ESTIMATE USER GUIDE

PROJECT COST MANAGEMENT

INEIGHT

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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
- Review and report on project information
- Integrate with MS Excel and scheduling software (MS Project or Oracle Primavera)
- Manage quotes and use additional time-saving tools

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 8	Quote Management
Lesson 9	Reporting
Lesson 10	Data Reproduction
Lesson 11	Excel Integration
Lesson 12	Schedule Integration
Lesson 13	Cash Flow
Lesson 14	InEight Estimate Calculators
Lesson 15	Cost Item Assemblies

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

Section	Description
	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

1.1 Overview of the Estimating Process 29
Step 1 – Enter Project Details 30
Step 2 – Enter Proposal Deliverables 31
Step 3 – Calculate Direct & Indirect Project Cost 31
Step 4 – Add Markup, Contingency, & Fees 32
Step 5 – Distribute Cost + Markup to required Structure 33
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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.

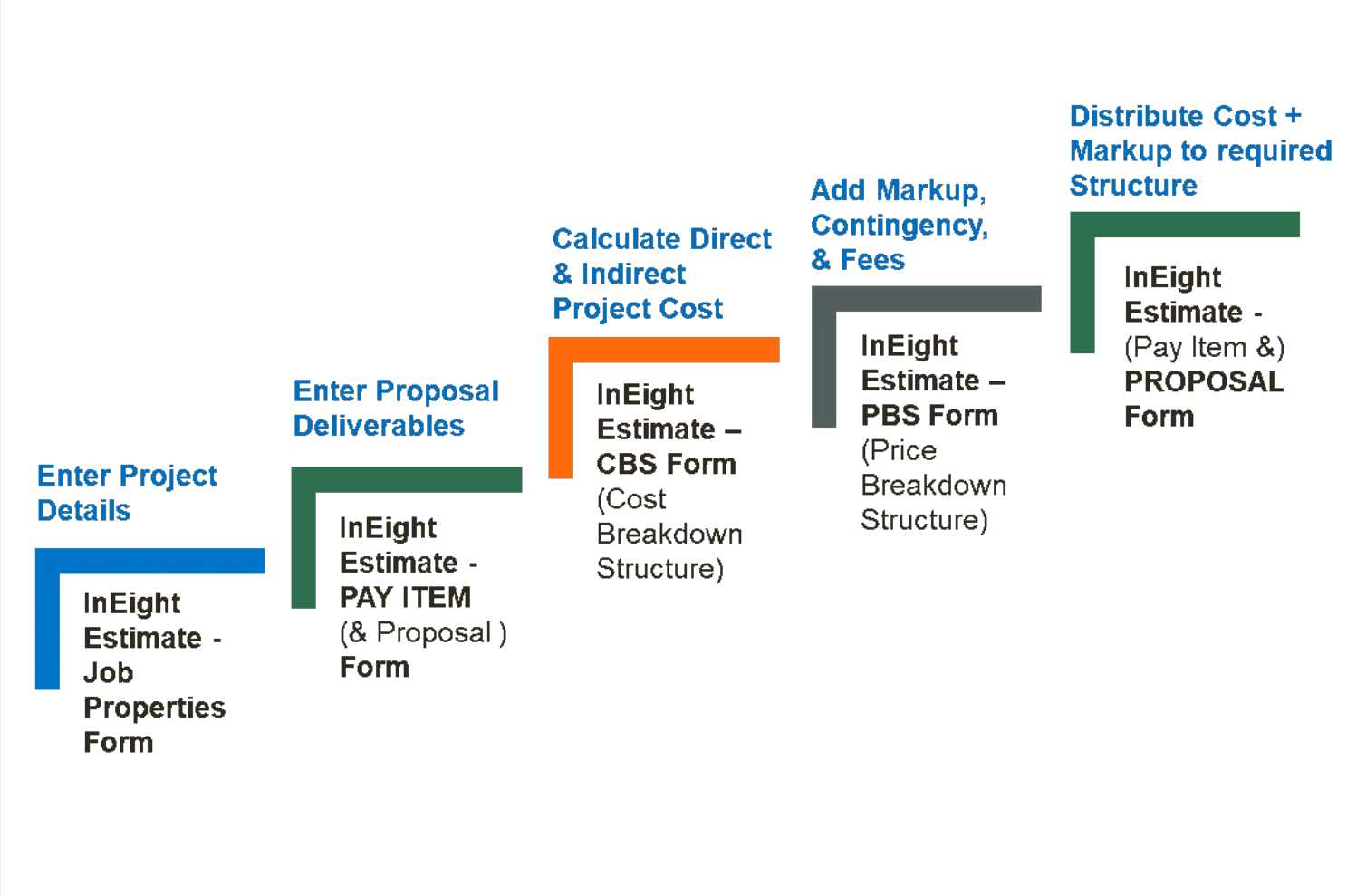
2. Enter proposal deliverables.

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:

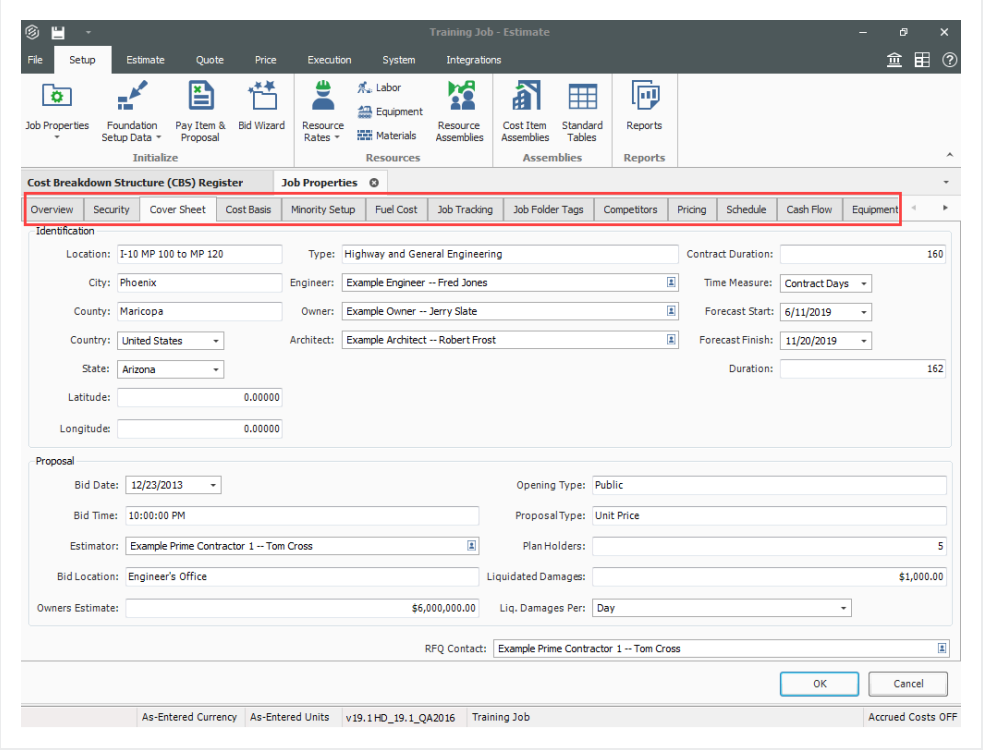
- Job Properties
- Pay Item & Proposal
- CBS (Cost Breakdown Structure)
- PBS (Price Breakdown Structure)

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.

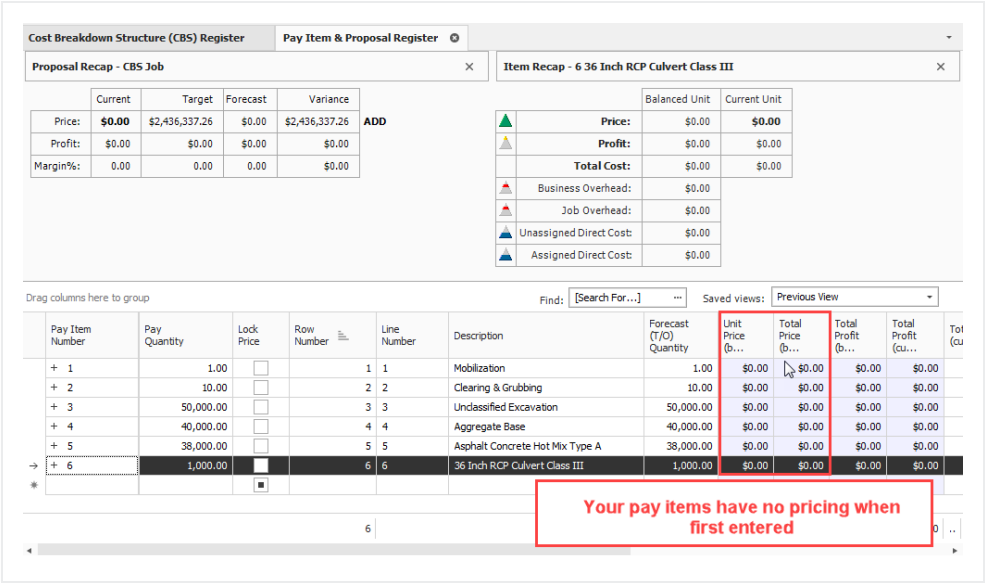


Step 2 – Enter Proposal Deliverables

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.

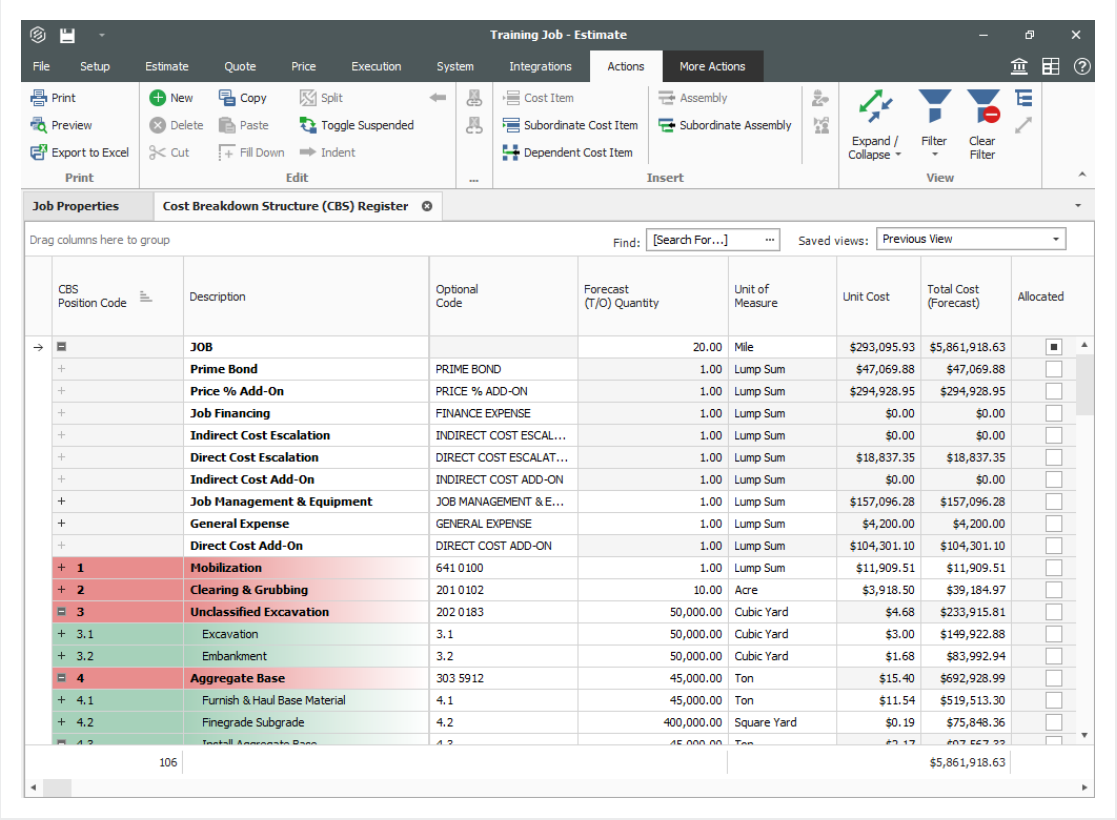


Step 3 – Calculate Direct & Indirect Project Cost

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.

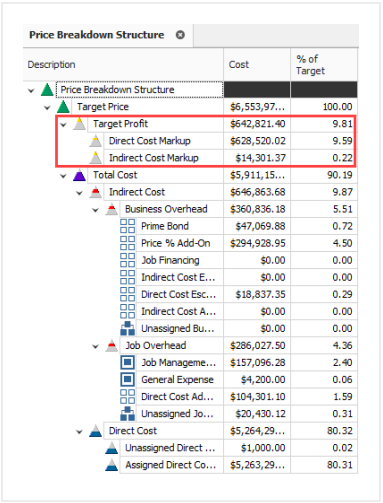
The **Cost Breakdown Structure (CBS**) **Register** is the main form where you will do your cost estimating.

- 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



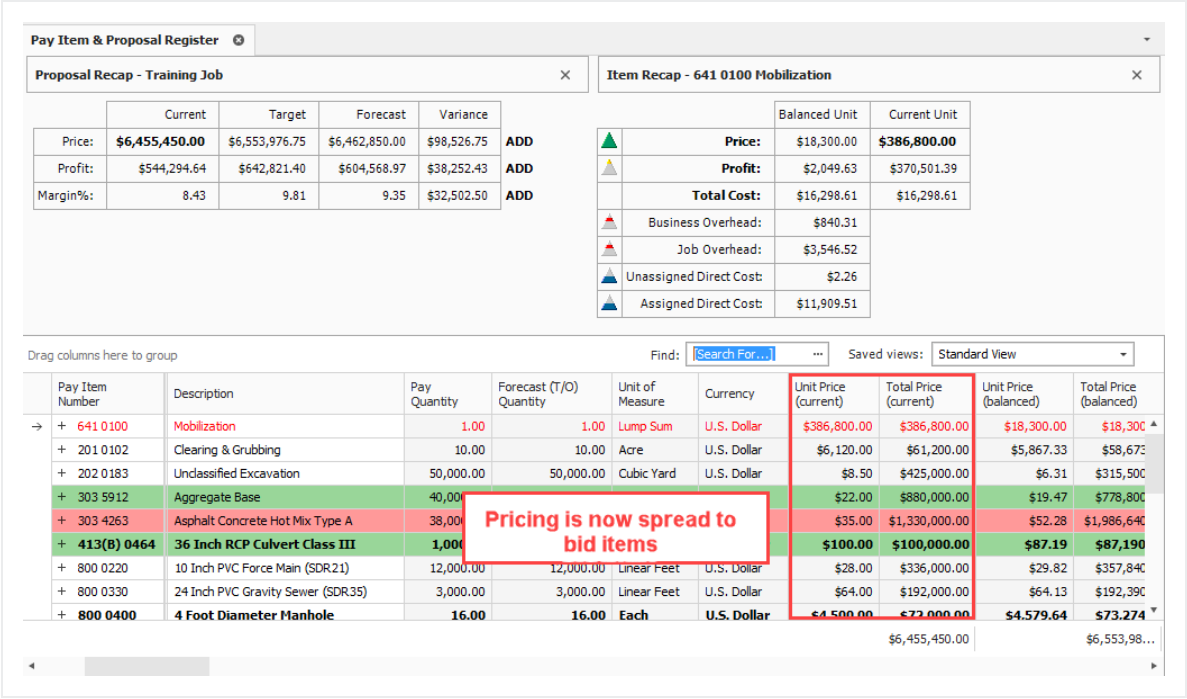
Step 4 – Add Markup, Contingency, & Fees

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.



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.



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.

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

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:

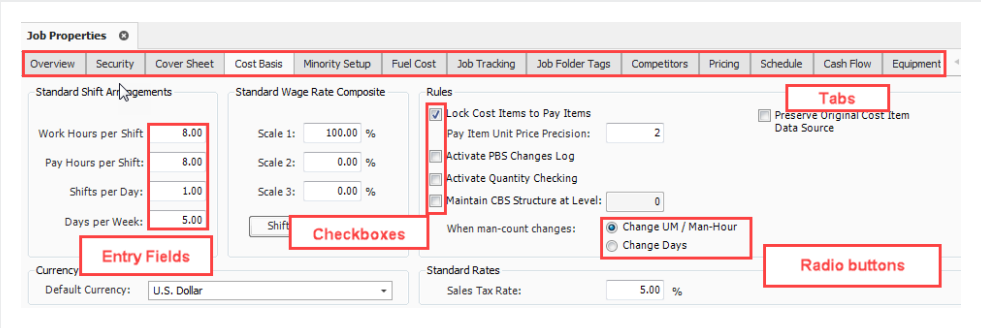
- Labor, equipment, and material unit cost rates
- Standard account codes
- Units of measure

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

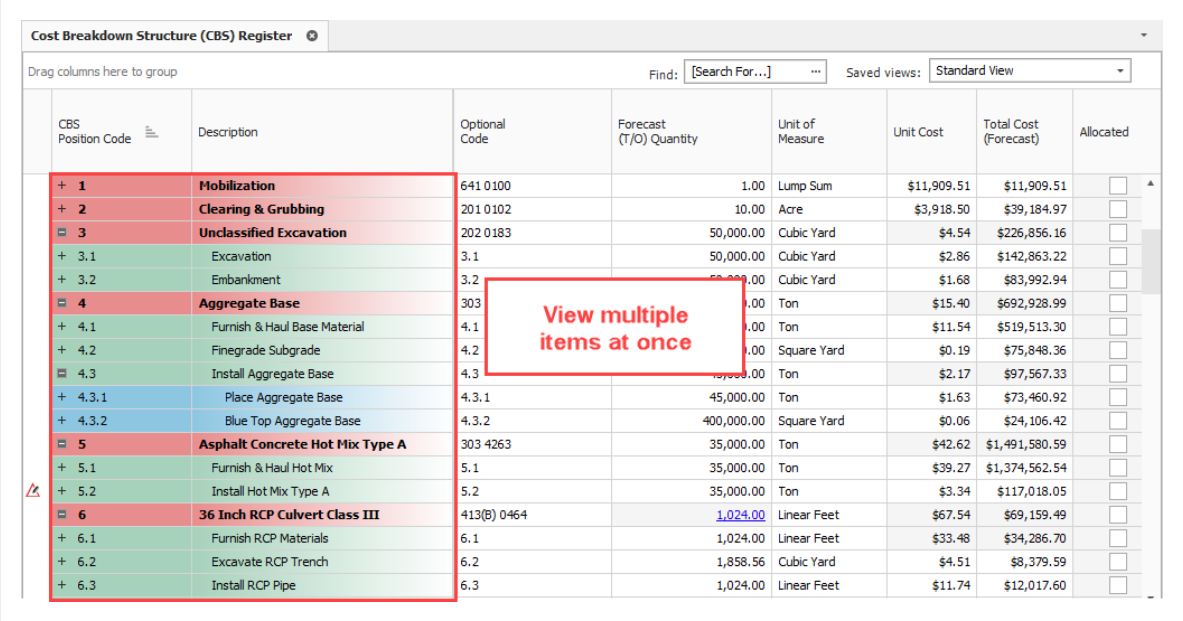
Any screen you open in InEight Estimate is considered a Form. There are three types of forms: Standard, Register, and Record forms.

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.



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.

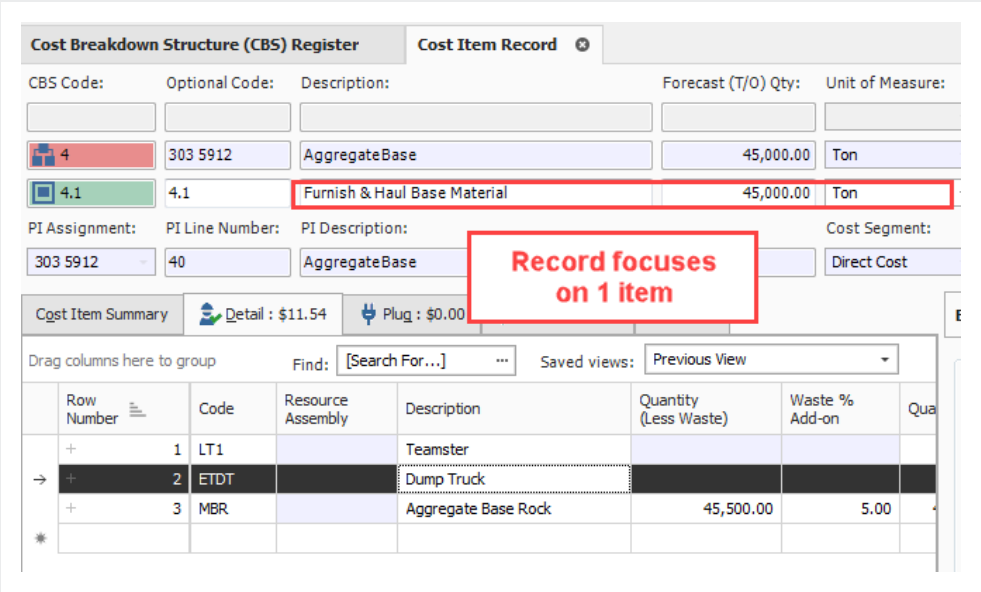
Register Forms have a grid format of rows and columns, giving it a spreadsheet look and feel. Register forms allow you to see information for multiple items at once. The Cost Breakdown Structure (CBS) Register is an example of a register form.



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

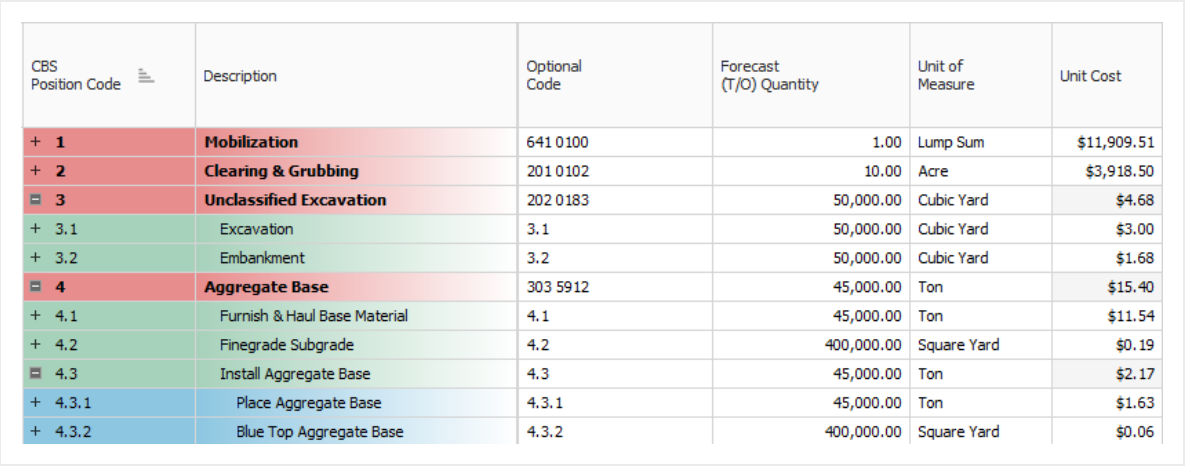
TIP The Tab key is the best way to move among fields in InEight Estimate (instead of the Enter key).

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



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**	**Mobilization**	641 0100	1.00	Lump Sum	$11,909.51
+ **2**	**Clearing & Grubbing**	201 0102	10.00	Acre	$3,918.50
− **3**	**Unclassified Excavation**	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**	**Aggregate Base**	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.

Pay Item Number	Line Number	Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Unit Price (current)	Total Price (current)
+ 641 0100	10	Mobilization	1.00	1.00	Lump Sum	$386,800.00	$386,800.00
+ 201 0102	20	Clearing & Grubbing	10.00	10.00	Acre	$6,120.00	$61,200.00
+ 202 0183	30	Unclassified Excavation	50,000.00	52,000.00	Cubic Yard	$8.50	$425,000.00
+ 303 5912	40	Aggregate Base	40,000.00	45,000.00	Ton	$22.00	$880,000.00
+ 303 4263	50	Asphalt Concrete Hot Mix Type A	38,000.00	35,000.00	Ton	$35.00	$1,330,000.00
+ **413(B) 0464**	**60**	**36 Inch RCP Culvert Class III**	**1,000.00**	**1,024.00**	**Linear Feet**	**$100.00**	**$100,000.00**
+ 800 0220	70	10 Inch PVC Force Main (SDR21)	12,000.00	12,000.00	Linear Feet	$28.00	$336,000.00
+ 800 0330	80	24 Inch PVC Gravity Sewer (SDR35)	3,000.00	3,000.00	Linear Feet	$64.00	$192,000.00

1.2.6 Resource

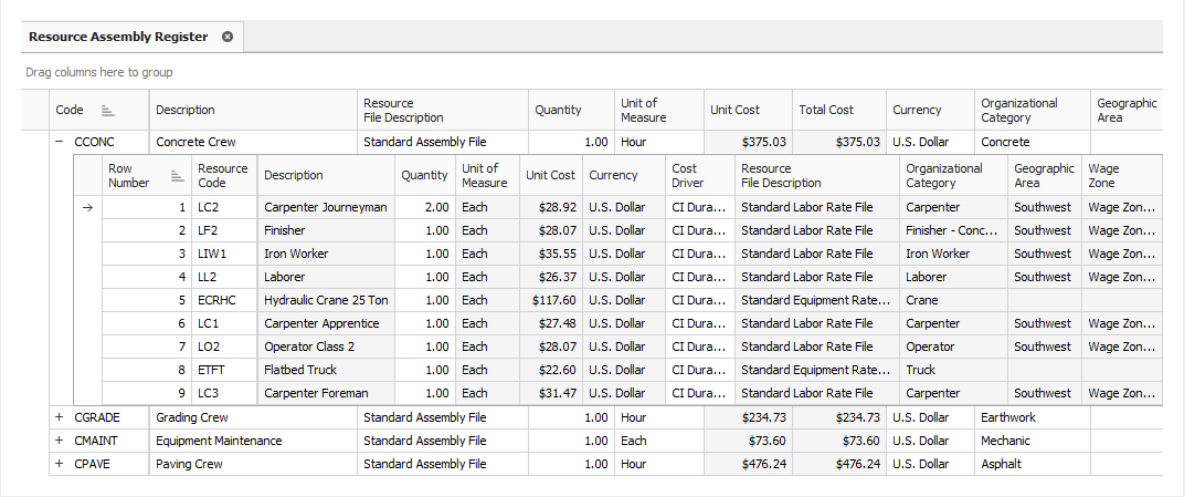
Resources are the building blocks of a detailed cost estimate..

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

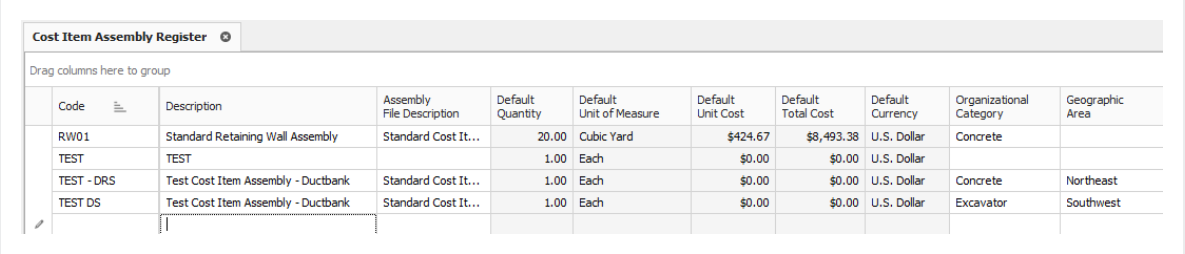
Code	Description	Resource File Description	Quantity	Unit of Measure	Unit Cost	Total Cost	Currency	Organizational Category	Geographic Area
− CCONC	Concrete Crew	Standard Assembly File	1.00	Hour	$375.03	$375.03	U.S. Dollar	Concrete	

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	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	$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 is costed 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

2.1 General Navigation 43
2.1.1 Backstage View 43
2.1.2 Overview – Backstage View 44
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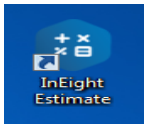
Lesson 2 Summary 67

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.

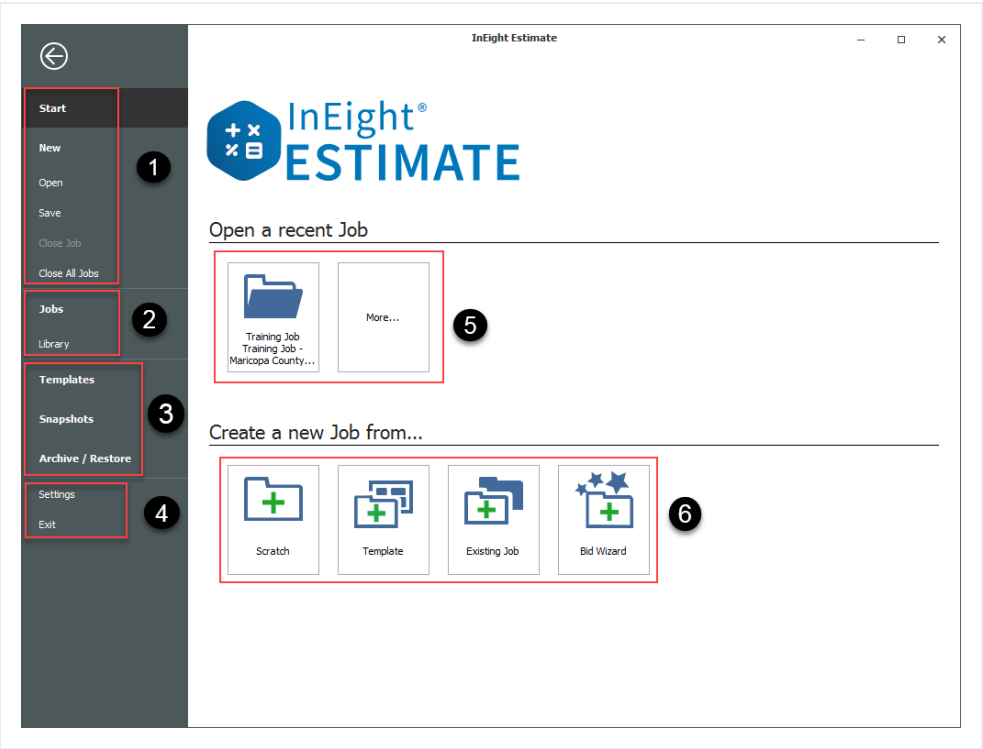
2.1.1 Backstage View

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	• Templates allows you to create Job templates. • You can create job snapshots or access previously created snapshots in the Snapshot Register. • You can also archive or back up and restore job folders.
Section 4	Settings allows you to customize options such as General settings, Account Code settings, Timesheet Warehouse settings, Licenses and Currency settings.
Section	From the Open a recent Job section of the Start page, you can open the Training job or click

Section	Description
5	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



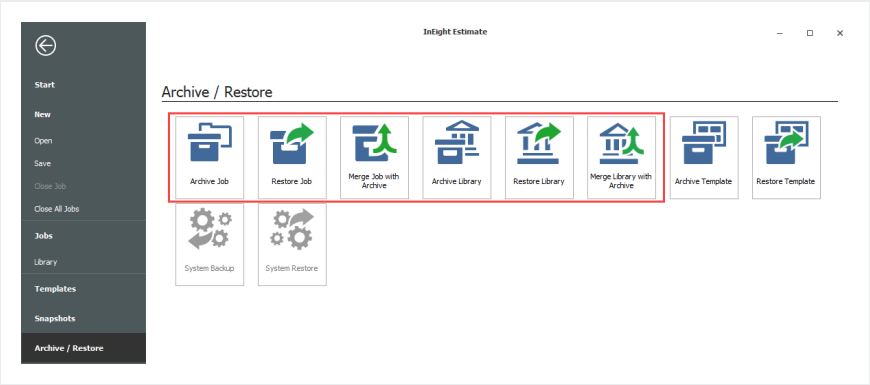
2.1.2.1 Archive / Restore

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



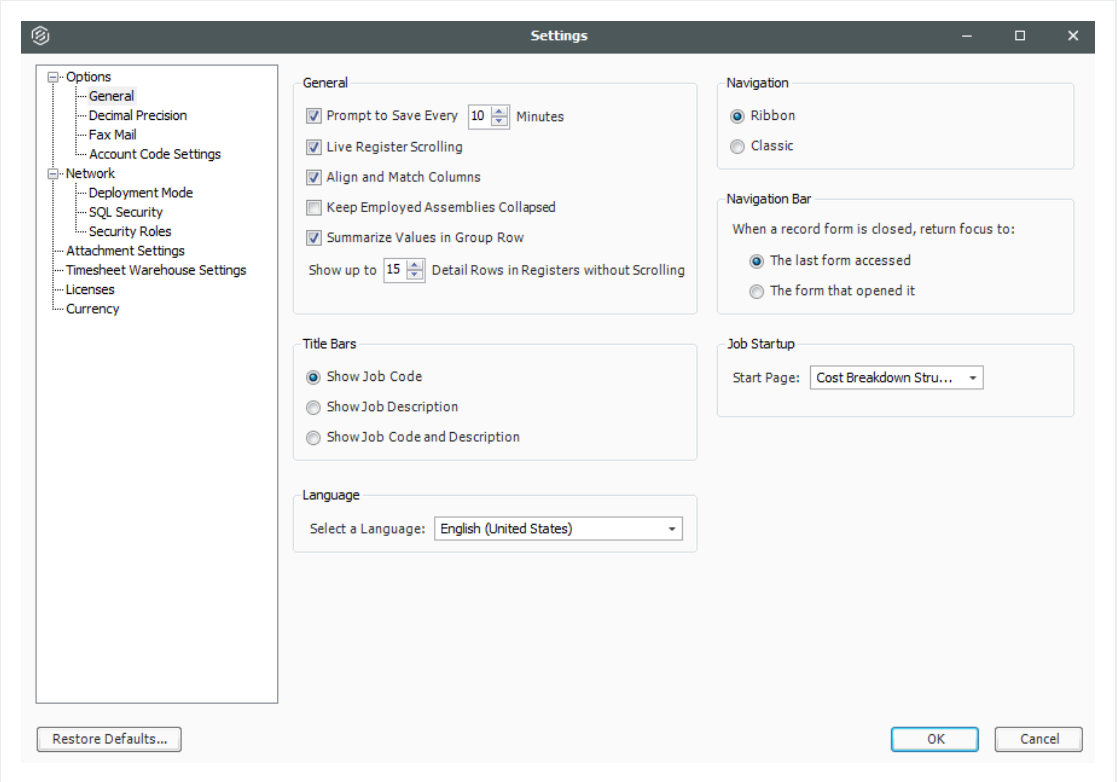
3. Select **Archive Job**.
    - The Job Register appears
4. Select the **Training Job**, then click **OK**.
5. When prompted to include attachments, click **Yes**.
    - The Save As window appears
6. Browse to where you want to save the job, then click **Save**.
7. To restore the job, select **Restore 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.

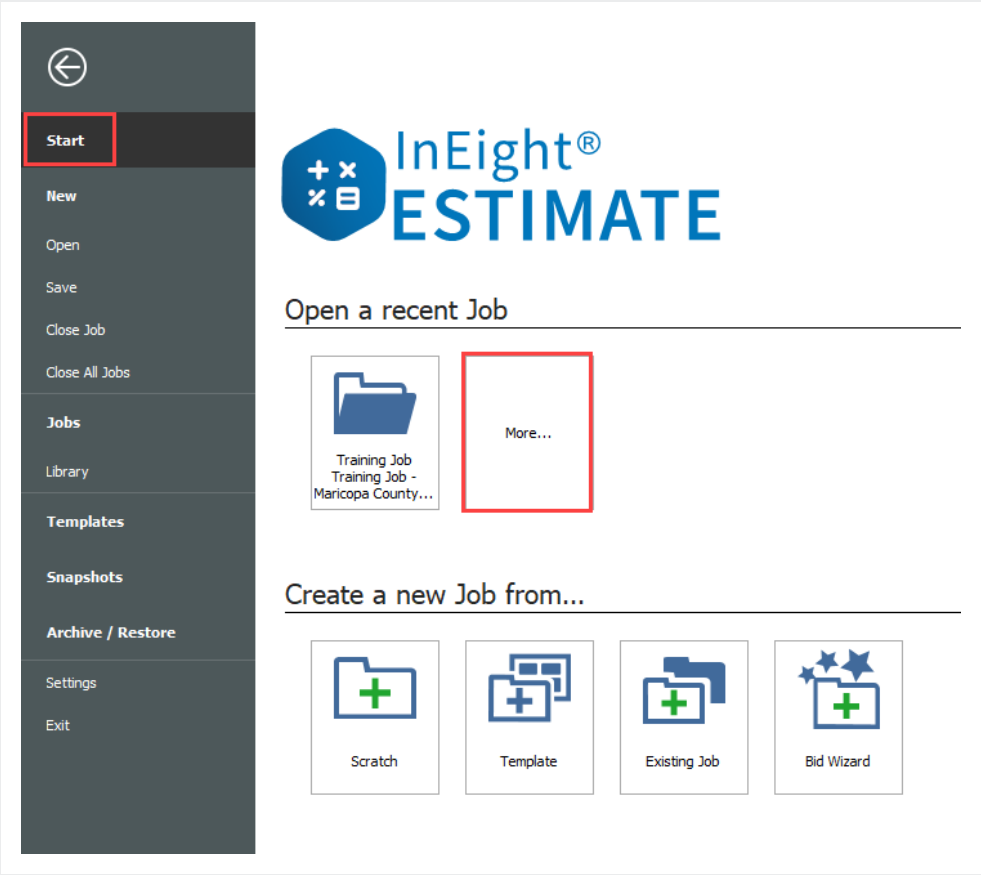
2.1.2.4 Decimal Precision

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.

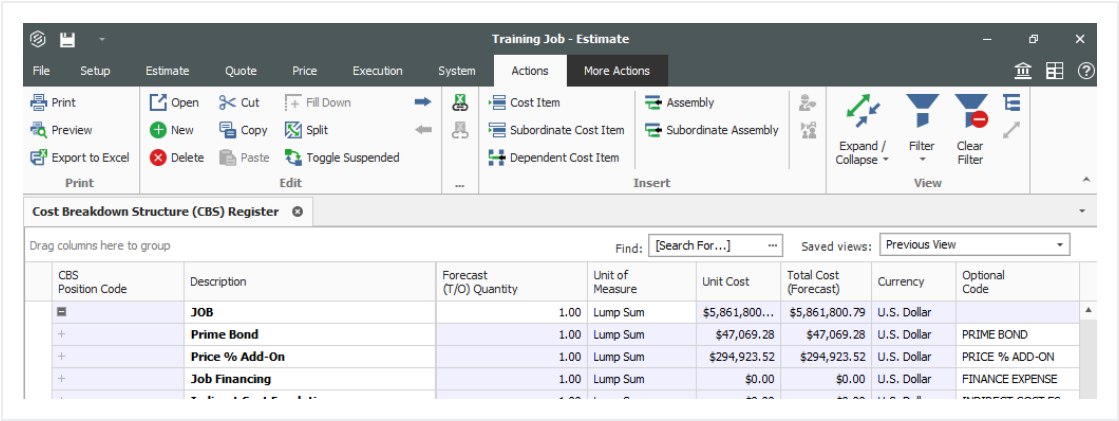
2.1.3 Open a Job Folder

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.

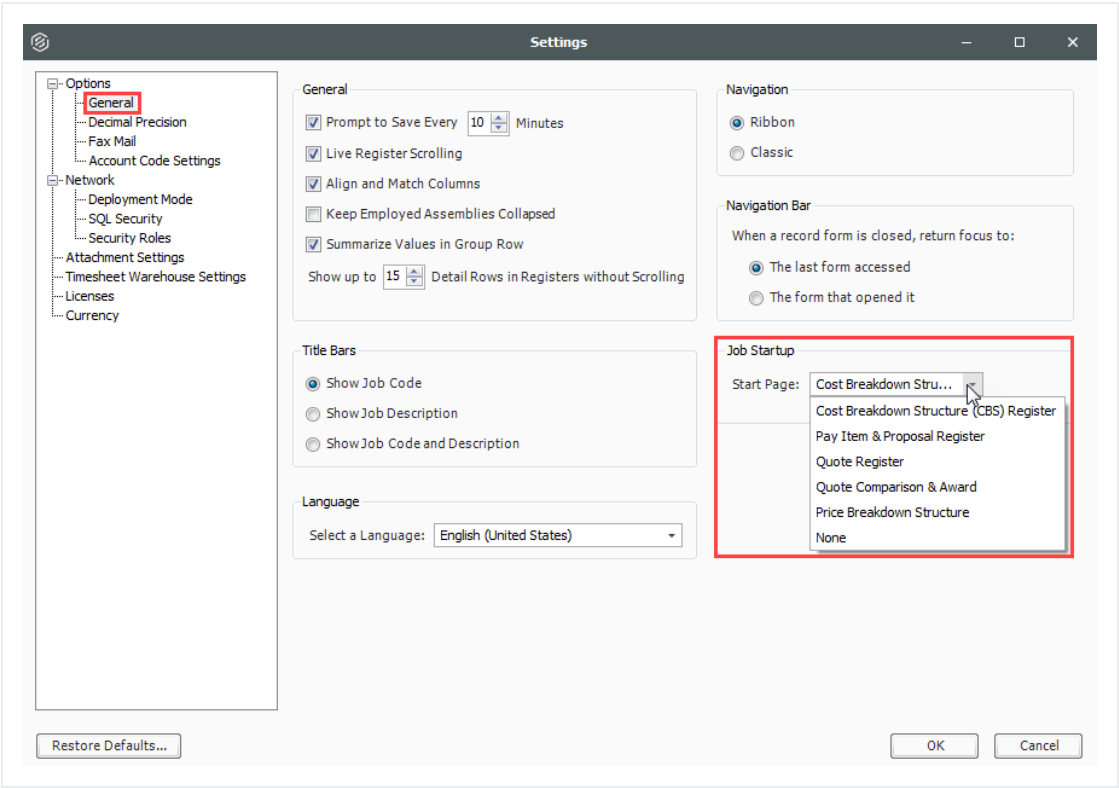


Step by Step — Open a Job Folder

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



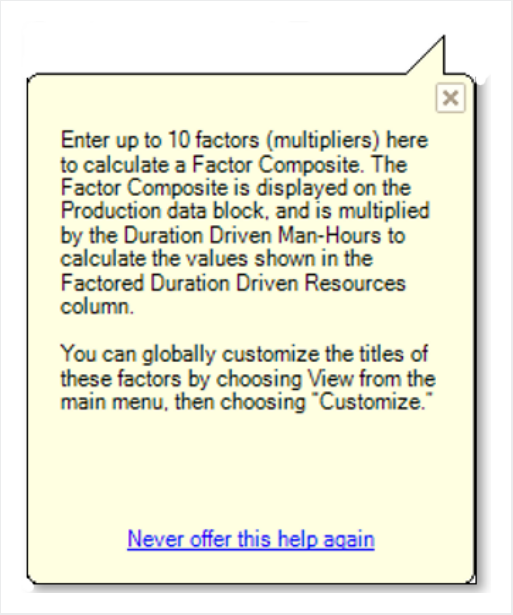
You can change the default form that opens when you start up a job. From the Backstage view, click on **Settings** to change the Job Startup > Start Page settings.



2.1.4 Help Bubbles

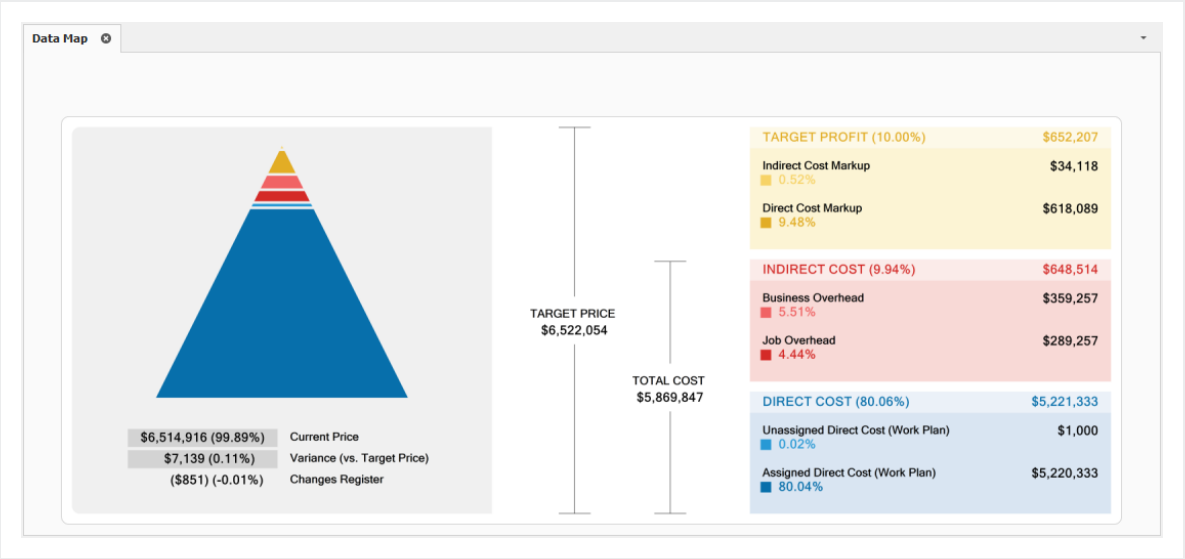
Help bubbles appear at various times in InEight Estimate, including the first time you open InEight Estimate. These messages contain important information to clarify key functions in the system.

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

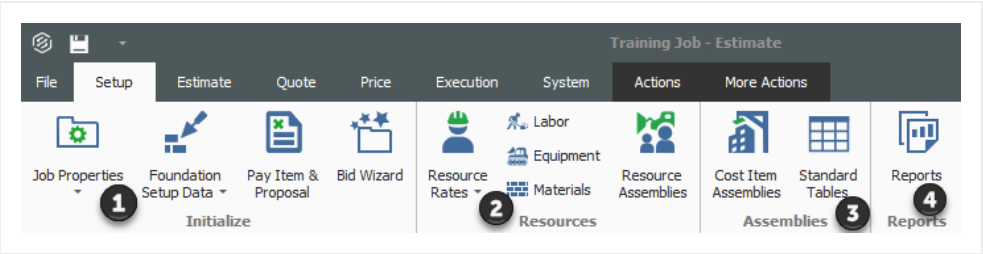
Found in the Price tab, the Data Map is a great way to view a high level summary of your estimate and can be accessed at any time during the estimating process. You can see totals of direct costs, indirect costs, profit, and overall bid price.



2.1.6 InEight Estimate Layout

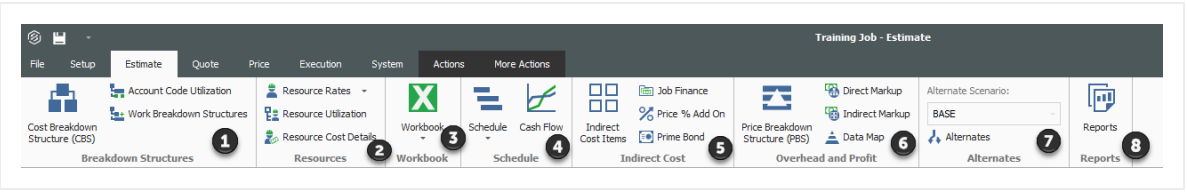
The layout of InEight Estimate is workflow based. You will move from left to right on the tabs as you enter your data for the project and work on developing your estimate.

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.

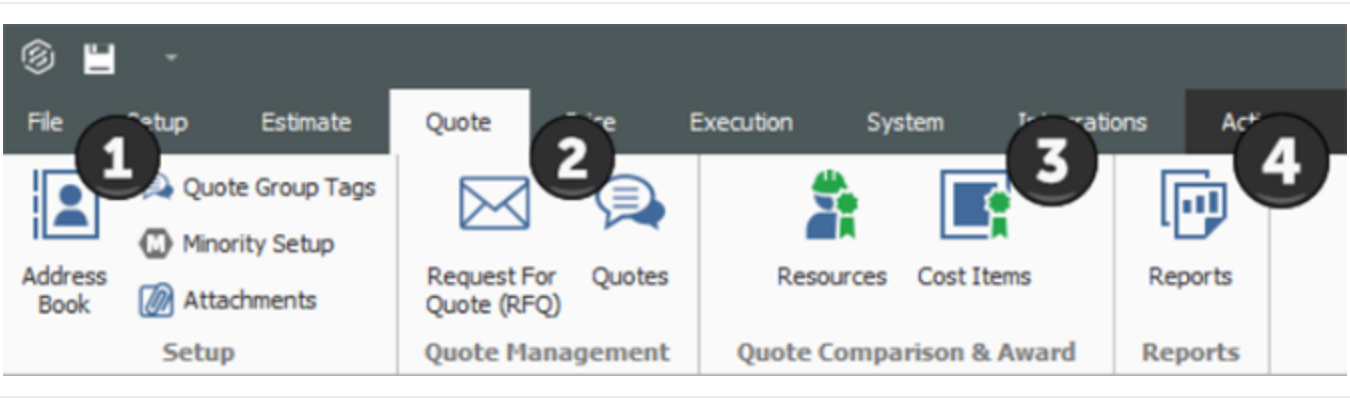
2.1.8 Overview – Estimate Tab



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 preform 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.
7	Alternates	Alternates are used to define alternate scenarios in order to assess the impact of

Section		Description
		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.

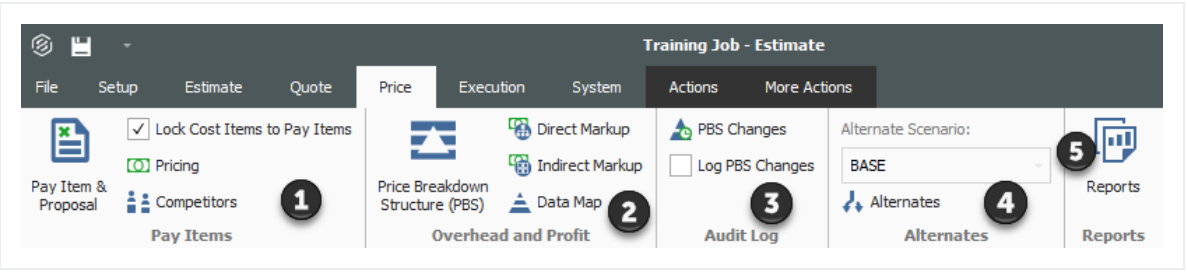
2.1.9 Overview – Quote Tab



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 Comparison & Award	The Quote Comparison & Award section allows you to perform comparative analysis across all the quotes you've received. You can view a comparison of submitted pricing by resources or cost items.

Section		Description
4	Reports	From the Reports section in Quotes you can run reports on Quote Summary, Quote Record, Compare & Award, and Minority Participation.

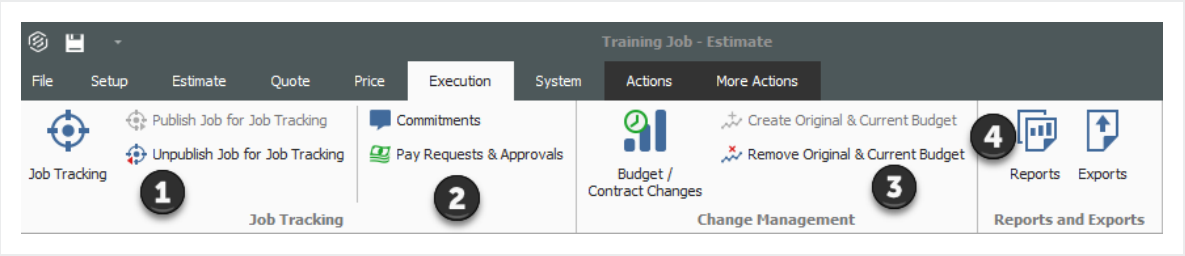
2.1.10 Overview – Price Tab



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.
4	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.

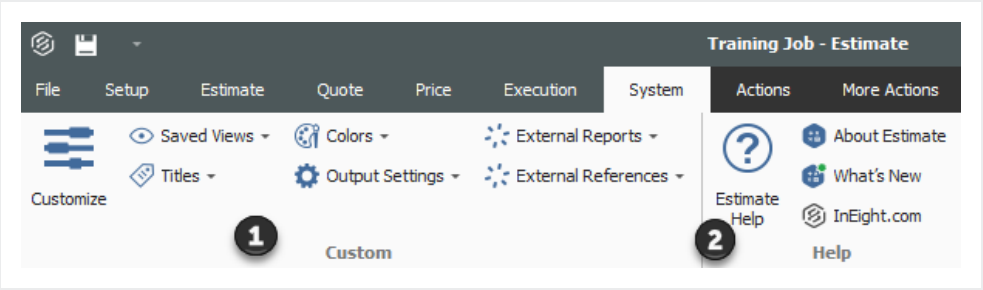
2.1.11 Overview – Execution Tab

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 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.

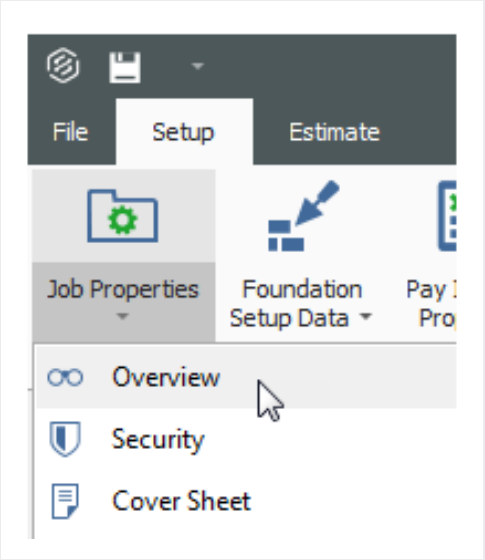
TIP *The Library is covered in greater detail in "3.1 Library Overview" on page 71*

2.1.14 Open Forms

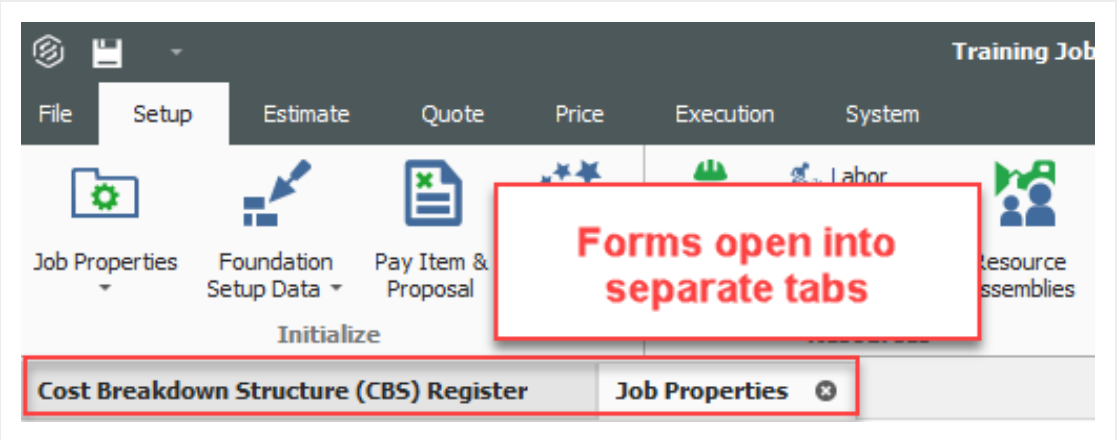
The following steps assume you already opened the Training Job.

Step by Step — Open Forms

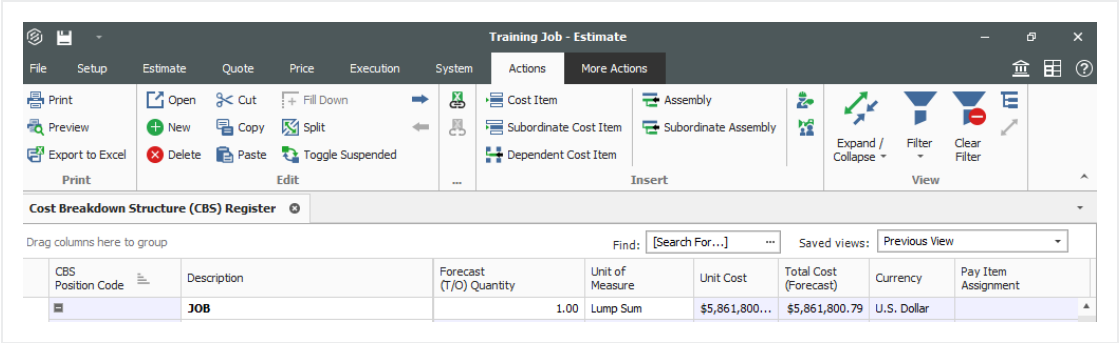
1. Click on the **Setup** tab.
2. In the Initialize section of the Setup tab, click on the **drop-down menu** for Job Properties and select **Overview** to open the Job Properties form.

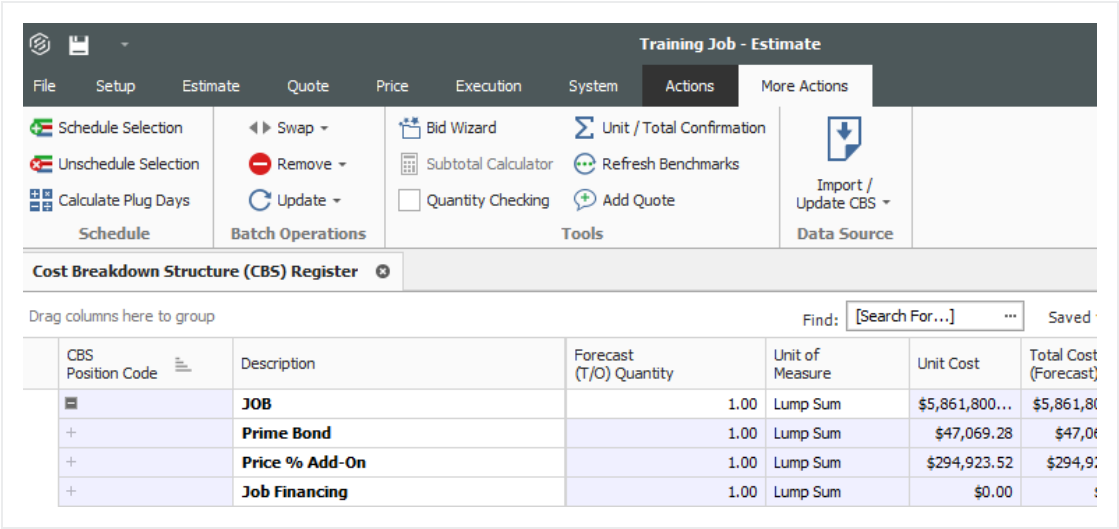


- Notice that each form opens in its own tab within the active job folder



- 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:

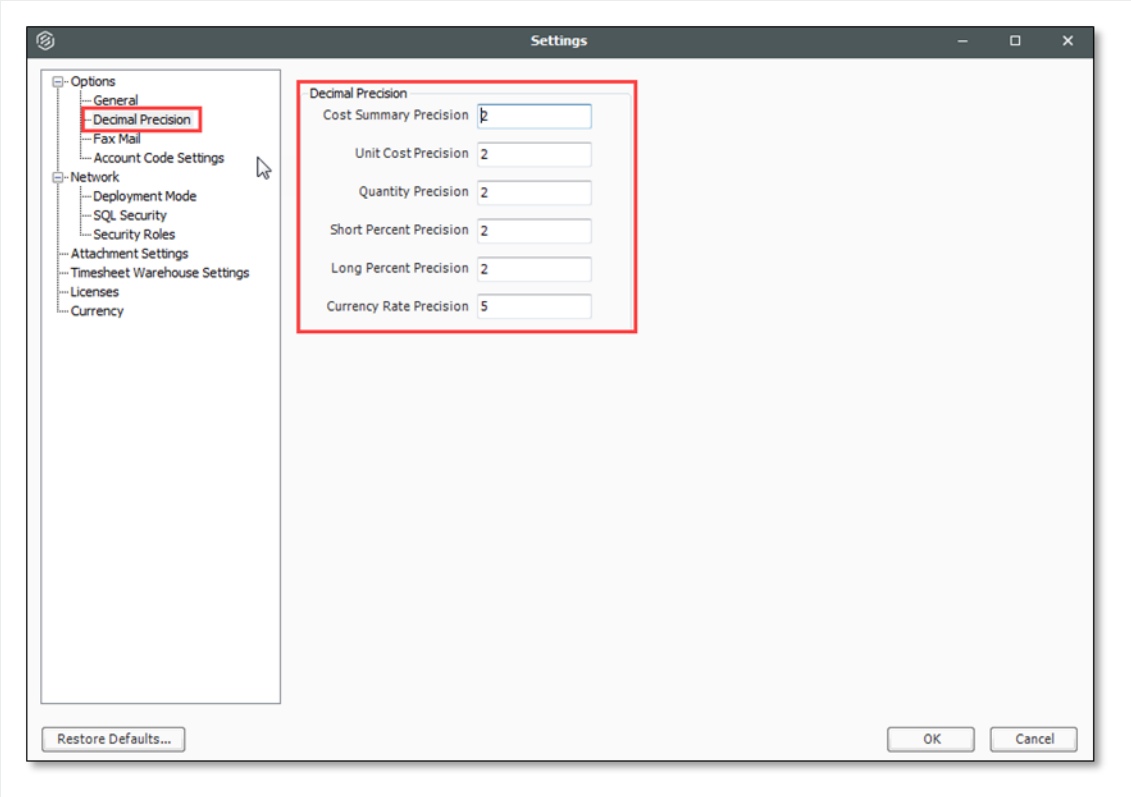
- General settings (options)
- Network settings
- Attachment settings
- Licensing information and settings
- Currency settings

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

Step by Step — System Settings

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

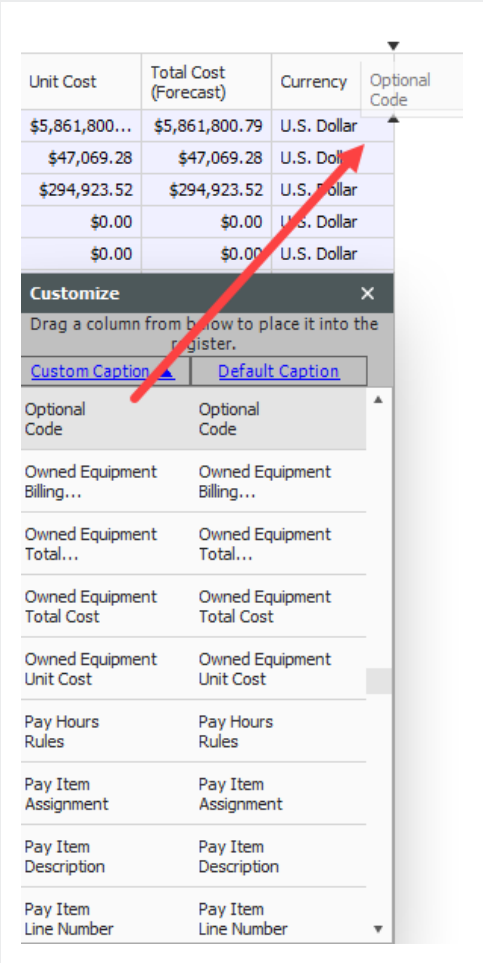
You can move columns by selecting a column header and using drag-and-drop. If there are columns on the register that you don't use, you can hide and unhide them from view, as needed.

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.

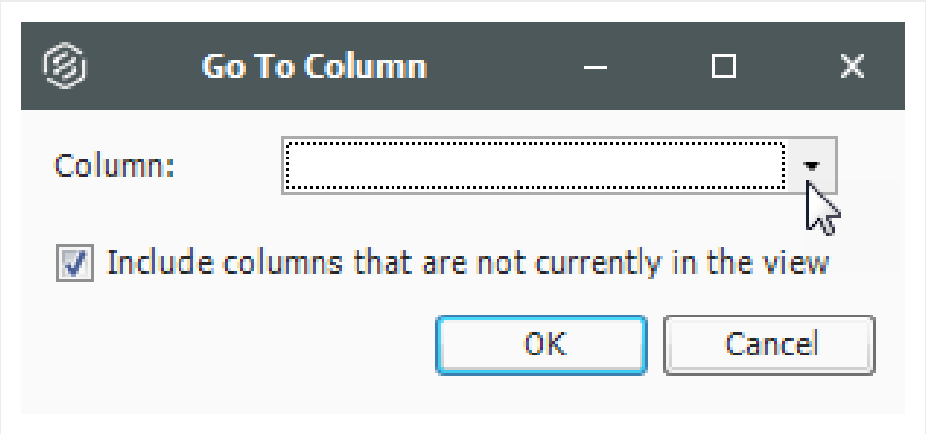
- The Optional Code is now hidden from view
- To unhide a column, right click on any column header and select **Column Chooser**; a Customization window appears, which contains all the hidden columns in that register

3. Find the column you want to unhide and drag-and-drop it to the location where you want it to go. In this case, drag the **Optional Code** and drop it to the right of the Currency column.



- 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.

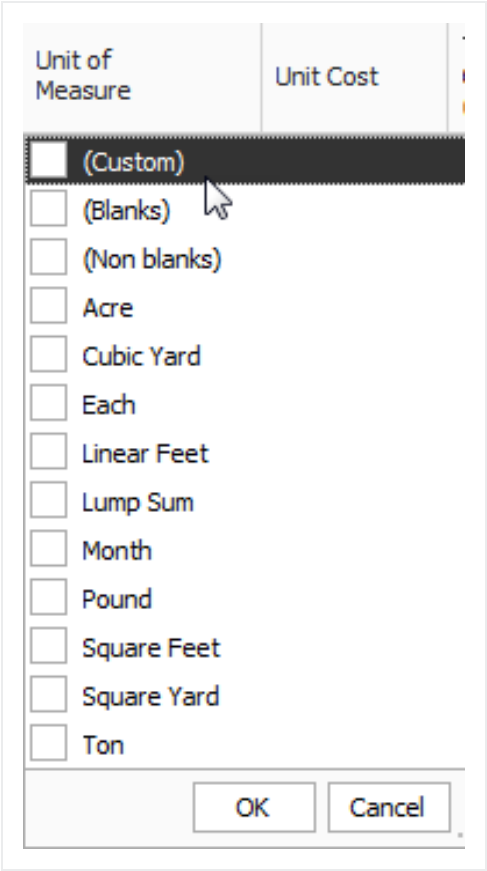
1. In the CBS Register, click on the **Total Cost (Forecast)** column to sort the column in ascending order (e.g., 1 to 10, A to Z).
2. Click the **Total Cost (Forecast)** column a second time to sort in descending order (e.g.,10 to 1, Z to A).
    - Cost Item 14 – Process Equipment should now be at the top of the list

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).



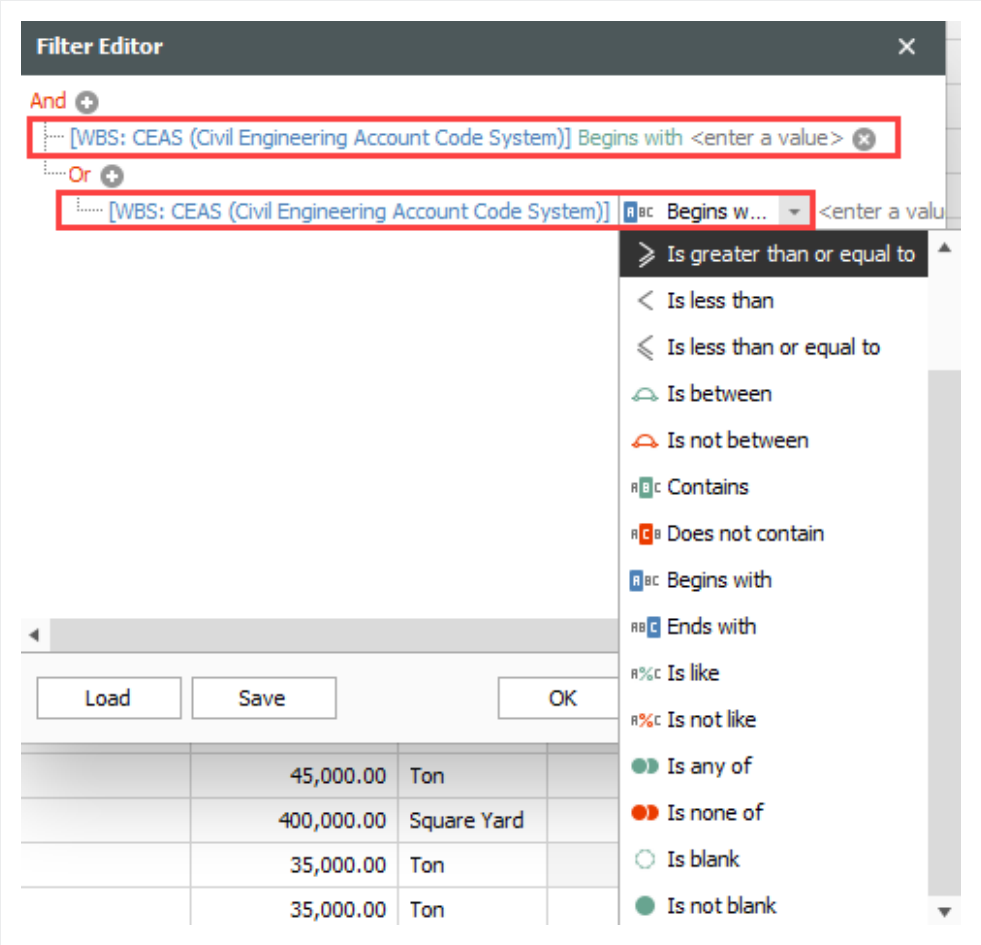
3. Select **Ton**, then click **OK**.
    - The register now only shows items that have the Ton unit of measure; a description of the filter, along with a red X, is found at the bottom of the form
4. To clear the filter, click on the **red X** at the bottom of the form or click on the filter icon on 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.

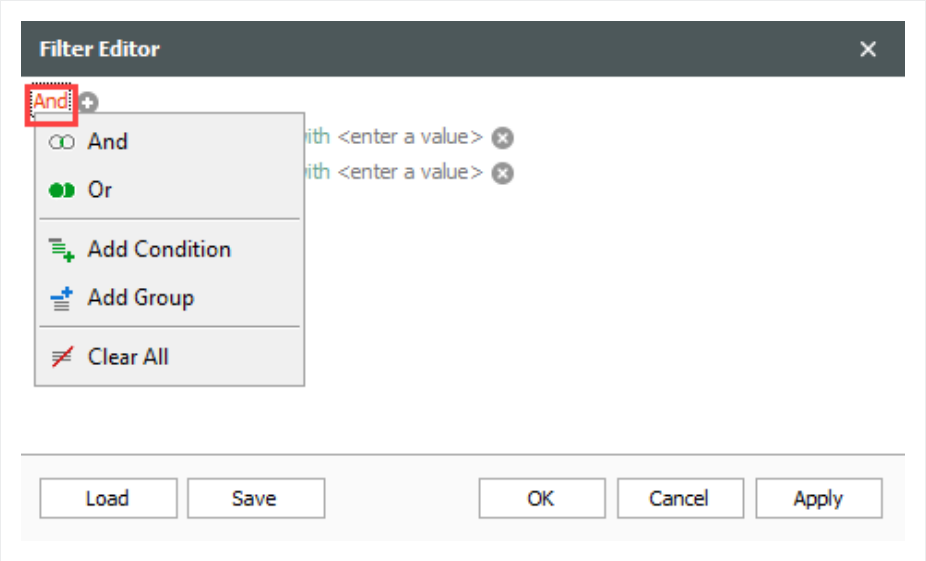
The Filter Editor grouping feature allows you to increase the amount of *And/Or* statements that originated from the first selected And statement. When you add a new Group, a new Condition is automatically added to that Group.

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.



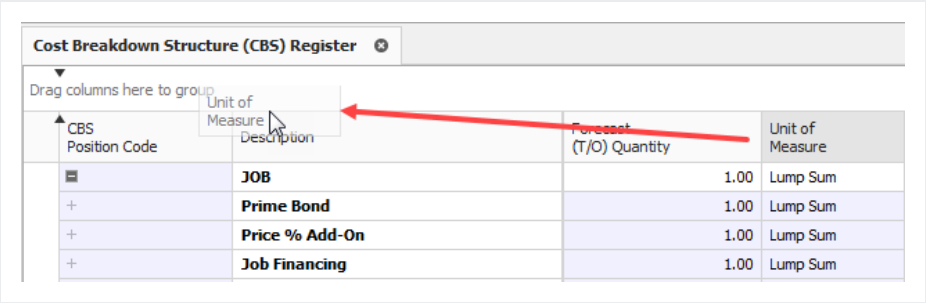
6. Choose which *And/Or* statement to add and then select the **preferred operator**.
7. Enter in your **preferred value** to complete your additional statement.
8. Select the **X** to delete a single statement.
9. Select the **And** statement in the top left corner to begin clearing all *And/Or* statements.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

2.3.3 Group Columns

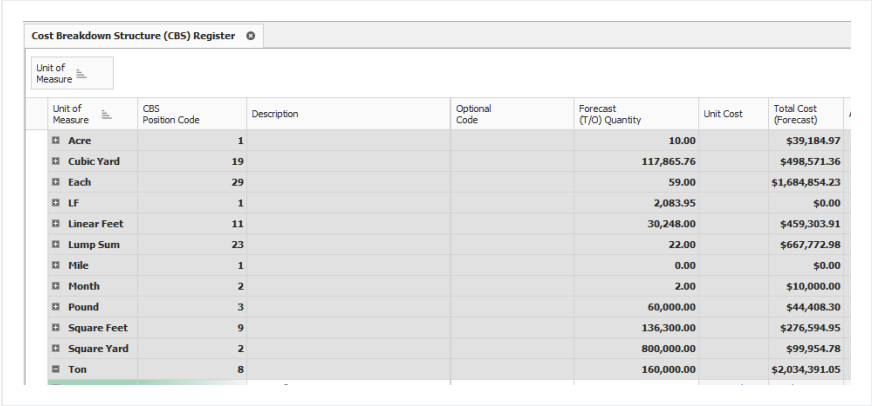
Sometimes you may want to organize your information into groups. Instead of filtering your information down to one value (e.g., unit of measure = Ton), you can look at your information with a separate group for each value (e.g., a group for Tons, a group for Cubic Feet, etc.).

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”).



- 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.



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

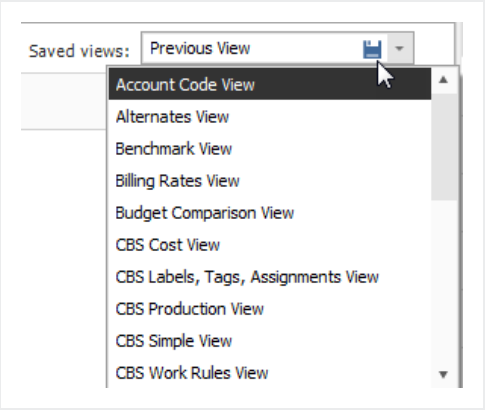
Once you have set up a view the way you like it, you can save the view so you won't have to configure it again later. InEight Estimate also comes with some pre-built views to help you organize the screen the way you want to see it.

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

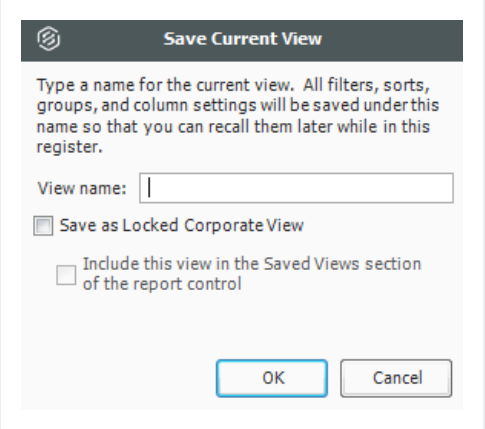
The following steps assume you have made changes to your register view and want to save it for future use.

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

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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

Lesson Topics

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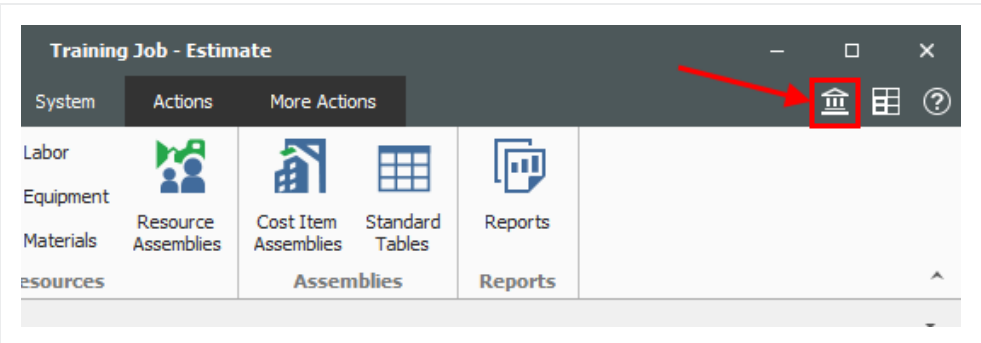
Lesson 3 Summary 104

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.



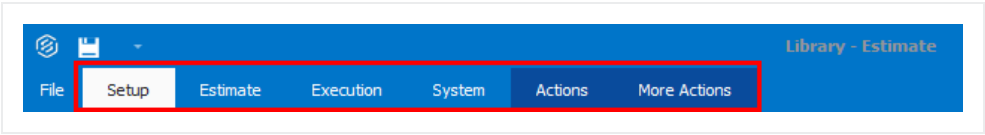
When the Library opens, you see ribbons available under the main menu tabs. Each Menu tab has unique sections which hold the necessary forms. In this lesson you will learn about each tab and their components.

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.



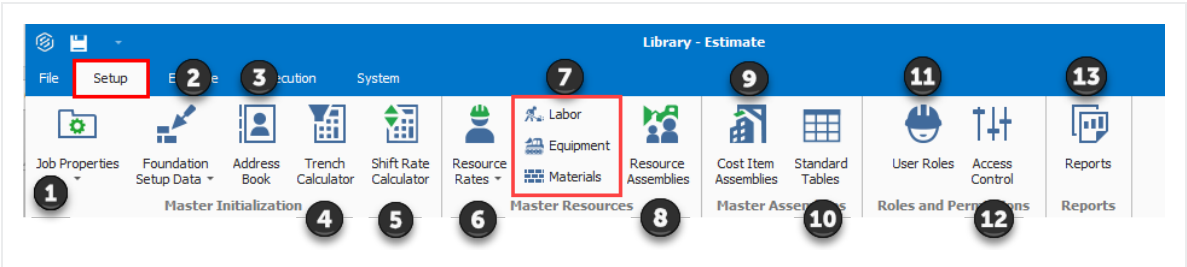
3.1.1.1 Setup Tab

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.
5	Shift Rate Calculator	Allows you to set up shift rate configurations that you can access at the project level.

Overview - Setup Tab (continued)

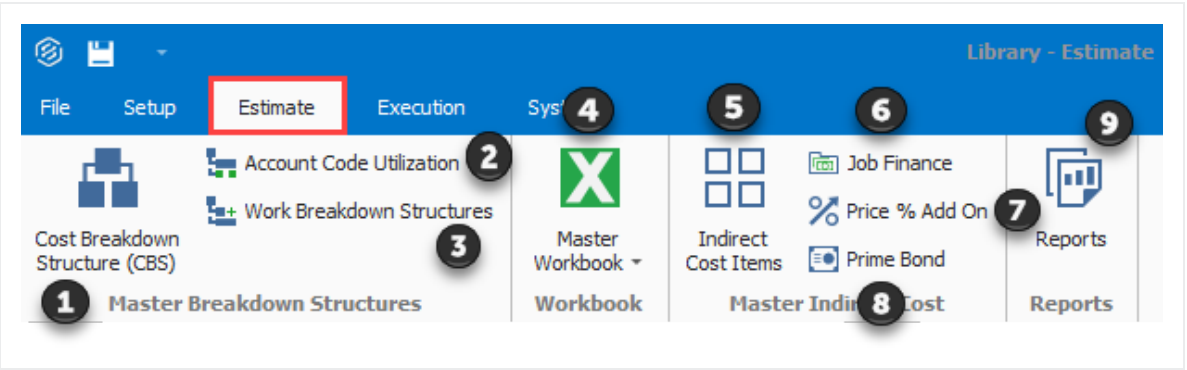
	Name	Description
6	Resource Rates	Opens the Library Resource Rate Register where you can create and edit all resources and resource cost details available for import into your projects.
7	Most Used Resources	For quick access to the Labor, Equipment and Materials tabs of the Master Resource Rate Register.
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

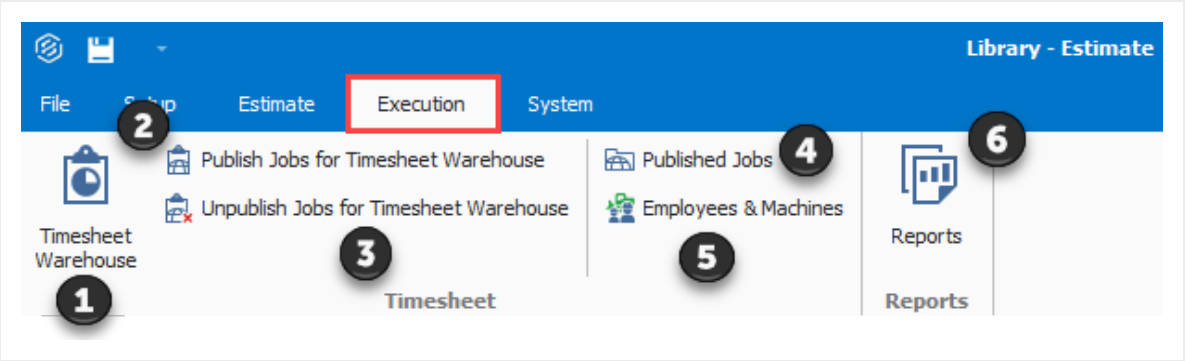
	Name	Description
1	Cost Breakdown Structure (CBS)	Opens the Library Cost Break Structure register, where you can define the CBS that will automatically import when a new project is created.
2	Account Code Utilization	Used to roll estimate line items into an account code hierarchy and benchmark against 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

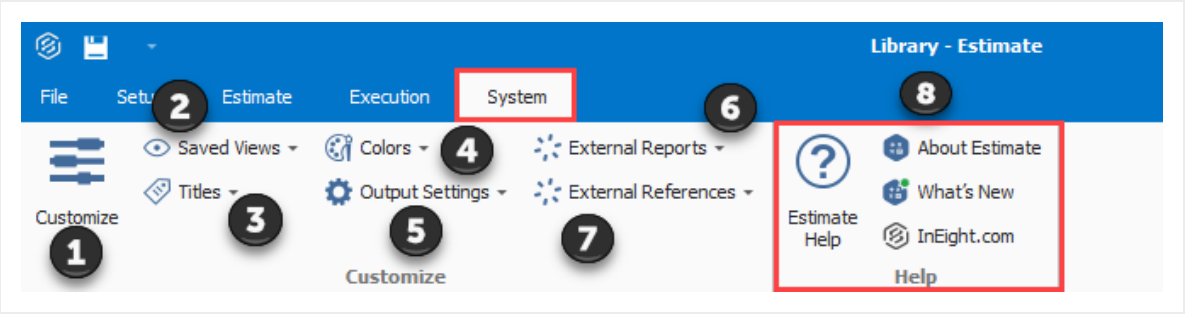
	Name	Description
1	Timesheet Warehouse	Used to document for any period of time (day, week, month, etc.) the employees and machines employed on a cost item (tracked by Account, Phase or CBS Code), how many hours they are employed and optionally, the quantity of work they accomplish.
2	Publish Jobs for 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

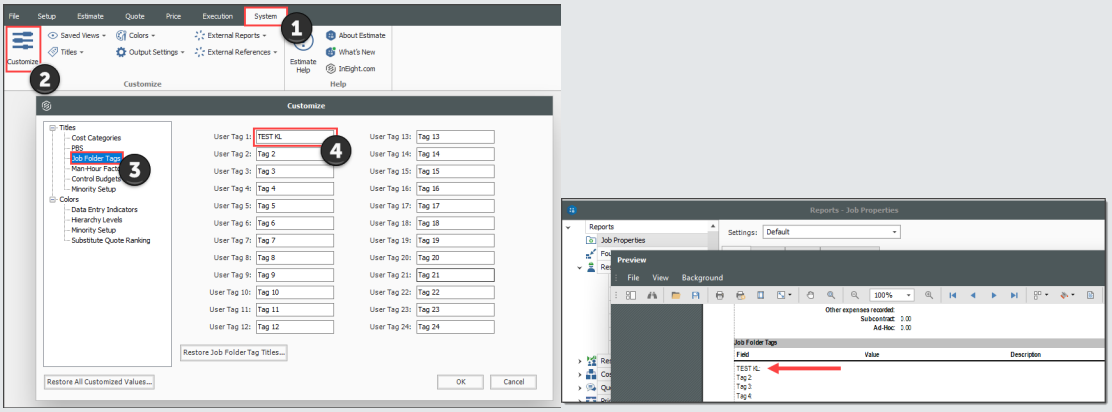
Overview - System Tab

	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.



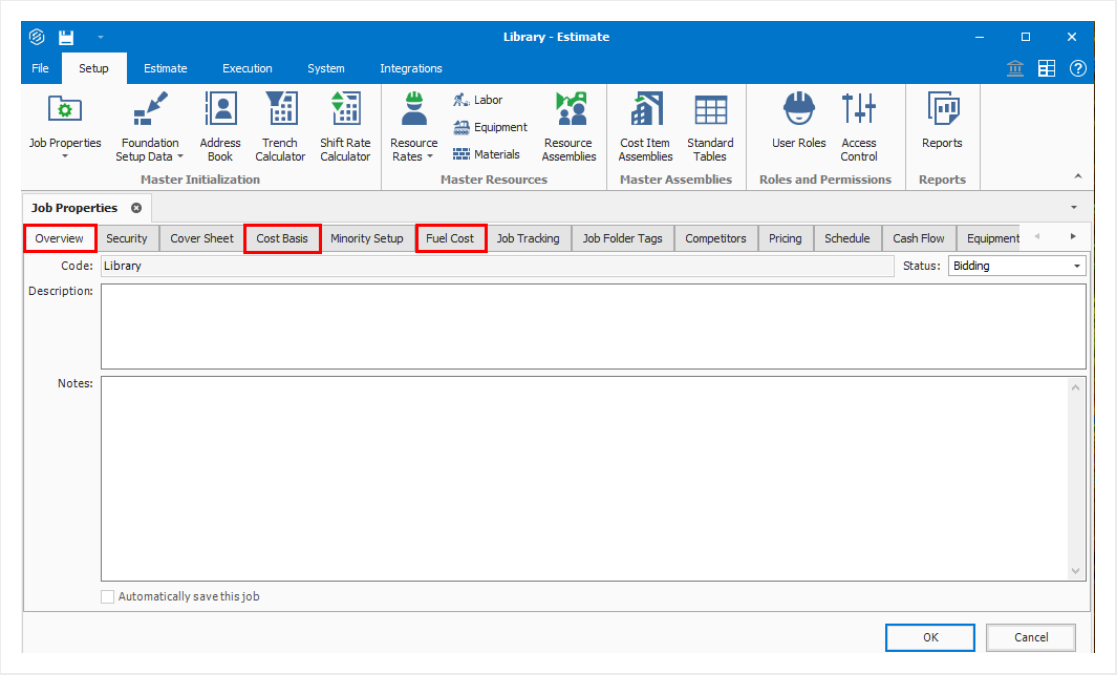
3.2 LIBRARY JOB PROPERTIES

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:

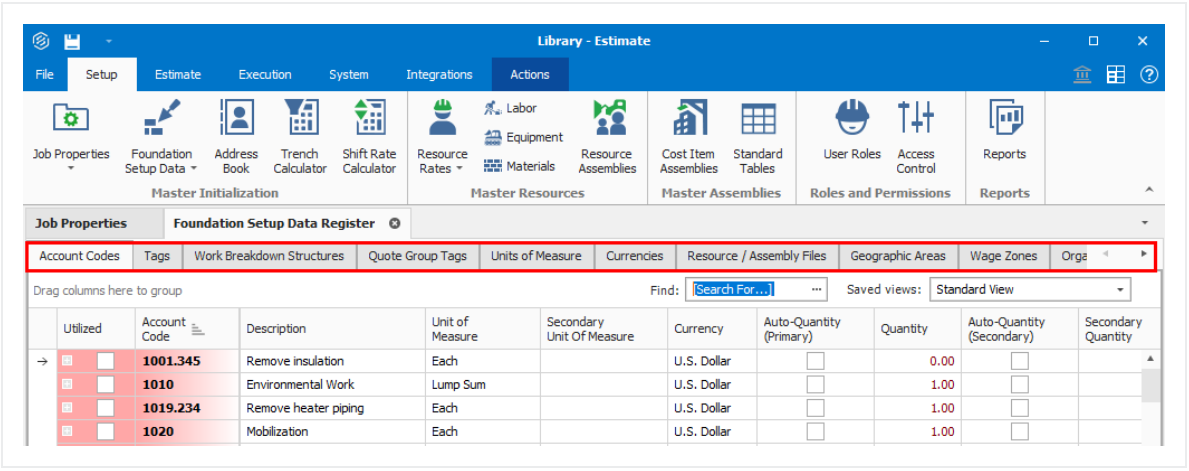
- **Overview Tab Notes Field**: Filling out the Notes section at the Library level would be helpful for any instructions or reminders that you want to display on all projects' Job Properties form. For example, "Always double check currency exchange rates"
- **Cost Basis Tab**: Shift arrangements may 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



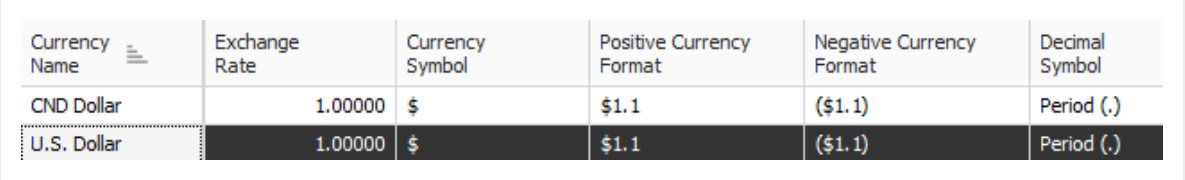
3.3 LIBRARY FOUNDATION SETUP DATA

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

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:

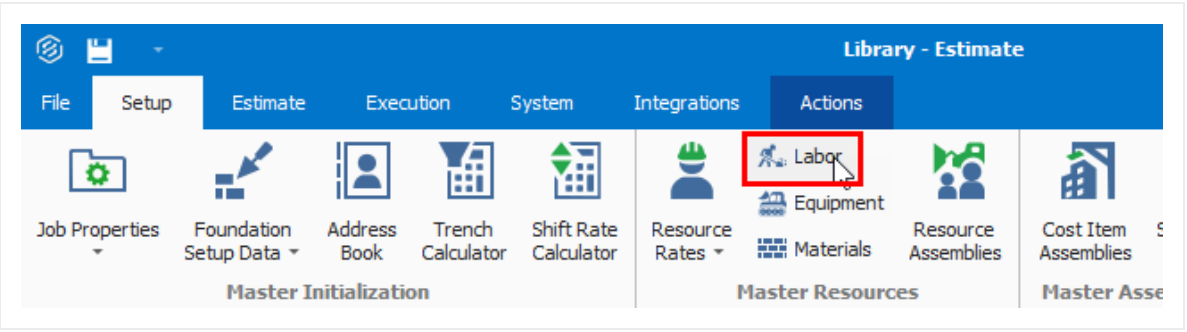
Resources	
Name	Description
Labor	The human resources that perform direct or indirect work. Direct labor is typically classified by trade (e.g., pipefitters, electricians, iron workers) and title (e.g., foreman, journeyman, laborer).
Construction Equipment	Owned construction equipment.
Rented Construction 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.

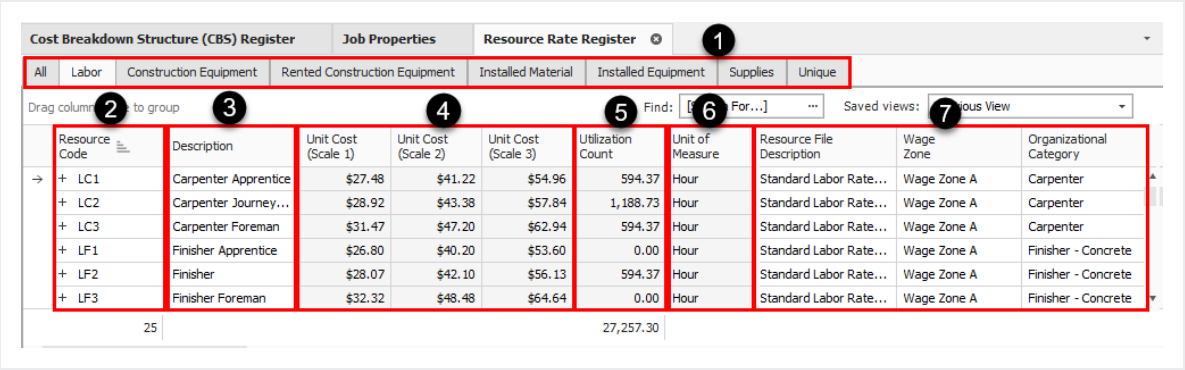
3.4.1 Library Resource Rate Register

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. • Notice that you are on the Labor Tab
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.



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.

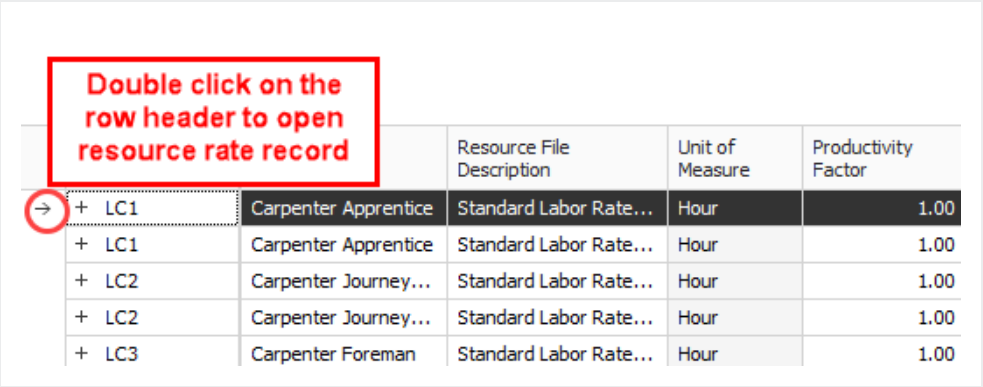
Next you will take a look at the different types of resources and how the differ when we drill into resource rate records from each category.

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.

