

InEight Estimate
Benchmarking with Data from
InEight Control
Supplement guide to Benchmarking



InEight[®]
ESTIMATE



InEight[®]
CONTROL



Changelog

This changelog contains only significant or other notable changes to the document revision. Editorial or minor changes that do not affect the context of the document are not included in the changelog.

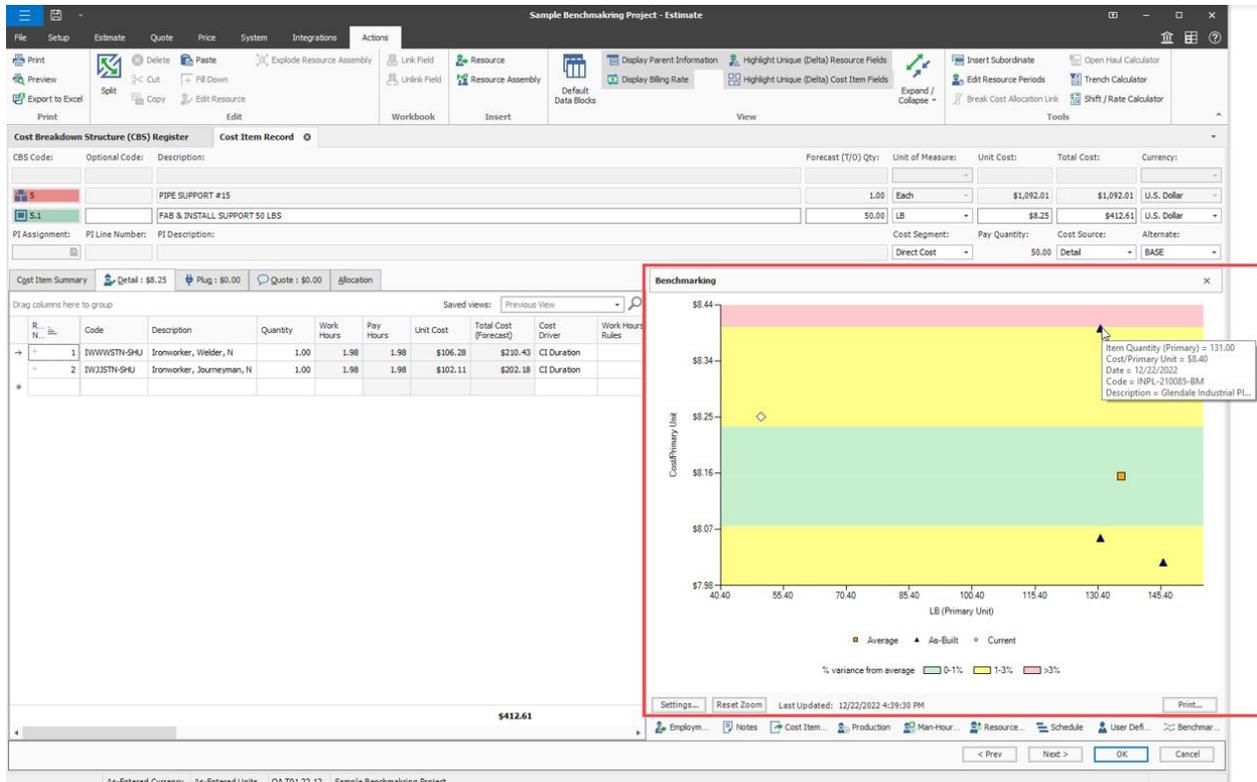
| Rev | Date | Description |
|-----|--------------|---------------------|
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| 1.1 | 12/22/2022 | Revised by AC |

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Benchmarking Actual Costs from InEight Control

Benchmarking is the process of leveraging a company's past experiences to provide a level of assurance that any scope of work being estimated is either within an acceptable range of confidence or identifies a unit cost or productivity rate exceeding an acceptable value. Estimate can benchmark using as-estimated or as-built data. For users of Control, Estimate can pull as-built data points directly from Control, so estimators can more easily leverage information on productivity rates and unit costs achieved on past projects.



Benchmarking and Unit Costs

When benchmarking on as-built data from Control, cost items must have both actual cost and quantities claimed. Estimate uses unit costs for benchmark data points. Data points for Control cost items that incur costs with no quantities, or quantities claimed with no corresponding actual costs, have a unit cost of zero and cannot be benchmarked.

Subordinate Cost Items

In Control, you should claim both costs and quantities at the lowest benchmark level you intend to use, so the cost items produce benchmarkable unit rates. Benchmark data points are generated for both subordinate and superior cost items in Control, and actual costs and man-hours automatically roll up to the superior cost items.

| Task details | | | Actuals 12/22/2022 to 12/28/2022 | | | | |
|--------------|--------------------|------|----------------------------------|----------------------------|-----------------------|-----------------------|----------------------------|
| Resources | Forecast (T/O) qty | UoM | Actual qty (to date) | Actual unit cost (to date) | Actual cost (to date) | Actual Mhrs (to date) | Actual Mhrs/unit (to date) |
| | 1.00 | Each | 1.00 | \$ 1,254.00 | \$ 1,254.00 | 12.26 | 12.26 |
| 2 | 50.00 | Lb | 50.00 | \$ 8.50 | \$ 425.00 | 4.00 | 0.08 |
| 1 | 4.00 | Ft | 4.00 | \$ 131.25 | \$ 525.00 | 5.00 | 1.25 |

Superior Cost Item As-built quantities

As-built quantities for superior cost items are automatically calculated based on the percent complete of the subordinate cost items. If actual costs and quantities are being claimed on the subordinate cost items, no option is available to claim quantities on the superior cost item. The image below shows the Allow as-built option is unavailable for a superior cost item where claiming of both actual costs and quantities is being done on subordinate cost items.

