser;Password=bidbuilduser;DATABASE=HDExecute"/>

<add key="DeviceDataQueryTimeout" value="300"/>

<add key="TimesheetServiceHost" value="localhost"/>

<add key="TimesheetServicePort" value="8020"/>

</appSettings>
```
18. Edit the **HDExecuteConnectionString** values to point to your SQL Server instance using your database login, as specified in DB.1, DB.2 and DB.4 in the Mobile Timesheets Module Security Considerations topic.
19. Close the IIS Management Console.
20. Launch Internet Explorer. Enter `http://<webserver name>/hdtime` in the Address bar and click **Go**. Verify that the HDTime landing page displays.

**NOTE**

IIS performs Just-in-time (JIT) compiling of Web applications whenever they are initially launched, when IIS is restarted, or when IIS detects changes in the application path that trigger a re-compile. The first user that accesses the site when re-compiling will experience a delay.

## 15.6 INSTALLING THE TIMESHEET COLLECTOR CLIENT

The Estimate Timesheet Collector Client needs to be installed when the primary purpose of the user is to download master data from the main Estimate Server, create timesheets, and synchronize the timesheets up to the Timesheet Warehouse. A Timesheet Collector Client installation includes the installation of SQL Server 2014 Express Edition.

**NOTE**

The Estimate Timesheet Collector Client application can be installed by accessing the Internet and downloading the Estimate software and then selecting the Timesheet Collector Client installation files.



Prior to installing the Estimate Timesheet Collector, you must install the following applications to allow for synchronization with the main Estimate system:

- Estimate Server
- Estimate License Server
- Timesheet Integration Server
- Timesheet Synchronization Server

### 15.6.1 Installing the Timesheet Collector Client from the Estimate Installation

Use the following step-by-step at each client workstation where the Timesheet Collector Client will be installed.

#### Step by Step — Install the Timesheet Collector Client

1. Start Windows as you normally would, then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue** to continue.
7. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog box. Then, click **Next** to continue.
8. At the Components screen under User Workstation Components, select the **Estimate Client** check box.
9. Scroll down to the Timesheet Collector Components and select the **Timesheet Collector** check box.
10. Click **Next** to continue.
11. At the Select Destination Location screen, define the installation folder where the Timesheet Collector Client application will be installed.



To accept the default installation folder, you do not need to do anything. To define a different installation folder, click on the **Browse** button and navigate to the desired folder.

12. At the Ready to Install screen, click **Install** to continue.
13. Click **Next** to continue.
14. At the Select Additional Task screen, click **Next** to have the setup program automatically create a desktop and quick launch icon for the Timesheet Collector Client.

If you do not want the setup program to install these shortcuts, un-check the appropriate check box. Then, click **Next** to continue.

15. At the Installation Summary screen, click **Next** to continue.
16. Click **Finish** to complete the installation and exit the setup program.

## 15.7 USING MICROSOFT PROJECT AS THE INTEGRATED SCHEDULE

Using Microsoft Project as the integrated schedule in Estimate provides you with a powerful and flexible project management tool that you can use to control simple or complex projects. It helps you schedule and track all your cost items, so you can stay on top of their progress.

### 15.7.1 Define Microsoft Project as the Integrated Schedule

#### Step by Step — Set Microsoft Project as the Integrated Schedule

1. From the Setup tab under the Initialize sub-section, select **Job Properties**.
2. Select the **Schedule** tab.
3. Select the Integrated Schedule drop down arrow and choose **Microsoft Project**.
4. If preferred, check the box for **Always want to use Plug Days when updating Estimate from the schedule**.
5. Click **OK** to close the Job Properties form.



**NOTE**

To make Microsoft Project the default integrated schedule for all projects, in Estimate go to **File > Library > Setup > Job Properties**. Then, select Microsoft Project in the Integrated Schedule field on the Schedule tab. Complete the additional associated fields. Every time you create a new project in Estimate, Microsoft Project will automatically be defined as the integrated schedule.

## 15.7.2 Defining Cost Item Roll Up Rules

Your Estimate project may contain more cost items than you want to schedule. You may want to create a schedule for the project at a high level, rather than scheduling all the job's cost items. You determine that this can be accomplished by rolling up the cost breakdown structure to a certain level. For example, level 3.

When you do this, you can only see the cost items from the Cost Breakdown Structure in the schedule at the rolled up level. For example, level 3. You can then proceed to schedule these items using the tools in Microsoft Project.