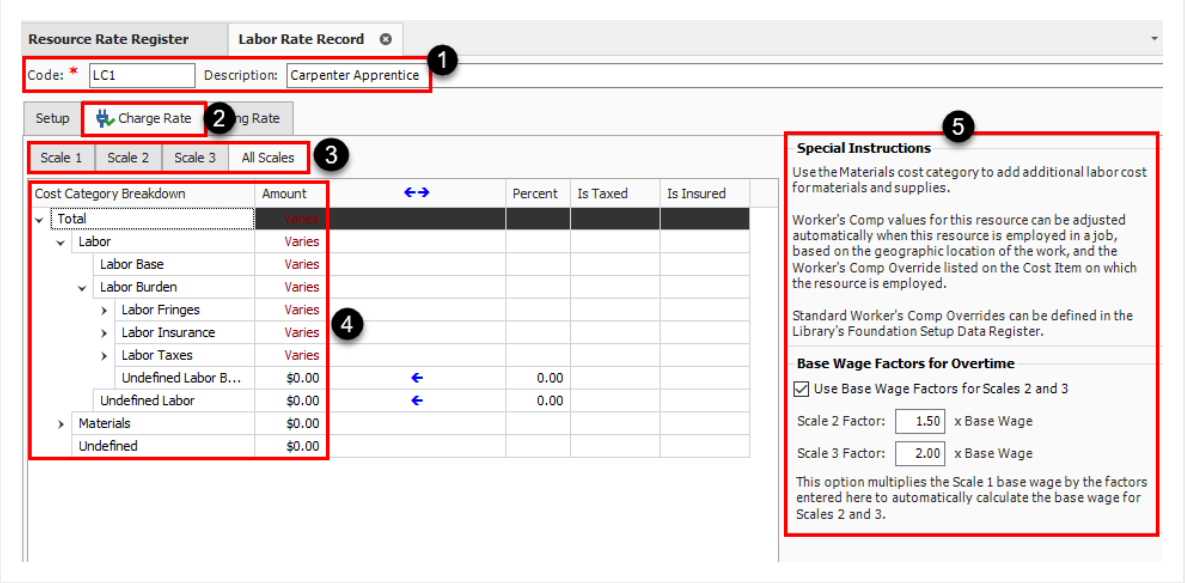
3.4.3 Resource Rate Record

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.

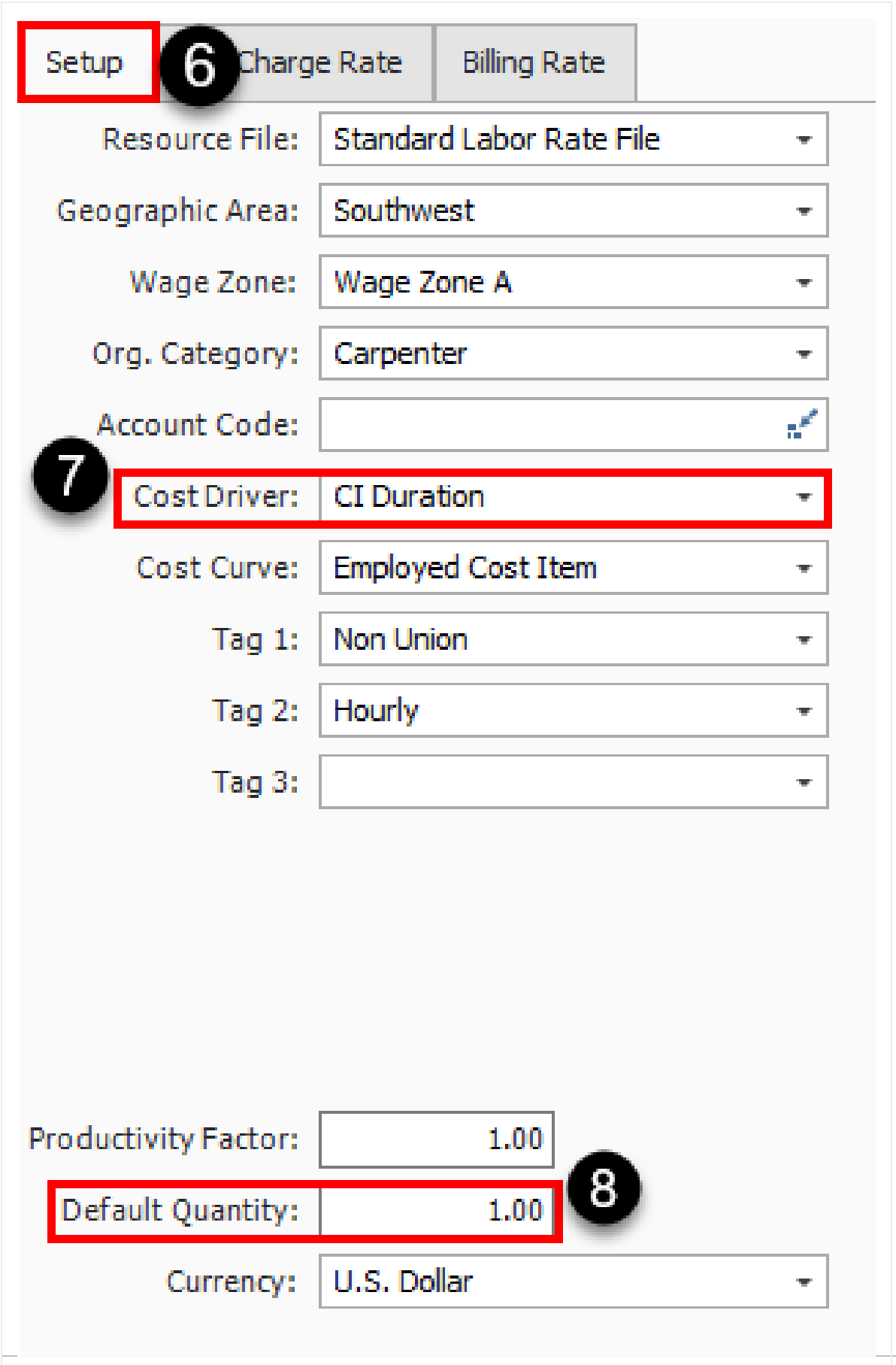


Overview – Resource Rate Record

	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.



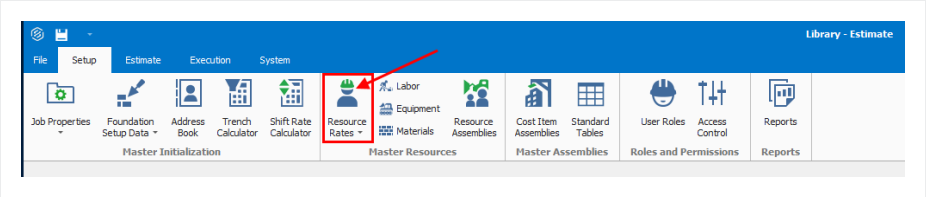
Name		Description
6	Setup	There is also a Setup tab where you can define the resource's attributes an a few other settings. These attributes are used for filtering which resource rates to load into a new estimate.
7	Cost Driver	Labor resources default Cost Driver is CI Duration which means their costs 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
6
Charge Rate
Billing Rate
Resource File:
Standard Labor Rate File
Geographic Area:
Southwest
Wage Zone:
Wage Zone A
Org. Category:
Carpenter
Account Code:
7
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
8
Currency:
U.S. Dollar

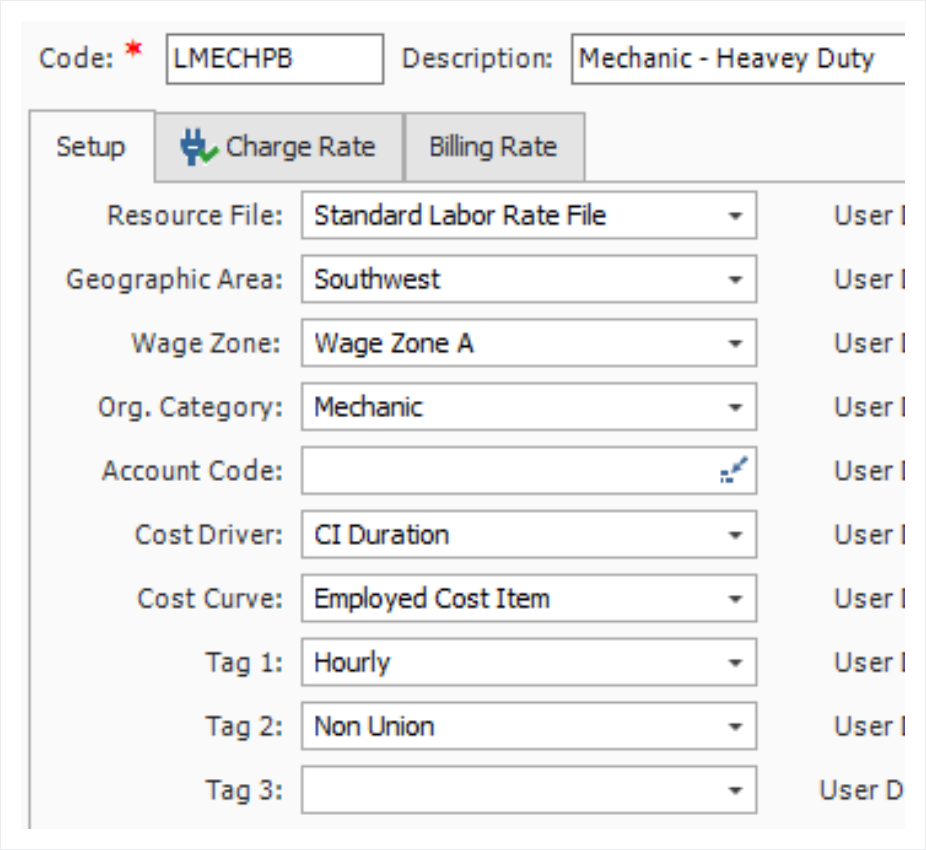
The following steps walk you through how to create a new labor resource.

Step by Step — Create a Labor Resource

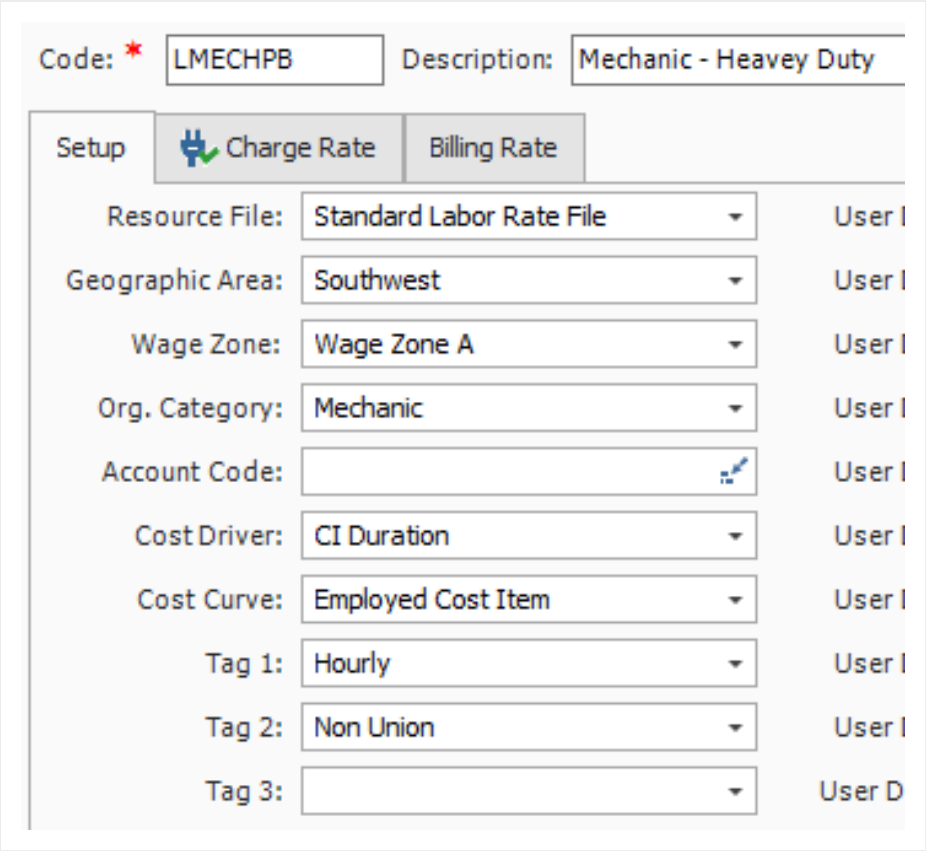
1. From the Library landing page, on the Setup tab, click on **Resource Rates** from the Master Resources section.



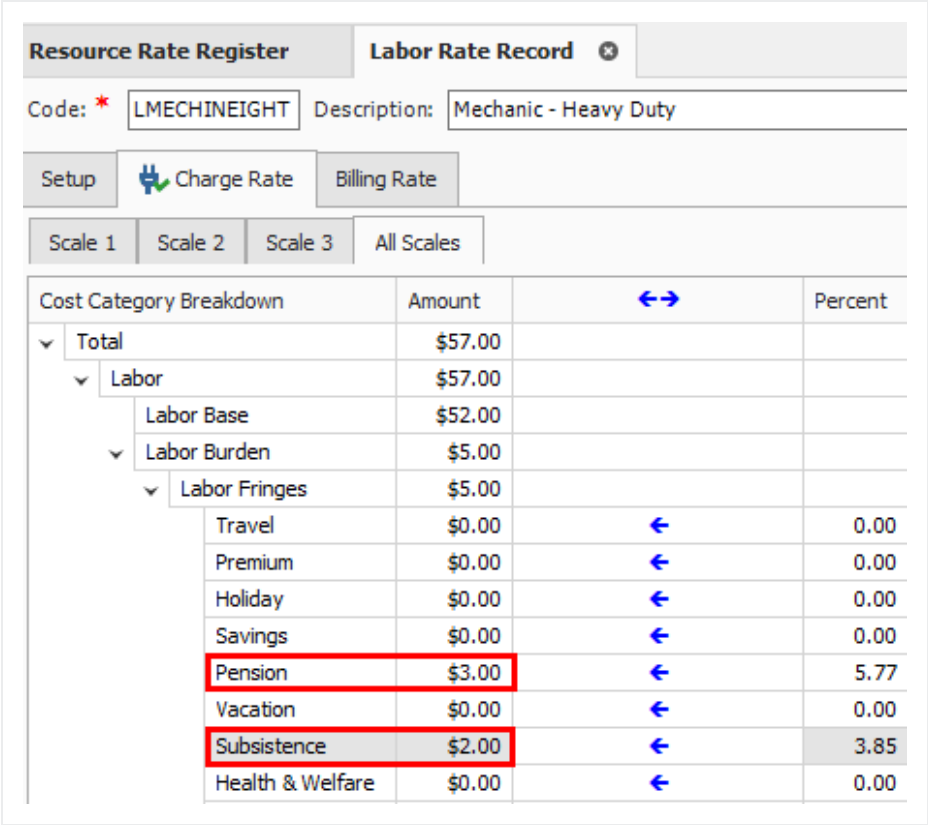
   - The Library Resource Rate Register opens
2. Select the **Labor** tab.
3. Right click on any row header and select **New**.
   - A new Labor Rate Record displays
4. In the Code field, type **LMECH [your initials]**.
5. Press the **Tab** key.
6. In the Description field, type **Mechanic - Heavy Duty**.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



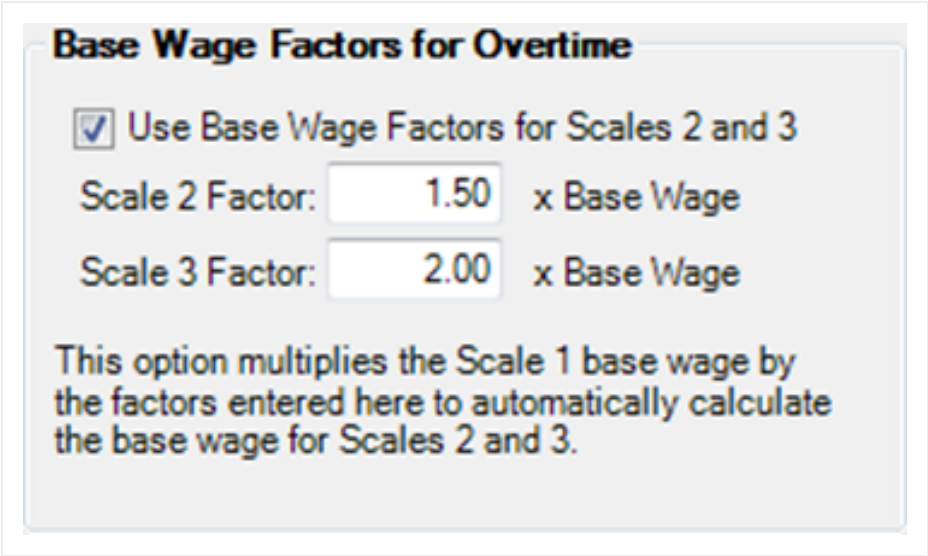
12. For Tag 1, select **Hourly**.



13. On the Charge Rate tab, enter **$52.00** for your Labor Base.
14. Expand Labor Burden and under Labor Fringes, type **$3.00** for Pension and **$2.00** for Subsistence.



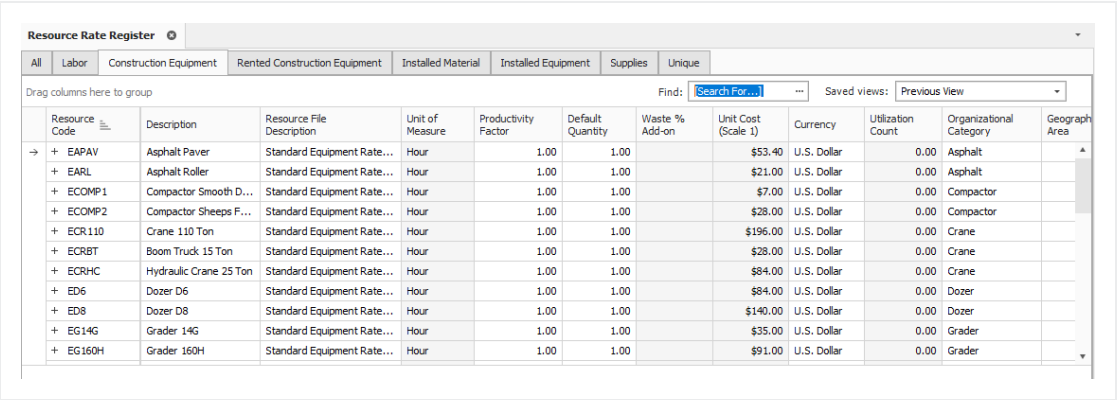
15. You need to define an overtime and double-time rate for the resource. Select the **checkbox** for Use Base Wage Factors for Scales 2 and 3.
16. Set the Scale 2 Factor to **1.50** x Base Wage and Scale 3 Factor to **2.00** x Base Wage.



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



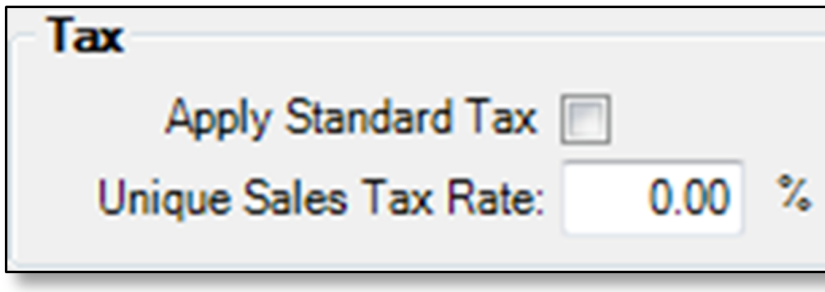
Resource Code	Description	Resource File Description	Unit of Measure	Productivity Factor	Default Quantity	Waste % Add-on	Unit Cost (Scale 1)	Currency	Utilization Count	Organizational Category	Geograph Area
EAPAV	Asphalt Paver	Standard Equipment Rate...	Hour	1.00	1.00		$53.40	U.S. Dollar	0.00	Asphalt	
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.

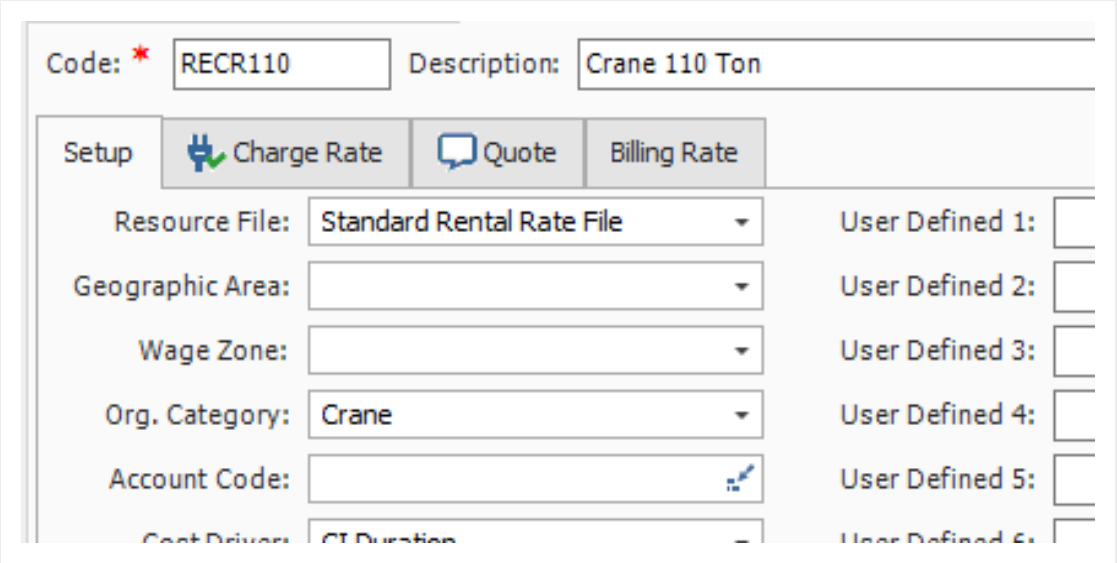
- Rented Equipment Resources are also duration driven resources by default
- Contain cost categories for rental and operation cost as well as additional fees
- On the Rental Construction Equipment Record, you will notice a new tab named Quote
    - Quotes will be discussed in detail in *Lesson 8 – Quote 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



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 **RECR110 [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.

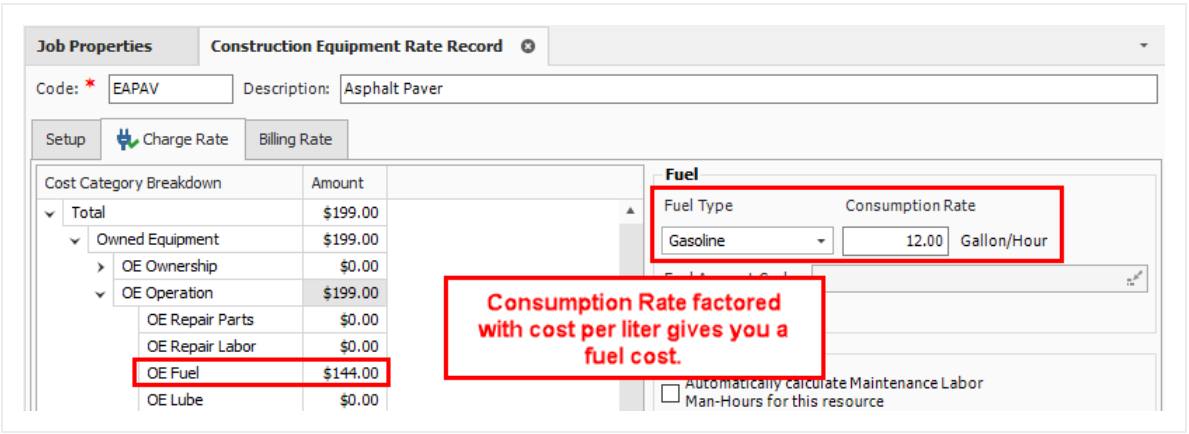
7. Select **Crane** from the Organizational Category drop-down list.



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.



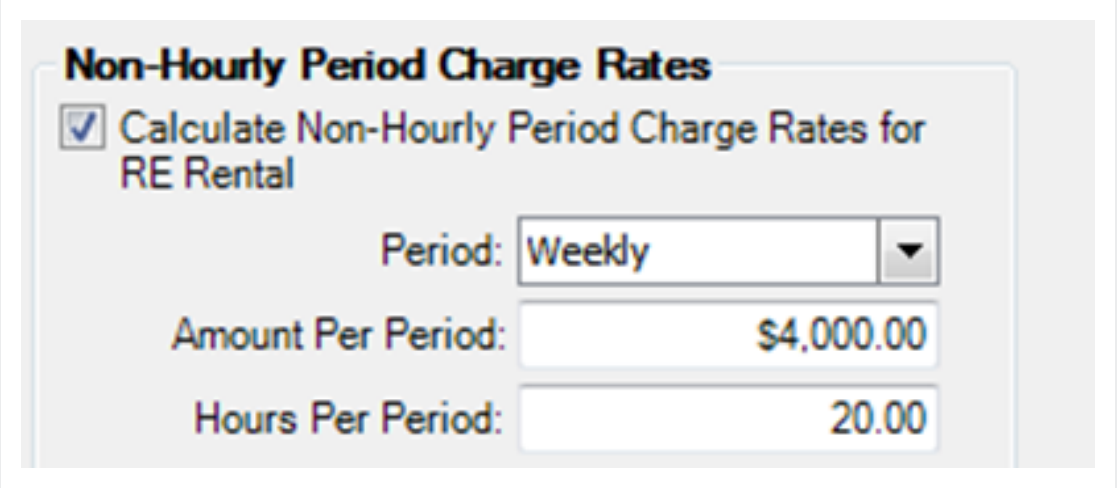
The below figure shows where consumption rates are defined on the Construction Equipment Resource Rate Record.

3.4.7 Non-Hourly Rate Calculator

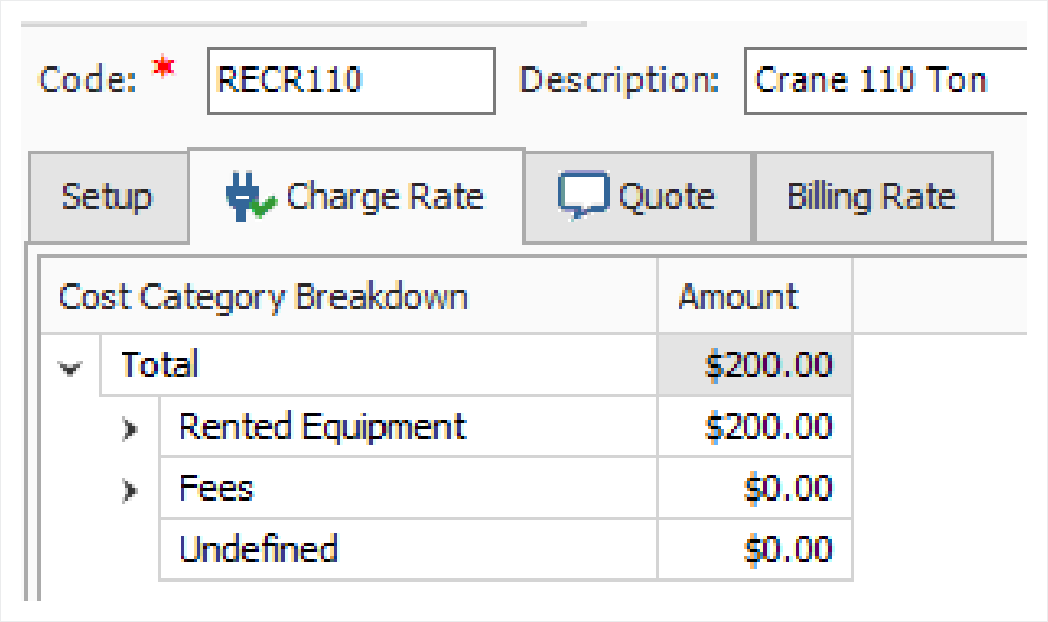
For owned and rented construction equipment, the rate entered must be hourly. If your rate is weekly or monthly, you can use the Non-Hourly Rate Calculator on the Construction Equipment Resource Record to come up with the hourly rate.

Step by Step — Non-Hourly Rate Calculator

1. The rate for your RECR110 Crane 110 Ton resource is $4000 per week. 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 **4000**.
5. Type **20** in the Hours Per Period field.



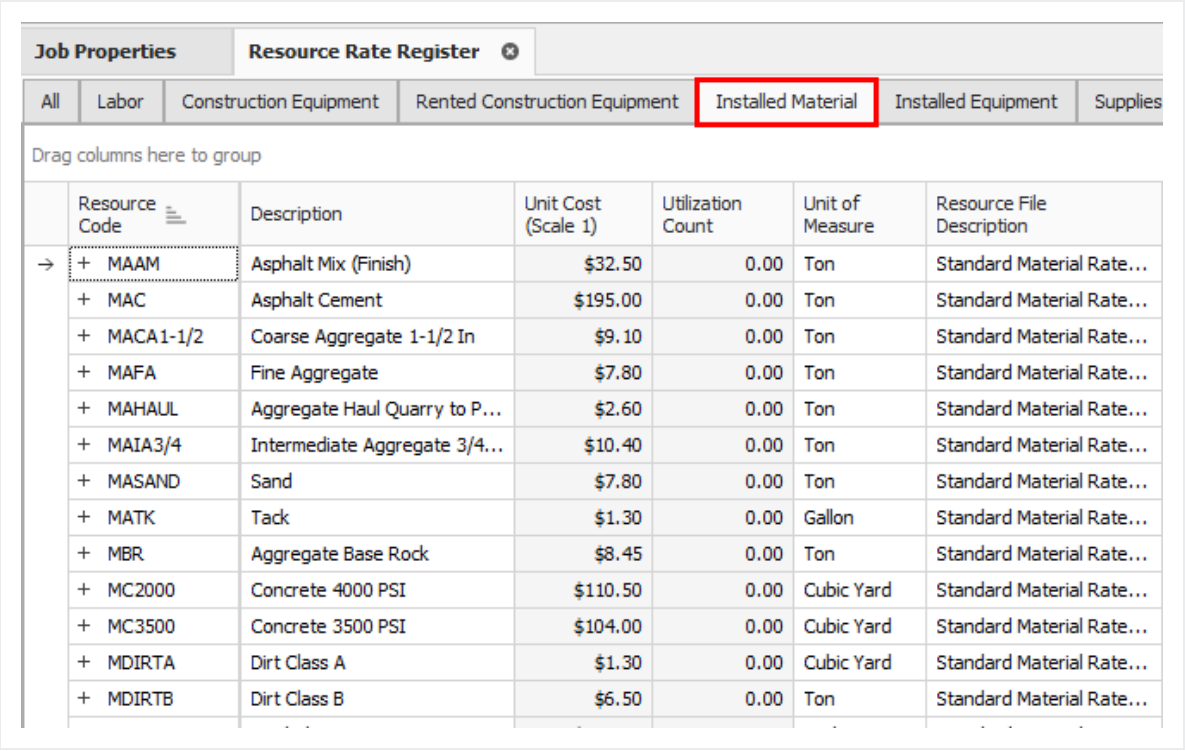
- Your hourly Owned Equipment rate will auto-fill with $200.00



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



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...

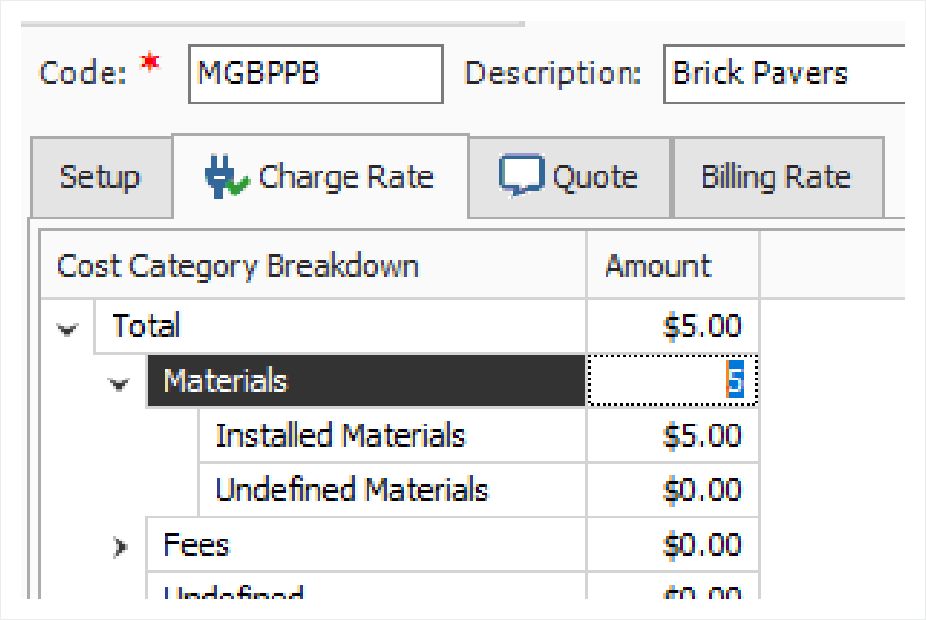
Above is an example of the Installed Material tab in the Library Resource Rate Register.

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

Step by Step — Create an Installed Material Resource

1. Select **Resource Rates** from the Library landing page.
    - The Resource Rate Register displays
2. Select the **Installed Material** tab.
3. 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 **Square Feet** 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 type **5.00** in the Installed Materials Amount field.

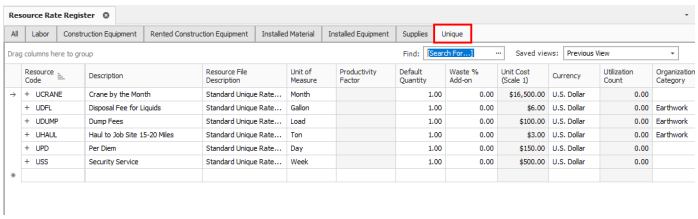


9. Click **OK** to finish adding this resource.

3.4.9 Unique Resources

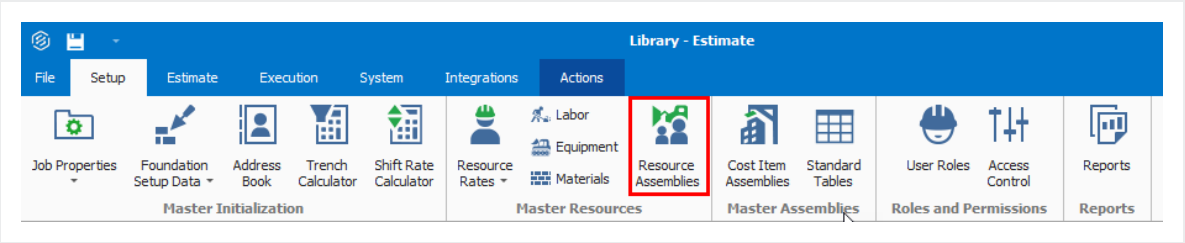
The Unique resource type is a catch-all and can be used for anything from dump fees and security to creating subcontractors as a resource.

- 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*



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.

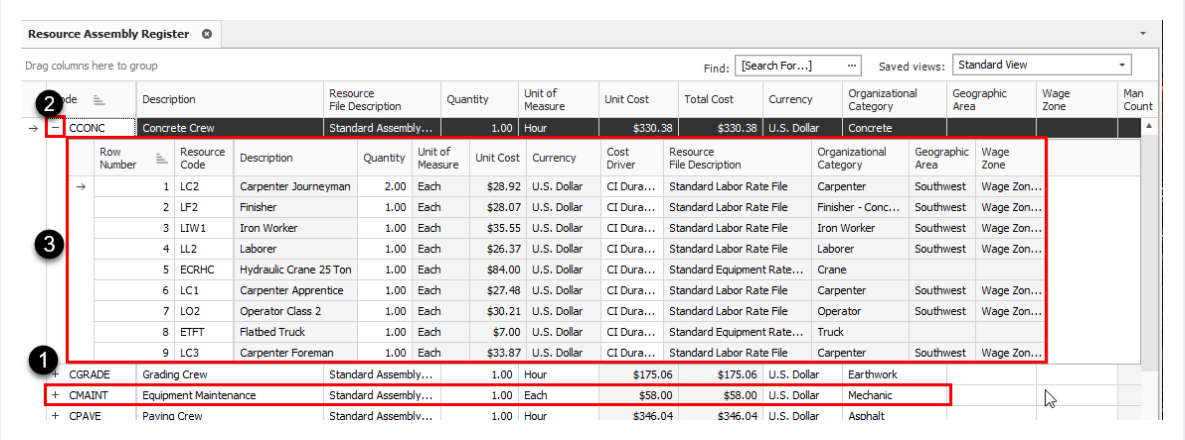
You can create assemblies in the Library and import them into job folders the same way you import resources.

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 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. • 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

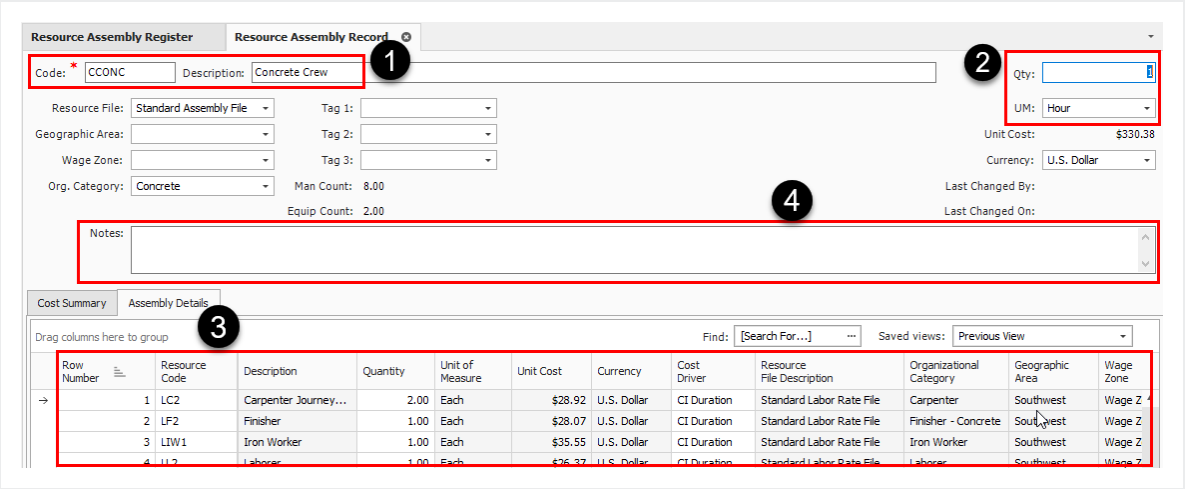


3.5.2 Resource Assembly Record

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.
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 or productivity rates which is commonly performed by a type of crew.

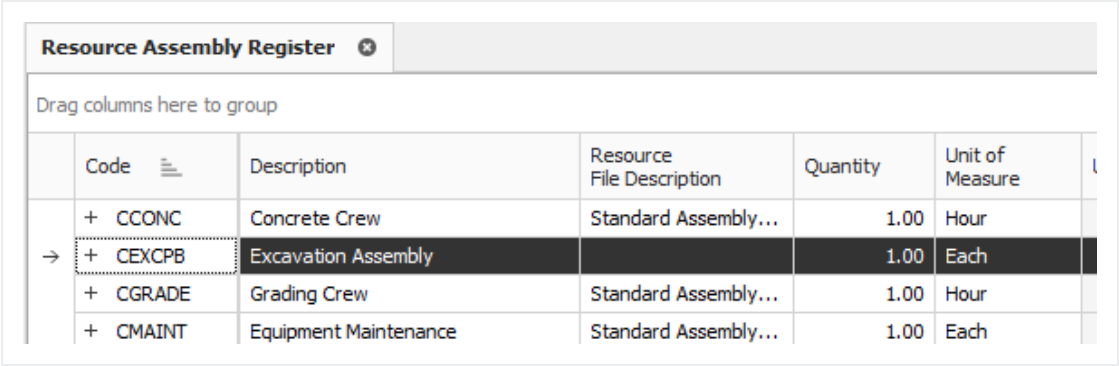


Step by Step — Create a Resource Assembly

1. From the Library landing page, under the Master Resources section of the Setup tab, select **Resource Assemblies**.
    - The Resource Assembly Register displays
2. Right click on any row header and select **New** from the drop-down menu.
    - A new Resource Assembly Record displays
3. In the Code field, type **CEXC [your initials]** as the unique code for the assembly.
4. In the Description field, type **Excavation Assembly**.
    - This field is an expanded clarification of the assembly Code
5. In the Assembly Details register at the bottom of the screen, click in the **Resource Code** column in the first blank row, 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 the following additional resources: **L02 - Operator Class 2** and **EX225 - Excavator**.
    - Once you've added resources, you can indicate how many of them you want in the assembly. In this case, leave the quantities of the assembly resources at 1

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.
    - The new assembly now appears on the Library Resource Assembly Register


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

Resource Code	LSFA	**Wage Zone**	Wage Zone A
Resource Description	Field Administrator	**Organizational Category**	Supervision
Geographic Area	Southwest	**Scale 1 Labor Base**	$33.45
Scale 1 Premium	2 percent	**Scale 1 Subsistence**	$0.47
Resource File		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			
Resource Code	RPW3000	**RE Rental Amount**	$3.40
Resource Description	Pressure Washer 3000 PSI	**Organizational Category**	Clean & Inspect
Resource File		Standard Rental Rate File	
Installed Material Resource			
Resource Code	MCCB	**Installed Materials Amount**	$300.00
Resource Description	Pre-Cast Concrete Catch Basin	**Organizational Category**	Concrete
Resource File		Standard Material Rate File	
Unit of Measure		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 **Wage Zone A Labor** 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 **Wage Zone A Labor** 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	RE Insurance	RE License
$3.40	$3.40	$3.40	$0.00	$0.00	$0.00	$0.00	$0.00

Resource Code	Description	Resource File Description	Unit of Measure	Unit Cost (Scale 1)
MCCB	Pre-Cast Concrete Catch Basin	Standard Material Rate File	Each	$318.00

Total	Materials	Installed Materials	Undefined Materials	Fees	Sales Taxes	Undefined Fee
$318.00	$300.00	$0.00	$300.00	$18.00	$18.00	$0.

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

Assembly Code	Assembly Description	Resource File Description	Quantity	Unit of Measure	Unit Cost	Total Cost	Currency	Organizational Category	Geographic Area	Wa Zo
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	Geographic Area	Wage Zone
1	LC2	Carpenter Journeyman	2.00	Each	$28.92	U.S. Dollar	CI Duration	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A
2	LC3	Carpenter Foreman	1.00	Each	$31.47	U.S. Dollar	CI Duration	Standard Labor Rate File	Carpenter	Southwest	Wage Zone A
3	LF2	Finisher	1.00	Each	$28.07	U.S. Dollar	CI Duration	Standard Labor Rate File	Finisher - Concrete	Southwest	Wage Zone A
4	LL2	Laborer	2.00	Each	$26.37	U.S. Dollar	CI Duration	Standard Labor Rate File	Laborer	Southwest	Wage Zone A

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	Geographic Area	Wage Zone
1	LL2	Laborer	2.00	Each	$26.37	U.S. Dollar	CI Duration	Standard Labor Rate File	Laborer	Southwest	Wage Zon...
2	LO3	Operator Class 3	1.00	Each	$30.62	U.S. Dollar	CI Duration	Standard Labor Rate File	Operator	Southwest	Wage Zon...
3	LT2	Teamster Foreman	0.50	Each	$32.32	U.S. Dollar	CI Duration	Standard Labor Rate File	Truck Driver - Teamster	Southwest	Wage Zon...
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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4.2 Job Properties 109
4.2.1 Overview Tab 109
4.2.2 Security Tab 110
4.2.3 Cover Sheet Tab 111
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Exercise 4.1 — Define Job Properties 122
4.3 Pay Item Creation 126
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Exercise 4.2 — Create Pay Items 129

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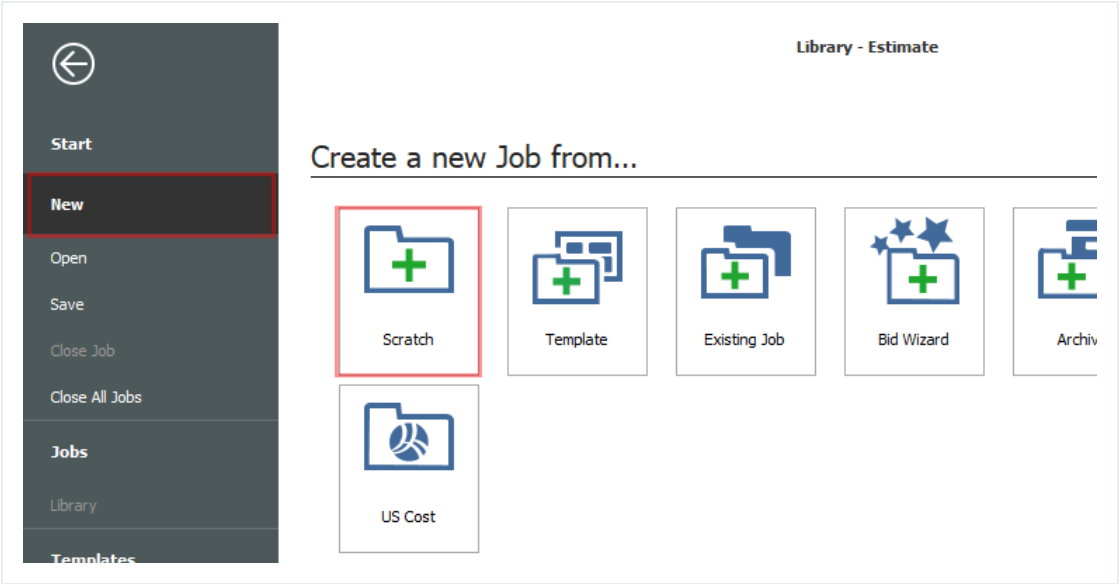
4.1 JOB CREATION

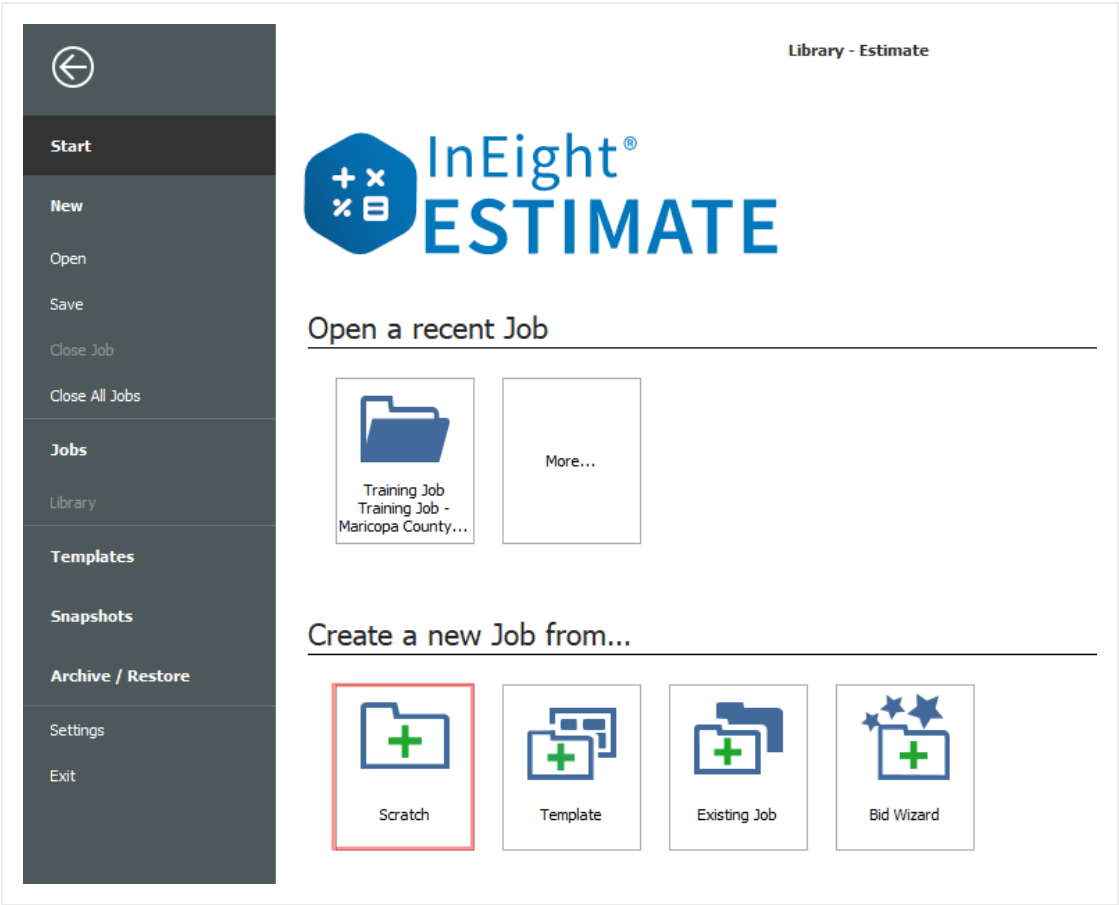
As discussed in Lesson 1, a job folder contains all pertinent information for a single project, and it is independent from any other job. When you create a new job folder, all your estimating and managing of the project will be stored in that folder.

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.

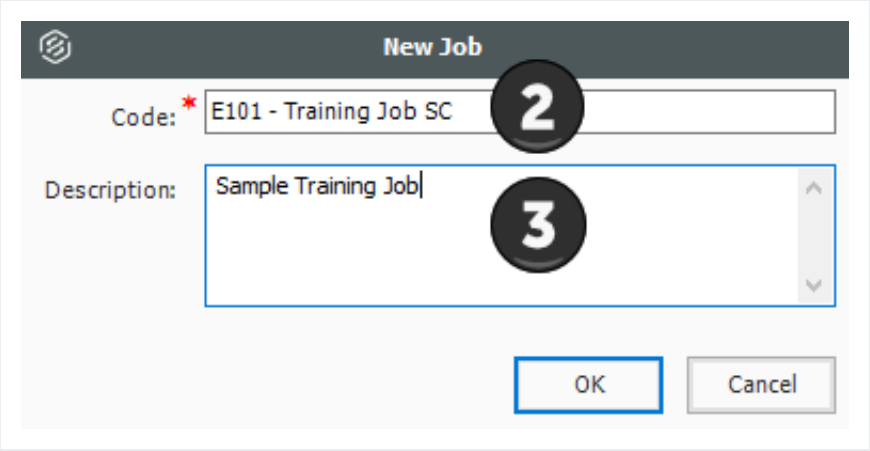




2. On the New Job dialog, type **E101 - Training Job (with your initials)**in the **Code** field.

- The Job Code must be unique to differentiate between projects

3. Type **Sample Training Job** in the Description field.
    - The Description field is usually a longer title and helps you identify the project
    - It is not required, but best practice is to have a good description to make it easier to find the job



4. Click **OK** to create the new project.
    - The project is created and the Job Properties form for the new project automatically displays

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	Contain the information you entered on the New Job dialog.

Overview – Overview Tab (continued)

	Name	Description
	Description	• The Description can be changed at any time if necessary • The Code cannot be changed
2	Status	Indicates where in the process this project is (e.g., Bidding, Awarded, etc.) • When searching for jobs in the Job Folders list, you can filter and sort jobs by their status • These job statuses can be adjusted to fit your company requirements in the Jobs Register, Tools Menu, Job Statuses.
3	Notes	Used to document project specifics. • Information in this field is created in InEight Estimate and it is not integrated with other programs

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

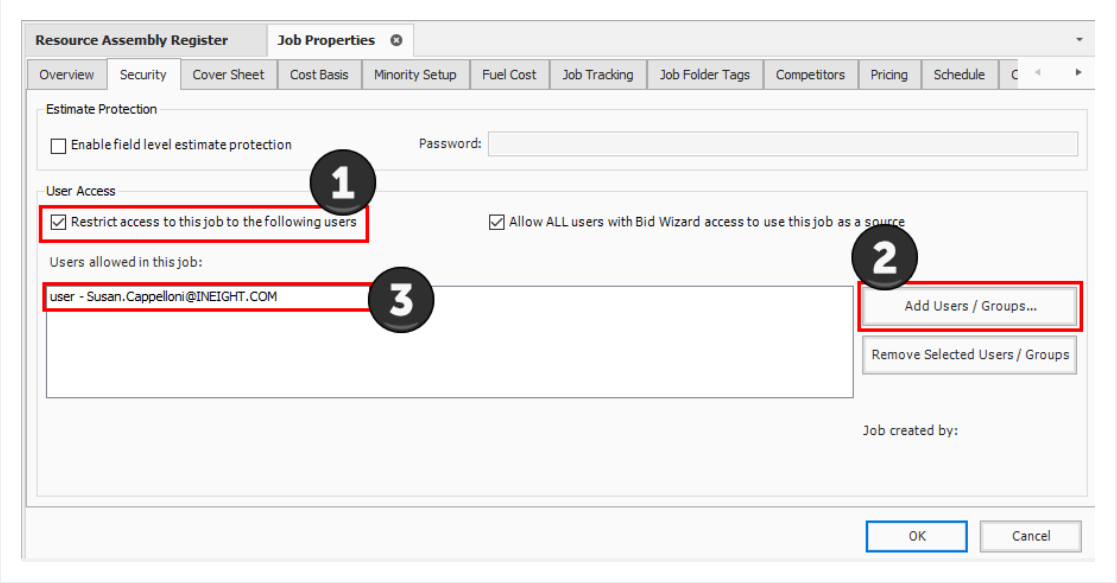
4.2.2 Security Tab

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

1. 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
2. Click the **Add Users / Groups** button to add users.
3. 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.



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

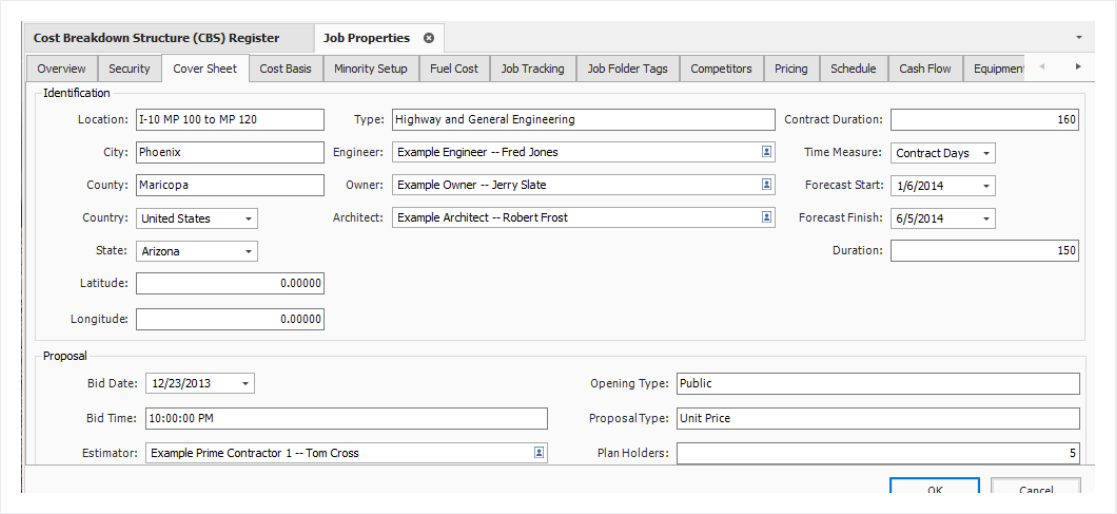
4.2.3 Cover Sheet Tab

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)



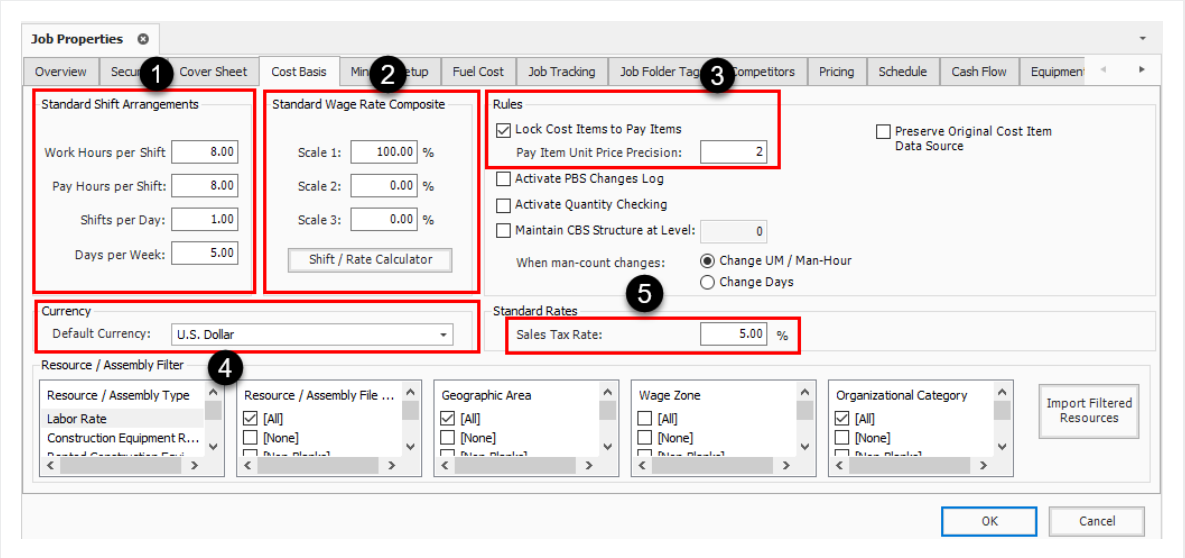
The fields on this tab can be helpful for historical reference and job classification. It is good practice to complete as many of these fields as possible, so you can reference and find the project later. These fields can be updated as needed at any time.

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

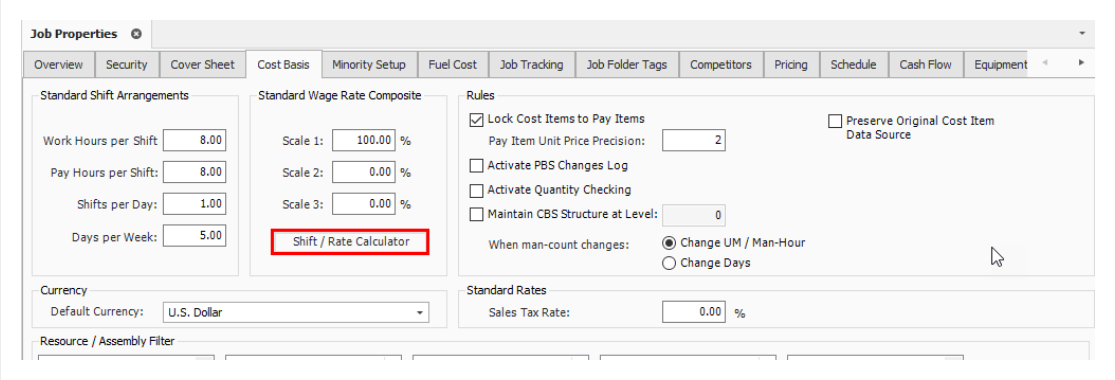


4.2.5 Shift Rate Calculator

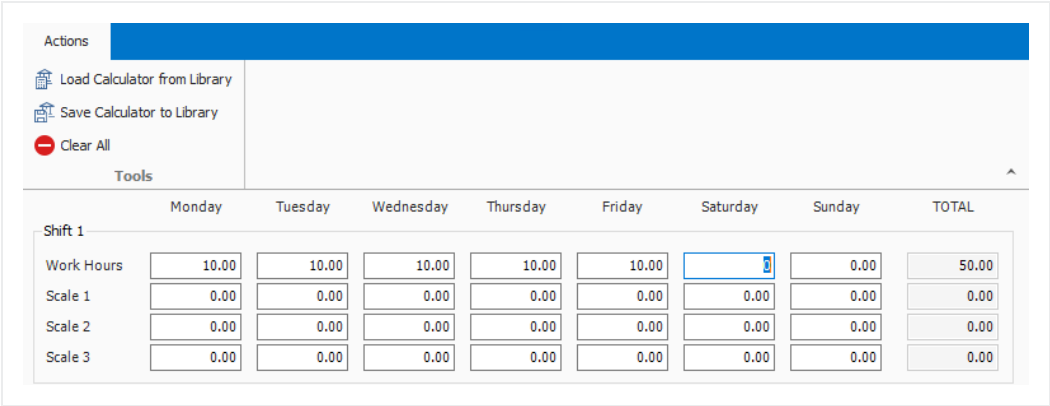
Take a closer look at calculating your shift rates using the Shift Rate Calculator. For this example, you will walk through setting up 2 shifts for your project.

Step by Step — Shift Rate Calculator

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

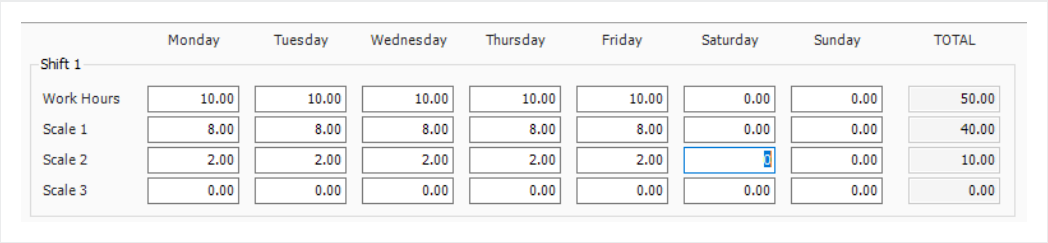


2. You can enter up to three shifts for the project. For Shift 1, type **10** hours in the Monday through Friday Work Hours fields.
   - Scale 1 will be your regular time and Scale 2 will be your overtime



3. For Shift 1, type **8** hours in the Scale 1 fields and **2** hours in the Scale 2 fields (just Monday through Friday).

- You should now have the following for Shift 1:



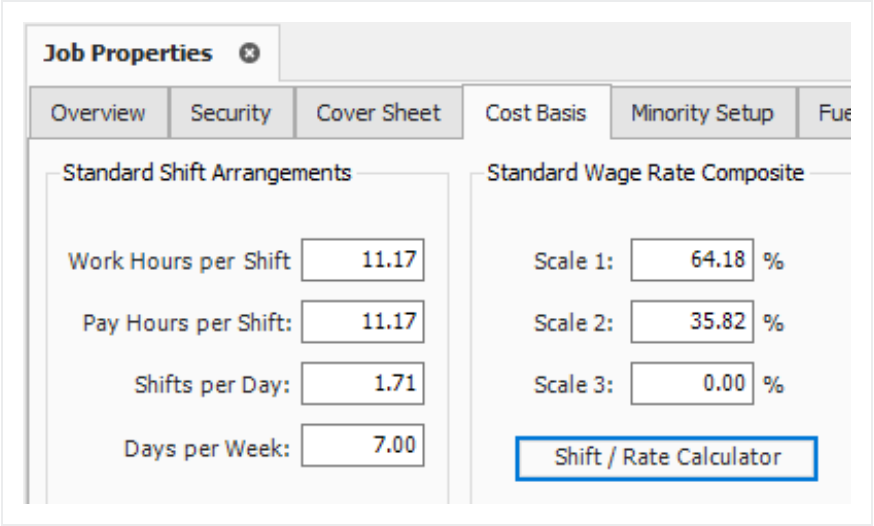
Shift 1	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	TOTAL
Work Hours	10.00	10.00	10.00	10.00	10.00	0.00	0.00	50.00
Scale 1	8.00	8.00	8.00	8.00	8.00	0.00	0.00	40.00
Scale 2	2.00	2.00	2.00	2.00	2.00	0	0.00	10.00
Scale 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. For Shift 2, enter the following:

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	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5. Click **OK**.

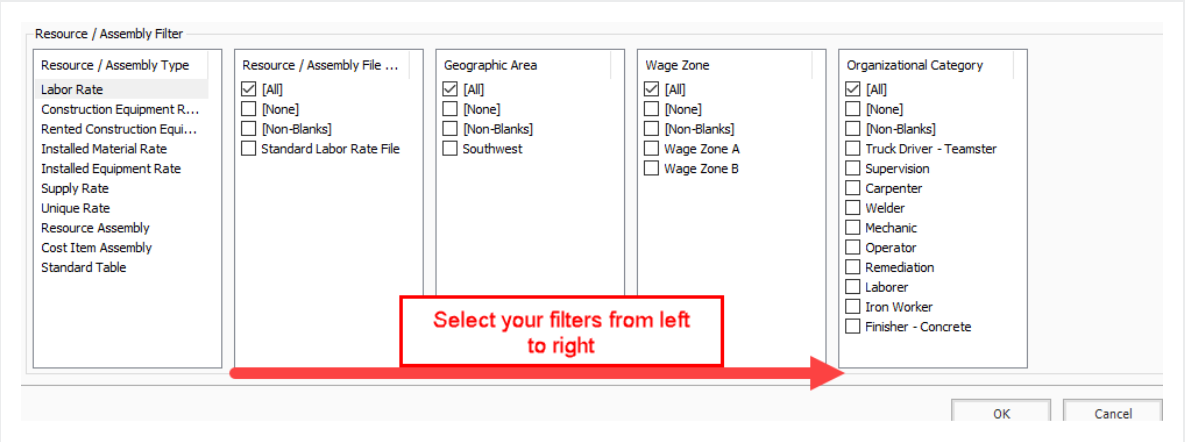
- Now you have a blended shift arrangement, and your labor rates are a blend of 64.18% straight-time and 35.82% overtime



6. Now that you have worked through an example, change the shift arrangements back to the default standard shift arrangements of 8 hours per shift, 1 shift per day, and 5 days per week and the standard wage rate composite should be set back to the default of scale 1 set to 100%.

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.

Resource Attribute Filters	
Organizational Category	This attribute can be used to designate what trade or work type your resources pertain to.

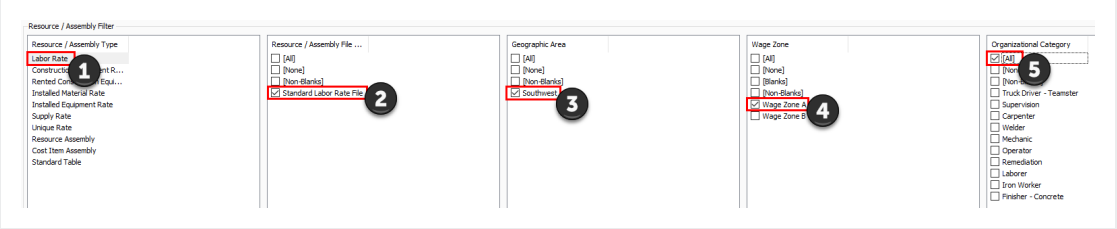
Resource filters become more specific from left to right, so it makes sense to start with Resource File Description and end with Organizational Category. The geographic area, wage zone and organizational category attribute titles can be changed to meet your business needs for filtering resources.

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 the **E101 - Training Job**, on 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**.



6. Select the **Construction Equipment** resource type.
7. Select the **Standard Labor Rate File** for the Resource File Description, leaving the Geographic Area, Wage Zone, Organization Category set at **All.**
8. Do the same for the remaining resource types (including Assembly).
9. Select the **Import Filtered Resources** button to bring your selected resources into the job.

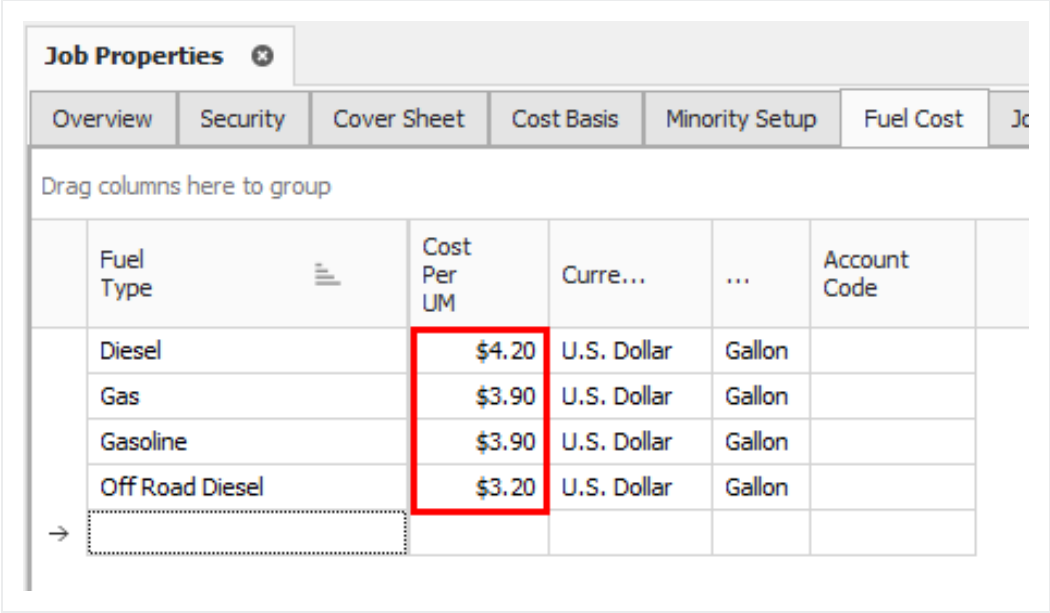
NOTE You must select “Import Filtered Resources” to import your resources. Clicking OK on the Job Properties form will not import your resources.

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

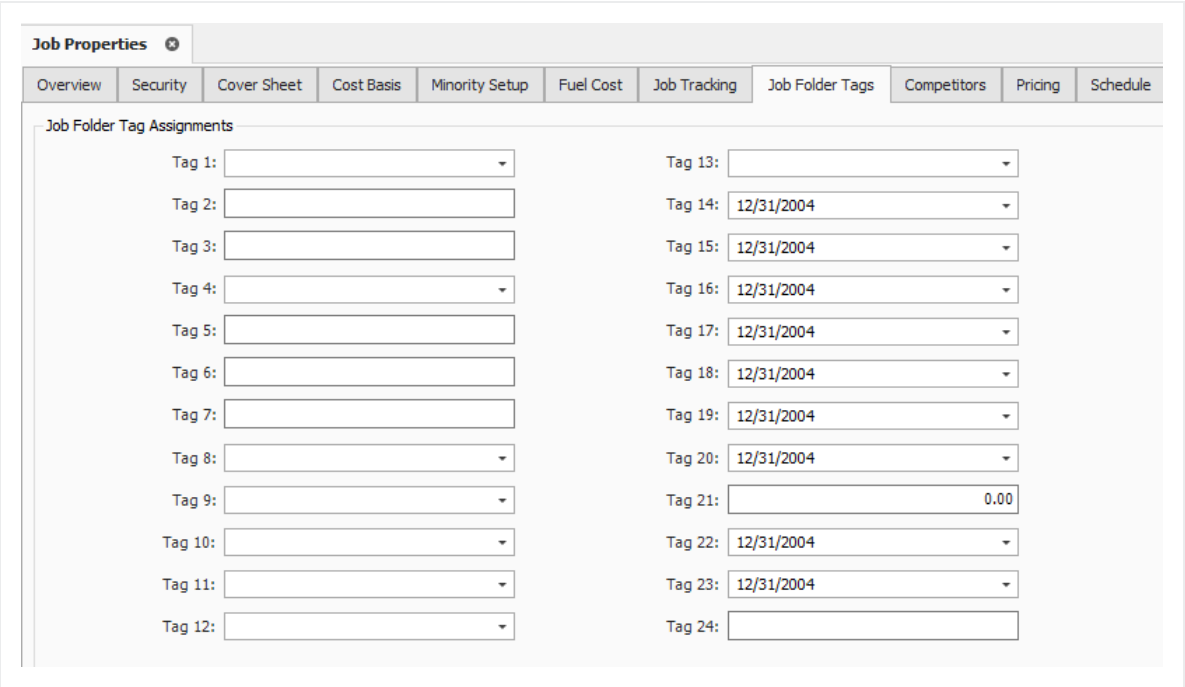
1. In **E101 – Training Job**, open the **Job Properties** > **Fuel Cost** tab.
2. Under Cost Per UM enter the following:
    - Diesel: **$4.20**
    - Gas & Gasoline: **$3.90**
    - Off Road Diesel: **$3.20**



3. Currency should read **U.S. Dollar** and UM should read **Gallon**.
    - In this example, if the gasoline cost per gallon is $2.80 and your truck consumes 3 gallons per hour, you will have an hourly fuel cost of $2.80 X 3 or $8.40

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.



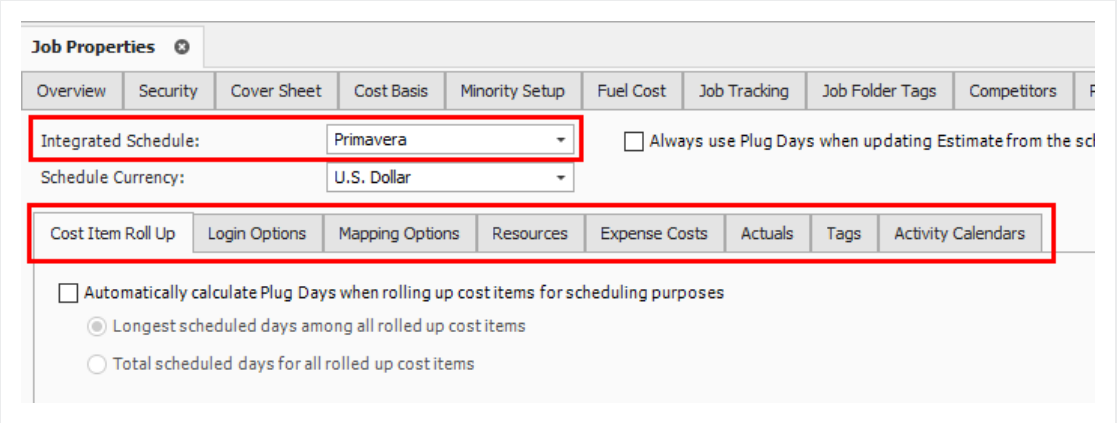
Many of these fields are validated fields, meaning you can choose from options in a drop-down list. The names of these tags and the drop-down values are defined at a master level within the Library Foundation Setup Data. Some job folder tags are setup to be date fields or numerical fields. These tags 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*



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,
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.

Other Job Properties Tabs	
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:

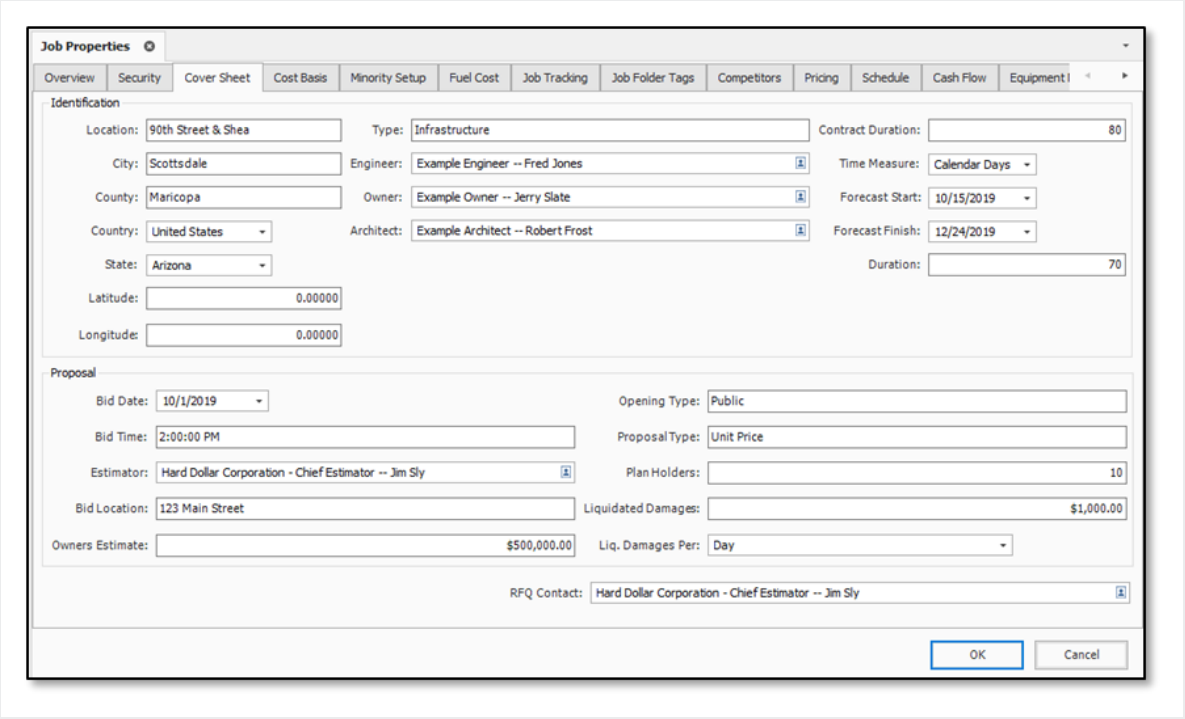
Job Location	90th Street & Shea
City	Scottsdale
County	Maricopa
Country	United States
State	Arizona
Type	Infrastructure
Engineer	Fred Jones
Owner	Jerry Slate
Architect	Robert Frost
Contract Duration	80
Time Measure	Calendar Days
Forecast Start	October 15, 2019
Duration (days)	70
Bid Date and Bid Time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

2. On the Cost Basis tab:

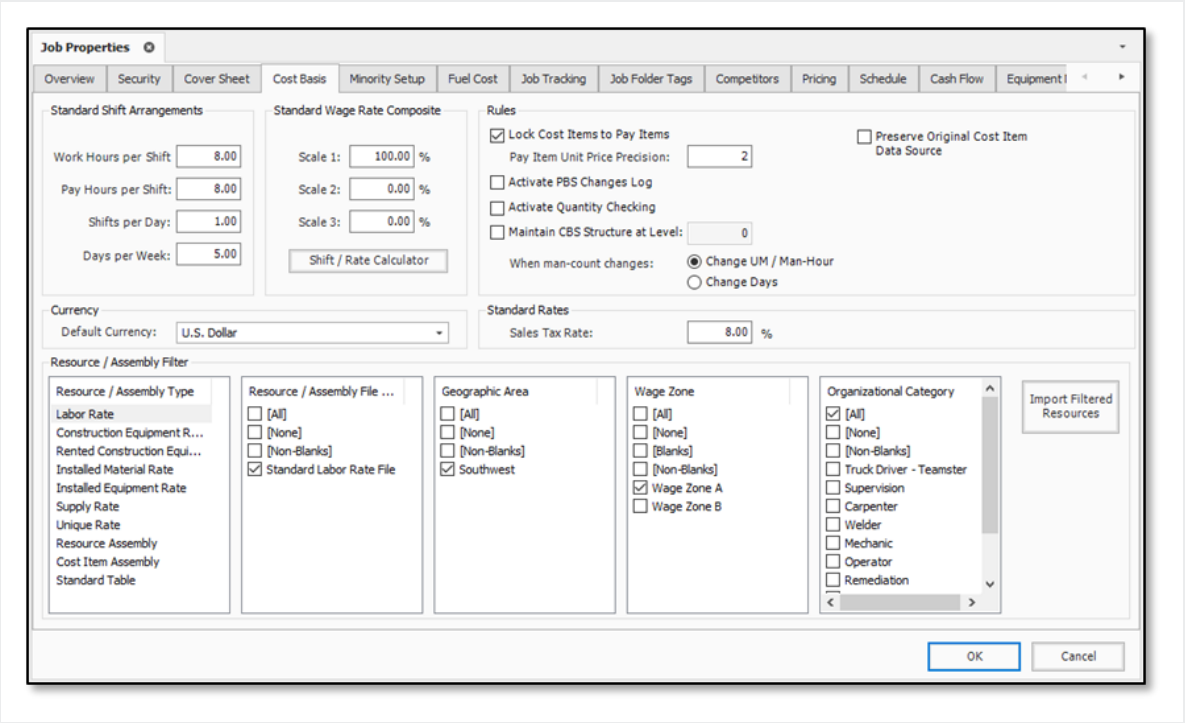
- Ensure the **Shift Arrangement** is 8 hours a day, 5 days a week
- Ensure the **Wage Composite** is set to 100% Scale 1
- Ensure the **Sales Tax** is set to 8%

You should end up with the following results

The following Cover Sheet properties are defined:



The following Cost Basis settings are defined:

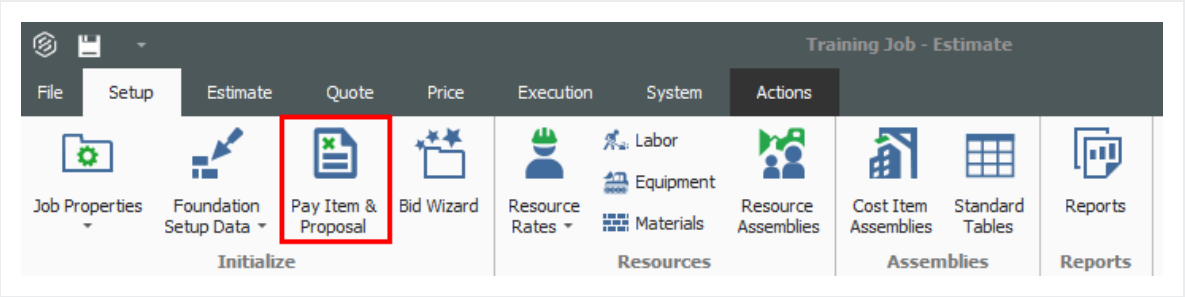


Congratulations, you have completed this exercise!

4.3 PAY ITEM CREATION

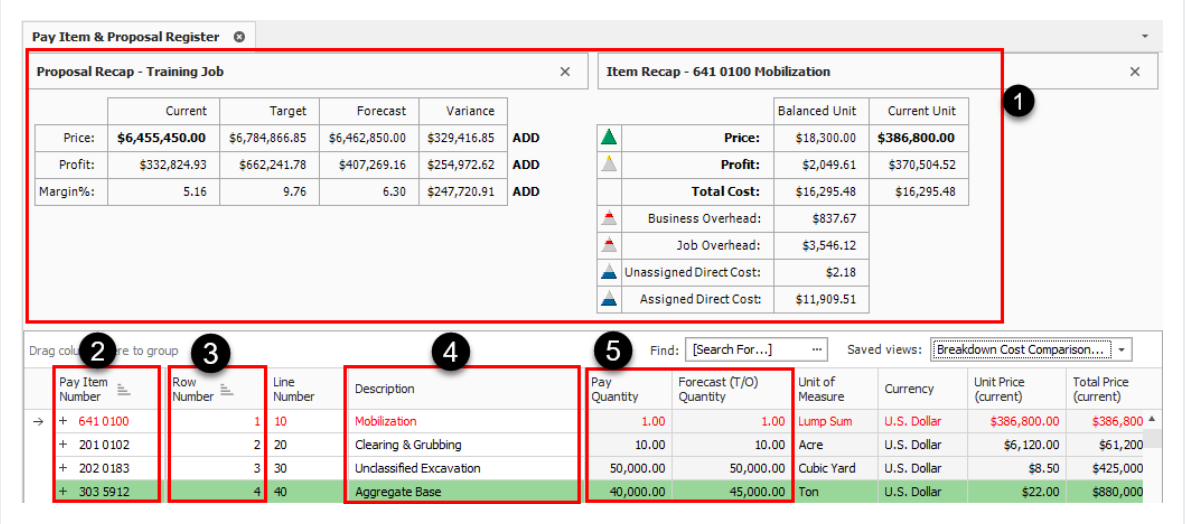
Pay items typically represent the owner required deliverables a contractor must submit pricing for. Within InEight Estimate, pay items are used to distribute the cost calculated in the Cost Breakdown Structure and all markup, fees or contingency calculated in the Price Breakdown Structure to a list of 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.

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	Row Number	Controls the order of your pay items.
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.

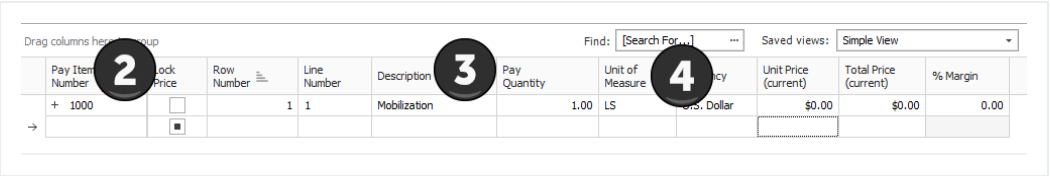
4.3.1 Overview – Pay Item & Proposal Register



Step by Step — Create a Pay Item

1. Open the **E101 – Training Job** and select **Setup** tab **>Pay Item & Proposal** from the InEight Estimate landing page.
    - The Pay Item & Proposal Register displays
2. In the Pay Item Number column, in the first blank row, type **1000**.
    - Notice the Row Number and Line Number columns automatically fill with a number for you
3. Use the **Tab** key to move to the Description column and type **Mobilization**.
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.

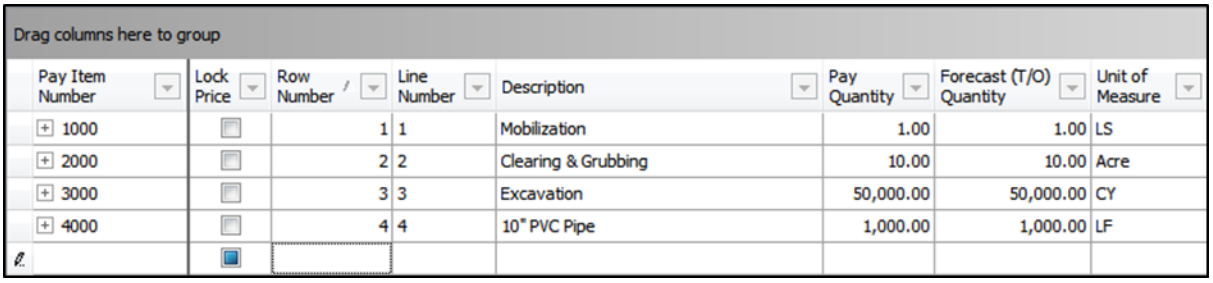


Exercise 4.2 — Create Pay Items

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		1	1	Mobilization	1.00	1.00	LS
2000		2	2	Clearing & Grubbing	10.00	10.00	Acre
3000		3	3	Excavation	50,000.00	50,000.00	CY
4000		4	4	10" PVC Pipe	1,000.00	1,000.00	LF

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

LESSON 5 – ESTIMATE DIRECT COSTS

Lesson Duration: 90 minutes

Lesson Objectives

After completing this lesson, you will be able to:

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

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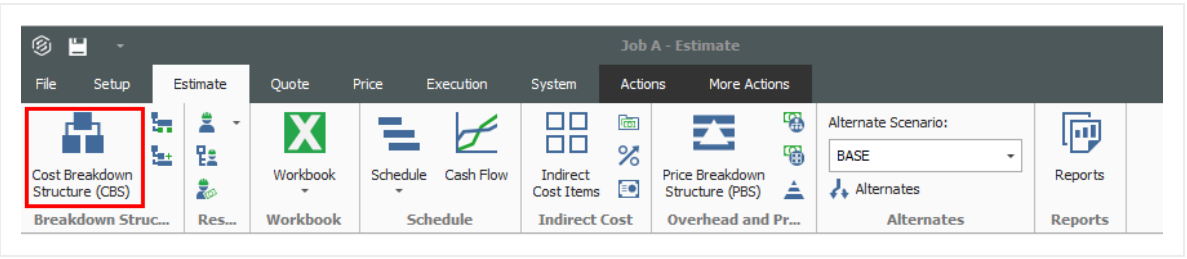
5.1 COST BREAKDOWN STRUCTURES

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

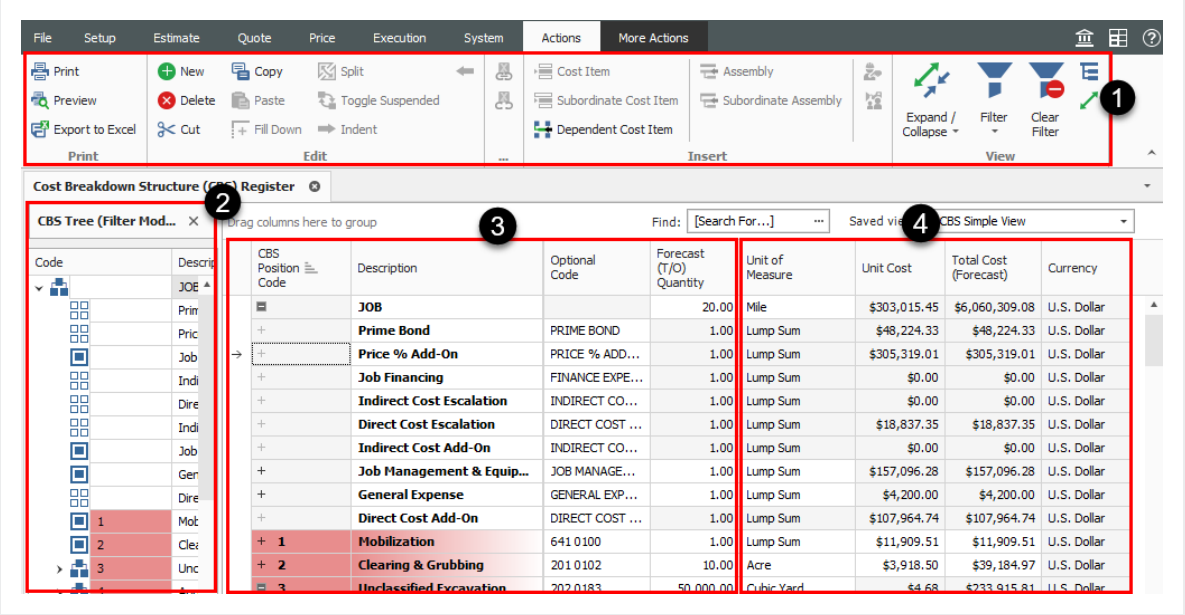
- It is the hierarchy of work activities that make up the estimate
- Each row in the CBS represents a work activity or organizing category and is called a cost item

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. Direct cost items will therefore be 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).

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.

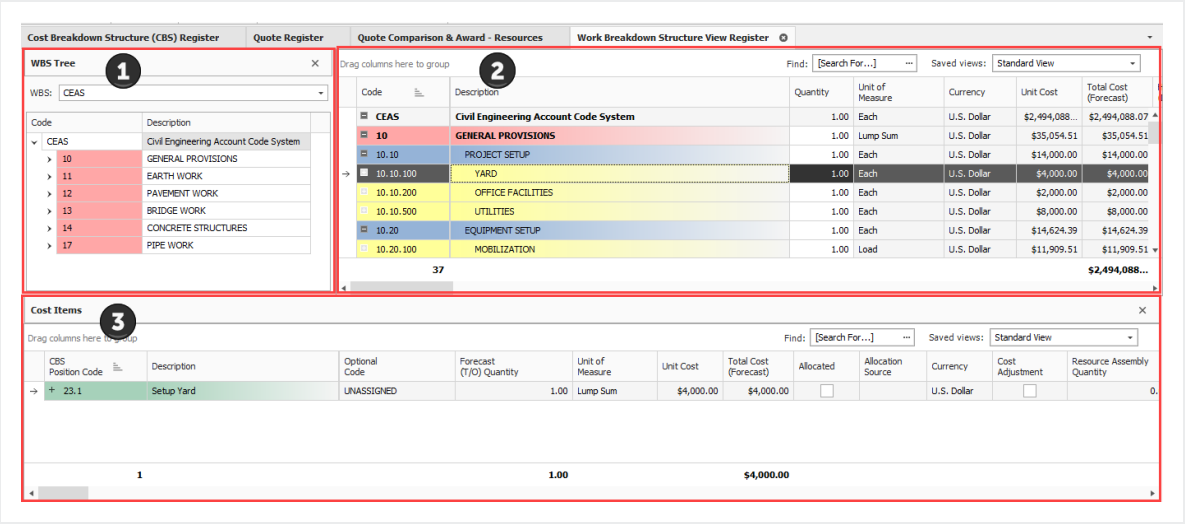
5.1.2 Work Breakdown Structures

The Work Breakdown Structure (WBS) allows you to easily 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

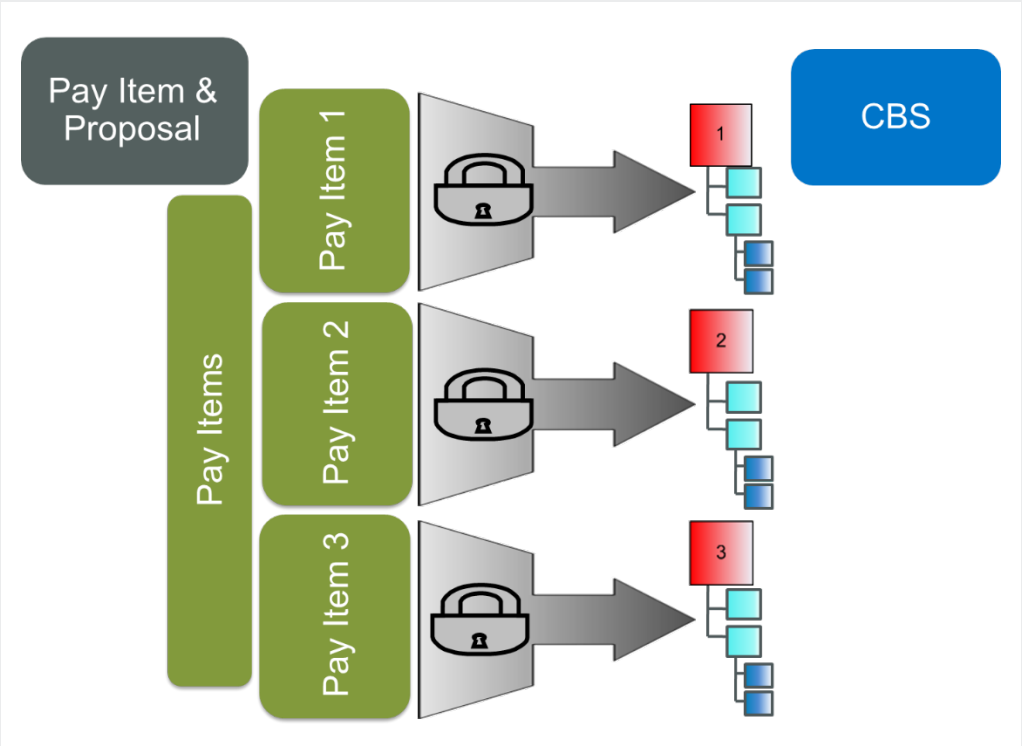
Name		Description
1	WBS Tree	Use the WBS Tree to filter to a particular WBS item.
2	WBS Grid	When a specific WBS item is selected in the WBS Tree, all subordinate WBS items display in the WBS grid.
3	Cost Items	The Cost Items associated with the WBS subordinate in the WBS Grid displays in this data block.



5.1.3 Locked vs. Unlocked Approach

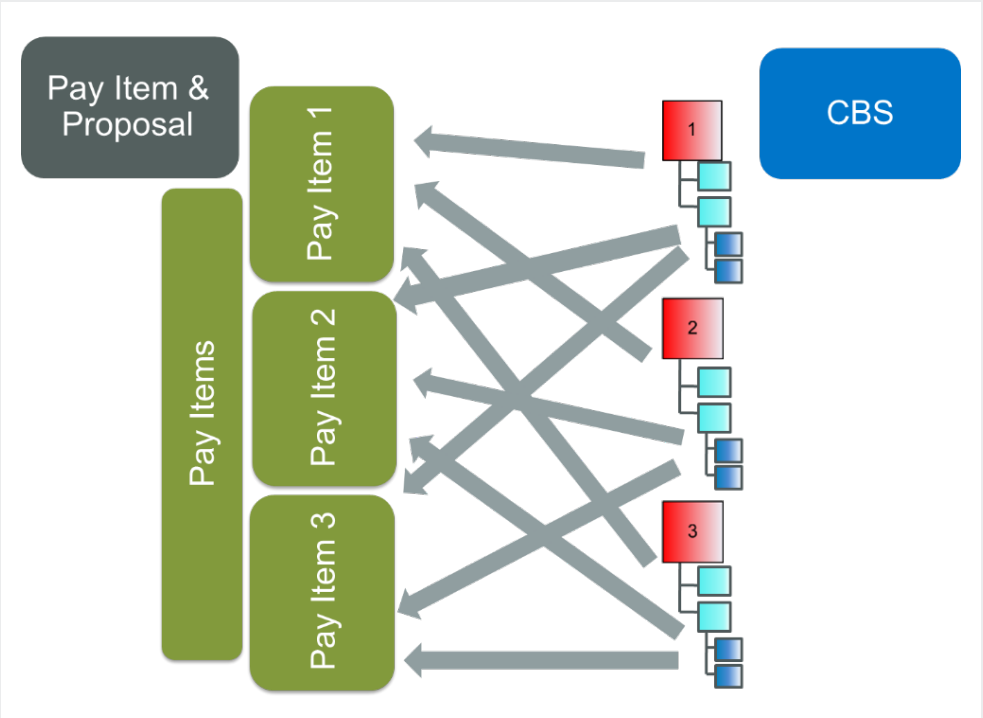
There are two basic approaches to structuring your cost items and pay items. You can choose to work in a “locked approach” or an “unlocked approach.”