The screenshot shows the InEight Control interface for a task named 'PS# 15 FOUNDATION'. On the left, a list of tasks is shown with their respective forecast quantities and units of measure. The main panel displays details for the selected task, including forecast T/O quantity (1.00), unit of measure (Each), and CE unit cost (\$2,671.33). A dropdown menu for 'Allow as-built' is highlighted with a red box and a red arrow. The dropdown options are 'None', 'All', 'Quantities', and 'Costs', with 'None' currently selected. The interface also shows various attributes, cost categories, and current estimate resources.

If a superior cost item quantity is not being calculated, then no unit cost can be calculated and no benchmarkable data point can be sent to Estimate. This can be the result of the items budget not being set. To resolve this issue, ensure the budget is locked for the cost items in question.

CBS ACS PAY ITEM

Actions + ✎ ✕

- Global forecast method..
- Set forecast method
- Time phased forecasting
- Claim multiple CBS quantities
- Budget move and contract adjustment ▶
- Lock/unlock budget ▶
 - Lock budget
 - Unlock budget
 - Lock project budget and price
- Add required cost items
- Sync ▶
- Reverse estimated actuals ▶

| Task details | | Resources | Forecast (T/O) qty | UoM |
|--------------|---------------------|-----------|--------------------|------|
| | PIPE SUPPORT #15 | | 1.00 | Each |
| 2 | FAB & INSTALL S... | | 50.00 | Lb |
| 1 | 3/16" FILLET WEL... | | 4.00 | Ft |
| | DRILL 5/8" 4 EA | | 4.00 | Each |

The cost item's quantity is now derived based on Control's quantity roll up calculation settings and a unit cost is automatically calculated.

CBS ACS PAY ITEMS CHANGE REGISTER AUDIT LOG

| Task details | | Actuals 12/22/2022 to 12/28/2022 | | | |
|--------------|--------------------|----------------------------------|----------------------------|-----------------------|-----------------------|
| Resources | Forecast (T/O) qty | Actual qty (to date) | Actual unit cost (to date) | Actual cost (to date) | Actual Mhrs (to date) |
| | 1.00 Each | 1.00 | \$ 1,254.00 | \$ 1,254.00 | 12.26 |
| 2 | 50.00 Lb | 50.00 | \$ 8.50 | \$ 425.00 | 4.00 |
| 1 | 4.00 Ft | 4.00 | \$ 131.25 | \$ 525.00 | 5.00 |

Setting up Benchmarking from InEight Control

Projects must be set to **Active** in InEight Platform > Project Details > **Status**. Projects that are set to **New** will not be available in Estimate.

All projects & organizations > **Edit project** DETAILS INFORMATION ATTRIBUTES

Project details

* Project ID: INPL-210326-BM

* External project ID: INPL-210326-BM

* Name: Oakview Facility Improvements

* Phase: Execution

* Status: **New** (indicated by red arrow)

Unit costs need to be present on Control cost items for benchmark data points to be useful in Estimate. To accomplish this, set the Allow as-built setting to *All* for the cost items that you want to generate benchmark data points for, and make sure actual costs, man-hours and quantities are claimed on the cost item.

| Tasks | | | Task details | |
|-------------------------------------|--------------|-------------------|--------------|--|
| <input type="checkbox"/> | CBS position | Description | Resources | |
| <input type="checkbox"/> | 4.5 | RECEIVE MATERI... | 1 | |
| <input type="checkbox"/> | 4.6 | DEMOB OF BACK... | 2 | |
| <input type="checkbox"/> | 5 | PS# 15 FOUNDAT... | | |
| <input type="checkbox"/> | 5.1 | SAW CUT CONCR... | 1 | |
| <input type="checkbox"/> | 5.2 | DEMO CONCRETE | 1 | |
| <input type="checkbox"/> | 5.3 | TRANSPORT CON... | 1 | |
| <input type="checkbox"/> | 5.4 | HAND EXCAVATE | 1 | |
| <input type="checkbox"/> | 5.5 | TRANSPORT SOIL... | 1 | |
| <input checked="" type="checkbox"/> | 5.6 | FORMWORK (CO... | 1 | |
| <input type="checkbox"/> | 5.7 | INSTALL REBAR | 1 | |
| <input type="checkbox"/> | 5.8 | EPOXY DOWELS ... | 1 | |
| <input type="checkbox"/> | 5.9 | PLACE CONCRETE | 1 | |
| <input type="checkbox"/> | 5.10 | FINISH CONCRETE | 1 | |
| <input type="checkbox"/> | 6 | PS# 30 FOUNDAT... | | |
| <input type="checkbox"/> | 6.1 | SAW CUT CONCR... | 1 | |
| <input type="checkbox"/> | 6.2 | DEMO CONCRETE | 1 | |
| Subtotals 89 (1 rows selected) | | | | |

| 1033 FORMWORK (COMBINED FABRICATION, INSTALLATION AND REMOVAL) | | |
|---|------------------------|--|
| DETAILS | ATTRIBUTES | COST |
| CE total cost | CE unit cost | |
| \$ 1,253.25 | \$ 69.63 | |
| CE total Mhrs | CE total equipment Hrs | |
| 13.48 | 0.00 | |
| CE Mhr/Unit | CE Units/MHrs | |
| 0.75 | 1.34 | |
| * Allow as-built | | Pay item assignment |
| <div style="border: 1px solid gray; padding: 2px;"> All None All → Quantities Costs </div> | | <input type="text"/> * Quantity driver Superior CI |