Once all the rolled up level cost items have been scheduled and you update Estimate, the scheduled start and finish dates from Microsoft Project will be brought back into the Cost Breakdown Structure. As a result, all cost items lower than the rolled up level, for example level 3, in the CBS now inherit the start and finish dates of their superiors at the rolled up level.

If you decide that a specific section in the Cost Breakdown Structure needs to be scheduled with more detail, you have the ability to schedule specifically at a level lower than the rolled up level previously defined. This can be done by navigating to that cost item in that section and activating the Schedule check box.

### Step by Step — Set Cost Item Roll Up Rules

1. From the Setup tab, select **Job Properties**.

**NOTE**

Superior cost items are always scheduled using Plug Days.

2. Select the **Schedule** tab. Then, select the **Cost Item Roll Up** tab.
3. On the Cost Item Roll Up tab, Select the **Automatically calculate Plug Days when rolling up cost items for scheduling purposes** check box.
4. If you want the superior level cost item to use the longest number of scheduled days from the subordinates as the duration, select the radio button **Longest scheduled days among all rolled**



**up cost items.**

5. If you want the superior level cost item to use the total scheduled days of all subordinates as the duration, select the radio button **Total scheduled days for all rolled up cost items**.

**NOTE**

When rolling up cost items for scheduling purposes, the Plug Days of the superior cost item will be recalculated when a change is made to the scheduled days of a subordinate.

6. To force an immediate recalculation of Plug Days for superior cost items, click the **Recalculate Plug Days** button.

## 15.8 INSTALLING THE ESTIMATE ONCENTER INTEGRATION

**NOTE**

If you are installing the integration on a server, the InEight Estimate Server service will restart at the end of the installation process.

Use the following step-by-step to install the Estimate OnCenter Integration module.

### Step by Step — Install Estimate OnCenter Integration

1. Start Windows as you normally would, then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then, click **Continue** to continue.
7. If other Estimate client/server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog box. Then click **Next** to continue.



8. On the Components screen under Third Party Integration Components, select the **OnCenter** check box. Then, click **Next**.

9. At the Select Destination Location screen, define the installation folder for the OnCenter integration.

To accept the default installation folder, you do not need to do anything. To define a different installation folder, click the **Browse** button and navigate to the desired folder. Then, click **Next** to continue. Click **Install** to start the installation.

10. On the Ready to Install dialog box, click **Install** to continue.
11. At the Installation Summary screen, click **Next** to continue.
12. Click **Finish** to complete the installation and exit the setup program.

## 15.9 INSTALLING THE ESTIMATE INFOMINE INTEGRATION

Use the following step-by-step to install the Estimate InfoMine Integration module.

### Step by Step — Install Estimate InfoMine Integration

1. Start Windows as you normally would, then exit out of any programs that are currently running.
2. Launch the Estimate installer downloaded from the InEight website.
3. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
4. On the Installation Package screen, click **Install** to continue.
5. Click **Install Estimate** to continue.
6. At the License Agreement screen, select **I Accept the Agreement**. Then, click **Continue** to continue.
7. On the Components screen under Third Party Integration Components, select the **InfoMine** check box and click **Next**.
8. At the Select Destination Location screen, define the installation folder for the InfoMine integration.



To accept the default installation folder, you do not need to do anything. To define a different installation folder, click the **Browse** button and navigate to the desired folder. Click **Next** to continue. Click **Install** to start the installation.

9. On the Ready to Install dialog box, click **Install** to continue.
10. At the Installation Summary screen, click **Next** to continue.
11. Click **Finish** to complete the installation and exit the setup program.

## 15.10 SOFTWARE UTILITIES

### 15.11 UNINSTALL TOOL

The Uninstall Tool lets you select which Estimate client and server applications to uninstall. You also have the option to uninstall all Estimate client and server applications that are currently installed on the client workstation or server.

The Uninstall Tool can be accessed by going to *C:\Program Files\InEight\InEight Estimate\Uninstallers*.

#### NOTE

The Main Uninstaller can also be found using the same folder path: *C:\Program Files\InEight\InEight Estimate\Uninstallers*.