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.

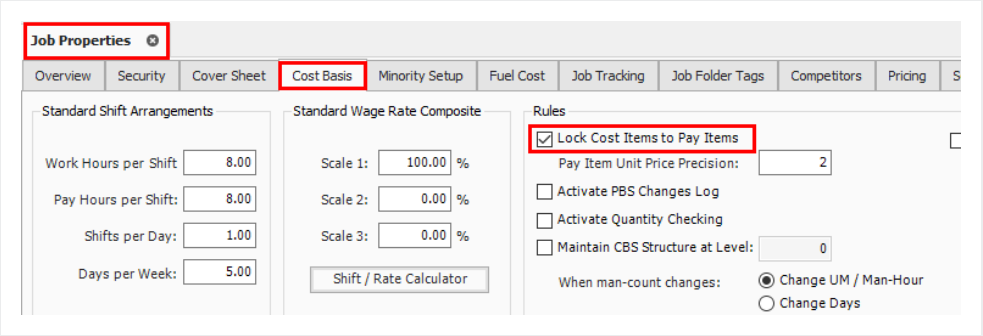


NOTE If the Lock Cost Items to Pay Item rule is checked in Job Properties, InEight Estimate will automatically create level 1 cost items in the CBS Register for each of your pay items.

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.

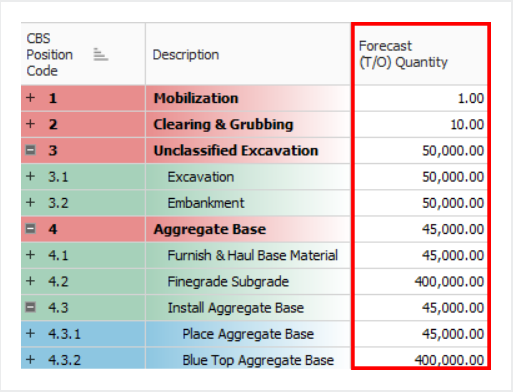


The option of working in a locked approach vs. an unlocked approach is available in the Job Properties Form, on the Cost Basis tab under the Rules section. By selecting the checkbox for Lock Cost items to Pay Item, you are choosing to work in a locked approach.



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	**Mobilization**	1.00
+ 2	**Clearing & Grubbing**	10.00
− 3	**Unclassified Excavation**	50,000.00
+ 3.1	Excavation	50,000.00
+ 3.2	Embankment	50,000.00
− 4	**Aggregate Base**	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

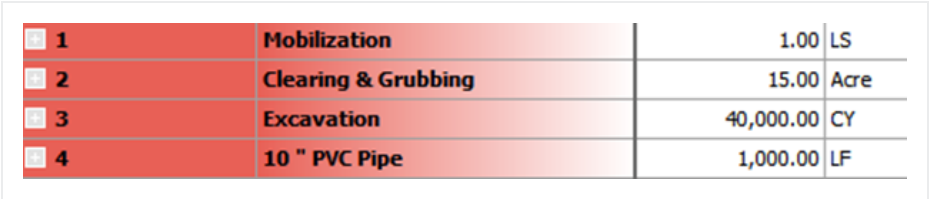
NOTE Forecast (T/O) Quantities are only used for your cost items in the CBS Register. Pay Quantities are used for final pricing in the PBS and Pay Item & Proposal forms.

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

1. In the **E101 - Training Job**, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
    - In the **Forecast (T/O) Quantity** column, the Forecast (T/O) Quantity was brought over from the Pay Item and Proposal Register, but here you can adjust it if needed
    - For each cost item, you can enter the T/O quantity, followed by the unit of measure in the next column
2. For this example, change Clearing & Grubbing to **15.00 Acre** and Excavation to **40,000.00 CY**.



1	**Mobilization**	1.00	LS
2	**Clearing & Grubbing**	15.00	Acre
3	**Excavation**	40,000.00	CY
4	**10 " PVC Pipe**	1,000.00	LF

5.2 COST ITEM CREATION

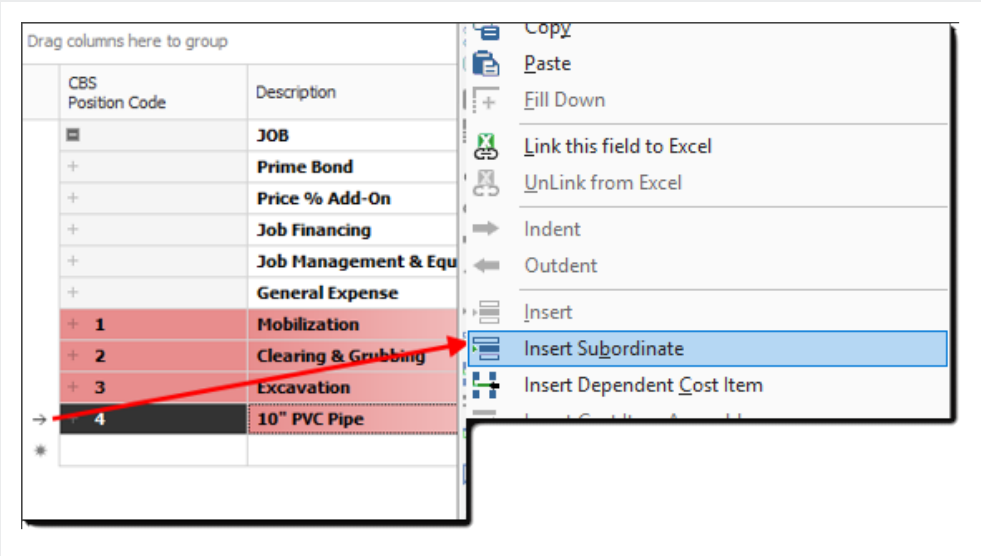
During estimate development, you will create new cost items to break down your work into specific activities. You can create superior and subordinate cost items as needed to organize your work.

5.2.1 Insert Subordinate Cost Item

You can add subordinate cost items in two different ways:

Option 1

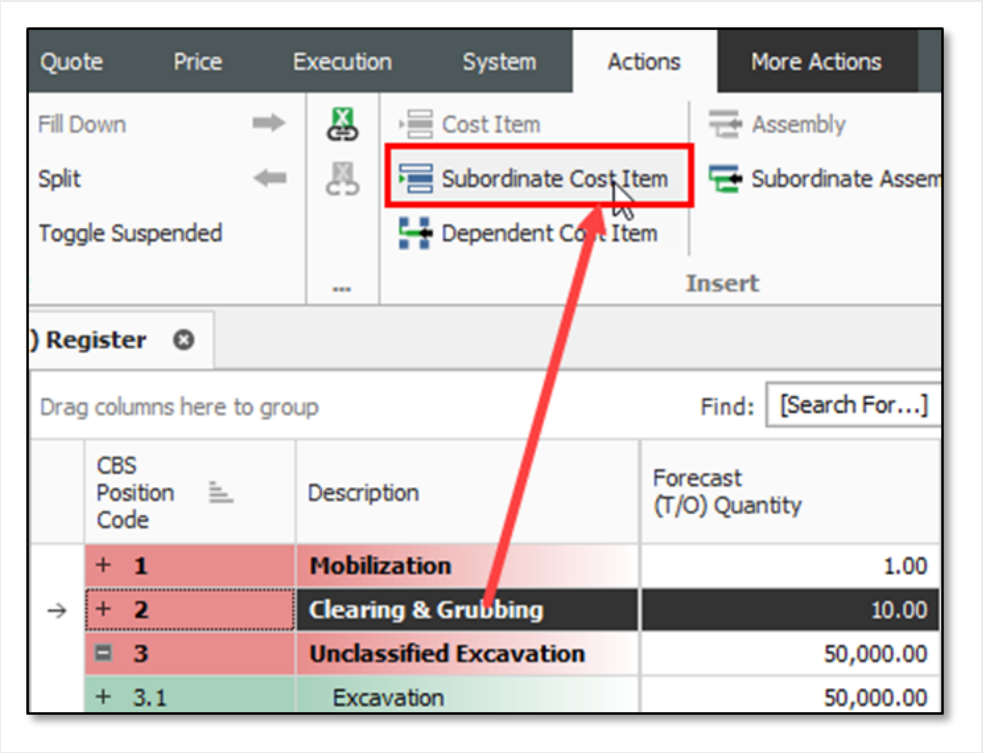
Right-click on the row header of the superior cost item and select **Insert Subordinate.**



The row header is considered the far left edge of the CBS row where the small arrow appear 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.

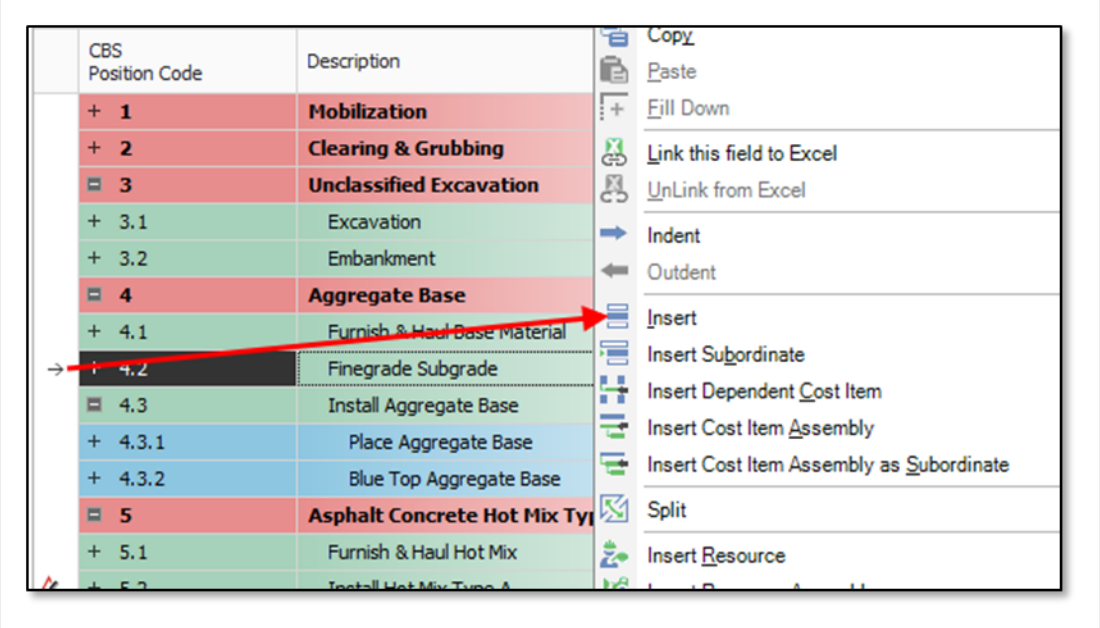


5.2.2 Insert Cost Item

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

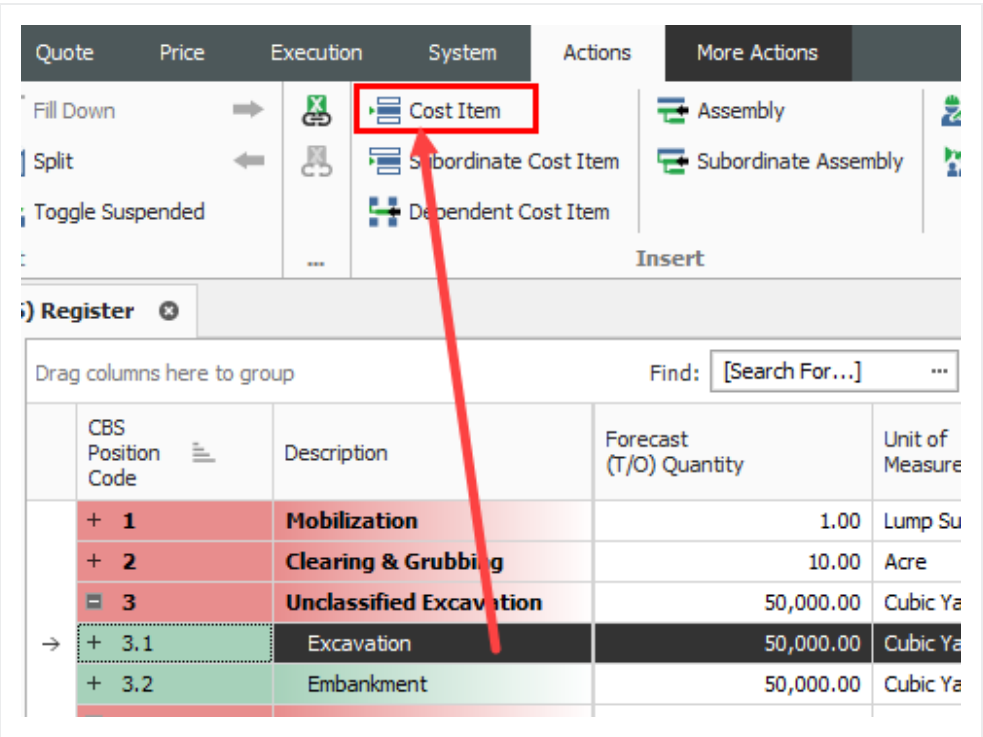
Option 1

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.

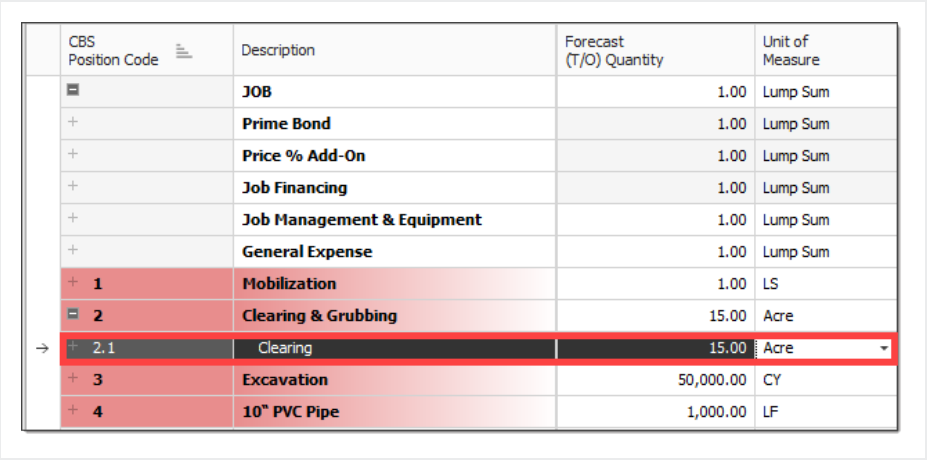


Because the project you are working in is a “locked” job (where cost items are locked to pay items), your CBS Register will already have level 1 cost items representing each of your pay items, and each cost item will be assigned to its corresponding pay item.

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 the **E101 – Training** Job, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the **Clearing & Grubbing** cost item and select **Insert Subordinate**.
    - This creates a new cost item (2.1) below cost item 2
3. For cost item 2.1, type the Description **Clearing**.
4. Keep the quantity at **15** and keep Units of Measure as **Acre**.



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
	Job Management & Equipment	1.00	Lump Sum
	General Expense	1.00	Lump Sum
1	**Mobilization**	1.00	LS
2	**Clearing & Grubbing**	15.00	Acre
2.1	Clearing	15.00	Acre
3	**Excavation**	50,000.00	CY
4	**10" PVC Pipe**	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:

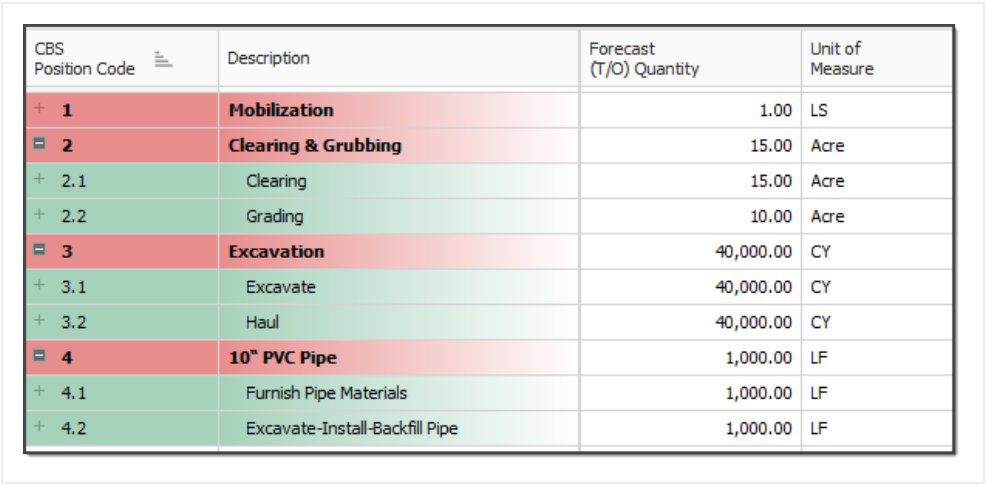
The symbol with three equal bars will drop the cost item at the same level as the cost item you drop it on.	
The symbol with a subordinate bar will make the cost item become a subordinate to the one you drop it on.	

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	**Mobilization**	1.00	LS
2	**Clearing & Grubbing**	15.00	Acre
2.1	Clearing	15.00	Acre
2.2	Grading	10.00	Acre
3	**Excavation**	40,000.00	CY
3.1	Excavate	40,000.00	CY
3.2	Haul	40,000.00	CY
4	**10" PVC Pipe**	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

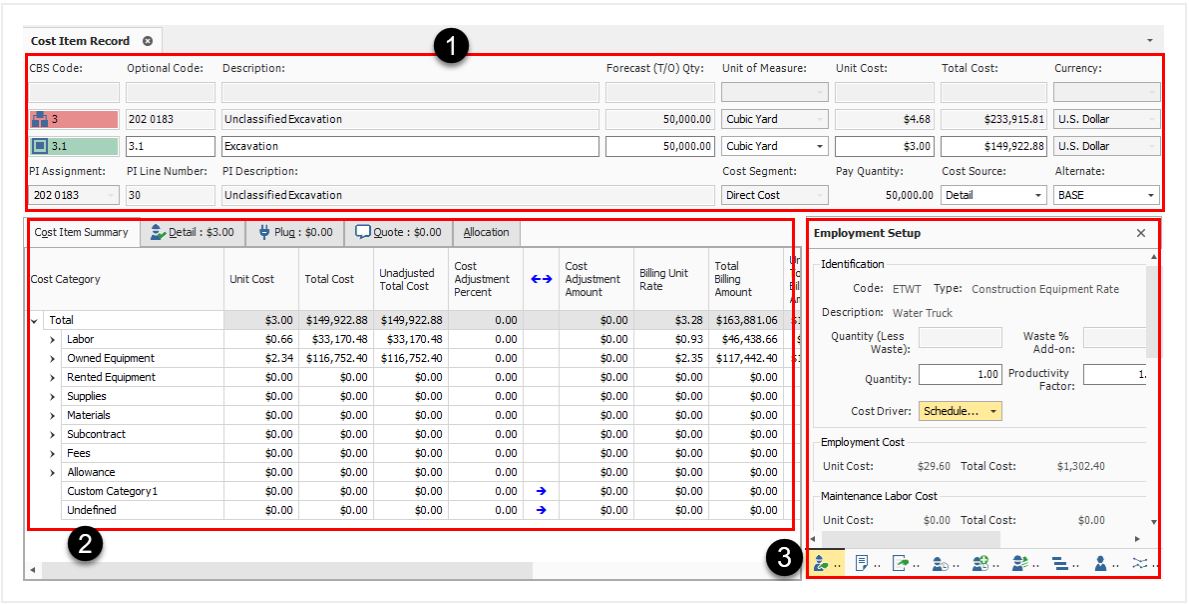
For the cost items you've created, you can now add their costs and production. All information for a cost item is contained in a Cost Item Record.

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

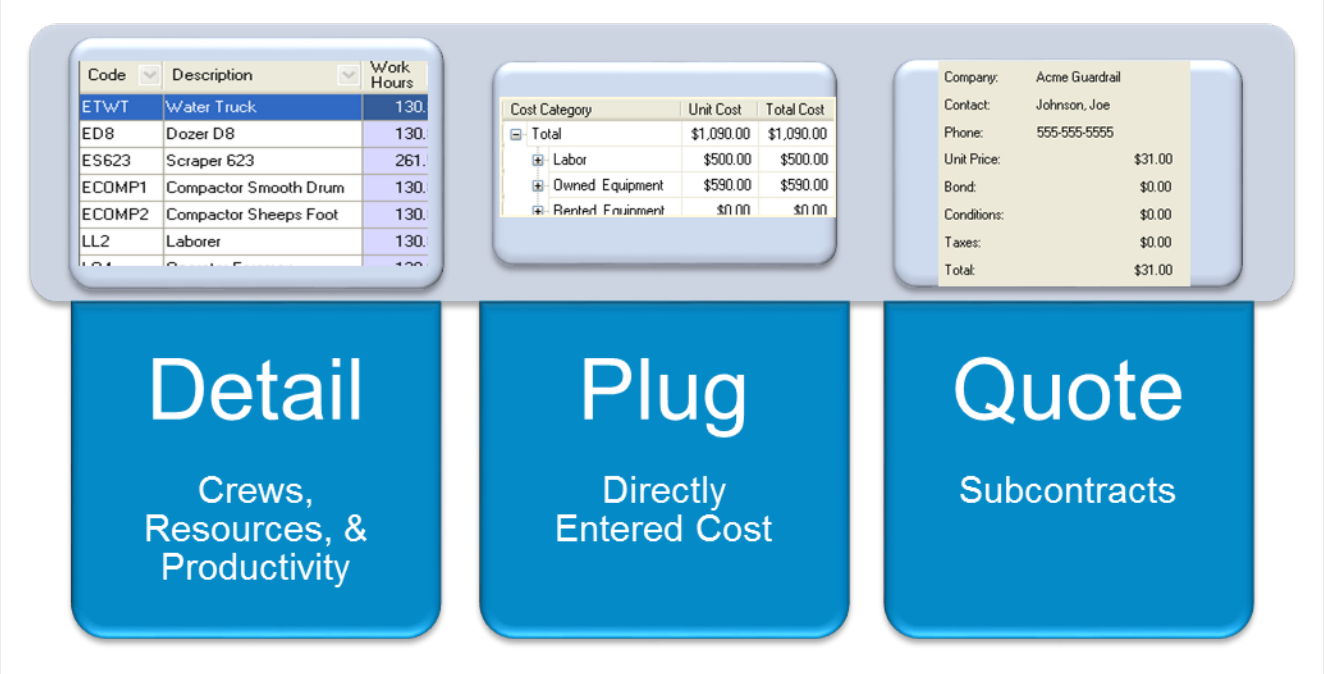
	Name	Description
1	Cost Item Header Information	Provides general information about the cost item. It displays the cost item's take-off quantity, Unit of Measure, and Cost. It also indicates what Cost Source is being used.
2	Costing Area	Section where costs are defined. There are three ways to enter costs: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



5.3.2 Cost Sources

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

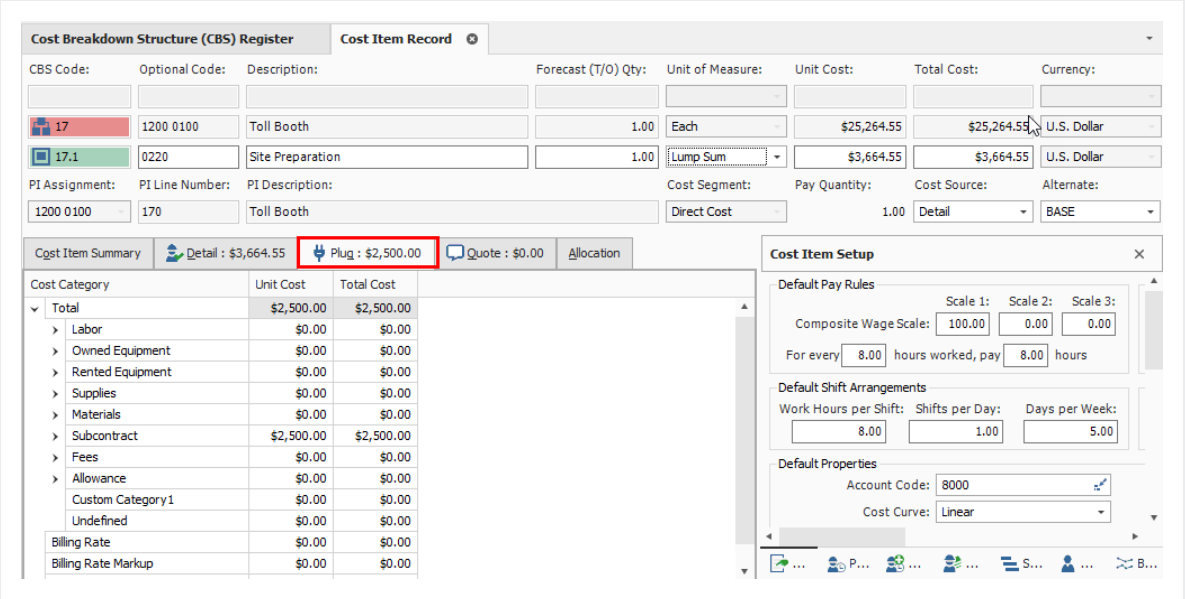
Tab	Description
Detail	This is the recommended costing method, where labor, equipment, and material resources are defined, along with productivity, to determine costs.
Plug	This method allows you to enter a unit or total cost directly, without needing to enter resources or production. **This should rarely be used**, but does have a couple of use cases: • Place holder value until you get more information (from subcontractors or designers) • For preliminary estimates when limited information is available
Quote	The Quote cost source is for contractors, subcontractors or vendor quotes. • Creating and managing quotes is covered in *Lesson - Quote Management*



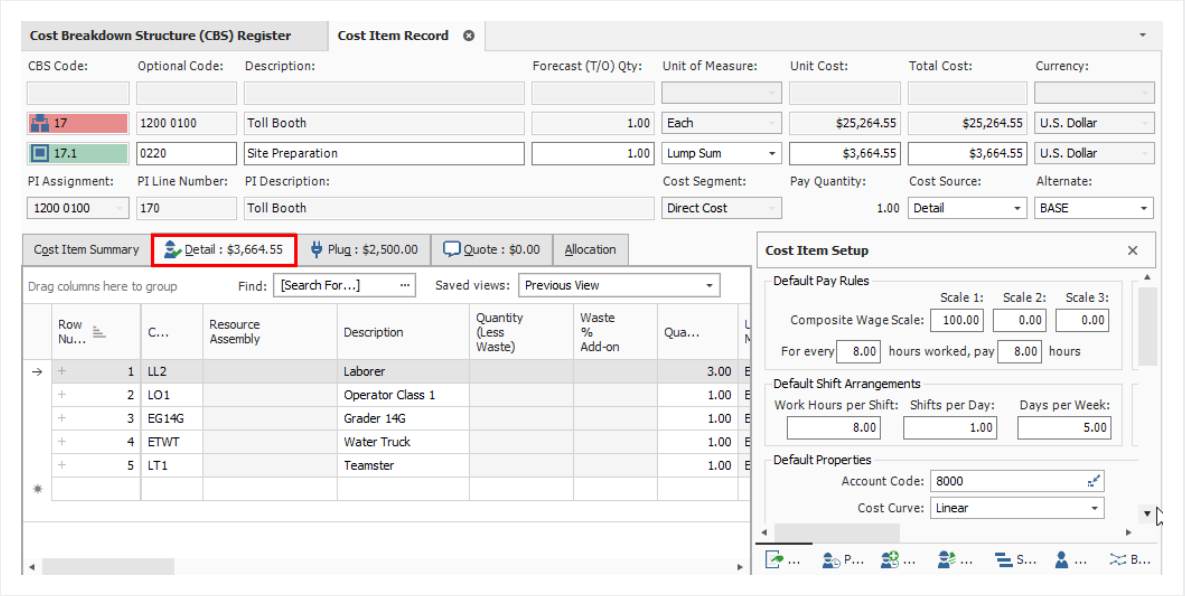
On each Cost Item Record, InEight Estimate gives you the option to define both Plug and Detail values on each respective tab.

5.3.2.1 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.

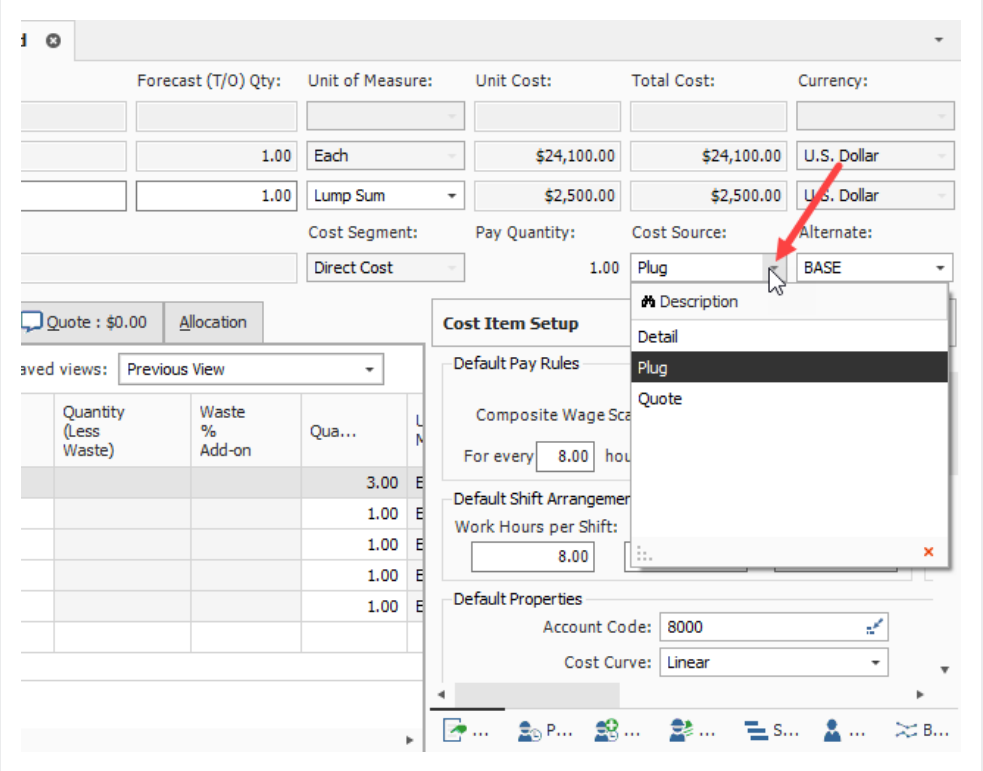


5.3.2.2 Detail Tab



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.



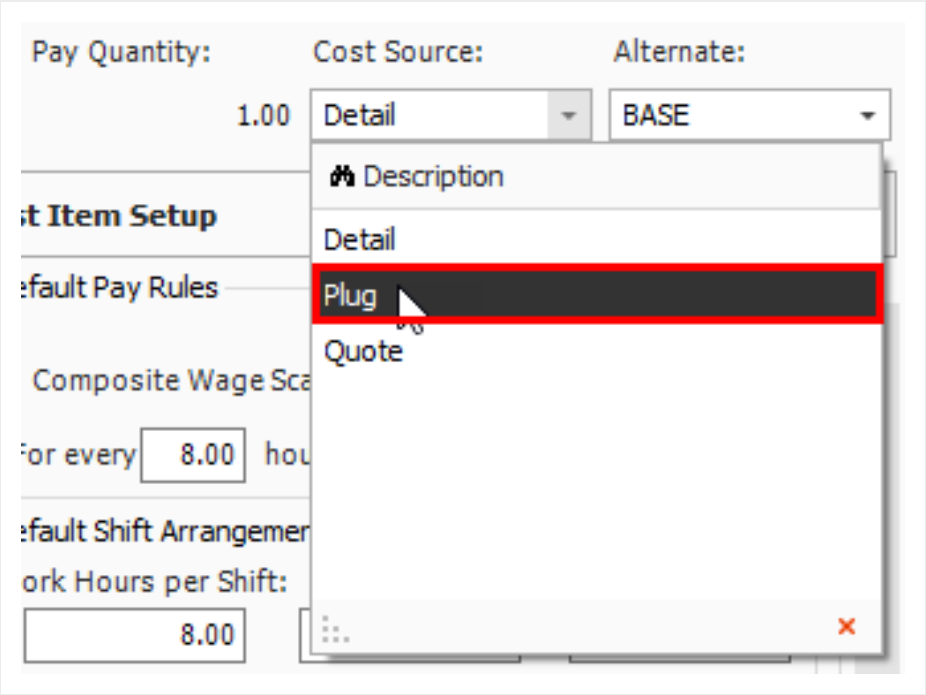
TIP The Quote Cost Source can only be selected from the Quote Comparison & Award form. See Lesson 8 – Quote Comparison.

5.3.3 Plug Costs

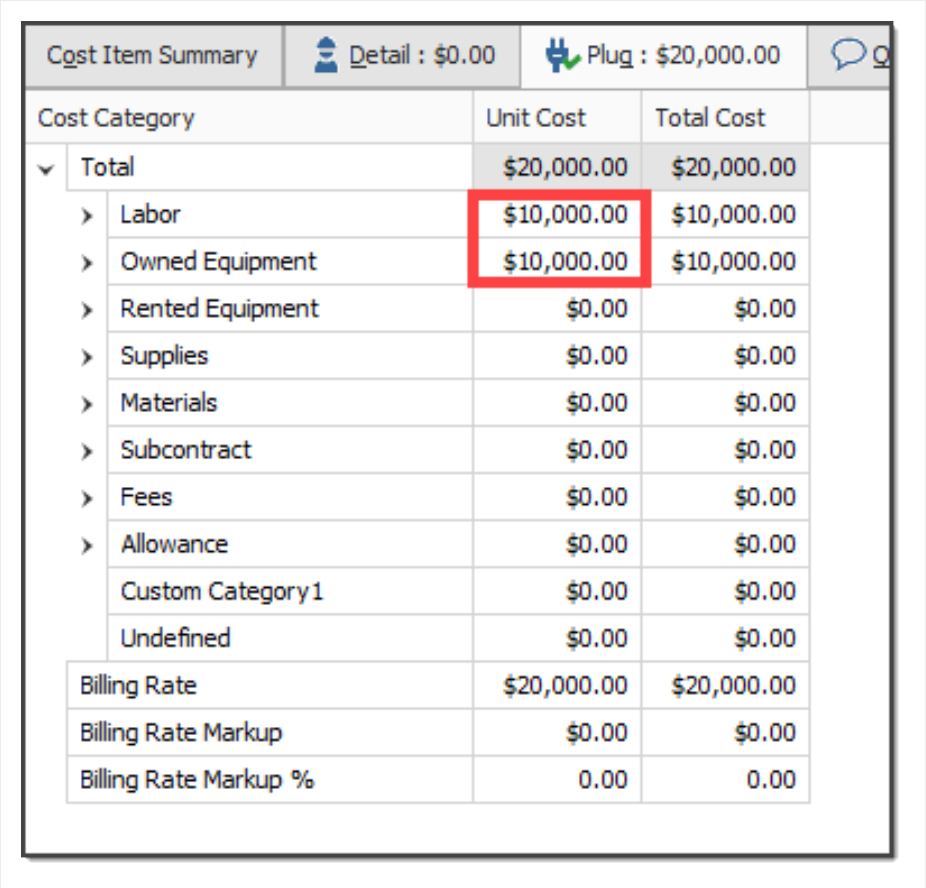
The following steps walk you through defining a plug cost on a cost item.

Step by Step — Define a Plugged Cost

1. In the **E101 – Training Job**, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the row header for cost item 1 **Mobilization** 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 **LaborUnit Cost** field and type **10,000**. Click in the **Owned Equipment Unit Cost** field and type **10,000**.



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 Category1	$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

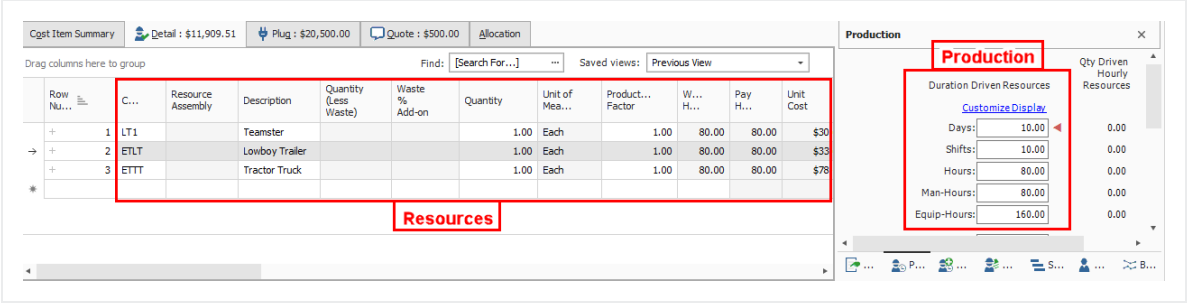
5.3.4 Detail Costs

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

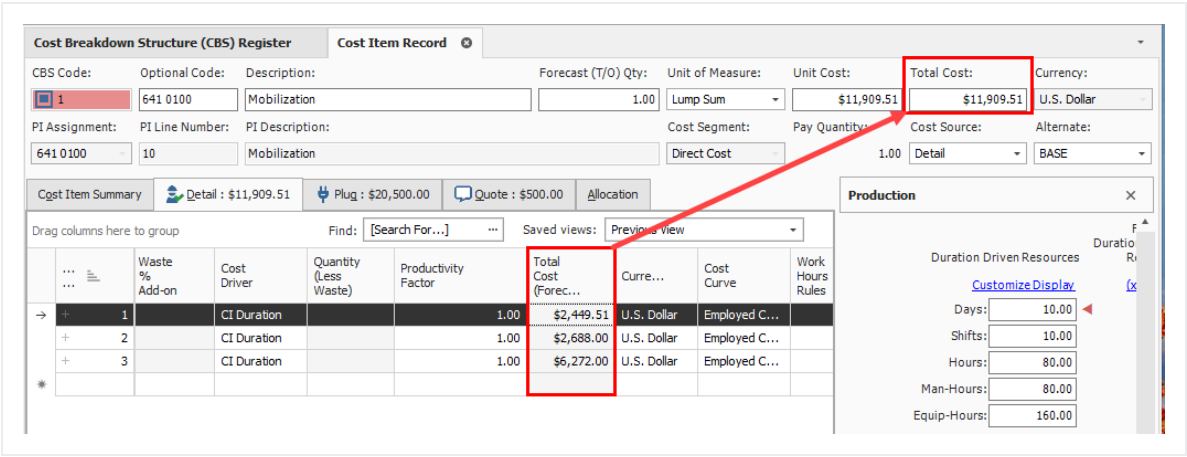
When you enter a production value, all the other production fields will auto-fill based on what you entered.



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.



5.3.4.3 Add Cost Detail

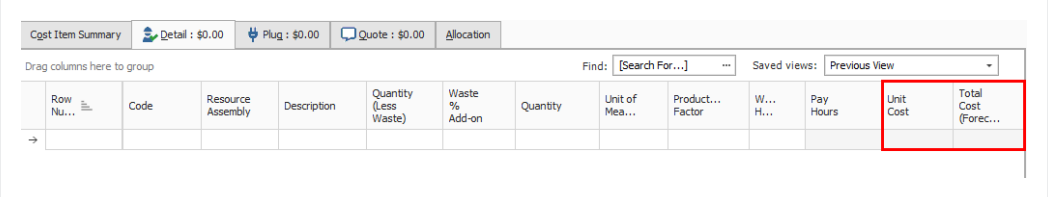
The following steps walk you through adding resources and production on a cost item.

Step by Step — Add Cost Detail

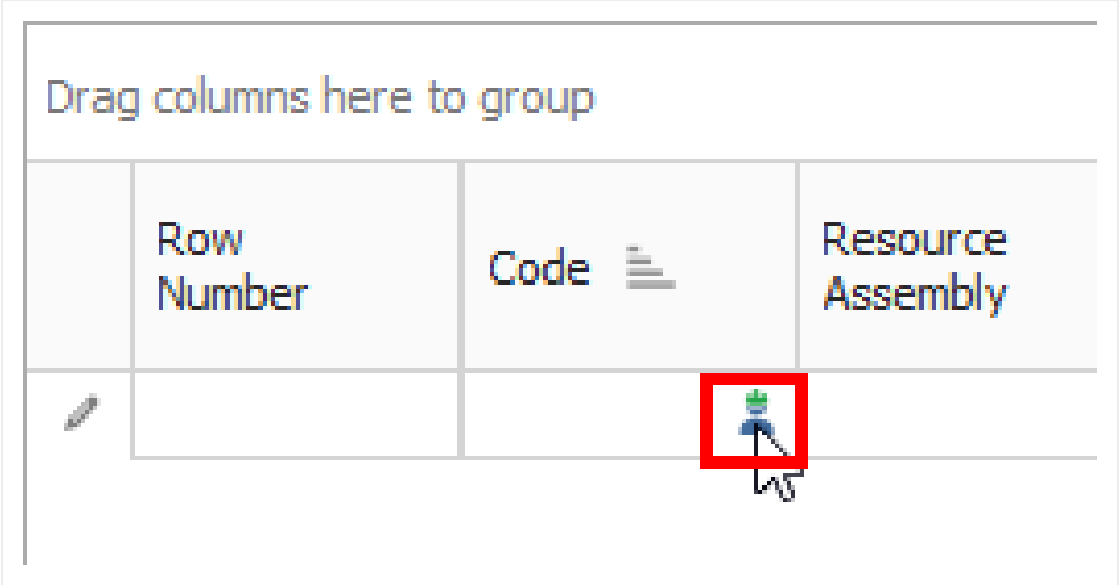
1. In the **E101 – Training Job**, from the InEight Estimate landing page, on the Estimate tab, select

Cost Breakdown Structure (CBS).

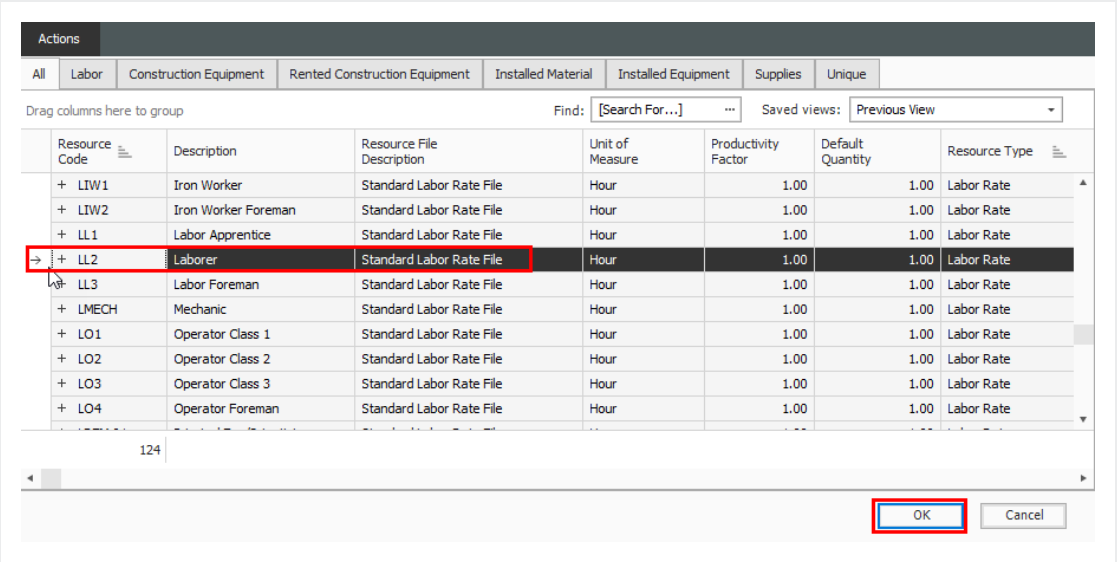
2. Right click on the row header for cost item **2.1 Clearing** and select **Open**.
3. Select the **Detail** tab.
    - Notice there is no cost on the Detail tab since no cost detail is defined



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.



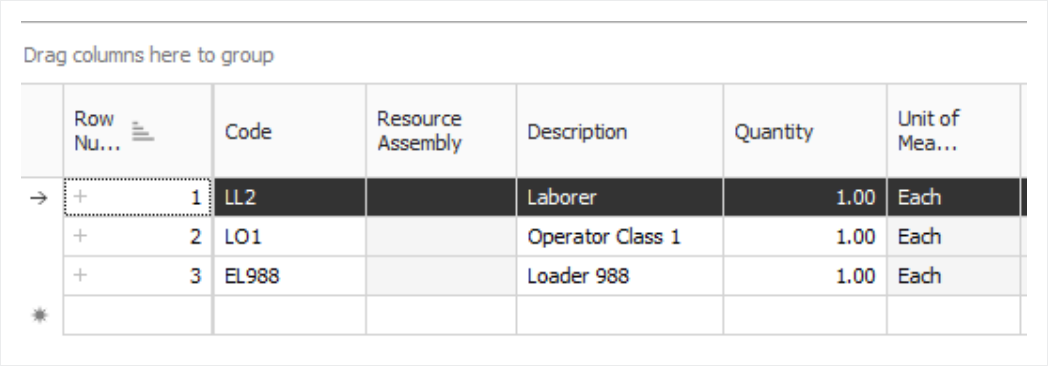
5. On the **Labor** tab, select the **LL2 Laborer** resource.
6. Select **OK**.



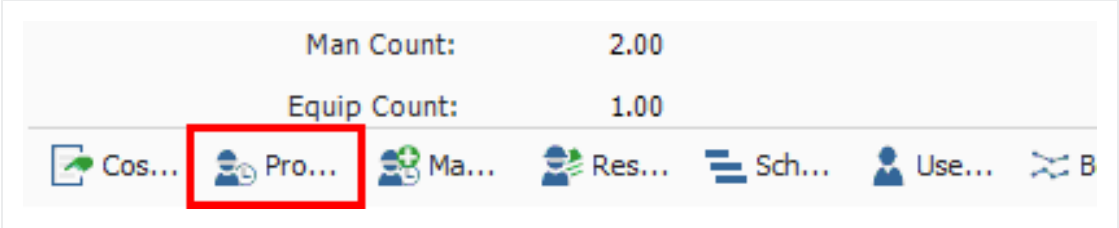
- The labor resource you selected is now employed on the cost item

7. In the new blank row, click in the **Code** field and click on the **Resource Selection** icon to open the Resource Selection Register.
8. Select the **Labor** tab, then select the **LO1 Operator Class 1** resource.
9. Click **OK**.
10. In the new blank row, click in the **Code** field and click on the **Construction Equipment** tab, then select the **EL988 Loader 988** resource.
11. Click **OK**.
    - Notice that the two labor resources and the construction equipment resource are now employed on your cost item
    - You will leave all of our quantities set to 1. You should end up with the following employed

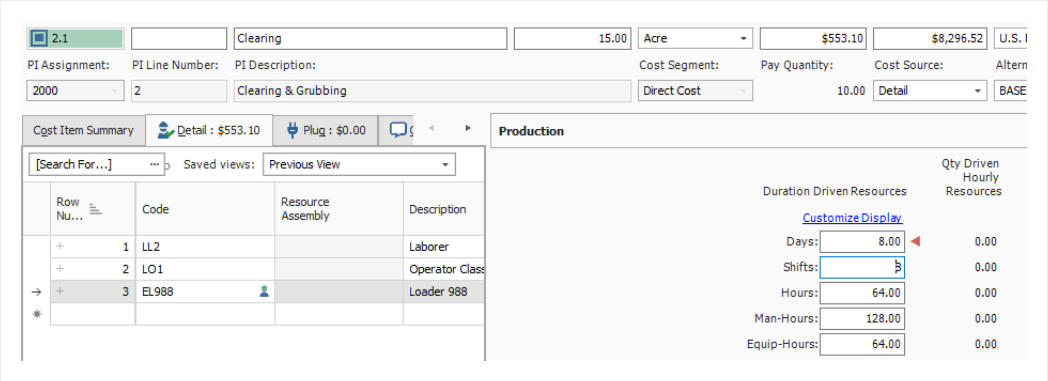
resources and quantities:



12. 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.

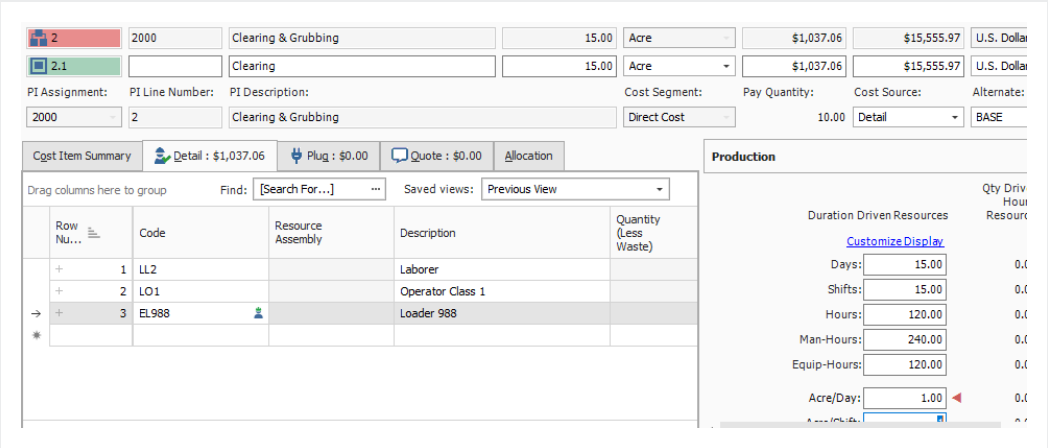


13. Type **8** in the Days field, then press **Tab**.
    - Notice the red arrow indicating where production was defined
    - Notice that the Total Cost of the cost item is defined, based on the resources and productivity you defined



14. Next, adjust the production by typing **1** in the Acre/Day field.

- You can see that the red arrow indicates where the adjustment was made and it automatically changed the days to 15

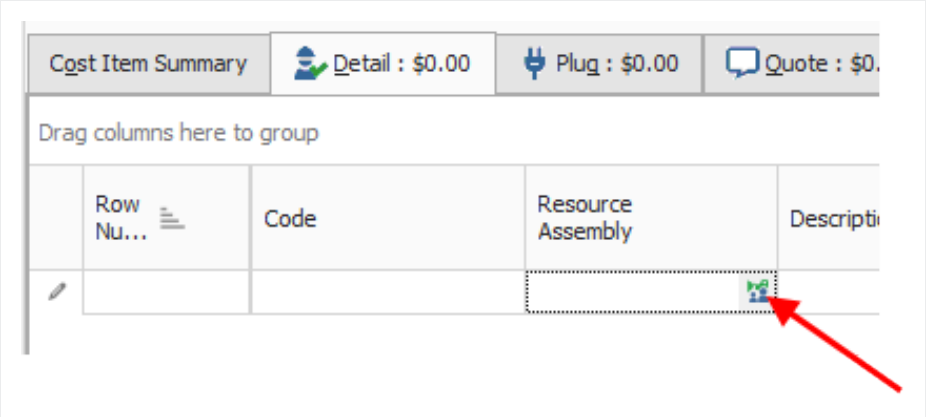


15. Click **OK** to close the record.

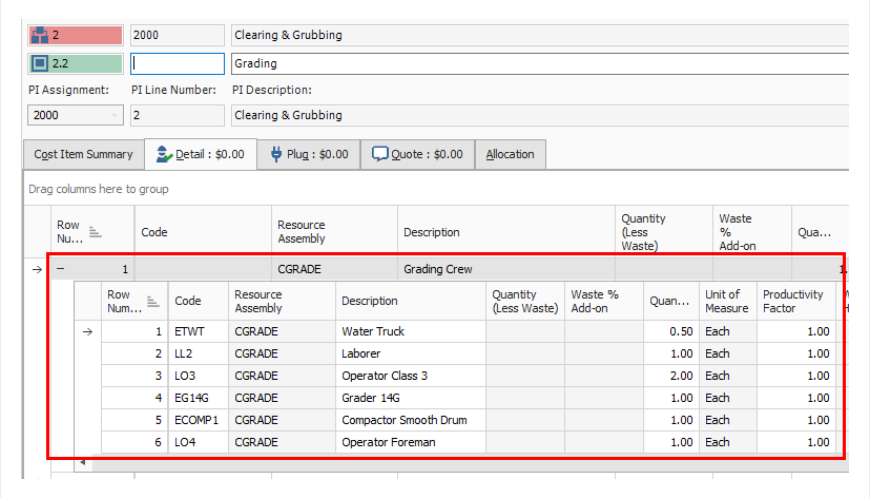
5.3.4.4 Add Assembly

Step by Step — Define Cost Detail by Adding an Assembly

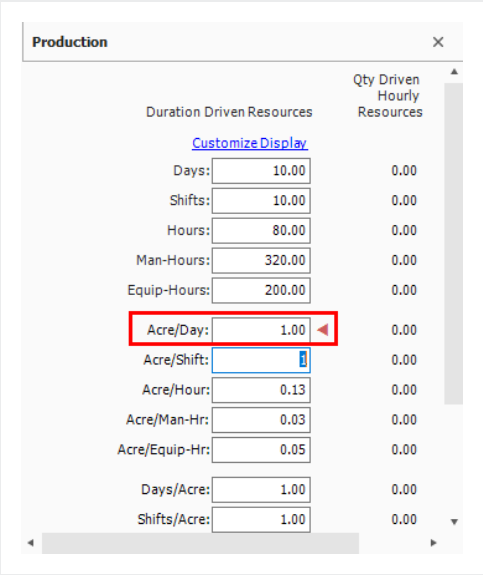
1. Open the **E101 - Training Job**, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the row header for cost item **2.2 Grading** and select **Open**.
3. Select the **Detail** tab.
    - A blank row is available to define your costs
4. With your cursor in the Resource Assembly field, click the **Resource Assembly Selection** icon to open the Resource Assembly Selection Register.



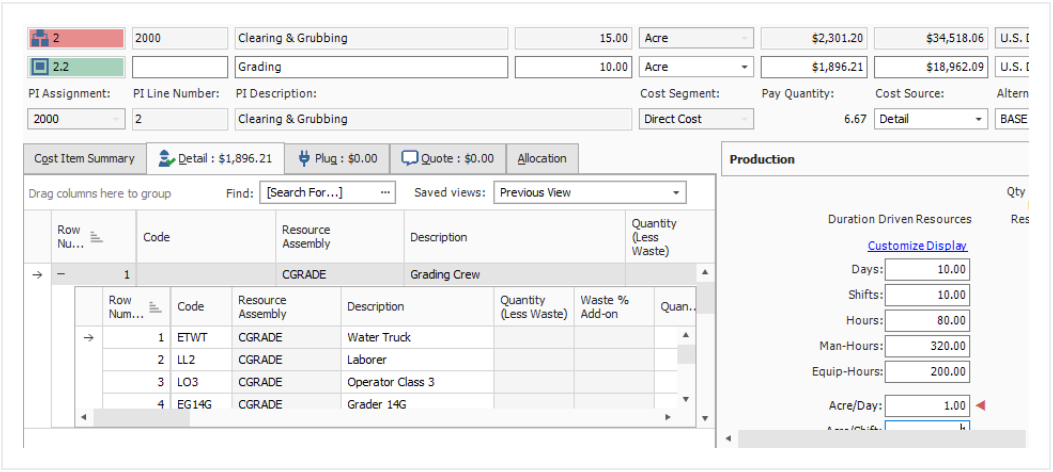
5. Select the **CGRADE Grading Crew** assembly, then select **OK**.
    - The assembly you selected is now employed on the cost item



6. Because this crew includes duration-based resources, you need to enter a Production value. Select the **Production** tab.
7. Type **1** in the Acre/Day field, then press **Tab**.



- You should end with the following result:



- 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
CY/Hour	**400**	

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

CY/Hour	400

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

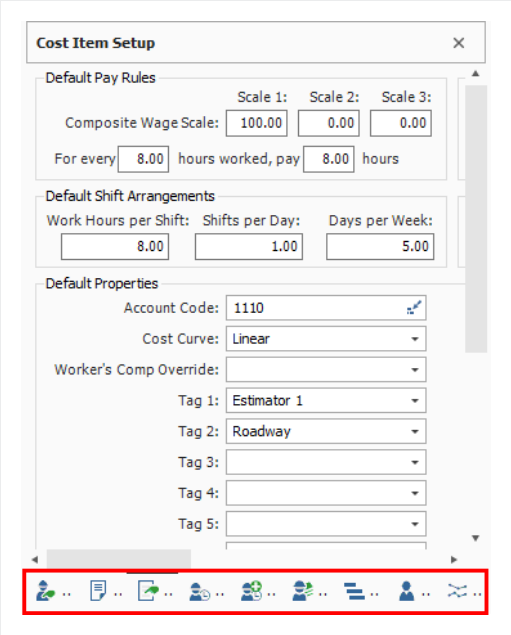
You should end up with the following results

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
+ 1	**Mobilization**	1.00	Lump Sum	$20,000.00	$20,000.00
− 2	**Clearing & Grubbing**	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	**Excavation**	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	**10" PVC Pipe**	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

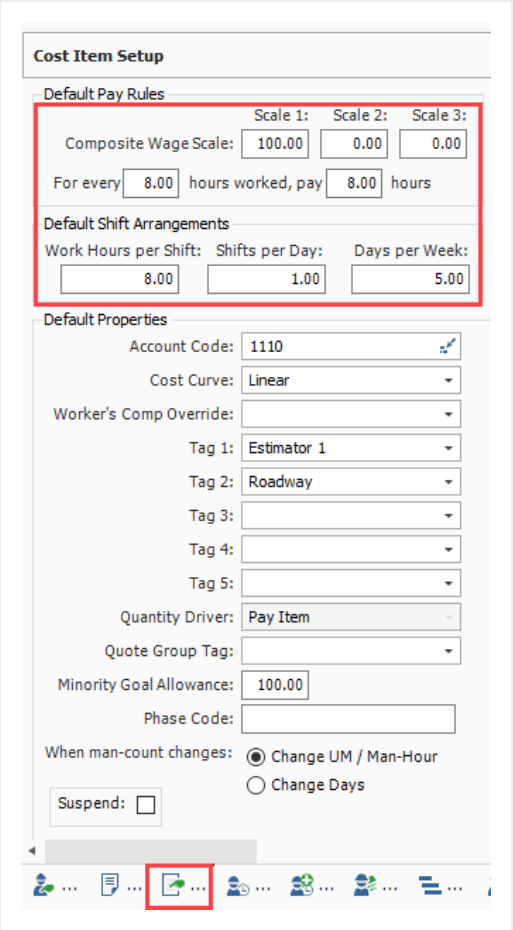
The Cost Item Record contains other tabs (called Data Blocks) in addition to the Production tab, for storing and calculating information specific to that cost item.



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.



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.

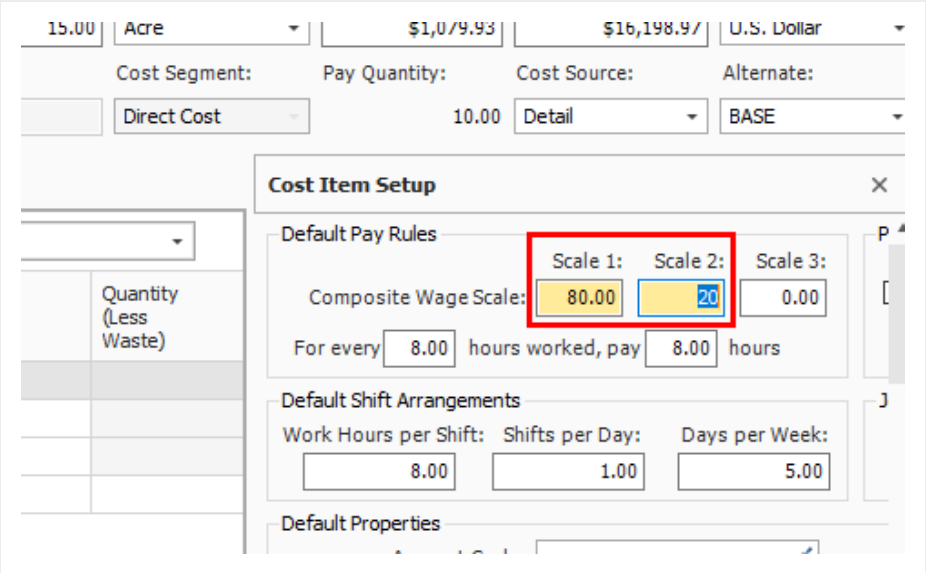
These settings can be modified from the default on a cost item-by-cost item basis.

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.

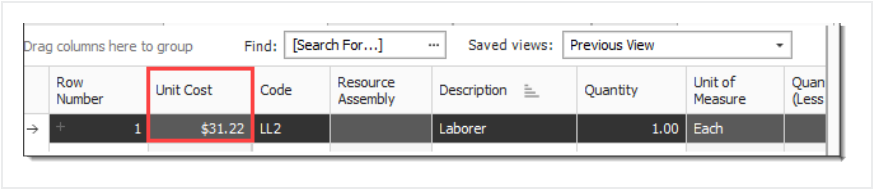
Step by Step — Adjust Shift Arrangements

1. Open the **E101 - Training Job**, from the InEight Estimate landing page, on the Estimate tab, select **Cost Breakdown Structure (CBS)**.
2. Right click on the row header for cost item **2.1 Clearing** and select **Open**.

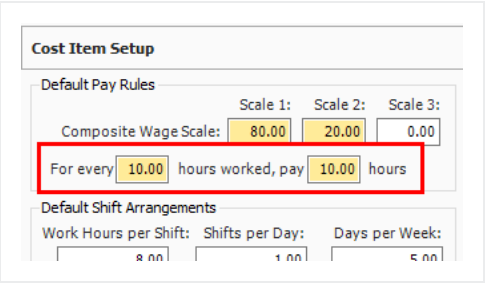
3. Select the **Cost Item Setup** tab in the lower-right portion of the form (the tab name may be abbreviated).
4. In the Default Pay Rules data block, adjust your wage scale to **80** for Scale 1 and **20** for Scale 2.



- Notice that your Laborer and Operator Class 1 Unit Costs go up because you are now using a blended (80% scale 1, 20% scale 2) rate

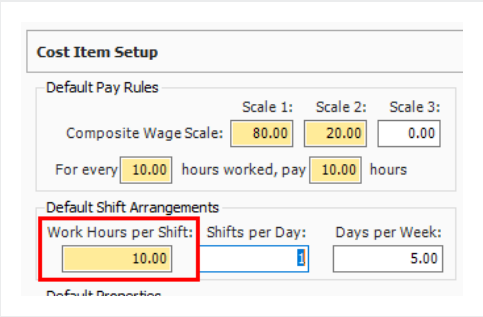


5. Under the Composite Wage Scale, adjust the hours so that for every **10** hours worked, pay **10** hours.

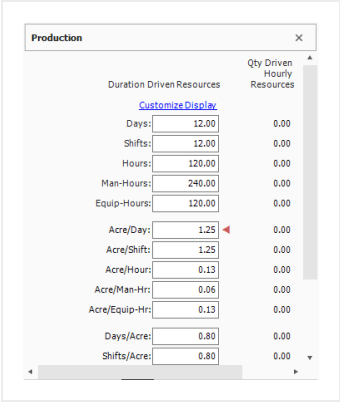


6. In the **Default Shift Arrangements** data block, change the Work Hours per Shift to **10**. Leave

Shifts per Day at **1** and Days per Week at **5**.



- 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 (e.g., Days changed from 15 to 12, Acre/Day is now 1.25 instead of 1)



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).

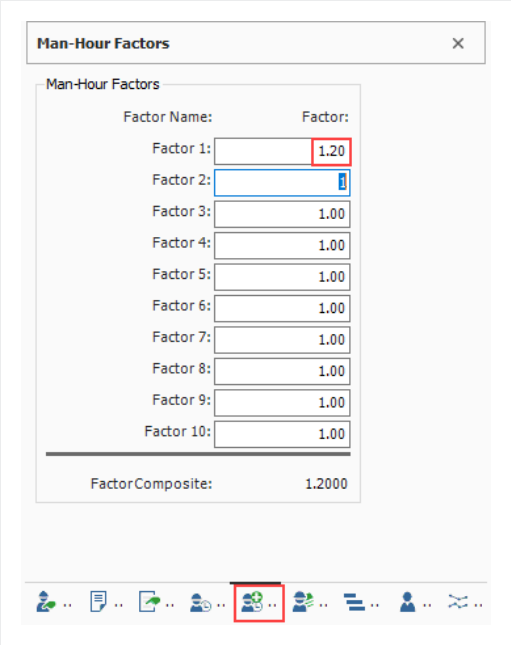
5.4.3 Man-Hour Factors

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.

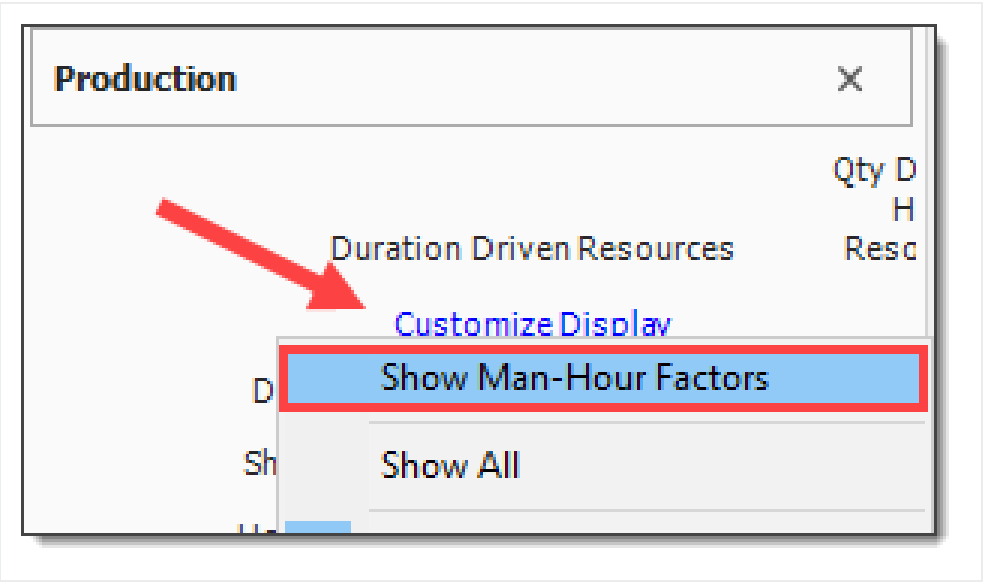
TIP Man-Hour Factors affect both Labor and Equipment Hours.

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



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

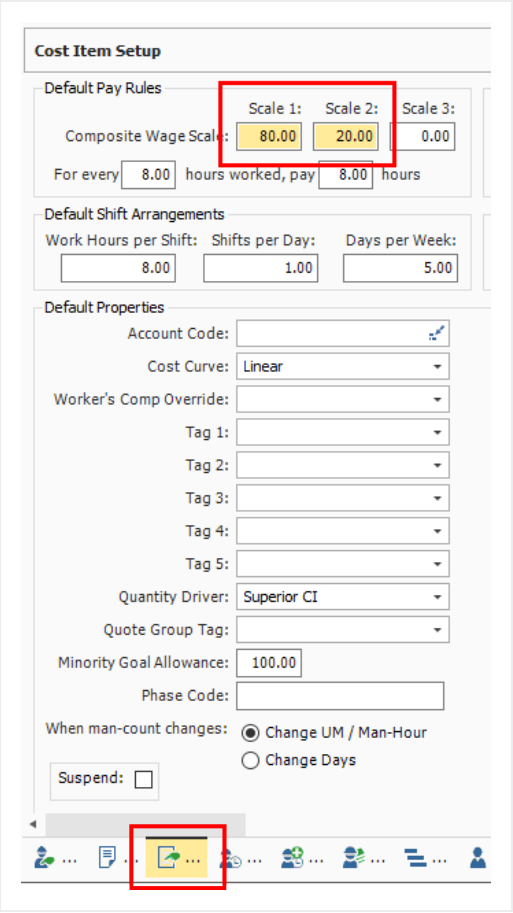
- To see the factored Production values, click the **Customize Display** link on the **Production** tab and select **Show Man-Hour Factors**
- Both original and factored production are then displayed on the Production tab



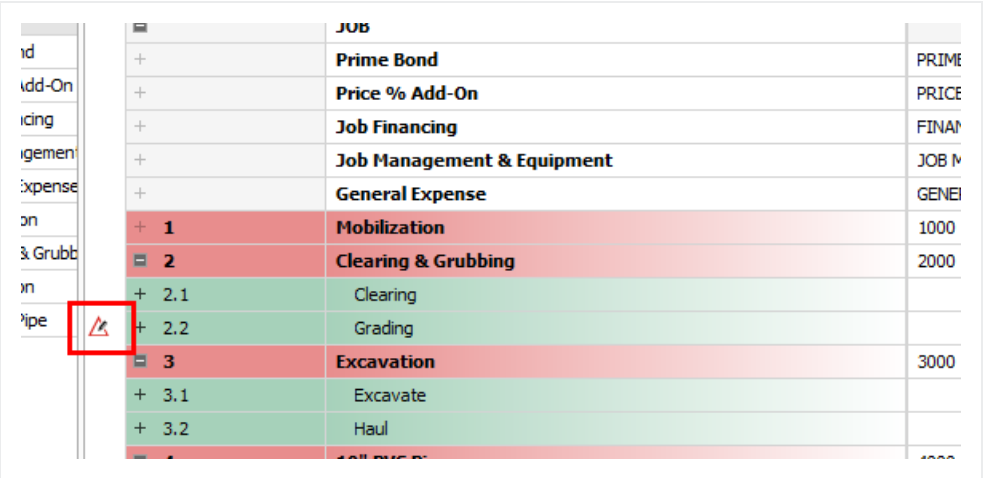
TIP You can apply Man-Hour Factors to multiple cost items at once by Multi-Editing selected cost items on the CBS Register.

5.4.4 Unique Identifier

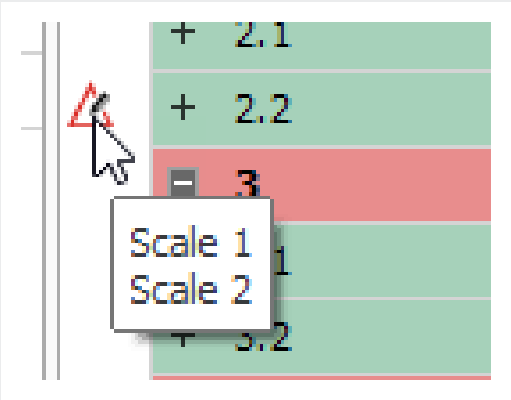
You may have noticed when you made changes on the Cost Item Setup tab, that the fields you changed and the Cost Item Setup tab became highlighted, indicating they were altered from their original state.



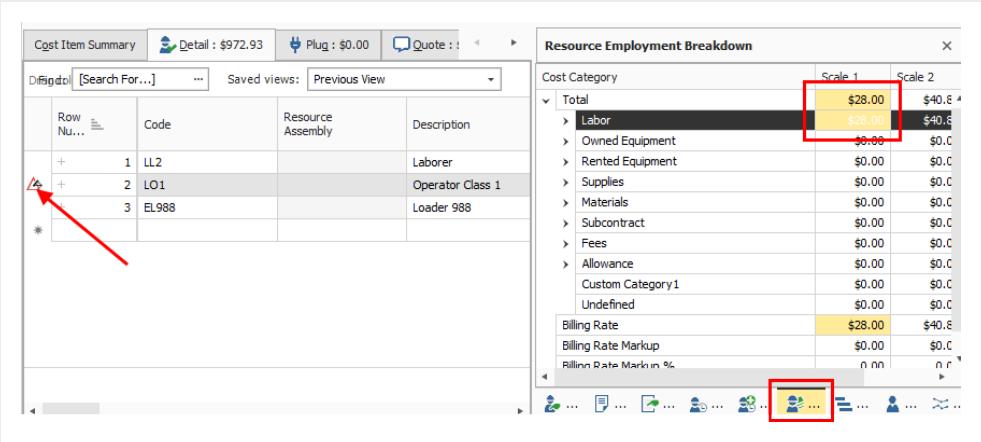
On the CBS Register, the cost item you edited now has a Unique Identifier in the row header indicating the cost item was altered from the default values set in the project job properties or in the project library of resources rates.



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

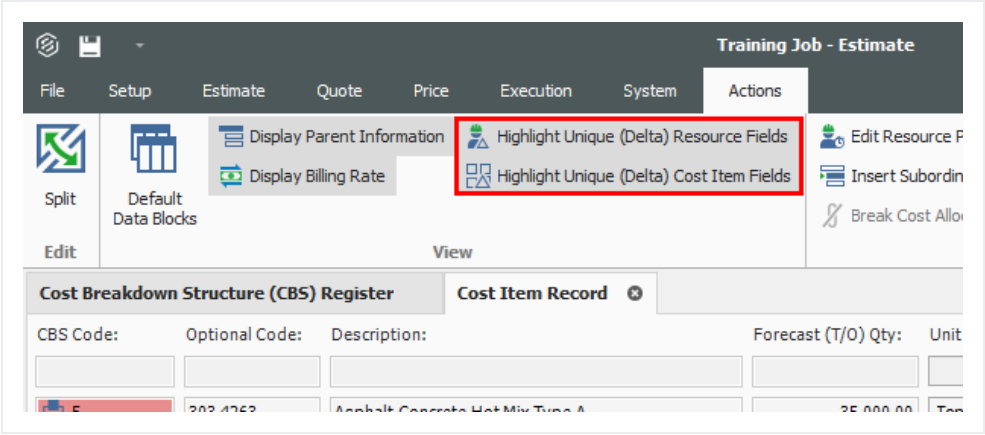


This same identifier will show up for resources as well, if you make changes to the employed resource's cost to be different than the original resource rate imported from the Resource Rate Register.



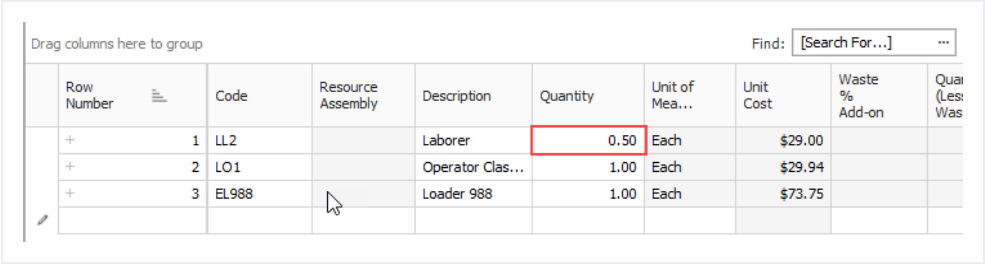
5.4.4.1 Highlight Unique (Delta) Toggle

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.

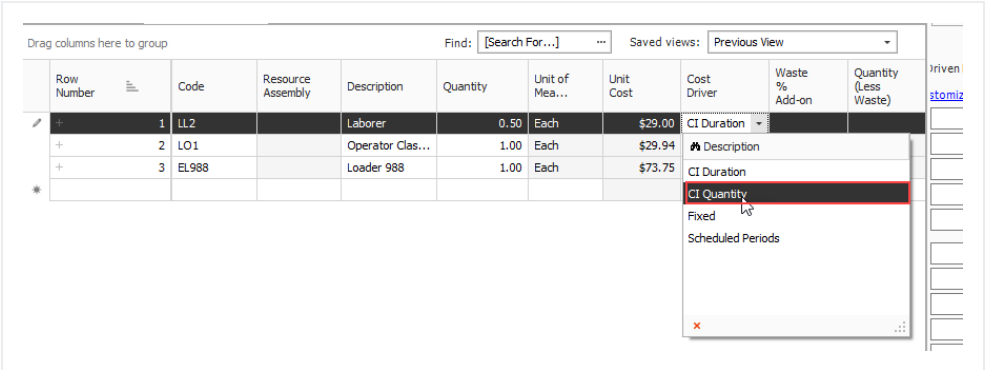


5.4.5 Cost Drivers

Each type of resource has a default cost driver. For example, Labor resources are duration driven so the cost driver is CI Duration, meaning their costs are driven by the duration of the cost item. If you want an Operator to only be assigned to a specific cost item or work activity for half the time, you can change its quantity to .5 and it will be driven by half of the cost item's hours.

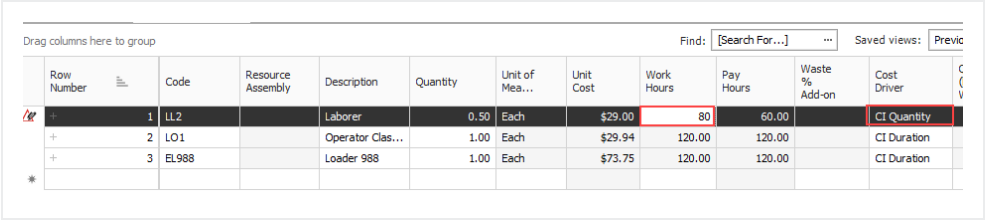


To enter work hours manually for the employed resource, you can change the Cost Driver option to CI Quantity or Fixed.

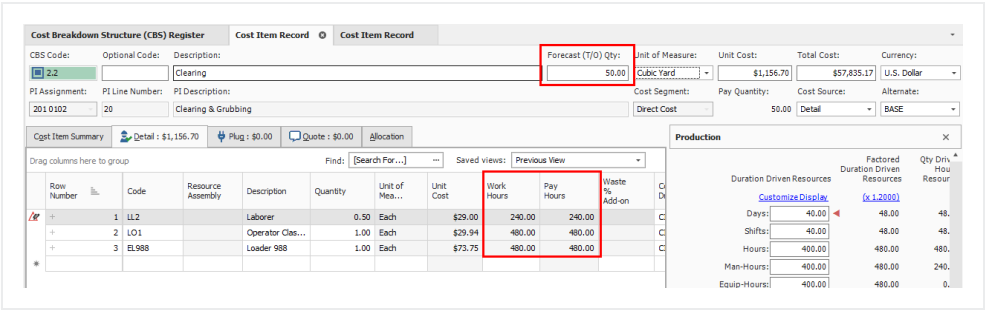


With CI Quantity as your cost driver for the Operator, you can adjust the Work Hours manually, where previously that column was read-only.

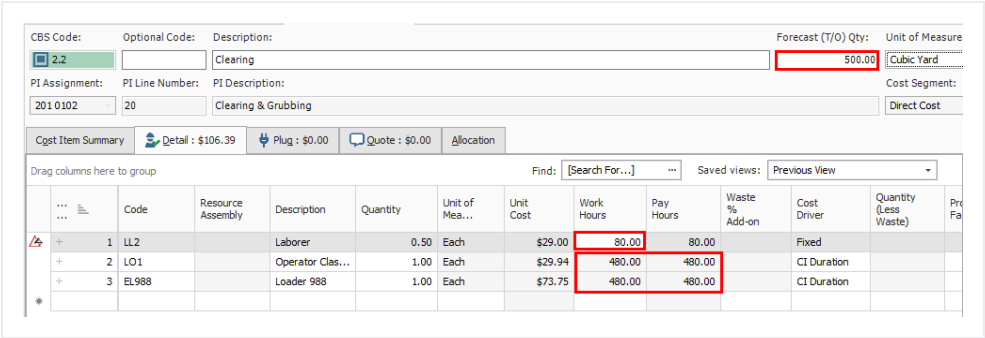
Let's say you want your Operator to work specifically 80 hours.



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.



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.

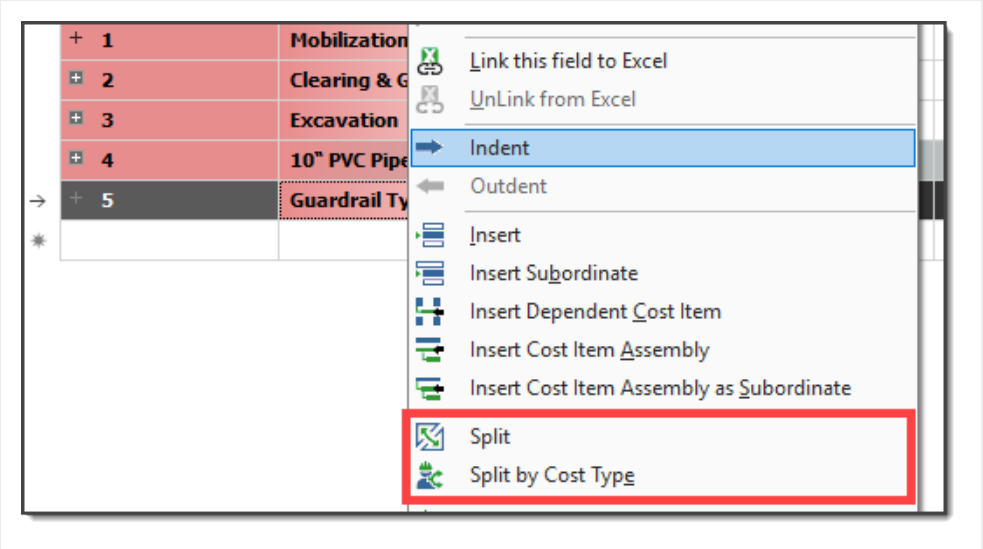


If you followed along and made any adjustments to cost item 2.1 Clearing, change the Cost Driver for the Operator resource back to **CI Duration** and the Work Hours back to **100**.

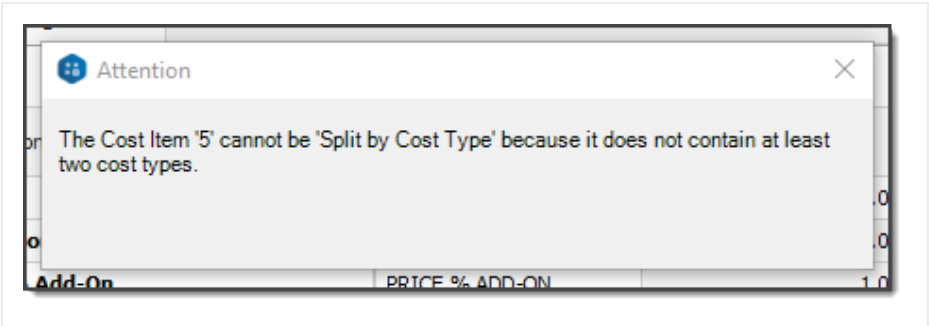
5.4.5.2 Split by Cost Type

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.

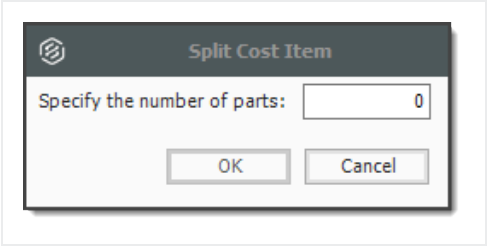
The Split by Cost Type feature gives you the ability to select a cost item or a collection of cost items, and then separate any of the labor, equipment, material, or subcontract costs into separate cost items.



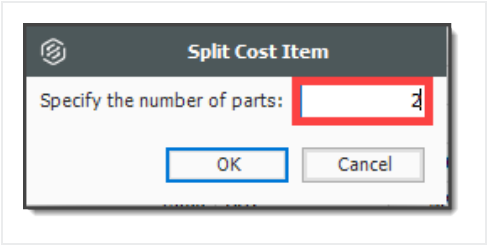
- Right click on a new Cost Item under Guardrail Type 2, and select **Split by Cost Item**. You can use this option if there at least two types. If not, you will get this pop-up:



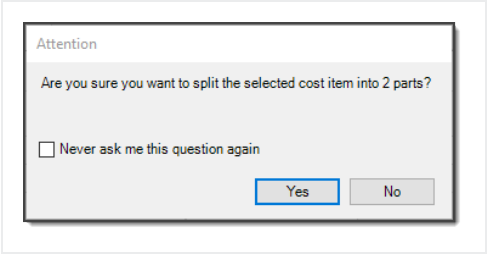
Alternatively, click on **Split**.



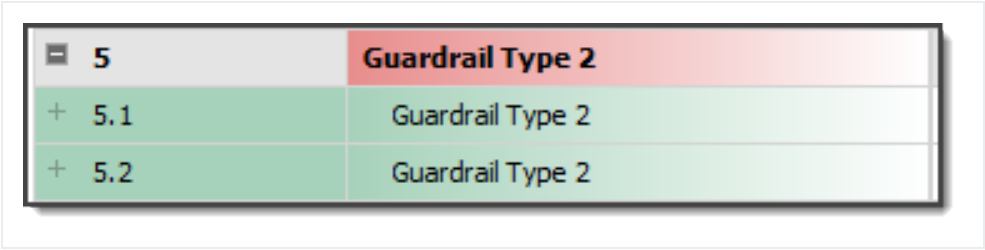
- Enter the number of parts to split and click OK



- 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.



5.4.6 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.

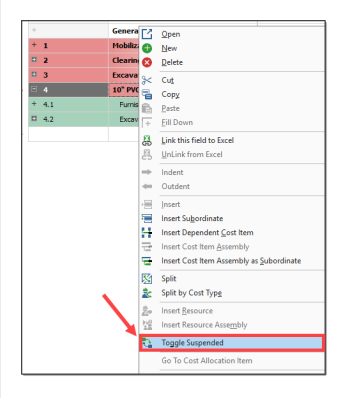
A cost item can be suspended in InEight Estimate for various reasons including the following:

- 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

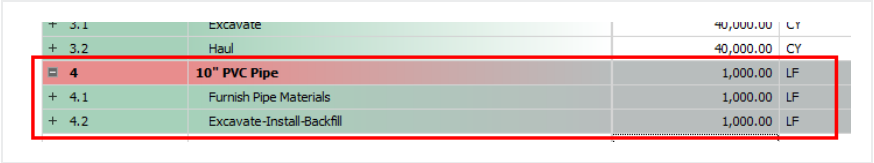
Suspended cost items do not contribute any cost to the job's total value. Suspended items can be un-suspended at anytime in order to be included in the total project value.

Step by Step — Suspend a Cost Item

1. On the **Cost Breakdown Structure (CBS) Register**, select the **10” PVC Pipe** 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



    - The 10” PVC Pipe cost item is now suspended, and since it was a superior cost item, the subordinates are automatically suspended along with it



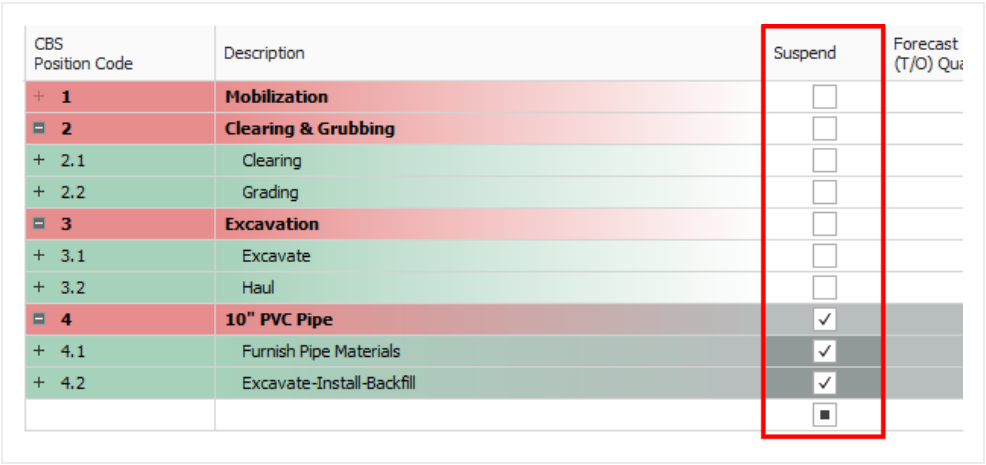
- The costs associated with these cost items will no longer contribute to the estimate

Step by Step — Unsuspend a Cost Item

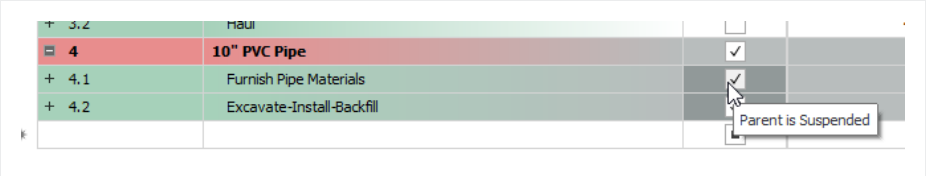
1. On the Cost Breakdown Structure (CBS) Register, select the **10" PVC Pipe** cost item.
2. Right click on the selection and choose **Toggle Suspended**.
    - You can also select Toggle Suspended from the Edit section of the Actions tab
    - You can also unsuspend cost items by unchecking the Suspend checkbox on the Cost Item Setup tab of a cost item record

5.4.6.3 Suspend Column

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



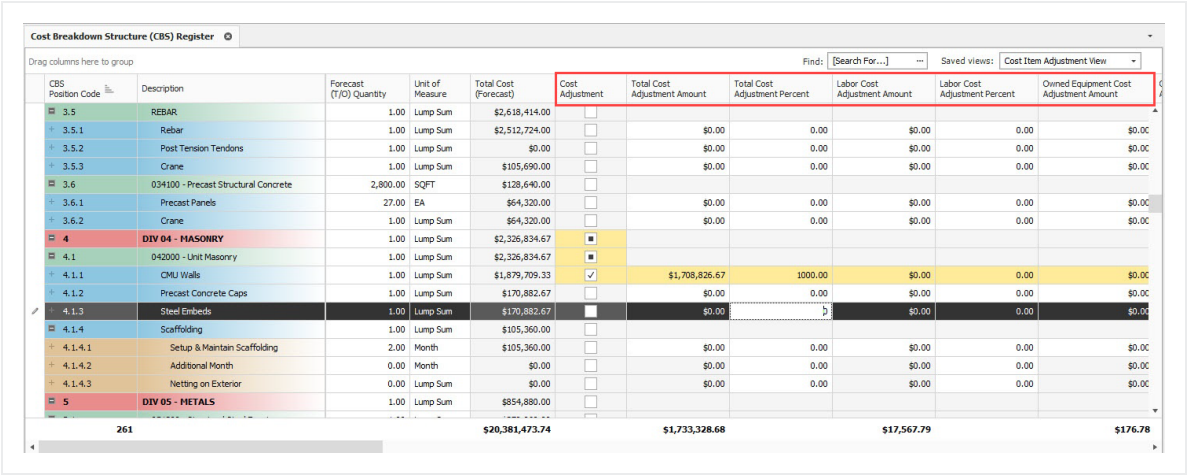
- Hover over the checkmarks to see why the cost item is suspended



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

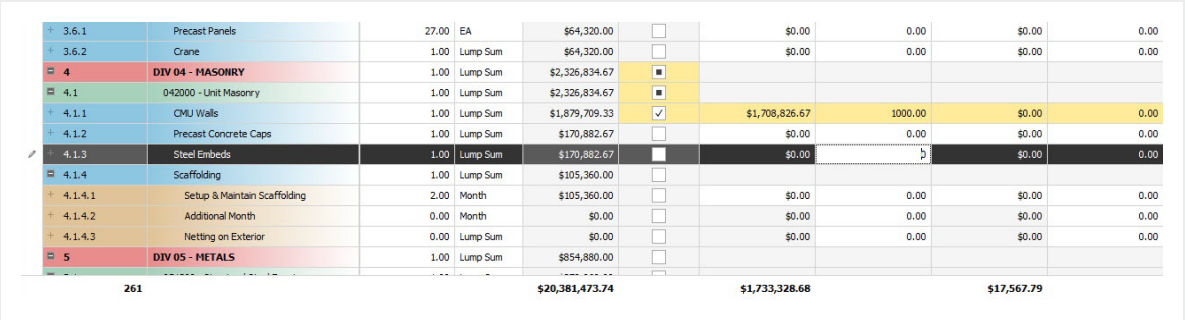
5.4.7 Adding Cost Adjustments

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.



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
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**.

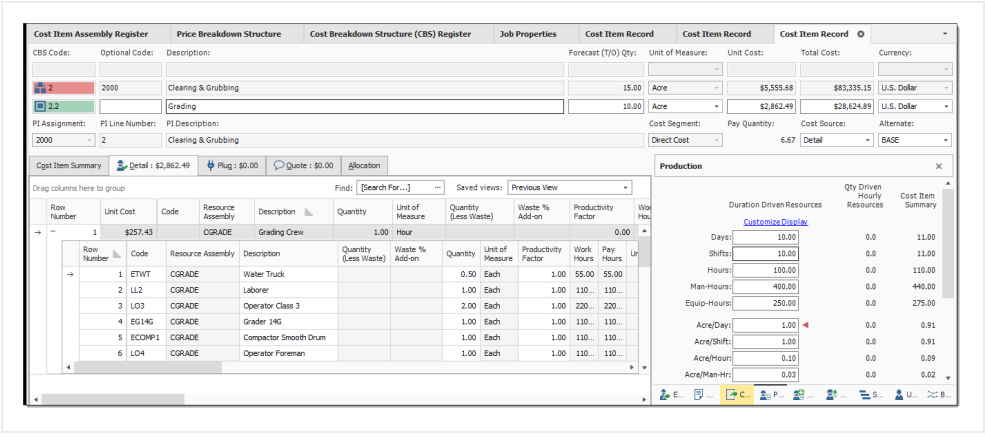
2. From the **Cost Item Setup tab**, change the Composite Wage Scale to **80%** Scale 1, **20%** Scale 2.

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



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

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LESSON 6 – ESTIMATE 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

Lesson Topics

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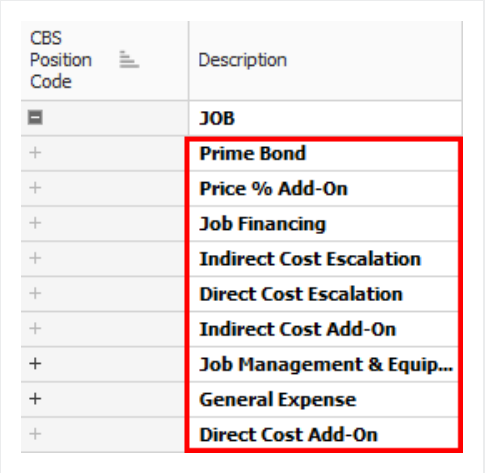
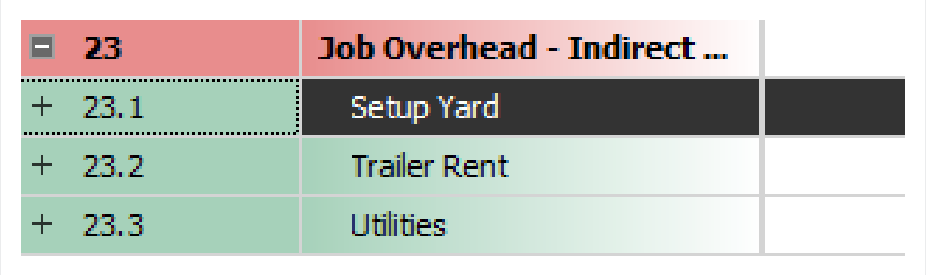
6.1 INDIRECT COSTS OVERVIEW

Once your direct costs are defined, you can add indirect project costs. InEight 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.