In Control, select a field to use as the benchmark matching criteria. This field is used by Estimate in identifying the cost items to be used in generating the benchmark data points. The same key value can be used on multiple cost items and the benchmark data point produced will be a weighted average unit cost of all the items.

| Tasks | | | 1001 FAB & INSTALL SUPPORT 50 LBS | | | |
|-------------------------------------|--------------|---------------------|--------------------------------------|----------------------|----------------------|----------------------------|
| <input type="checkbox"/> | CBS position | Description | DETAILS | ATTRIBUTES | COST CATEGORIES | CURRENT ESTIMATE RESOURCES |
| <input type="checkbox"/> | 1 | PIPE SUPPORT #15 | CBS tag 22 | CBS tag 23 | CBS tag 24 | |
| <input checked="" type="checkbox"/> | 1.1 | FAB & INSTALL S... | <input type="text"/> | <input type="text"/> | <input type="text"/> | |
| <input type="checkbox"/> | 1.2 | 3/16" FILLET WEL... | | | | |
| <input type="checkbox"/> | 1.3 | DRILL 5/8" 4 EA. | CBS tag 25 | CBS user defined 1 | CBS user defined 2 | |
| <input type="checkbox"/> | 1.4 | BOLT UP 1/2" BAS... | <input type="text"/> | 10015 | | |
| <input type="checkbox"/> | 1.5 | GROUT BASE SUP... | | | | |
| <input type="checkbox"/> | 2 | PIPE SUPPORT #19 | CBS user defined 3 | CBS user defined 4 | CBS user defined 5 | |
| <input type="checkbox"/> | 2.1 | FAB & INSTALL S... | <input type="text"/> | <input type="text"/> | <input type="text"/> | |

The following fields can be used as matching criteria:

- CBS Position
- Description
- WBS Phase Code
- Account Code
- Any CBS tag field, 1-25
- Any CBS user defined field, 1-15

The matching criteria field will be designated in Estimate. Fill in the applicable values to distinguish the cost items to be used as benchmarkable data point. Cost items with no values in the designated matching criteria field are not used in benchmarking.

| Tasks | | Task Details (AC) | | | | | 12/22/2022 to 12/22/2022 | | | |
|--------------------------------|--|--------------------|------|--------------|---------------|----------------|--------------------------|----------------------|----------------------------|-----------------------|
| CBS position | Description | Forecast (T/O) qty | UsM | CE unit cost | CE total cost | CE total M/hrs | CBS user defined 1 | Actual qty (to date) | Actual unit cost (to date) | Actual cost (to date) |
| 1 | PIPE SUPPORT #15 | 1.00 | Each | \$ 1,038.63 | \$ 1,038.63 | 9.95 | PIP_SPT | 1.00 | \$ 1,254.00 | |
| 1.1 | FAB & INSTALL SUPPORT 50 LBS | 50.00 | Lb | \$ 7.58 | \$ 378.89 | 3.64 | 7746 | 50.00 | \$ 8.50 | |
| 1.2 | 3/16" FILLET WELDS STIFFENERS | 4.00 | Ft | \$ 111.87 | \$ 447.49 | 4.21 | 7642 | 4.00 | \$ 131.25 | |
| 1.3 | DRILL 5/8" 4 EA. | 4.00 | Each | \$ 26.52 | \$ 106.09 | 1.04 | 7768 | 4.00 | \$ 25.50 | |
| 1.4 | BOLT UP 1/2" BASE SUPPORT 4 EA. | 4.00 | Each | \$ 20.42 | \$ 81.69 | 0.80 | 7786 | 4.00 | \$ 25.25 | |
| 1.5 | GROUT BASE SUPPORT | 1.00 | FT2 | \$ 24.47 | \$ 24.47 | 0.26 | 10015 | 1.00 | \$ 101.00 | |
| 2 | PIPE SUPPORT #19 | 1.00 | Each | \$ 725.36 | \$ 725.36 | 7.05 | PIP_SPT | 0.72 | \$ 828.16 | |
| 2.1 | FAB & INSTALL SUPPORT 26 LBS | 26.00 | Lb | \$ 7.58 | \$ 197.02 | 1.89 | 7746 | 26.00 | \$ 8.46 | |
| 2.2 | 1/4" FILLET WELDS L3 TO 1/2" PL | 1.00 | Ft | \$ 111.87 | \$ 111.87 | 1.05 | 7642 | 1.00 | \$ 115.00 | |
| 2.3 | DRILL 5/8" 4 EA. | 4.00 | Each | \$ 26.52 | \$ 106.09 | 1.04 | 7768 | 4.00 | \$ 27.50 | |
| 2.4 | INSTALL 1/2" HILTI KWIK ANCHOR BOLTS 4 EA. | 4.00 | Each | \$ 51.06 | \$ 204.22 | 2.00 | | 0.00 | \$ 0.00 | |
| 2.5 | BOLT UP 1/2" BASE SUPPORT 4 EA. | 4.00 | Each | \$ 20.42 | \$ 81.69 | 0.80 | 7786 | 4.00 | \$ 24.50 | |
| 2.6 | GROUT BASE SUPPORT | 1.00 | FT2 | \$ 24.47 | \$ 24.47 | 0.26 | 10015 | 1.00 | \$ 52.00 | |
| 3 | PIPE SUPPORT #22 | 1.00 | Each | \$ 1,394.40 | \$ 1,394.40 | 13.40 | PIP_SPT | 0.85 | \$ 1,724.58 | |
| 3.1 | FAB & INSTALL SUPPORT 70 LBS | 70.00 | Lb | \$ 7.58 | \$ 530.45 | 5.09 | 7746 | 70.00 | \$ 7.50 | |
| 3.2 | 1/4" FILLET WELDS L3 TO 1/2" PL | 4.00 | Ft | \$ 111.87 | \$ 447.49 | 4.21 | 7642 | 4.00 | \$ 171.25 | |
| 3.3 | DRILL 5/8" 4 EA. | 4.00 | Each | \$ 26.52 | \$ 106.09 | 1.04 | 7768 | 4.00 | \$ 28.75 | |
| 3.4 | INSTALL 1/2" HILTI KWIK ANCHOR BOLTS 4 EA. | 4.00 | Each | \$ 51.06 | \$ 204.22 | 2.00 | | 0.00 | \$ 0.00 | |
| Subtotals 89 (1 rows selected) | | | | | \$ 32,058.82 | 243.21 | | | | |