#### Step by Step — Using the Uninstall Tool

1. At the Components screen, select the components that you want to uninstall. Then click **Next** to continue.
2. At the Ready to Uninstall screen, click **Uninstall** to continue.
3. At the Update Registry and Finalize screen, click **Next** to continue.
4. Click **Finish** to complete the uninstall and exit the setup program.

#### NOTE

The Uninstall Tool does not uninstall the **SQL Server (HDBID)** instance. If you want to uninstall the SQL Server (HDBID) instance, use Add/Remove Programs in Control Panel to uninstall.



## 15.12 CONFIGURATION TOOL

The Configuration Tool lets you specify the computer names where server applications run and the location of database files.

Security Roles and Active Directory Groups for Estimate are created with the Configuration Tool. The Configuration Tool can be accessed by going to *C:\Program Files\InEight\InEight Estimate*. Then scroll down the page and select **ConfigurationTool**.

### NOTE

The Configuration Tool can also be found using the following folder path *C:\Program Files\InEight\InEight Estimate License Server*.

The Configuration Tool has three main tabs

- Network tab
- Database tab
- Attachments tab

When you install additional integrations, additional tabs appear in the Configuration Tool such as the Primavera and Job Consolidation tabs.

### 15.12.1 Network Tab

The Network tab defines the server path for the Estimate Server and License Server. You can also define the security roles within this tab.

On the Network tab, the first section you see is the **Estimate Server**. This section sets the Server IP address or Host Name of the Estimate Server on the client machine. When setting up the server, the default host name is **localhost**.

Below the IP address is the **Port Number**. Set the port number to match the port of the Estimate Server. The default port number is **8004**.

The next section is the **License Server**. In the **Server IP Address or Host Name** text field, enter in the name of the server the License Server module has been installed on. If the License Server is installed on same machine as Estimate Server, leave this section blank.

The port number below the **License Server IP address** section should match the port of the License Server. The default port number is **8010**.



### 15.12.1.1 Setting Security Roles

The Security Roles section has the option to enforce role-based security policies. You can assign Active Directory Groups to specific users in Estimate by selecting the **Enforce role-based security** check box.

Use the following step-by-step to set security rules.

#### Step by Step — Set Security Rules

1. After selecting the Enforce role-based security check box the Users, Security Administrators, and Job Deleters sections become active. Select the **browse** button on the right.
2. When the Select Groups dialog box appears, select the **object type** you need to search your user for. The two object types you can select are **Built-in security principals** and **Groups**.
3. Select **OK** to close the Object Types window.
4. In the From the location section, define the location of the user for the Active Directory Group by selecting **Locations**.
5. In the text field for Object Names, enter in the full email of the user you are adding to the Active Directory Group. Select **Check Names** to confirm this user is available in the location you have searched for them.

The last section on the Network tab is **Automatic Save**. This section sets the amount of time per minute Estimate automatically saves any opens jobs.

### 15.12.2 Database Tab

The Database tab defines the server path for the SQL Server, sets up the Security login, identifies the Job Databases path, and Job Database Logs path.

On the Database tab, the first section you see is **Server**. Under Server IP Address or Host Name, enter the Host/DNS name or IP address of the SQL Server that contains the Estimate SQL Instance.

In the **Instance Name** section, enter in the name of the Database Instance where the Project Databases are held.

The **Security** section has two options. The first is a check box that, when checked, sets the security to Use Windows Authentication. Enable this feature if you want a Windows user to connect to SQL rather than a Local SQL User Account.



The second option is to create your own local SQL user account using the Account and Password fields. The default Account and Password both use the name **bidbuilduser**.

Both the Job Databases path and the Job Database Logs path navigate to the same pathway *C:\Program Files\InEight\InEight Estimate\Jobs\*. These paths point to the location of your MDF and LDF Files. The first two paths map your MDF data files and the following two paths map your LDF log files.

### 15.12.3 Attachments Tab

The Attachments tab lets you to choose how to enable attachments in Estimate. This tab has only two optional radio buttons to choose.

- **Enable Linked Attachments Only** - When choosing this option, it requires no additional configuration. These attachments are not saved within Estimate Jobs. Files that are referenced should be on a Network Share or they will not be accessible by other users.
- **Enable Linked Attachments and Job Folder Attachments** - The attachments folder located under *C:\Program Files\InEight\InEight Estimate\Attachments* needs to be shared.

**NOTE** If using option 2 and the indicated folder is not shared, the Estimate Configuration Window will not close.

If you installed the Primavera integration from the Estimate installation, click on the **Primavera Integration** tab in the Configuration Tool. The Primavera Integration tab define the paths to the Java Virtual Machine DLL and Java Memory settings.