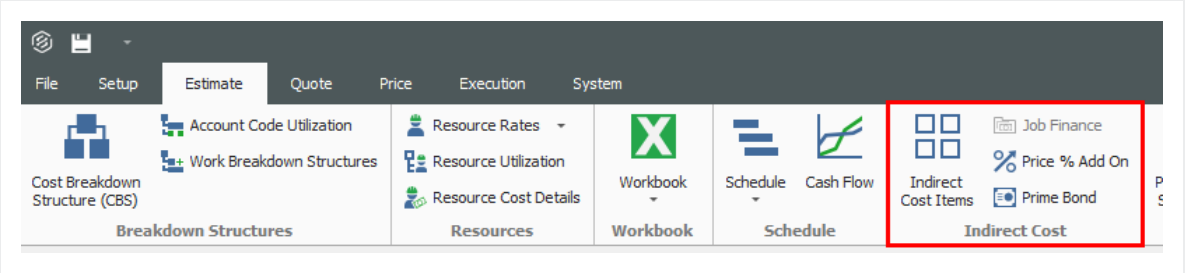
2. **User-Defined Indirect Cost Items**: Any cost item you create in the CBS Register that is not assigned to a pay item is considered indirect cost.



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.

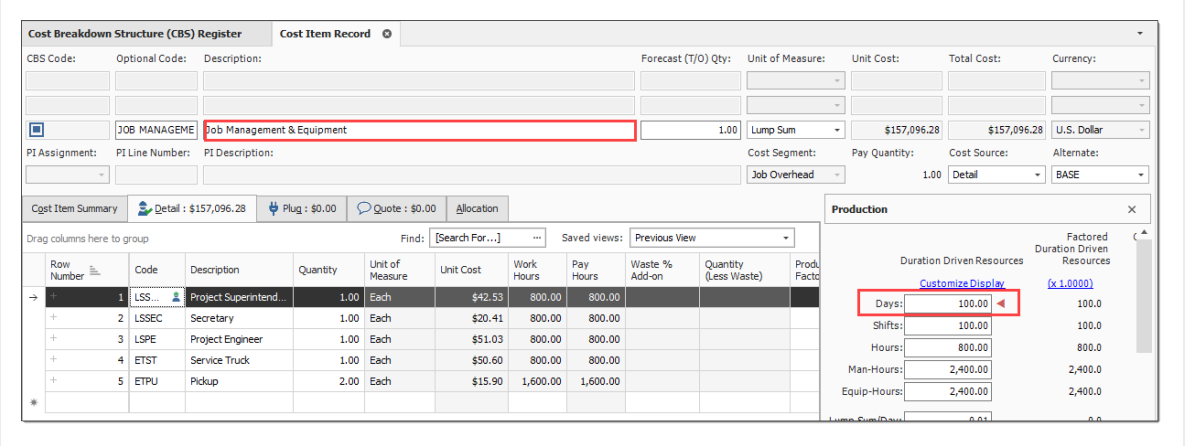
6.2.1 Independent Indirect Cost Items

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

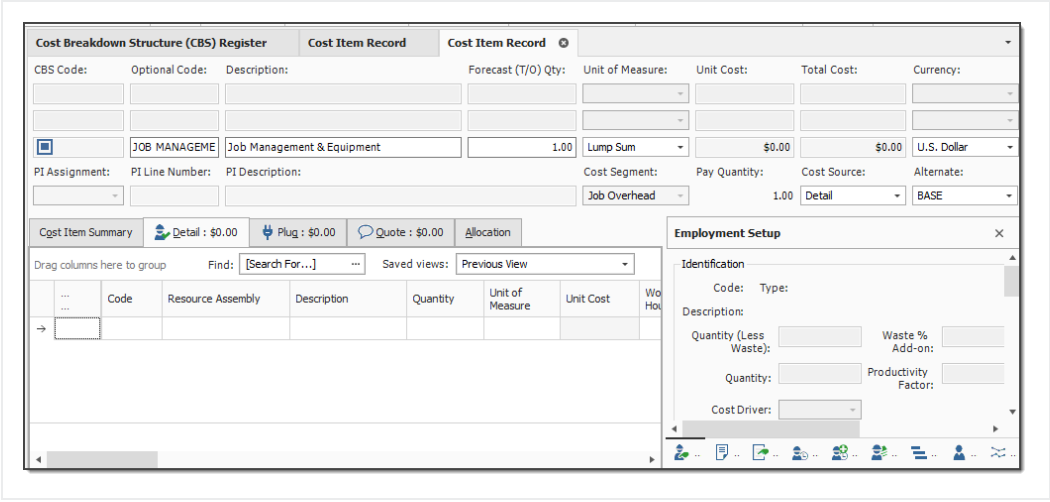
The sample Job Management & Equipment Record below shows that you can add resources and production just like in your direct cost items. Supervisory staff resources were added, and the production duration is set to 100 days.



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

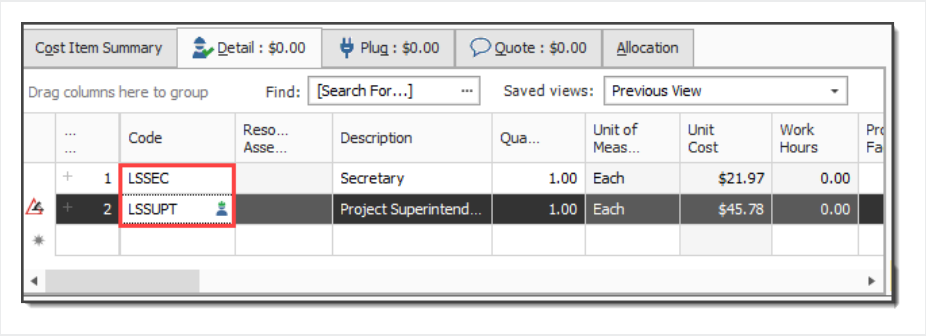
Step by Step — Add Job Management & Equipment Costs

1. In the E101 - Training 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

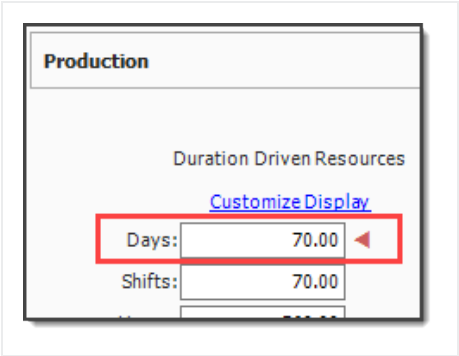


4. Here you will add Labor resources by clicking in the Code column and selecting the icon. Add

LSSEC Secretary and **LSSUPT Project Superintendent**.



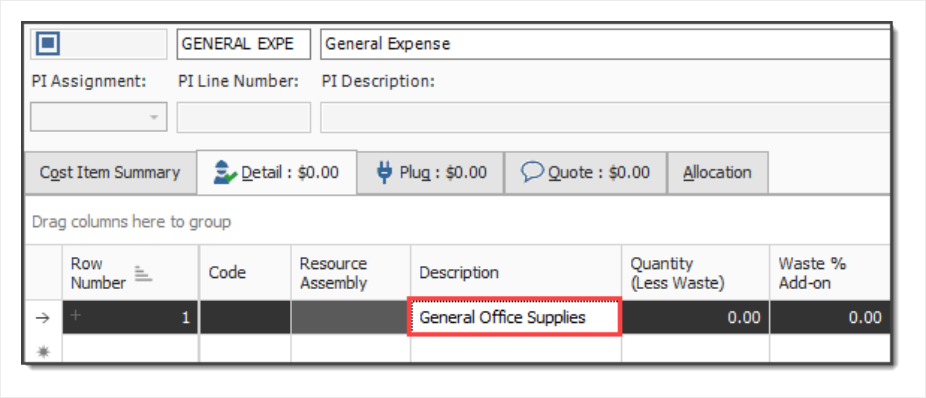
5. Select the **Production** tab.
6. Type **70** in the Days field.
    - This represents the length of the job



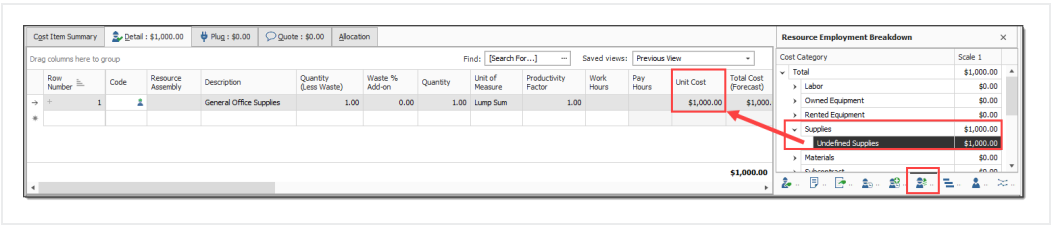
7. Click **OK** to close the record.

Step by Step — Add General Expense Costs

1. In the E101 - Training 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
    - Assume you don't have a resource for General Office Supplies
4. Type **General Office Supplies** in the Description column.



5. Type **1** in the Quantity field.
6. For the Unit of Measure, select **Lump Sum** from the drop down.
    - Notice that the Unit Cost column is read only
7. Click on (highlight) that row, and then click the **Resource Employment Breakdown** tab.
8. Type **1,000** in the Undefined Supplies cost category.
    - The amount entered automatically fills into the unit and total cost columns



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

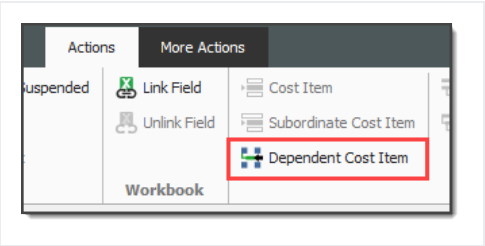
9. Click **OK** to close the record.

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



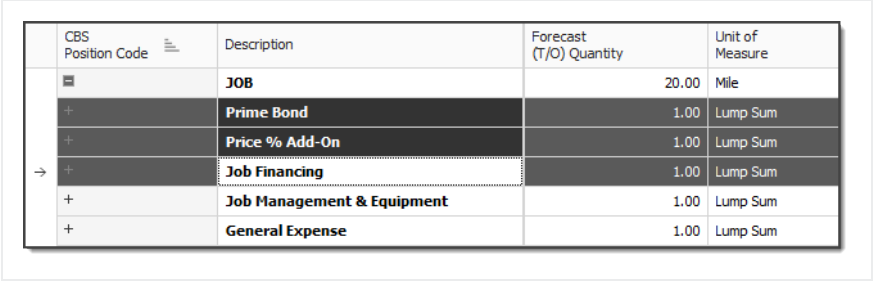
6.2.2.2 Default Dependent Cost Item Deletion

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 the E101 - Training Job, from the InEight Estimate landing page, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**.
3. Select the **Prime Bond** indirect cost item by clicking on its row header.
4. Press and hold the **Shift** key while selecting the **Job Financing** indirect cost item.
    - All your dependent indirect cost items are now selected



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

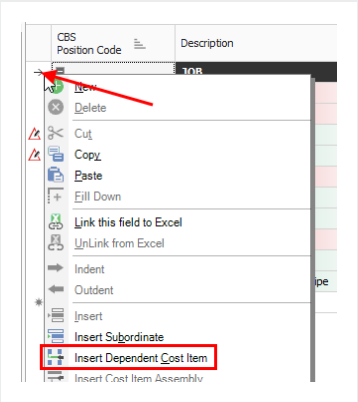
5. Right click on the selection and select **Delete**.
6. Select **Yes** to confirm you want to delete the selected Cost Items.
    - Your indirect cost items are now deleted

6.2.2.3 Prime Bond

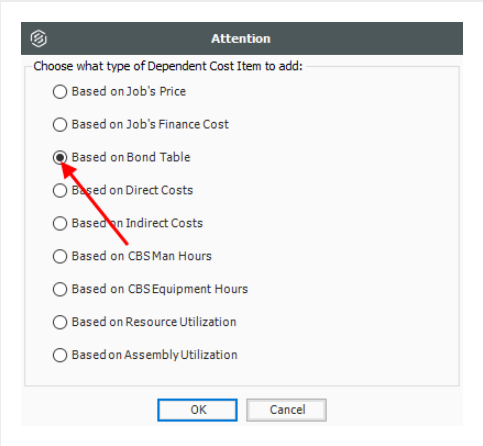
The following steps walk you through adding and defining your prime bond for the job.

Step by Step — Define Prime Bond

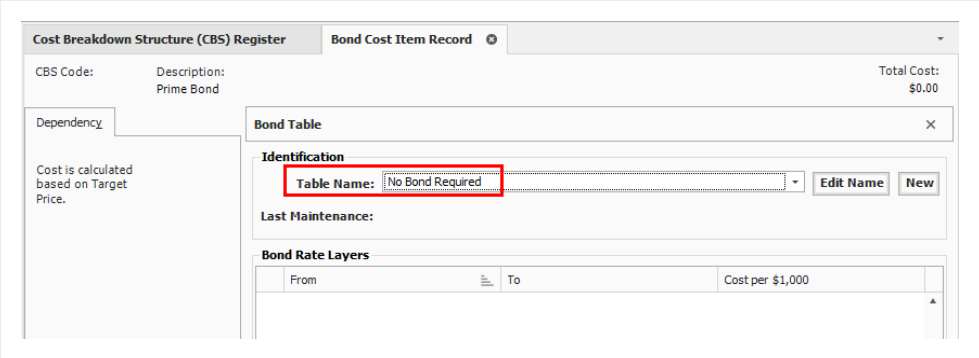
1. In the E101 - Training Job, from the InEight Estimate landing page, select the **Estimate** tab.
2. Select **Cost Breakdown Structure (CBS)**.
3. Right click on the row header for any cost item and select **Insert Dependent Cost Item**.



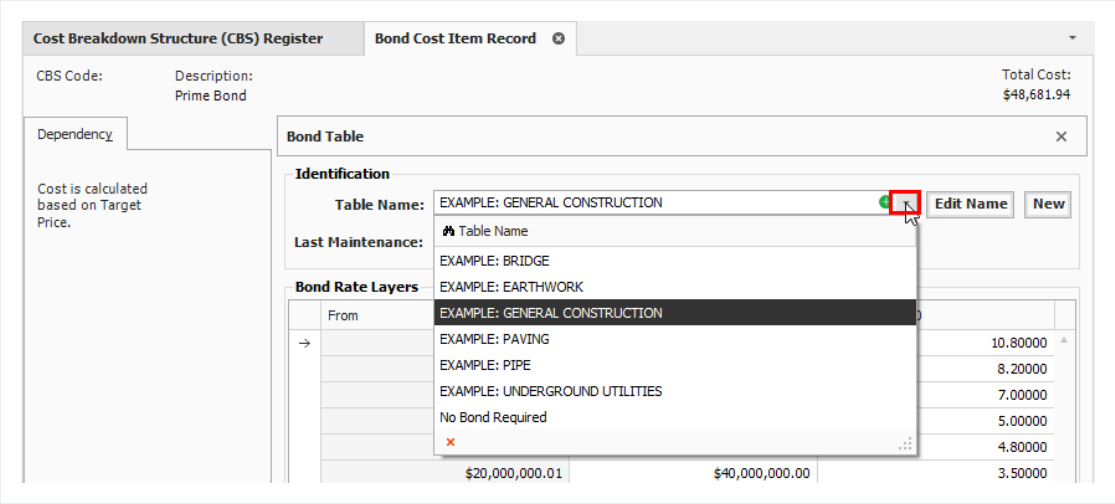
4. On the resulting Attention prompt, select **Based on Bond Table**.



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



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



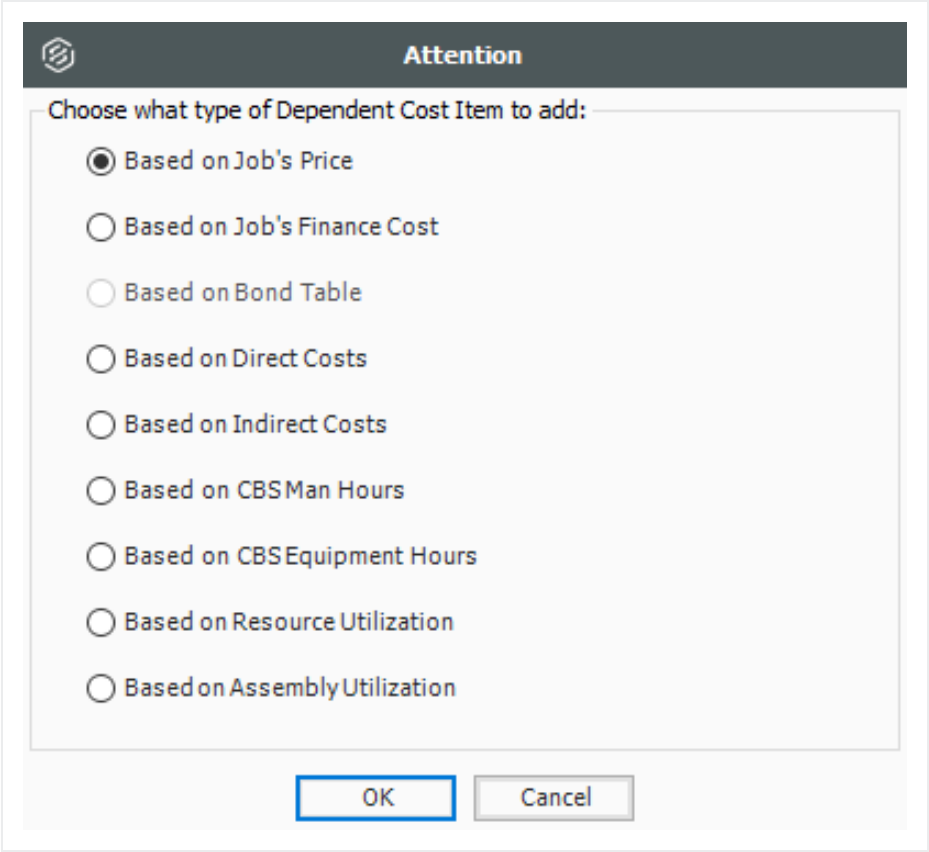
8. Click **OK** to close the record.
    - The Prime Bond indirect cost item is now added to your CBS

6.2.2.4 Price % Add-On

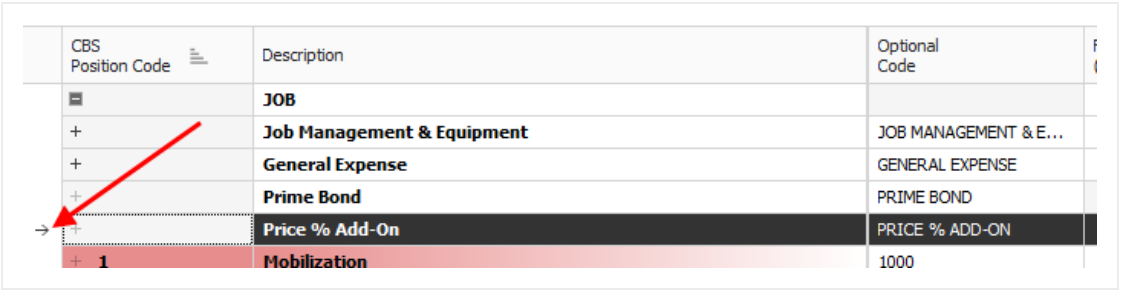
The following steps walk you through defining the Price % Add-On.

Step by Step — Define a Price % Add-On

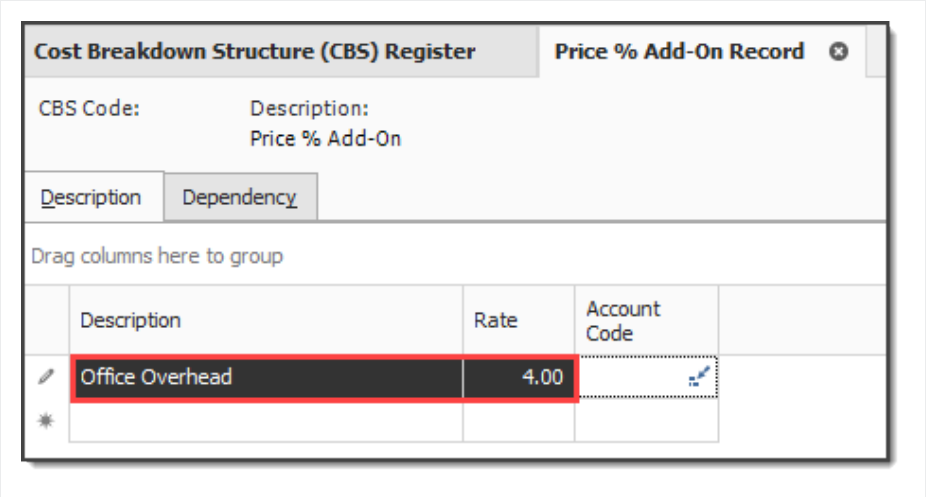
1. From the Cost Breakdown Structure (CBS) Register, right click on the row header for any cost item and select **Insert Dependent Cost Item**.
2. On the resulting Attention prompt, select **Based on Job's Price**.



3. 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

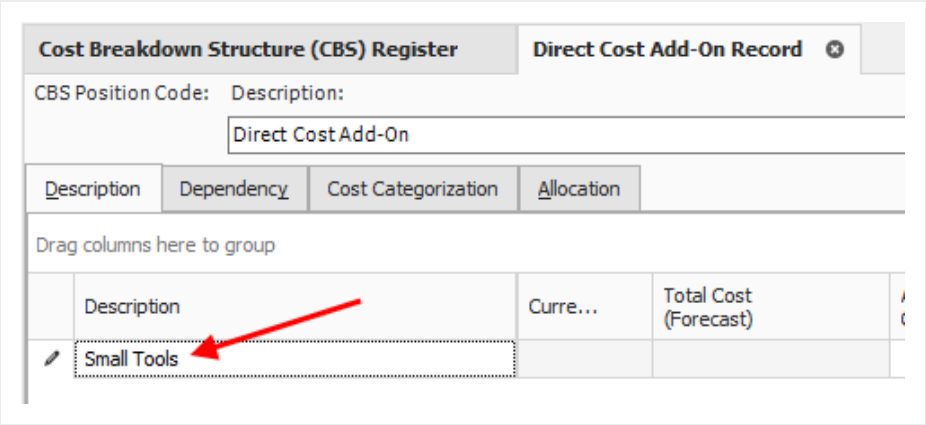
6. Click **OK** to close the record.

6.2.2.5 Direct Cost Add-On

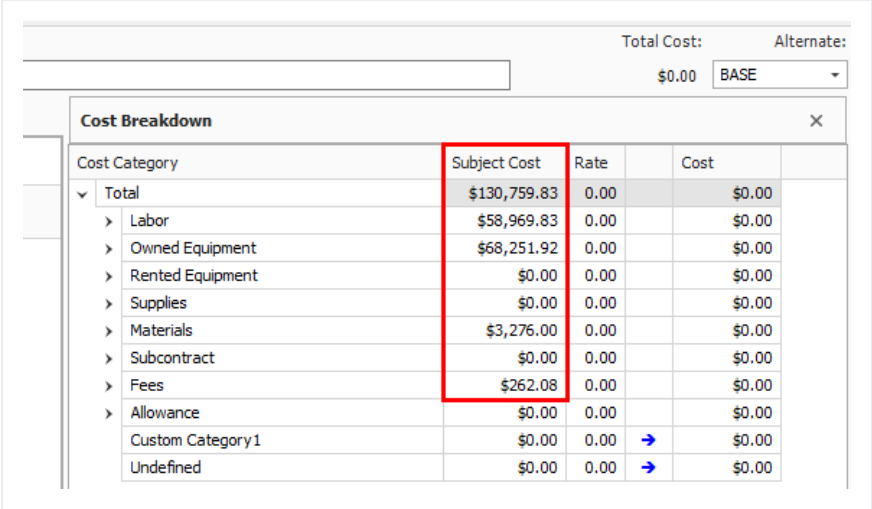
The following steps walk you through creating a Direct Cost Add-On dependent cost item.

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 **Small Tools** in the blank row under the Description column.

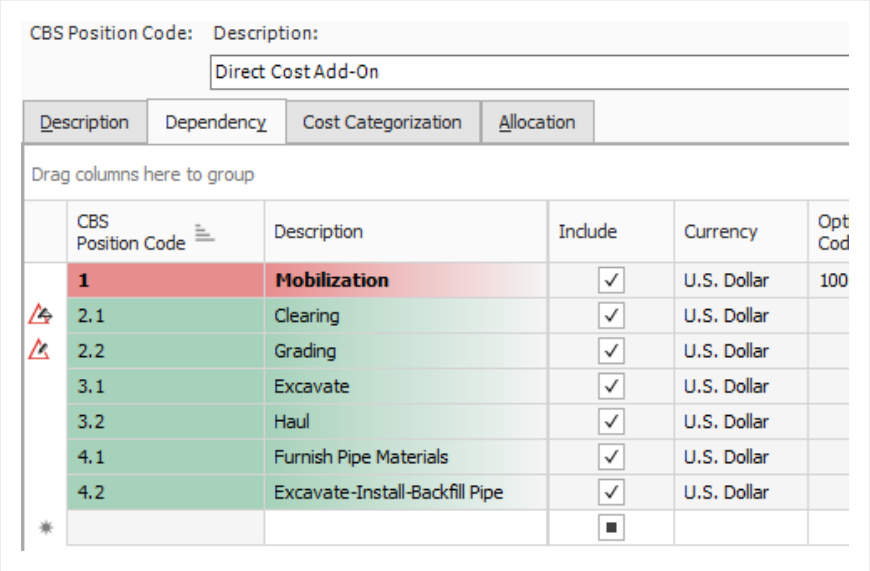


6. Press the **Tab** key (you can define additional rows for other add-on costs as needed).
   - The Dependency Cost Breakdown appears on the right
   - The **Subject Cost** is the cost that the cost item depends on, based on what is defined on the cost item's Dependency tab



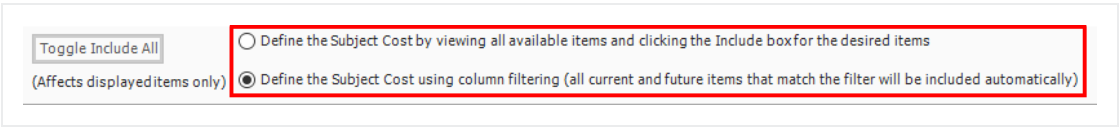
7. Click on the **Dependency** tab to see what contributes to your subject cost.

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

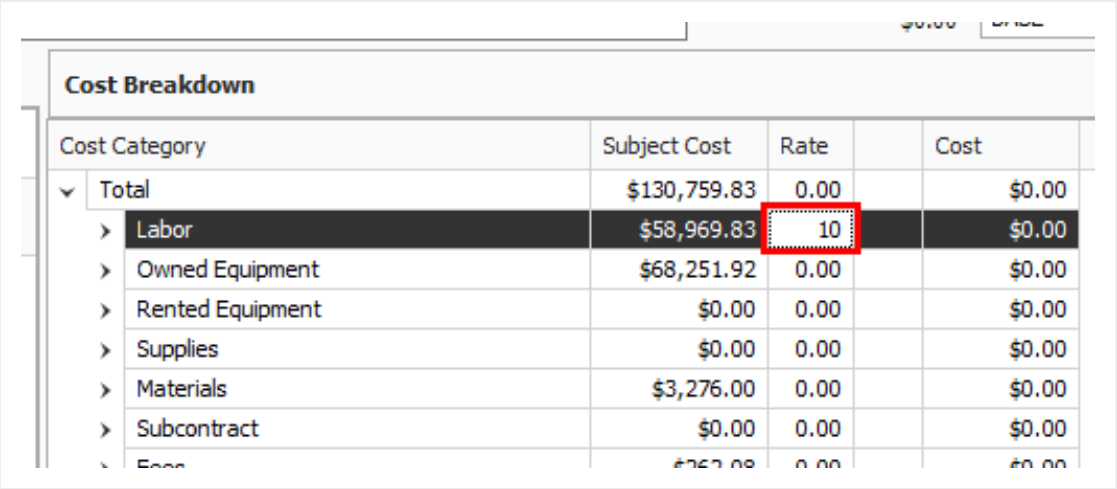


- There are a couple of options at the bottom to control how dependency items are selected. By default, the bottom radio button is selected
  - The bottom radio button allows you to use column filtering to control what items are included
  - The top button allows you to manually select the cost items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

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



9. 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
10. Type **10** in the Rate field at the Labor cost category level, then press **Tab**.



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

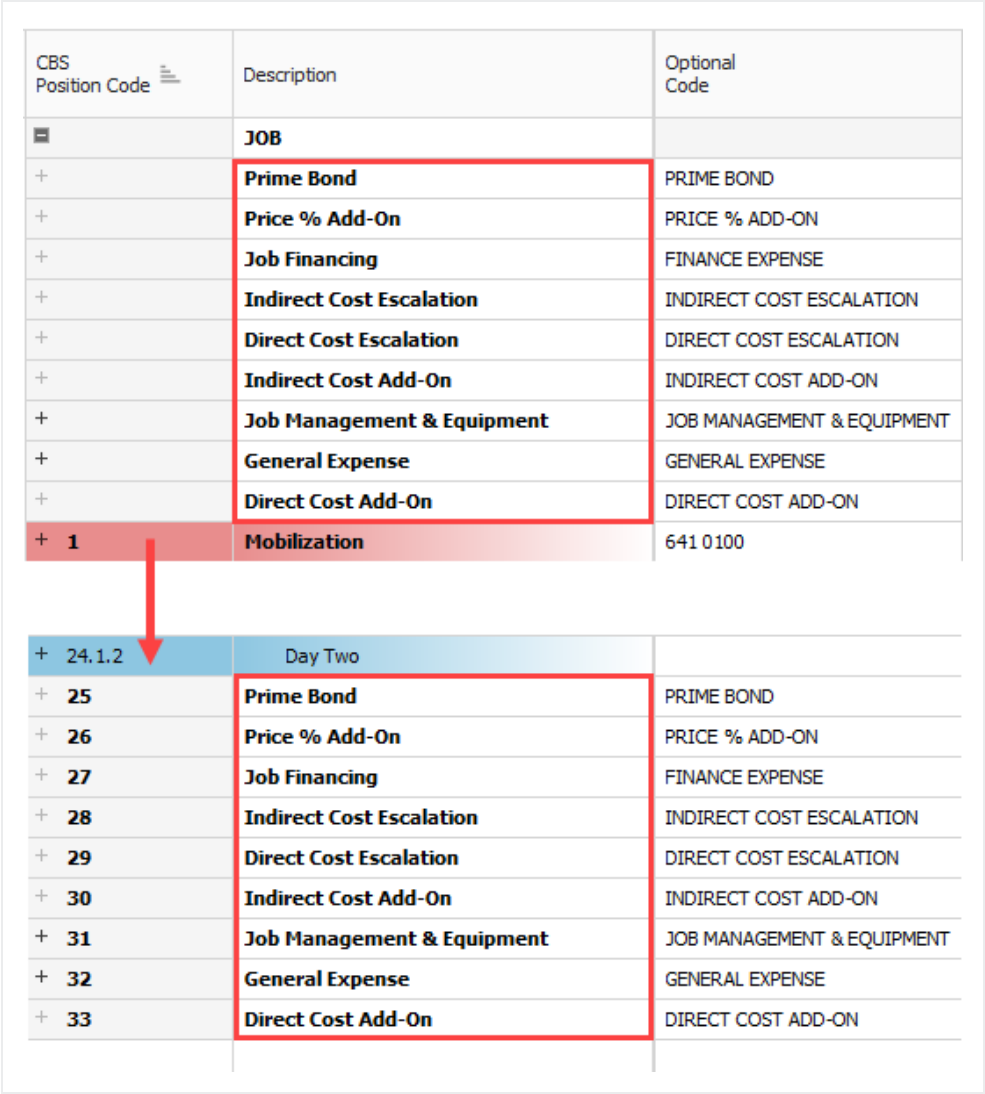
6.2.2.6 Repositioning Dependent Cost Items

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
	JOB	
	Prime Bond	PRIME BOND
	Price % Add-On	PRICE % ADD-ON
	Job Financing	FINANCE EXPENSE
	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
	General Expense	GENERAL EXPENSE
	Direct Cost Add-On	DIRECT COST ADD-ON
1	**Mobilization**	641 0100
24.1.2	Day Two	
25	**Prime Bond**	PRIME BOND
26	**Price % Add-On**	PRICE % ADD-ON
27	**Job Financing**	FINANCE EXPENSE
28	**Indirect Cost Escalation**	INDIRECT COST ESCALATION
29	**Direct Cost Escalation**	DIRECT COST ESCALATION
30	**Indirect Cost Add-On**	INDIRECT COST ADD-ON
31	**Job Management & Equipment**	JOB MANAGEMENT & EQUIPMENT
32	**General Expense**	GENERAL EXPENSE
33	**Direct Cost Add-On**	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)
5	**Indirect Cost**	1.00	Each	$10,584.36	$10,584.36
5.1	Head Office	1.00	Each	$370.32	$370.32

		Description	Quantity	Unit of Measure	Work Hours	Pay Hours	Unit Cost	Total Cost (Forecast)
→	1	Head Office Project ...	1.00	Each	8.00	8.00	$46.29	$370.32

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
5.2	Field Office	1.00	Each	$1,775.04	$1,775.04

		Description	Quantity	Unit of Measure	Work Hours	Pay Hours	Unit Cost	Total Cost (Forecast)
	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

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
5.3	Site Facilities	1.00	Each	$905.00	$905.00

		Description	Quantity	Unit of Measure	Work Hours	Pay Hours	Unit Cost	Total Cost (Forecast)
→	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

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)
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

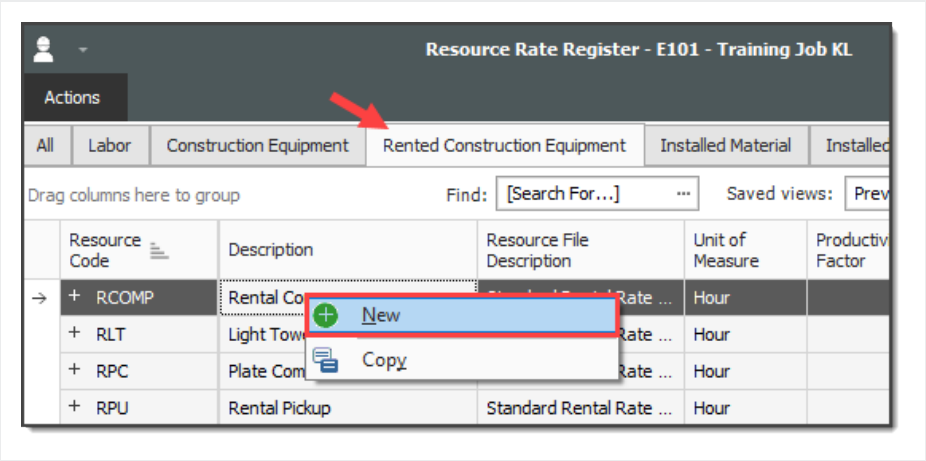
Step by Step — Add User-Defined Indirect Cost Items

1. At the bottom of your CBS, create an Indirect cost item called **Job Overhead** with a Forecast (T/O) Quantity of **1** and a Unit of Measure of **Each**.
2. Add two subordinates under the new cost item named **Job Trailer** and **Utilities**. Job Trailer is also **1 Each** but change Utilities to **1 Lump Sum**.

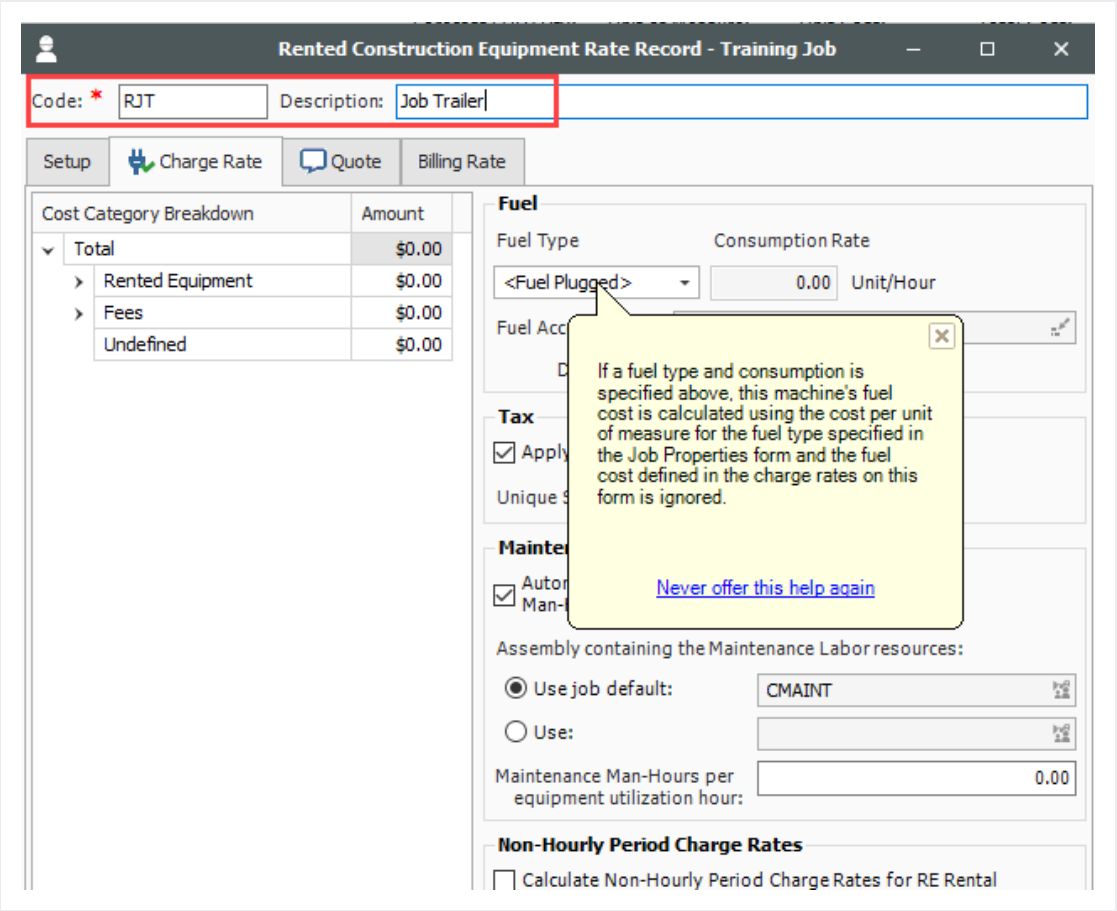
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure
5	**Job Overhead**	1.00	Each
5.1	Job Trailer	1.00	Each
5.2	Utilities	1.00	Lump Sum

3. Open the **Job Trailer** cost item by double clicking on the row header.
   - Assuming there is no Job Trailer in your Resource Rate Register, you will create this resource “on the fly”
4. 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.

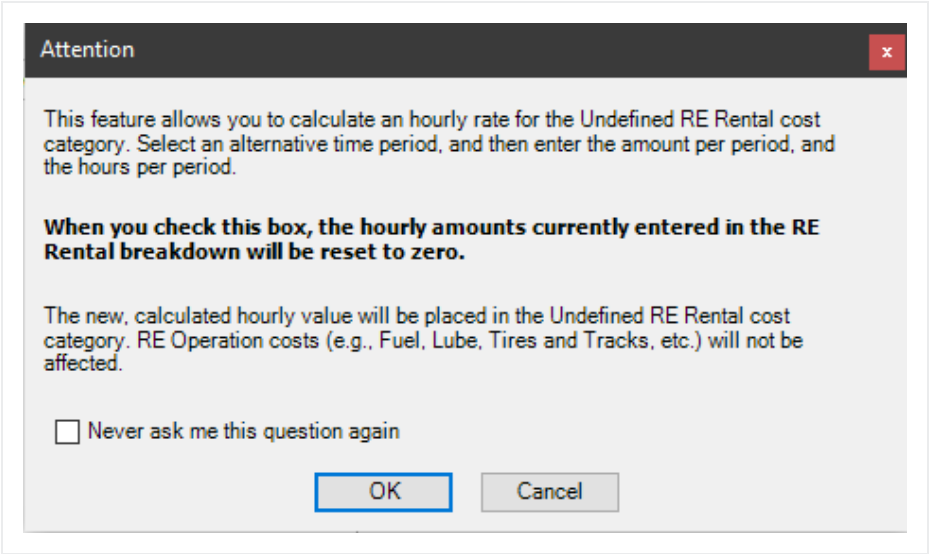


7. Enter a Resource Code of **RJT** for the Rented Construction Equipment Resource.
8. In the Description field, type **Job Trailer**.



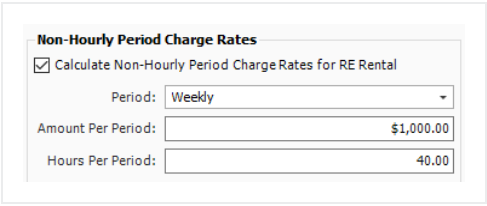
- You do not need to enter Fuel, but the Job Trailer's cost is given to you at a charge per week, so you will use the Non-Hourly Period Charge Rates to figure out the hourly cost

9. 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.
10. Click **OK** on the resulting prompt.

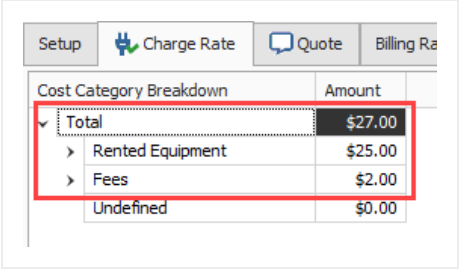


TIP You may need to expand the resource record to see all of the fields to fill out.

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.

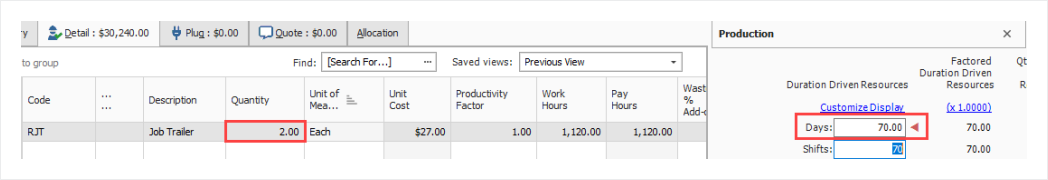


13. Press the **Tab** key so the change takes effect on your Cost Category Breakdown (on the left).
    - Now you can see that $25.00 auto-filled into the Rented Equipment category, as well as your Standard Sales Tax of $2.00 under Fees in the Cost Category Breakdown, to equal a total of $27.00 per hour

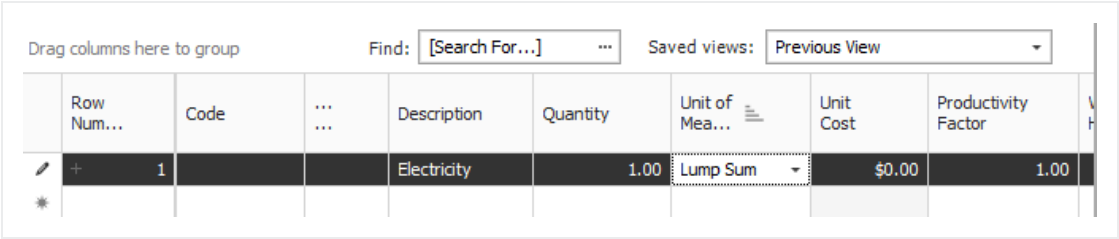


14. Click **OK** to close the Resource Rate Record.

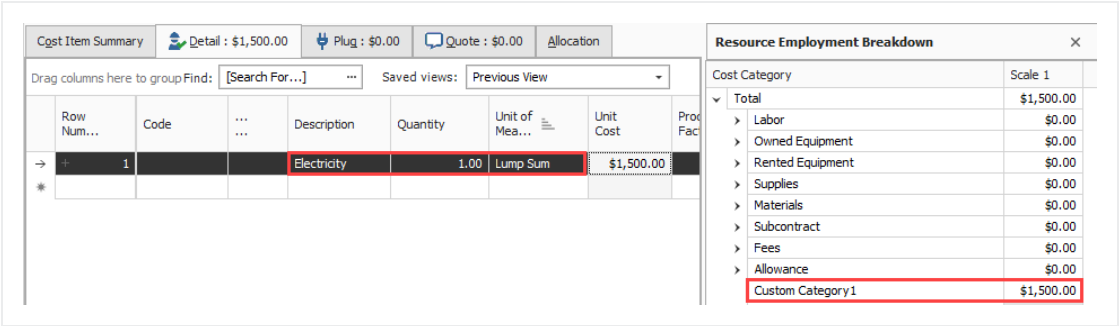
15. Select the new **RJT** resource you created, then click **OK** to return to the Cost Item Record.
16. On the Cost Item Record, adjust the Job Trailer Quantity to **2**, assuming you will have 2 Job Trailers on site.
17. Finally, adjust your production by entering the duration of the job.
    - You estimate the project duration to be **70** Days



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 called **Electricity**, which will be **1Lump Sum**.



21. Finally, go to the Resource Employment Breakdown tab and enter your forecasted electricity cost for the duration of the job. Type **1,500** on the Custom Category1 row.



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.

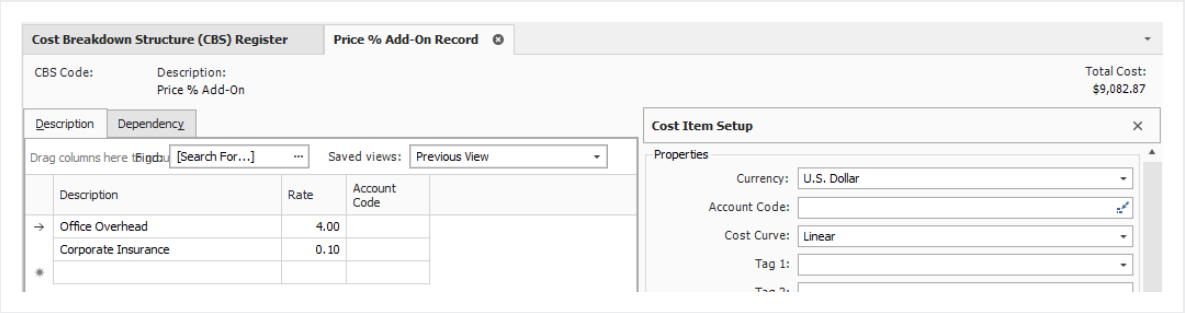
4. Double click on the **Direct Cost Add-On** row header.

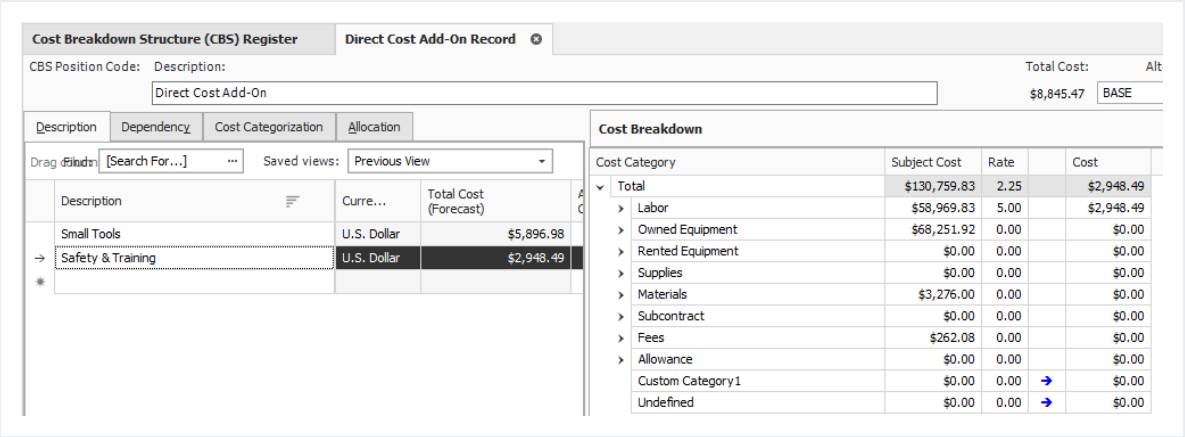
5. You already have Small Tools as your first line item. On the Description tab, type **Safety & Training** in the next blank row's Description field, then press **Tab**.

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





Congratulations, you have completed this exercise!

Lesson 6 Review

1. The _____ in the Library controls which of the default indirect cost items to copy into new job folders?
    a. Job Properties
    b. Foundation Setup Data
    c. Cost Breakdown Structure

---

2. 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.
    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

Lesson Topics

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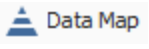
7.1 JOB MARKUP (PROFIT)

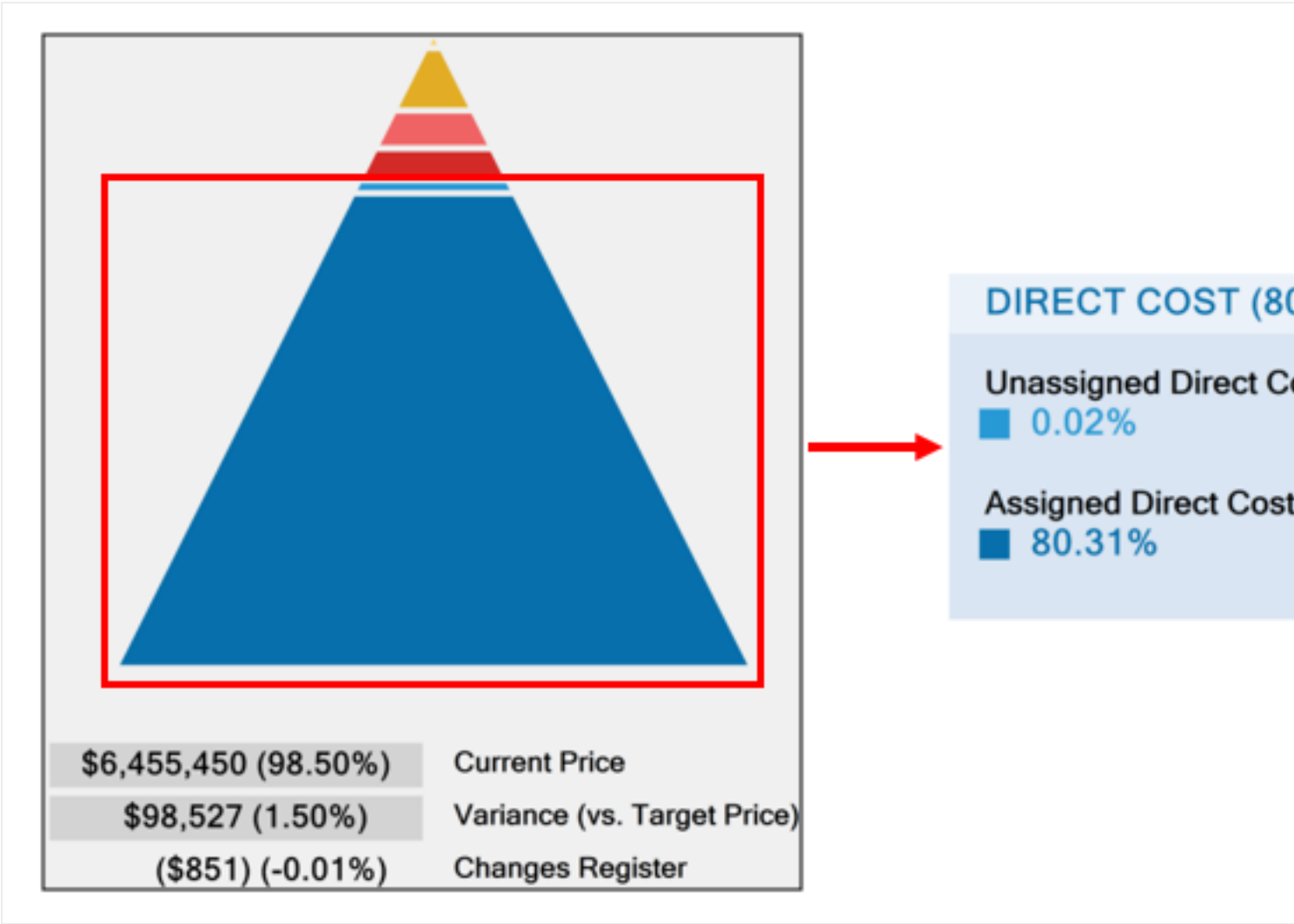
On the Data Map 

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.

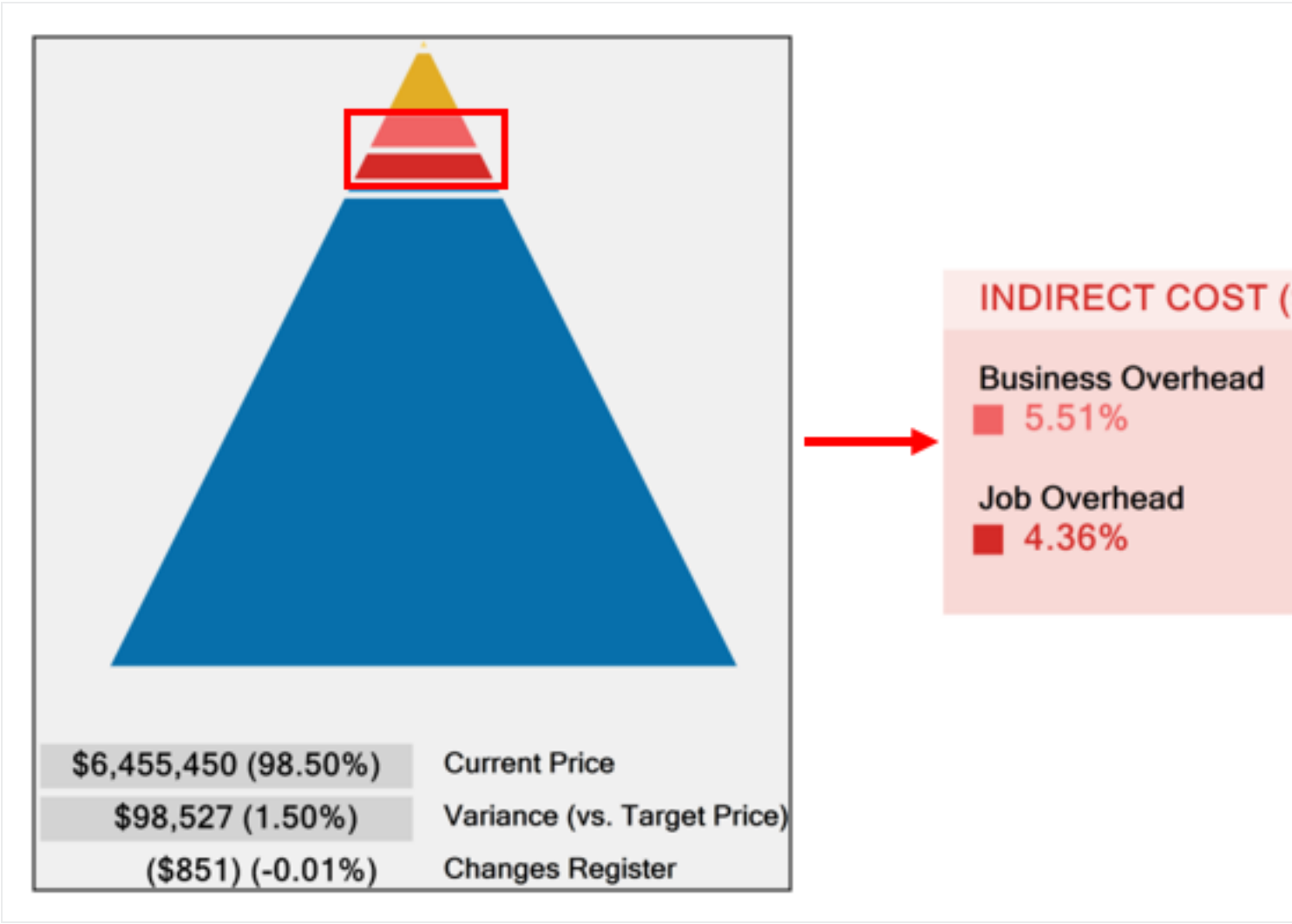
To open the Data Map, select the Price tab, then Data Map from the Overhead and Profit section.

7.1.1 Target Price

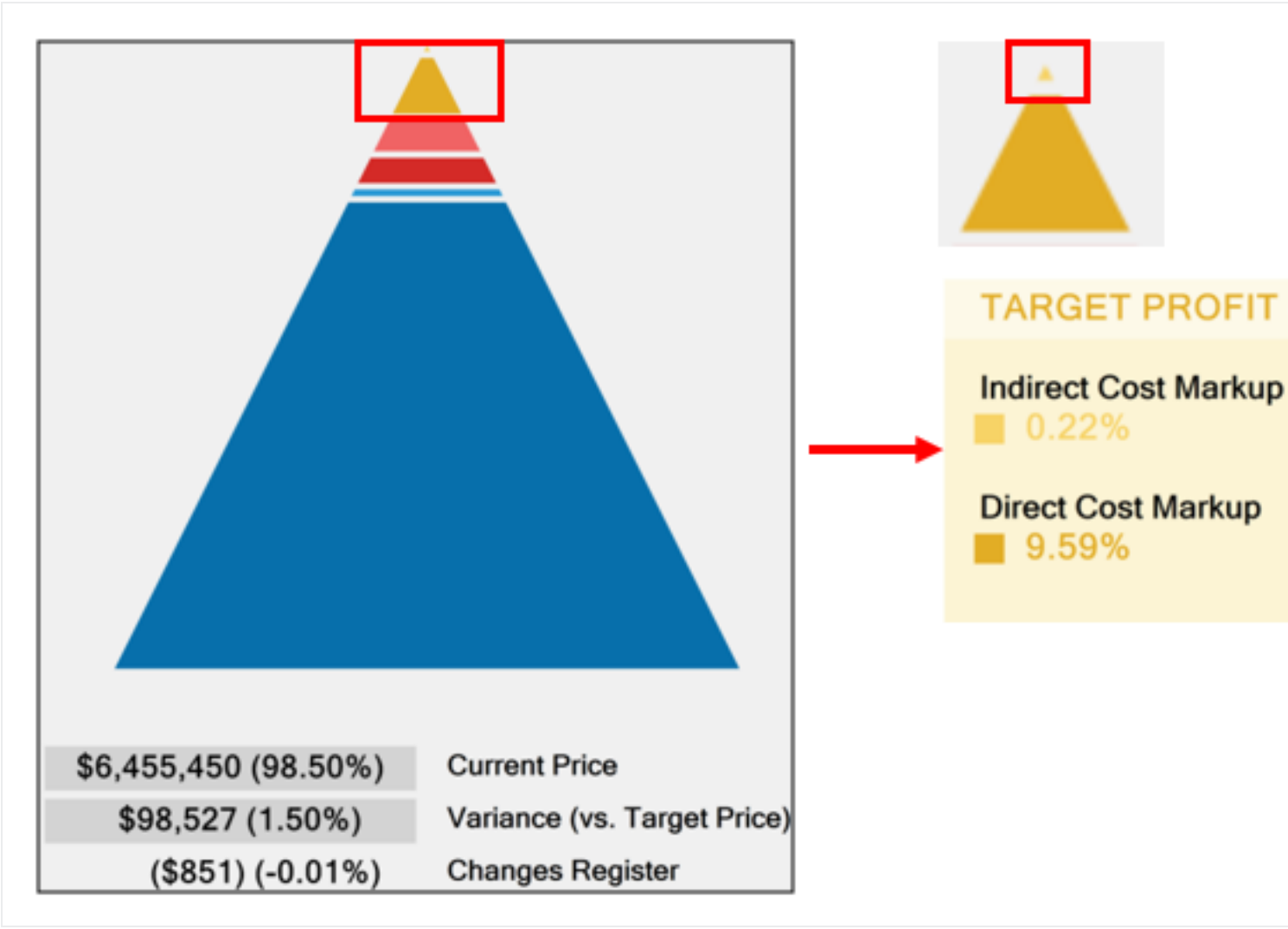
For contractors building the price of your project is like building a pyramid. The foundation of your price consists of the direct costs of the job.



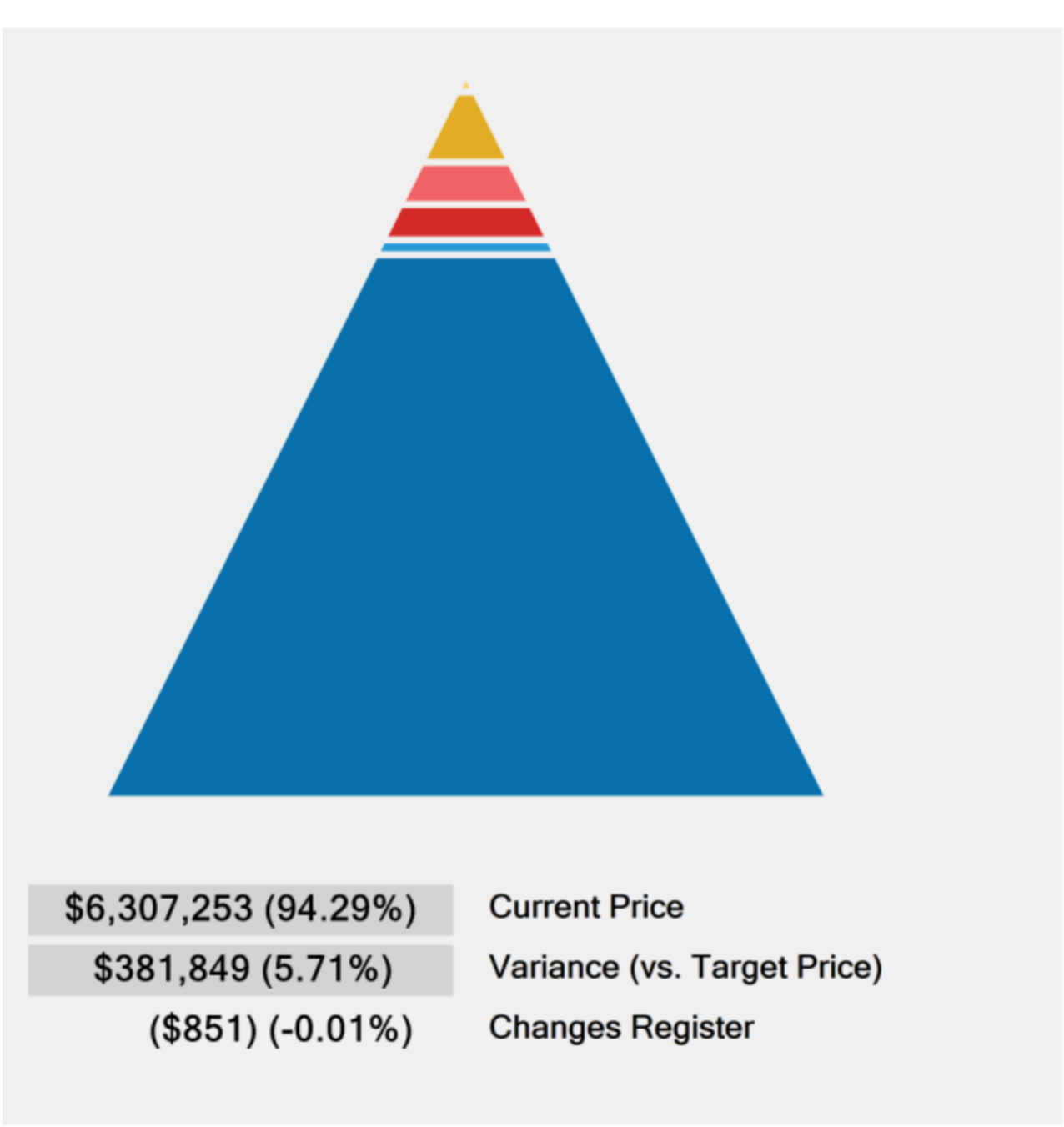
On top of your direct costs, you add your indirect costs which consist of Business and Job Overhead. You estimated your direct and indirect costs already in the CBS Register.



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

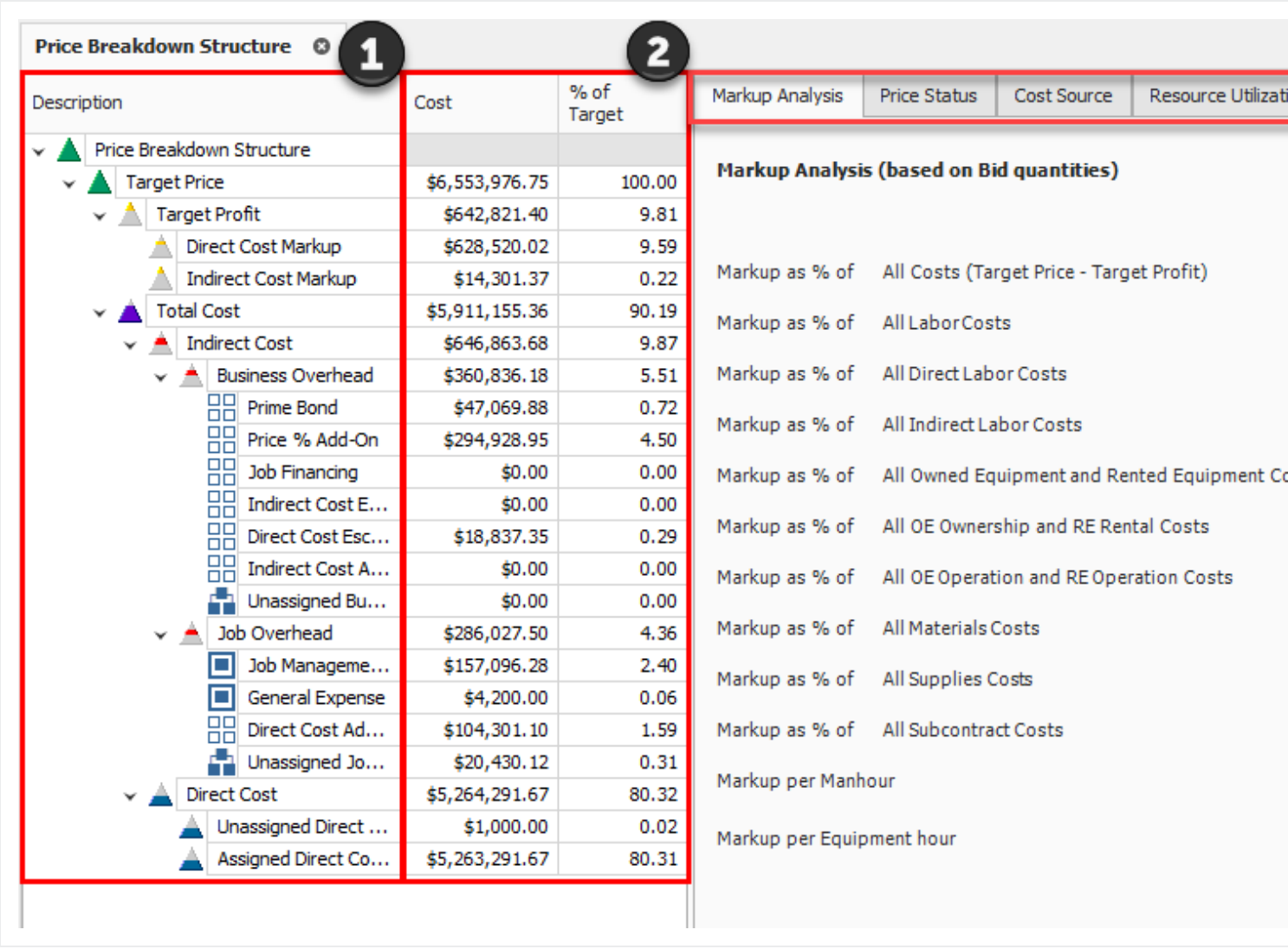
As you already practiced, your direct and indirect costs are estimated in the CBS. Your project's profit needs to be defined in the Price Breakdown Structure (PBS) form.

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	The left side of the screen displays several cost classifications: • Target Profit • Business Overhead • Job Overhead • Direct Cost
2	Cost and % of Target	Each layer displays with an amount, and the percentage of the Target Price that this amount represents.
3	PBS Menu	The right side of the screen holds several tabbed pages of information. This information is useful in analyzing the job at a summary level.
4	Refresh Data	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.



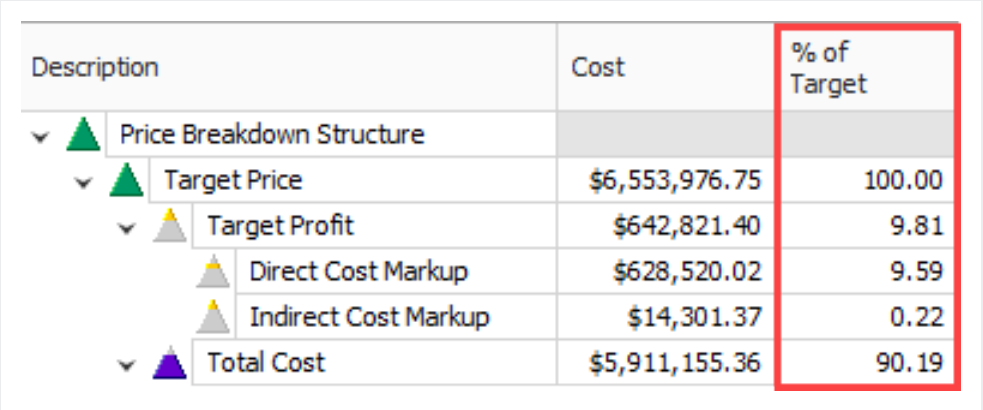
TIP All costs in the Price Breakdown Structure are based on pay quantities (not forecast take-off quantities).

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.

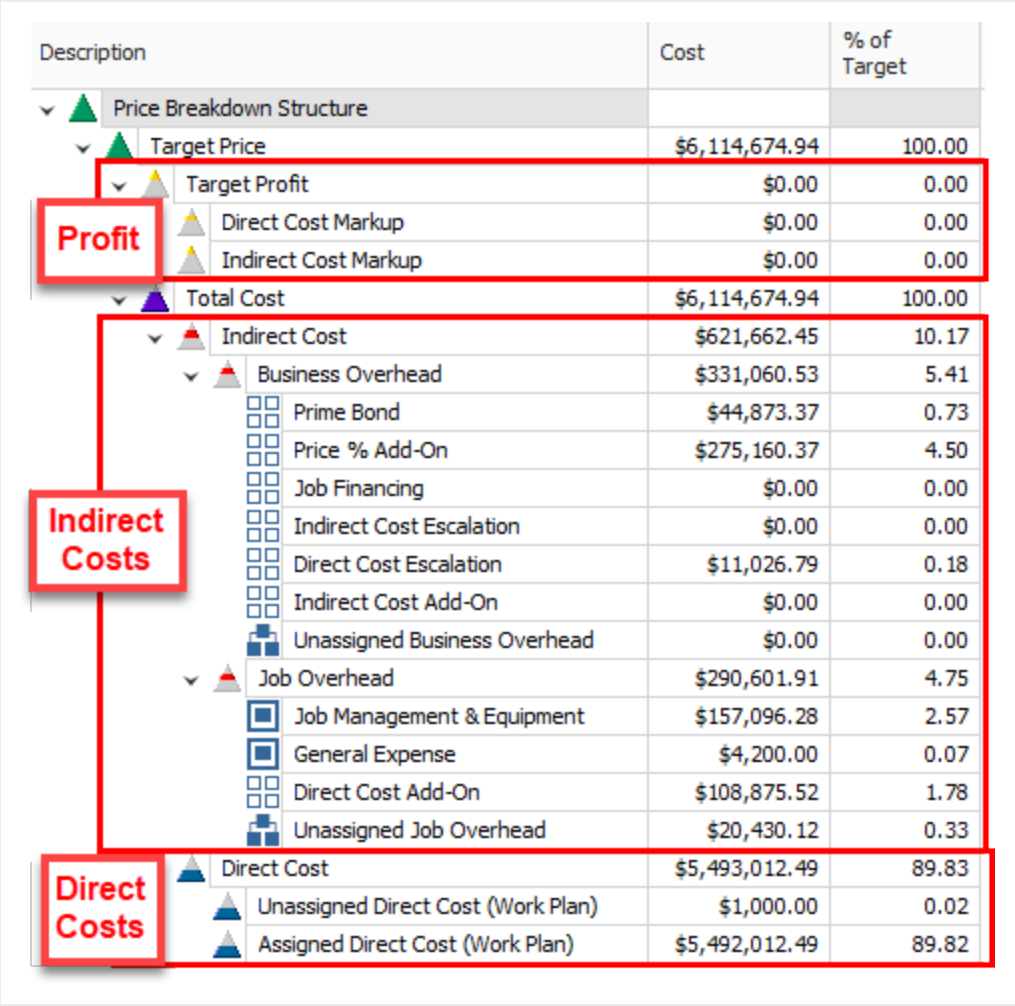


Description	Cost	% of Target
Price Breakdown Structure		
Target Price	$6,553,976.75	100.00
Target Profit	$642,821.40	9.81
Direct Cost Markup	$628,520.02	9.59
Indirect Cost Markup	$14,301.37	0.22
Total Cost	$5,911,155.36	90.19

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.

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	Cost	% of Target
Price Breakdown Structure		
Target Price	$6,114,674.94	100.00
Target Profit	$0.00	0.00
Direct Cost Markup	$0.00	0.00
Indirect Cost Markup	$0.00	0.00
Total Cost	$6,114,674.94	100.00
Indirect Cost	$621,662.45	10.17
Business Overhead	$331,060.53	5.41
Prime Bond	$44,873.37	0.73
Price % Add-On	$275,160.37	4.50
Job Financing	$0.00	0.00
Indirect Cost Escalation	$0.00	0.00
Direct Cost Escalation	$11,026.79	0.18
Indirect Cost Add-On	$0.00	0.00
Unassigned Business Overhead	$0.00	0.00
Job Overhead	$290,601.91	4.75
Job Management & Equipment	$157,096.28	2.57
General Expense	$4,200.00	0.07
Direct Cost Add-On	$108,875.52	1.78
Unassigned Job Overhead	$20,430.12	0.33
Direct Cost	$5,493,012.49	89.83
Unassigned Direct Cost (Work Plan)	$1,000.00	0.02
Assigned Direct Cost (Work Plan)	$5,492,012.49	89.82

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 the **E101 – Training 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, type **10** in the **%** of Target Price column, then press **Tab**.

   Notice that entering the 10% Target Profit has the following effects, once you tab off the field:

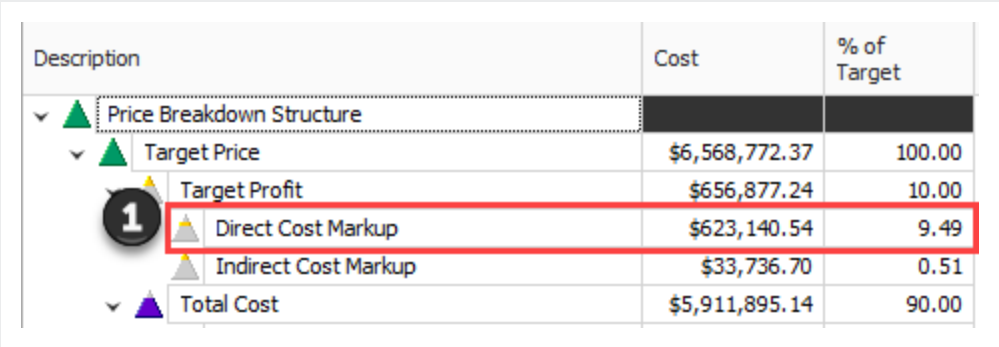
   - Your Target Price increases
   - Indirect and Direct Cost Markup values automatically have amounts pushed down to them
   - The amounts for both Prime Bond and Price % Add-On increase, as they are based on a percentage of the Target Price
   - Direct Cost and Job Overhead amounts don't change, but their % of Target Price changes

7.1.4.2 Profit Through Direct Cost Markup Record

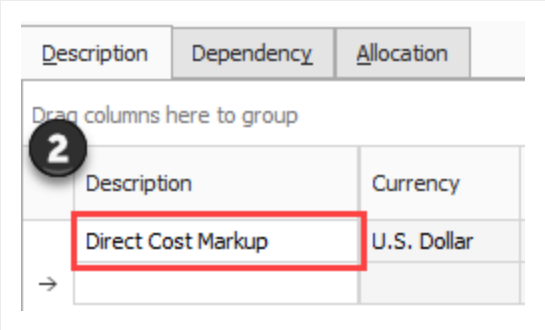
The following steps walk you through how to add profit as markup on the Direct Cost Markup record.

Step by Step — Modify the Direct Cost Markup Record

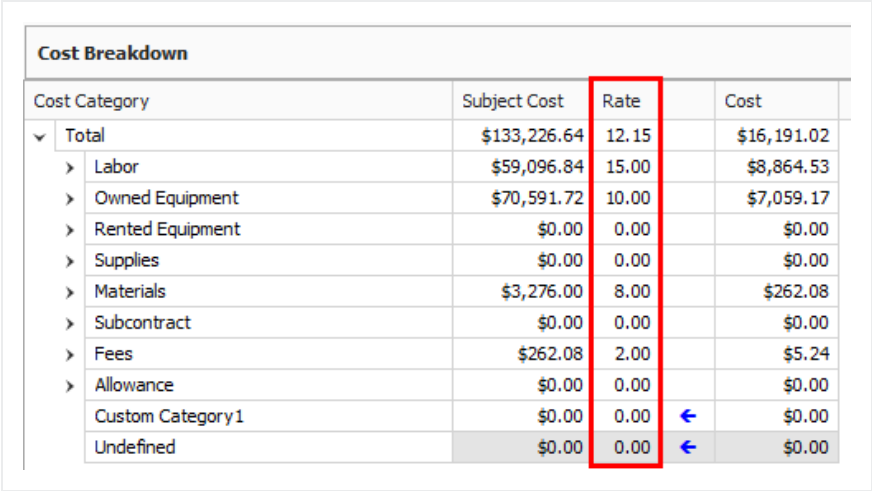
1. On the Price Breakdown Structure (PBS) form, double click on the **Direct Cost Markup** row.



2. In the Markup Cost Item Record, override the Default entry with **Direct Cost Markup** in the Description field.



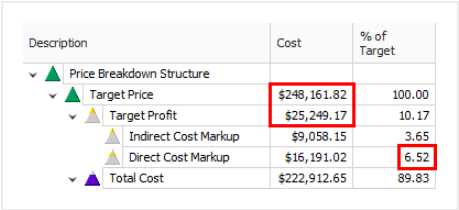
3. In the Rate column on the Dependency Cost Breakdown, type **15** in the Labor Cost Category, **10** for Owned Equipment, **8** for Materials and **2** for Fees. Reset the other categories back to **0**.
    - Notice the average rate rolls up at the Total cost category level



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 Category1	$0.00	0.00	←	$0.00
Undefined	$0.00	0.00	←	$0.00

4. 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

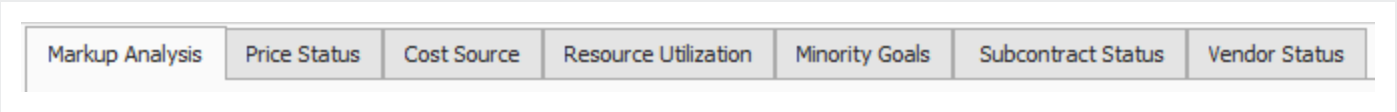
5. Click the **Refresh Summary Data** button on the PBS to see the changes reflected.

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.

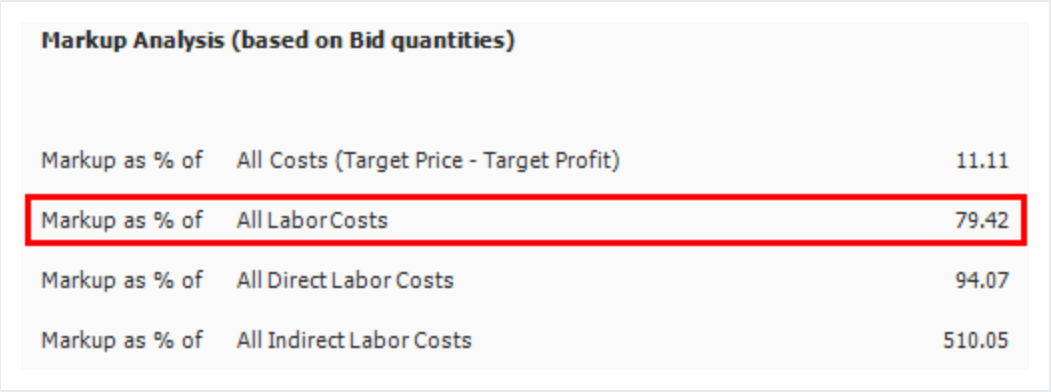
7.2.1 Price Breakdown Structure Tabs

The purpose of the tabs on the Price Breakdown Structure is to assist with estimate reviews.



7.2.1.1 Markup Analysis

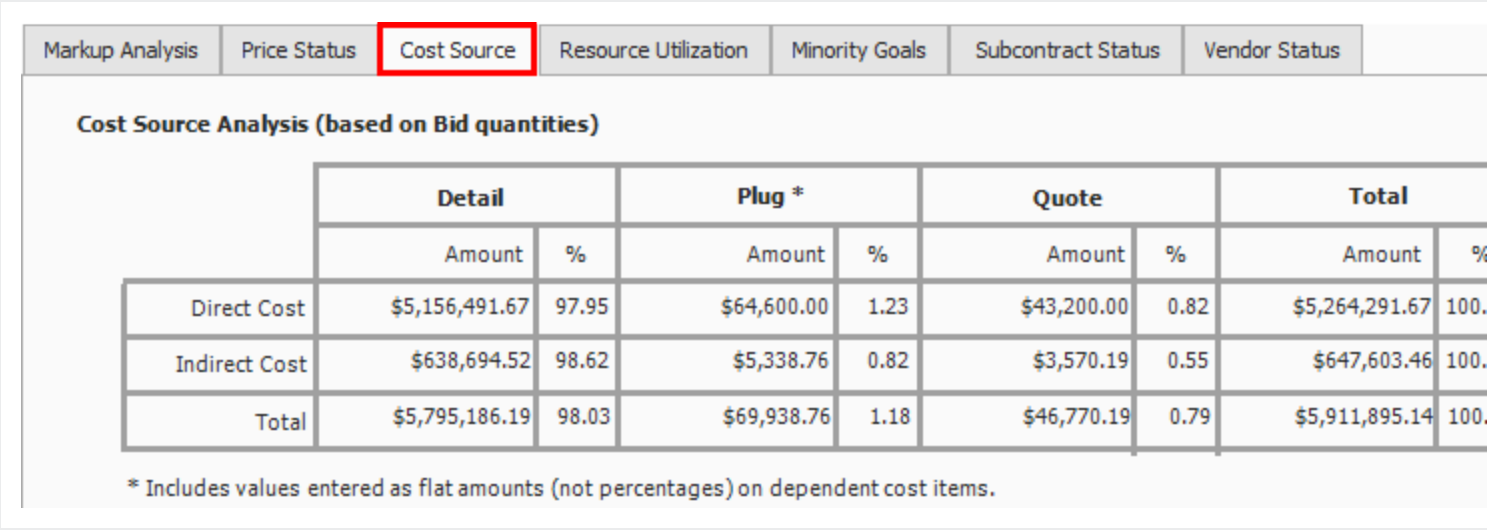
On this tab, you can compare your profit to your costs for labor, subcontract and other cost groupings. By seeing the ratios of your markup compared to your different cost categories, you can gauge if you have the right balance of costs in your estimate.



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.

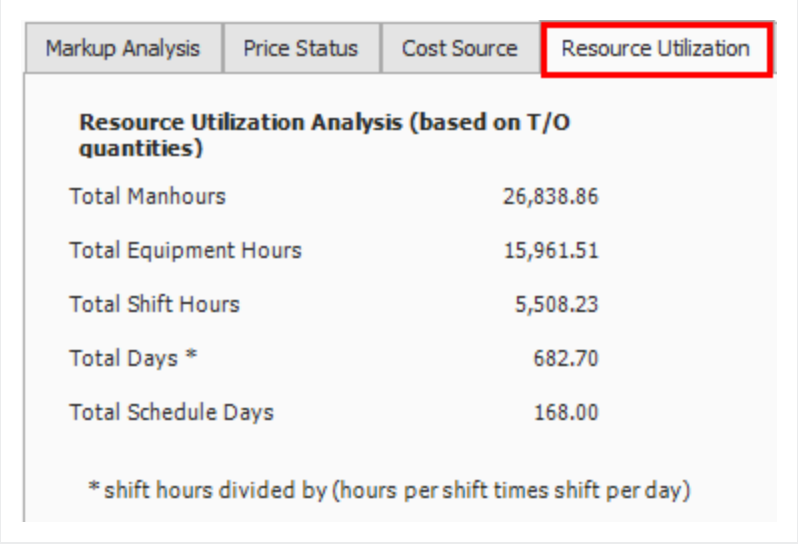
7.2.1.2 Cost Source

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.



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.

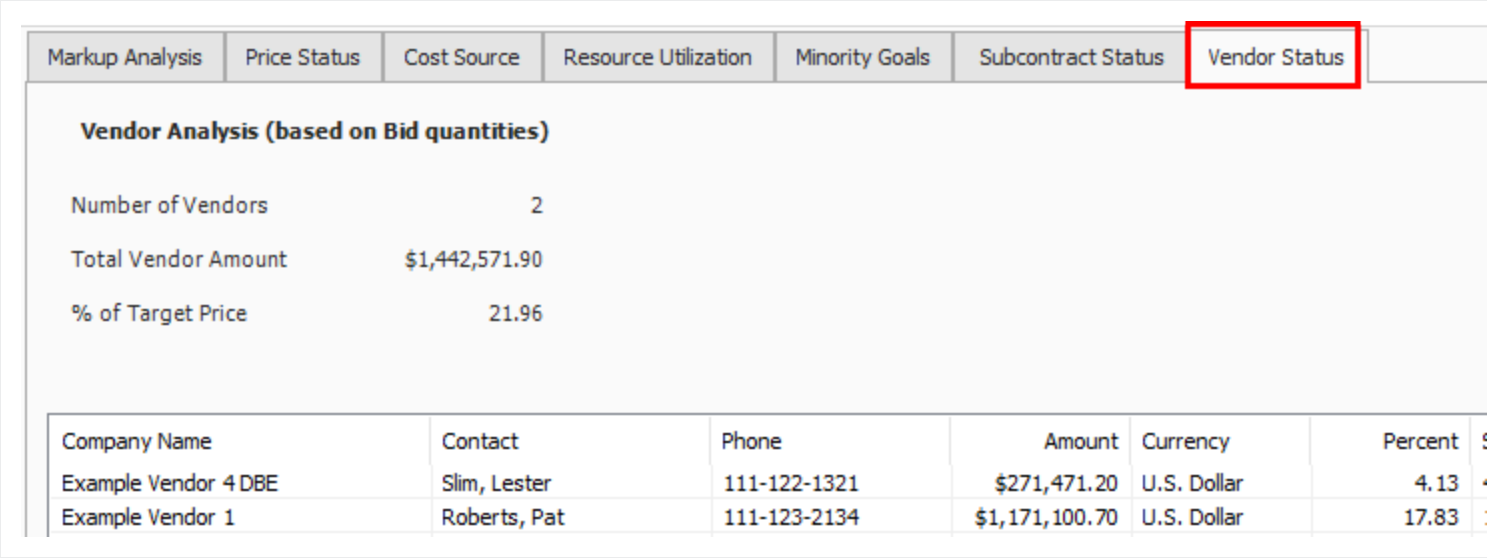


7.2.1.4 Subcontract Status

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.



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)
+ Mobiliation	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	**ADD**
Profit:	$599,221.88	$650,676.22	$655,858.61	$5,182.39	**CUT**
Margin%:	9.28	10.00	10.15	$10,653.01	**CUT**

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:

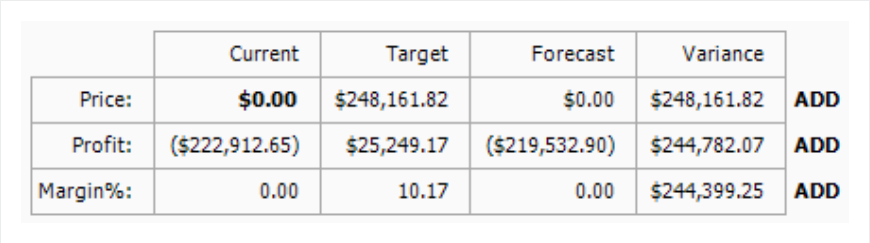
1. Define pay item prices manually, by entering a unit or total price, or a margin percentage.
2. Use InEight Estimate's AutoPrice feature to distribute pricing automatically.

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. Since your Current Price is $0.00, you need to add the entire Target Price to your pay items



	Current	Target	Forecast	Variance	
Price:	**$0.00**	$248,161.82	$0.00	$248,161.82	**ADD**
Profit:	($222,912.65)	$25,249.17	($219,532.90)	$244,782.07	**ADD**
Margin%:	0.00	10.17	0.00	$244,399.25	**ADD**

3. Select the row for pay item **Mobilization**.
    - 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
	Price:	$31,225.08	**$0.00**
	Profit:	$3,216.65	($28,008.43)
	Total Cost:	$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 the Mobilization item, type **20,000**.

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. On the pay item Clearing & Grubbing, use Go to Column (<Ctrl> - G) to find the **% Margin** column, bring it in next to the Total Price (current) column, and type **5**.

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.

7.3 Step by Step 1 — Use AutoPrice to Balance and Hit the Target Total

1. Open the **E101 – Training 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.

7.3 Step by Step 2 — Unbalance Hit Target Total

1. Within the Pay Item & Proposal Register of your E101 – Training Job, note your overrun and underrun items.

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. Highlight the row for each item to view it's current balanced item recap.

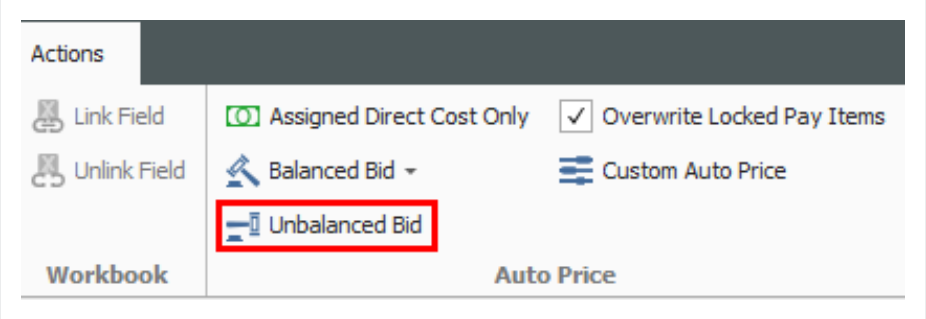
Item Recap - 2000 Clearing && Grubbing

	Balanced Unit	Current Unit
Price:	$4,985.70	**$4,994.91**
Profit:	$515.91	$525.12
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	**$2.86**
Profit:	$0.29	$0.29
Total Cost:	$2.57	$2.57
Business Overhead:	$0.15	
Job Overhead:	$0.91	
Unassigned Direct Cost:	$0.00	
Assigned Direct Cost:	$1.52	

3. On the Pay Item & Proposal Register menu, choose **Actions > Unbalanced Bid**.



- You will see the changes reflected for Clearing & Grubbing and Excavation and how the profit was spread to your overrun and underrun items

Description	Pay Quantity	Forecast (T/O) Quantity	Unit of Measure	Currency	Unit Price (current)	Total P (curre
+ Clearing Grubbing	50,000.00	40,000.00	Acre	U.S. Dollar	$3,000.00	$150
+ Excavation	10.00	15.00	Cubic Yard	U.S. Dollar	$4,871.84	
+ Mobilization	1.00	1.00	Lump Sum	U.S. Dollar	$91,100.00	

4. Lastly, if you highlight each item you will note 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:	**$226,550.40**	$248,161.82	$222,575.60	$21,611.42	**ADD**
Profit:	$3,637.75	$25,249.17	$3,042.70	$22,206.47	**ADD**
Margin%:	1.61	10.17	1.37	$21,823.65	**ADD**

Congratulations, you have completed this exercise!

7.4 BID ADJUSTMENTS

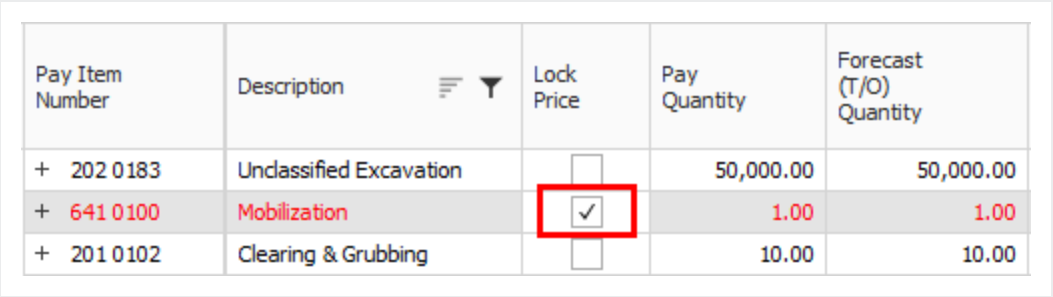
Often you will want to continue adjusting certain pay items and then rebalance to hit the target total.

7.4.1 Lock Price

You can lock down a pay item price and it will not factor in future rebalancing.

7.4 Step by Step 1 — Lock Price

1. Select the **Lock Price** checkbox on the Mobilization row.



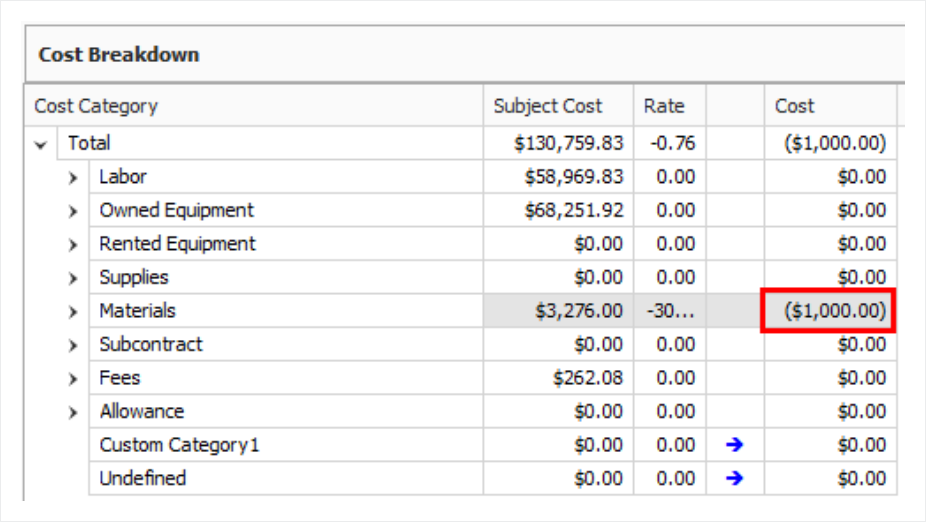
Pay Item Number	Description	Lock Price	Pay Quantity	Forecast (T/O) Quantity
+ 202 0183	Unclassified Excavation	☐	50,000.00	50,000.00
+ 641 0100	Mobilization	☑	1.00	1.00
+ 201 0102	Clearing & Grubbing	☐	10.00	10.00

   - Mobilization's price is now locked
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

7.4 Step by Step 2 — Make Last Minute Bid Adjustments

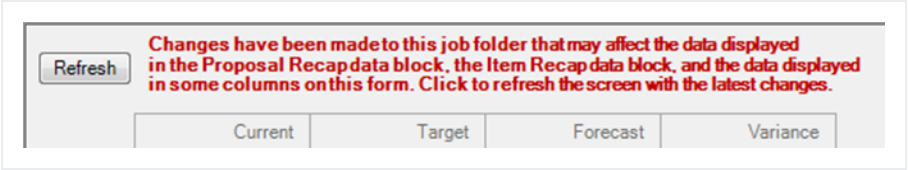
1. With the E101 – Training Job open, select the **Estimate** tab.
2. Click on **Cost Breakdown Structure** to open the CBS.

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 **Cut** for the new description.
6. Make the cut in Material cost by typing **-1000** in the Cost column of the Materials Cost category under the Cost Breakdown section on the right.