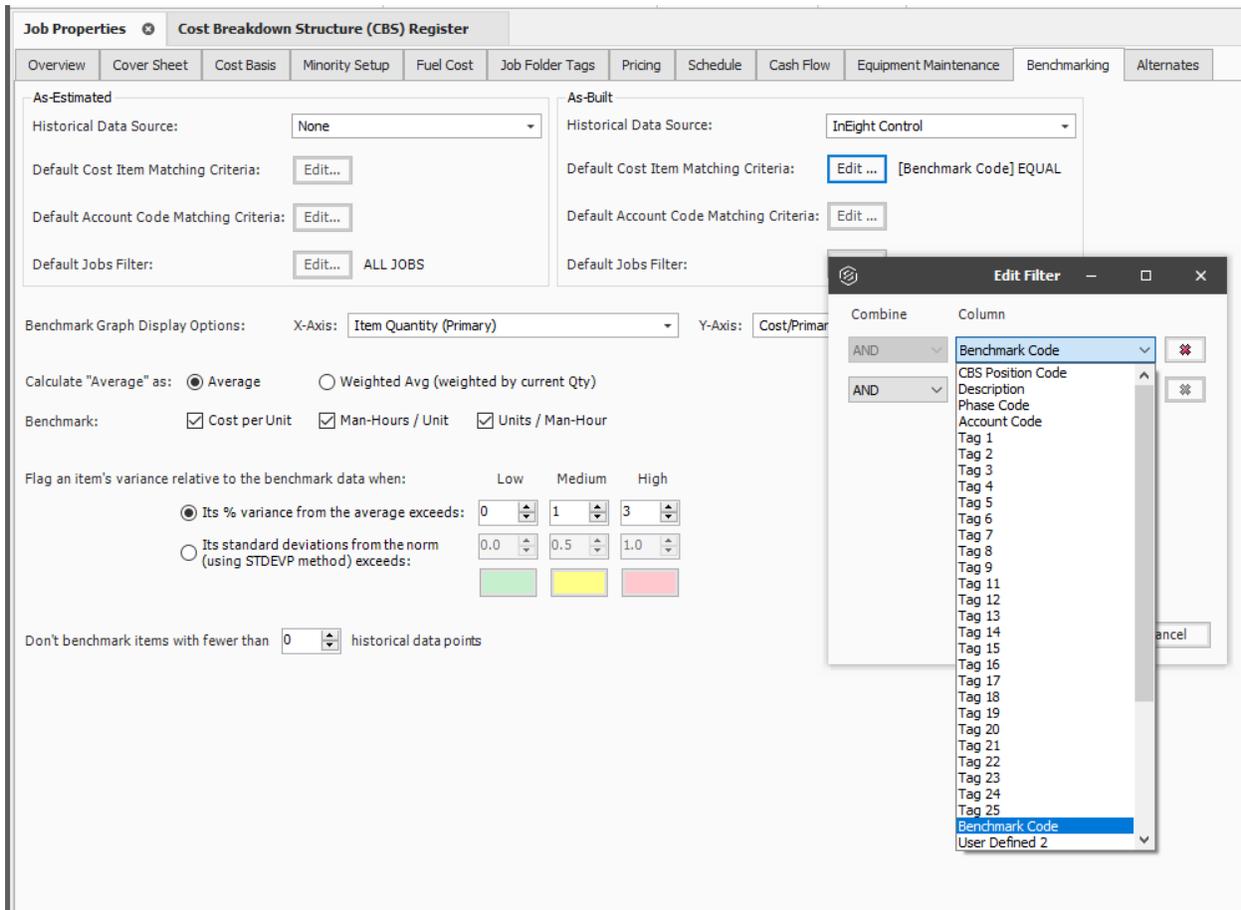
In Estimate, benchmarking from Control can be activated by selecting Job Properties > Benchmarking > As-Built > Historical Data Source > **InEight Control**. This step is not needed for Estimate in the Cloud.

Next, define the Control projects that will be sources of benchmark data. For the Default Jobs filter, click **Edit**. In the Edit Filter dialog box, you can either specify the project IDs and or project names of the benchmarkable projects or create a filter criteria. It is good practice to modify either the project IDs or project names in Platform to designate them as benchmarkable projects.

In this example, the letters **BM** have been appended to the end of every benchmarkable project in Platform and a filter can be used to include all projects where the project IDs contains the characters **BM**.