**NOTE** This is required for users with the integration of Primavera with Estimate.

Use the **Job Consolidation** tab to define Performance settings, Database Server settings, Database Security, and Report Warehouse Data File paths.

**NOTE** This is required for users with the Enterprise Data Warehouse module.

## 15.13 ADDITIONAL SOFTWARE UTILITIES

### 15.13.1 License Server Activator

The License Server Activator utility lets you to activate or re-activate your Estimate license on the Estimate License Server.



The License Server Activator can be accessed by going to *C:\Program Files\InEight\InEight Estimate License Server*.

Then scroll down and select **LicenseServerActivator**.

### 15.13.2 Timesheet Integration License Utility

Each user who synchronizes a Timesheet Collector claims a license. The Timesheet Integration License Utility lets you release a Timesheet Collector user licenses. Then the license can be claimed by a different user.

The Timesheet Integration License Utility can be accessed by going to *C:\Program Files\InEight\InEight Estimate*. Then, scroll down and select **TimesheetIntegrationLicenseUtility**.

### 15.13.3 Detach Utility

The Detach Utility lets you select which databases to detach. Use this utility when archiving the BidMaster and Library and during migrations.

The Detach Utility can be accessed by going to *C:\Program Files\InEight\InEight Estimate*. Then, scroll down and select **DetachUtility**.

### 15.13.4 Detach All Silent Utility

The Detach Utility lets you detach all databases without the option to select which databases to keep attached. Use this utility during migrations.

The Detach Utility can be accessed by going to *C:\Program Files\InEight\InEight Estimate*. Then, scroll down the page and select **DetachAllSilent**.

### 15.13.5 SQL Server Utility

The SQL Server Utility has a multitude of purposes. This utility can set trace flags which allows file permissions to remain the same and not reset when detaching databases. You can also create the BidBuildUser login if it does not already exist. To create a new login, **Mixed Mode** needs to be enabled.



## 15.14 SQL SERVER REQUIREMENTS

Before you begin to install the SQL server, you must first set up some preliminary software. When installing the SQL server, you must be a System Administrator.

### NOTE

We strongly recommend that a separate SQL instance be used for InEight Estimate. Preferably called HDBID.

A folder must be created on the SQL Server to where the databases files (MDF) and Log files (LDF) are going to be stored. This folder must be shared. This document will assist in the creation of this folder.

A Service Account must be created to operate InEight Estimate. The Service Account created for InEight Estimate must be added to SQL through the **SQL Management Studio**.

The Service Account must be added to the local Administrators group in Windows. The Service Account must be given **Full Access** (Admin Rights) to the shared folder. This document assists in the creation of these requirements.

## 15.15 INSTALLING SQL SERVER 2014

The most common version of SQL is SQL Express. SQL Express is packaged with the InEight Estimate installer.

Use the following step-by-step to install the SQL Server.

### Step by Step — Install the SQL Server

1. Launch the Estimate installer downloaded from the InEight website.
2. At the User Account Control screen, click **Yes** to allow the InEight Estimate application to make changes to your computer.
3. On the Installation Package screen, click **Install** to continue.
4. Click **Install Estimate** to continue.
5. At the License Agreement screen, select **I Accept the Agreement**. Then click **Continue**.
6. If other Estimate client or server applications have already been installed on the server, select **Install** on the Upgrade or Install dialog box.
7. Click **Next** to continue.



8. At the Components screen under User Workstation Components, select the **Estimate Client** check box Then select the **Network** radio button.
9. On the Components screen under Enterprise Server Components, select the **Estimate Server** check box.
10. If you intend to use SQL Server 2014 Express Edition as the database for Estimate, select **Install SQL Express Edition with HDBID instance**.
11. If you choose *not* to use SQL Server 2014 Express Edition because you are using a different version of SQL Server, deselect the **Install SQL Express Edition with HDBID instance**.
  - If you don't select this option, another version of SQL Server must be installed manually.
12. Click **Next** to continue
13. The installation was successful, click **Close**.

## 15.16 INSTALLING SQL EXPRESS 2014

Use the following step-by-step to install SQL Express.

### Step by Step — Install SQL Express

1. Launch the Estimate installer downloaded from the InEight website.
2. At the User Account Control screen, click **Yes** to let the InEight Estimate application to make changes to your computer.