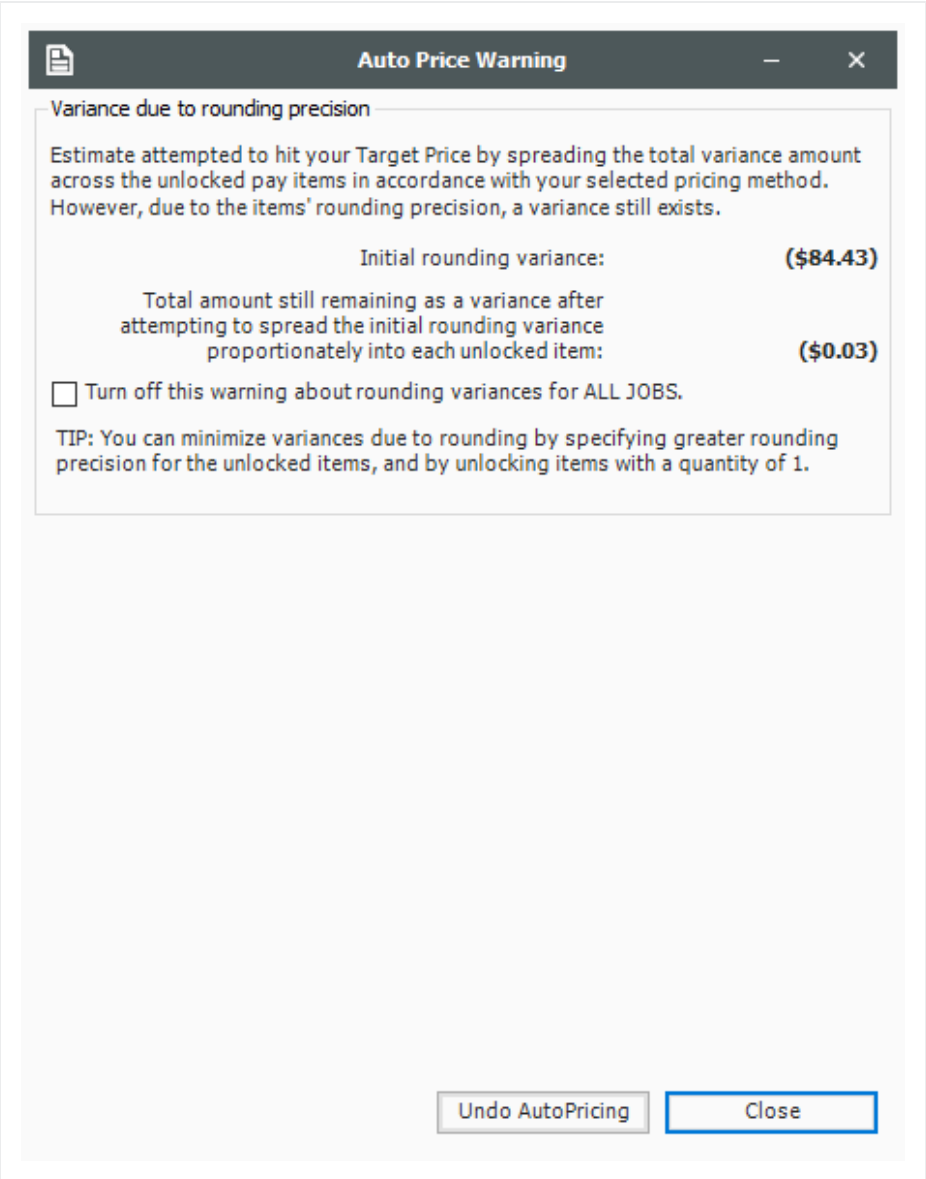


7. Press the **Tab** key, and your cut will be reflected on the left-hand side.

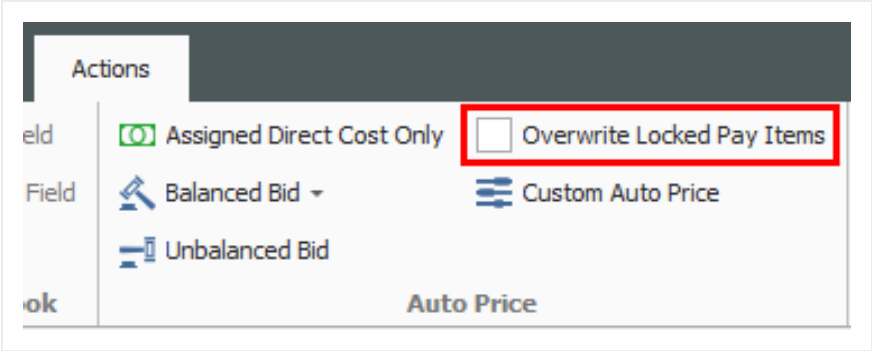
8. Finally, return to the Pay Item & Proposal.
    - You see a notification letting you know that changes have been made and the Pay Item & Proposal must be refreshed to reflect the changes



9. Click the **Refresh** button.
10. On the **Actions** menu, select **Balanced Bid > Hit Target Total**.
11. An Auto Price Warning displays, informing you of rounding variances. After reading the details, click the **Close** button.



- Note on the proposal recap that a variance still exists because there are limited number of pay items to spread the rounding error over
- Note that Mobilization did not adjust, since Mobilization's price was locked, 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



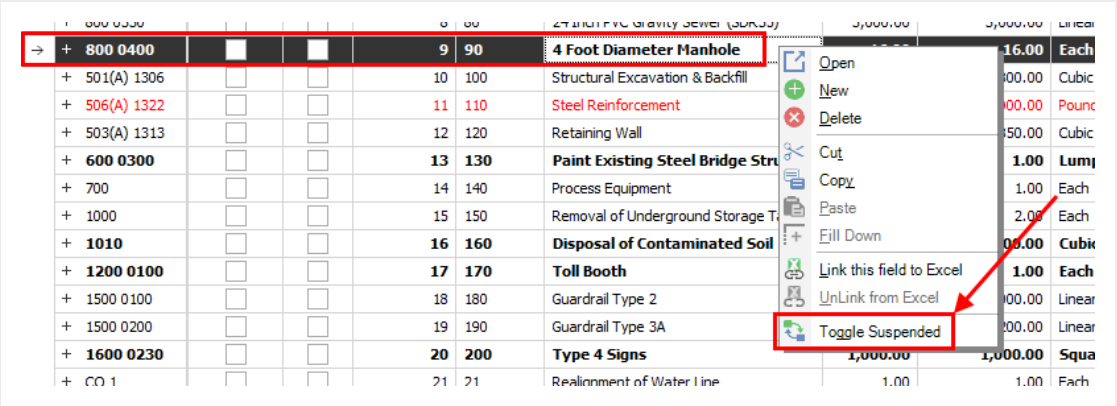
7.4.2 Suspend Pay Items

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.

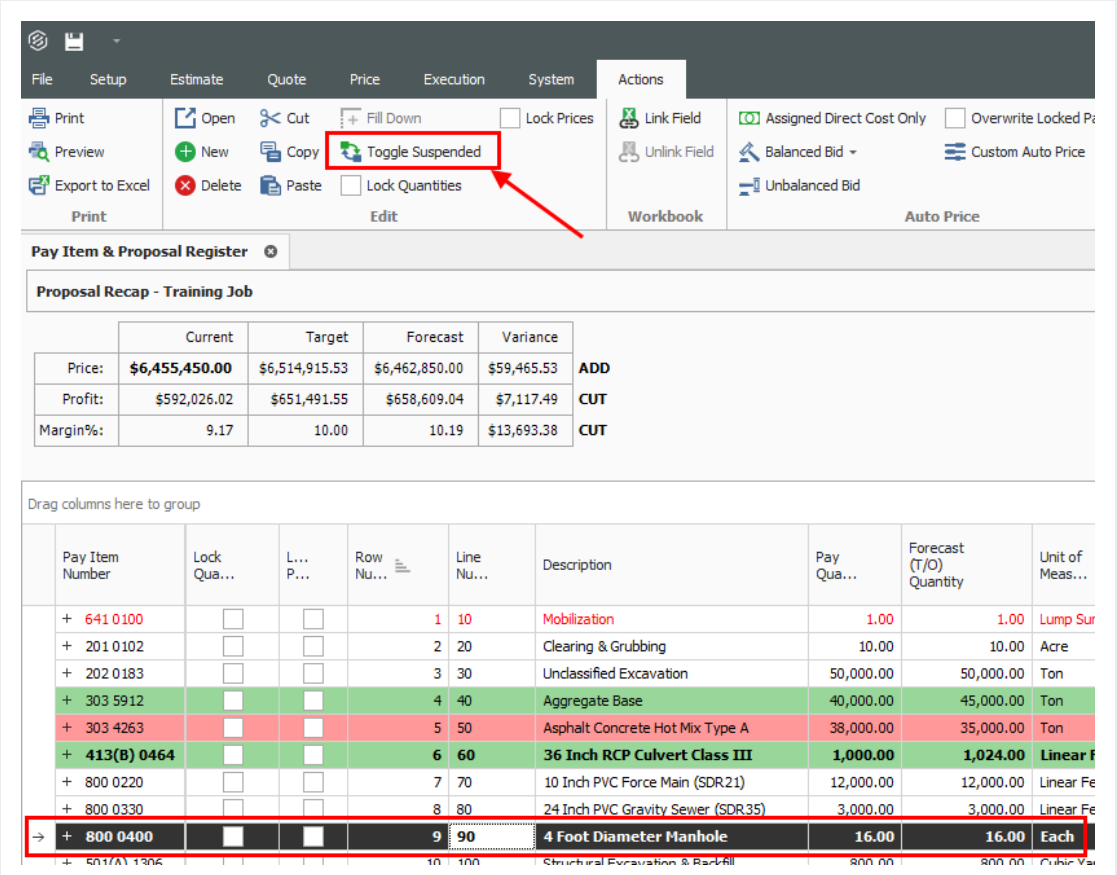
This can be helpful when considering alternate items on a bid submission. Should the client decide to not require a pay item, you can suspend it, causing the pay item and any of its assigned cost items to no longer contribute any cost or price. It will no longer show up on your bid and no longer contribute to the overall total price.

You can suspend/unsuspend pay items in one of three ways:

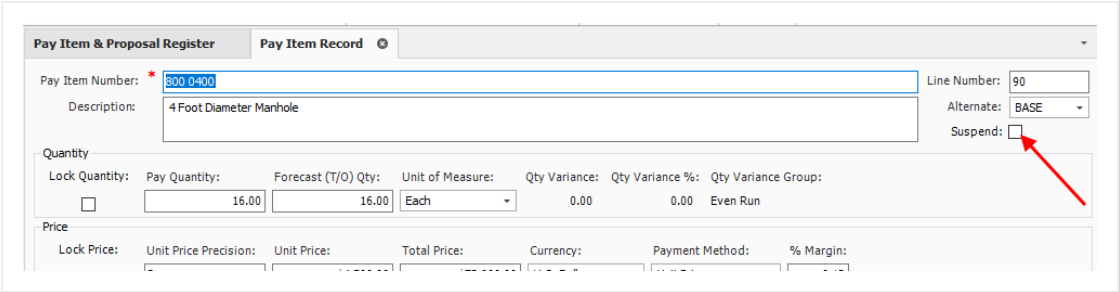
- Right click on the pay item and select Toggle Suspended



- Select the pay item and click Toggle Suspended under the Edit section of the Actions Tab



- Open the pay item record and checking/unchecking the Suspend box



Lesson 7 Review

1. What are all costs in the Price Breakdown Structure based on?
    a. Pay Quantities
    b. Forecast (T/O) quantities
    c. Direct Costs
    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

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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.

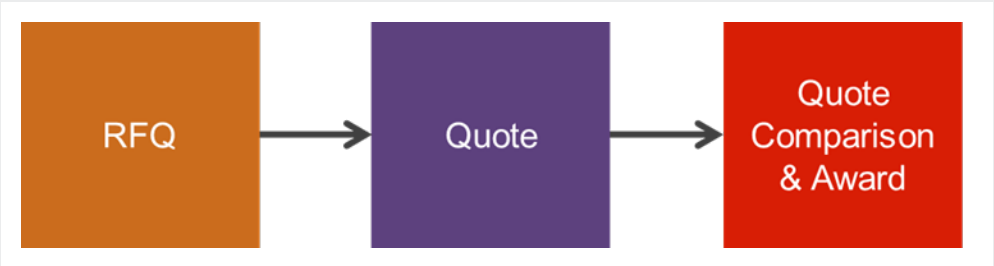
> **TIP** Awarding a quote in InEight Estimate does not mean the vendor is awarded the contract, but rather that their price is selected as the carrying cost in the bid.

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.

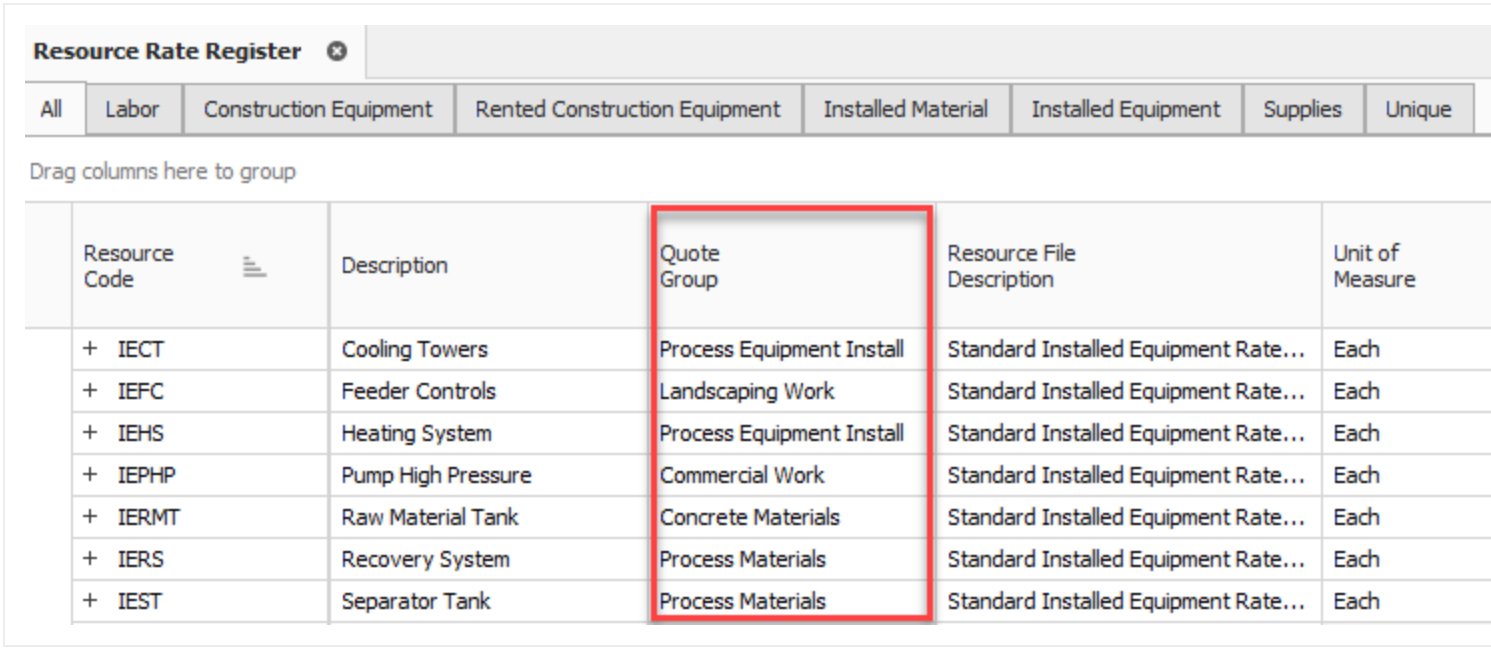
For the cost items in your project that you plan to subcontract, you can manage quotes at the cost item level, using the cost items themselves as the descriptions on the quote request.

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 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.

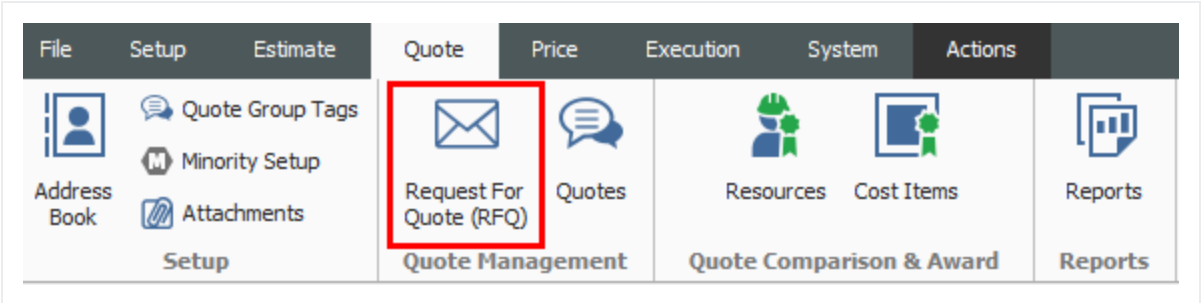
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Quote Group
13	**Paint Existing Steel Bridge Structure**	1.00	Lump Sum	Structural Painting
14	**Process Equipment**	1.00	Each	Process Equipment Install
17	**Toll Booth**	1.00	Each	Commercial Work
18	**Guardrail Type 2**	1,000.00	Linear 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

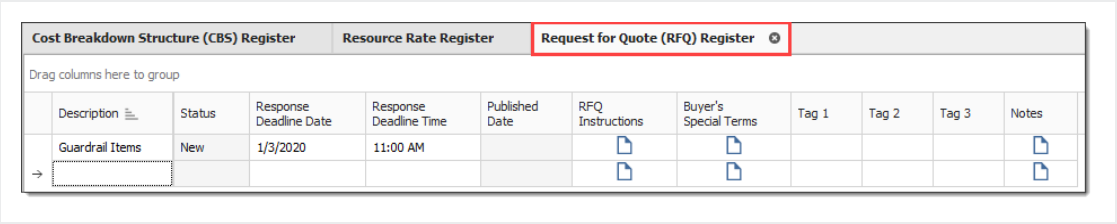
Requests for Quote (RFQs) are invitations to sellers that include a requested list of items or services/pricing and terms. When you create an RFQ in InEight Estimate, you are able to indicate the line items you want to include in the quote, and the vendor(s) to whom you want to send it.

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).

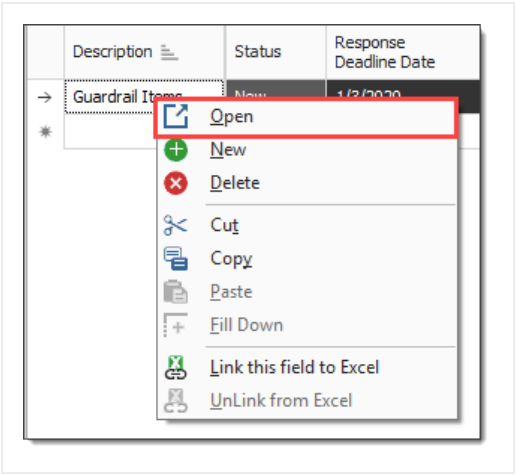


- The RFQ register lists all of the RFQs you've created, with a Description, a Status, and a Response Deadline Date



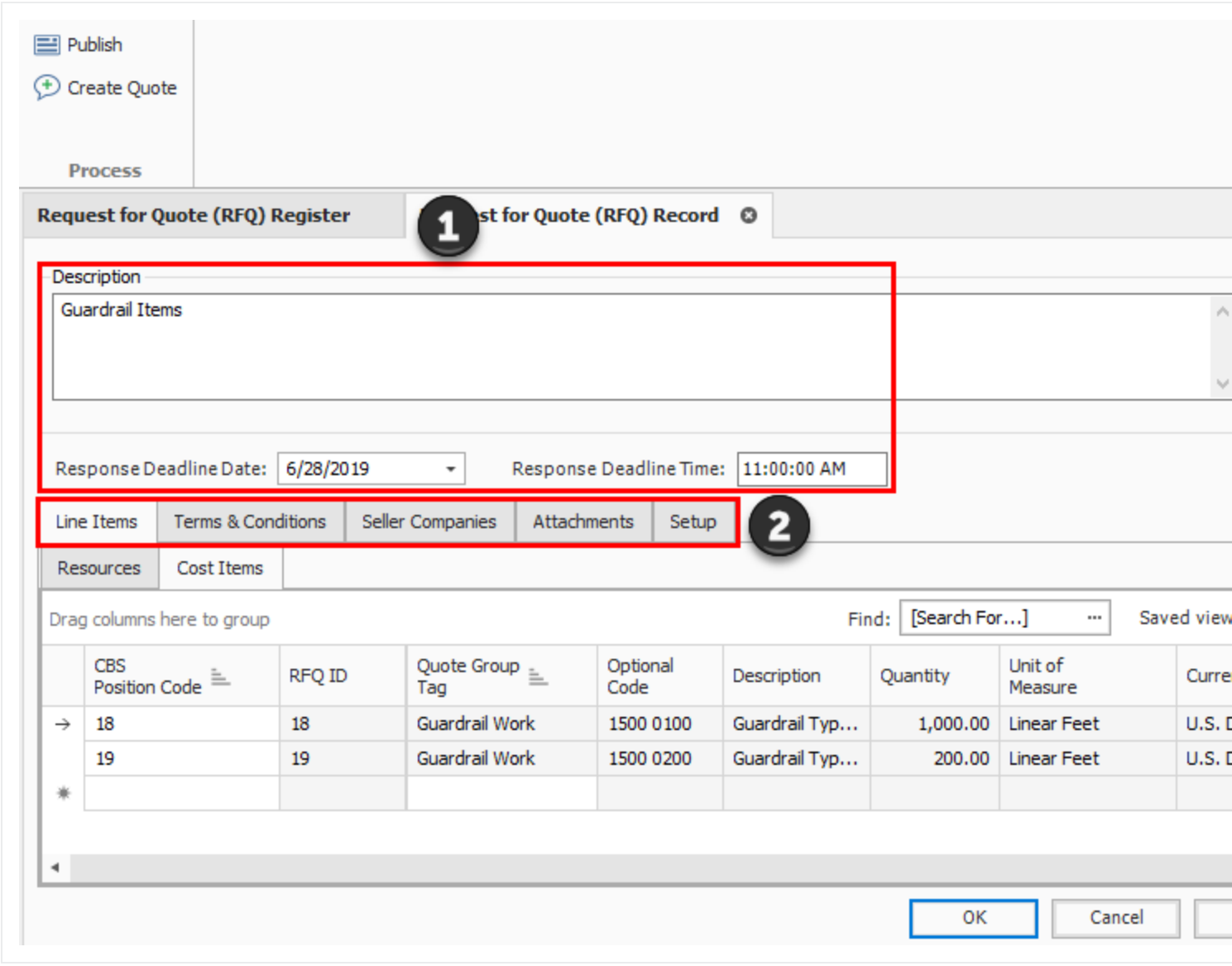
8.2.2 Request for Quote (RFQ) Record

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.

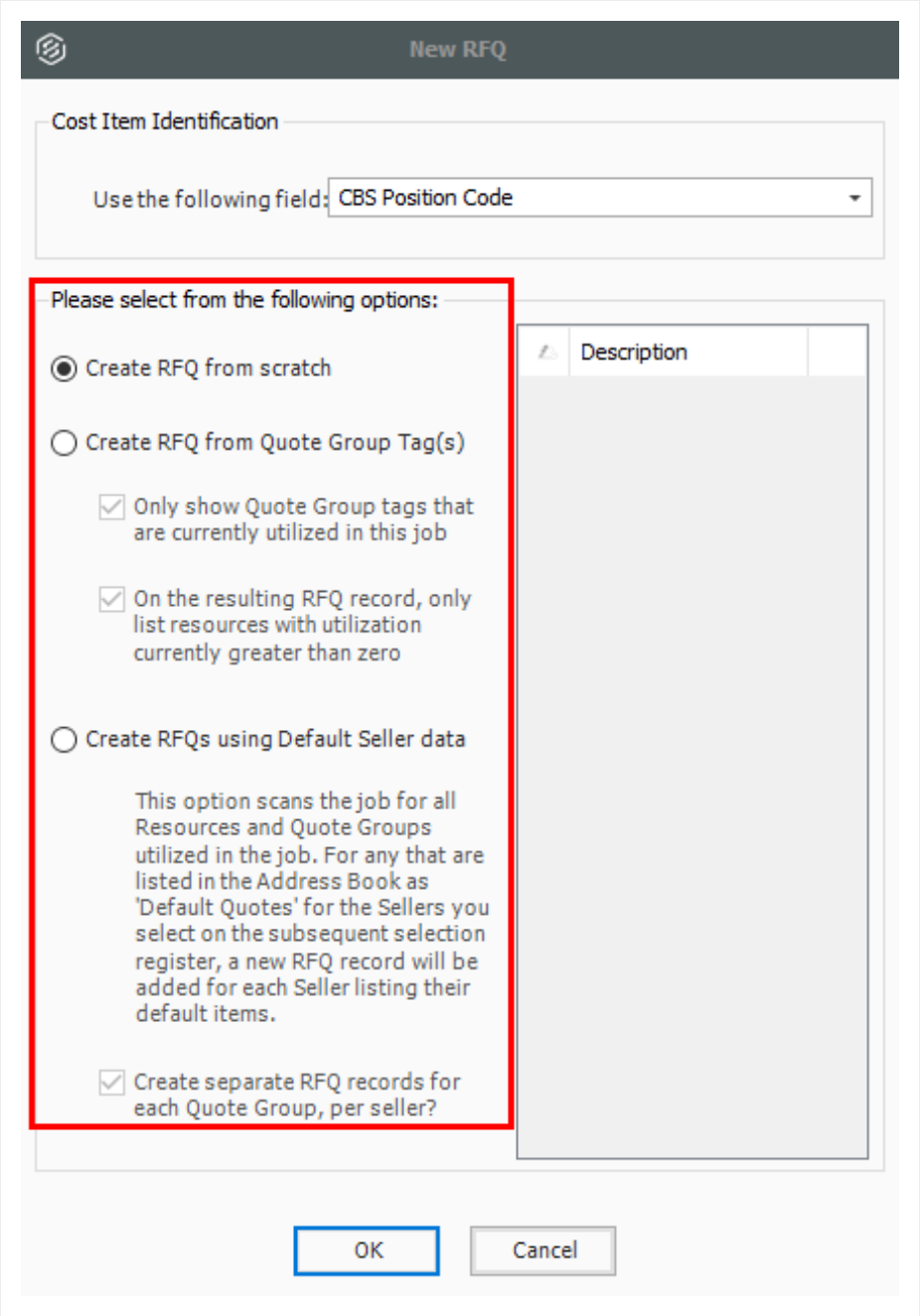


8.2.3 Create an RFQ

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

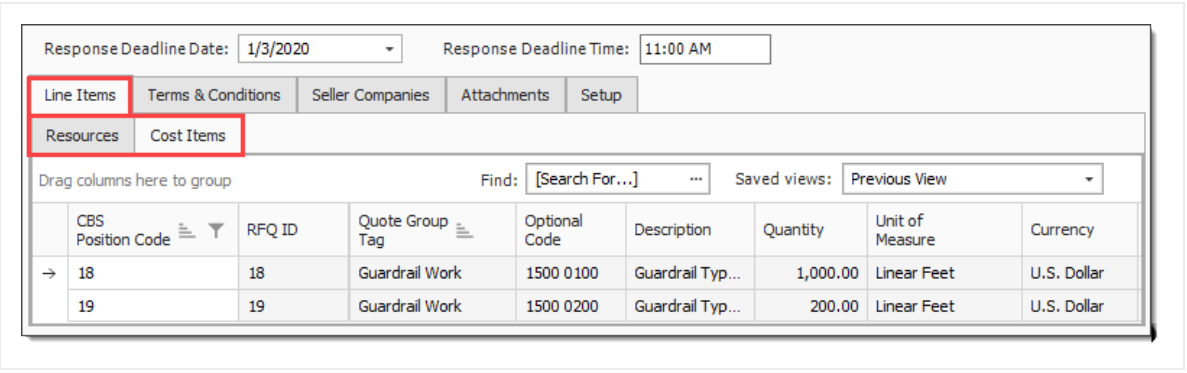
materials in the job



The rest of this section walks through each tab on the RFQ Record in more detail.

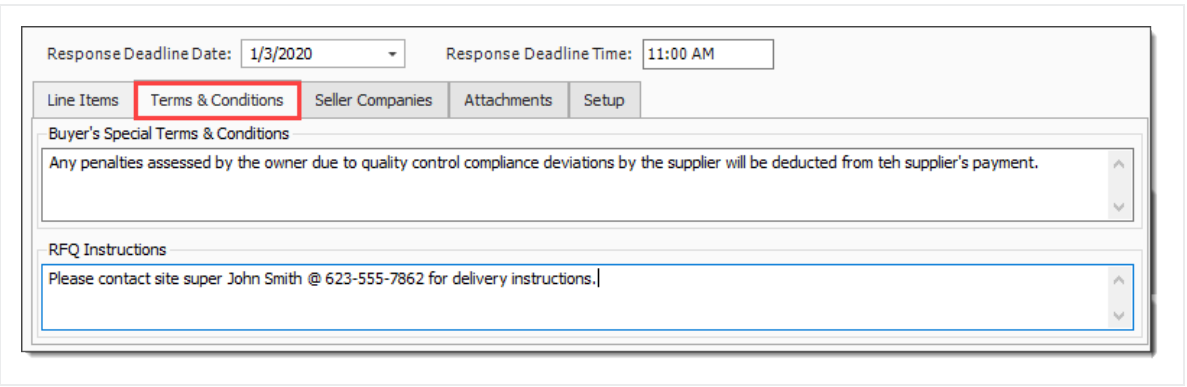
8.2.3.1 Line Items

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.



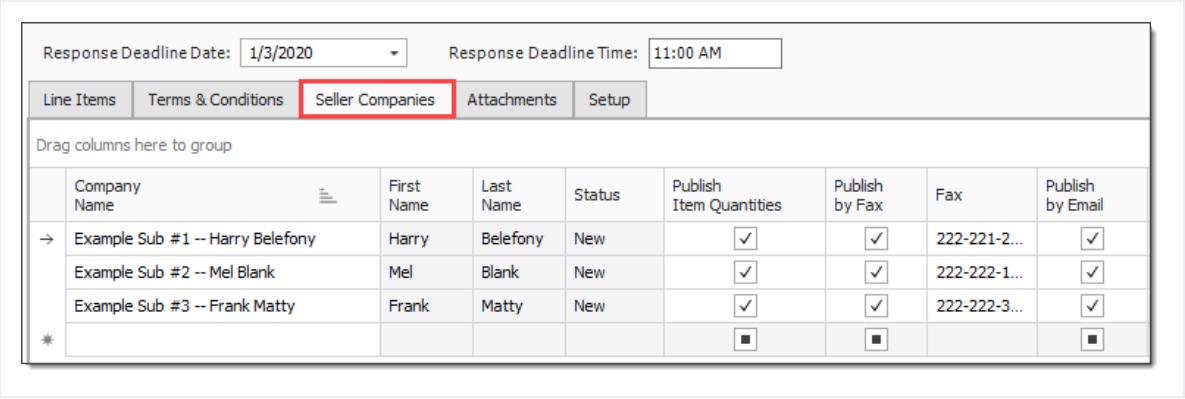
8.2.3.2 Terms & Conditions

This tab provides ample space for you to enter terms, conditions and instructions that need to be included on the RFQ.



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.



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

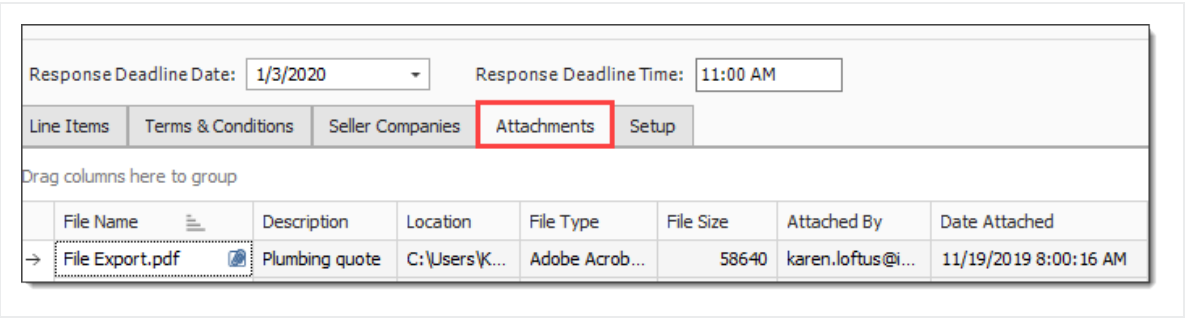
  NOTE When RFQs are generated for multiple vendors using the Publish by Fax option, be sure to separate the MS Word document pages and send only the correct pages to each vendor.

- **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.

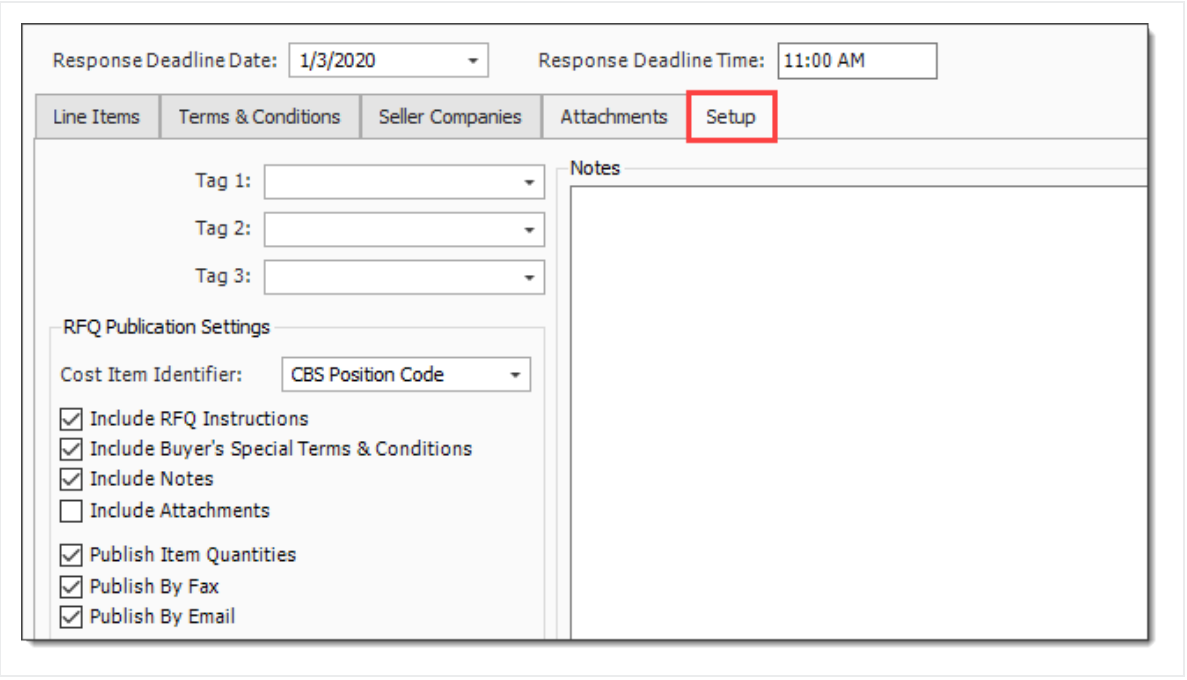
8.2.4 Attachments

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.



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.



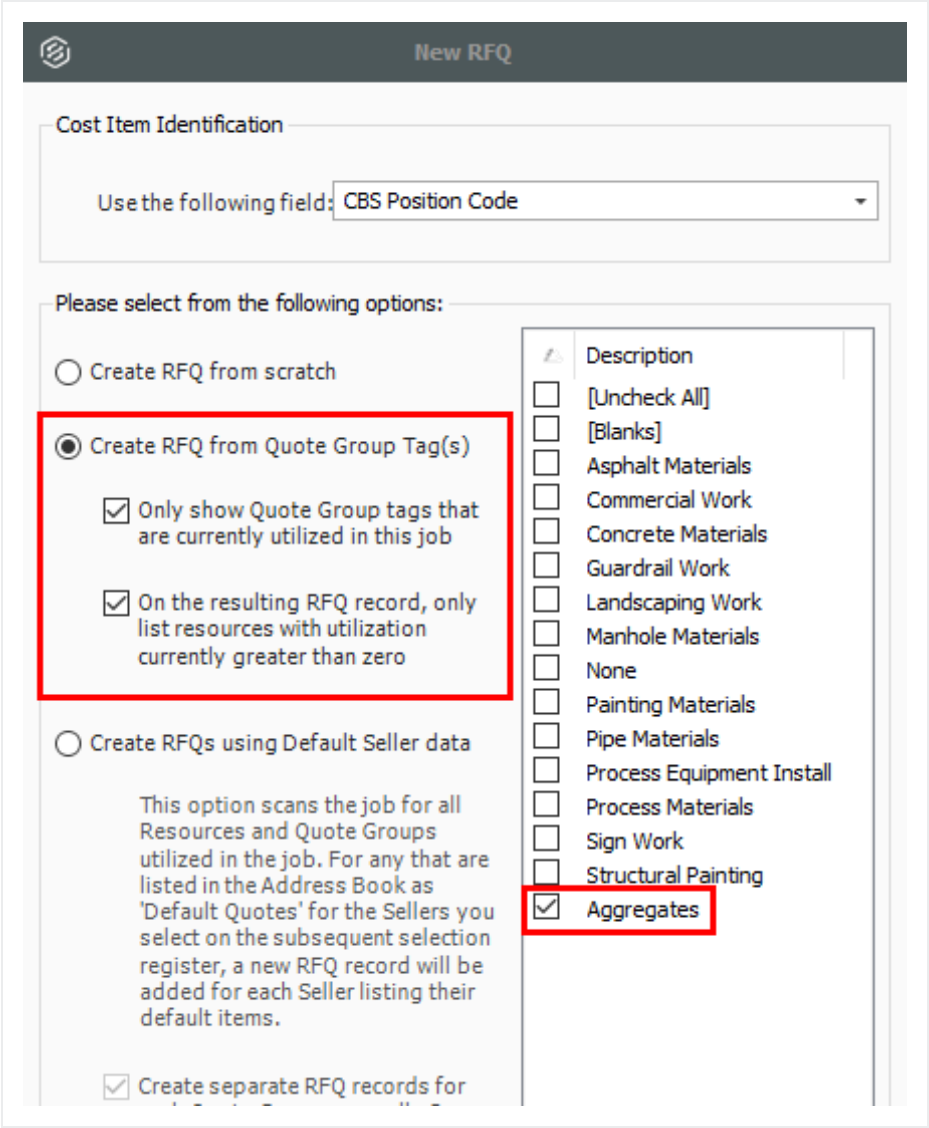
8.2.6 Publish an RFQ

Once created, InEight Estimate allows you to generate a Microsoft Word RFQ template that can be faxed or automatically sent via email to the supplier or subcontractor.

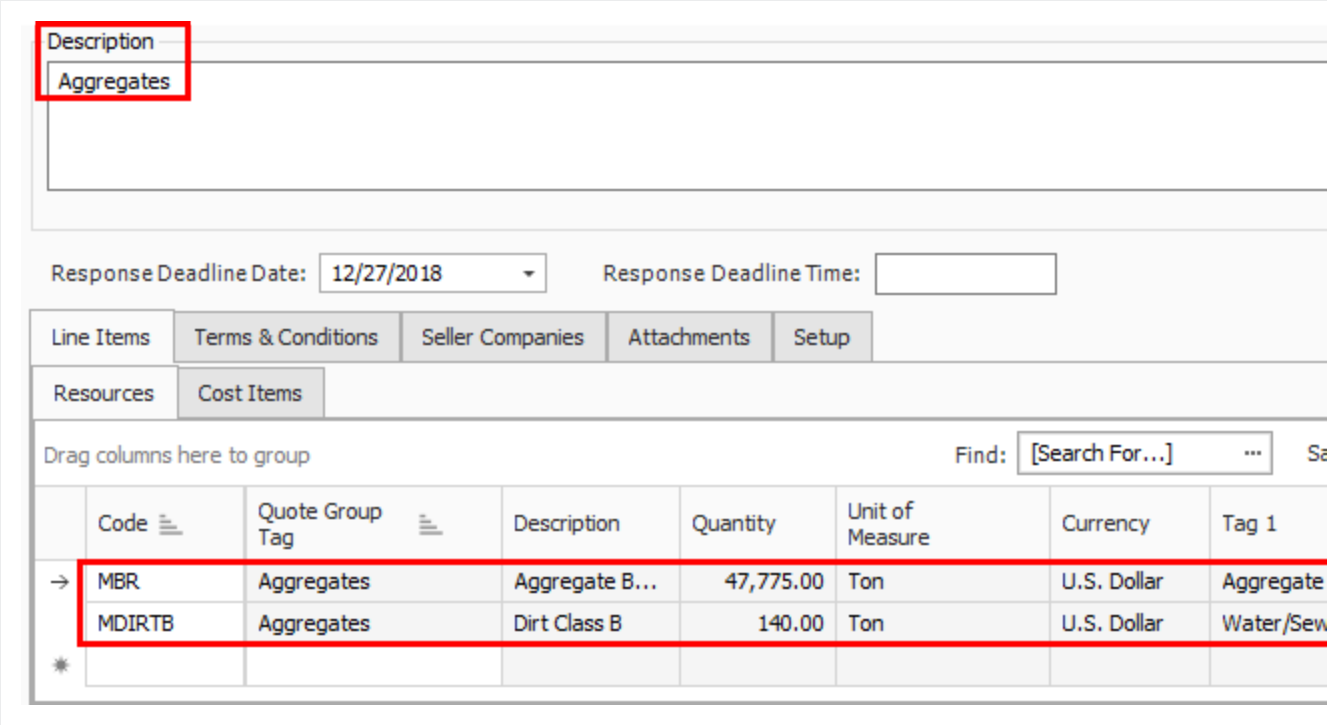
When you complete all of the fields that are required for this RFQ, you are ready to publish the RFQ, To do so, select all of the vendors that you want to receive the RFQ and click **Actions > Publish** on the RFQ Record ribbon.

8.2 Step by Step 1 — Create and Publish an RFQ

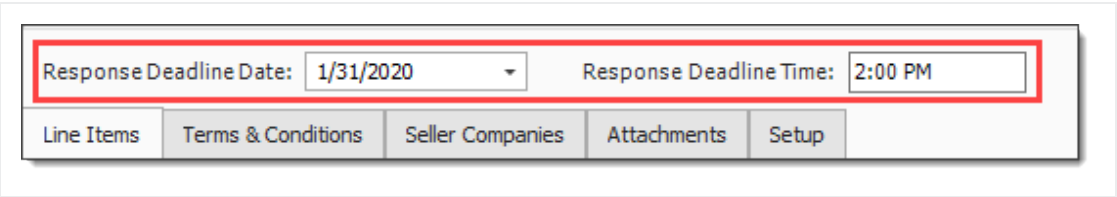
1. Open the **Training Job**.
2. From the InEight Estimate landing page, select the **Quote** tab.
3. Select **Request for Quote (RFQ)**.
4. From the Actions tab, click on the **New** icon to create a new RFQ.
5. Select **Create RFQ from Quote Group Tag(s)**, leaving the checkboxes checked to only show quote groups and resources that are being used.
6. Select the **Aggregates** Quote Group Description.



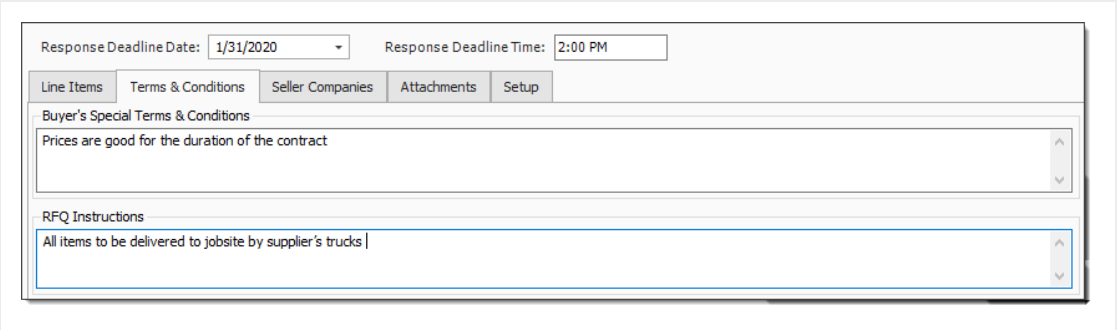
7. Click **OK**.
    - The Request for Quote (RFQ) Record is created with two aggregate line items
    - The Description field is automatically filled with the name of the quote group



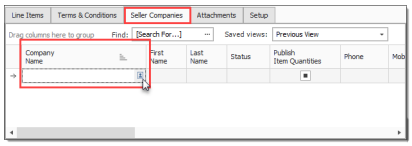
8. In the Response Deadline Date field, select a date two weeks from today, and for the Response Deadline Time, type **2:00 PM**.



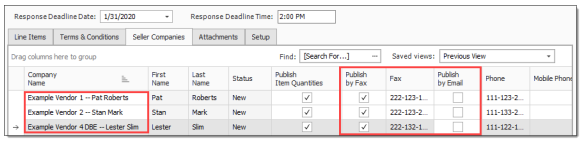
9. Select the **Terms & Conditions** tab.
10. Type **Prices are good for the duration of the contract** in the Buyer's Special Terms & Conditions field.
11. Type **All items to be delivered to jobsite by supplier's trucks** in the RFQ Instructions field.



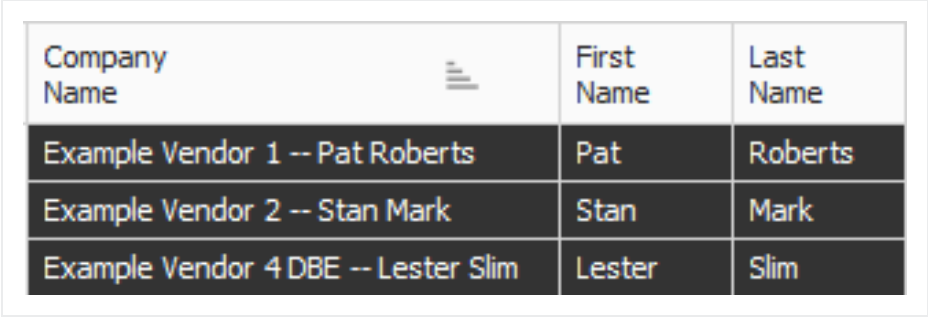
12. Select the **Seller Companies** tab and click in the first blank row in the **Company Name** column.



13. Click on the **Address book** icon, and select the following example vendors, then click **OK**:
    - Example Vendor 1: **Pat Roberts**
    - Example Vendor 2: **Stan Mark**
    - Example Vendor 4: **Lester Slim**
14. Make sure **Publish by Fax** is checked for all sellers, and that they all have Fax numbers.
    - Also make sure **Publish by Email** in unchecked for each vendor

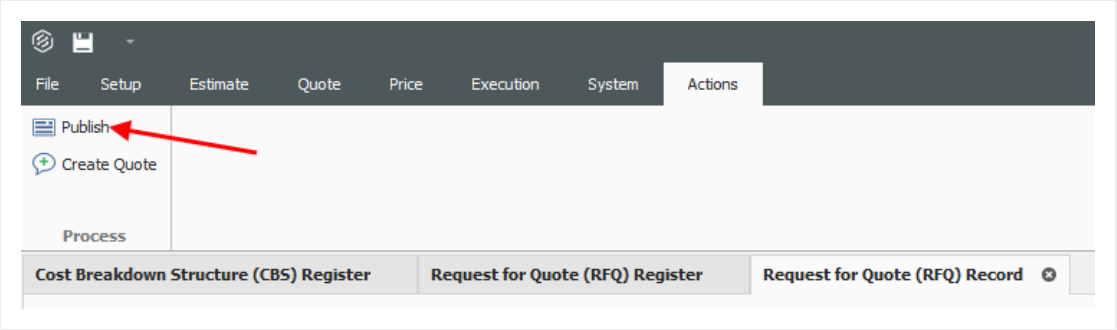


15. Select the sellers to whom you want to send the RFQ.

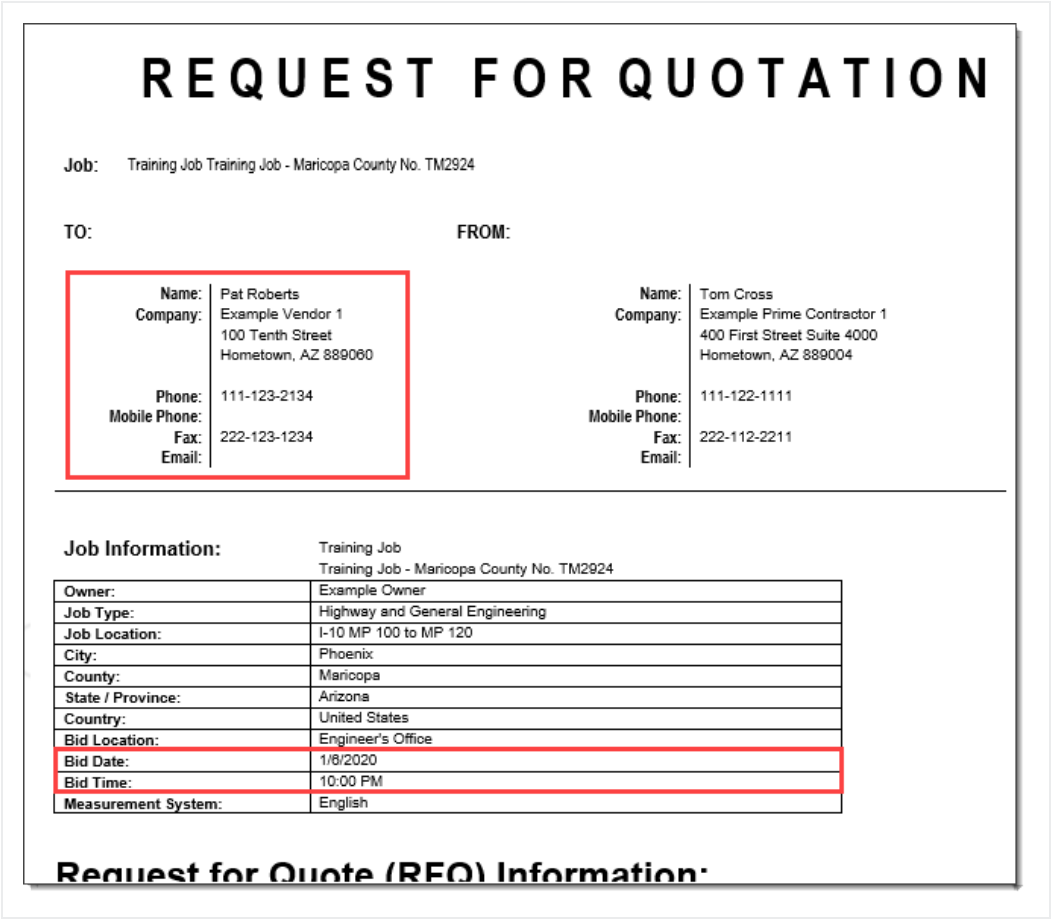


Company Name	First Name	Last Name
Example Vendor 1 -- Pat Roberts	Pat	Roberts
Example Vendor 2 -- Stan Mark	Stan	Mark
Example Vendor 4 DBE -- Lester Slim	Lester	Slim

16. 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 889060
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:	1/6/2020
Bid Time:	10:00 PM
Measurement System:	English

Request for Quote (RFQ) Information:

17. Click **OK** to save the RFQ Record.

8.3 QUOTES

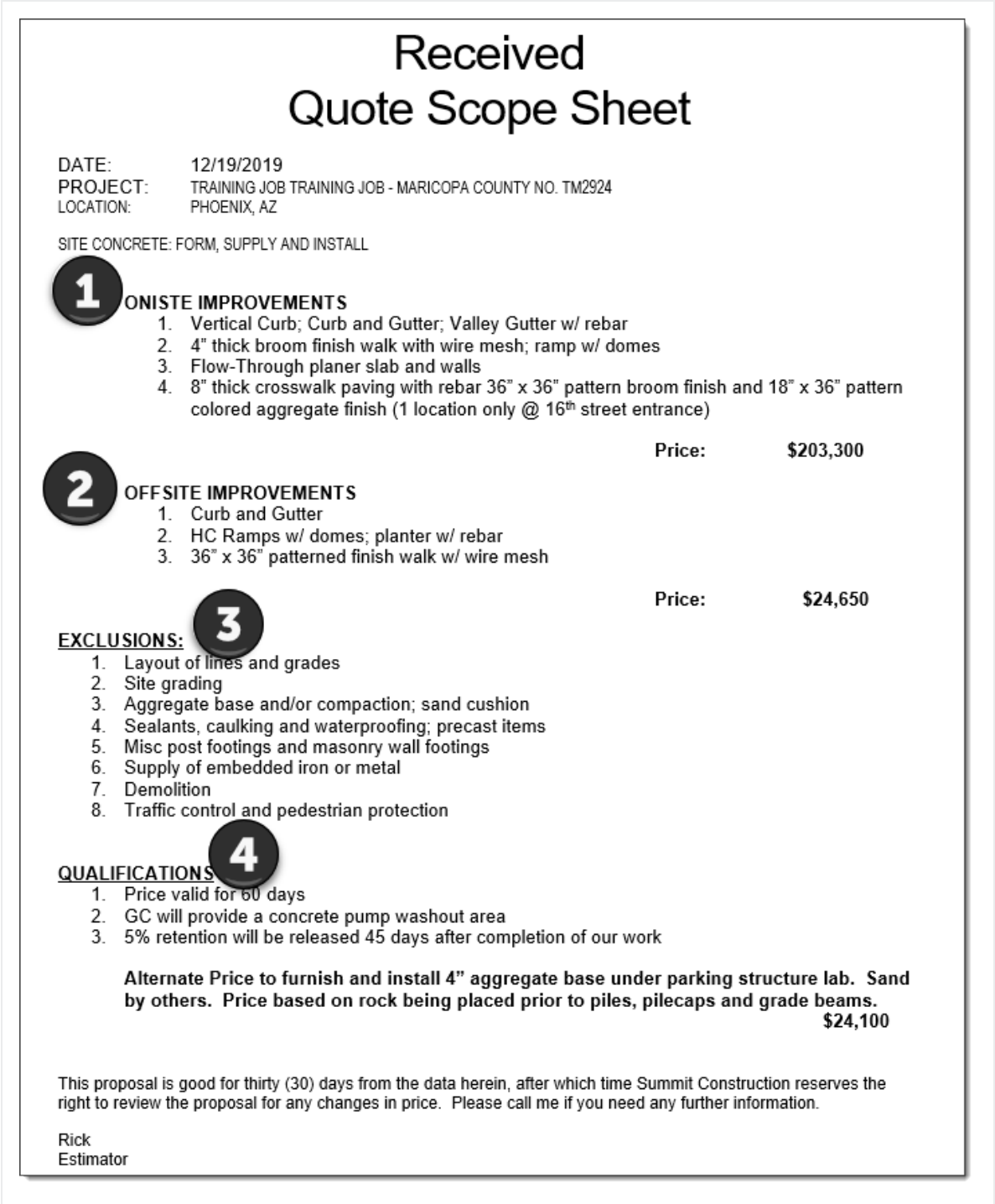
When you receive responses to your RFQ, the next step is to enter their pricing in the Quote Register. The Quote Register stores all of the quotes you have for that job. Each quote has a Description and a Quote Status, and each quote displays seller contact information.

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 @ 16th 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

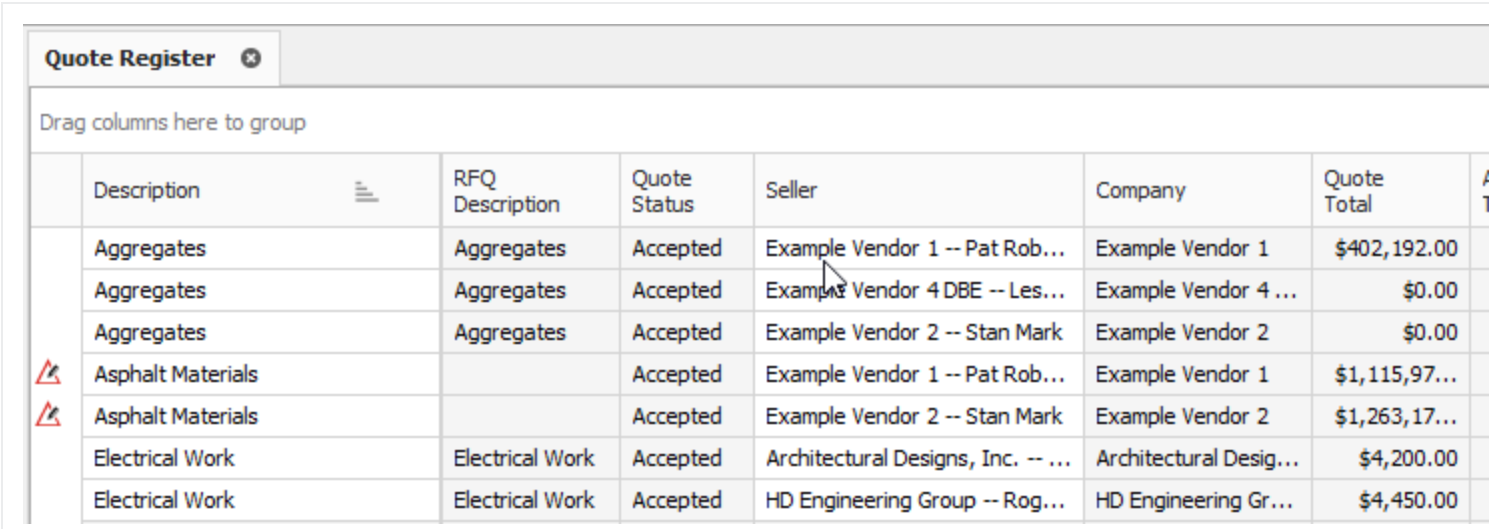
Alternate Price to furnish and install 4" aggregate base under parking structure lab. Sand by others. Price based on rock being placed prior to piles, pilecaps and grade beams. $24,100

This proposal is good for thirty (30) days from the data 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.



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.

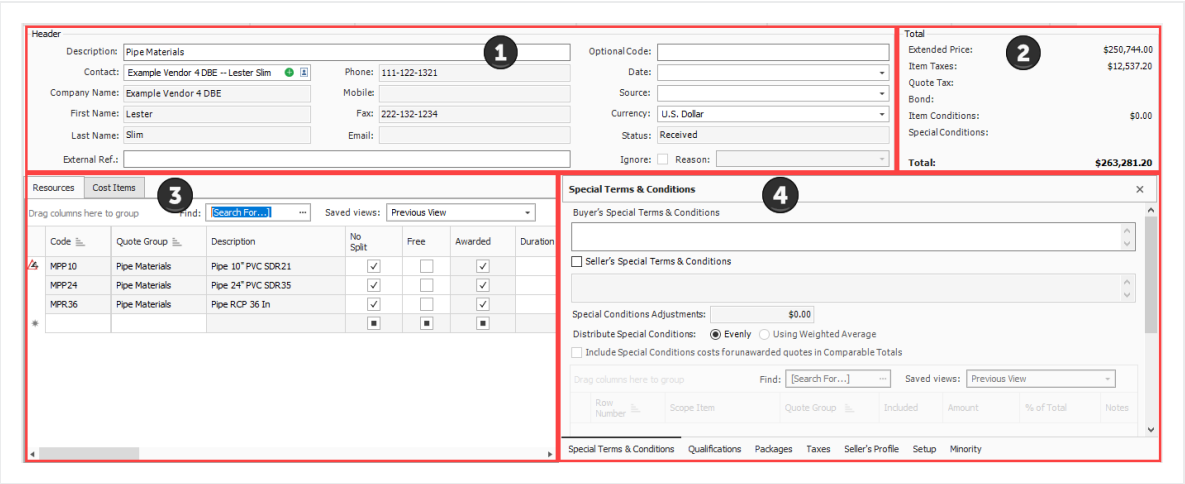
Right click on any existing quote in the Quote Register and choose **Open** to access the Quote Record.

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 include Special Terms & Conditions, Qualifications, Packages, Taxes,

Overview – Quote Record (continued)

Name	Description
Data Blocks	Seller's Profile, Setup, and Minority.



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

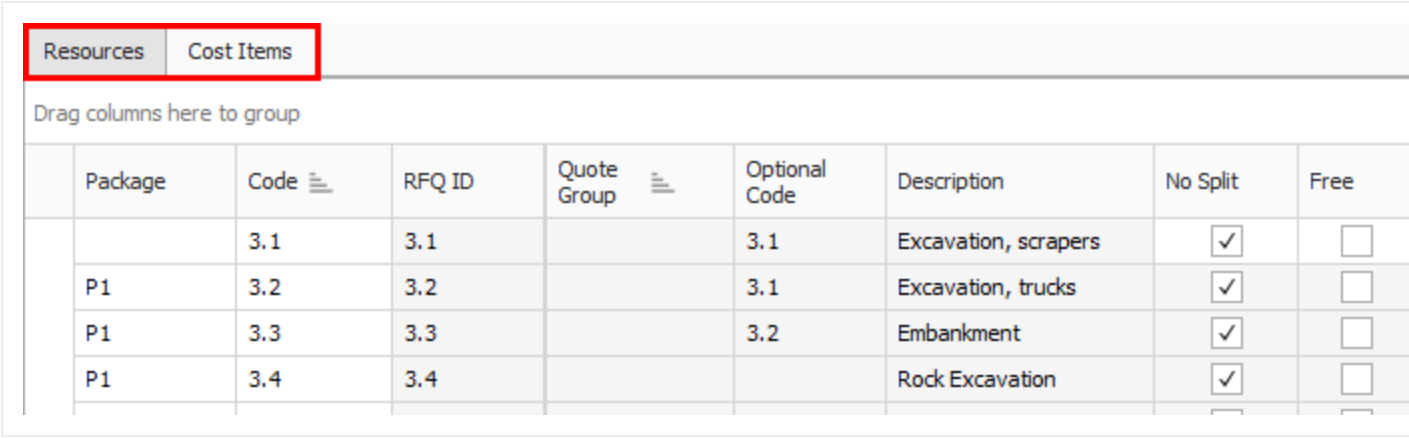
The Price block includes the quotes extended price, along with any additional taxes, bonds, item conditions, and special conditions.

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

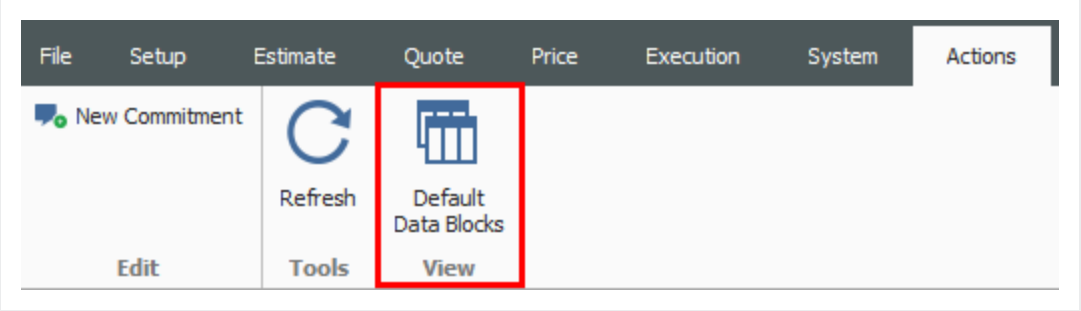


8.3.7 Data Blocks

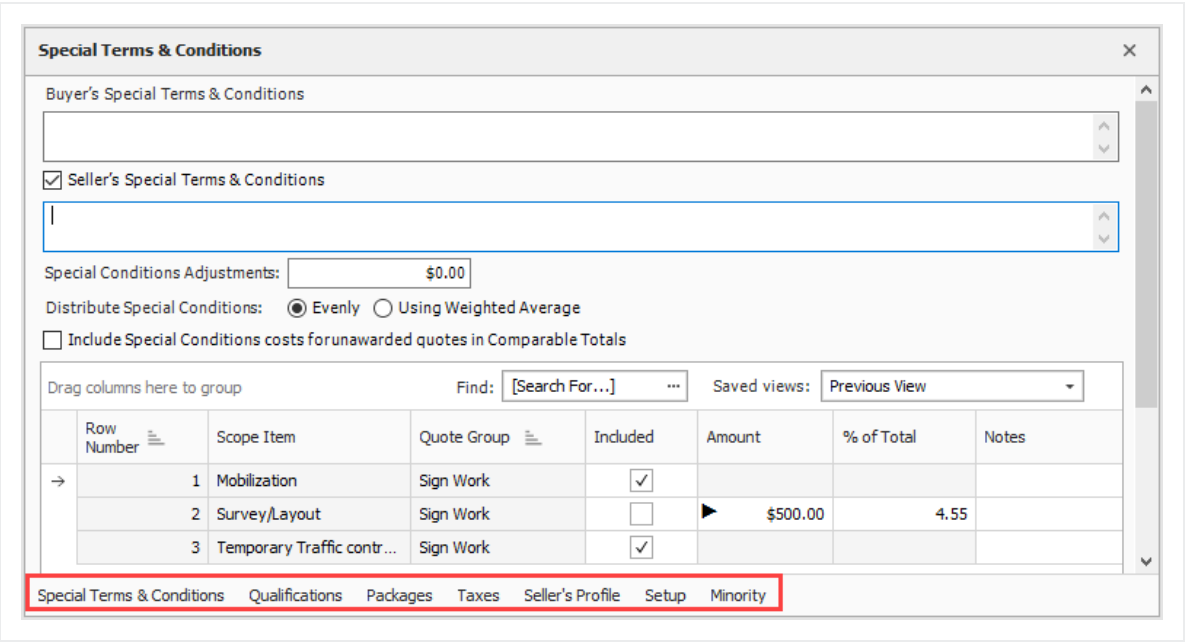
The Quote Record utilizes data blocks that allows you to customize the layout and focus on data block tabs that matter most to you. You can select the default data block action in the ribbon to revert back to the default setting, which shows all six data blocks.

Data Block tabs include:

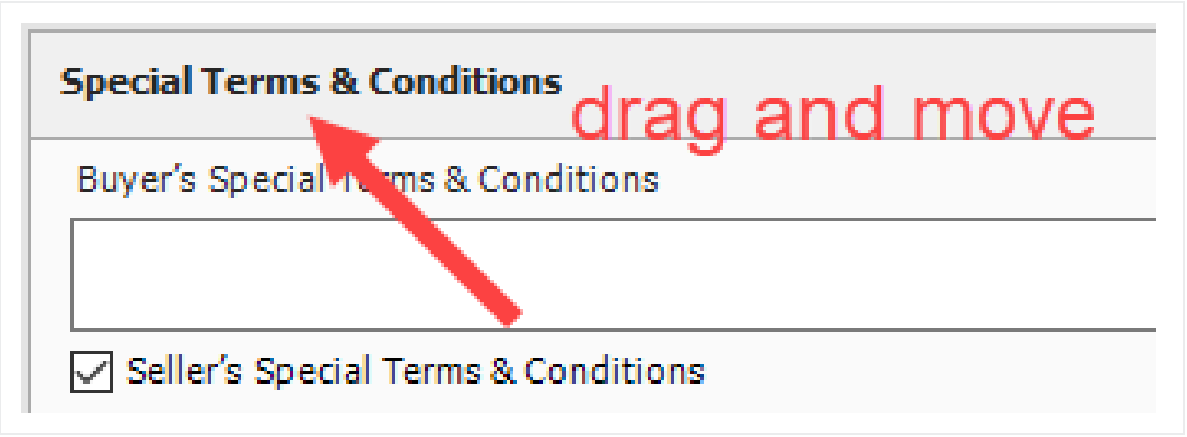
- Special Terms & Conditions
- Qualifications
- Packages
- Taxes
- Seller's Profile
- Setup
- Minority



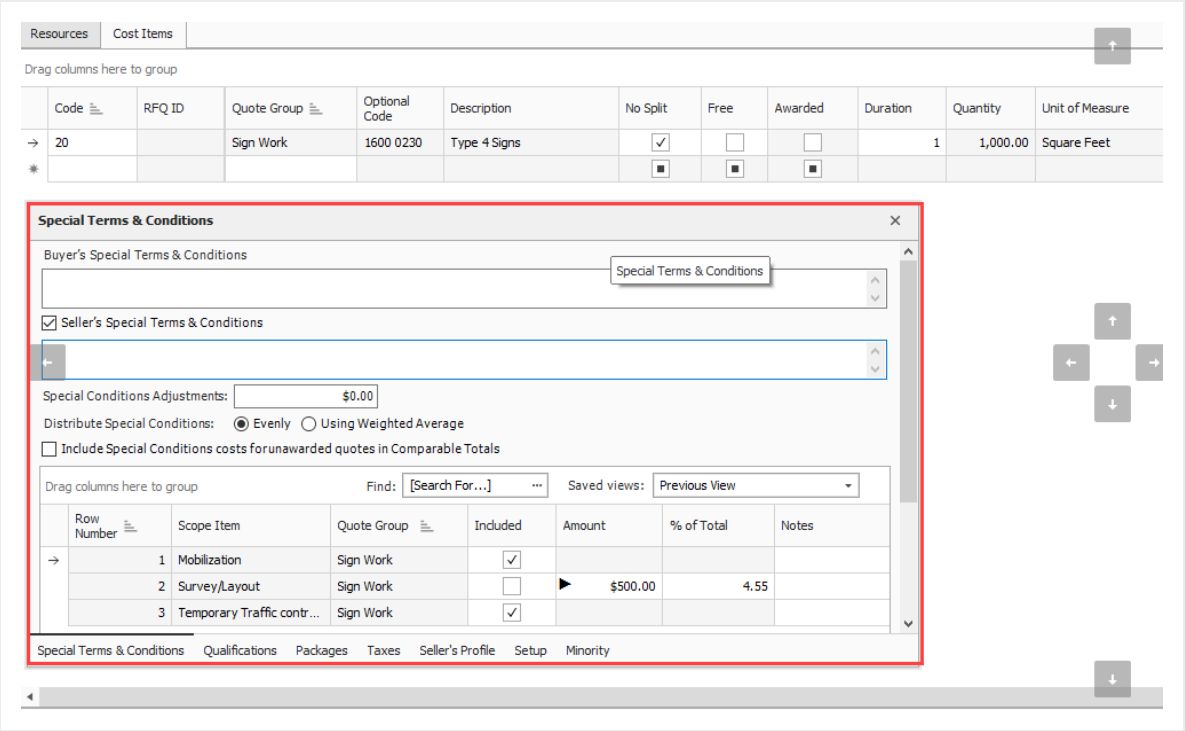
The six data blocks appear at the bottom right of the screen.



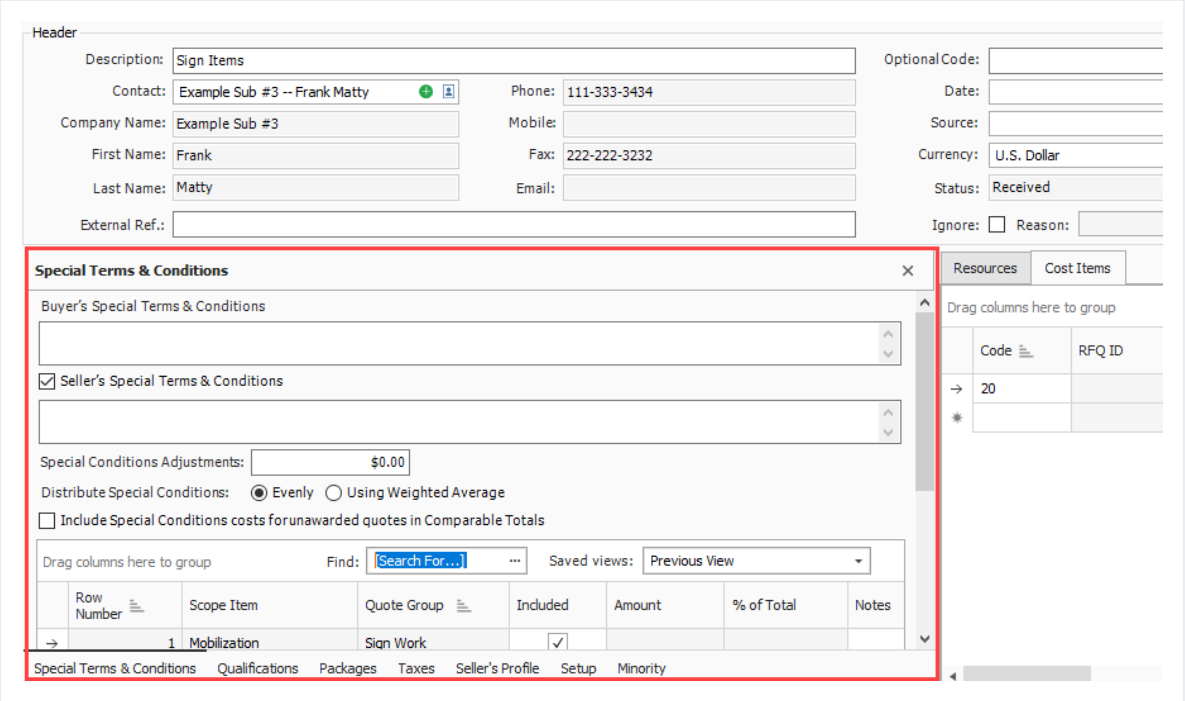
It's possible to move the entire data block, or individual data blocks to other parts of the screen. For example, select the Special Terms & Conditions header row, and drag to the desired part of the screen.



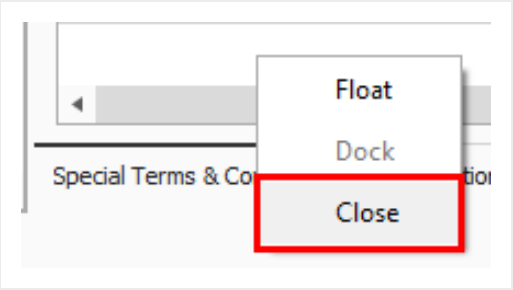
Drop the data block on top of an arrow where you wish to land the data block.



The data block will now reside on the left side of the screen.



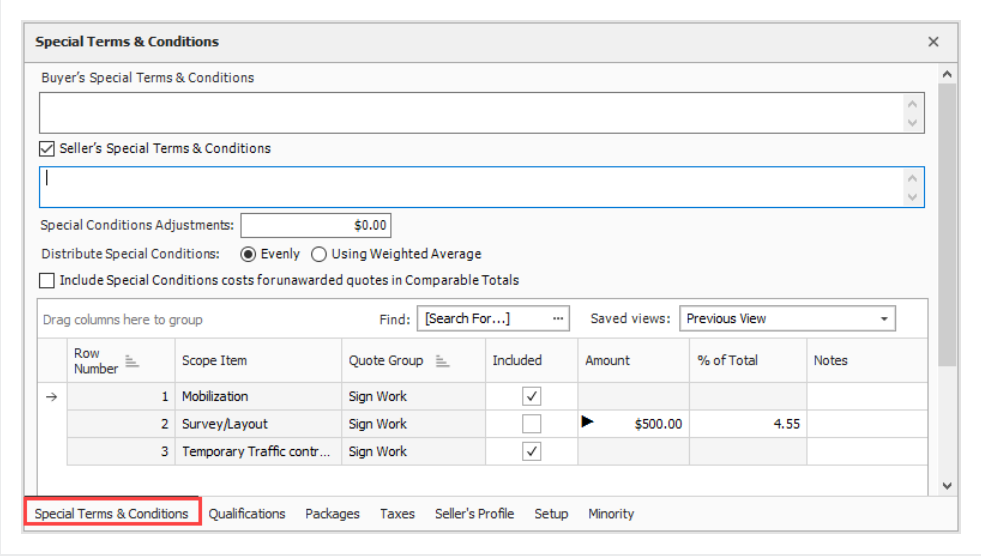
You can also close a specific tab if it's not commonly used. In this example, you can right click on a tab (like Special Terms & Conditions) and select close.



8.3.8 Data Block Tabs

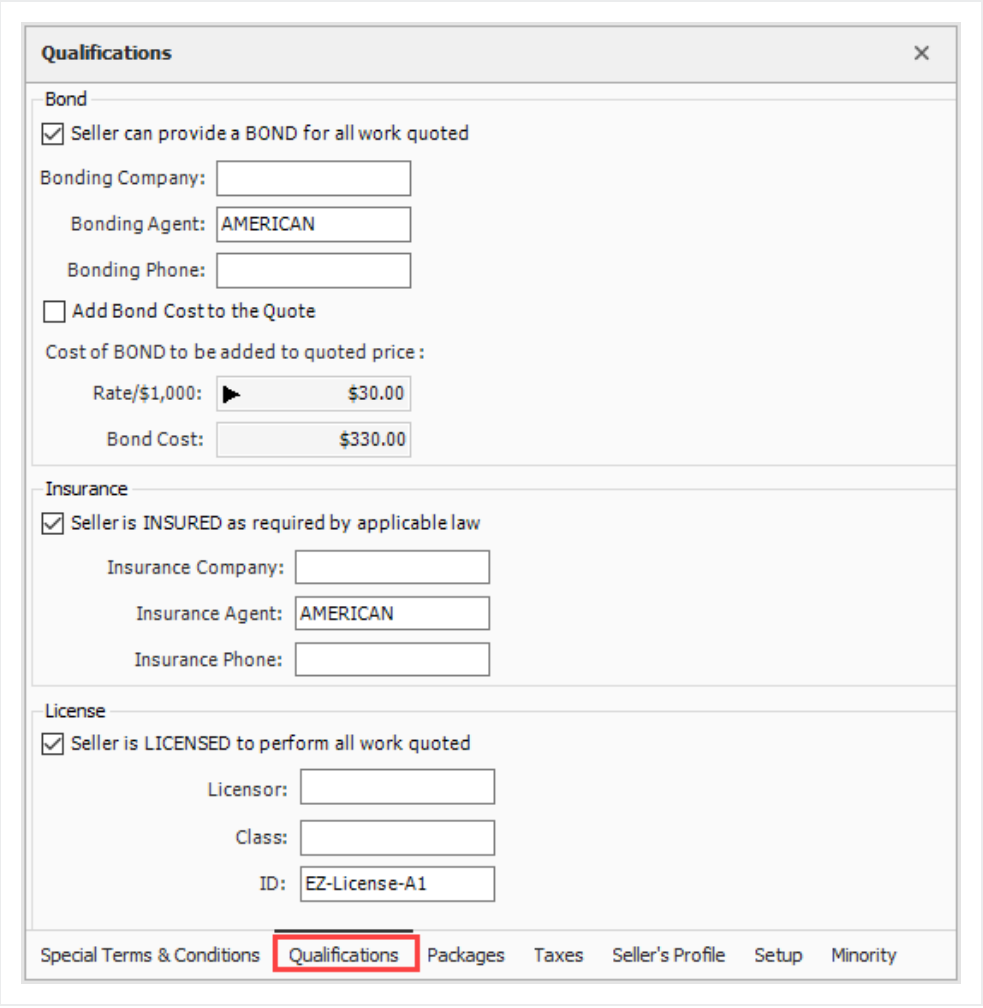
8.3.8.2 Special Terms & Conditions

Special Terms & Conditions is where you can include buyers and sellers special terms, add fixed cost to the quote, and include/exclude scope items.



8.3.8.3 Qualifications

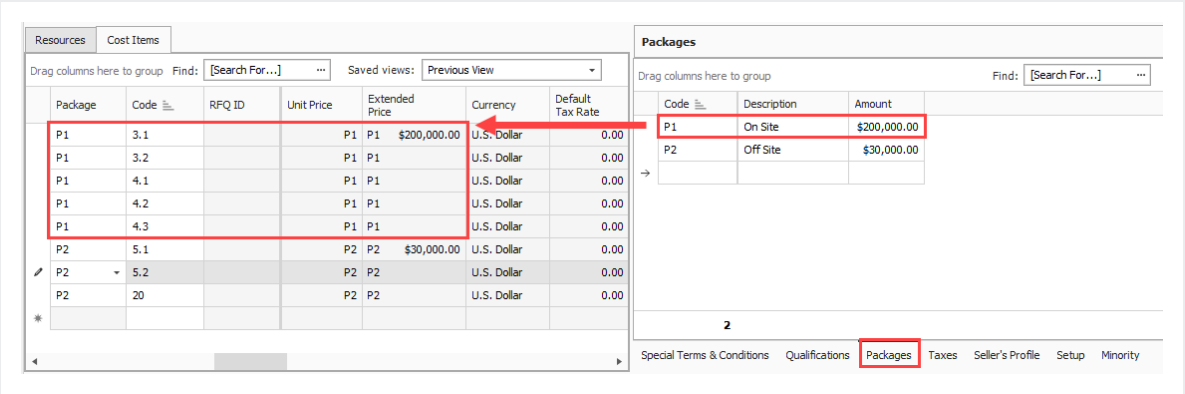
This tab allows you to include bond. You can enter the bond rate and the system will calculate the total Bond Cost or vise versa. This tab also allows you to enter insurance contact information and seller license information. If the vendor in the address book already had this information, then this information will get pre-filled when the seller is assigned to the Quote.



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.

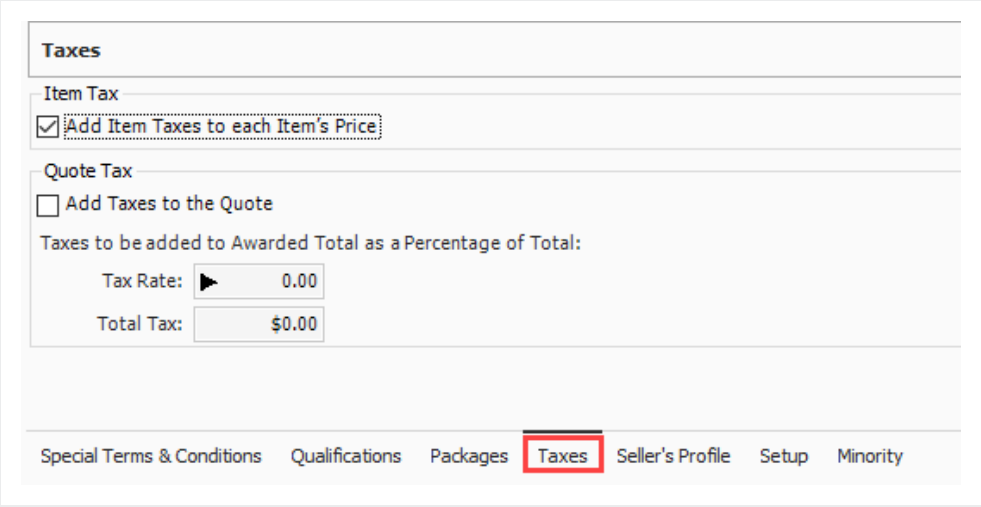
By creating a Package code within the Packages block, and giving it a dollar value, you can then assign that package code to one or many quote records. In this case, the subcontractor provided quotes for both on site and off-site concrete work. You can then determine which individual quotes go with the on site or off-site package. The Package Amount field carries over to the Extended Price field under the Cost Items tab.



You can also create a package by selecting multiple items and selecting **Add to new Package**.

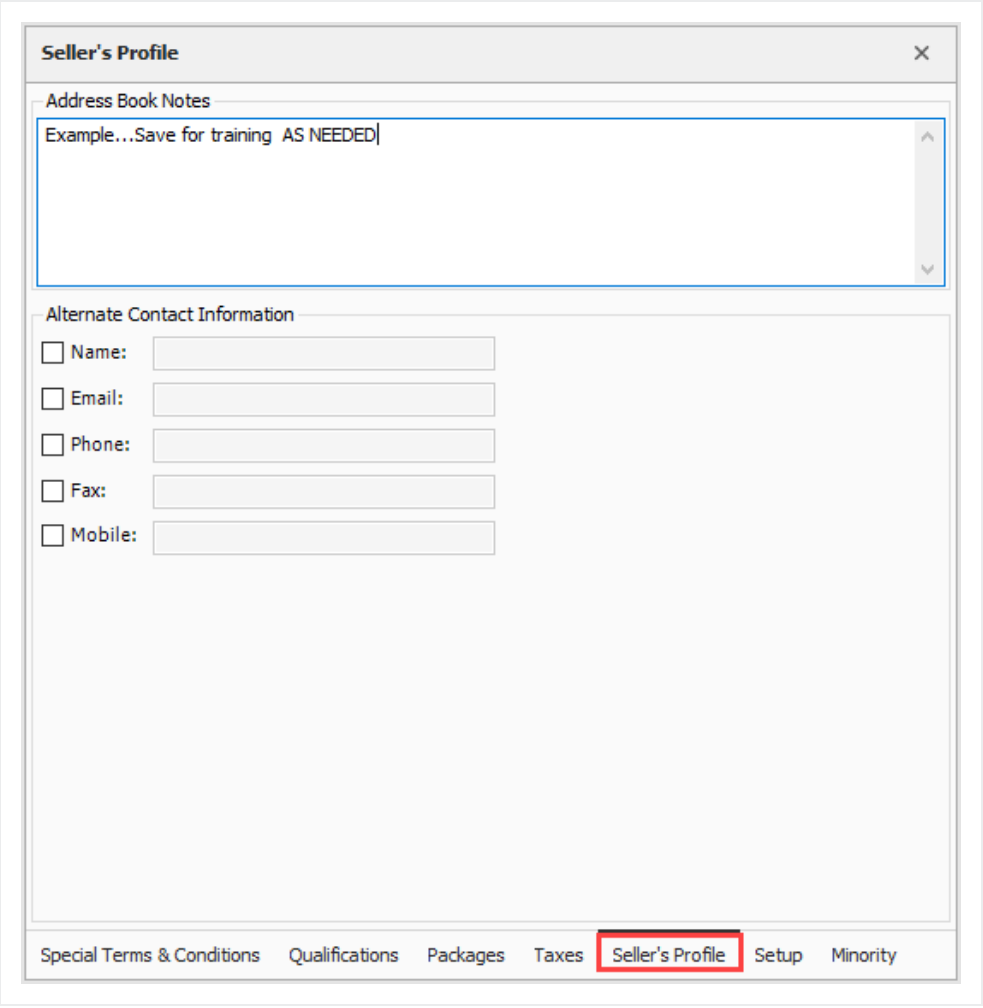
8.3.8.5 Taxes

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.



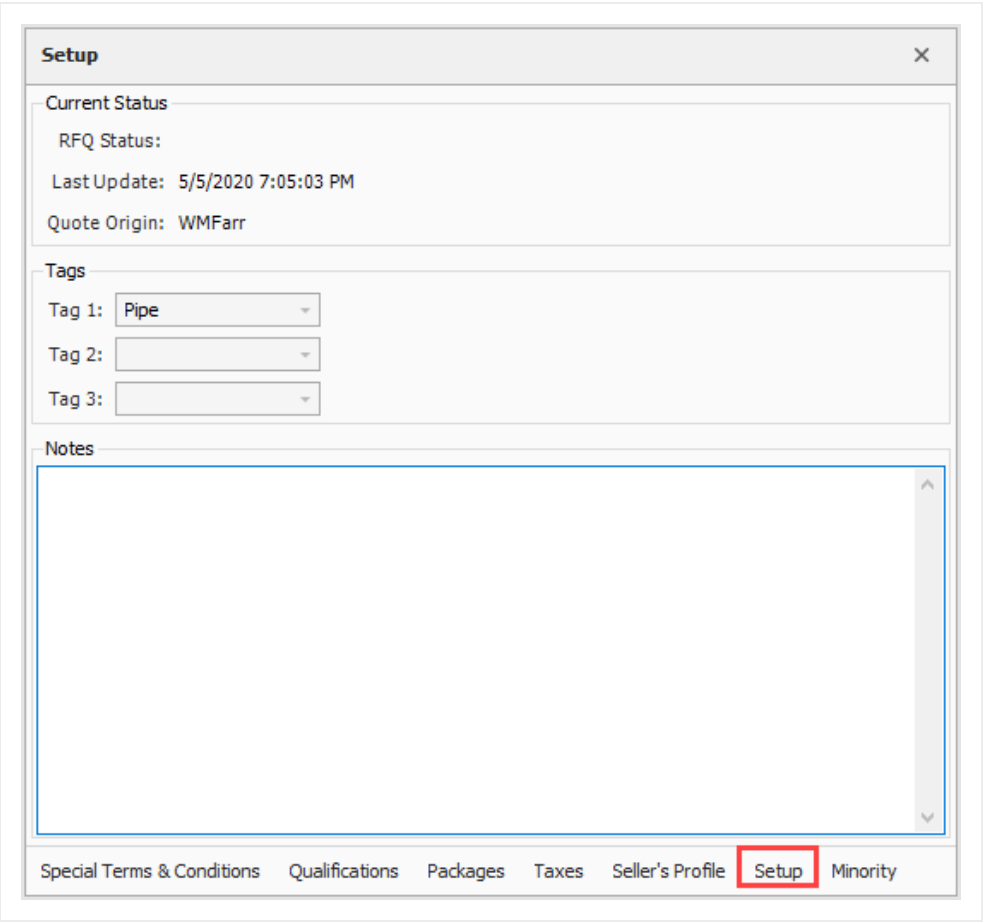
8.3.8.6 Seller's Profile

The Seller's Profile tab populates with address book notes and alternate contact information.



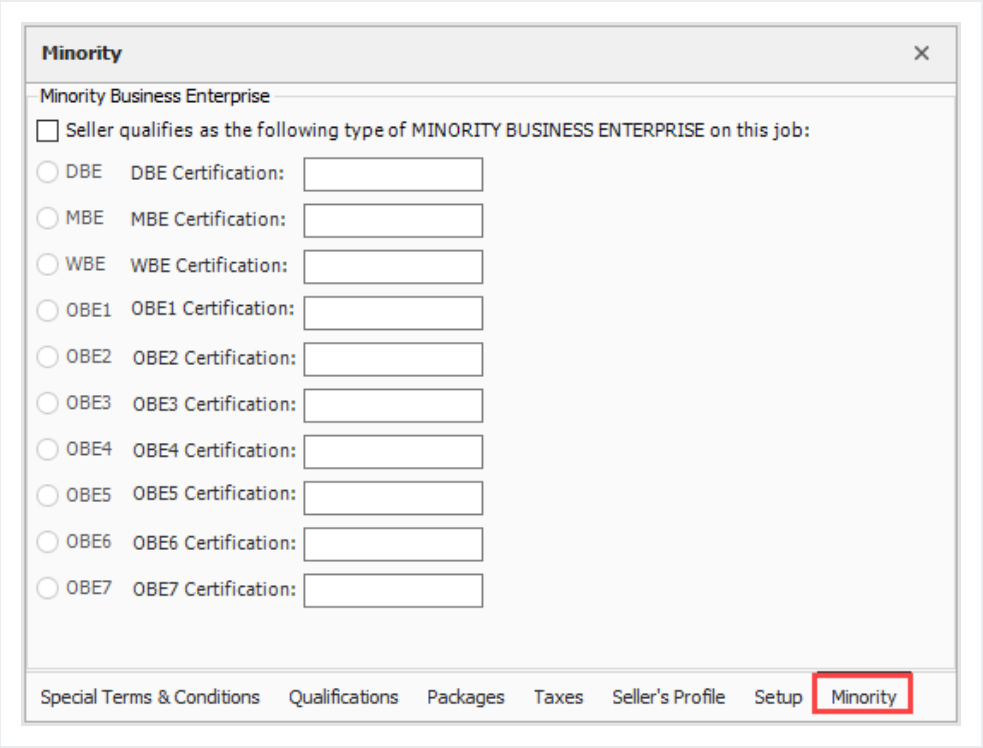
8.3.8.7 Setup

This tab provides extra space for any additional notes and tags to be assigned to the quote.

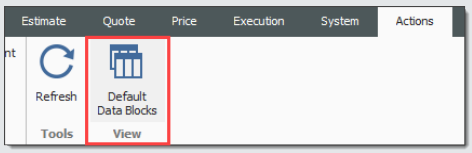


8.3.8.8 Minority

This tab allows you to determine if the seller qualifies for any type of minority business, and the ability to apply a certification number.



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

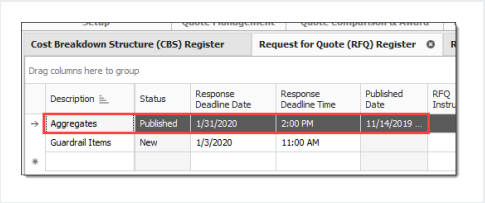
Walk through the steps of creating a quote from an RFQ.

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.

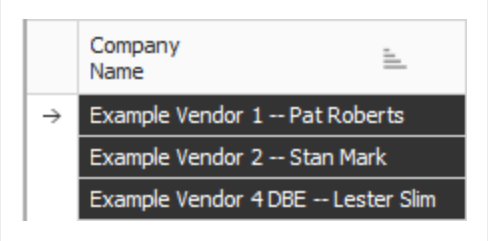
8.3 Step by Step 1 — Create a Quote from RFQ

1. Open the **Training job**.

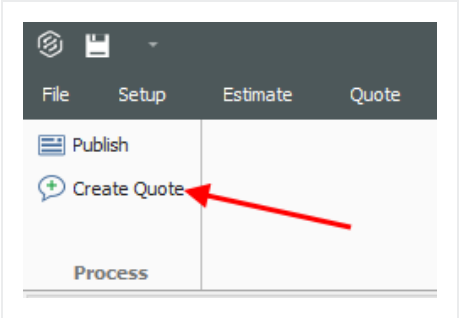
2. From the InEight Estimate landing page, select the **Quote** tab.
3. Select **Request for Quote (RFQ)**.
4. Open the RFQ record for which you've received quotes. In this case, select the **Aggregates** RFQ.



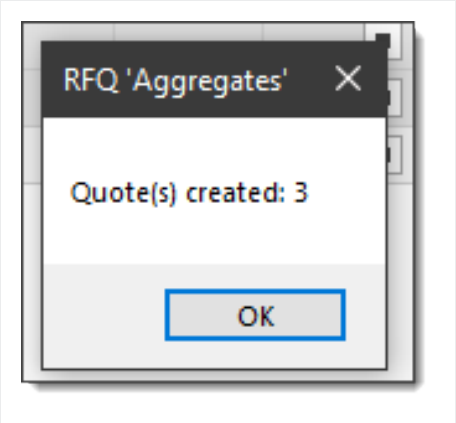
5. Select the **Seller Companies** tab and select the sellers for whom you need to create quotes. In this case, select all of the sellers.



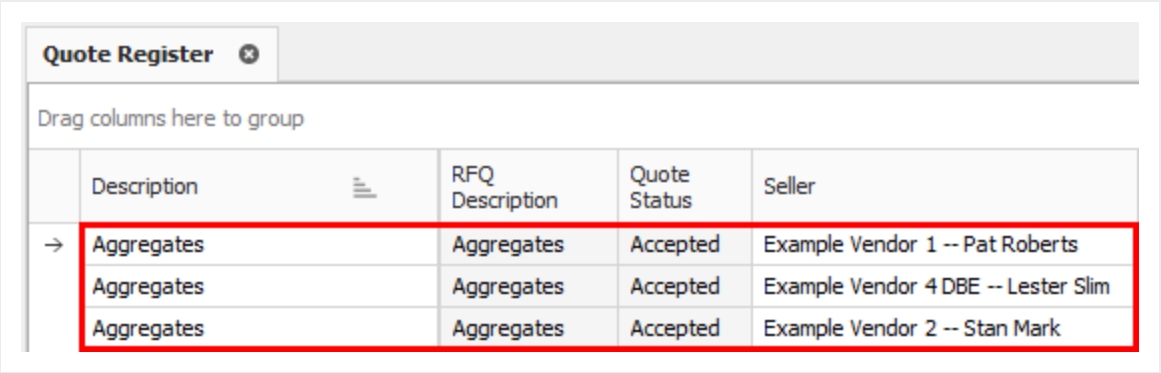
6. From the Actions menu, select **Create Quote**.
    - InEight Estimate will create quotes for each of the sellers you selected



- A prompt indicates how many quotes were created (3), 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



8.3.10 Enter Quote Details

Now that you have quotes created, you can enter pricing.