NOTE: As-Estimated benchmark data comes from a data warehouse, where you can explicitly control the timing of updates to As-Estimated data. As-Built data from Control is live data and might change based on how frequently actual costs, man-hours and quantities are being updated in Control, and how often the benchmark data points in the estimate are refreshed.

To set the Default Cost Item Matching Criteria, click Edit. This designates the fields used between both Control and Estimate in determining which Control benchmark data points map to the Estimate cost items.



The ACS in Control does not generate benchmarkable data points from as-built data. Benchmarking on account codes in Estimate is not possible when using as-built data from Control, and the Edit button for Define Account Code Matching Criteria is disabled.

Benchmark using data from Control

In Estimate, after you create a cost estimate, ensure the field defined as a matching criteria field is populated with a value corresponding to the benchmarkable data points to be pulled from Control.

| Job Properties | | Cost Breakdown Structure (CBS) Register | | | | | |
|----------------------------|--|---|-----------------|------------|-----------------------|-----------------------|--|
| Drag columns here to group | | | | | | | |
| CBS Position Code | Description | Forecast (T/O) Quantity | Unit of Measure | Unit Cost | Total Cost (Forecast) | Benchmark Code (UDF1) | |
| 1 | STRUCTURAL GENERAL | 1.00 | Each | \$1,051.60 | \$1,051.60 | | |
| + 1.1 | MOBILIZE & DEMOBILIZE EQUIPMENT, TO... | 1.00 | Each | \$1,051.60 | \$1,051.60 | | |
| 2 | PIPE SUPPORT #1 | 1.00 | Each | \$526.30 | \$526.30 | PIP_SPT | |
| + 2.1 | FAB & INSTALL SUPPORT 10 LBS (SD-153... | 10.00 | LB | \$7.65 | \$76.52 | 7746 | |
| + 2.2 | 1/4" FILLET WELDS (FIELD WELDS) * | 2.00 | FT | \$224.89 | \$449.78 | 7649 | |
| 3 | PIPE SUPPORT #2 | 1.00 | Each | \$353.42 | \$353.42 | PIP_SPT | |
| + 3.1 | FAB & INSTALL SUPPORT 16 LBS | 16.00 | LB | \$7.50 | \$120.03 | 7746 | |
| + 3.2 | 1/4 FILLET WELDS (FIELD WELDS) | 2.00 | FT | \$116.70 | \$233.39 | 7642 | |
| 4 | PIPE SUPPORT #7 | 1.00 | Each | \$4,829.05 | \$4,829.05 | PIP_SPT | |
| + 4.1 | FAB & INSTALL SUPPORT 105 LBS | 105.00 | LB | \$8.10 | \$850.50 | 7746 | |
| + 4.2 | 3/16 TO 1/4" FILLET WELDS FAB | 11.00 | FT | \$116.70 | \$1,283.65 | 7642 | |
| + 4.3 | CUT OFF & PREP AREA- EXISTING PIPE ST... | 1.00 | Each | \$212.56 | \$212.56 | | |
| + 4.4 | T&B FLG. FILLET FULL PEN W8X31 TO EXI... | 4.00 | FT | \$620.59 | \$2,482.34 | 7651 | |
| 5 | PIPE SUPPORT #15 | 1.00 | Each | \$1,092.01 | \$1,092.01 | PIP_SPT | |
| + 5.1 | FAB & INSTALL SUPPORT 50 LBS | 50.00 | LB | \$8.25 | \$412.61 | 7746 | |
| + 5.2 | 3/16" FILLET WELDS STIFFINERS | 4.00 | FT | \$116.70 | \$466.78 | 7642 | |
| + 5.3 | DRILL 5/8" 4 EA. | 4.00 | Each | \$26.55 | \$106.19 | 7768 | |
| + 5.4 | BOLT UP 1/2" BASE SUPPORT 4 EA. | 4.00 | Each | \$20.42 | \$81.69 | 7786 | |
| + 5.5 | GROUT BASE SUPPORT | 1.00 | FT2 | \$24.73 | \$24.73 | 10015 | |
| 6 | PIPE SUPPORT #19 | 1.00 | Each | \$728.58 | \$728.58 | PIP_SPT | |
| + 6.1 | FAB & INSTALL SUPPORT 26 LBS | 26.00 | LB | \$7.50 | \$195.05 | 7746 | |
| + 6.2 | 1/4" FILLET WELDS L3 TO 1/2" PL | 1.00 | FT | \$116.70 | \$116.70 | 7642 | |
| + 6.3 | DRILL 5/8" 4 EA. | 4.00 | Each | \$26.55 | \$106.19 | 7768 | |
| + 6.4 | INSTALL 1/2" HILITI KWIK ANCHOR BOLTS... | 4.00 | Each | \$51.06 | \$204.22 | | |
| + 6.5 | BOLT UP 1/2" BASE SUPPORT 4 EA. | 4.00 | Each | \$20.42 | \$81.69 | 7786 | |
| + 6.6 | GROUT BASE SUPPORT | 1.00 | FT2 | \$24.73 | \$24.73 | 10015 | |
| 7 | PIPE SUPPORT #22 | 1.00 | Each | \$1,408.76 | \$1,408.76 | PIP_SPT | |
| + 7.1 | FAB & INSTALL SUPPORT 70 LBS | 70.00 | LB | \$7.50 | \$525.14 | 7746 | |
| + 7.2 | 1/4" FILLET WELDS L3 TO 1/2" PL | 4.00 | FT | \$116.70 | \$466.78 | 7642 | |
| + 7.3 | DRILL 5/8" 4 EA. | 4.00 | Each | \$26.55 | \$106.19 | 7768 | |
| + 7.4 | INSTALL 1/2" HILITI KWIK ANCHOR BOLTS... | 4.00 | Each | \$51.06 | \$204.22 | | |
| + 7.5 | BOLT UP 1/2" BASE SUPPORT 4 EA. | 4.00 | Each | \$20.42 | \$81.69 | 7786 | |
| 103 | | | | | | \$38,943.27 | |

From the More Actions tab of the CBS register, click the **Refresh Benchmarks** button. The Refresh Benchmarks dialog box indicates the number of jobs found that meet the job matching criteria defined in Job Properties > Benchmarking. If this looks accurate, click **Refresh Now**; otherwise, click **Cancel**, and refine the Default Job Matching Criteria.