3. On the Installation Package screen, click **Install** to continue.
4. Select **Microsoft Installers**. This open the Microsoft Installers window.
5. Browse to the Install folder for SQL Express 64 and then launch the **SQLEXPRESS\_x64\_ENU** installer.
6. At the Choose Directory for Extracted Files screen, choose the directory where you want to extract the SQL installation. Then click **OK**.
7. When the SQL Server Installation Center window appears, choose how you want to install SQL.
8. If you are installing SQL for the first time, select **New SQL Server stand-alone installation** or **add features to an existing installation**.



9. On the SQL Server 2014 Setup screen, under the License Terms section, check the box **I accept the license terms**. Then select **Next**.
10. Under the Microsoft Update section, select **Next**.
11. On the Feature Selection section, under Instance Features, select all three check boxes if they are not already checked. Then select **Next**.
12. Under the Instance Configuration section, select the **Named Instance** radio button. Change the name in the text field to **HDBID**.
  - Notice the Instance ID field changed automatically to HDBID.
  - Select **Next** to continue.
13. Under the Server Configuration section, select **the Service Accounts** tab.
  - Set the Account Name for the SQL Server Database Engine to **NT AUTHORITY\SYSTEM**.
  - Then select **Next** to continue.
14. Under the Database Engine Configuration section, select the **Server Configuration** tab.
  - Set the Authentication Mode to **Mixed Mode**.
  - For the SA Account, enter the password: **Hard\$123abc**.
  - Then select **Next** to continue.
15. The installation was successful, click **Close**.

## 15.17 SQL SERVER CONFIGURATION MANAGER

Use the following step-by-step to setup the SQL Server Configuration.

### Step by Step — Setup SQL Server Configuration

1. On the Start menu, search for SQL Server 2014 Configuration Manager. You can also find this application by going to **C:\ProgramData\Microsoft\Windows\Start Menu\Programs\MicrosoftSQL Server 2014\Configuration Tools**.
2. On the SQL Server Configuration Manager, expand the SQL Server Network Configuration drop down in the left pane.
3. Select **Protocols for HDBID**.



4. To enable Shared Memory, right-click the Shared Memory protocol name, and select **Enable**.
5. To enable TCP/IP, if it is not already enabled, right-click the TCP/IP protocol name and select **Enable**.
6. When you click Enable on step 4 and 5, a dialog box appeared. This warning informs you *changes made will be saved but not applied until the services are stopped and restarted*. Select **OK** to close it.
7. Before restarting the services mentioned in the dialog box above, change the SQL Server (HDBID) Service.
  - On the left column, select **SQL Server Services**. On the right, right-click on SQL Server (HDBID) and click **Properties**.
8. On the SQL Server Properties window, select the Startup Parameters tab.
  - In the Specify a startup parameter text box, add **-T1802** as a parameter .
  - Then select **Apply**.
9. Click **OK** to exit out of the SQL Server Properties window.
10. The changes that were made to the HDBID Protocols require the SQL Server Service to be restarted. In the left pane, select SQL Server Services.
11. On the right, right-click on SQL Server (HDBID). Then select **Restart**.
12. After the configuration is complete, close the SQL Server Configuration Manager.

## 15.18 ADDING A SERVICE ACCOUNT TO SQL

For InEight Estimate and SQL to communicate, a service account must be created to use for the InEight Estimate software.

**NOTE** When SQL and InEight Estimate Server are installed on the same computer, this is not required.

If InEight Estimate is installed in a Domain environment, create an **Active directory** user for use by Estimate.

If Estimate is installed in a Workgroup environment, on each computer where an InEight Estimate server application or SQL will be installed, create a **local user** for use by InEight Estimate (this does not apply to the InEight Estimate Client).

This user must be giving the following permissions:



- This user must be added to the **local Administrators** group on the SQL server.
- This user must be given the **Sysadmin** role in the SQL instance that will be used for the InEight Estimate software.
- This user must be given **full control** in the security tab for the SQL Data directory.

**NOTE**

Users should not normally log on using this account. The account password should never change or expire.

Use the following step-by-step to add a service account to SQL.

### Step by Step — Add a Service Account to SQL

1. Launch **SQL Management Studio**.
2. At the Connect to Server screen, log in to the InEight Estimate Instance with a user that has Admin rights. Then select **Connect**.