8.3 Step by Step 2 — Enter Quote Details

1. Open the Aggregates Quote Record for seller **Vendor 1 – Pat Roberts**.

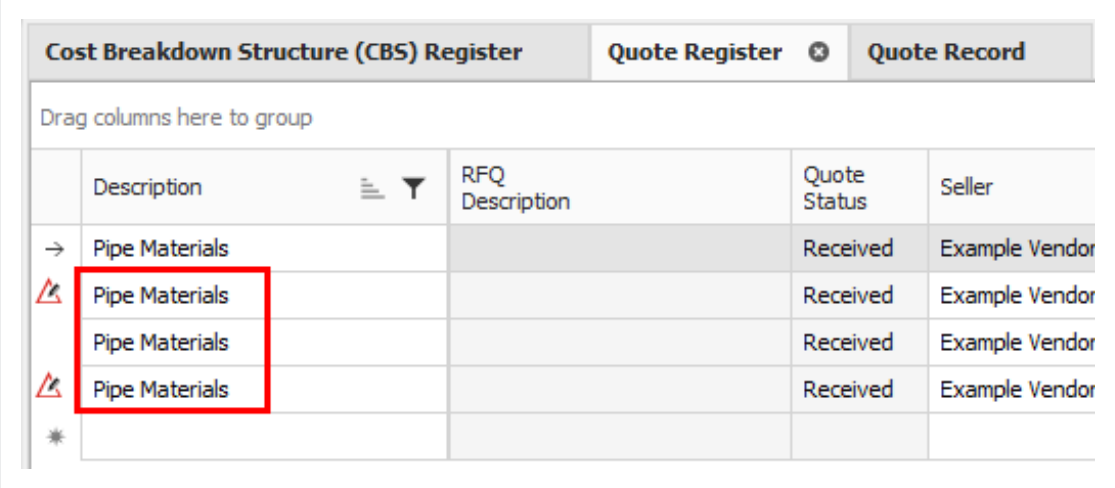
2. On the Resources tab, make sure No Split is unchecked for all items.
3. Also on the Item Resources & Cost Items tab, now enter the following Unit prices for the resources:

Resource Code	Description	Unit Price
MBR	Aggregate Base Rock	$8.00
MDIRTB	Dirt Class B	$6.00

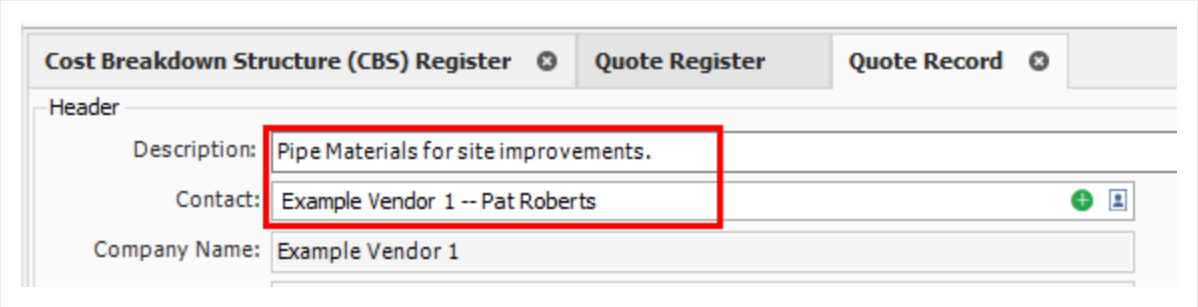
4. Click **OK** to close the Quote Record.

8.3 Step by Step 3 — Create a Multi-packages Quote

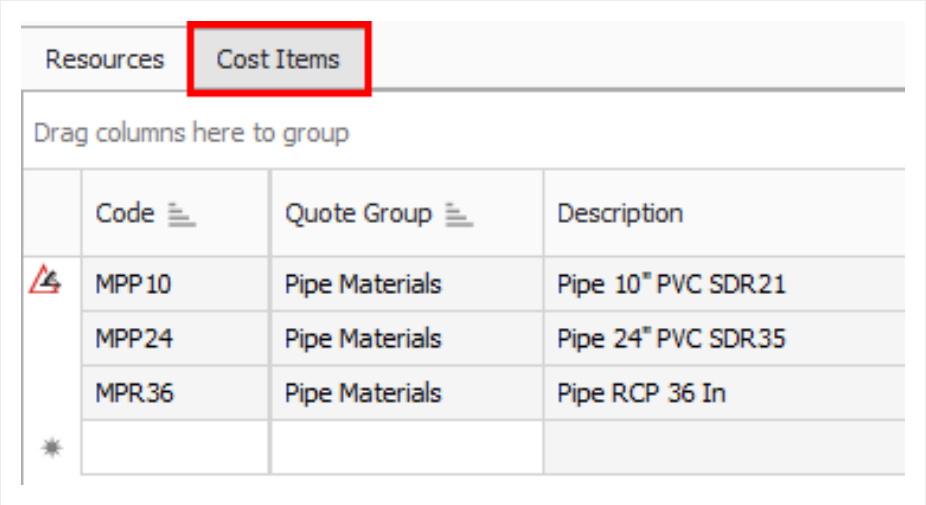
1. From the InEight Estimate landing page, select the **Quote** tab.
2. Click on the **Quotes** icon under Quote Management.
3. Double click into one of the **Pipe Materials**.



4. In the Description field, type over the current description and type: **Pipe Materials for site improvements**.
5. In the Contact field, select **Example Vendor 1 - Pat Roberts**.

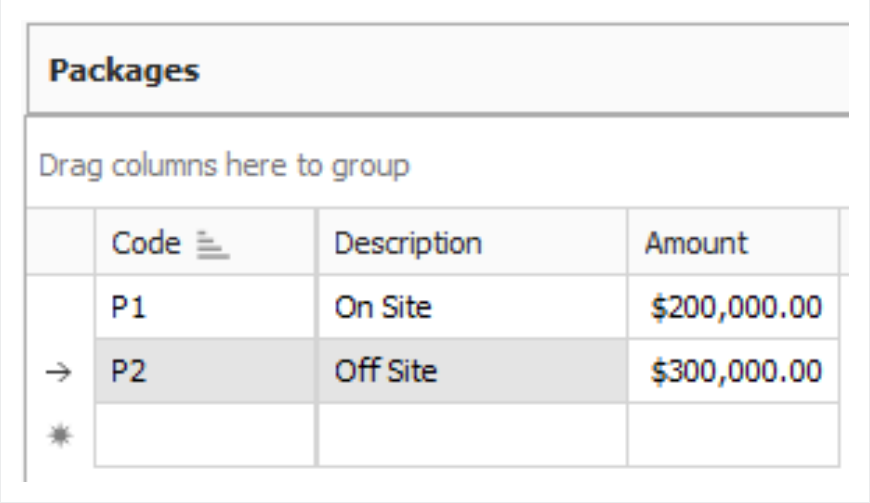


6. Click **OK**
7. Select the **Cost Items** tab on the left side of the screen.

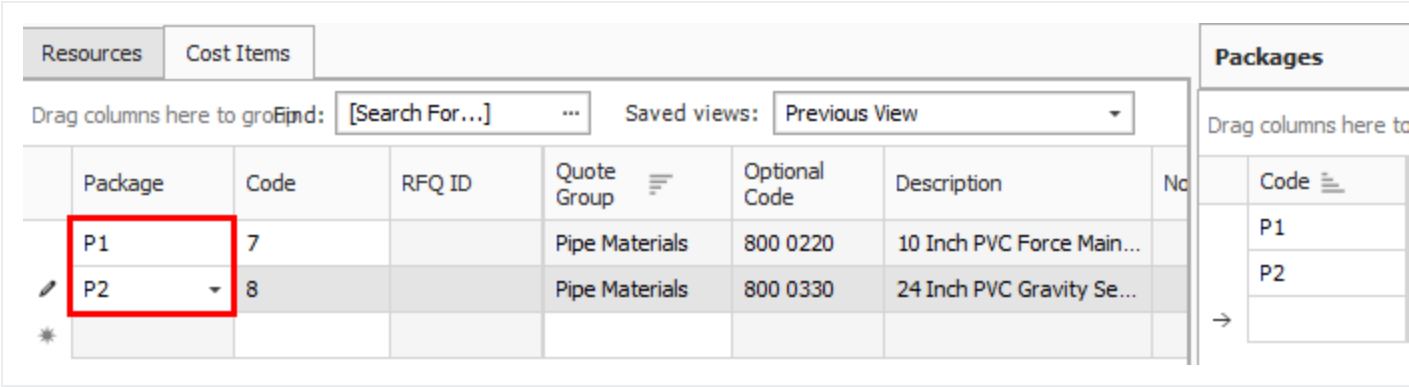


8. Add **cost item 7** under Cost Items.
9. Add **cost item 8** under Cost Items.
10. On the Packages tab, enter the following 2 new records:
    1. Code: **P1**
    2. Description: **On Site**
    3. Amount: **$200,000**
    4. Code: **P2**
    5. Description: **Off Site**

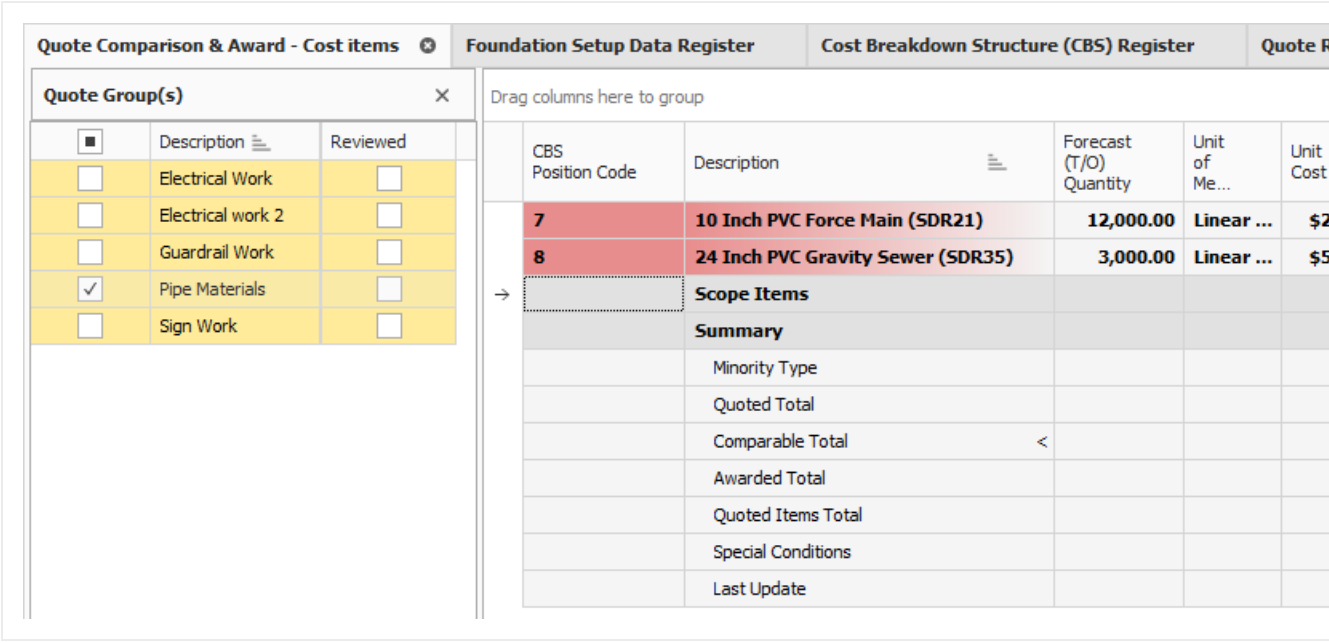
6. Amount: **$300,000**



11. Type in **P1** under Package for cost item 7.
12. Type in **P2** under Package for cost item 8.

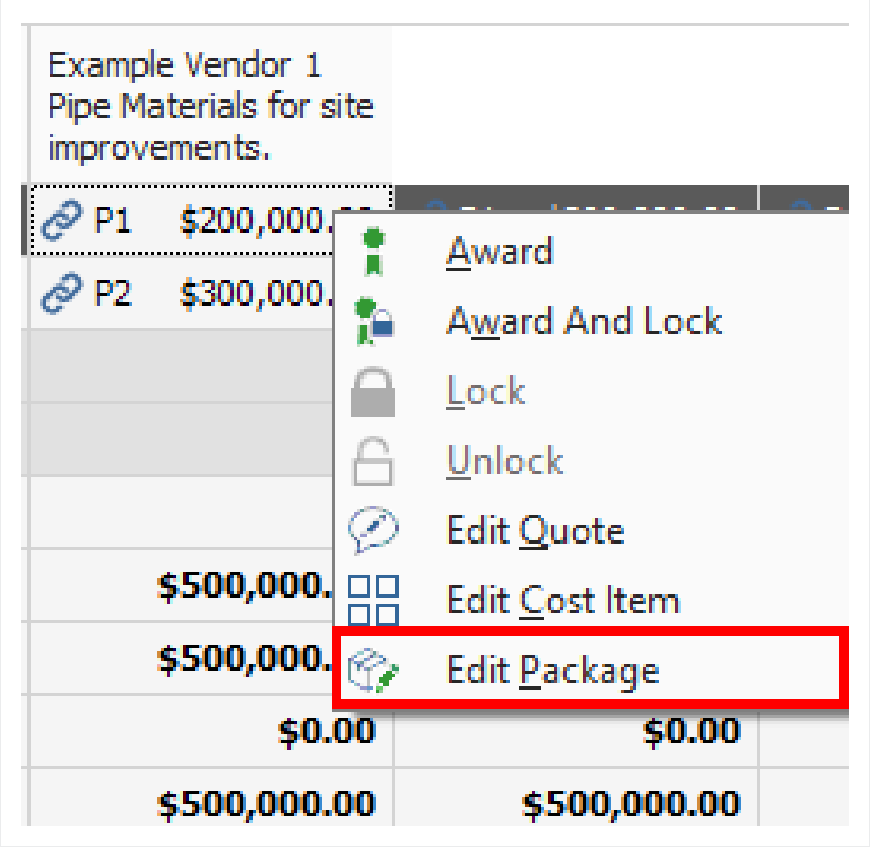


13. Select **OK**.
14. Under the Quote Comparison and Award ribbon, select **Cost Items**.
15. Under Quote Groups, select **Pipe Materials**.
    - Quote Comparison and Award shows the newly created quote with the associated package quotes.



- 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.

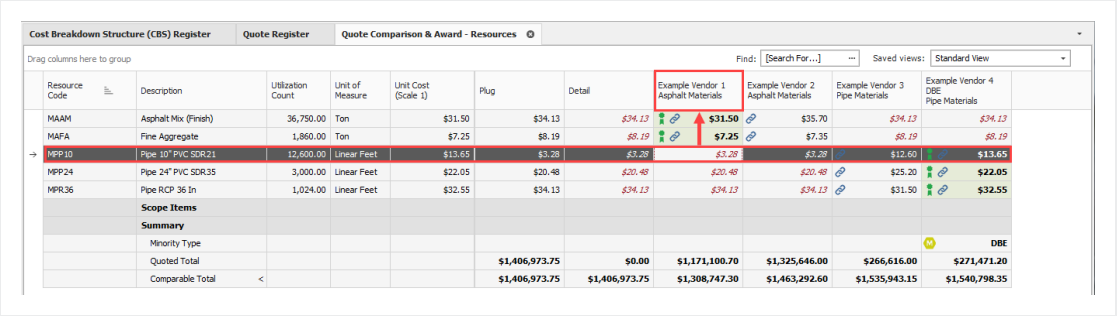


8.3.11 Duplicating an Existing Quote

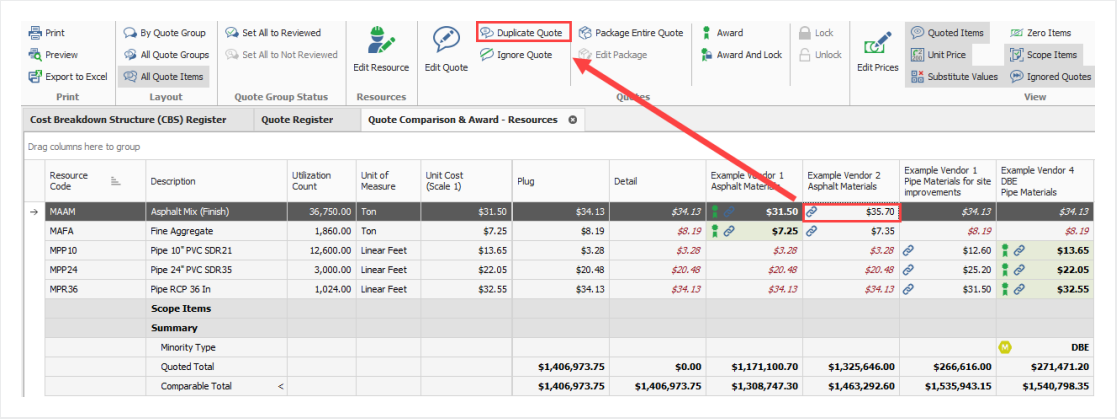
You can create a new quote by duplicating an existing quote from the Quote Compare & Award form. Duplicate Quotes will contain the same scope as the quote that you previously copied.

8.3 Step by Step 4 — Duplicate an existing Quote

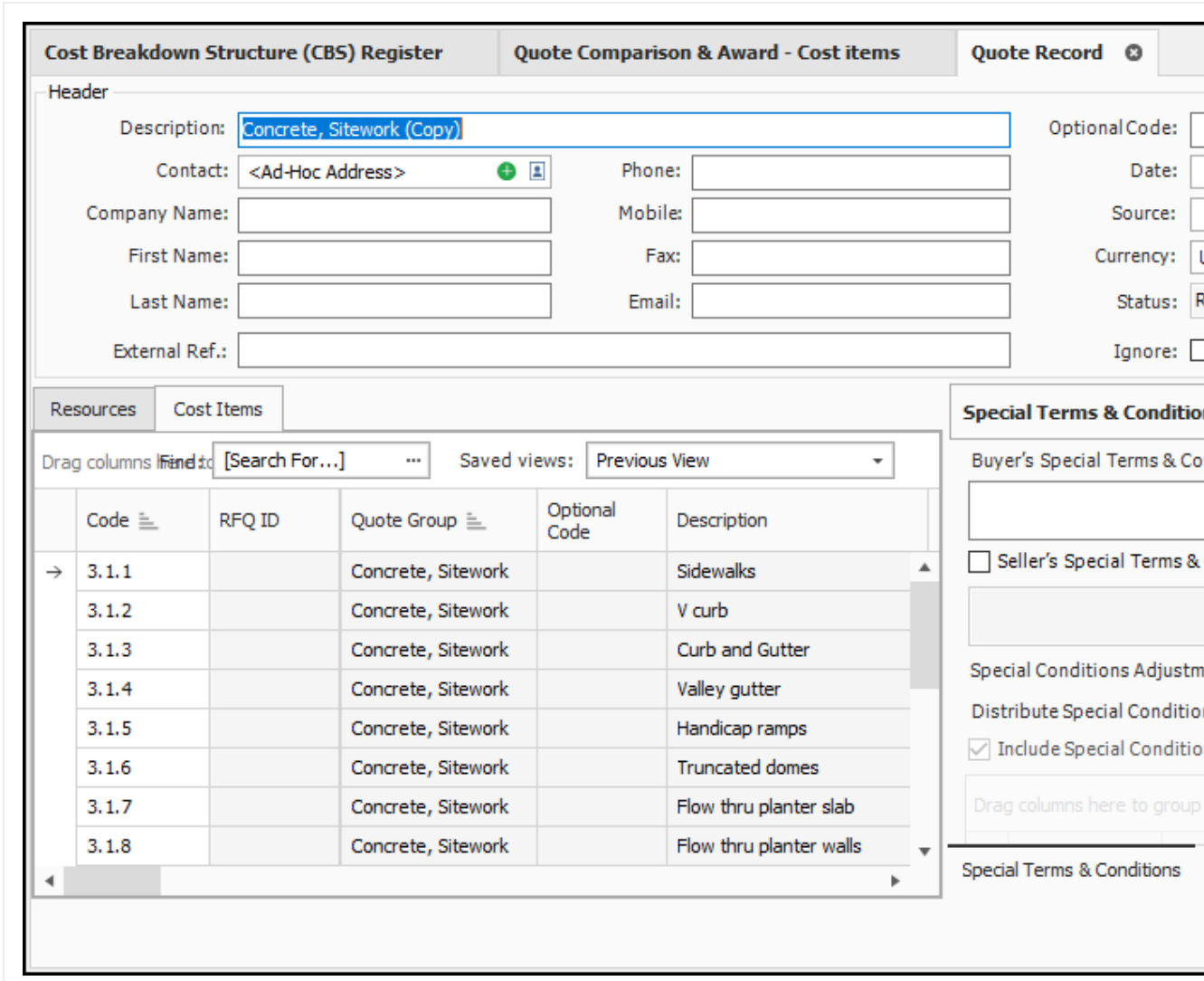
1. From the InEight Estimate landing page, select the **Quote** tab.
2. Select the **Resources** icon under Quote Comparison & Award.
3. Highlight any row under the Quote column you want to duplicate.



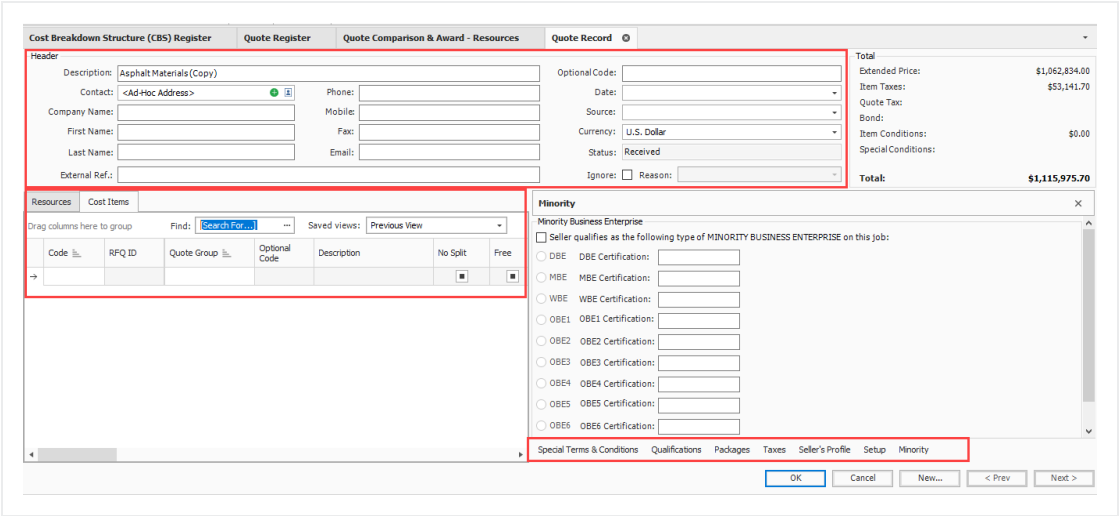
4. Select the **Actions** tab.
5. Under the Quotes section, select the **Duplicate Quote** icon.



- 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.



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:

Quote Name: Aggregates	**Seller Name**: Example Vendor 2 - Stan Mark	
Resource Code	**Description**	**Unit Price**
MBR	Aggregate Base Rock	$7.45
MDIRTB	Dirt Class B	Not Quoted (delete)
	Special Instructions 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
	Special Instructions Seller is NOT willing to split items.	

Resource Code	**Description**	**Unit Price**
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
Special Instructions	*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.

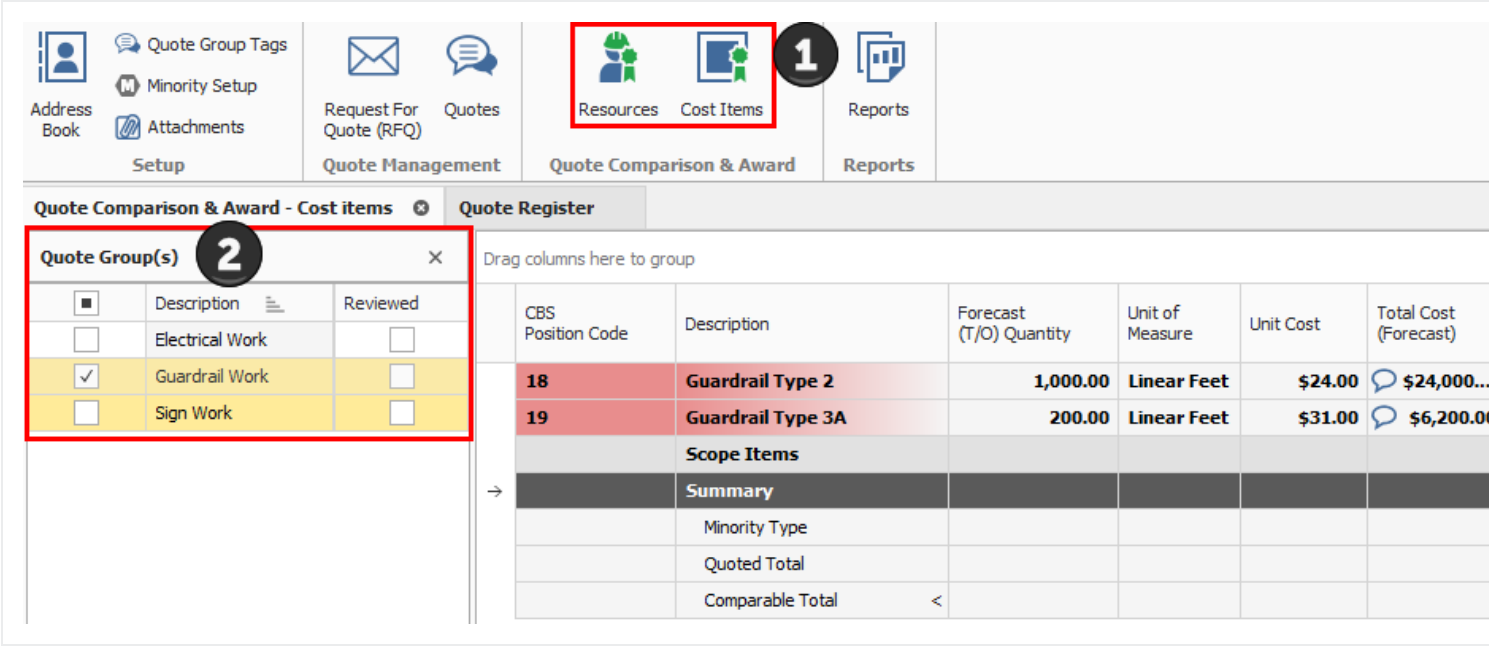
Now that you've entered contextual quote information in the Quote Register, the Quote Comparison & Award screen provides you with the ability to make better, and more efficient determinations for awarding the quote.

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	Your quotes display with the vendor name plus the quote description. • Awarded items have an award symbol If an item is designated as No Split, it has a chain link icon • Awarded and Locked items have a lock symbol next to the award symbol
4	Cost Source Type	The cost source can either be a Plug or Detail type.

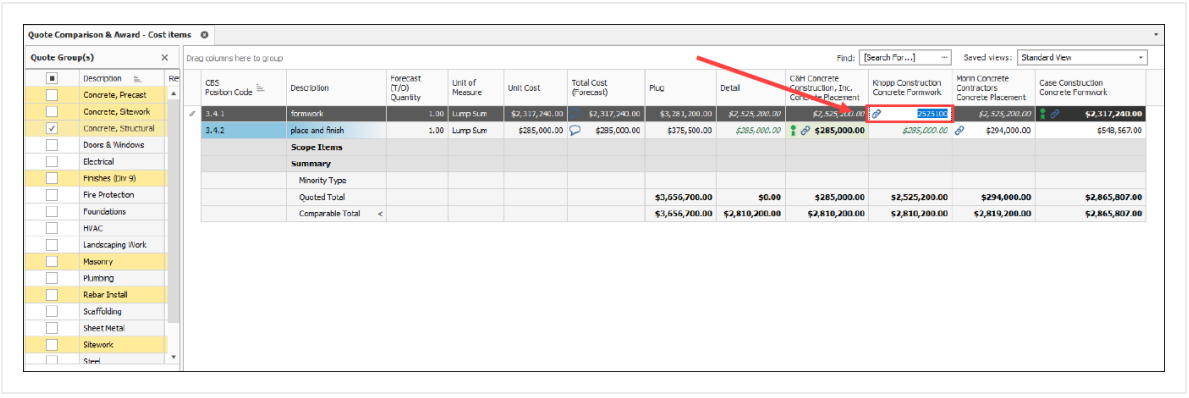


8.4.2 Edit Mode

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.



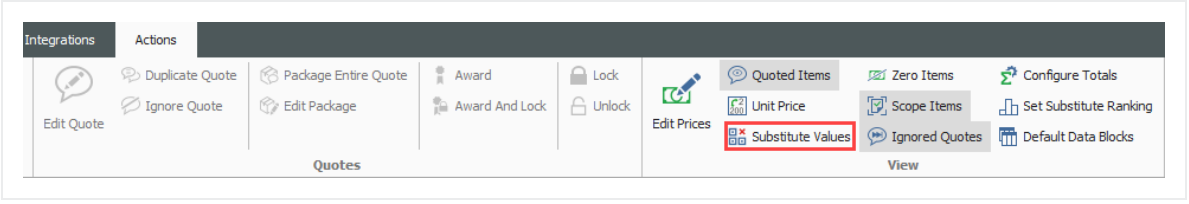
8.4.3 Substitute Values

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.

18	Guardrail Type 2	1,000.00	Linear Feet	$24.00		$24,000.00	
19	Guardrail Type 3A	200.00	Linear Feet	$31.00		$6,200.00	
20	Type 4 Signs	1,000.00	Square F...	$15.00		$15,000.00	$1
27.1	Electrical Work	1.00	Each	$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.

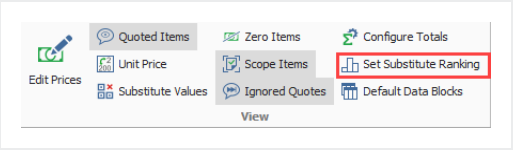
18	Guardrail Type 2	1,000.00	Linear Feet	$24.00		$24,000.00	
19	Guardrail Type 3A	200.00	Linear Feet	$31.00		$6,200.00	
20	Type 4 Signs	1,000.00	Square F...	$15.00		$15,000.00	$1
27.1	Electrical Work	1.00	Each	$5,000.00		$5,000.00	$

InEight Estimate grabs the substitute value from one of four places:

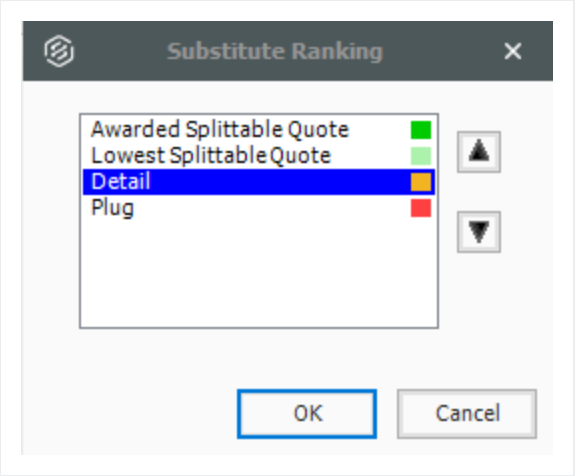
1. Awarded splittable quote
2. Lowest splittable quote you’ve received

3. Detail (this only applies to quoting cost items)
4. Plug cost (the rate defined for that resource in InEight Estimate)

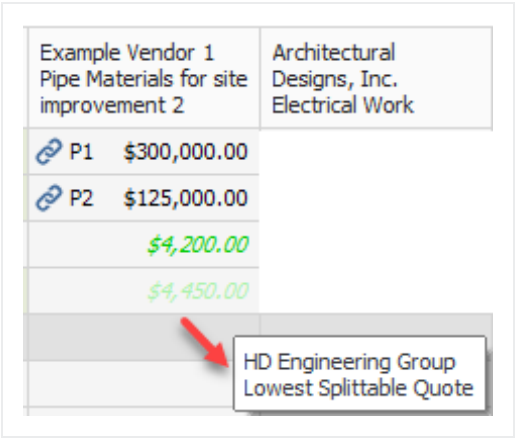
You can set the order for a substitute value by selecting **Actions > Set Substitute Ranking.**



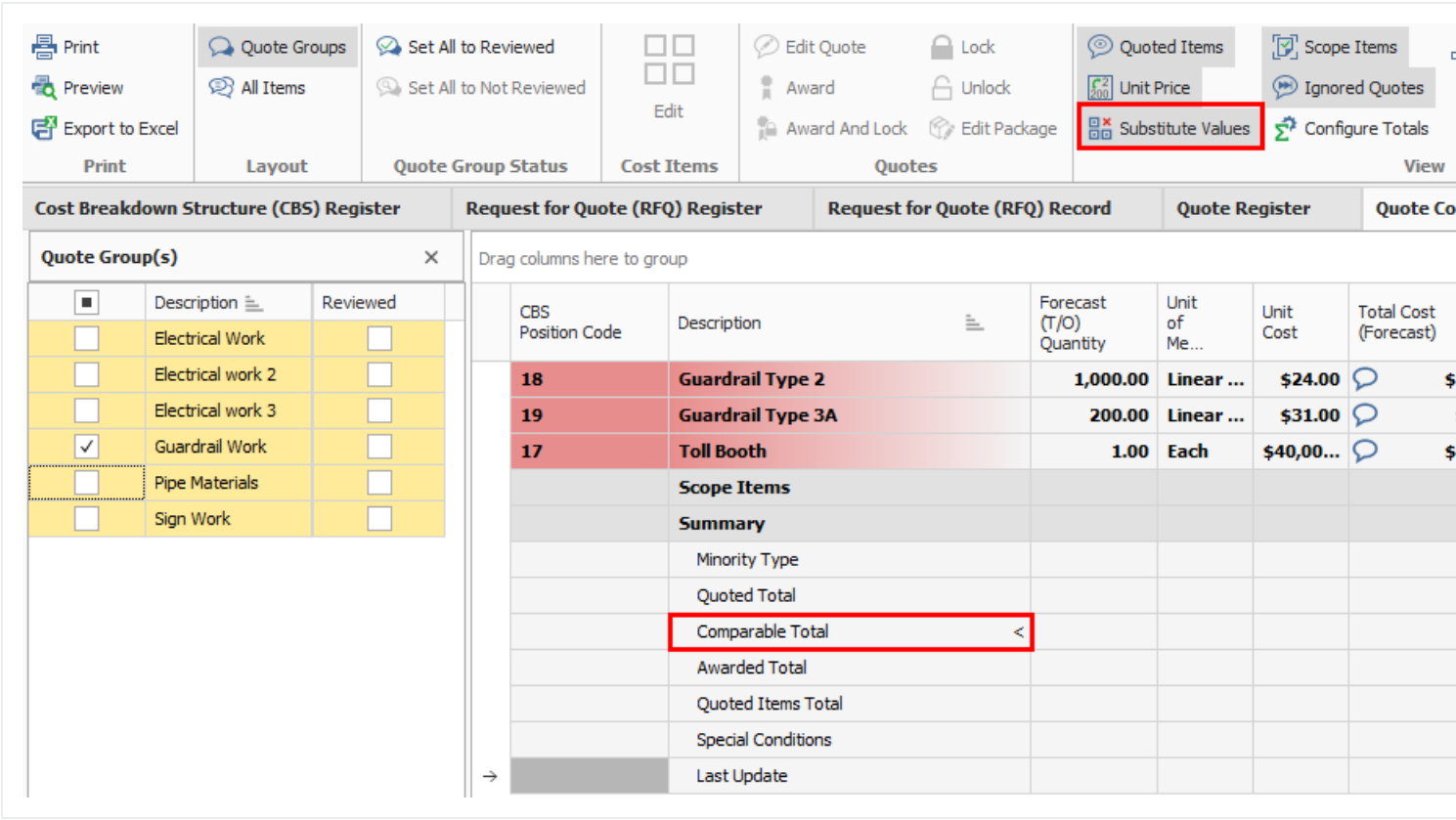
On the resulting Substitute Ranking window, you can use the up and down arrows to change the selection order. It will look from the top to the bottom of the list. The plug being in red represents the most risk, while the Awarded Splittable Quote is the least risk. Users can modify the color coding of 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.



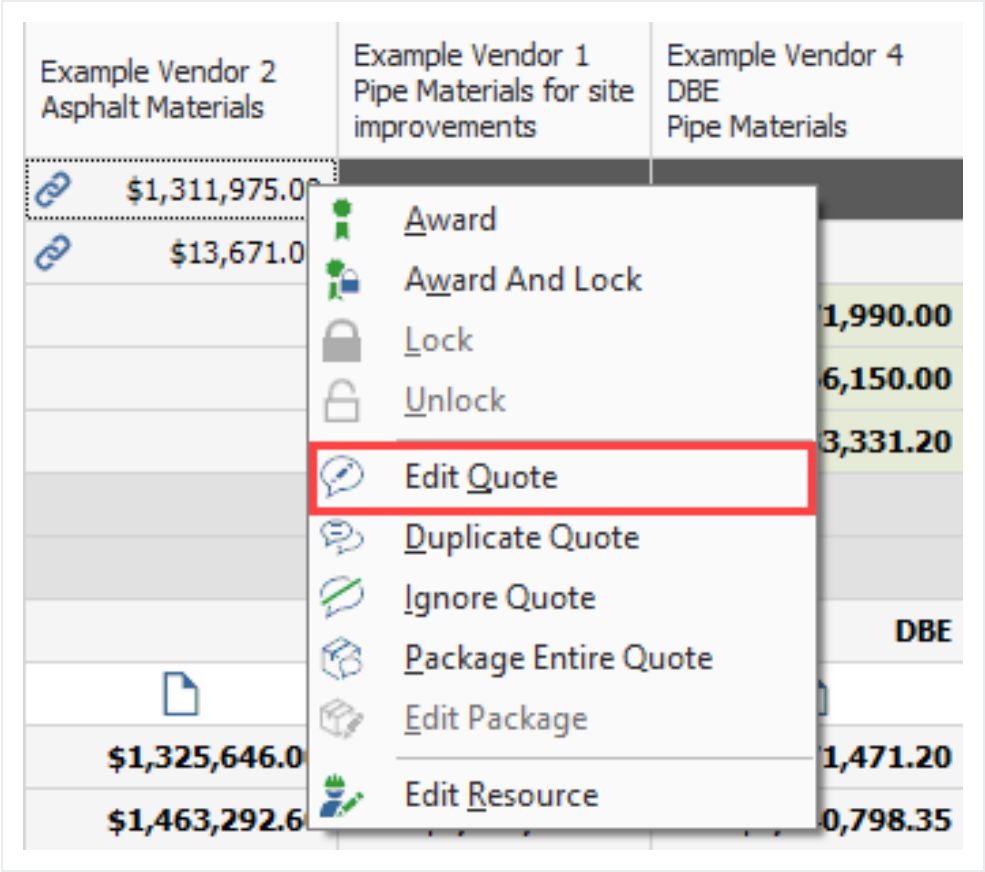
When you use a substitute value, it is included in your Comparable Total so you can have a more realistic comparison of your quotes.



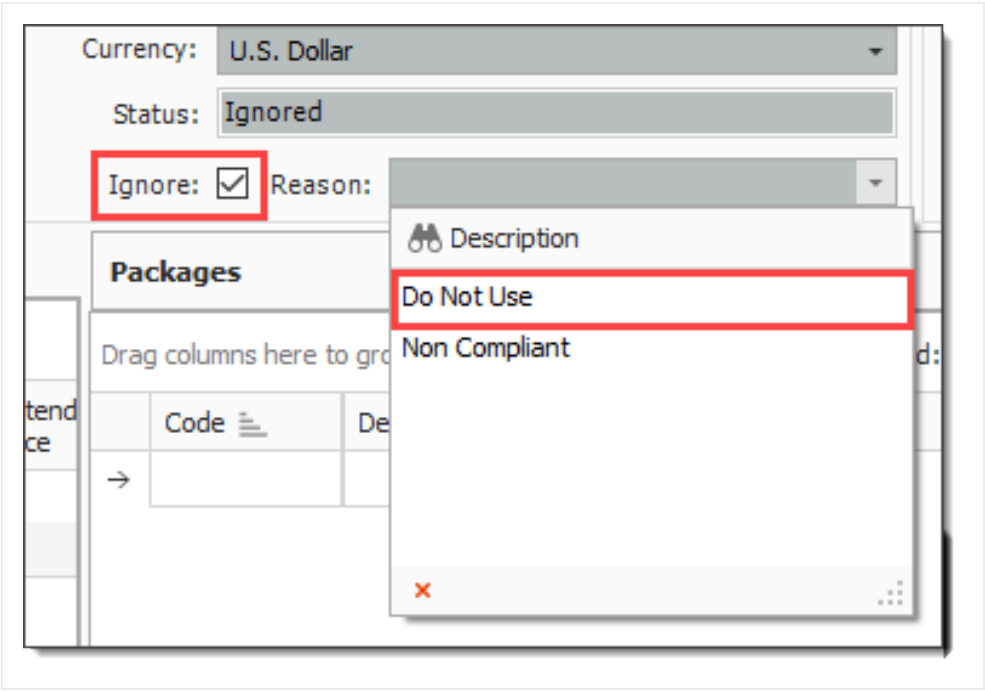
8.4.4 Display Ignored Quotes

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.

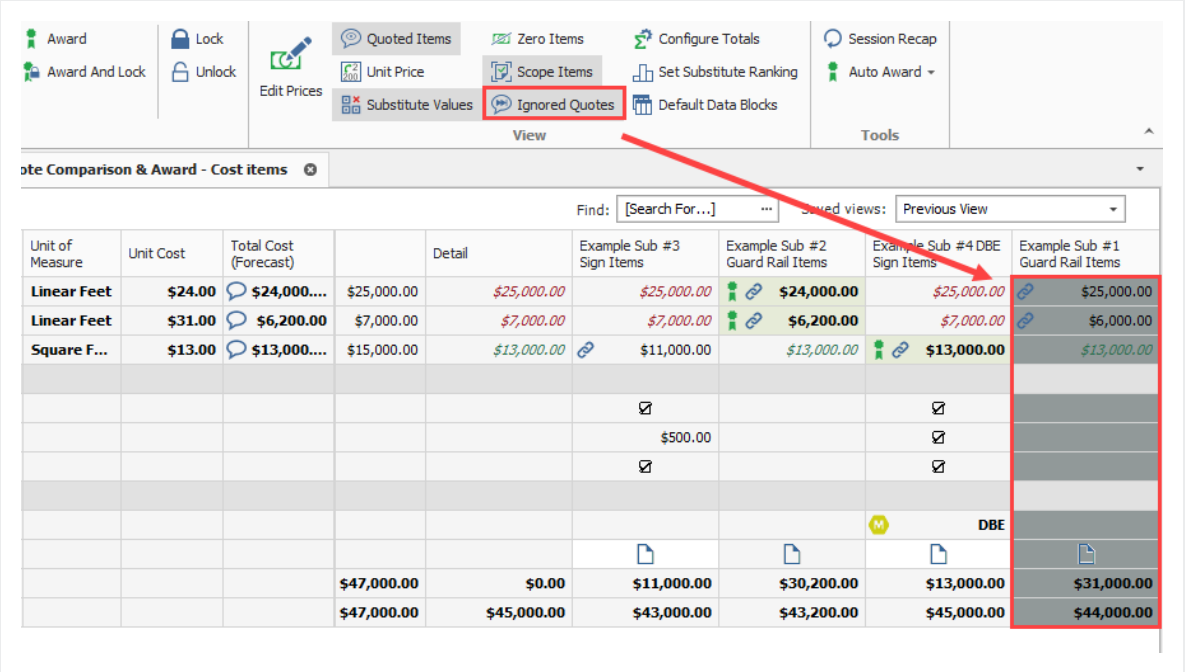


From the Quote Record screen, select the Ignore check box and also a Reason, then select OK.



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.



8.4.5 Additional Quote Comparison and Award functions

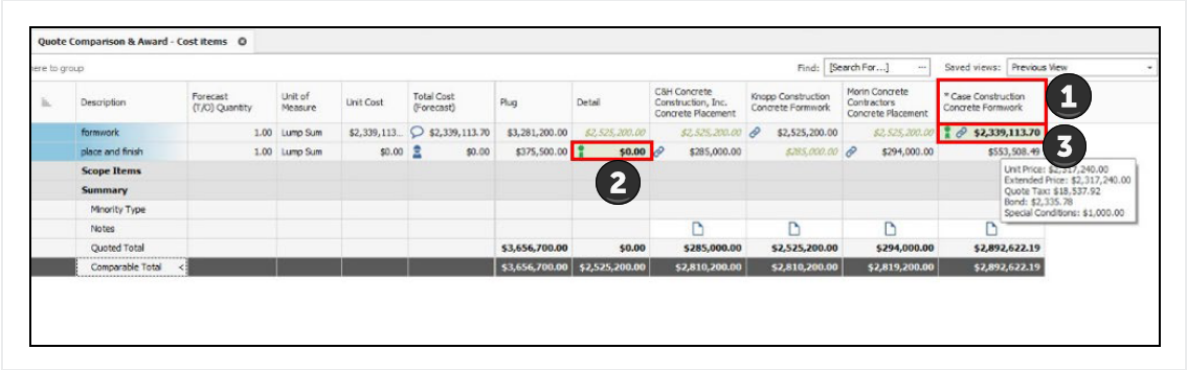
The Quote Comparison and Award form contains other notable functions which improves the process of selecting the quote that brings the greatest value to the estimate.

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: • Unit Price • Extended Price

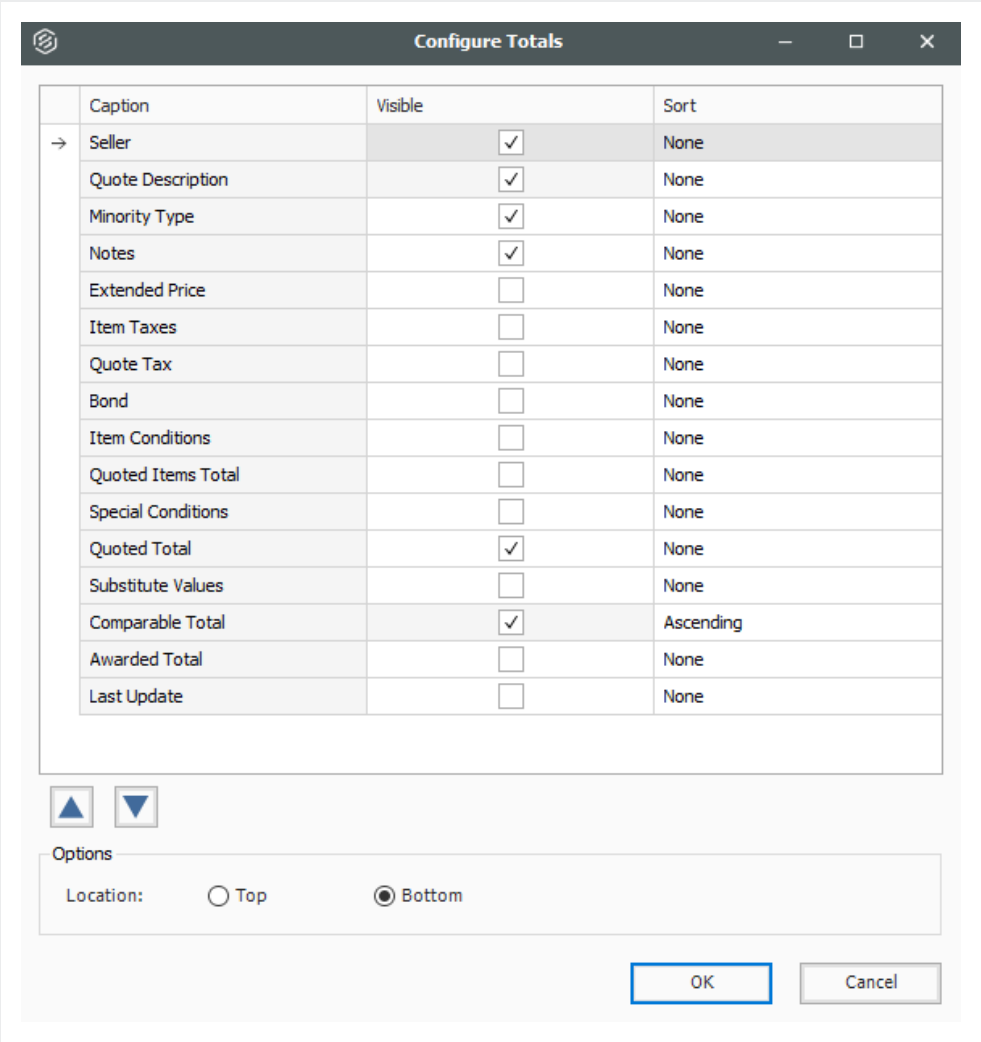
Overview – Additional Quote Comparison and Award Functions (continued)

Name	Definition
	• Bond • Taxes • Special Conditions • an indicator for a delta quote item



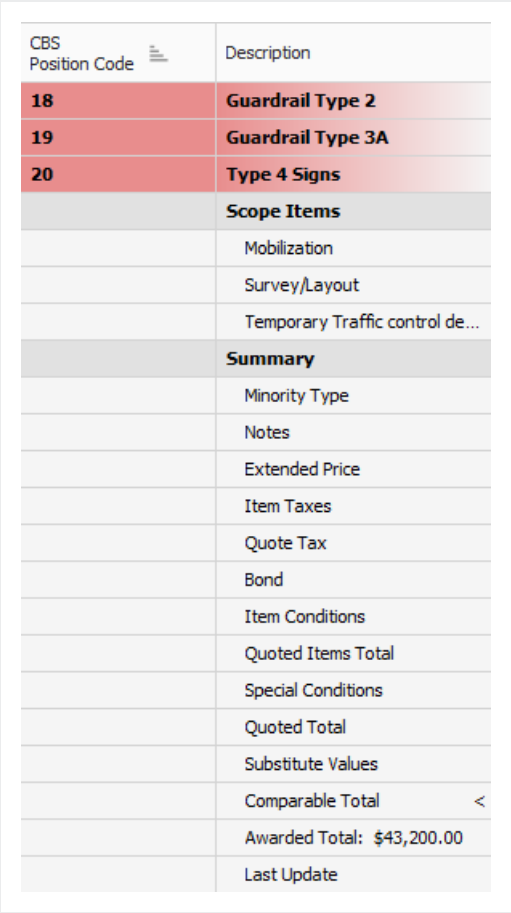
8.4.6 Configure Totals

You can display and sort additional Summary Totals, Special Conditions, and Last Updated fields by selecting **Actions > Configure Tools**.



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**
	Scope Items
	Mobilization
	Survey/Layout
	Temporary Traffic control de...
	Summary
	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

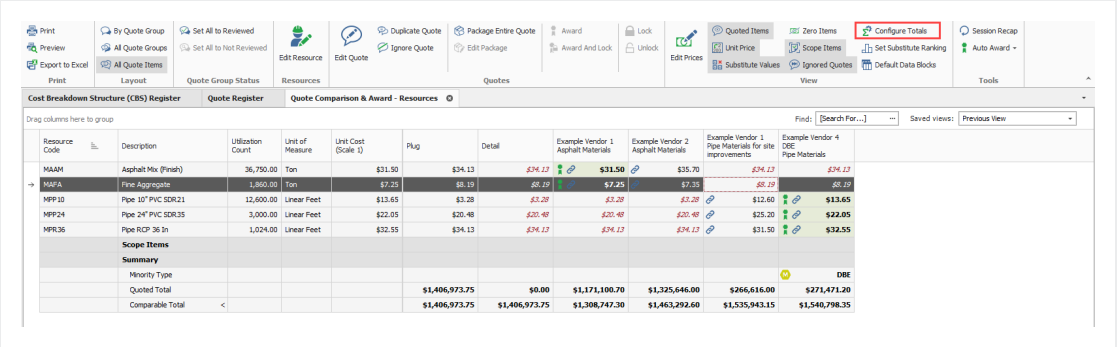
8.4.7 Adding Notes to Quote Comparison & Award

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.

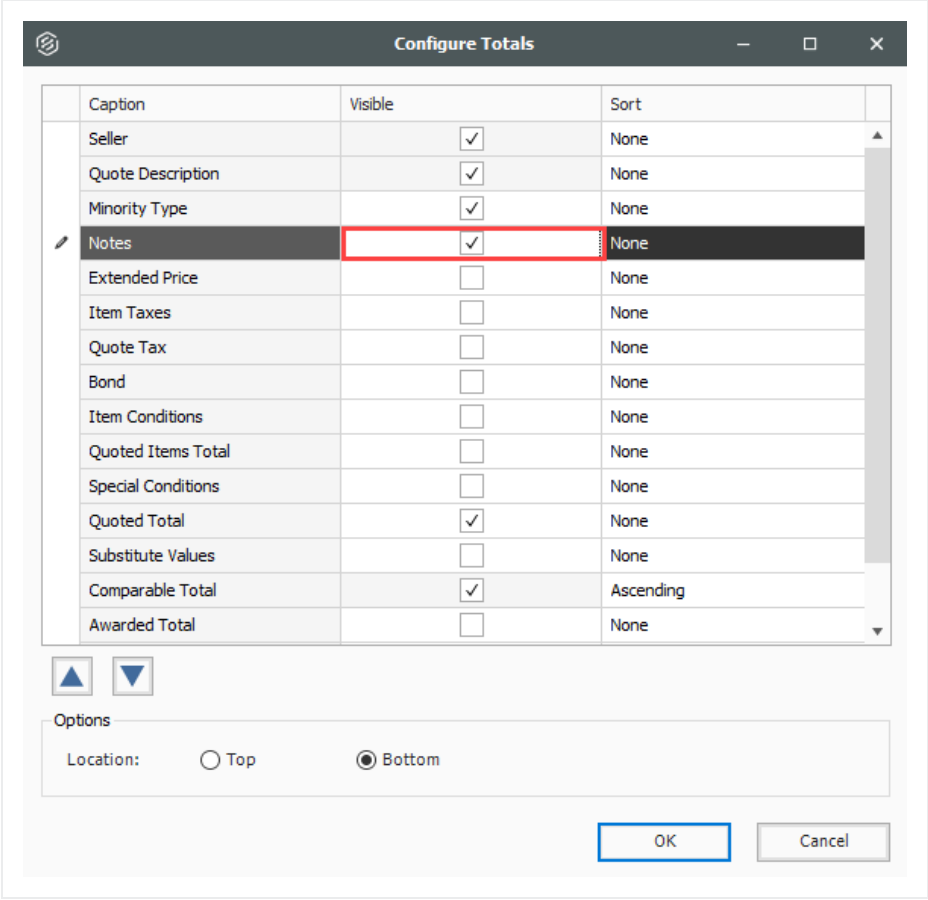
8.4 Step by Step 1 — Add the Notes section to Quote Comparison & Award form

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.

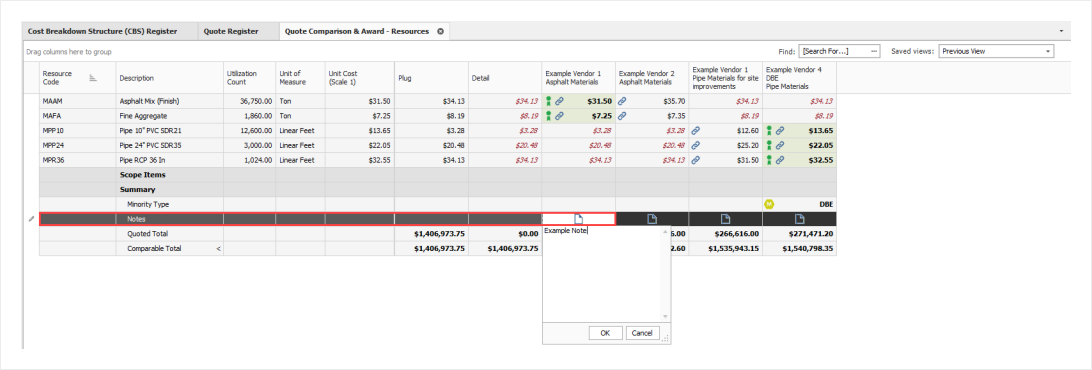


5. Select the check box in the Visible column for the Notes caption.



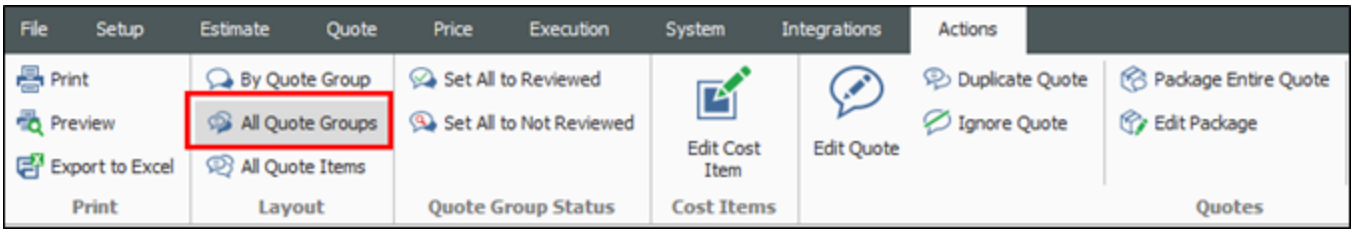
6. Select **OK**.

- The Notes section displays on the Quote Comparison & Award form.



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.

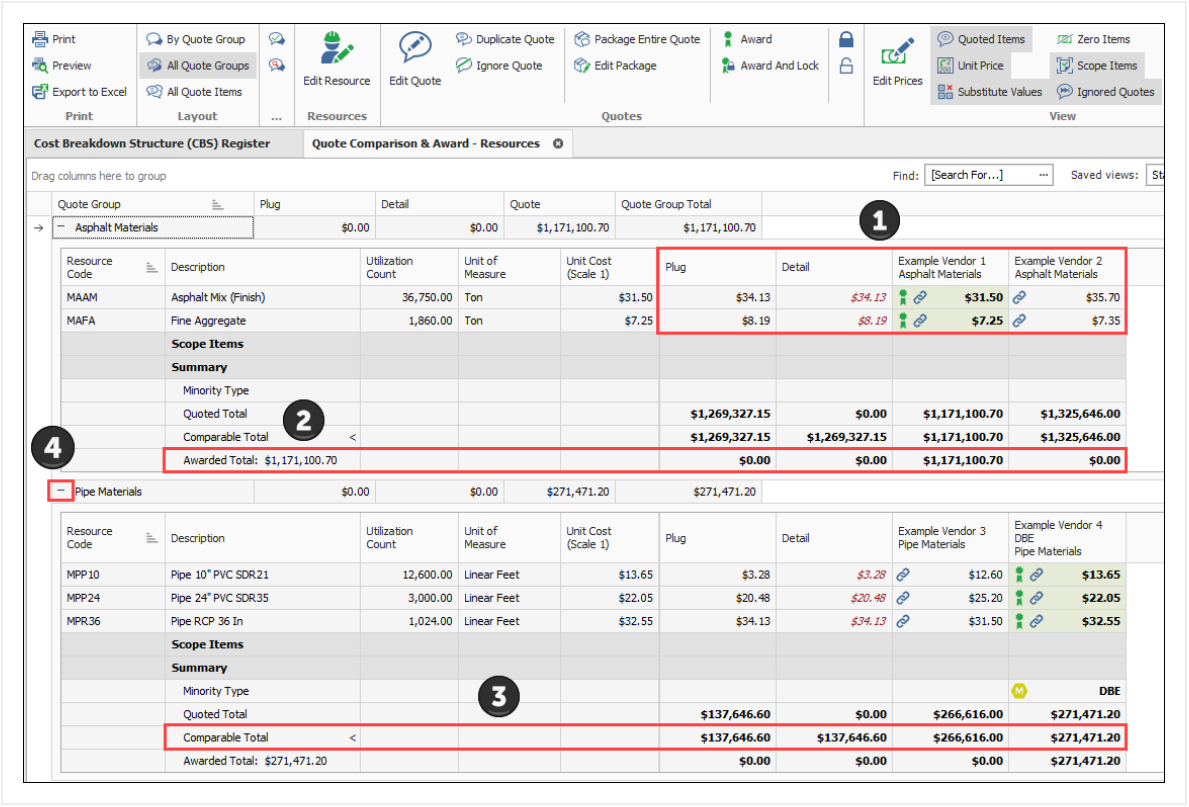
Features of this layout include:

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	Visibility into the Total Awarded Amount per Quote Group

Overview – Quote Groups Layout (continued)

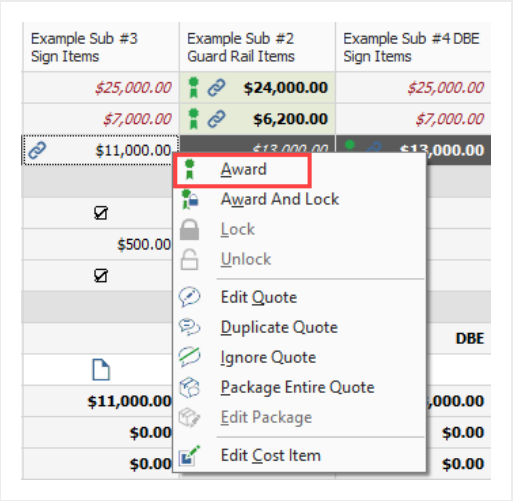
Name	Definition
Amount	
3 Comparable totals	Better visibility into the Comparable totals per Quote Group
4 Expand/Collapse	Expand/Collapse individual or All Quote Groups to display the quote items



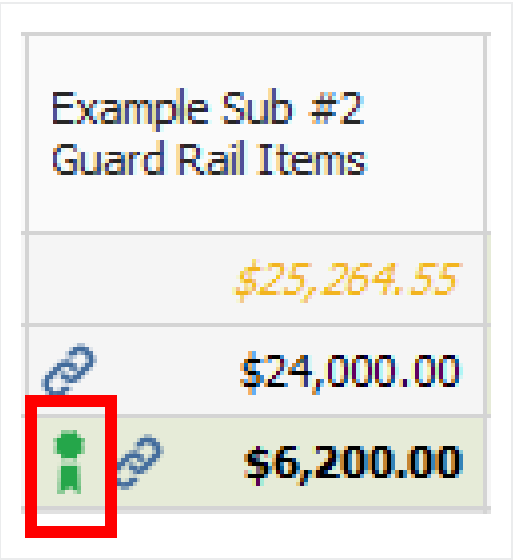
You can scan through all the quote groups in the estimate and see if you are carrying the most appropriate quote. You can also review the Totals per Quote Group and better analyze the risks in the estimate based on whether the cost is a plug number, detailed estimate or a quoted value.

8.4.9 Compare and Award Quotes

To award an item, right click on that item and select **Award**.



The Award icon displays next to the awarded item(s).



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 (Fore...	Plug	Detail	Example Guard R
17	**Toll Booth**	**1.00**	**Each**	**$40,000...**	**$40,0...**	$25,000.00	$25,264.55	
18	**Guardrail Type 2**	**1,000.00**	**Linear ...**	**$25.00**	**$25,0...**	$25,000.00	*$50,000.00*	
19	**Guardrail Type 3A**	**200.00**	**Linear ...**	**$30.00**	**$6,00...**	$7,000.00	*$7,000.00*	
20	**Type 4 Signs**	**1,000.00**	**Square...**	**$15.00**	**$15,0...**	**$15,000.00**	*$14,000.00*	
27.1	Electrical Work	1.00	Each	$5,000.00	$5,000...	**$5,000.00**	*$3,500.00*	
	Summary							
	Minority Type							
	Quoted Total					**$77,000.00**	**$25,264.55**	
	Comparable Total <					**$77,000.00**	**$99,764.55**	
	Awarded Total					**$20,000.00**	**$0.00**	
	Quoted Items Total					**$77,000.00**	**$25,264.55**	
	Special Conditions					**$0.00**	**$0.00**	
	Last Update							**7/29/2**

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

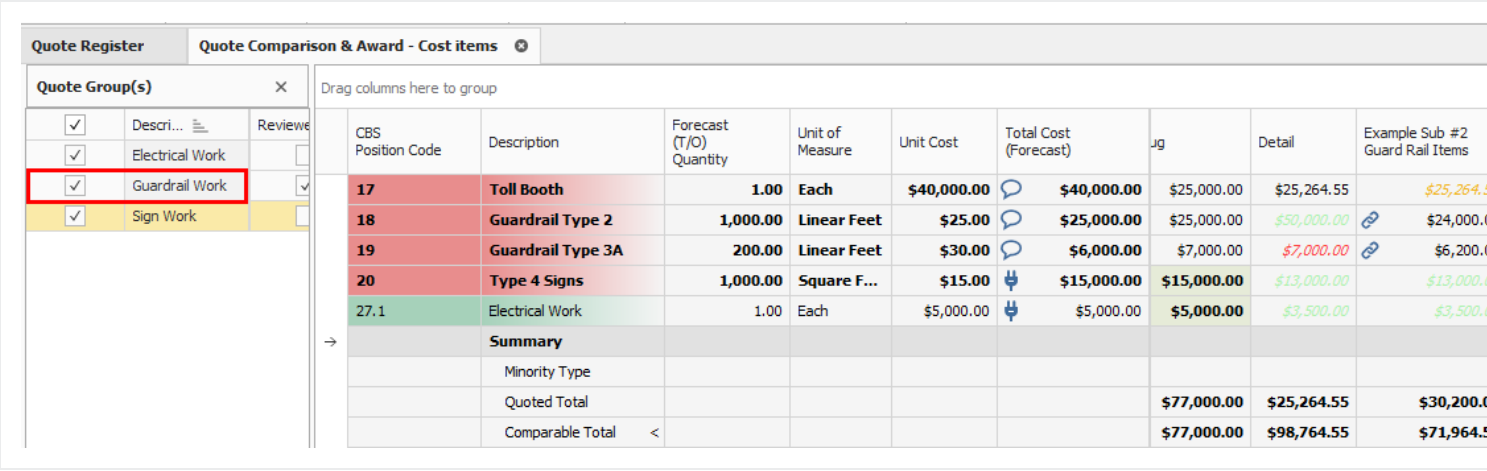
If a quote is yellow, this indicates that the quote record is open in another screen. Closing out of the quote record, will turn the record back to gray.

Drag columns here to group

	CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Measure	Unit Cost	Total Cost (Forecast)	Plug
	18	**Guardrail Type 2**	**1,000.00**	**Linear Feet**	**$24.00**	**$24,000....**	$25,000.00
	19	**Guardrail Type 3A**	**200.00**	**Linear Feet**	**$31.00**	**$6,200.00**	$7,000.00
		Scope Items					
		Summary					
		Minority Type					
		Quoted Total					**$32,000.00**
→		Comparable Total <					**$32,000.00**

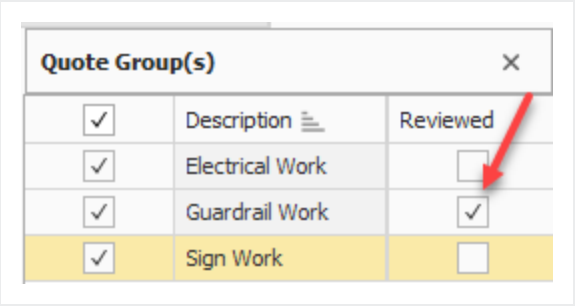
8.4.9.2 Award Status

The Award Status indicates whether or not all quotes are awarded within a quote group.

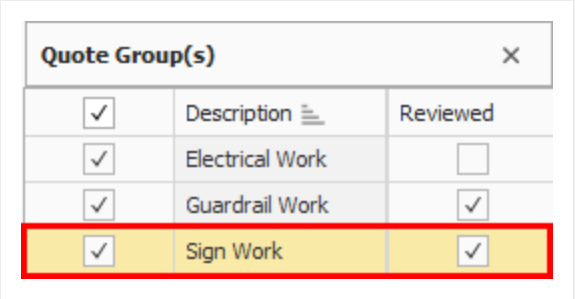


8.4.9.3 Review

You can keep track of what quote groups have been reviewed by checking the Reviewed check box.



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.

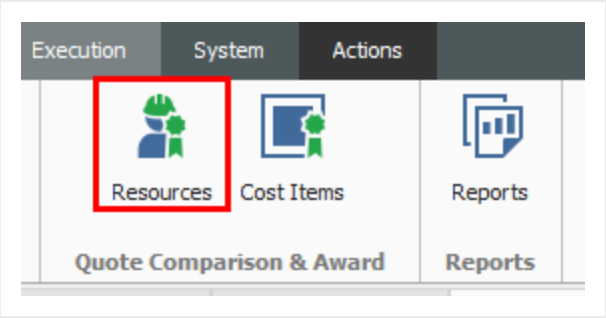


Once reviewed again after the changes, you can uncheck and check the Reviewed checkbox again to indicate it is up to date, and the yellow highlighting disappears.

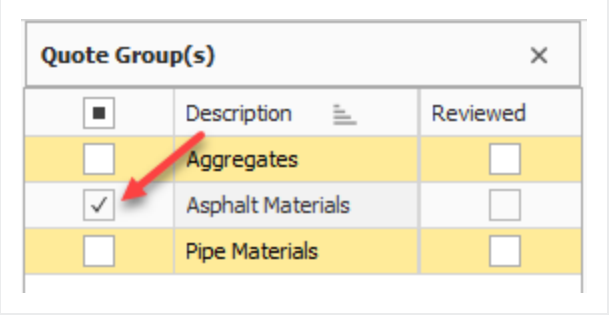
The following steps walk you through comparing and awarding the Aggregate quotes.

8.4 Step by Step 2 — 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.



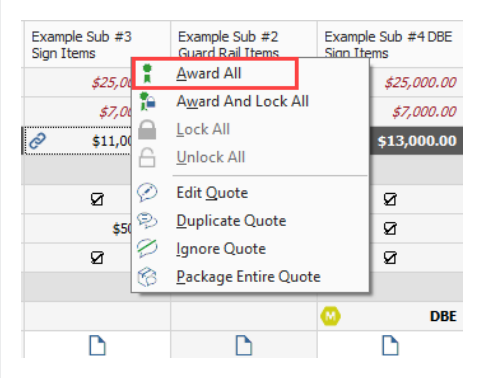
3. Under Description, select **Asphalt Materials**.



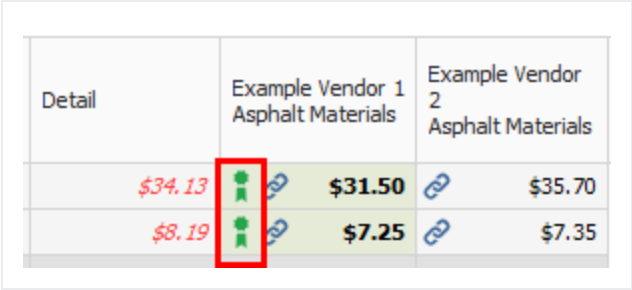
4. Review the quotes to determine the lowest bidder:
   - Select the Configure Total icon in the tool ribbon to view additional captions
   - Both vendors have no split items for both resources.

Resource Code	Description	Utiliza... Count	Unit of Me...	Unit Cost (Scale 1)	Plug	Detail	Ex As
MAAM	Asphalt Mix (Finish)	36,750.00	Ton	$35.70	$34.13	*$34.13*	
MAFA	Fine Aggregate	1,860.00	Ton	$7.35	$8.19	*$8.19*	
	Scope Items						
	Summary						
	Minority Type						
	Quoted Total				**$1,269,327...**	**$0.00**	
	Comparable Total				**$1,269,327...**	**$1,269,327.15**	
	Awarded Total				**$0.00**	**$0.00**	
	Quoted Items Total				**$1,269,327...**	**$0.00**	
	Special Conditions				**$0.00**	**$0.00**	
	Last Update						**1**

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**.

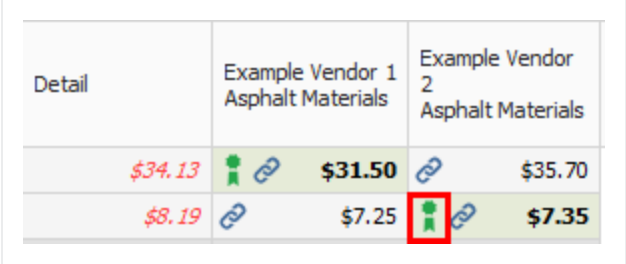


- By awarding Example Vendor 1 both resources, the award ribbon icon displays next to the unit price.



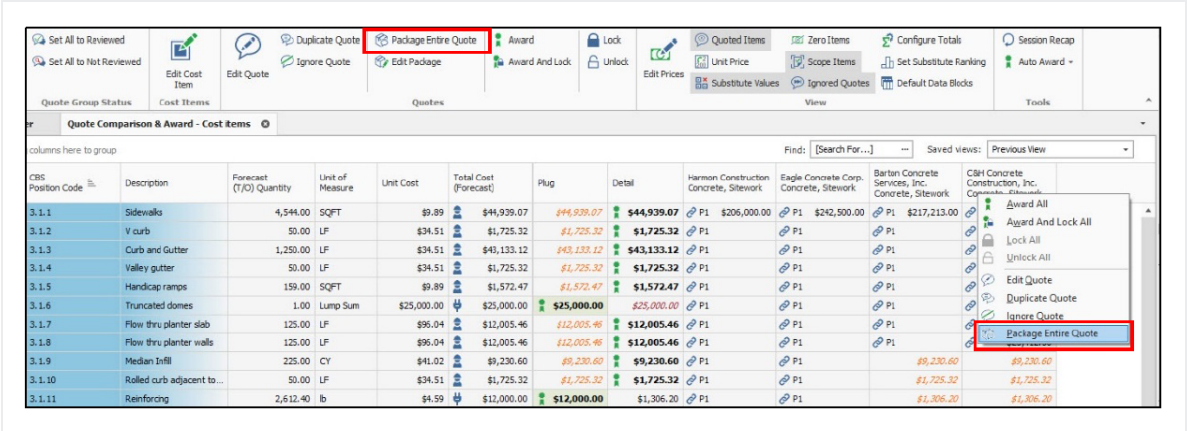
- You could also change your mind and award Example Vendor 2 one of the resources. In this case, award resource code MAFA to Example Vendor 2.

6. Right click on $7.35 under Example Vendor 2, and select **Award**.
    - You now have awarded resource code MAFA to Example Vendor 2.



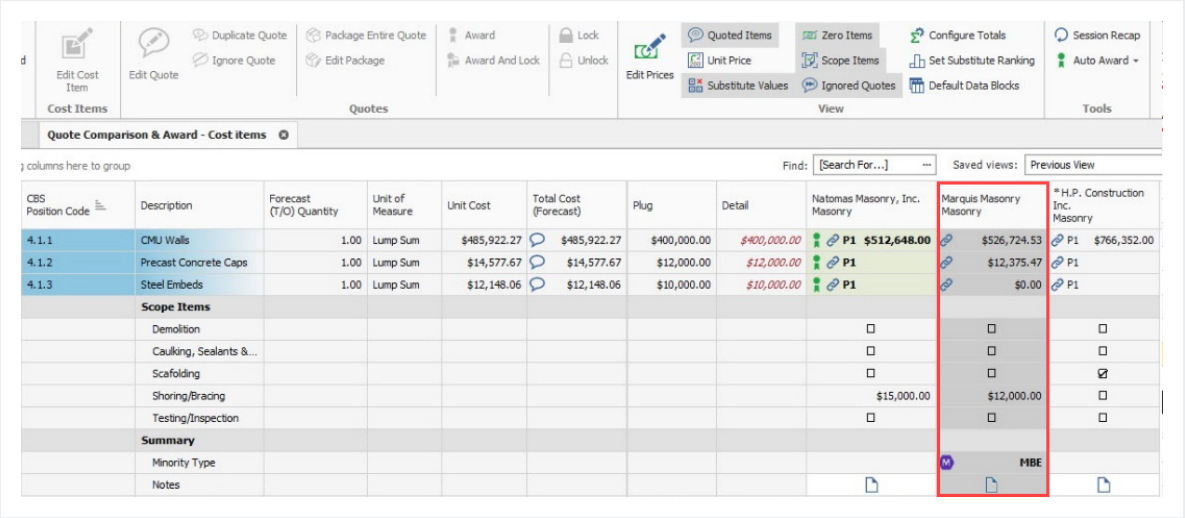
8.4.10 Package Entire Quote

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.

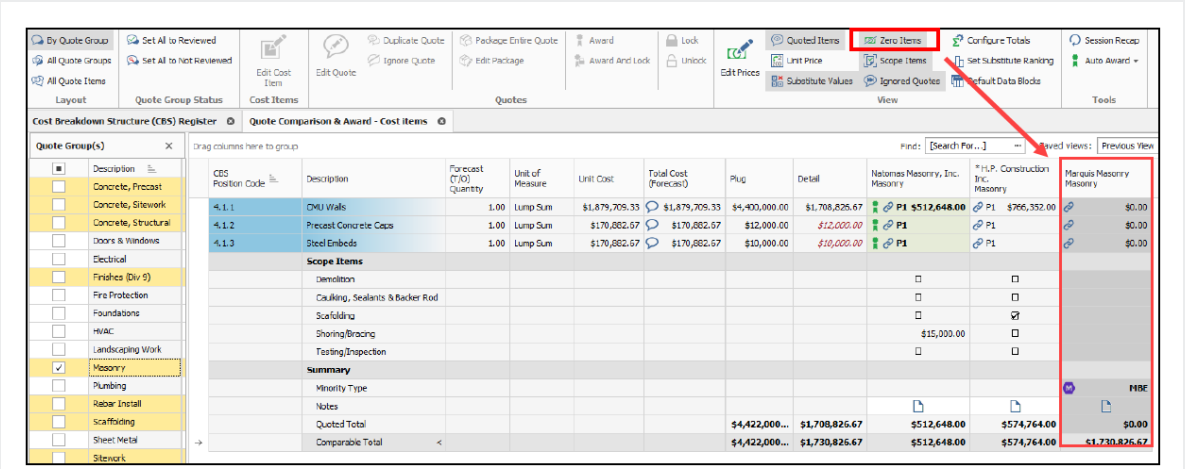


8.4.11 Incomplete Quotes

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.



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.



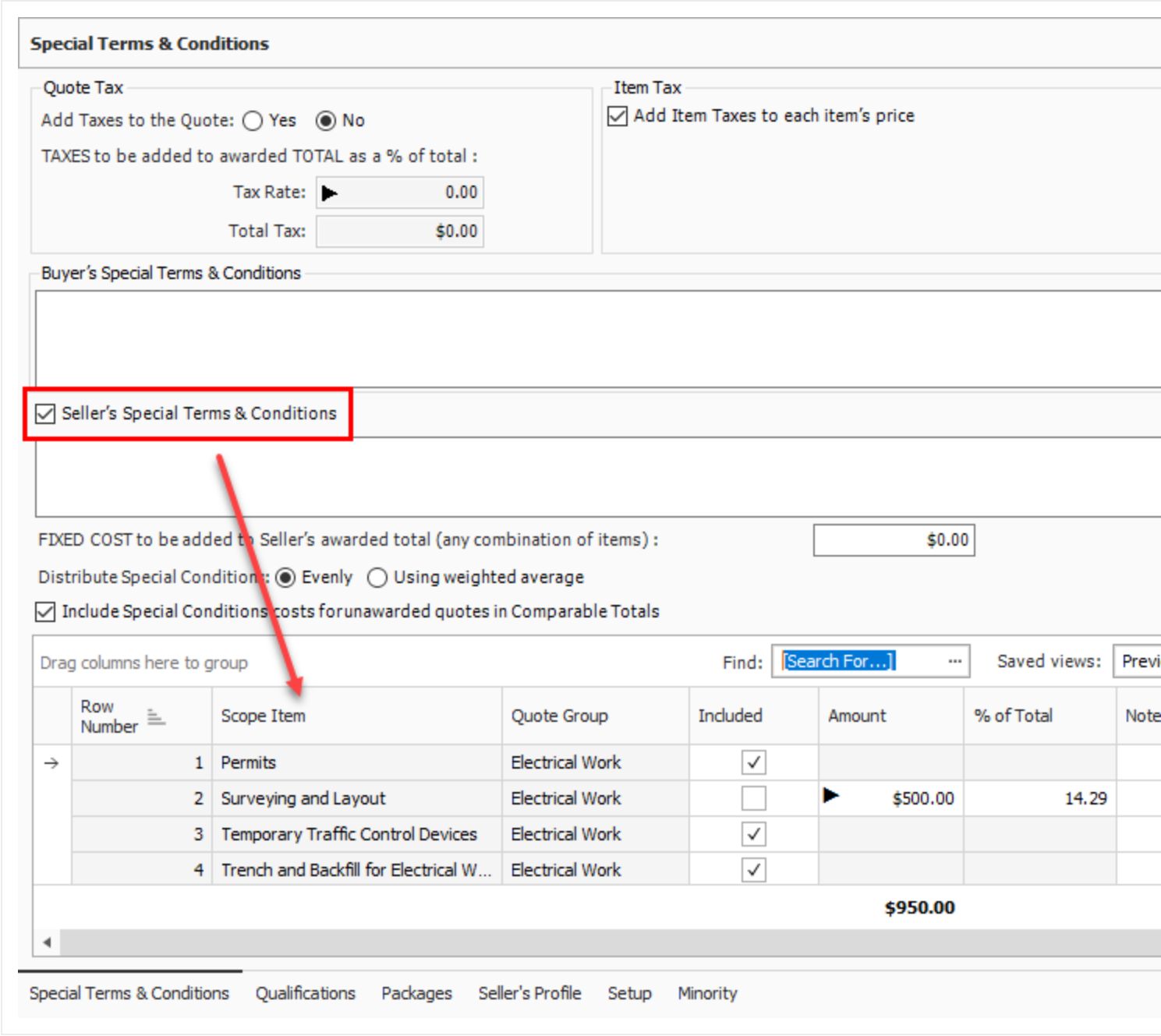
8.5 SCOPE ITEMS

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.

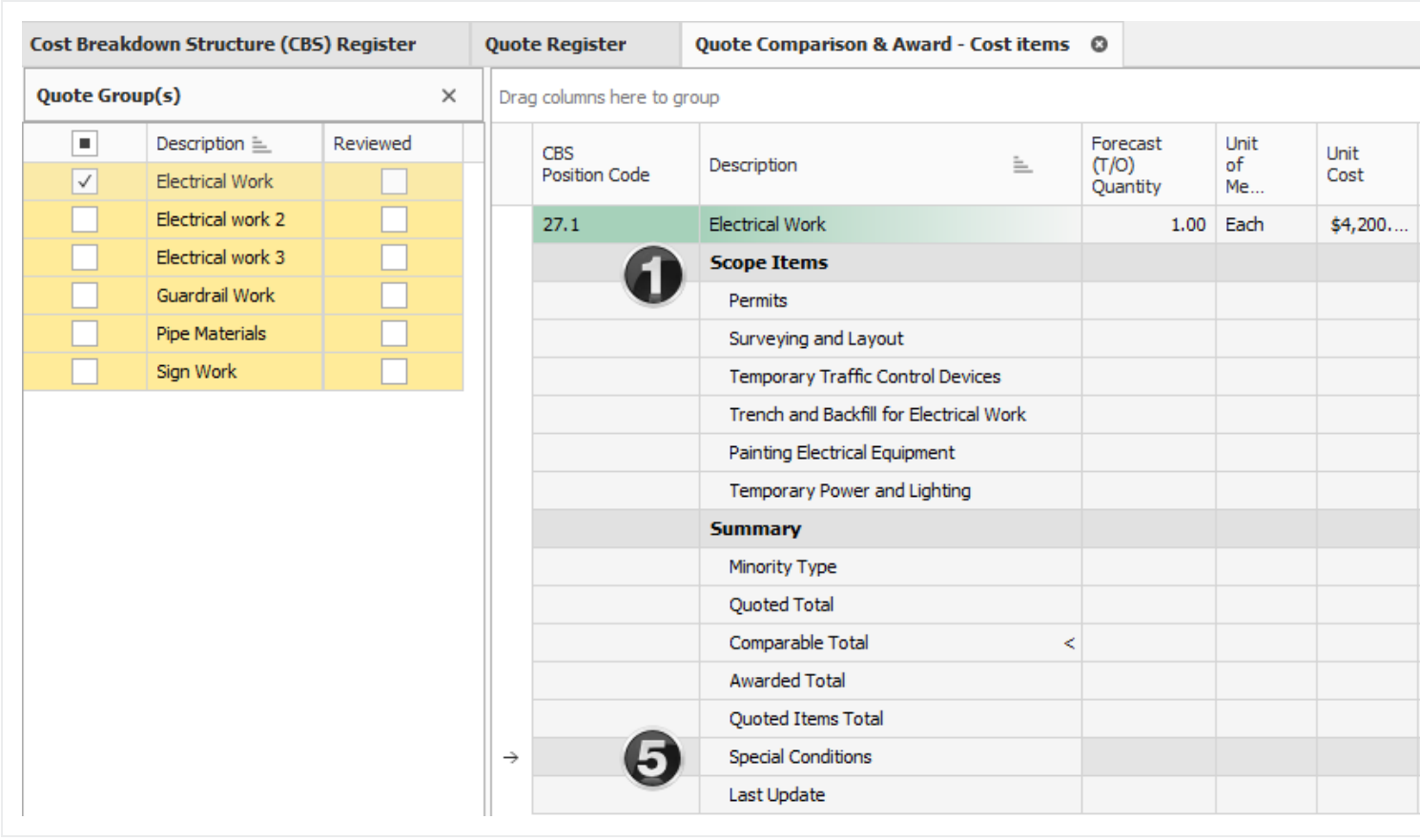


Overview – Quote Comparison and Award – Scope Items

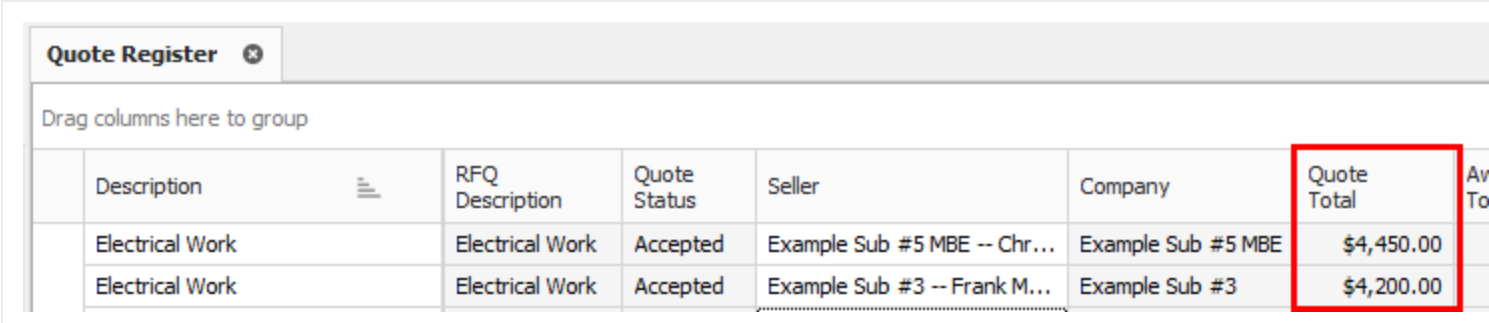
Section		Description
1	Scope Items	Quote Comparison and Award checklist items for your quote that help with evaluating subcontractor and supplier quotes in greater detail. This is used to ensure certain items are either included (inclusion) or excluded (exclusion) in the

Overview – Quote Comparison and Award – Scope Items (continued)

Section		Description
		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.
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.

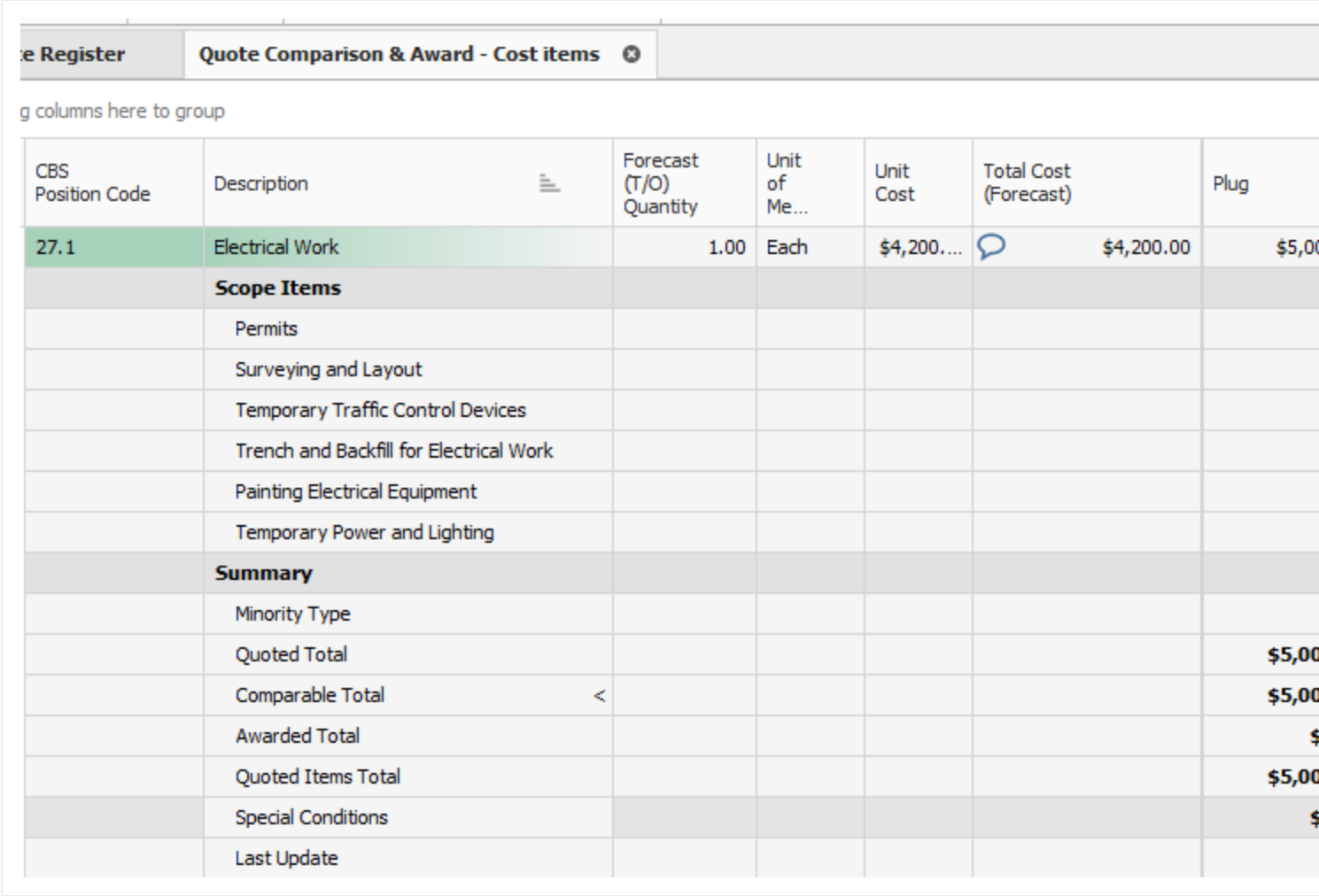


The example below in the Quote Register form shows quotes from two subcontractors, both with different quote prices. It is important to understand all scope of work the subs are quoting. By just viewing these quotes alone, it's difficult to understand which quote will provide you with the best value. In other words, just because Example Sub #3 is the lowest priced quote, does not mean it is the best quote to go with.



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.



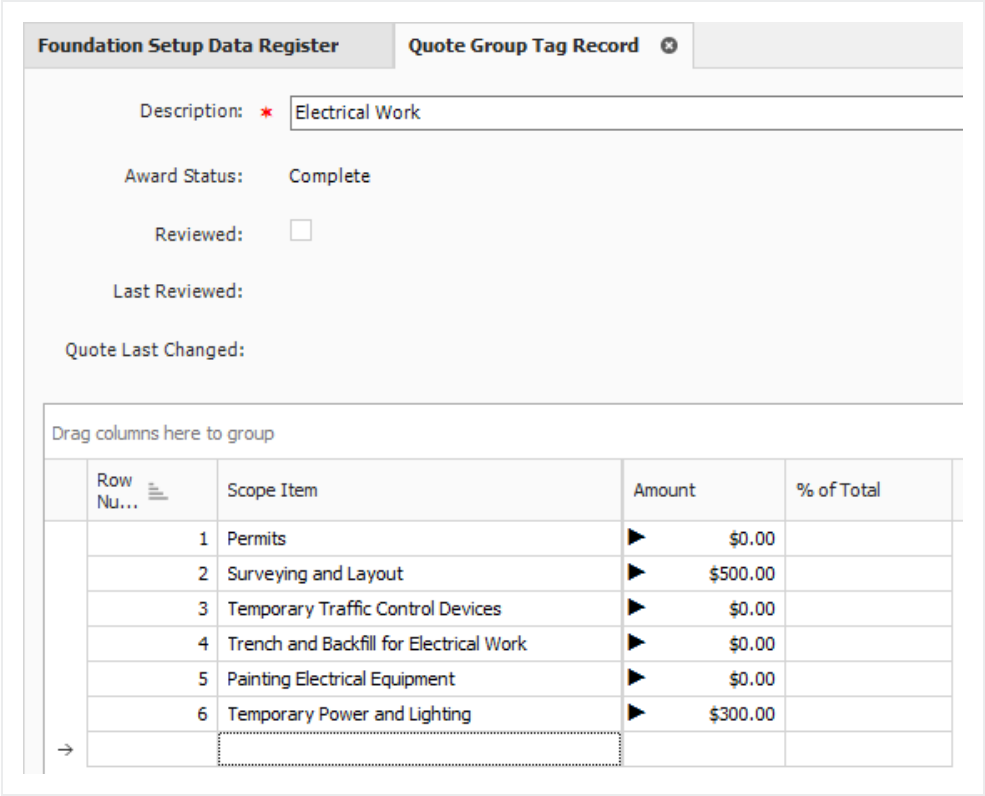
CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Me...	Unit Cost	Total Cost (Forecast)	Plug
27.1	Electrical Work	1.00	Each	$4,200....	$4,200.00	$5,0
	Scope Items					
	Permits					
	Surveying and Layout					
	Temporary Traffic Control Devices					
	Trench and Backfill for Electrical Work					
	Painting Electrical Equipment					
	Temporary Power and Lighting					
	Summary					
	Minority Type					
	Quoted Total					**$5,00**
	Comparable Total					**$5,00**
	Awarded Total					**$**
	Quoted Items Total					**$5,00**
	Special Conditions					**$**
	Last Update					

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.

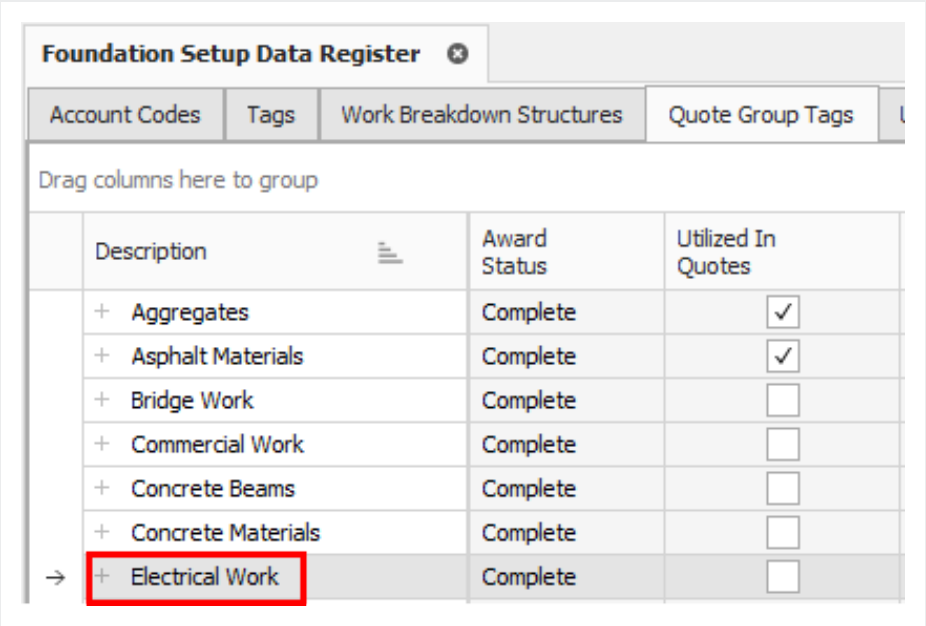


8.5.2 Scope Item Creation and Award

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.