Training Job - Estimate

File Setup Estimate Quote Price Execution System **Actions** More Actions

Schedule Selection Swap Bid Wizard Unit / Total Confirmation Add Quote
 Unschedule Selection Remove Subtotal Calculator Refresh Benchmarks Import / Update CBS
 Calculate Plug Days Update Quantity Checking Roll Up Quantities Data Source

4.1.1.2
 + 4.1.1.3 Blended Materials Tanks 3.00 Each
 4.1.2 Refining Area 1.00 Each
 + 4.1.2.1 Install Heating System 1.00 Each
 + 4.1.2.2 Separator Tank 2.00 Each
 + 4.1.3.2 Install Cooling Columns 1.00 Each
 4.2 Removal of Underground Storage Tanks 2.00 Each
 + 4.2.1 Remove & Dispose Contents 2.00 Each

Refresh Benchmarks
 Last refresh: N/A
 Jobs matching filter criteria: 2
 Refresh Now Cancel

\$4,797.71 0.02 0.02 0.02

Change the CBS Register view to Benchmark. Benchmark data is now populated for the cost items where the matching criteria fields matched in the benchmarkable jobs.

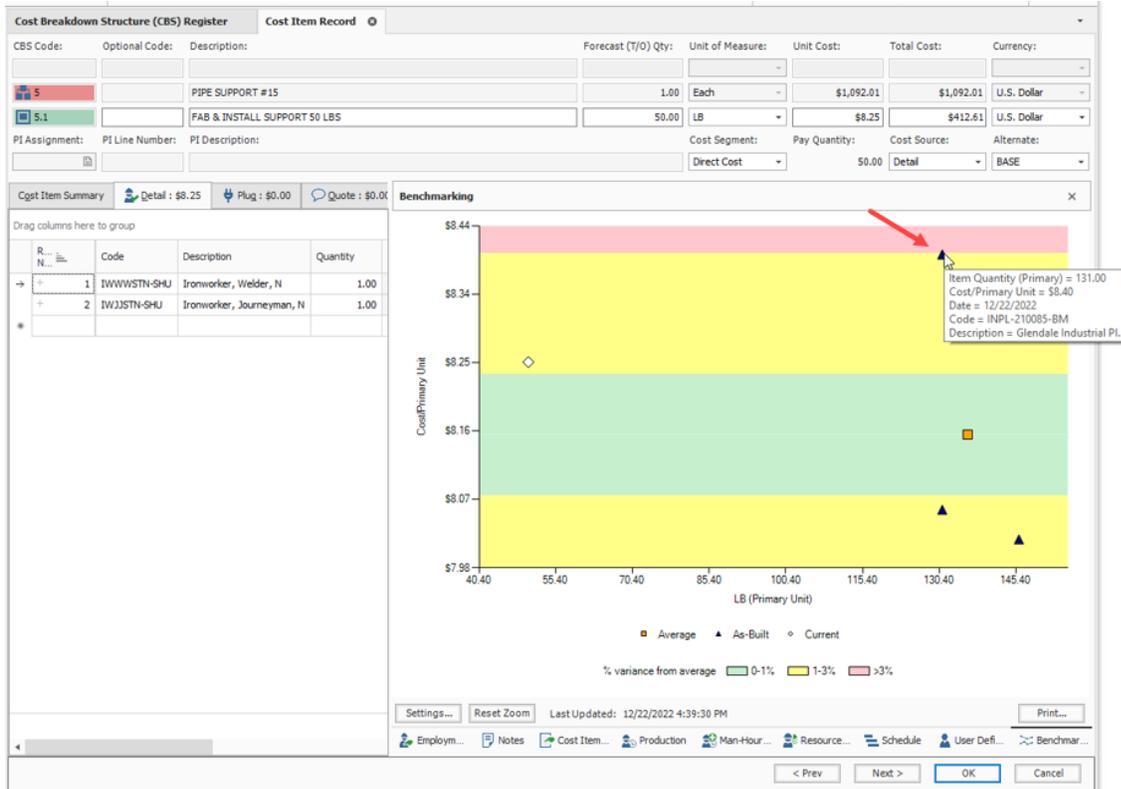
Job Properties Cost Breakdown Structure (CBS) Register