3. After you are connected, select the Security drop down in the left pane. Then select **Logins**.
4. Right click Logins and select **New Login**.
5. Select the **Windows Authentication** radio button.
6. In the Login Name, type in the URL path to the Active Directory Service Account or select the Search button to search Active Directory users and groups and select the **service user**.
7. After you have selected the Service Account, select **Server Roles** from the left side of the screen.
8. Check the box for **Sysadmin** and click **OK**. You now added a Service Account to SQL.

## 15.19 SET ESTIMATE SERVICES TO LOG ON

Use the following step-by-step to set Estimate Services to Log On.

### Step by Step — Set Services to Log On

1. To open Services, search for **Administrative Tools**. Then select **Services**.
2. Locate the InEight Estimate Server Service. Right-click and select **Properties**.
3. On the Properties window, select the **Log On** tab. Select the **This account** radio button.



4. In the field marked **This account**, input the name of the service user account. Then enter the password for the Service Account.
  - Click **OK** to close the window.
  - A dialog box appears informing you the service user account you selected has been granted permissions to Log On as a Service.
5. Right-click on the Estimate Server service and select **Start**.

## 15.20 SHARE ATTACHMENT FOLDER WITH NETWORK USERS

InEight Estimate requires access to the SQL Data folder through the File System. To accomplish this the Data Folder must be shared.

Use the following step-by-step to share attachment folder with other Network users.

### Step by Step — Sharing Attachment Folder

1. Open Windows Explorer and navigate to the Data folder.
2. Right-click the Data folder and select **Properties**.
3. Select the **Sharing** tab.
4. Select **Advanced Sharing**. Then check the box to **Share this folder**.
5. Click **OK** to exit out of the Advanced Sharing window.
6. Select the **Security** tab.
7. Click **Edit** and then select **add the Service User**.
8. Set the Permissions to **Full Control**.
9. Confirm that the Administrators have Full Control as well.
10. Click **Apply** and **Close**.



## 15.21 COPYING AND ATTACHING ESTIMATE DATABASES TO SQL SERVER

Use the following step-by-step to copy Estimate Databases.

### Step by Step — Copy Estimate Database folder

1. Log in to the InEight Estimate Server as an Administrator that has **Write permissions** on the following path `\\(SQL Server)\Jobs Folder`.
2. Open Windows Explorer and navigate to `C:\Program Files\InEight\InEight Estimate\Jobs`.
3. Copy the following databases to the SQL Server path `\\(SQL Server)\Jobs Folder`:
  - BidMaster\_data.mdf
  - HDLibrary
  - Training Job folder

Use the following step-by-step to attach Estimate Databases to SQL Server.

### Step by Step — Attach Estimate Database folder to SQL Server

1. Go to the SQL Server and open **SQL Management Studio**.
2. Login as an **Administrator**.
3. Right-click on Databases and select **Attach**.
4. Click **Add**.
5. Go to the shared drive where you copied the database files to and select **BidMaster\_Data.mdf**.
6. Click **OK** to continue.
7. Click **OK** again to continue.
8. A dialog box appears asking if you are certain that you have added all the necessary full-text catalogs, click **OK**.
9. There are two more databases that need to be attached:



- HDLibrary\_data.mdf
- Training Job.mdf.

Repeat the previous steps to attach those two databases.

## 15.22 LICENSE ACTIVATION

# LESSON 15 – ACTIVATE NETWORK LICENSES

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## 15.1 ACTIVATE SERVER LICENSE OVER INTERNET

For many reasons, you may need to activate or reactivate your InEight Estimate license. Some of these reasons may include:

- You have renewed your license for another year
- You have purchased additional Estimate modules
- You have been using a Standalone license and you have now switched to a network license
- You recently received your first copy of Estimate and need to activate your license

At any time, Estimate allows you to reactivate your license for the reasons above and any other reasons not mentioned.

### 15.1.1 Network license

#### NOTE

Please ensure that there are no users logged into the InEight Estimate application when you restart the license server service, as this could result in loss of work.



Before you begin the activation of the Estimate license, ensure that you have a network connection. Use the following step-by-step at the server console that contains the Estimate license server.

### Step by Step — Activate Server License Over Internet

1. Go to the following path *C:\Program Files\InEight\InEight Estimate License Server*.
2. Scroll down and select the file **LicenseServerActivator**. The Activate InEight Estimate dialog box appears.
3. At the Let's Activate screen, select **Activate via the Internet**.
4. Click **Next** to continue.
5. At the Activate via the Internet screen, enter the 16-digit serial number that was provided to you by InEight Estimate. Click **Finish** to continue.