8.5 Step by Step 1 — 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**.



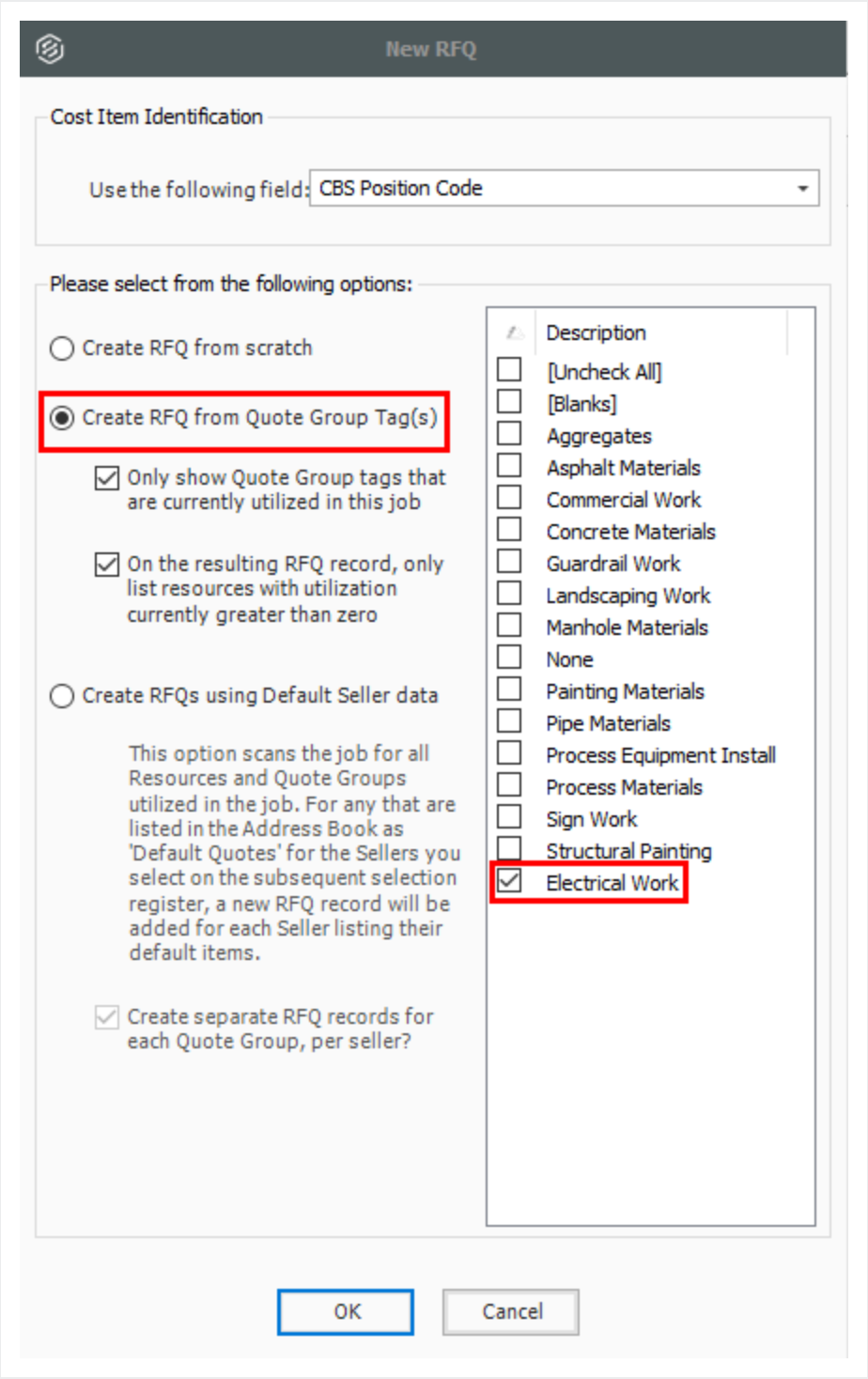
6. Open **Electrical Work** and add the following Scope Items:
    - Permits
    - Surveying and Layout
    - Temporary Traffic Control Devices
    - Trench and Backfill for Electrical Work
    - Painting Electrical Equipment
    - Temporary Power and Lighting
7. Enter **500** in the Amount field for 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 tto 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	Unit of M...	Unit Cost	Total Cost (Forecast)	Cur.
26	**Entry Gate**	1.00	Each	$0.00	$0.00	U.S.
26.1	Electrical Work	1.00	Each	$0.00	$0.00	U.S.

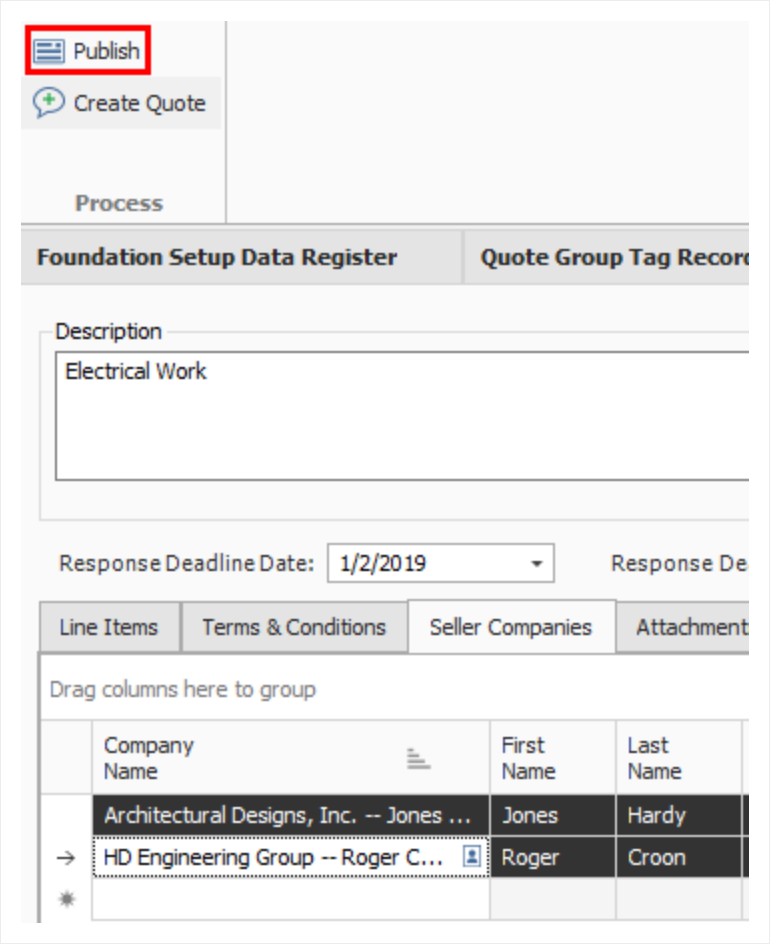
14. Select the **Quote** tab.
15. Click **Request For Quote (RFQ)** to open the RFQ Register.
16. Create an RFQ for the Electrical Work cost item by selecting the **New** icon on the Actions tab.
17. Select **Create RFQ from Quote Group Tag(s**) and select **Electrical Work**.



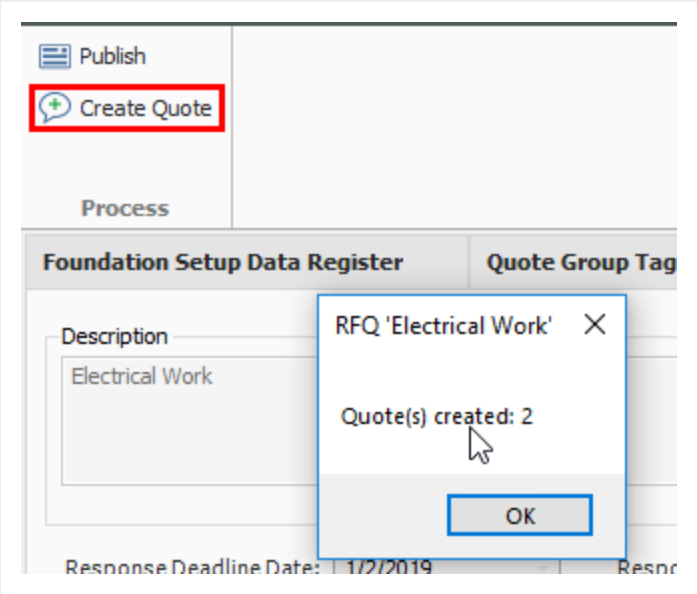
18. Click **OK**.
19. Click on the **Seller Companies** tab and select the following Company Names:

- 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



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

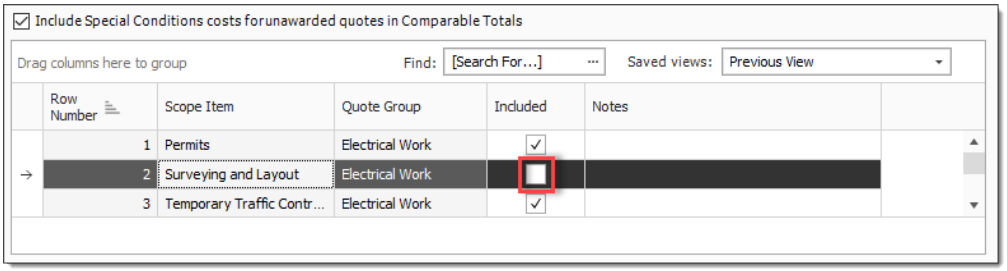
Description	RFQ Description	Quote Status	Seller
[Enter Description]		Invalid	<Ad-Hoc Address>
[Enter Description]		Invalid	<Ad-Hoc Address>
Aggregates	Aggregates	Received	Example Vendor 1 -- Pat Roberts
Aggregates	Aggregates	Received	Example Vendor 4 DBE -- Lester Slim
Aggregates	Aggregates	Received	Example Vendor 2 -- Stan Mark
Asphalt Materials		Received	Example Vendor 1 -- Pat Roberts
Asphalt Materials		Received	Example Vendor 2 -- Stan Mark
Concrete, Sitework		Ignored	HD Engineering Group -- Roger Croon
Electrical Work	Electrical Work	Received	Architectural Designs, Inc. -- Jones Hardy
Electrical Work	Electrical Work	Received	HD Engineering Group -- Roger Croon

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.

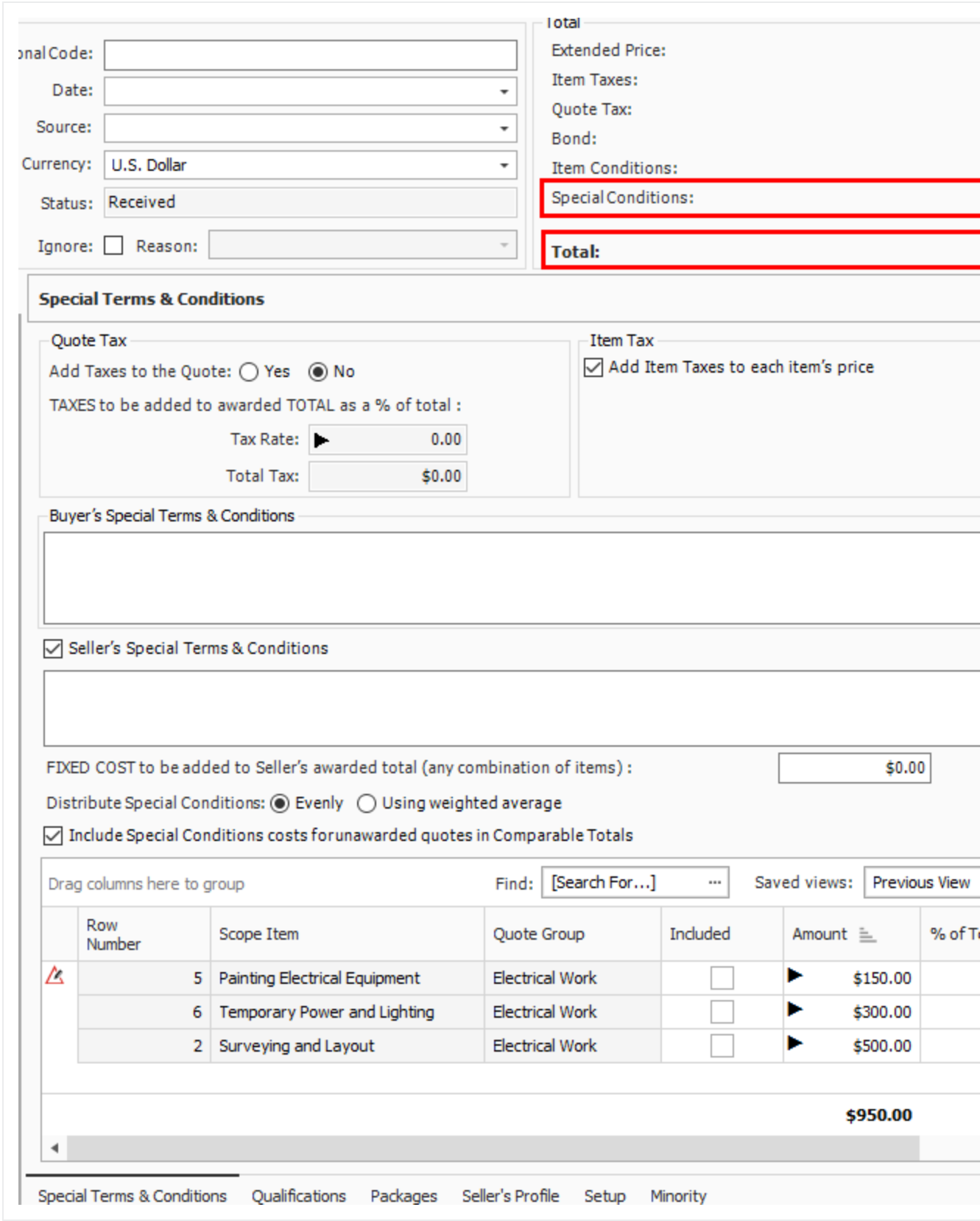
- You now have visibility for all of scope items for this quote

Row Number	Scope Item	Quote Group	Inclusions	Amount	% of Total
1	Permits	Electrical Work	☑		
2	Surveying and Layout	Electrical Work	☑		
3	Temporary Traffic Cont...	Electrical Work	☑		
4	Trench and Backfill for E...	Electrical Work	☑		
5	Painting Electrical Equip...	Electrical Work	☑		
6	Temporary Power and L...	Electrical Work	☑		

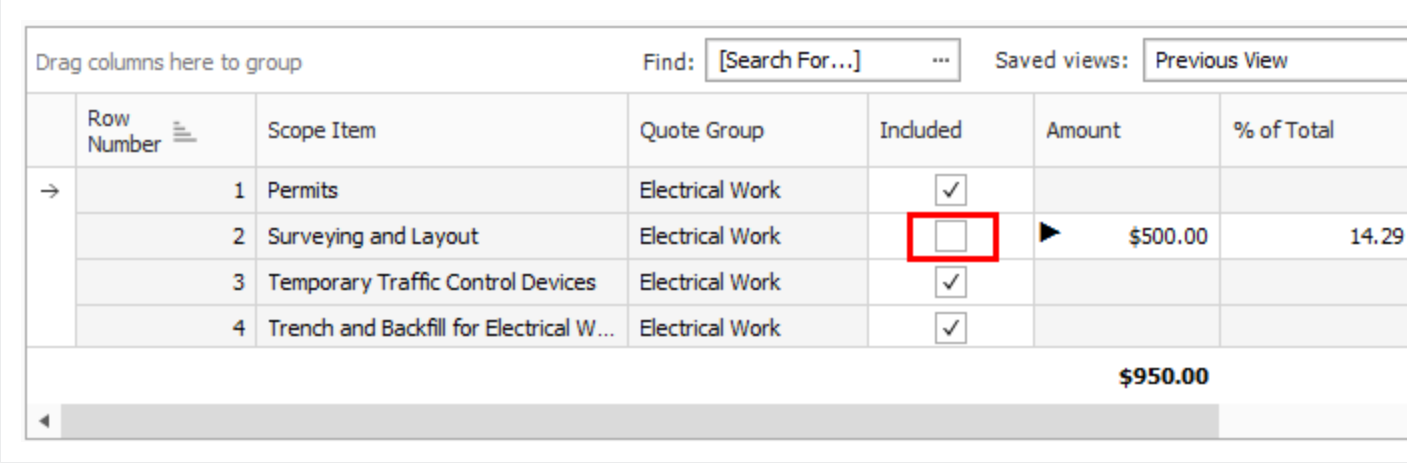
26. Assuming HD Engineering is excluding certain scope items from this quote, click on the **Included checkbox** to exclude (uncheck) the following scope items:
    - Surveying and Layout
    - Painting Electrical Equipment
    - Temporary Power and Lighting



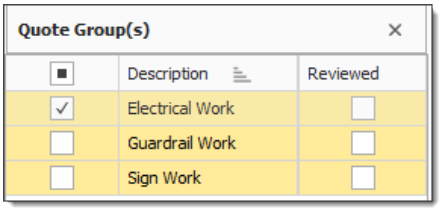
27. Type **150** in the Amount field for Painting Electrical Equipment.
    - Notice how the 3 scope items you just excluded are now added to the Special Conditions total for the quote


onal Code:
Date:
Source:
Currency: U.S. Dollar
Status: Received
Ignore: Reason:
Total
Extended Price:
Item Taxes:
Quote Tax:
Bond:
Item Conditions:
Special Conditions:
Total:
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: 0.00
Total Tax: $0.00
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) : $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 T
5 Painting Electrical Equipment Electrical Work $150.00
6 Temporary Power and Lighting Electrical Work $300.00
2 Surveying and Layout Electrical Work $500.00
$950.00
Special Terms & Conditions
Qualifications
Packages
Seller's Profile
Setup
Minority

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**.

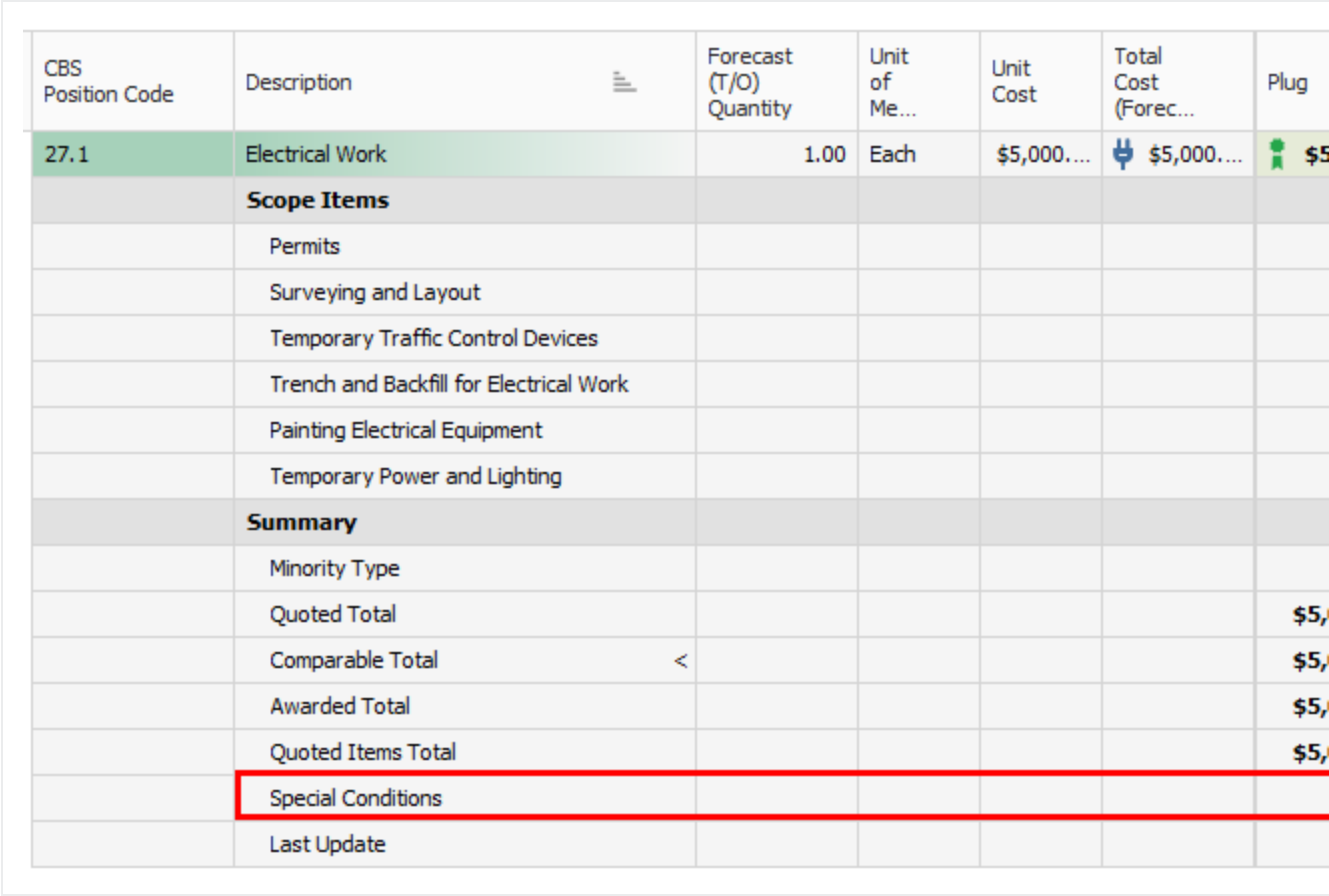


33. Click **OK.**
34. Select the **Quote** tab.
35. Open the **Quote Comparison and Award** form, and select the **Cost Items** tab.
36. Under **Quote Groups**, select **Electrical Work**.



- 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

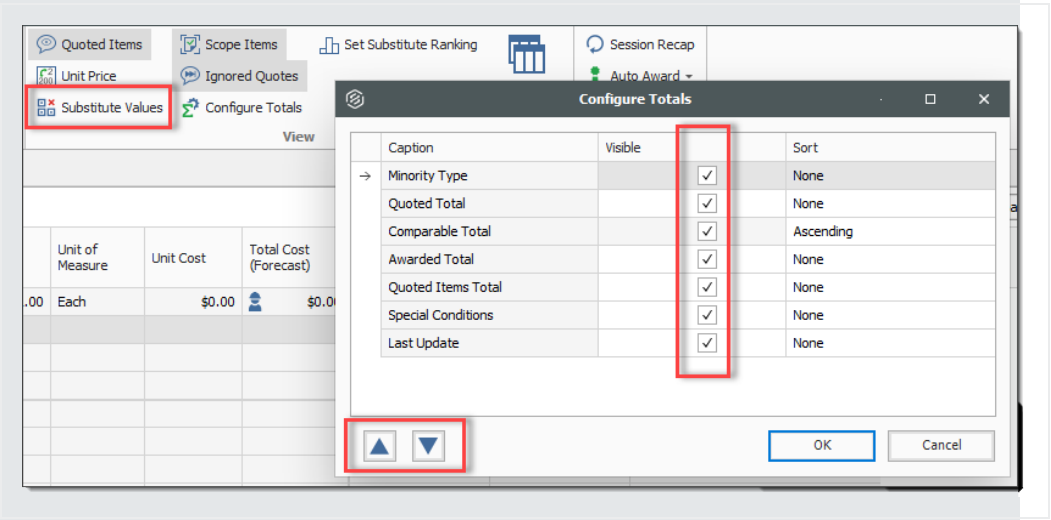
- The total of all exclusions are now added to the Special Conditions section for each subcontractor



CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Me...	Unit Cost	Total Cost (Forec...	Plug
27.1	Electrical Work	1.00	Each	$5,000....	$5,000....	$5
	Scope Items					
	Permits					
	Surveying and Layout					
	Temporary Traffic Control Devices					
	Trench and Backfill for Electrical Work					
	Painting Electrical Equipment					
	Temporary Power and Lighting					
	Summary					
	Minority Type					
	Quoted Total					$5,
	Comparable Total					$5,
	Awarded Total					$5,
	Quoted Items Total					$5,
	Special Conditions					
	Last Update					

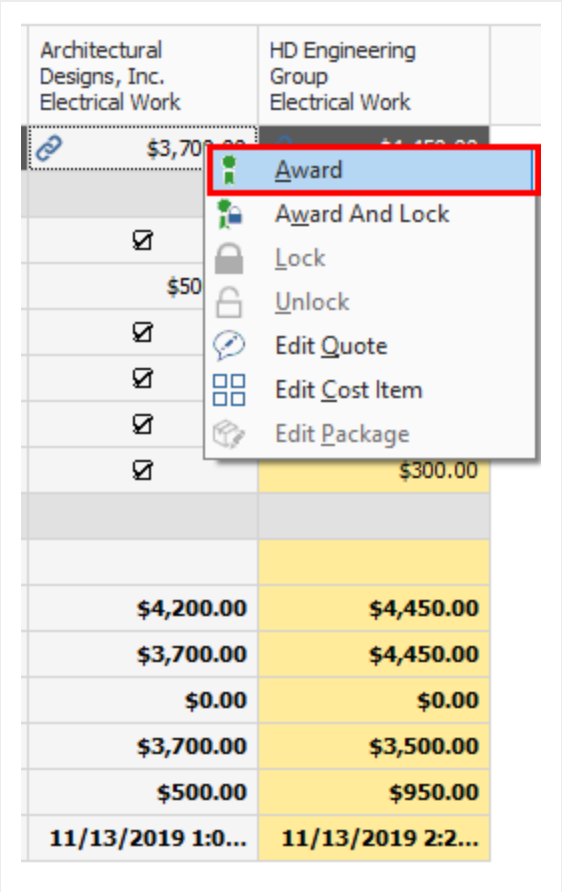
TIP

If your Special Conditions row is missing, click the Substitute Values icon on the Action tab. You can also rearrange the sequence as desired.



- 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.



38. Click **Yes**, on the resulting prompt to mark the quote group as reviewed.

- The Architectural Design's quote is now awarded

CBS Position Code	Description	Forecast (T/O) Quantity	Unit of Me...	Unit Cost	Total Cost (Forec...	Plug
27.1	Electrical Work	1.00	Each	$4,200....	$4,200....	$5,
	Scope Items					
	Permits					
	Surveying and Layout					
	Temporary Traffic Control Devices					
	Trench and Backfill for Electrical Work					
	Painting Electrical Equipment					
	Temporary Power and Lighting					
	Summary					
	Minority Type					
	Quoted Total					**$5,**
	Comparable Total <					**$5,**
	Awarded Total					
	Quoted Items Total					**$5,**
	Special Conditions					
	Last Update					

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

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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 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

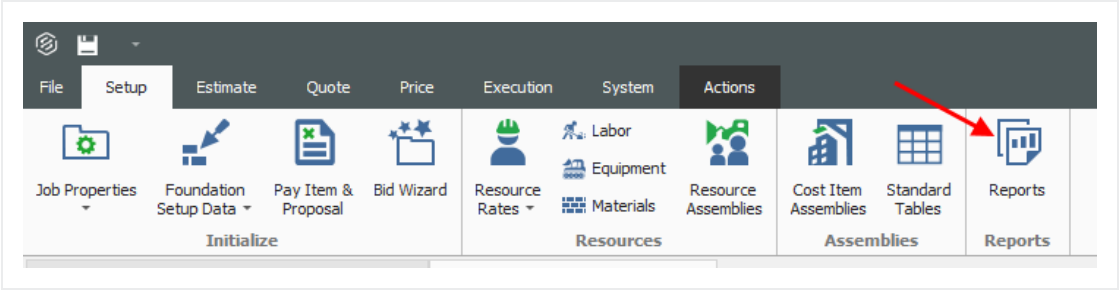
The following steps take you through a brief overview of the Reports menu and how you can access it.

9.1 Step by Step 1 — Get to Know the Reports Menu

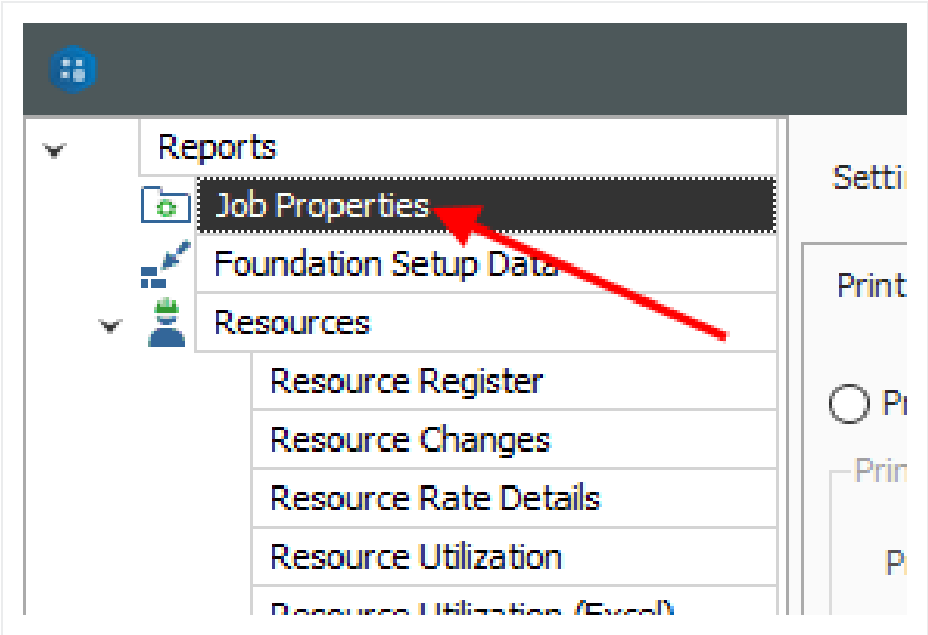
1. Open the **Training Job**, and select **Setup** tab.
    - You access the Reports menu by clicking on the Reports icon

    TIP You can access the Reports menu from the Setup, Estimate, Quote, Price, and Execution tabs.

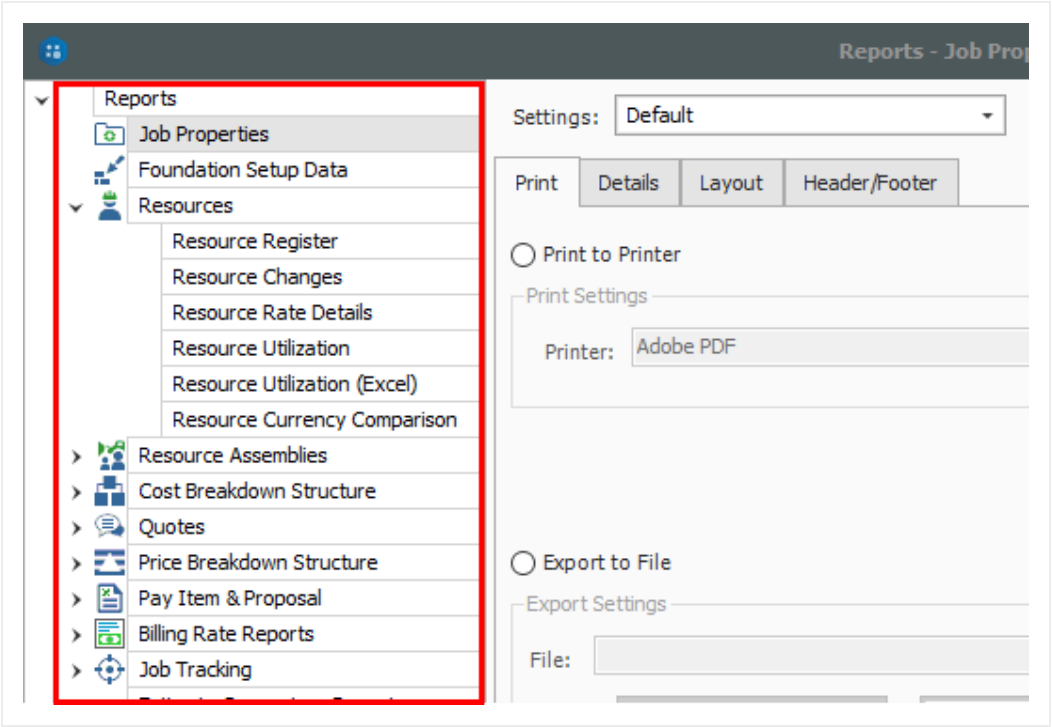
2. Select **Reports**.



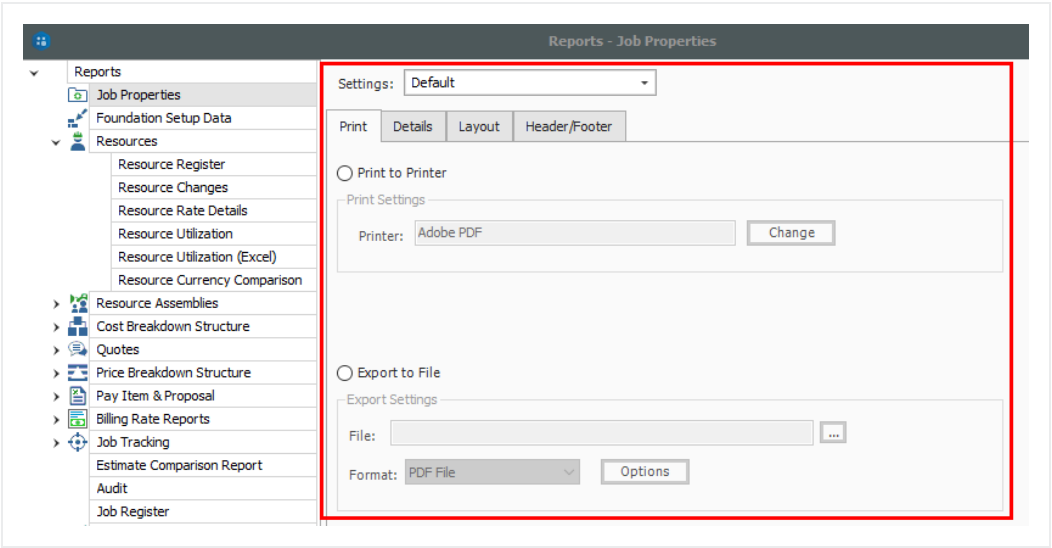
3. Here you select the Report of your choice. For this example, select the first option, **Job Properties**.



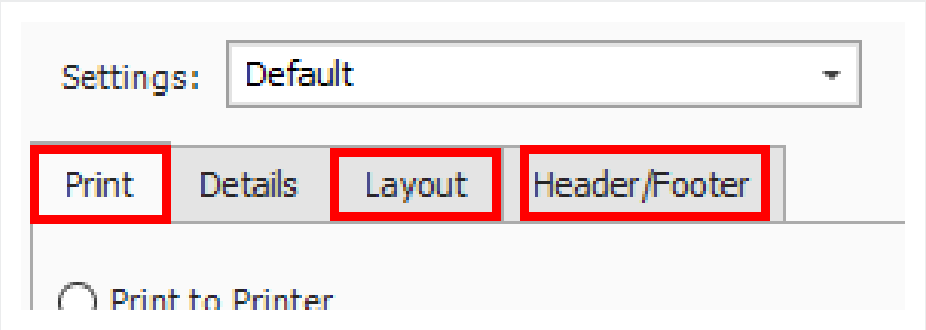
- You will see a split screen with the reports available on the left side bar
- The side bar on the left of the Reports form contains a “tree” of all InEight Estimate adjustable reports



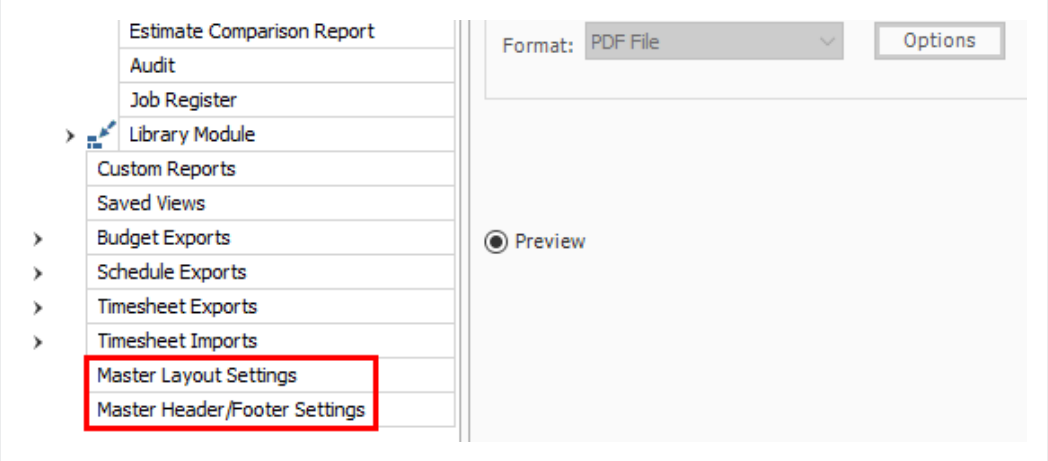
- On the right, when you select a report node on the left, note that it displays the Output Settings on the right side of the form, from which the report settings can be adjusted and the report can then be run



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



9.1.2 Output Settings

This section provides a more detailed explanation of the output setting tabs.

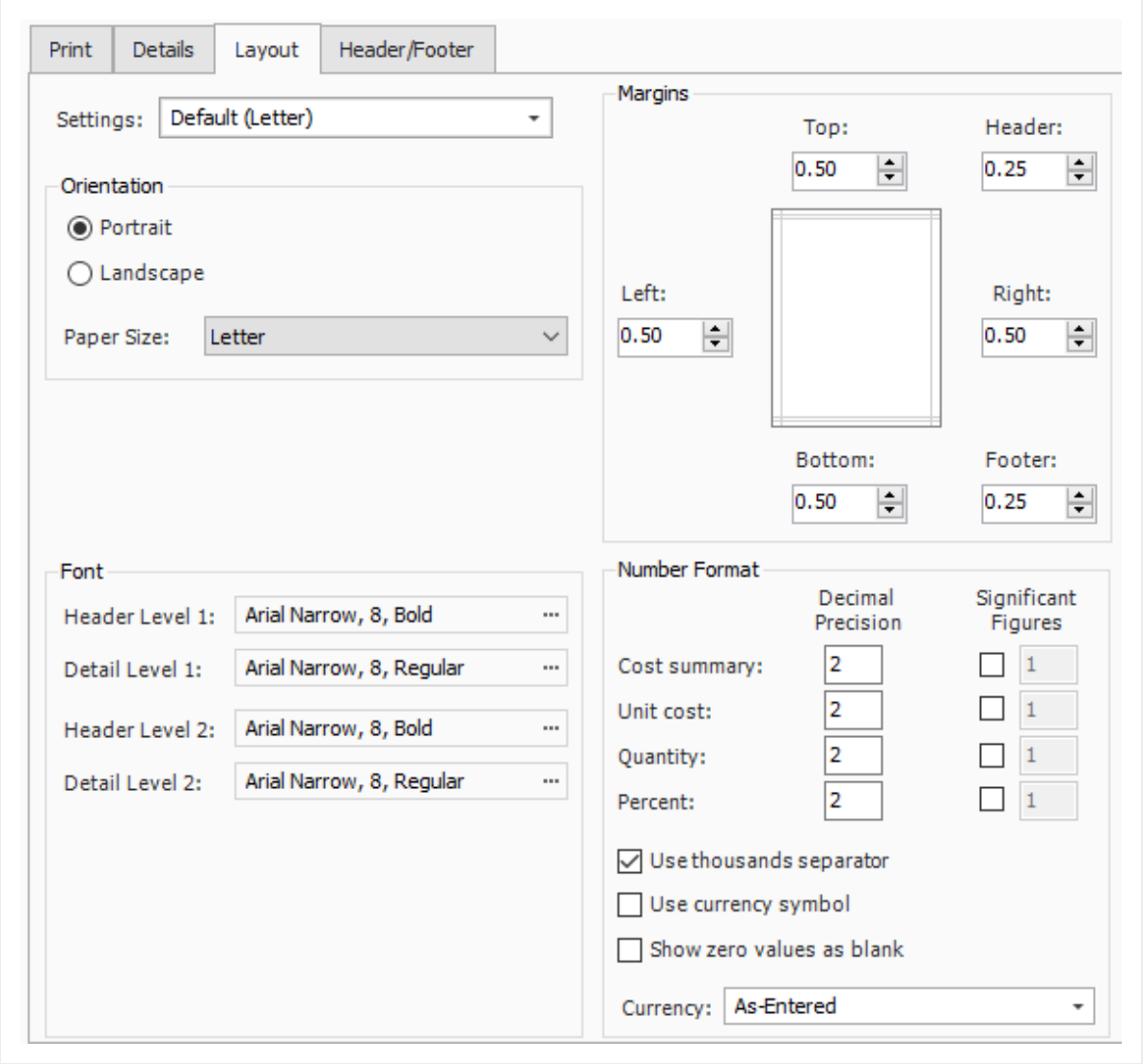
9.1.2.1 Report Printing Options

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.

9.1.2.2 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.

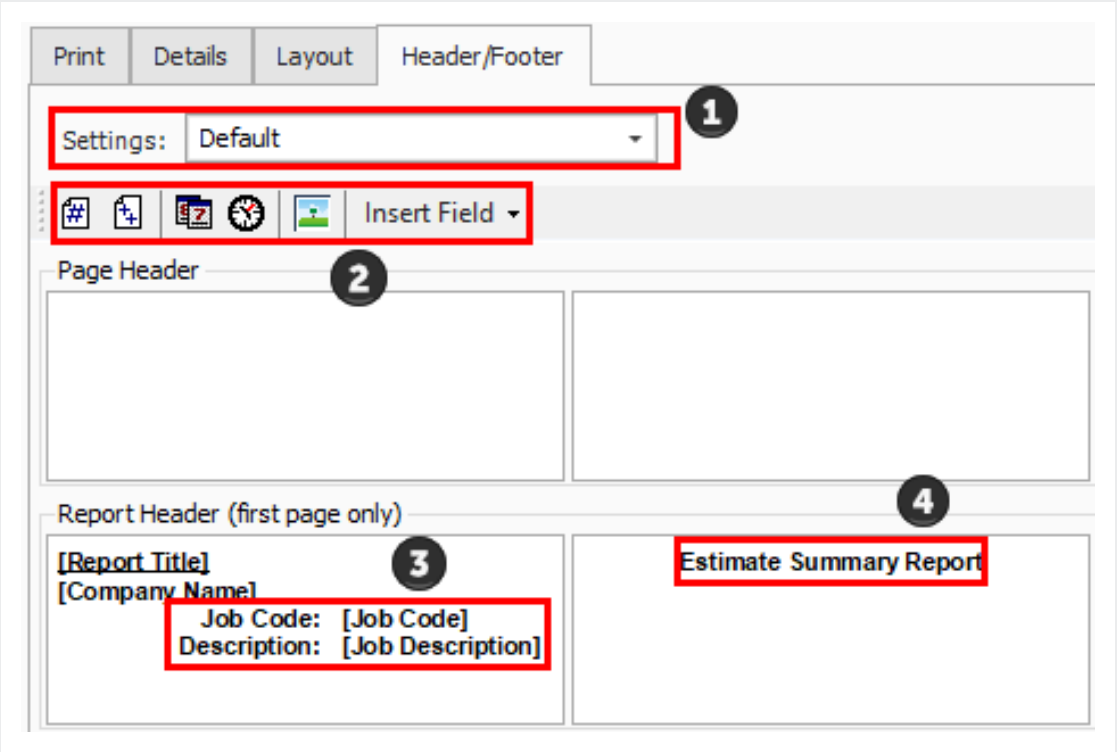


9.1.2.3 Report Header/Footer Settings

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.

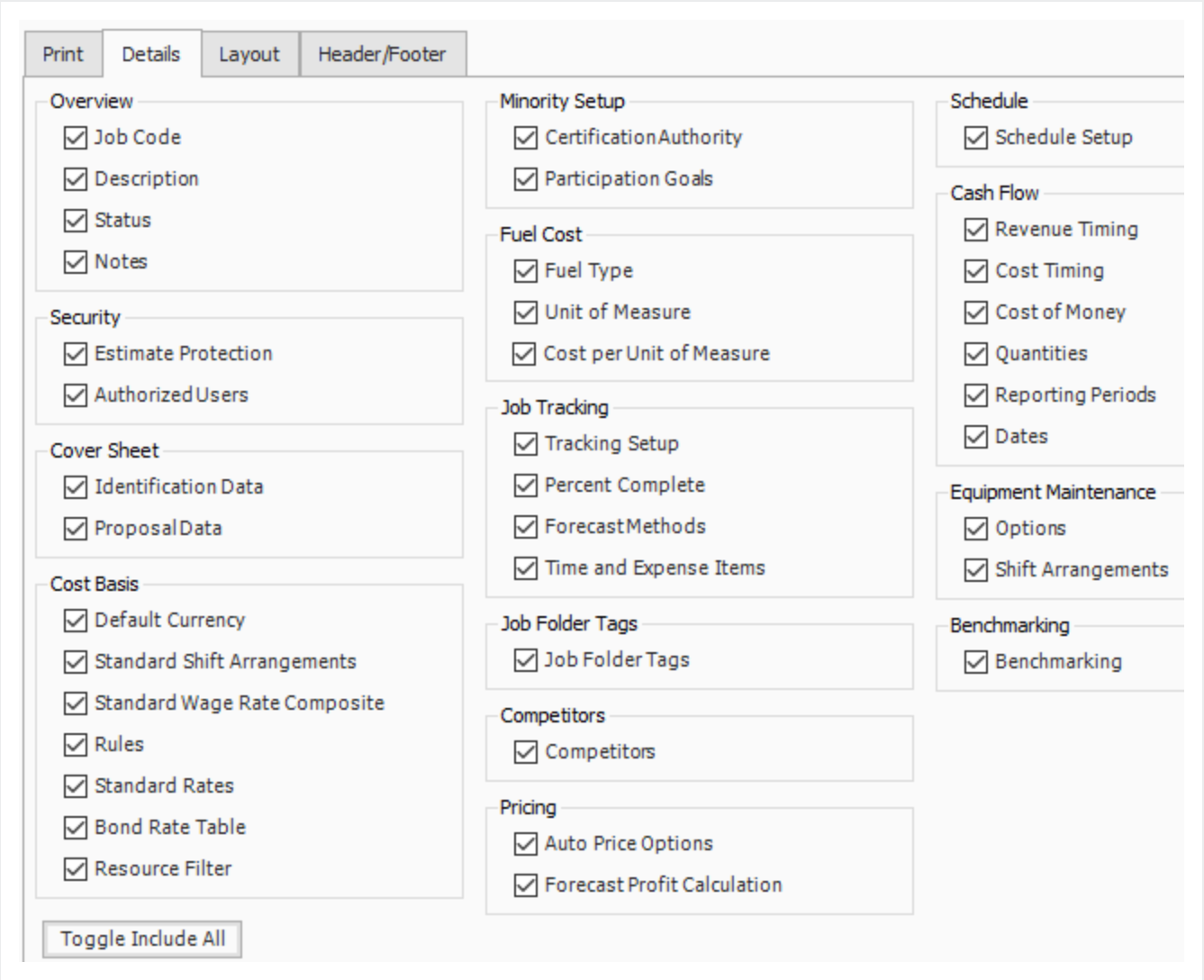
1. Once you define headers and footers, you can save them for use on other reports.
2. You can add page, time, and date stamps as needed, as well as images (e.g., company logo).
3. You can also use brackets to have it “stamp” the report with the Job Code and Job Description.

4. You can enter your own information as desired.



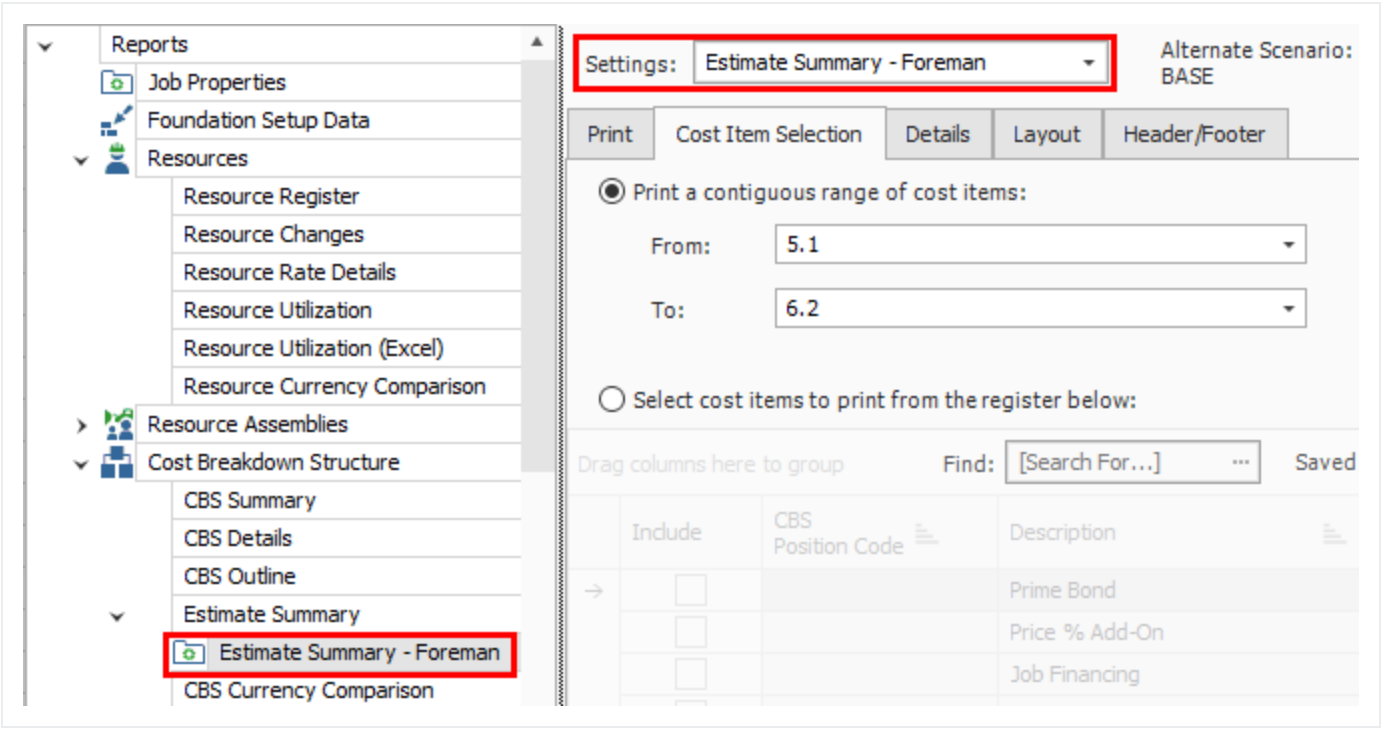
9.1.2.4 Report Detail Settings

Most reports have a Details tab with various options to configure what information is included on the report.



9.1.2.5 Save Output Settings

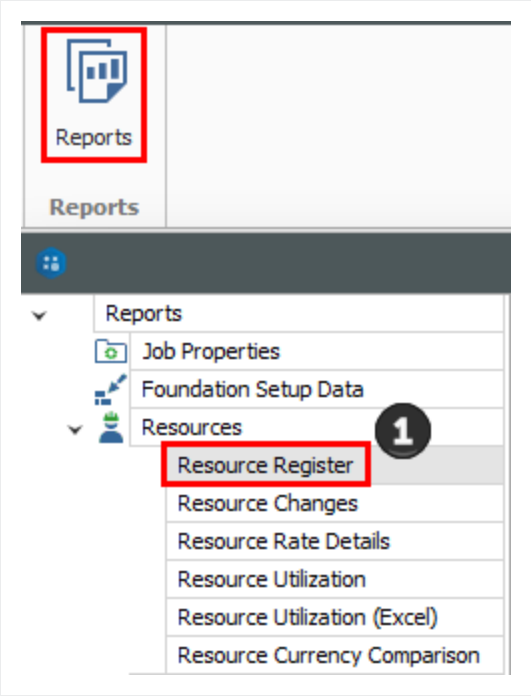
Once you've configured your settings for the report, you can save them as a custom version of that report.



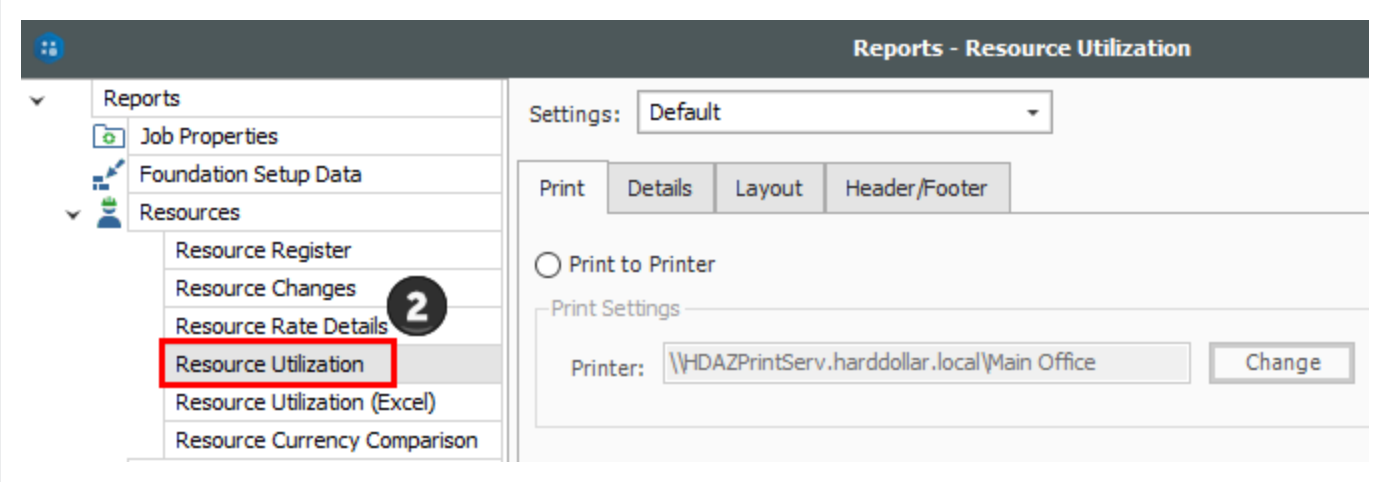
The following steps walk you through configuring the settings and formatting for two different reports.

9.1 Step by Step 2 — Configure Report Output Settings (Report 1)

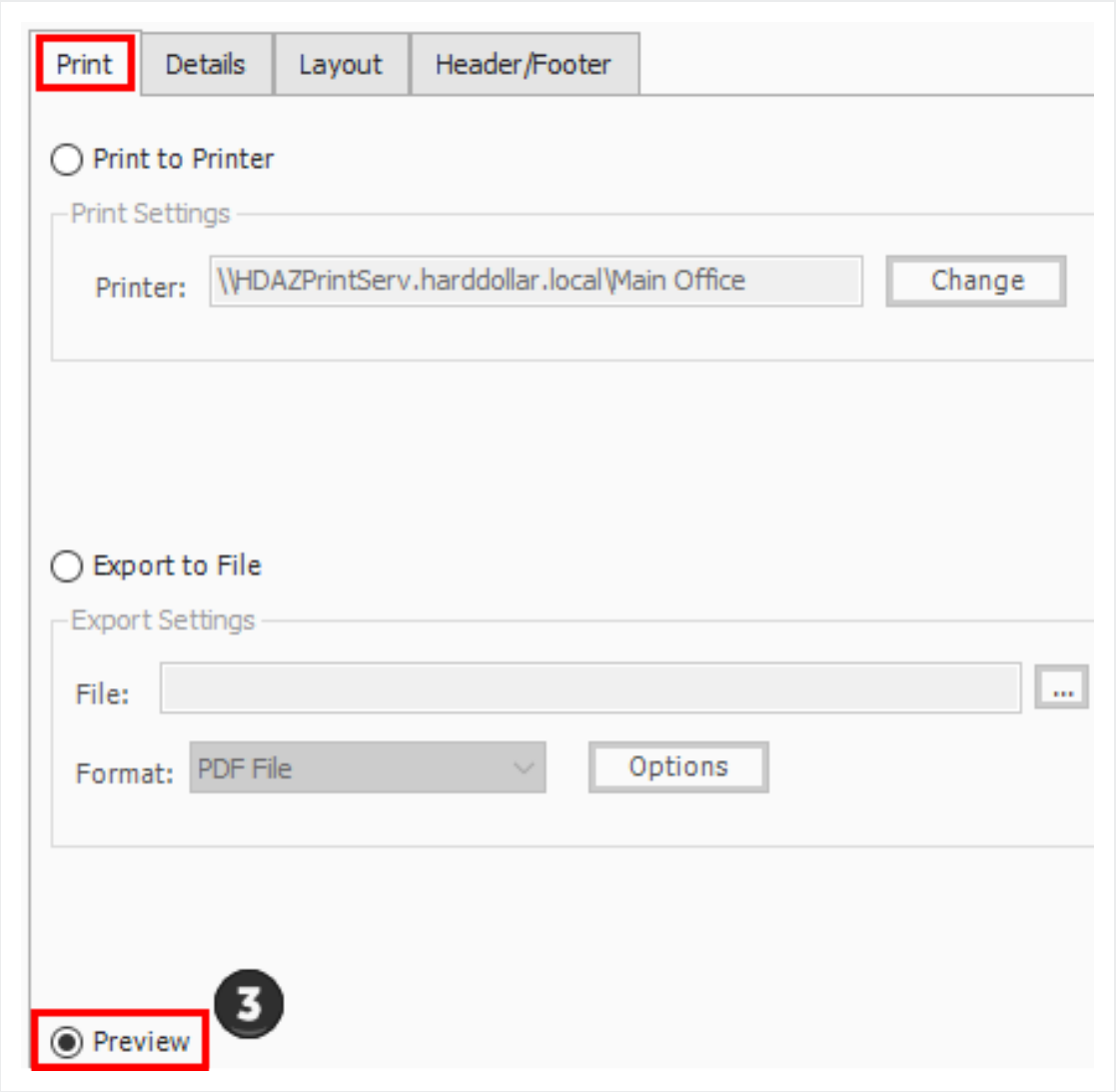
1. Open the **Training Job** and select **Setup > Report > Resources**.



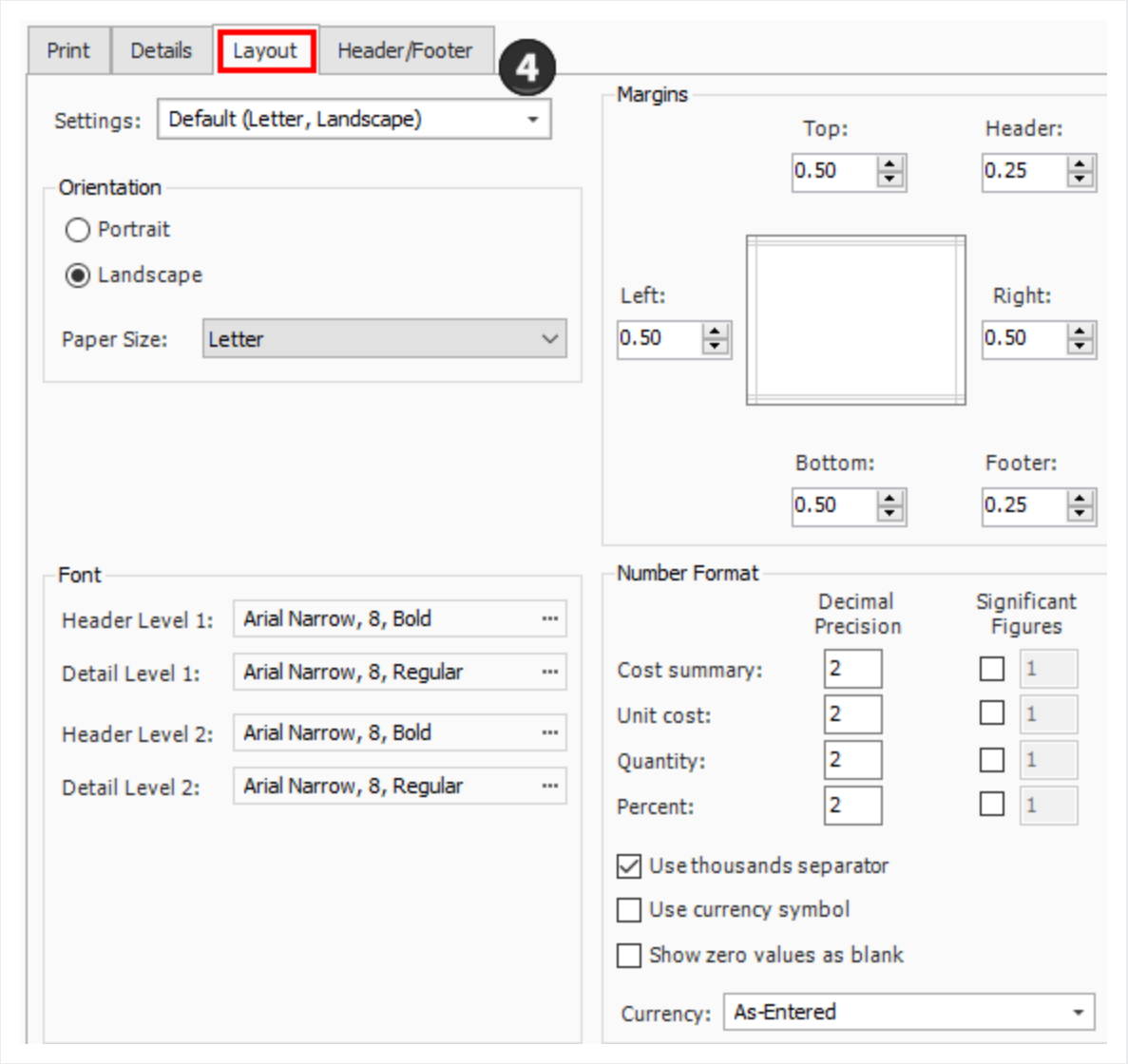
2. Under Resources on the left side bar**,** select **Resource Utilization**.



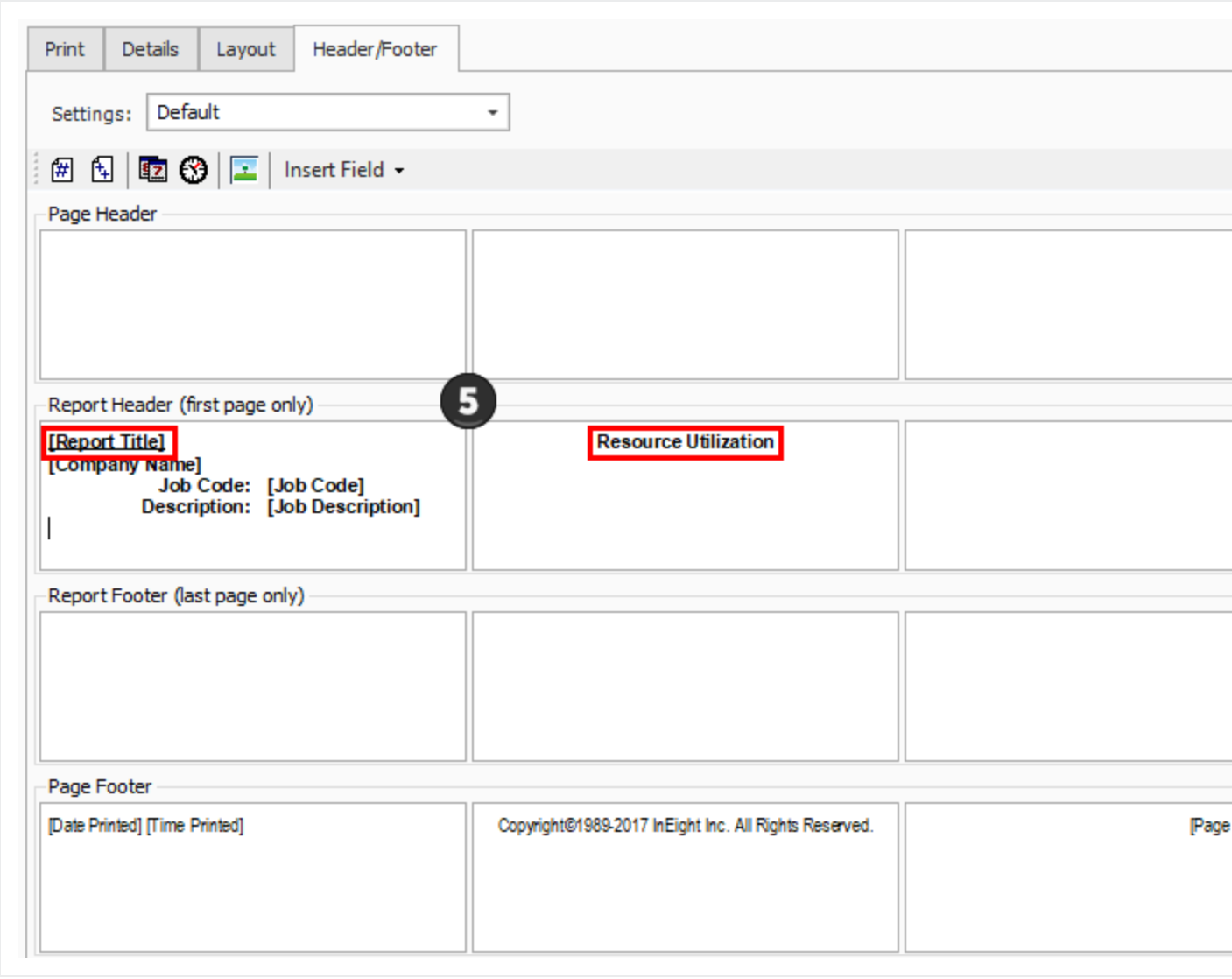
3. On the Print tab there are three options. A best practice is to always set to **Preview** so you can review before printing.



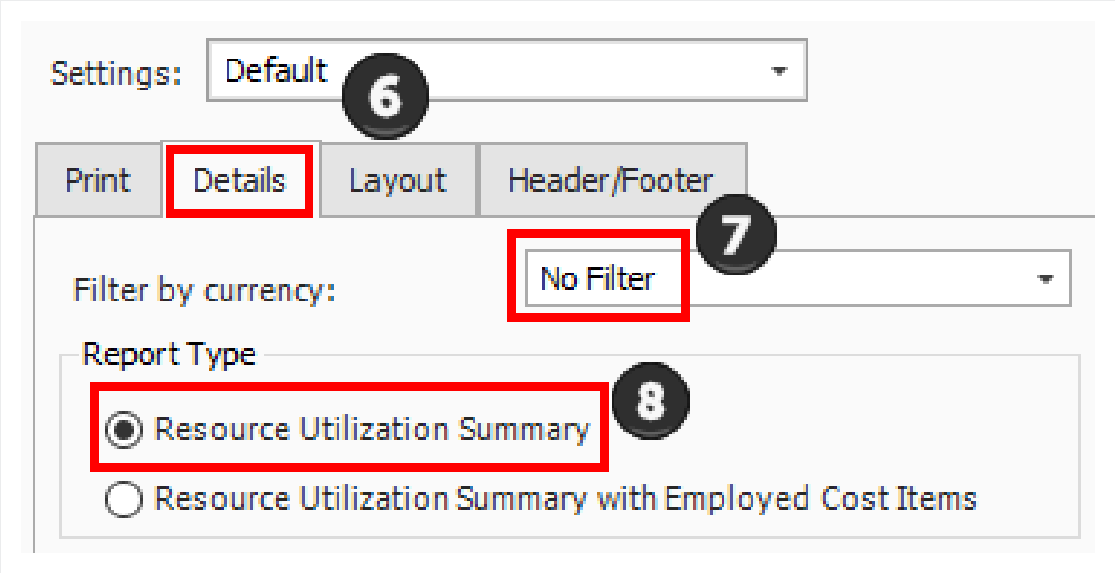
4. On the Layout tab you can make adjustments based on your preferences.



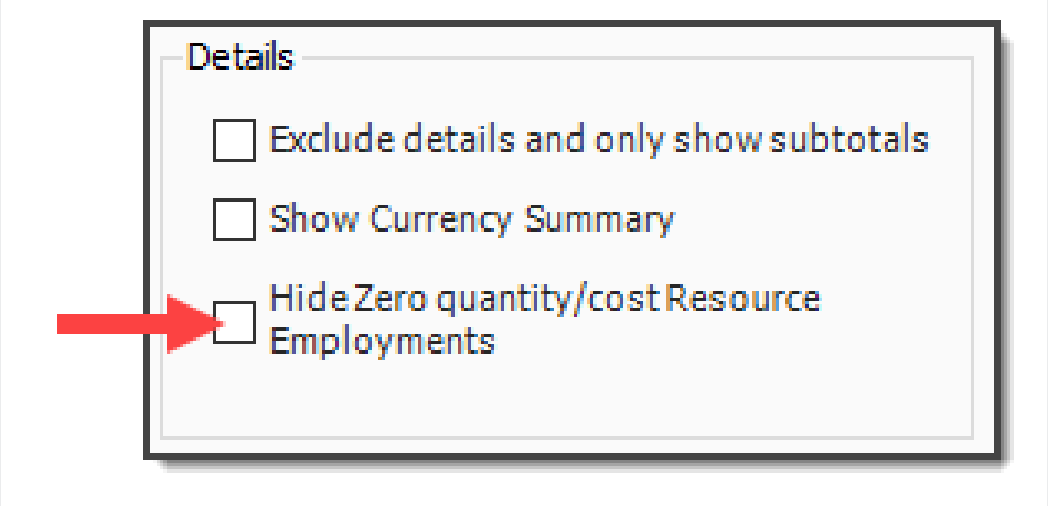
5. Move to the Header / Footer tab. Remove the default **Report Title** from the first page Header only and enter **Resource Utilization** in the center Report Header box as a title that will appear on the first page only.



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**.



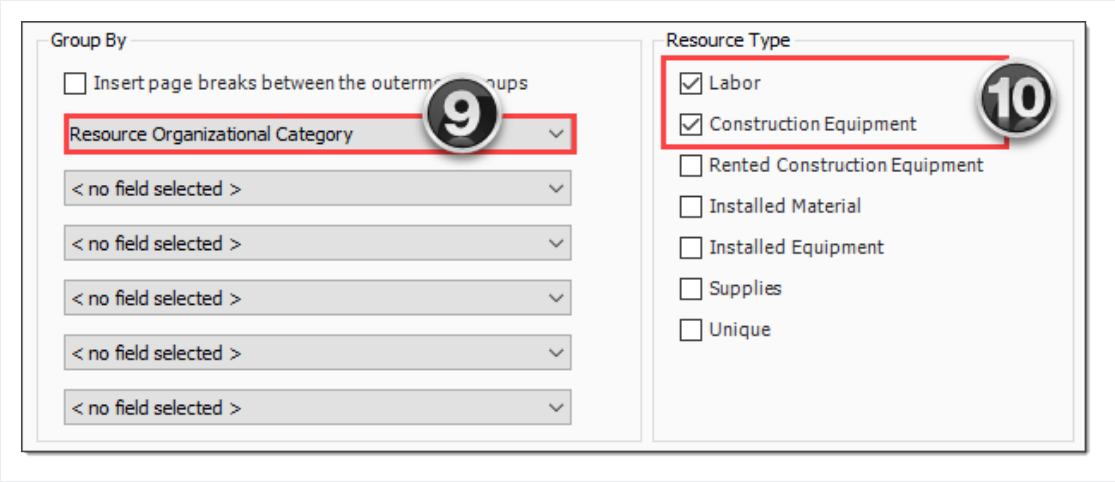
- You can choose to select the Hide Zero quantity/cost Resources Employments Details box if you prefer to have your printed report not show any resources that have a dollar value of zero



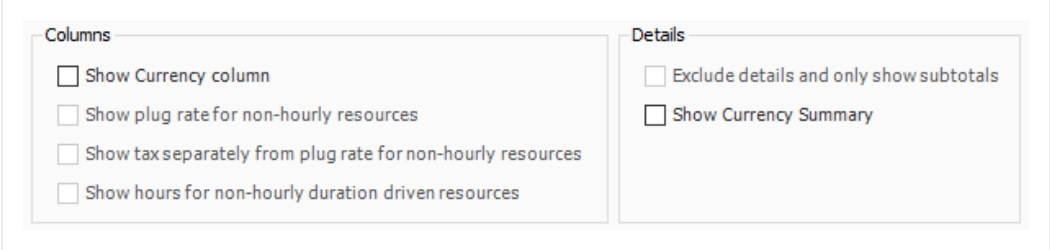
- You can choose if you want the report at a summary level, or if you want it to reference your cost items when you are looking at a resource
- If you choose Resource Utilization Summary with Employed Cost Items, it adds CBS position to the structure of the report
- You would select this if you wanted 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.

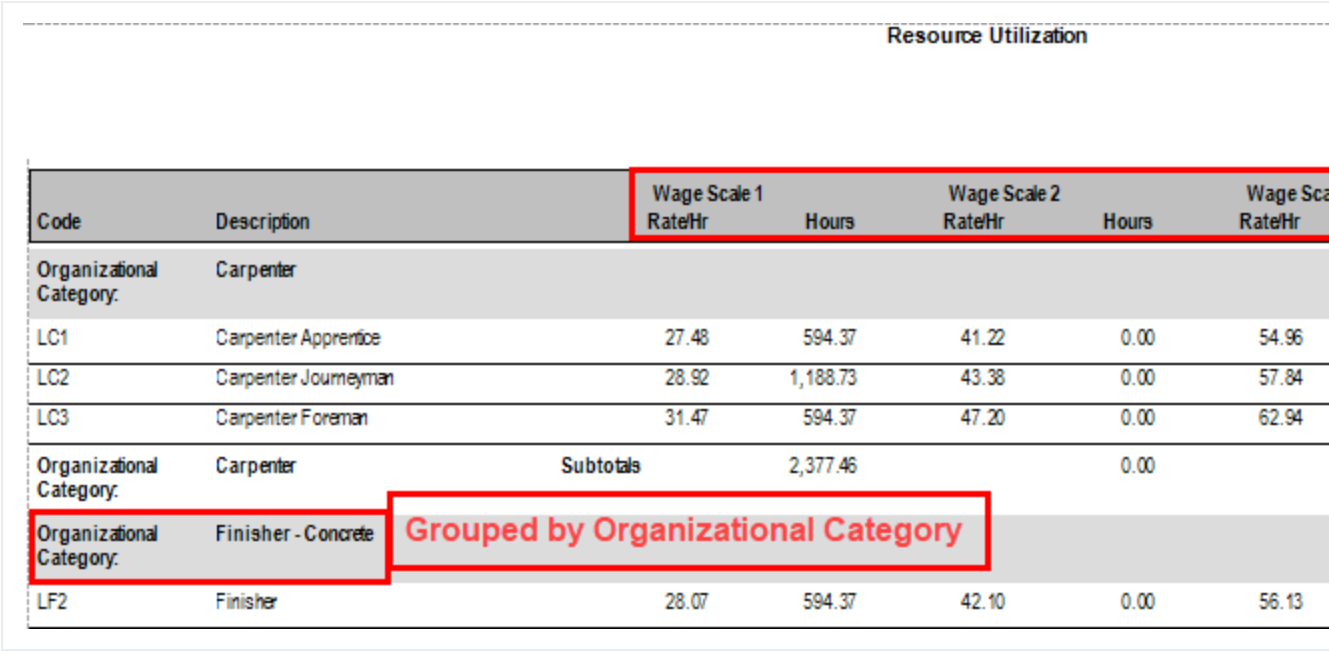


- For this example, you will not make any selections under Columns or Details



- 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



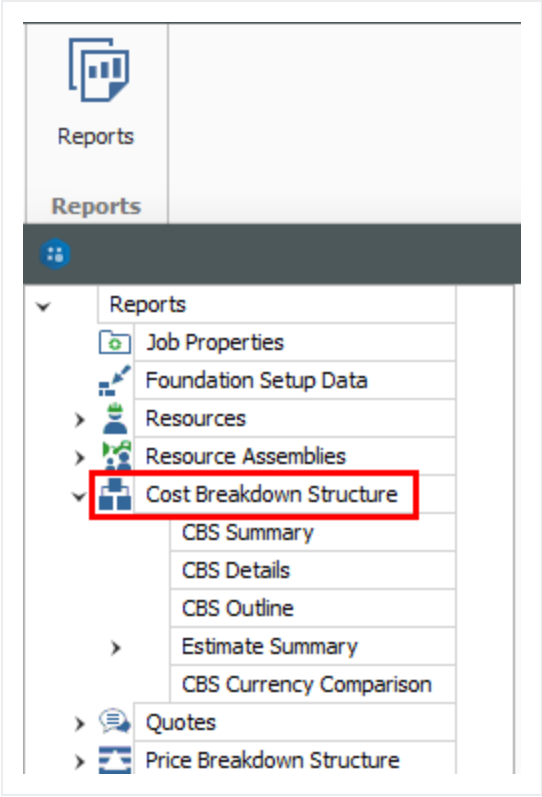
Resource Utilization

Code	Description		Wage Scale 1 Rate/Hr	Hours	Wage Scale 2 Rate/Hr	Hours	Wage Sca Rate/Hr
Organizational Category:	Carpenter						
LC1	Carpenter Apprentice		27.48	594.37	41.22	0.00	54.96
LC2	Carpenter Journeyman		28.92	1,188.73	43.38	0.00	57.84
LC3	Carpenter Foreman		31.47	594.37	47.20	0.00	62.94
Organizational Category:	Carpenter	Subtotals		2,377.46		0.00	
Organizational Category:	Finisher - Concrete						
LF2	Finisher		28.07	594.37	42.10	0.00	56.13

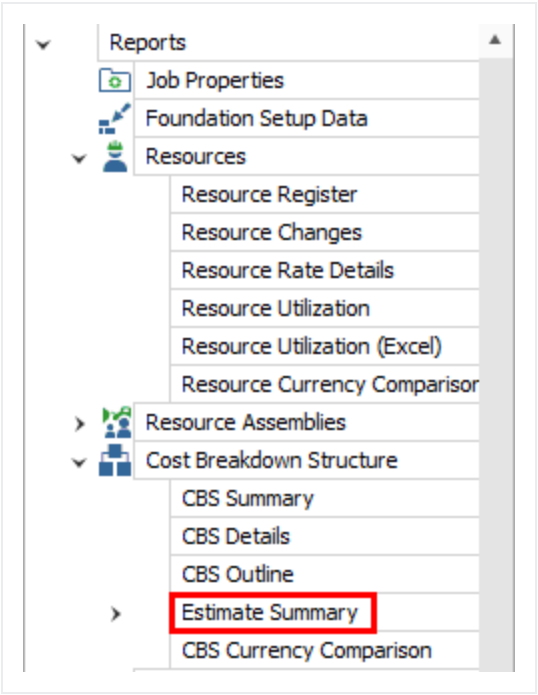
12. Click the red **X** to close this page and open the Construction Equipment page.
13. Click the red **X** to close the Construction Equipment report.

9.1 Step by Step 3 — Configure Report Output Settings (Report 2)

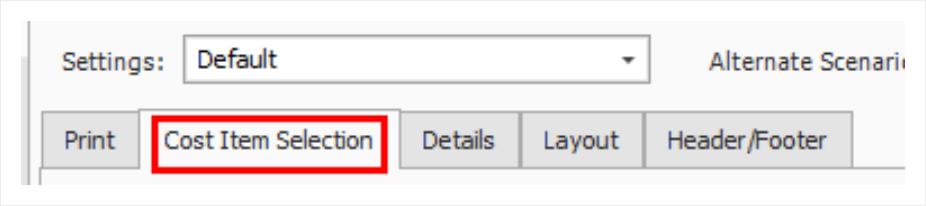
1. Open the **Training Job** and select **Setup > Reports**, then expand the **Cost Breakdown Structure** node.



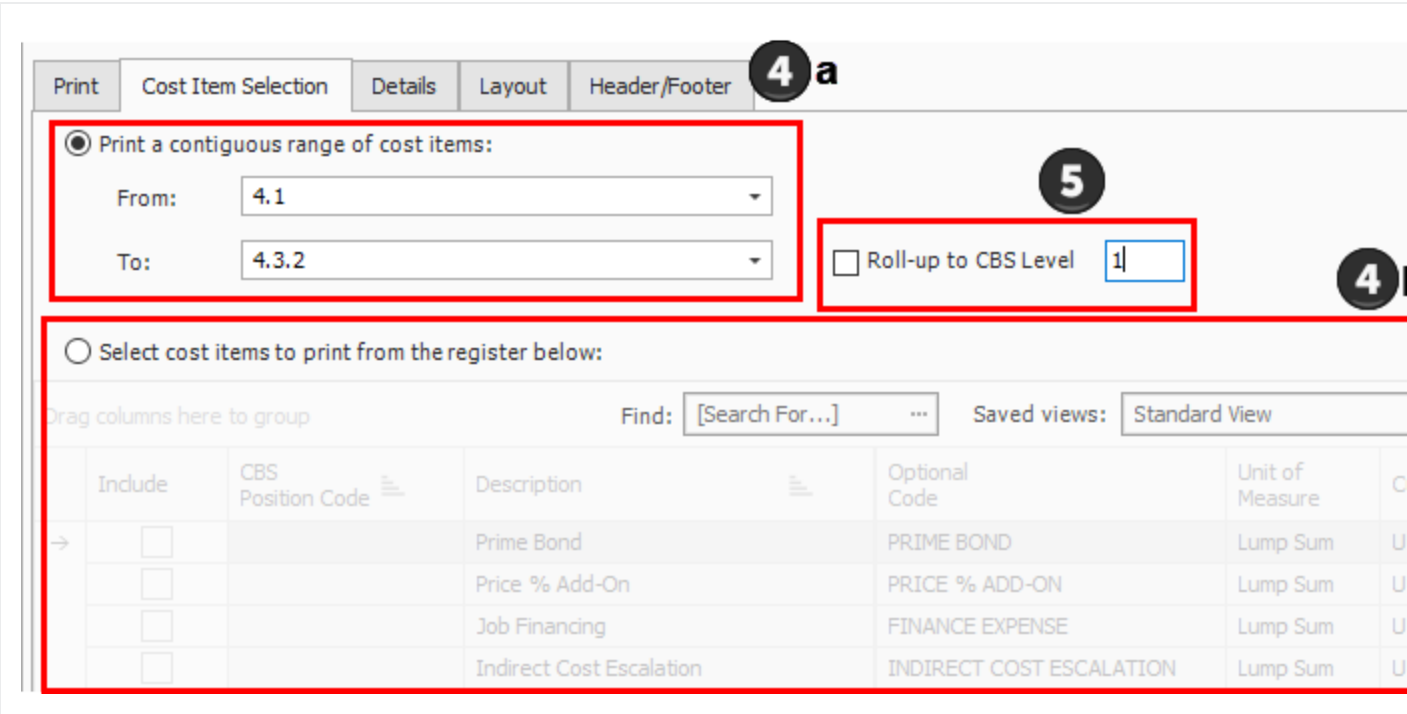
2. Under Cost Breakdown Structure on the left side bar, select **Estimate Summary**.



3. Along with the Print, Details, Layout, and Header / Footer tabs, there is an additional tab called **Cost Item Selection**. Select this tab.

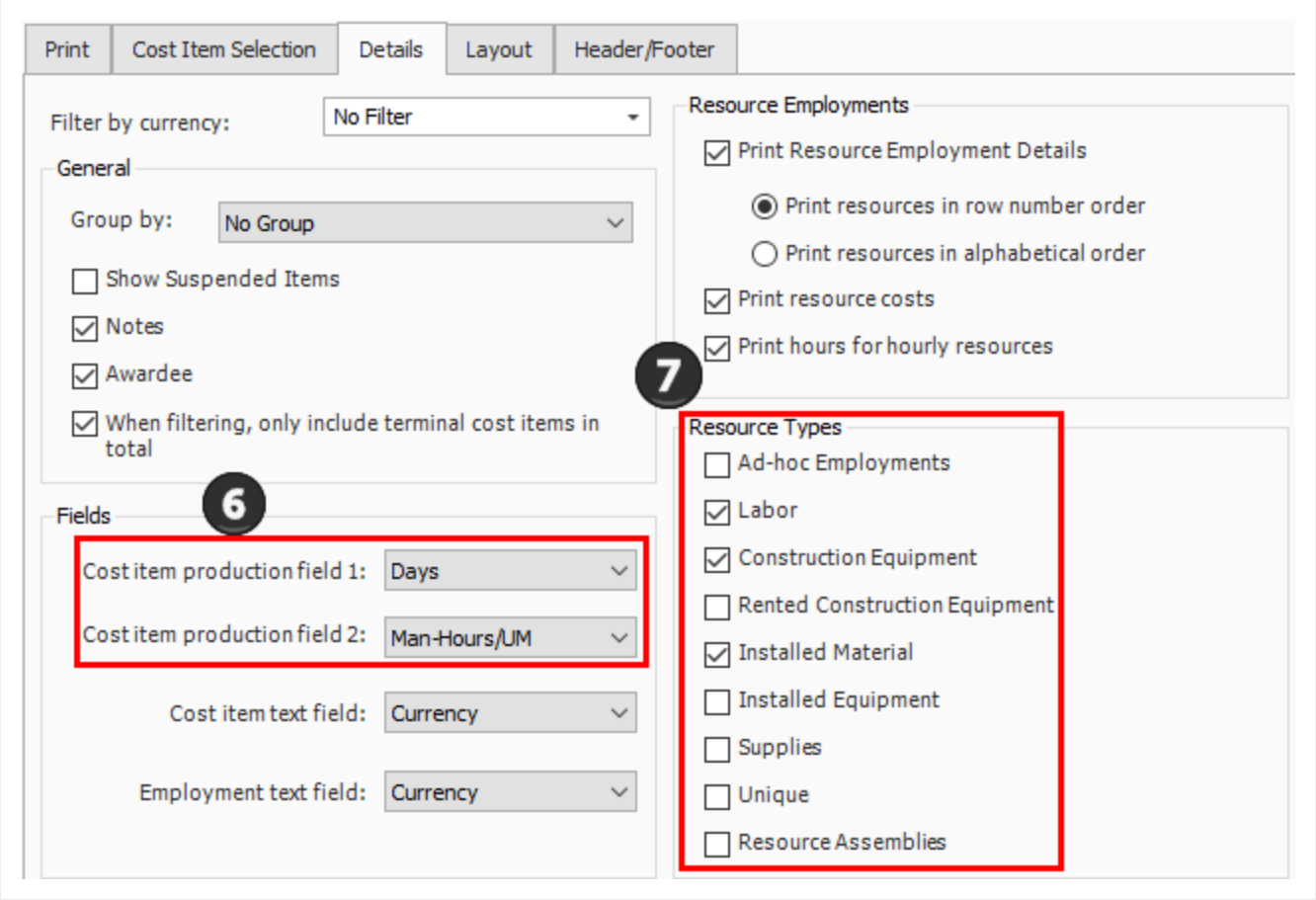


4. The Cost Item Selection tab allows you to report on a selection of cost items:
   - Print a contiguous range of cost items: Allows you to print a series of cost items in a row. In this case, print just items: select 4.1 in the From field and 4.3.2 in the To field.
   - Select cost items to print from 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.

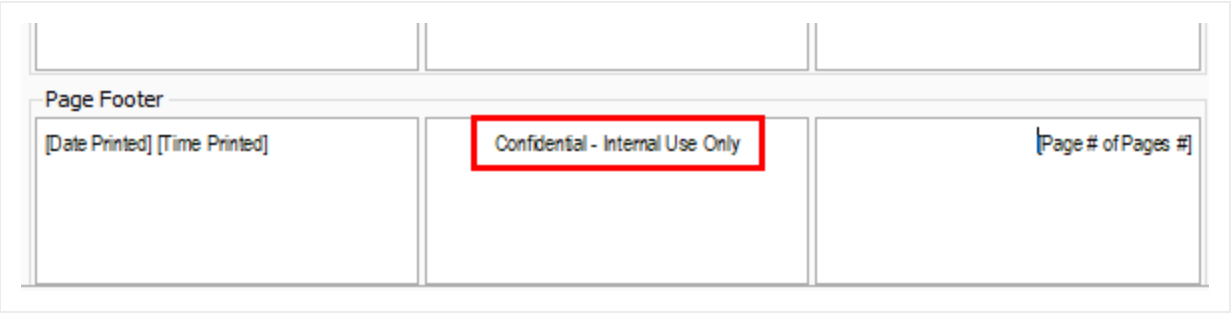


6. On the **Details** tab, select **Days** for Cost item production field 1, and **Man-Hours / UM** for Cost item production field 2 (this report allows you to report on two production values).
7. Under **Resource Types**, uncheck all of the boxes except **Labor**, **Construction Equipment**, and

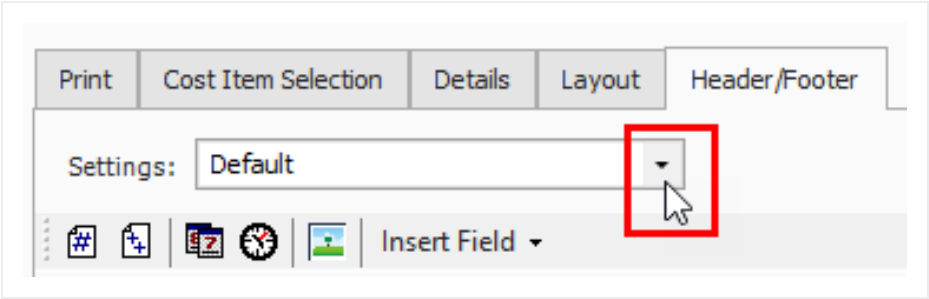
Installed Material.



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**.

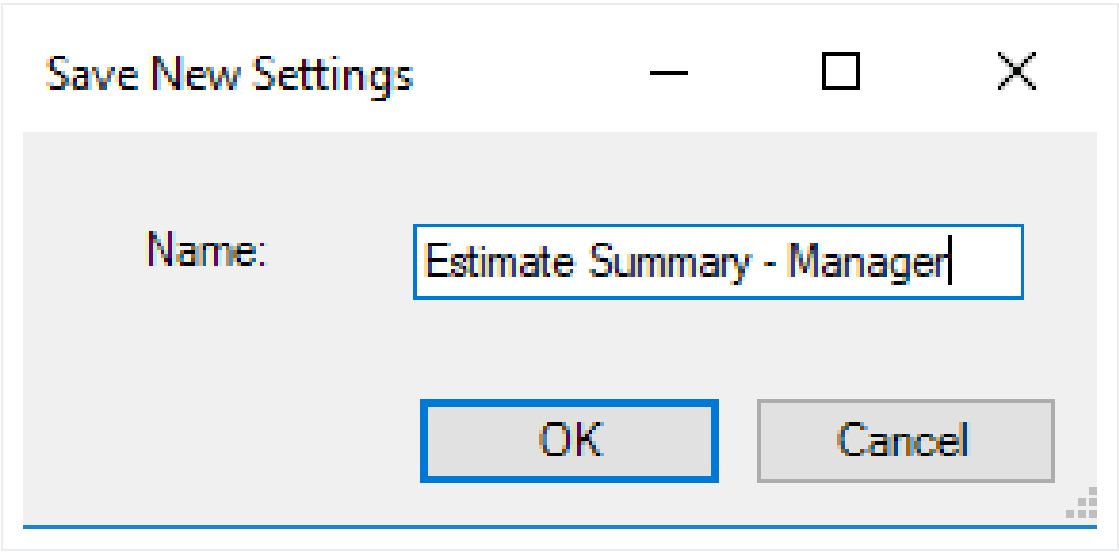


10. To save the settings you've configured, click on the **Settings** drop-down arrow above the output setting tabs.

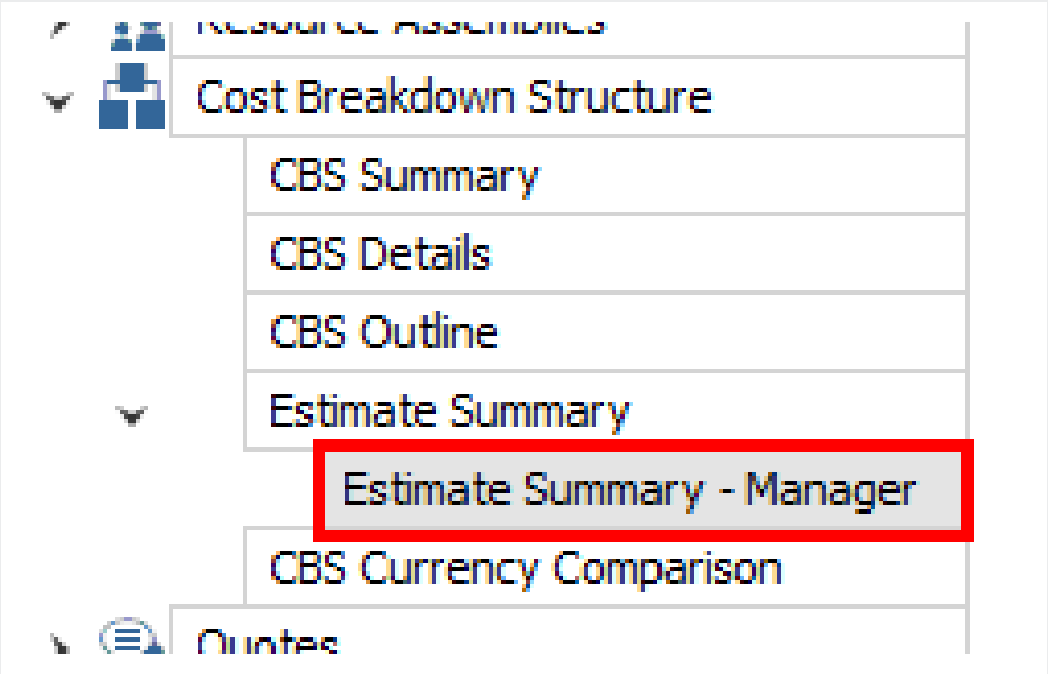


11. Select the **Save disk** icon to save the new settings.

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



9.1.3 Helpful Reports

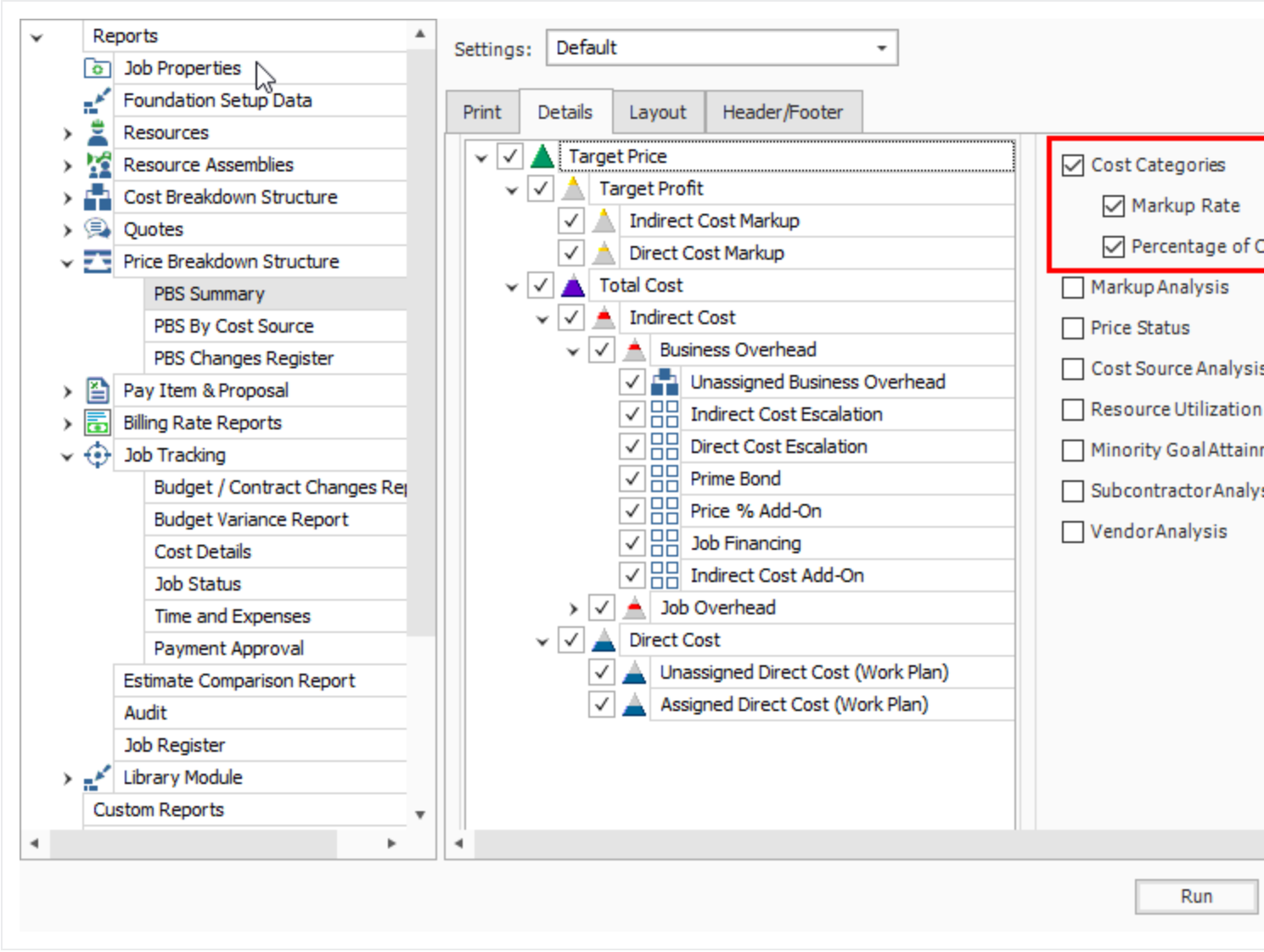
9.1.3.6 PBS Summary

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.