Drag columns here to group

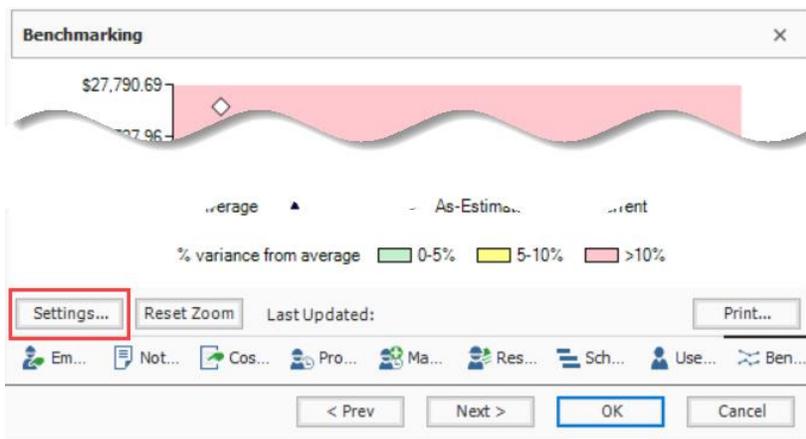
Saved views: Benchmark View

| CBS Position Code | Description | Forecast (T/O) Quantity | Unit of Measure | Unit Cost | Unit Cost (variance) | Benchmark Units/MH (std. dev.) | Benchmark Unit Cost (low) | Benchmark Unit Cost (high) | Benchmark Unit Cost (average) | Benchmark Unit Cost (% variance) | Benchmark Unit Cost (std. dev.) | Benchmark Data Points |
|-------------------|---|-------------------------|-----------------|------------|----------------------|--------------------------------|---------------------------|----------------------------|-------------------------------|----------------------------------|---------------------------------|-----------------------|
| 1 | STRUCTURAL GENERAL | 1.00 | Each | \$1,051.60 | 0.00 | 0.00 | \$0.00 | \$0.00 | \$0.00 | 0.00 | 0.00 | 0 |
| 1.1 | Mobilize & Demobilize Equipment, T... | 1.00 | Each | \$1,051.60 | 0.00 | 0.00 | \$0.00 | \$0.00 | \$0.00 | 0.00 | 0.00 | 0 |
| 2 | PIPE SUPPORT #1 | 1.00 | Each | \$526.30 | \$89.49 | 23.15 | \$1,291.21 | \$2,372.52 | \$1,923.99 | -72.05 | 3.04 | 3 |
| 2.1 | FAB & INSTALL SUPPORT 30 LBS (SD-15... | 10.00 | LB | \$7.65 | 100.54 | 7.45 | \$8.01 | \$8.40 | \$8.15 | -6.16 | 2.92 | 3 |
| 2.2 | 1/4" FILLET WELDS (FIELD WELDS) * | 2.00 | FT | \$224.89 | 110.08 | 9.89 | \$251.00 | \$262.50 | \$256.75 | -12.41 | 5.54 | 2 |
| 3 | PIPE SUPPORT #2 | 1.00 | Each | \$353.42 | 876.85 | 36.23 | \$1,291.21 | \$2,372.52 | \$1,923.99 | -81.63 | 3.41 | 3 |
| 3.1 | FAB & INSTALL SUPPORT 36 LBS | 16.00 | LB | \$7.50 | 100.54 | 7.45 | \$8.01 | \$8.40 | \$8.15 | -8.00 | 3.79 | 3 |
| 3.2 | 1/4" FILLET WELDS (FIELD WELDS) | 2.00 | FT | \$116.70 | 110.56 | 11.73 | \$110.45 | \$147.22 | \$130.87 | -10.83 | 0.93 | 3 |
| 4 | PIPE SUPPORT #7 | 1.00 | Each | \$4,829.05 | -33.22 | 1.37 | \$1,291.21 | \$2,372.52 | \$1,923.99 | 150.99 | 6.31 | 3 |
| 4.1 | FAB & INSTALL SUPPORT 105 LBS | 105.00 | LB | \$8.10 | 67.16 | 4.98 | \$8.01 | \$8.40 | \$8.15 | -0.67 | 0.32 | 3 |
| 4.2 | 3/16 TO 1/4" FILLET WELDS FAB | 11.00 | FT | \$116.70 | 110.56 | 11.73 | \$110.45 | \$147.22 | \$130.87 | -10.83 | 0.93 | 3 |
| 4.3 | CUT OFF & PREP AREA- EXISTING PIPE S... | 1.00 | Each | \$212.56 | 0.00 | 0.00 | \$0.00 | \$0.00 | \$0.00 | 0.00 | 0.00 | 0 |
| 4.4 | 180 FLG. FILLET FULL PEN WBX31 TO EX... | 4.00 | FT | \$620.59 | 101.48 | 0.00 | \$662.50 | \$718.75 | \$690.63 | -10.14 | 2.49 | 2 |
| 5 | PIPE SUPPORT #15 | 1.00 | Each | \$1,092.01 | 223.87 | 9.25 | \$1,291.21 | \$2,372.52 | \$1,923.99 | -43.24 | 1.81 | 3 |
| 5.1 | FAB & INSTALL SUPPORT 30 LBS | 50.00 | LB | \$8.25 | 100.54 | 7.45 | \$8.01 | \$8.40 | \$8.15 | 1.20 | 0.57 | 3 |
| 5.2 | 3/16" FILLET WELDS STIFFENERS | 4.00 | FT | \$116.70 | 110.56 | 11.73 | \$110.45 | \$147.22 | \$130.87 | -10.83 | 0.93 | 3 |
| 5.3 | DRILL 5/8" 4EA. | 4.00 | Each | \$26.55 | 92.31 | 0.00 | \$27.25 | \$27.25 | \$27.25 | -2.57 | 0.00 | 1 |
| 5.4 | BOLT UP 1/2" BASE SUPPORT 4 EA. | 4.00 | Each | \$20.42 | 216.67 | 0.00 | \$24.75 | \$24.75 | \$24.75 | -17.49 | 0.00 | 1 |
| 5.5 | GROUT BASE SUPPORT | 1.00 | FT2 | \$24.73 | 467.21 | 0.00 | \$67.33 | \$67.33 | \$67.33 | -63.27 | 0.00 | 1 |
| 6 | PIPE SUPPORT #19 | 1.00 | Each | \$728.58 | 260.34 | 10.76 | \$1,291.21 | \$2,372.52 | \$1,923.99 | -62.13 | 2.60 | 3 |
| 6.1 | FAB & INSTALL SUPPORT 26 LBS | 26.00 | LB | \$7.50 | 100.54 | 7.45 | \$8.01 | \$8.40 | \$8.15 | -8.00 | 3.79 | 3 |
| 6.2 | 1/4" FILLET WELDS L3 TO 1/2" PL | 1.00 | FT | \$116.70 | 110.56 | 11.73 | \$110.45 | \$147.22 | \$130.87 | -10.83 | 0.93 | 3 |
| 6.3 | DRILL 5/8" 4EA. | 4.00 | Each | \$26.55 | 92.31 | 0.00 | \$27.25 | \$27.25 | \$27.25 | -2.57 | 0.00 | 1 |
| 6.4 | INSTALL 1/2" HILTI KWIK ANCHOR BOLT... | 4.00 | Each | \$51.06 | 0.00 | 0.00 | \$0.00 | \$0.00 | \$0.00 | 0.00 | 0.00 | 0 |
| 6.5 | BOLT UP 1/2" BASE SUPPORT 4EA. | 4.00 | Each | \$20.42 | 216.67 | 0.00 | \$24.75 | \$24.75 | \$24.75 | -17.49 | 0.00 | 1 |
| 6.6 | GROUT BASE SUPPORT | 1.00 | FT2 | \$24.73 | 467.21 | 0.00 | \$67.33 | \$67.33 | \$67.33 | -63.27 | 0.00 | 1 |
| 7 | PIPE SUPPORT #22 | 1.00 | Each | \$1,408.76 | 110.48 | 4.56 | \$1,291.21 | \$2,372.52 | \$1,923.99 | -26.78 | 1.12 | 3 |
| 7.1 | FAB & INSTALL SUPPORT 70 LBS | 70.00 | LB | \$7.50 | 100.54 | 7.45 | \$8.01 | \$8.40 | \$8.15 | -8.00 | 3.79 | 3 |
| 7.2 | 1/4" FILLET WELDS L3 TO 1/2" PL | 4.00 | FT | \$116.70 | 110.56 | 11.73 | \$110.45 | \$147.22 | \$130.87 | -10.83 | 0.93 | 3 |
| 7.3 | DRILL 5/8" 4EA. | 4.00 | Each | \$26.55 | 92.31 | 0.00 | \$27.25 | \$27.25 | \$27.25 | -2.57 | 0.00 | 1 |
| 7.4 | INSTALL 1/2" HILTI KWIK ANCHOR BOLT... | 4.00 | Each | \$51.06 | 0.00 | 0.00 | \$0.00 | \$0.00 | \$0.00 | 0.00 | 0.00 | 0 |