#### NOTE

Your 16-digit serial number should have been saved from the initial activation. In the event that it was not saved or if you are activating a new license, you must manually enter your company's 16-digit serial number for Estimate to complete the activation process.

6. At the Activation Successful dialog box, click **OK**.
7. At the Start Service dialog box, click **Yes** to start the InEight Estimate License Server service.
8. At the Success dialog box, click **OK** to complete and exit out of the License Server Activator.

## 15.2 ACTIVATE NETWORK CLIENT LICENSE OVER INTERNET

#### NOTE

Double check the spelling of the IP address or DNS name for the license server. You will need the license server DNS or IP address name for later.

Before you begin the activation of the Estimate license, ensure that you have a network connection. Use the following step-by-step at the workstation that contains the Estimate network client.



## Step by Step — Activate Network License Over Internet

1. From the Backstage View, select **Settings** from the left navigation pane.
2. At the Settings dialog box under the Network section of the left navigation pane, select **Licenses**.
3. In the lower center portion of the Licenses dialog box, select **Reactivate**.
4. On the Update License dialog box, click **Yes** to continue.
5. At the Activate InEight Estimate dialog box under the Locate License section, choose **Network License**.
6. Click **Next** to continue.
7. At the Activate with a License Server section, enter the **IP address** or **DNS name** of the license server.
8. Click **Finish**.
9. At the Activation Successful dialog box, click **OK**.
10. Close and restart Estimate for your license activation or reactivation to take effect.

## 15.3 ACTIVATE NETWORK LICENSE FILE

**NOTE** Use this option if your company's server is not connected to the internet. The Estimate license file can be provided to you by InEight support.

Use the following step-by-step at the server console that contains the Estimate license server.

## Step by Step — Activate Network License File

1. Go to the following path *C:\Program Files\InEight\InEight Estimate License Server*.
2. Scroll down and select the file **LicenseServerActivator**. The Activate InEight Estimate dialog box appears.
3. At the Let's Activate screen, choose **Import a license file provided by InEight**.
4. At the Import a license File screen, browse to the location of the license file that was provided to you by InEight.
5. Select **Open** to add the location of the license file to the Import a License File screen.



6. Click **Finish** to continue.
7. At the Activation Successful dialog box, click **OK**.
8. At the Start Service dialog box, click **Yes** to start the InEight Estimate License Server service.
9. At the Success dialog box, click **OK** to complete and exit out of the License Server Activator.

## LESSON 15 – ACTIVATING STANDALONE LICENSES

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### 15.1 ACTIVATE STANDALONE LICENSE OVER THE INTERNET

**NOTE**

The Estimate Standalone license is intended for only one person to use. If you have multiple Standalone licenses to activate, each 16-digit serial number is different per workstation.

Use the following step-by-step at the workstation that contains the Estimate Standalone license.

#### Step by Step — Activate Standalone License Over Internet

1. From the Backstage View, select **Settings** from the left navigation pane.
2. Under the Network section of the left navigation pane, select **Licenses**.
3. In the lower center portion of the Licenses dialog box, select **Reactivate**.
4. On the Update License dialog box, click **Yes** to continue.
5. At the Activate InEight Estimate dialog box under the Locate License section, choose **Individual License**.
6. Click **Next** to continue.



7. At the Let's Activate screen, choose **Activate via the Internet**.
8. Click **Next** to continue.
9. At the Activate via the Internet screen, enter the 16-digit serial number that was provided to you by InEight. Click **Finish** to continue.

**NOTE**

Your 16-digit serial number should have been saved from the initial activation. In the event that it was not saved or if you are activating a new license, you must manually enter the workstation's 16-digit serial number for Estimate to complete the activation process.

10. At the Activation Successful dialog box, click **OK**.
11. Close and restart Estimate for your license activation or reactivation to take effect.

## 15.2 ACTIVATE STANDALONE LICENSE FILE

**NOTE**

Use this option if the workstation is not connected to the internet. The Estimate license file can be provided to you by InEight Support.

Use the following step-by-step at the workstation that contains the Estimate Standalone license.