Open a cost item and navigate to the Benchmark data block to view the scatter plot that shows various as-built data points designated with a blue triangle. Hover over the data point for a tool tip indicating further information about the data point, such as the name of the project, the date of the data, total quantity, and cost per unit.



In the Benchmarking data block, click **Settings** to further refine the chart options.



Settings include choosing which values to show on the horizontal or vertical axis, or manually choosing which data points to include in the scatter plot by removing any jobs that could potentially skew the range of reasonable values.

| Row Number | Code | Description | Include | Type | Date | Item Quantity (Primary) | Unit (Primary) | Cost/Primary Unit | Man-Hrs/Primary Unit |
|------------|------|--|-------------------------------------|--------------|-----------|-------------------------|----------------|-------------------|----------------------|
| → | BM 2 | Benchmarking for Account and CBS items | <input checked="" type="checkbox"/> | As-Estimated | 1/6/2014 | 23,750.00 | CY | \$5.97 | 0.07 |
| | BM 2 | Benchmarking for Account and CBS items | <input checked="" type="checkbox"/> | As-Built | 11/5/2021 | 50,000.00 | CY | \$1.86 | 0.01 |

Click the **Print** button in the data block to produce a report or export the data.

Benchmark Report
 INEIGHT - PAUL
 Job Code: BM 1
 Description: Benchmarking for Account and CBS items

As-Estimated Jobs Filter: ALL JOBS
 As-Estimated Items Filter: [CBS Position Code] EQUAL 1.2
 As-Built Jobs Filter: ALL JOBS
 As-Built Items Filter: [CBS Position Code] EQUAL 1.2

Benchmarking

| Data Point Type | Item Quantity (Primary) | Unit (Primary) | Cost/Primary Unit | Man-Hrs/Primary Unit | Primary Units/Man-Hr | Ratio (Primary / Secondary) | Item Quantity (Secondary) | Secondary Unit | Cost/Secondary Unit | Man-Hrs/Secondary Unit | Secondary Units/Man-Hr | Ratio (Secondary / Primary) |
|------------------|-------------------------|----------------|-------------------|----------------------|----------------------|-----------------------------|---------------------------|----------------|---------------------|------------------------|------------------------|-----------------------------|
| and Current | 40,000.00 | CY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| and Average | 38,875.00 | CY | 3.18 | 0.03 | 31.02 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| and As-Estimated | 23,750.00 | CY | 5.97 | 0.07 | 14.07 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |
| and As-Built | 50,000.00 | CY | 1.86 | 0.01 | 72.46 | 0.00 | 0.00 | | 0.00 | 0.00 | 0.00 | 0.00 |