### Step by Step — Activate Standalone License File

1. From the Backstage View, select **Settings** from the left navigation pane.
2. At the Settings dialog box under the Network section of the left navigation pane, select **Licenses**.
3. In the lower center portion of the Licenses dialog box, select the **Reactivate** button.
4. On the Update License dialog box, click **Yes** to continue.
5. At the Activate InEight Estimate dialog box under the Locate License section, choose **Individual License**.
6. Click **Next** to continue.
7. At the Let's Activate screen, choose **Import a license file provided by InEight**.
8. At the Import a license File screen, browse to the location of the license file that was provided to you by InEight.



- 9. Select **Open** to add the location of the license file to the Import a License File screen.
- 10. Click **Finish** to continue.
- 11. At the Activation Successful dialog box, click **OK**.

# LESSON 15 – BORROWING NETWORK LICENSES

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## 15.1 BORROWING LICENSE OVERVIEW

### 15.1.1 Purpose

The purpose of this topic is to show you how Estimate licensing works and how to borrow a license from a network environment to switch to a standalone deployment to work offline from the network.

### 15.1.2 Summary

Not only does Estimate's software licensing solution make it easier for you as the end user, it also gives additional flexibility and control to your technology staff in the customization and management of your licenses from one central location.

Like hardware based licensing solutions, Estimate's software licensing solution provides both individual (standalone) licenses and network licenses. In addition, unlike hardware based licensing solutions, Estimate also provides a feature that lets you borrow network licenses that can be used for a specified amount of time while you are disconnected from the network.



Estimate's network license borrowing feature lets you use your existing network licenses on a computer that is disconnected from the network. For example, you can use the license on a laptop computer that you can take out of the office to the field, bid openings, or at home.

### 15.1.3 Individual (Standalone) License

An Individual (Standalone) license is one that is locked to an individual personal computer. An Individual (Standalone) license is **not** transportable to another computer.

### 15.1.4 Network License

A Network license is one that provides many module licenses in one central location that are shared amongst all Estimate users connected to the network. Network module licenses are transportable. Network module licenses lets you borrow one of the module licenses for a specified period of time. After that period of time expires, the license is then returned to the module license central location on the network for other users on the same network to access.

#### NOTE

A Network license requires the installation of the Estimate License Server application which manages the central location of module licenses.

## 15.2 BORROWING NETWORK LICENSE MODULES

### 15.2.1 Network Licensing Modules Overview

Estimate lets you borrow network licenses from the Estimate License Server. This is useful when you generally use Estimate while connected to network but want to work in Estimate while not connected to the network (in the field or at home).

For example, you can connect to the Estimate License Server on your network, borrow licenses for the modules that you need, disconnect from the network or license server, and still run Estimate. By borrowing licenses, you can take your laptop out to the field, or work at home without being connected to your company's Estimate License Server.

The following step by step shows you how to borrow a network licensing module.



## Step by Step — Borrowing Network License Modules

1. While connected to the Estimate License Server, go to the Estimate Backstage View.
2. Select **Settings**.
3. Under the Network drop-down, select **Deployment Mode**.
4. Select the **Standalone** radio button. Then select **OK**.
5. When the Restart Estimate dialog box appears, select **Yes** to close the Estimate Client.
6. After you have restarted the Estimate Client, go to the Estimate Backstage View.
7. Select **Settings**.
8. Under the Network drop-down, select **Licenses**.
9. From the All Licenses column, select the modules that you need to borrow.
10. Select the **Borrow** button.
11. Click the **Borrow** button to move the selected modules to the Currently Borrowed Modules column.
12. Choose how long you want to borrow the license for using the **Borrow for \_\_\_ days** up and down arrows in the center column.

**NOTE** You can only borrow a license for a maximum of 30 days.

13. Disconnect from the network.

## 15.3 RETURNING BORROWED LICENSE MODULES

In order for borrowed licenses to be made available to other network users, you must return the borrowed licenses to the Estimate License Server prior to the expiration date.

**NOTE** In the event that you do not return the borrowed license before the expiration date, the borrowed modules will be automatically be returned to the Estimate License Server.

The following step by step shows you how to return the borrowed network licensing module.



## Step by Step — Returning Borrowed Network License Modules

1. While connected to the Estimate License Server, go to the Estimate Backstage View.
2. Select **Settings**.
3. Under the Network drop-down, select **Licenses**.
4. Select the modules you need to return from the Currently Borrowed Licenses column.
5. Select the **Return** button in the center column to move the borrowed modules from the Currently Borrowed License column to the All Licenses column.
6. Click **OK** to close the Settings dialog box