TIP You can also select to show markup rate and what percentage the markup is of your cost.

9.1.4 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.

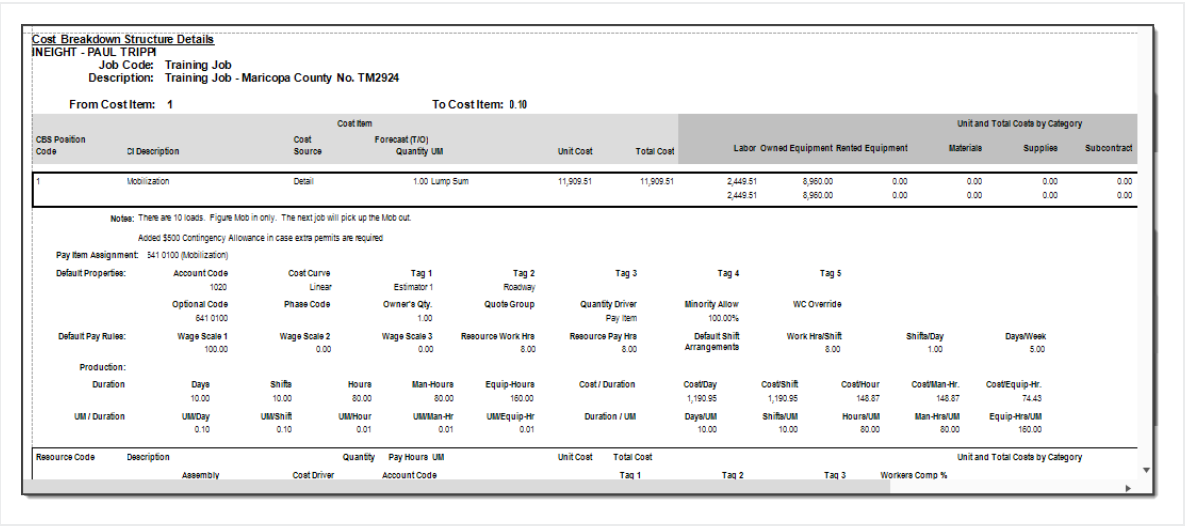
Proposal
ABC Contractors
Job Code: Training Job
Description: Training Job - Maricopa County No. TM2924

Line No.	Pay Item No.	Description Subtotal Description	Quantity	Unit of Measure	Unit Price	Total Price
		Proposal				
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
					GRAND TOTAL:	6,655,717.68

9.1.5 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	Forecast (T/O) Quantity UM	Unit Cost	Total Cost	Unit and Total Costs by Category: Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontract
1	Mobilization	Detail	1.00 Lump Sum	11,909.51	11,909.51	2,449.51	8,960.00	0.00	0.00	0.00	0.00
						2,449.51	8,960.00	0.00	0.00	0.00	0.00

Notes: There are 10 loads. Figure Mob in only. The next job will pick up the Mob out.
Added $500 Contingency Allowance in case extra permits are required

Pay Item Assignment: 641 0100 (Mobilization)

Default Properties:

Account Code	Cost Curve	Tag 1	Tag 2	Tag 3	Tag 4	Tag 5
1020	Linear	Estimator 1	Roadway			

Optional Code	Phase Code	Owner's Qty.	Quote Group	Quantity Driver	Minority Allow	WC Override
641 0100		1.00		Pay Item	100.00%	

Default Pay Rules:

Wage Scale 1	Wage Scale 2	Wage Scale 3	Resource Work Hrs	Resource Pay Hrs	Default Shift Arrangements	Work Hrs/Shift	Shifts/Day	Days/Week
100.00	0.00	0.00	8.00	8.00		8.00	1.00	5.00

Production:

Duration	Days	Shifts	Hours	Man-Hours	Equip-Hours	Cost / Duration	Cost/Day	Cost/Shift	Cost/Hour	Cost/Man-Hr.	Cost/Equip-Hr.
	10.00	10.00	80.00	80.00	160.00		1,190.95	1,190.95	148.87	148.87	74.43

UM / Duration	UM/Day	UM/Shift	UM/Hour	UM/Man-Hr	UM/Equip-Hr	Duration / UM	Days/UM	Shifts/UM	Hours/UM	Man-Hrs/UM	Equip-Hrs/UM
	0.10	0.10	0.01	0.01	0.01		10.00	10.00	80.00	80.00	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 %

9.1.6 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

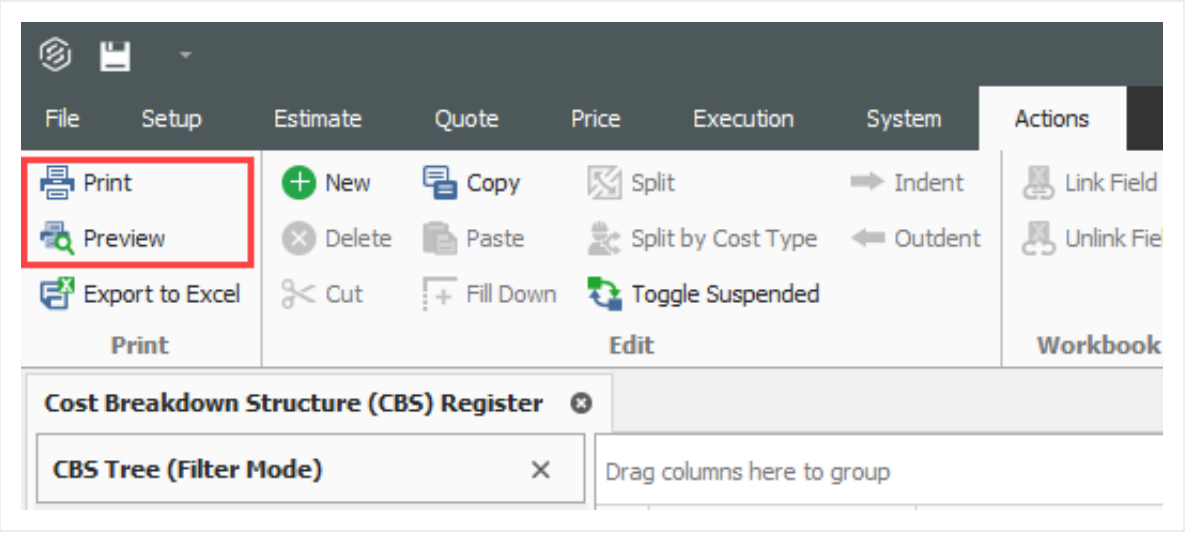
From Item: 303 4263 To Item: 800 0220

Pay/Cost Item					Unit Cost by Category						
Code	Description	Quantity	UM	Assigned Direct Cost	Labor	Owned Equipment	Rented Equipment	Materials	Supplies	Subcontra
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.(
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.(
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.(
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.(
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.(
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.(
6.1	Furnish RCP Materials	1,000.00	Linear Feet	32,361.33	0.00	0.00	0.00	30.82	0.00	0.(
6.2	Excavate RCP Trench	1,815.00	Cubic Yard	8,183.20	4.85	3.34	0.00	0.00	0.00	0.(
6.3	Install RCP Pipe	1,000.00	Linear Feet	11,735.94	6.45	5.29	0.00	0.00	0.00	0.(
6.4	Backfill RCP Pipe	1,550.00	Cubic Yard	14,136.32	8.31	4.86	0.93	0.00	0.00	0.(
	SUBTOTAL: SITEWORK & ROADWAY			1,685,847.14	137,894.00	257,768.56	926.90	1,227,820.31	0.00	0.(
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.(
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.(
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.(
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.(
	Extended Totals By Category			1,956,010.51	192,599.77	314,466.16	926.90	1,379,020.31	0.00	0.(

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.



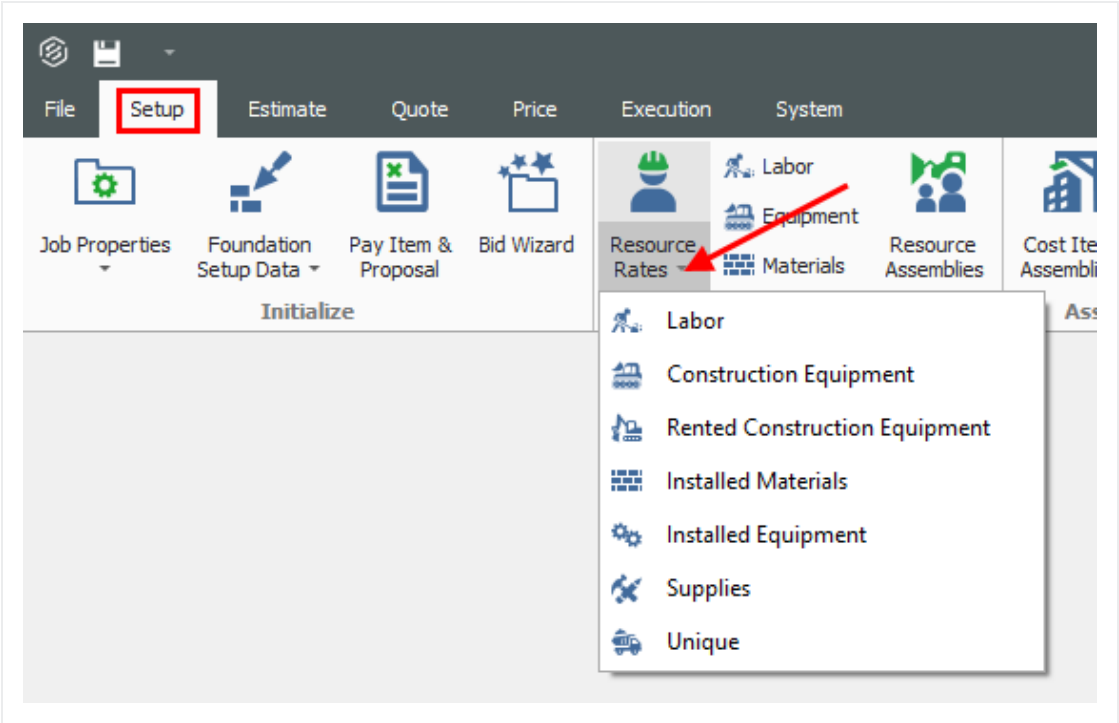
The data that prints is the data currently displayed on the register form. The report will print whatever columns are displayed on the register; if you have customized the display in the register, the report prints that data. In other words, register reports are entirely customizable.

By creating Saved Views, you can report the data on a register form in several different variations.

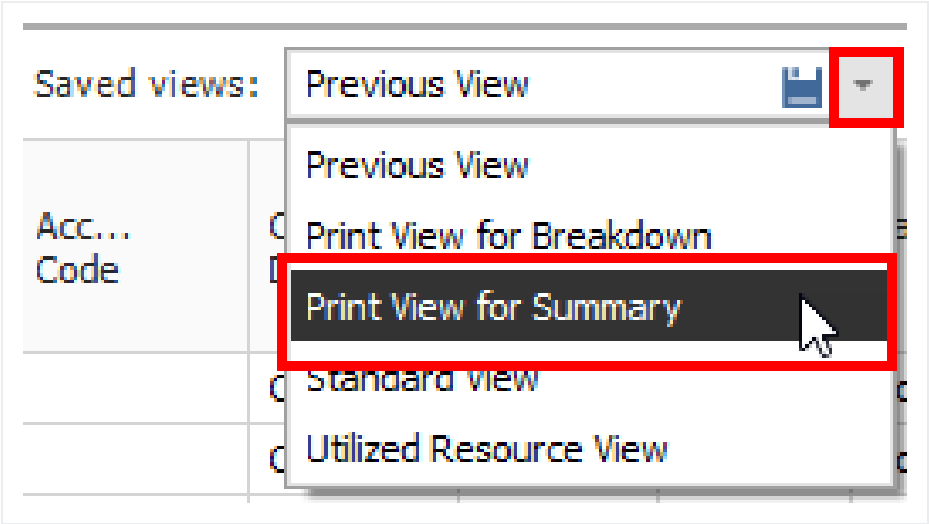
The following step by step example will walk you through creating a custom register report on resource utilization and saving it as a Saved View.

9.2 Step by Step 1 — Create a Register Report

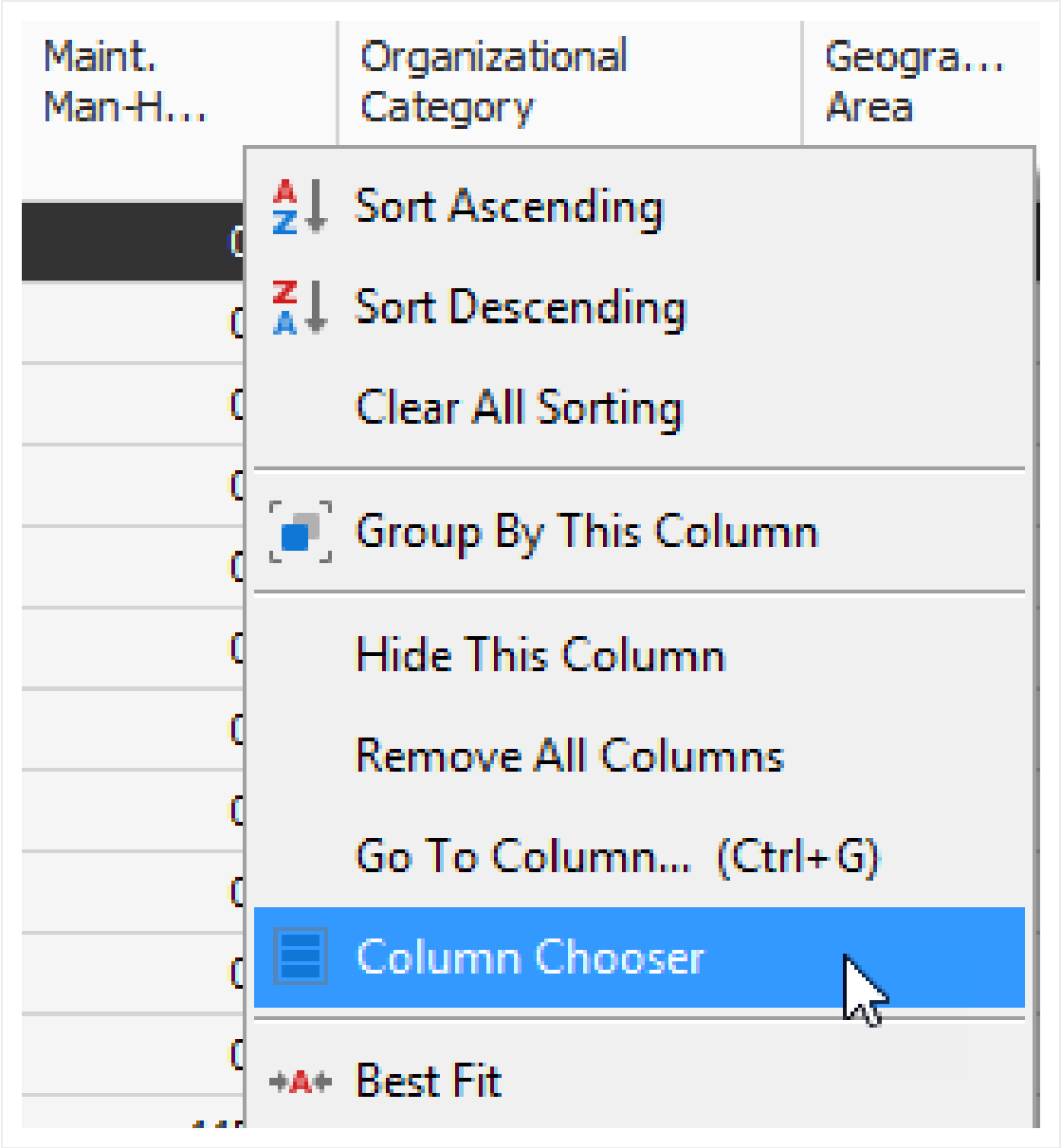
1. Open the **Training Job** and select **Setup** tab, then select the **Resource Rates** drop-down list.



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.

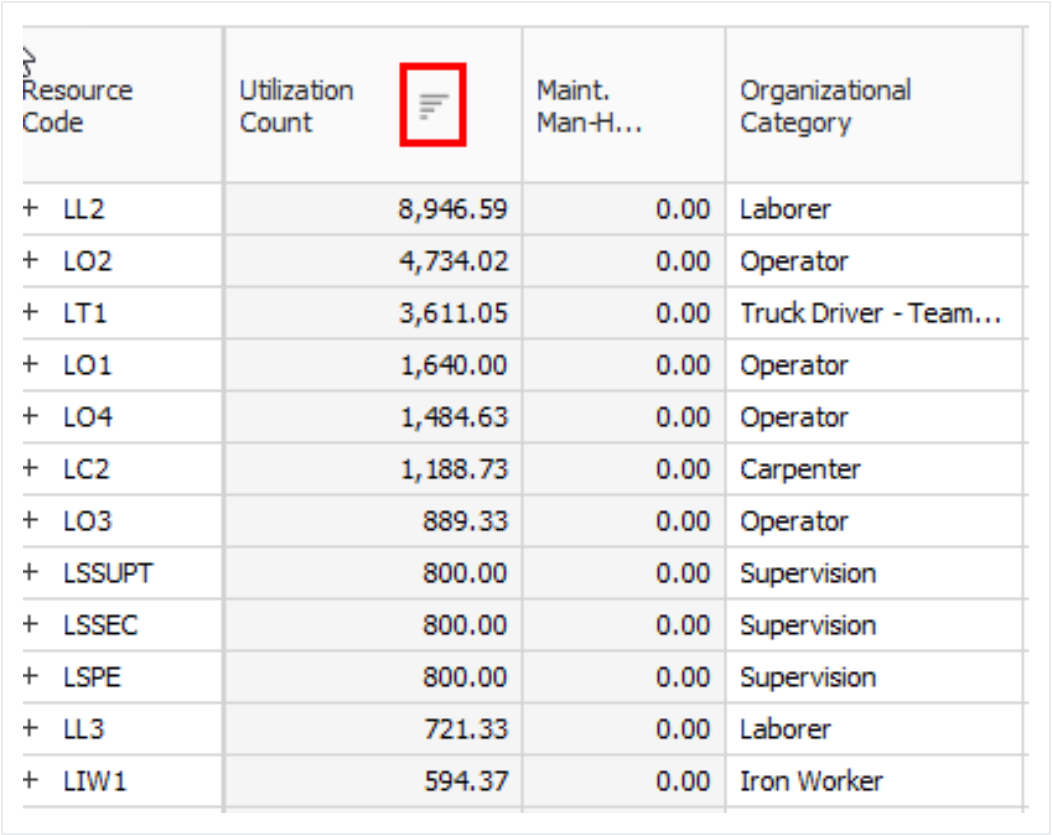


4. Notice this view includes utilization hours
5. Right-click on a column header and select **Column Chooser**.



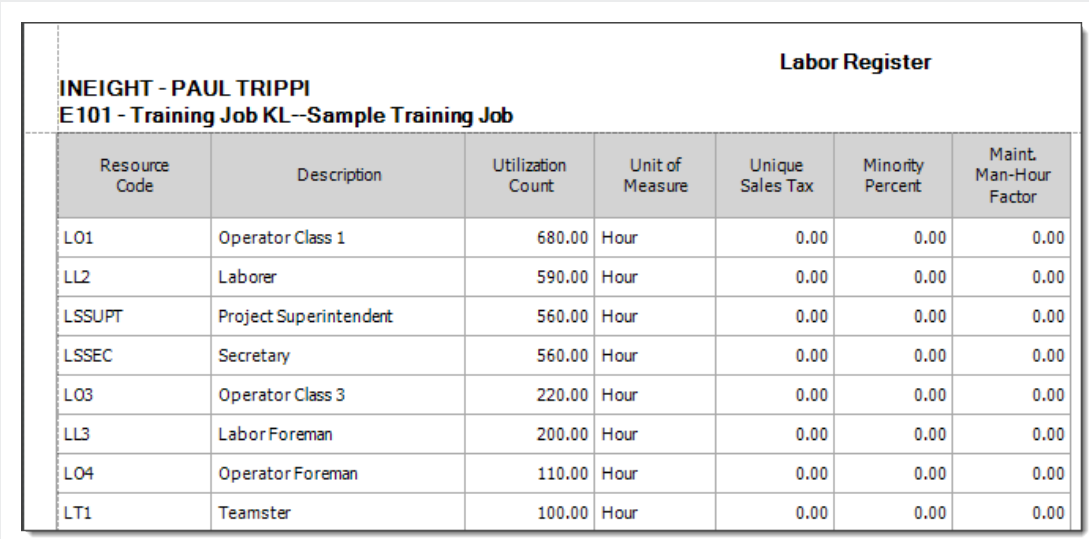
6. From the Customization window, drag-and-drop the **Minority Percent, Unique Sales Tax, (Scale 2)**, and **Maint. Man-Hour Factor** columns into the register.
7. Close the Customize window.
8. Sort the **Utilization Count** column by clicking on the column header twice so that you see the bars descending.

- 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.



Labor Register

INEIGHT - PAUL TRIPPI
E101 - Training Job KL--Sample Training Job

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) R

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 Cos (Forecas
	JOB	20.00	Mile	27,993.15	$306,883.14	$907,442.76	$6,137,66
	Prime Bond	1.00	Lump Sum		$48,686.14	$0.00	$48,68
	Price % Add-On	1.00	Lump Sum		$309,475.27	$0.00	$309,47
	Job Financing	1.00	Lump Sum		$0.00	$0.00	$
	Indirect Cost Escalation	1.00	Lump Sum		$0.00	$0.00	$
	Direct Cost Escalation	1.00	Lump Sum		$11,026.79	$12,026.79	$11,02
	Indirect Cost Add-On	1.00	Lump Sum		$0.00	$0.00	$
	Job Management & Equipment	1.00	Lump Sum	2,400.00	$157,096.28	$91,176.28	$157,09
	General Expense	1.00	Lump Sum	0.00	$4,200.00	$0.00	$4,20
	Direct Cost Add-On	1.00	Lump Sum		$109,544.08	$15,676.56	$109,54
1	**Mobilization**	1.00	Lump Sum	0.00	$75,000.00	$50,000.00	$75,00
2	**Clearing & Grubbing**	10.00	Acre	0.00	$0.00	$0.00	$
3	**Unclassified Excavation**	50,000.00	Cubic Yard	3,964.29	$9.95	$110,467.00	$497,46
3.1	Excavation, scrapers	50,000.00	Cubic Yard	1,250.00	$3.00	$33,170.48	$149,92

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

Lesson Topics

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10.1 COPY AN EXISTING JOB

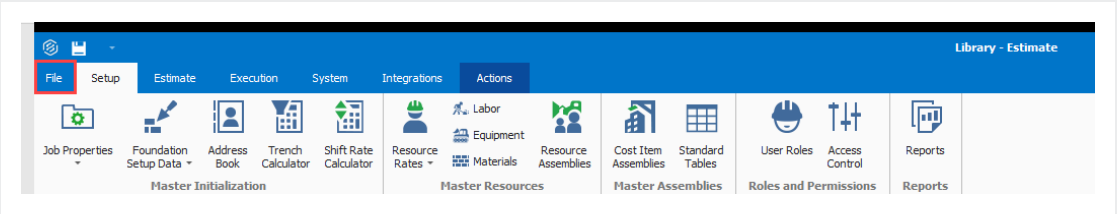
As you build an estimate, you may want to reuse pay items, cost items, or resources from a previous estimate. When you plan to reuse the majority of content within a job, you can simply make a copy of the existing job.

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.

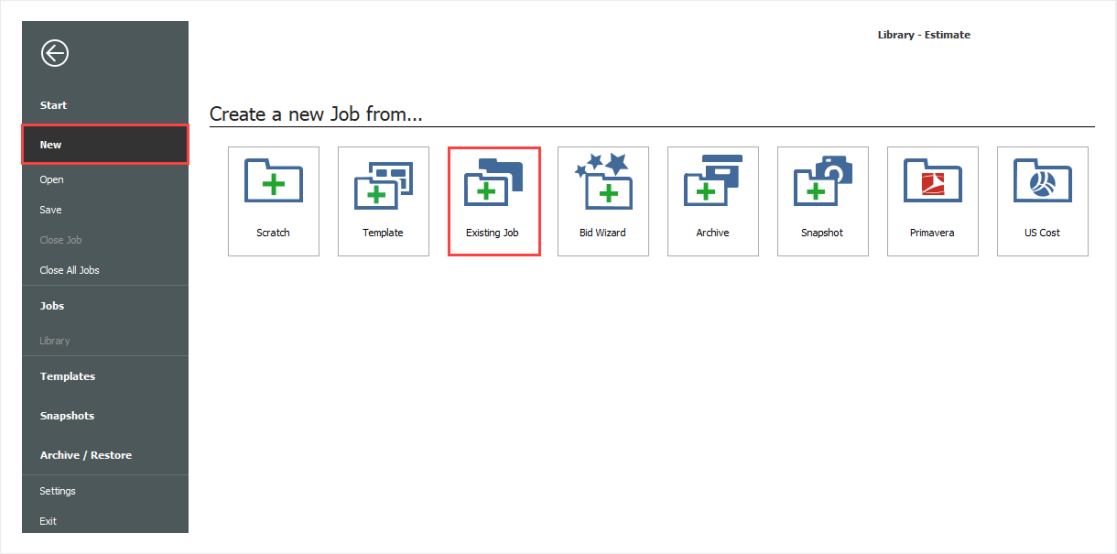
The following Step by Step walks you through how to make a copy of an existing job.

10.1 Step by Step 1 — Copy an Existing Job

1. Click the **File** tab on the **Estimate** landing page.

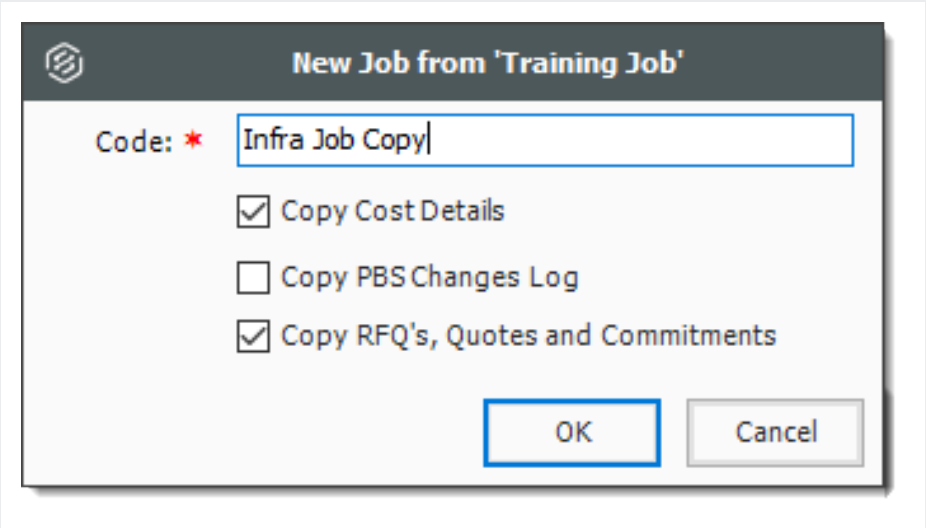


2. From the left side panel, select **New,** then select **Existing Job**.



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 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

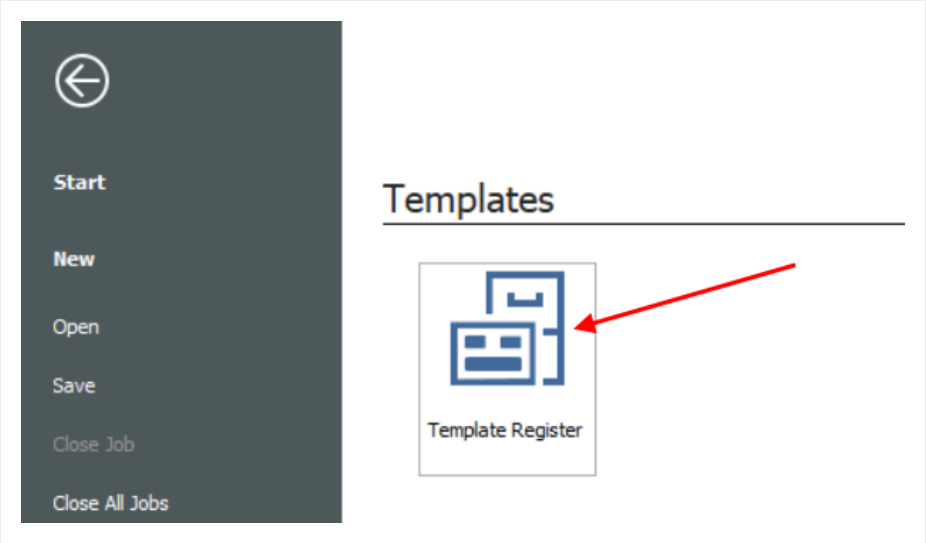
estimating process increases to ensure consistency and reduce the chance of information being overlooked.

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.

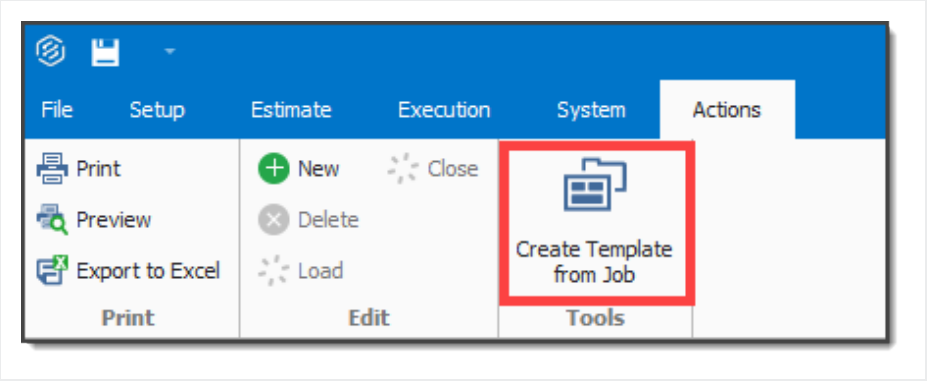
You can create templates from scratch or from existing job folders. The following steps walk you through how to create a new template from an existing job folder.

10.2 Step by Step 1 — 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.**

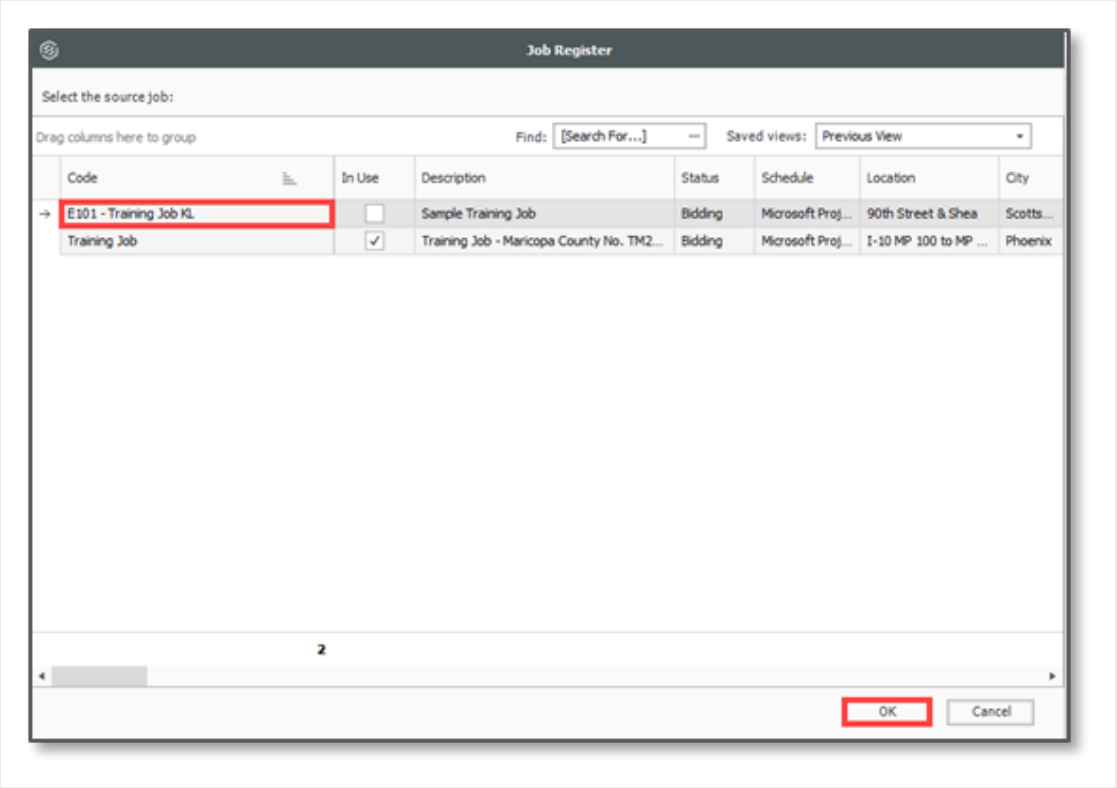


4. From the Actions tab, select **Create Template from Job**.



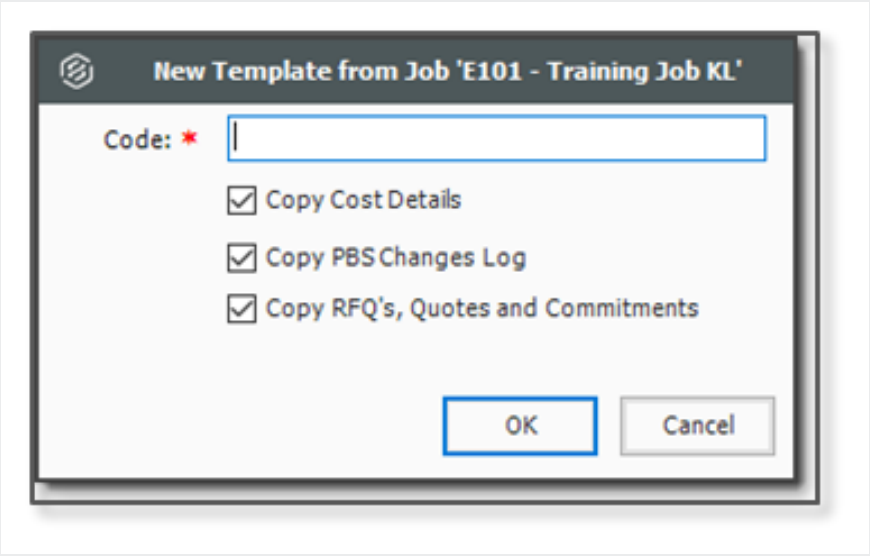
- The Job Register opens for you to select the source job for the template
- Assume that you want to make a template from your E101 Training Job

5. Select the **E101 Training Job with your initials**, then click **OK**.

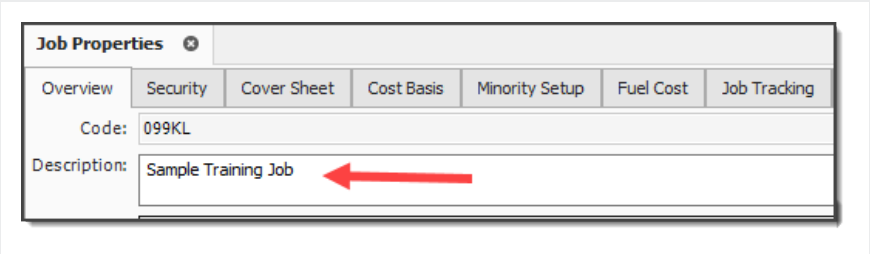


NOTE You cannot create templates from jobs that are published to Job Tracking.

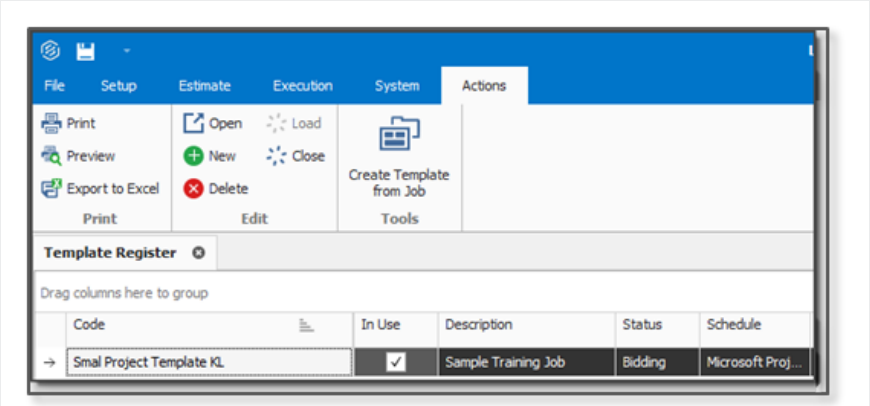
- A prompt appears to give your new template a Job Code



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



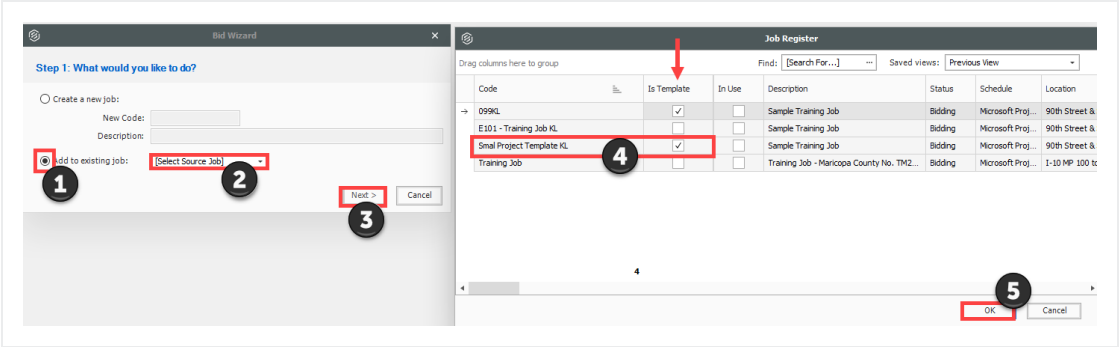
- Back in the Templates Register, you can see the new template created



- 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.

10.2 Step by Step 2 — 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.

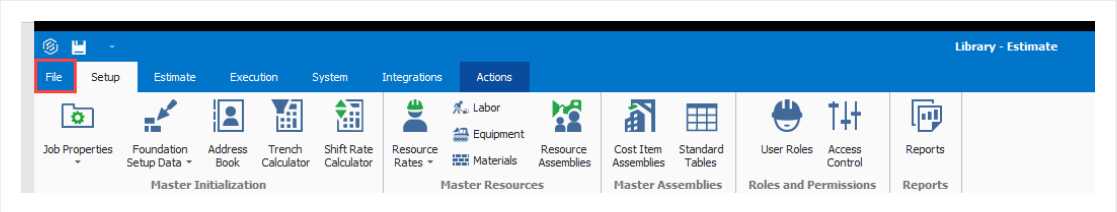
Rather than copying every part of an existing job, the Bid Wizard gives you more flexibility and control over which parts of a job you want to duplicate, e.g., pay items or cost items or both.

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.

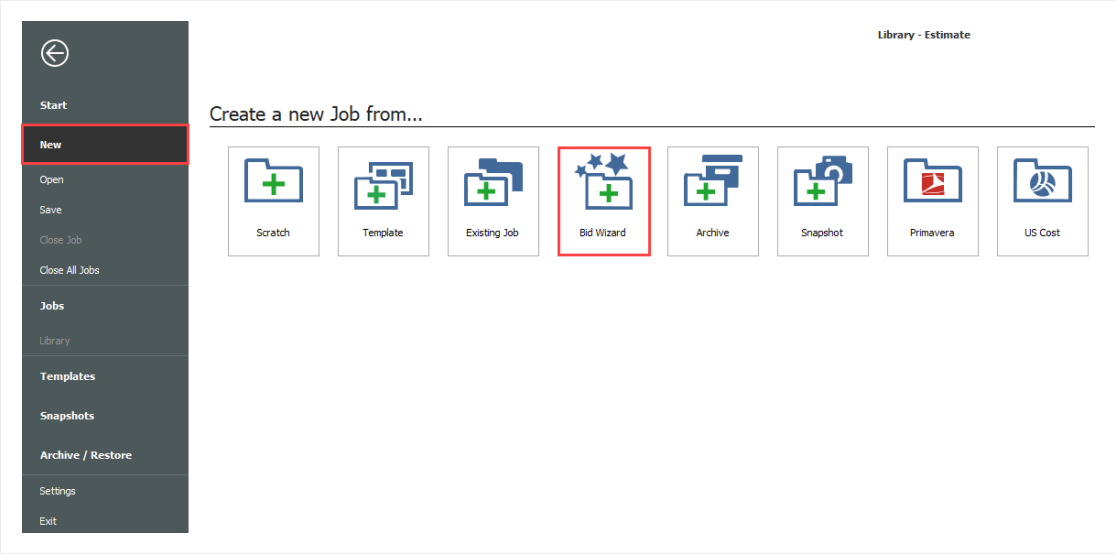
The following Step by Step walks you through how you can use the Bid Wizard to create a new job by importing pay items and their associated costs from an existing job.

10.3 Step by Step 1 — Use the Bid Wizard

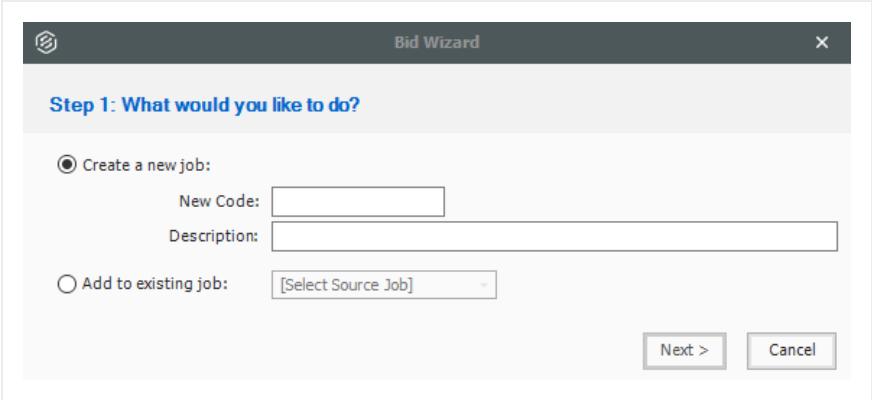
1. To open the Bid Wizard, click the **File** tab on the Estimate landing page.



2. From the left side panel, select **New**, then select **Bid Wizard**.

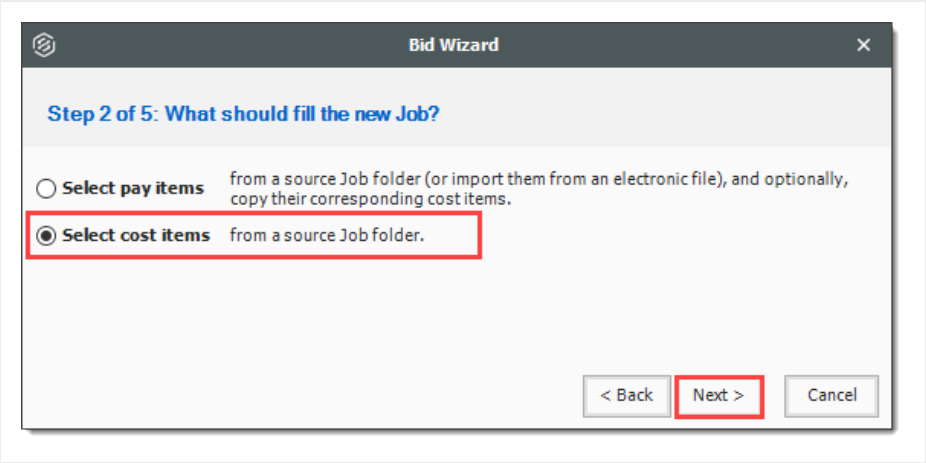


- The Bid Wizard – Step 1 dialog displays



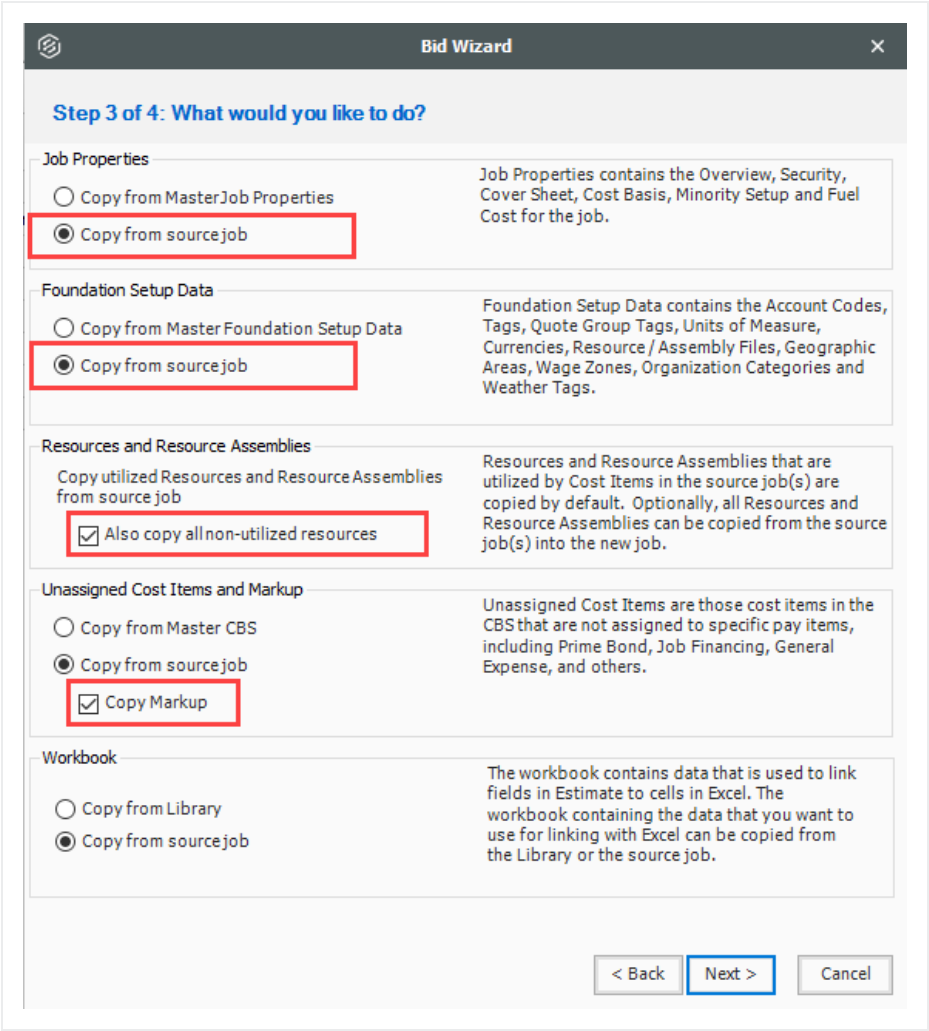
TIP Notice that you can either create a new project or add to an existing project.

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**.

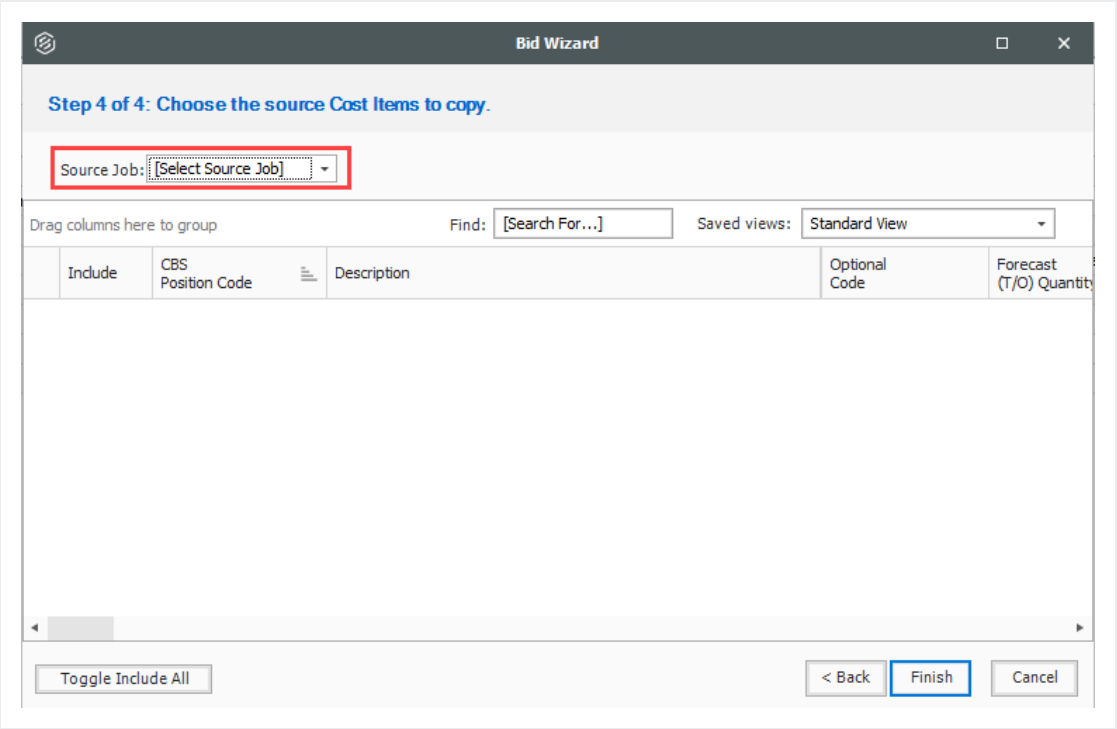


- The Bid Wizard – Step 3 of 4 dialog displays
- You use this step to indicate which source you want to pull your setup data from (the library or your source job)

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.

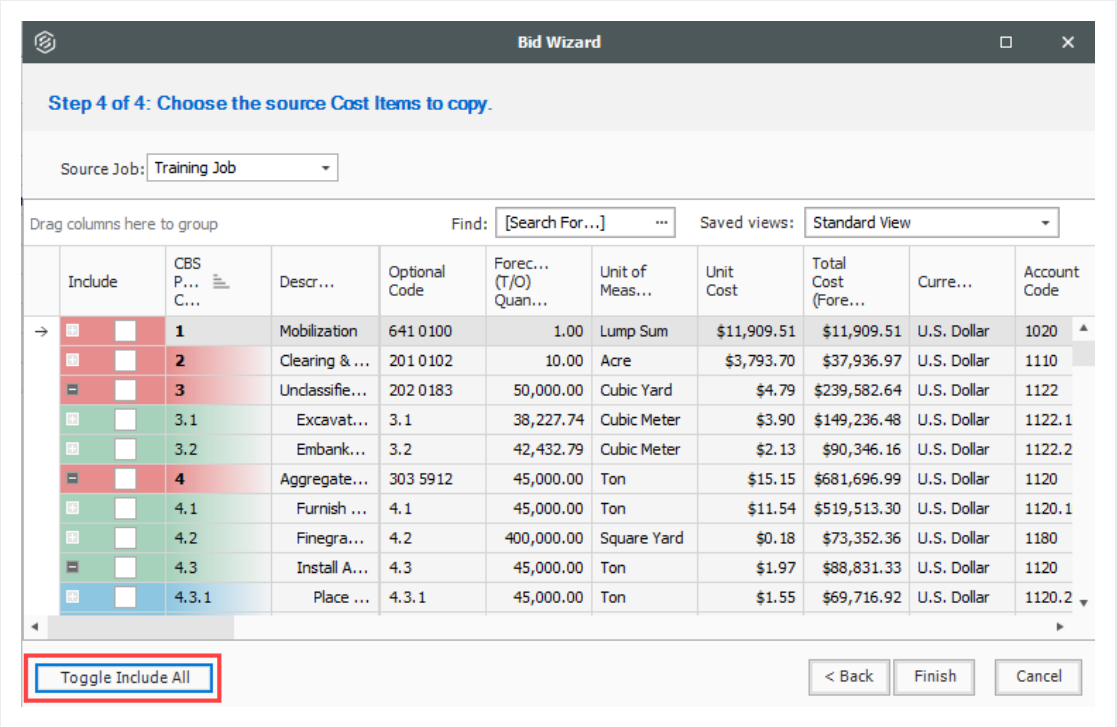


10. Click **Next**.
    - The Bid Wizard – Step 4 of 4 dialog displays
11. Click the **Source Job** drop-down arrow.

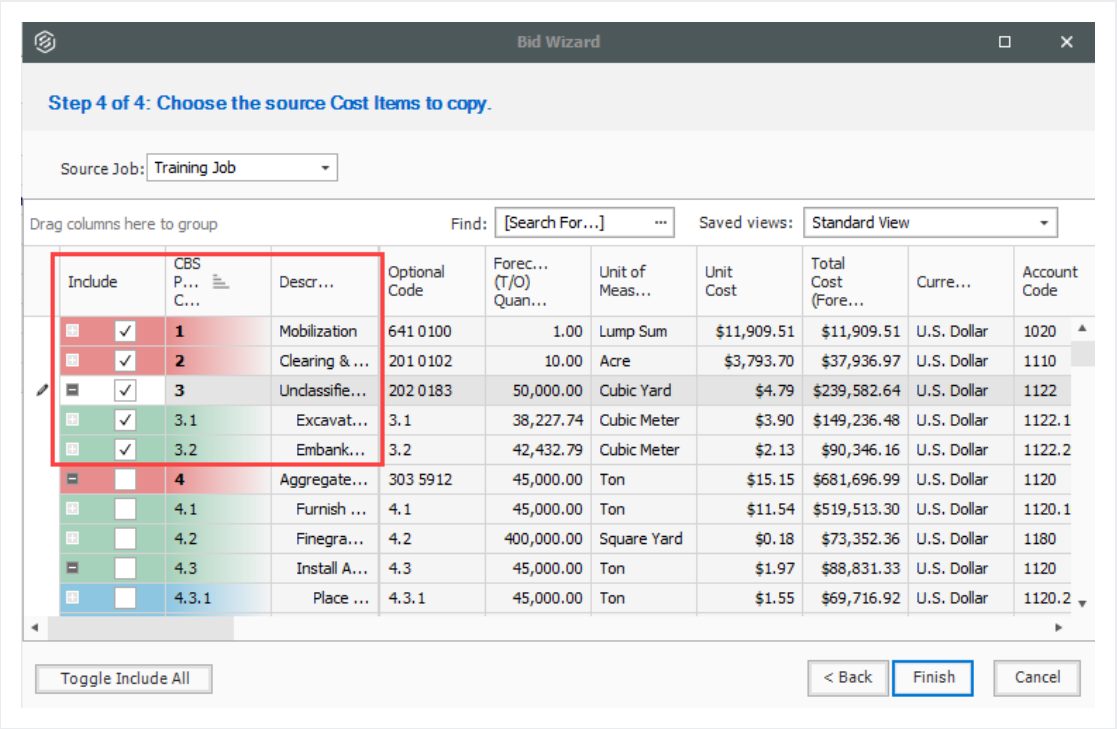


- The Job Register opens

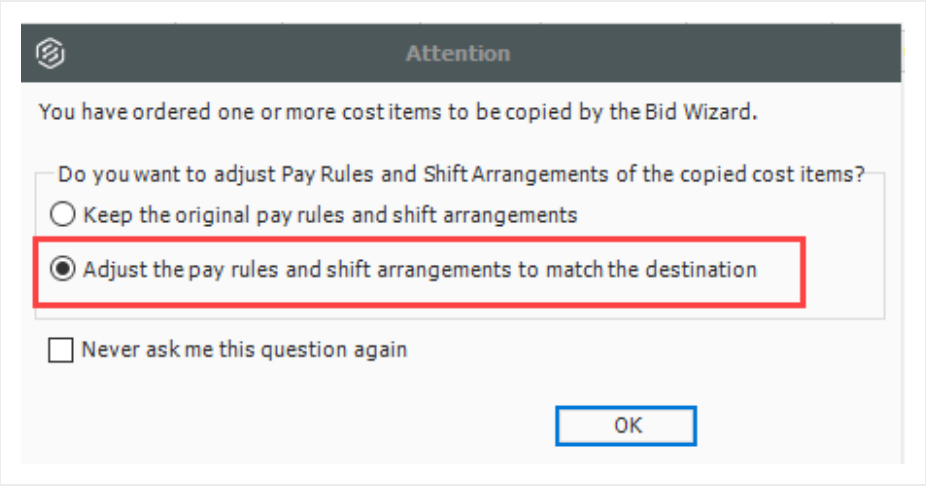
12. Find and select **Training Job.**
13. Click **OK**.
    - This screen displays the cost items of the source job (Training Job). All items are automatically selected
14. Use the **Toggle Include All** button to exclude all selections.



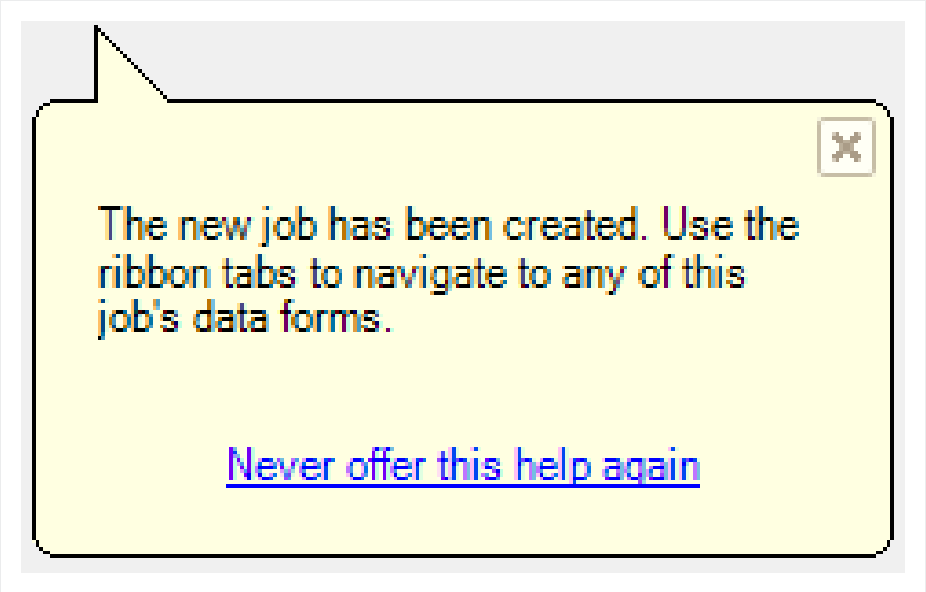
15. Select the checkboxes to include **Mobilization**, **Clearing & Grubbing**, and **Unclassified Excavation**.
16. Notice that when selecting Unclassified Excavation, that cost item's subordinates are automatically selected



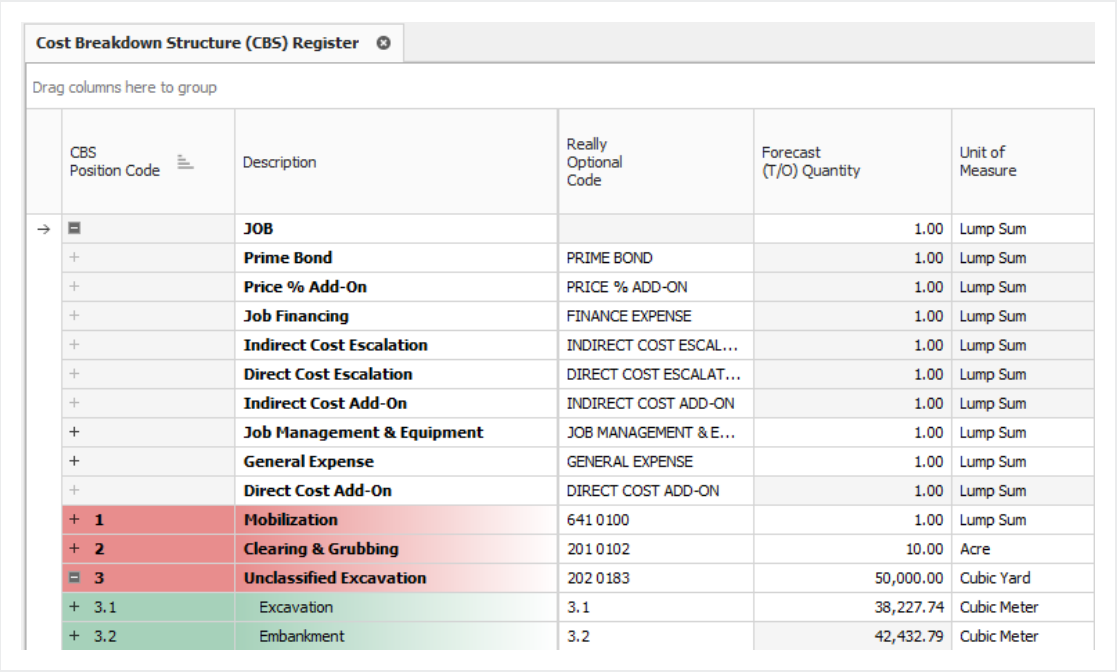
17. Click **Finish** to add the new job.
    - An Attention prompt appears asking, “Do you want to adjust Pay Rules and Shift Arrangements of the copied cost items?”
    - Typically, you will want to use the shifts and payment rules of your new destination job.
18. Select **Adjust the pay rules and shift arrangements to match the destination**.



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
→ ⊟	**JOB**		1.00	Lump Sum
+	**Prime Bond**	PRIME BOND	1.00	Lump Sum
+	**Price % Add-On**	PRICE % ADD-ON	1.00	Lump Sum
+	**Job Financing**	FINANCE EXPENSE	1.00	Lump Sum
+	**Indirect Cost Escalation**	INDIRECT COST ESCAL...	1.00	Lump Sum
+	**Direct Cost Escalation**	DIRECT COST ESCALAT...	1.00	Lump Sum
+	**Indirect Cost Add-On**	INDIRECT COST ADD-ON	1.00	Lump Sum
+	**Job Management & Equipment**	JOB MANAGEMENT & E...	1.00	Lump Sum
+	**General Expense**	GENERAL EXPENSE	1.00	Lump Sum
+	**Direct Cost Add-On**	DIRECT COST ADD-ON	1.00	Lump Sum
+	**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

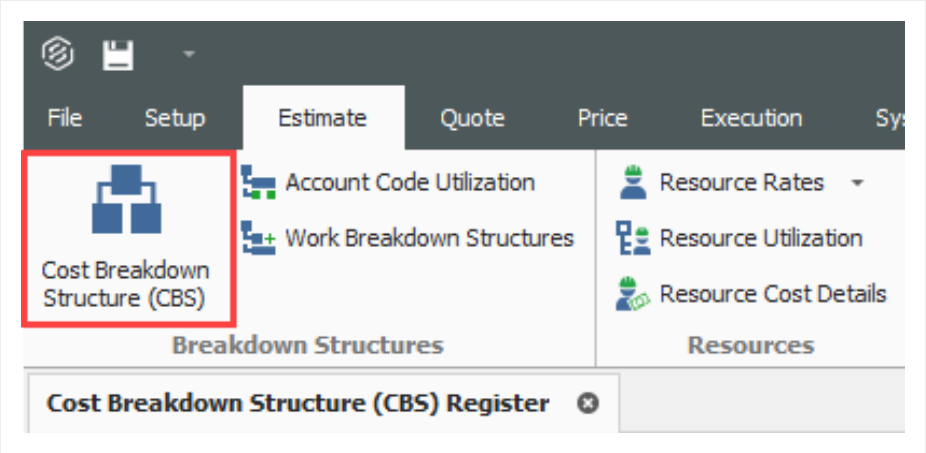
10.4 COPY ESTIMATE DATA USING EDIT COMMANDS

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.

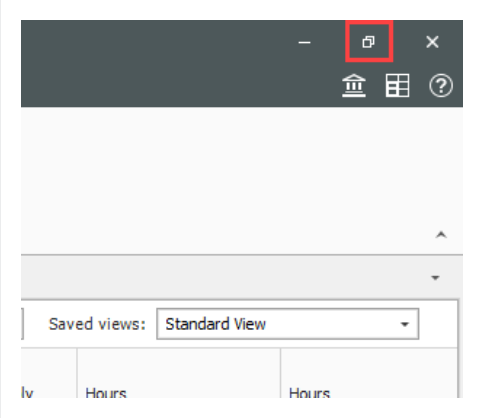
To copy and paste cost history from one job to another, it is beneficial to see the jobs side by side. The following steps walk you through the process.

10.4 Step by Step 1 — Copy Estimate Data Using Edit Commands

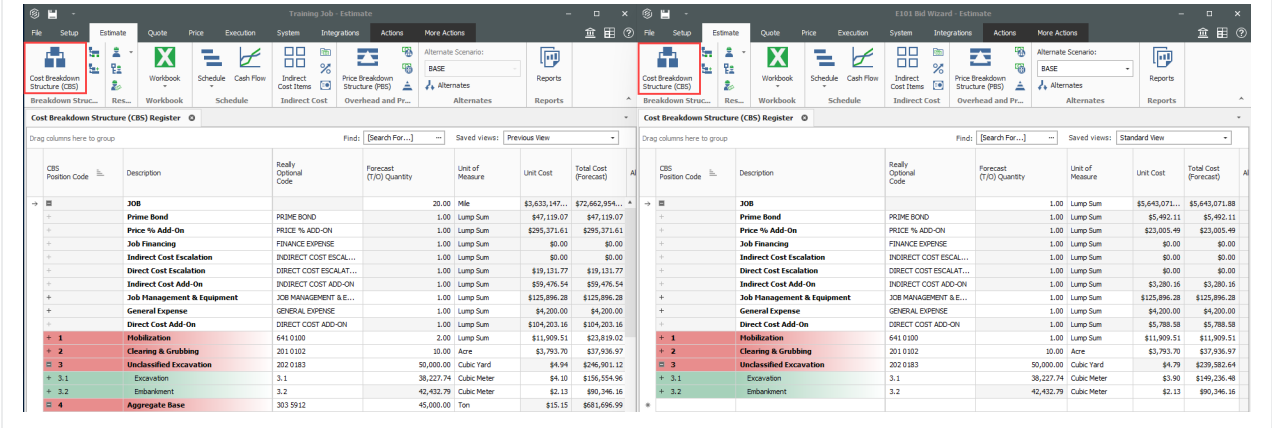
1. Click the **File** tab from the Estimate landing page and open the **E101 Bid Wizard** job you just created.
2. Open the **Training Job** (if you do not still have it open).
3. Make sure the CBS is open for both jobs by going to the Estimate menu and selecting **Cost Breakdown Structure (CBS)**.



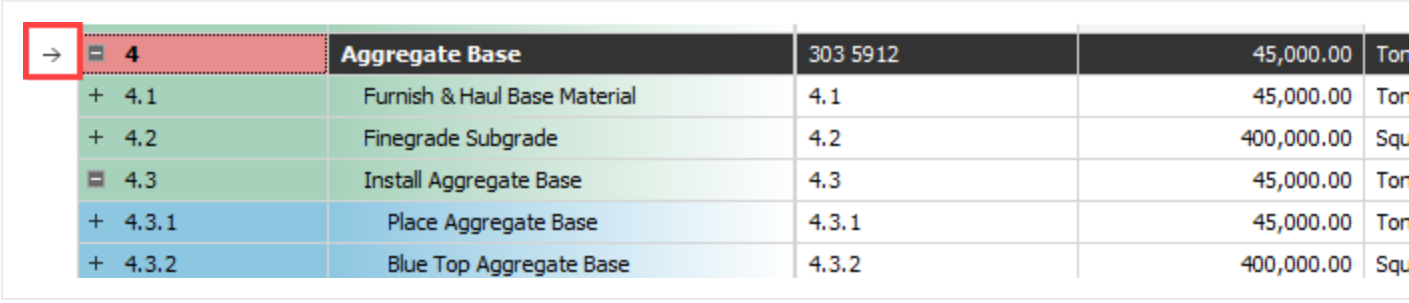
4. Since you have both jobs open and they are in their own application window, align them to be side by side by using the **minimize icons** of each job or utilizing Windows align functionality.



- Note that the window caption identifies the CBS Register for each job



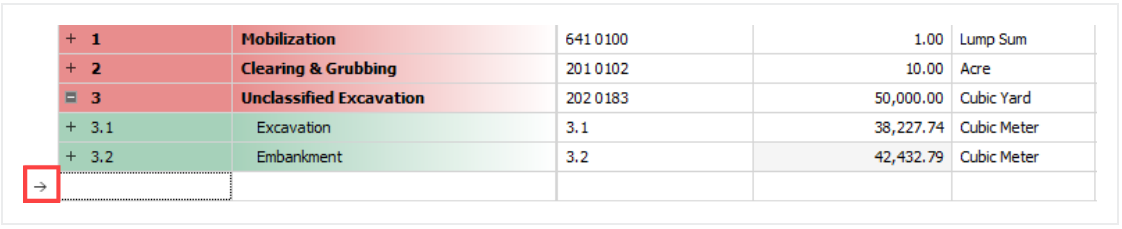
5. On the CBS of the Training Job, click the row header on cost item **4 – Aggregate Base** and press **Ctrl+C** to copy the cost item.



→	4	**Aggregate Base**	303 5912	45,000.00	Ton
+	4.1	Furnish & Haul Base Material	4.1	45,000.00	Ton
+	4.2	Finegrade Subgrade	4.2	400,000.00	Squ
−	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	Squ

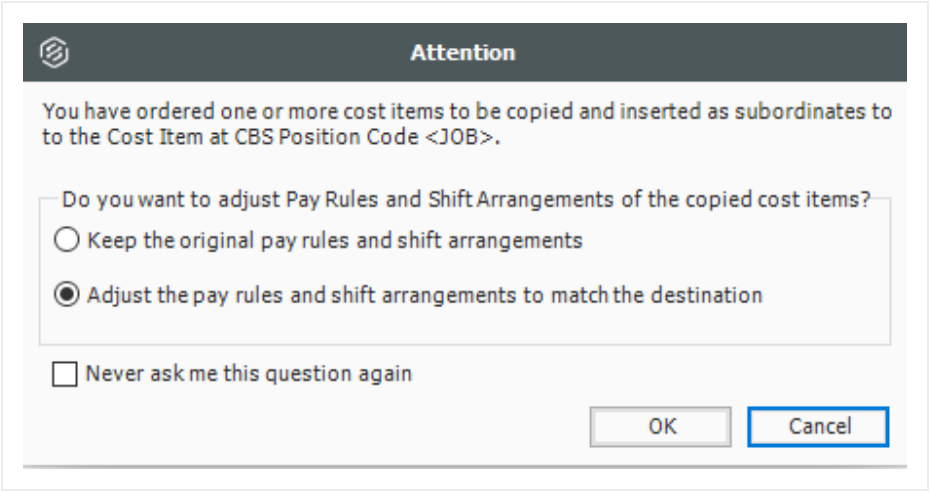
> **TIP** When you copy a superior cost item, all of its subordinates are automatically copied.

6. 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.

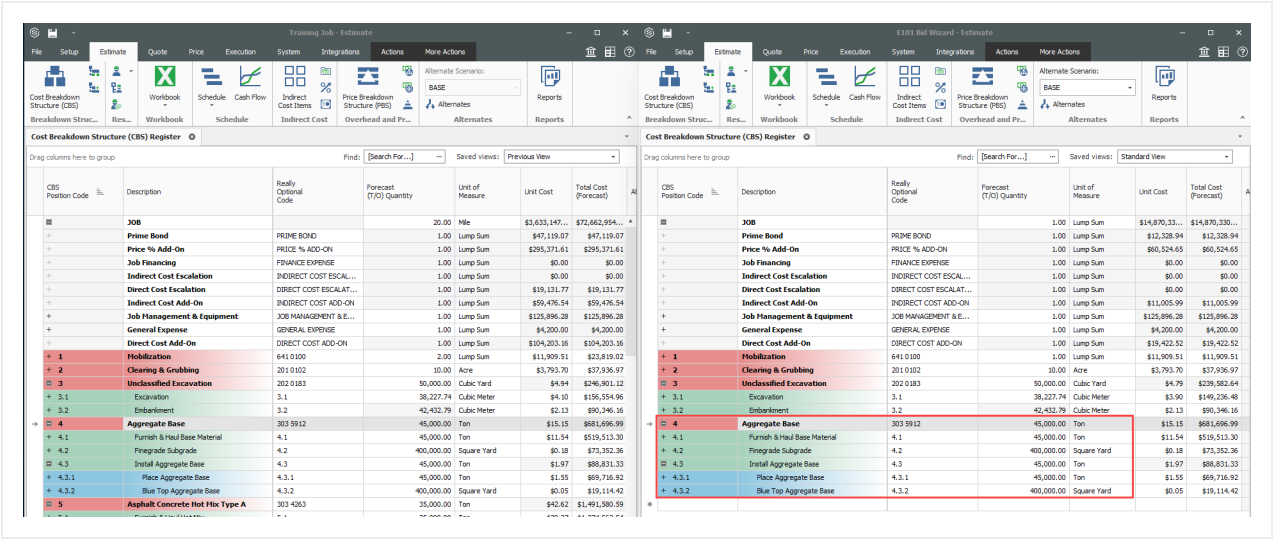


+	**1**	**Mobilization**	641 0100	1.00	Lump Sum
+	**2**	**Clearing & Grubbing**	201 0102	10.00	Acre
−	**3**	**Unclassified Excavation**	202 0183	50,000.00	Cubic Yard
+	3.1	Excavation	3.1	38,227.74	Cubic Meter
+	3.2	Embankment	3.2	42,432.79	Cubic Meter
→					

7. On the Attention dialog, select **Adjust the pay rules and shift arrangements to match the destination** and click **OK**.



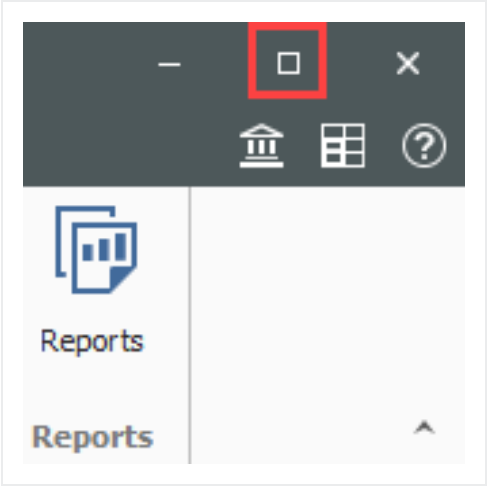
- You can see in the destination job's CBS that you've added the Aggregate Base cost item, along with its subordinate cost items and all cost and productivity detail



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

8. To go back to your full screen view of the E101 Bid Wizard job, select the maximize icon.

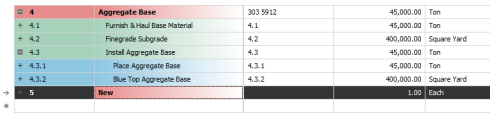


10.5 CBS BID WIZARD

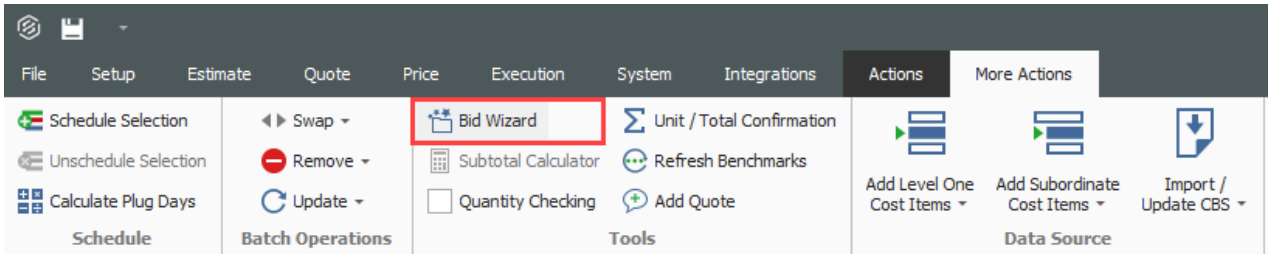
You can also use the Bid Wizard to add cost items while you are in the CBS Register. The following steps walk through using the CBS Bid Wizard.

10.5 Step by Step 1 — Use the CBS Bid Wizard

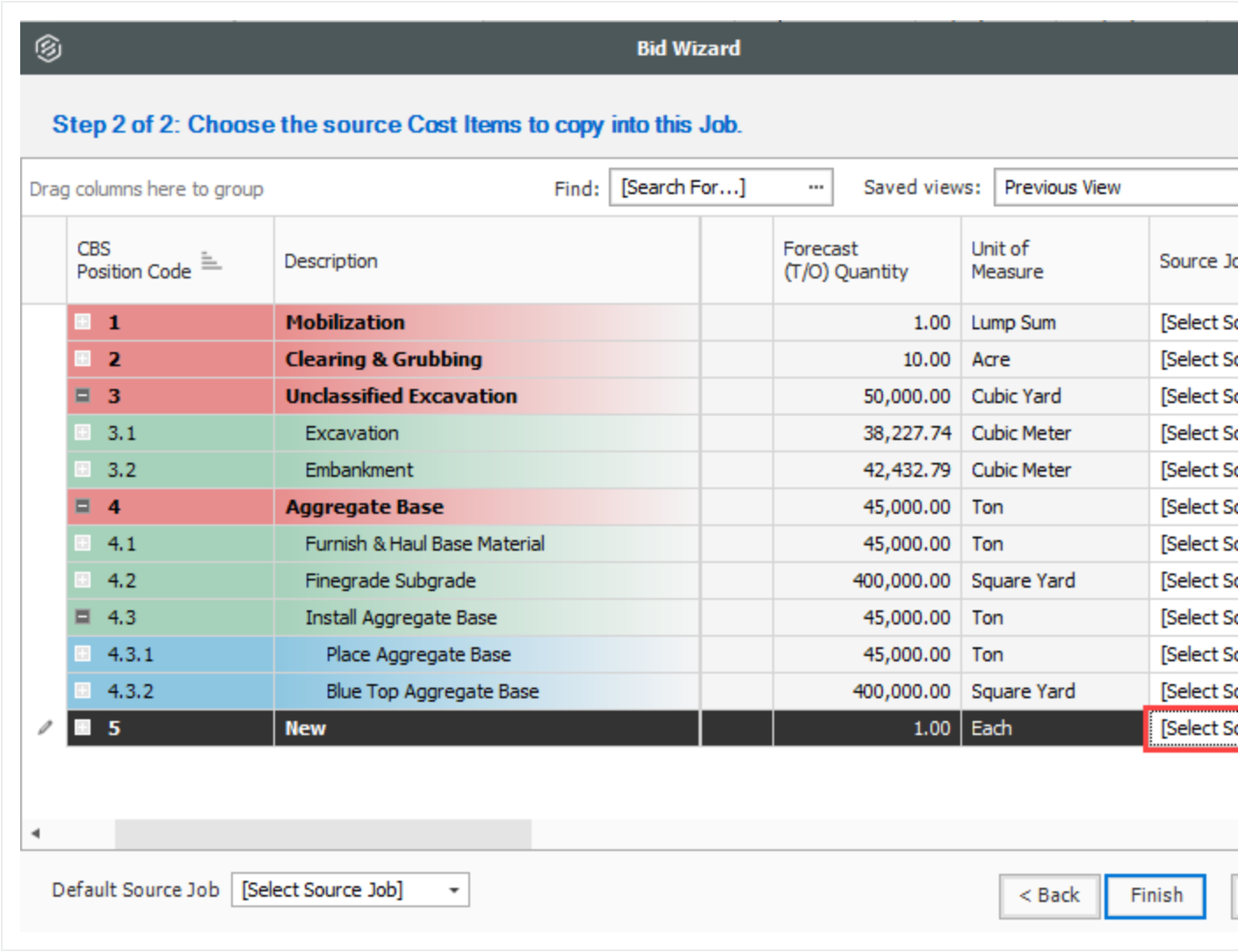
1. Click the **File** tab from the Estimate landing page and open the **E101 Bid Wizard** job you created.
2. From the **Estimate** tab, select **Cost Breakdown Structure (CBS)**.
3. Create a new cost item by typing **New** in the Description column on the bottom row of the CBS
4. Highlight the **New** row.



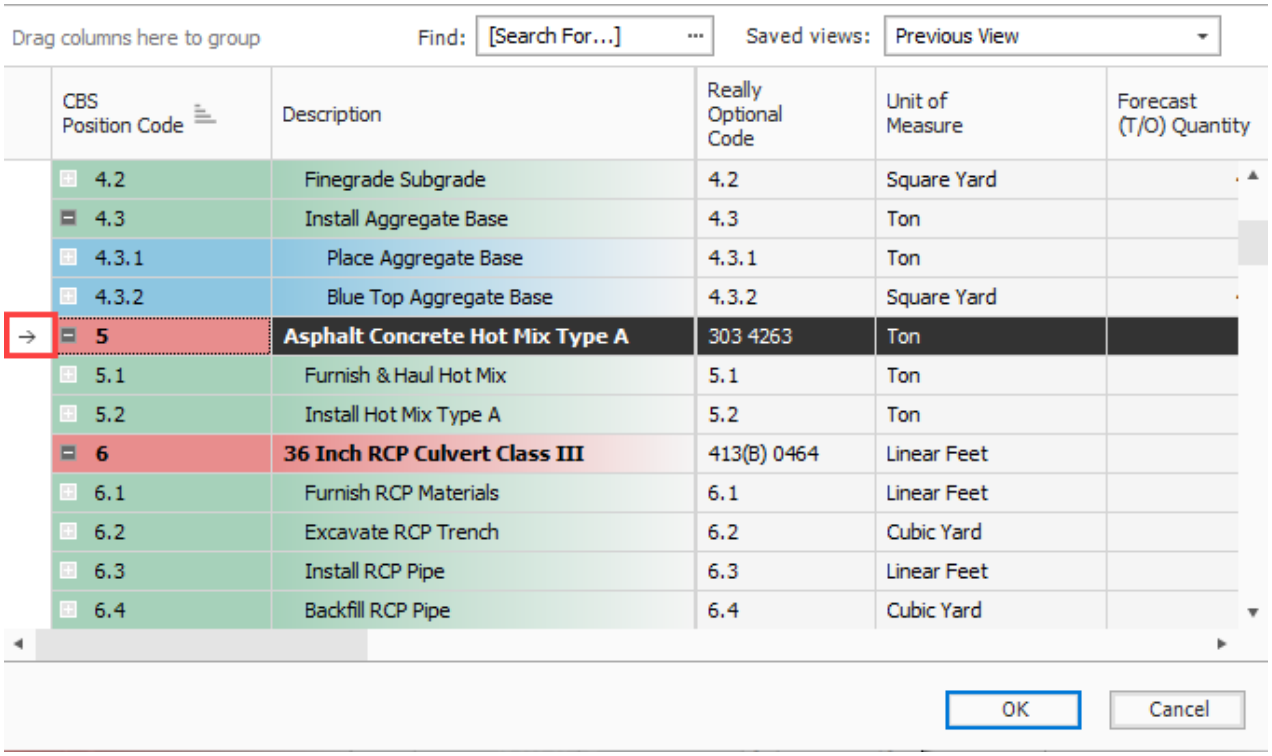
5. To open the CBS Bid Wizard, click the **Bid Wizard** icon on the **More Actions** tab.



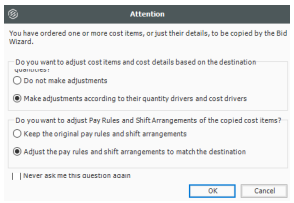
   - The Bid Wizard window opens
6. Click in the **Source Job** column on the New cost item row.



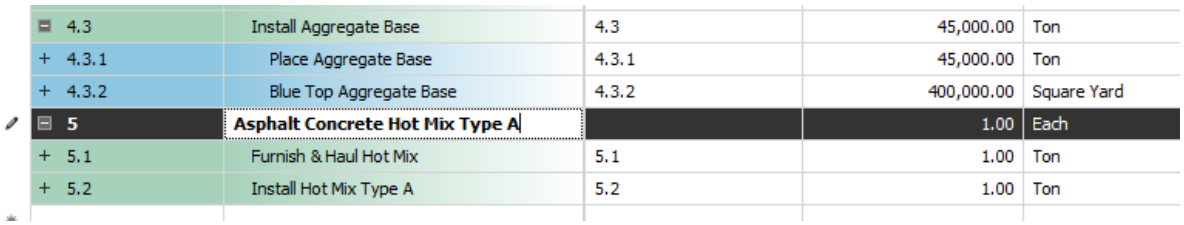
7. From the Source Job drop-down list, select **Training Job**.
8. Scroll to the right of the Source Job column and click in the **Source CBS Position Code** column on the New Cost item row.
    - A source CBS Register window appears
9. Select CBS position code **5 – Asphalt Concrete Hot Mix Type A** from the register.



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**.



- 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 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.

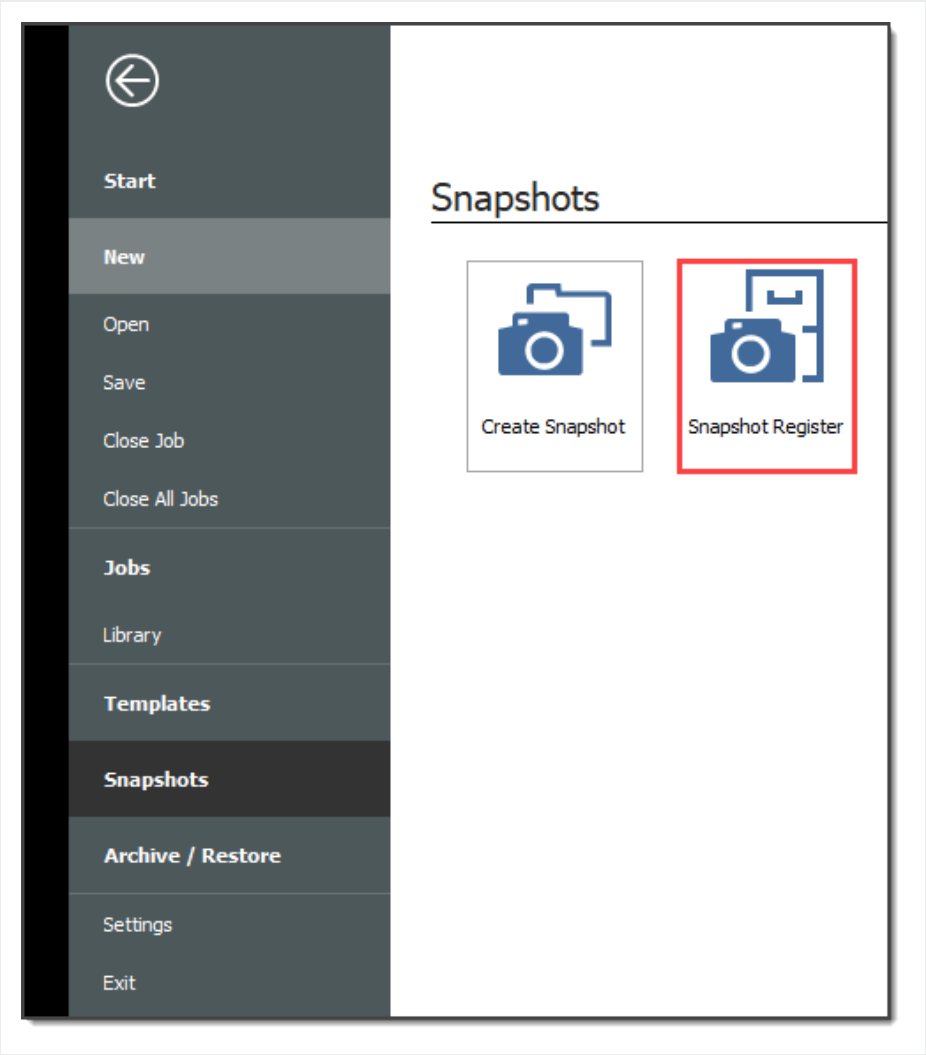
The Snapshot register has some additional columns as well. In addition to the Code, Description, Last Saved, and Version column, the Snapshot register contains all fields that are present on the Jobs register that provides you with an easier way to group, sort, filter, and find the jobs you need.

10.6.1 Snapshot Register

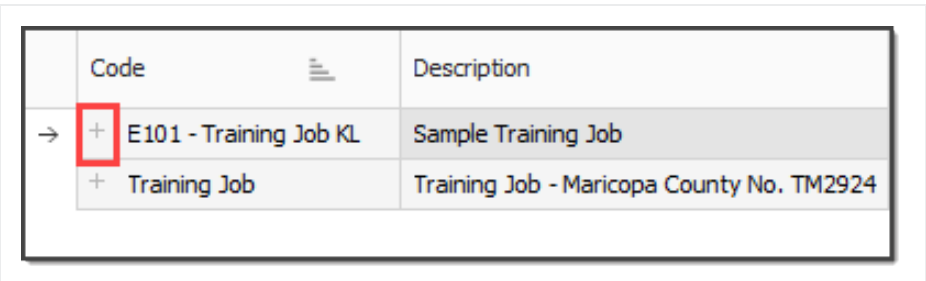
The Snapshot Register is where you will view individual snapshots for specific jobs.

10.6 Step by Step 1 — 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.

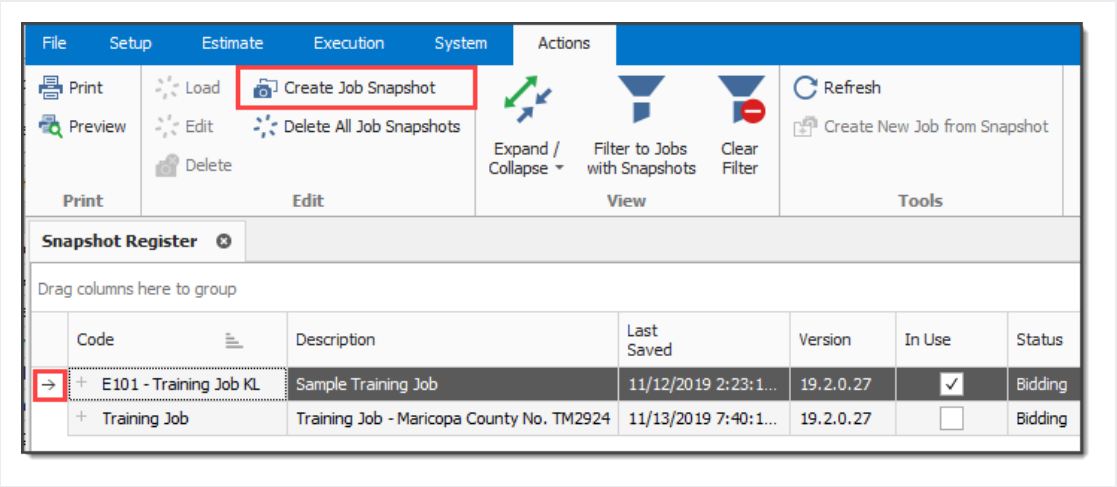


10.6.2 Creating a New Job Snapshot

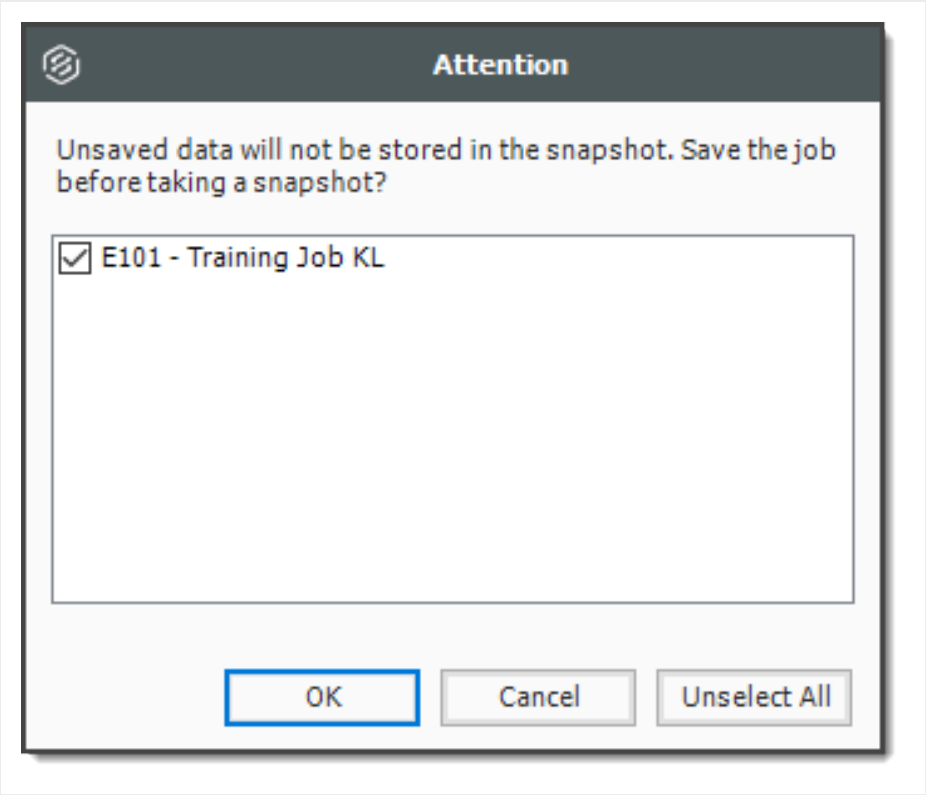
10.6 Step by Step 2 — Create a New Job Snapshot

You can create a Job Snapshot from an existing Job.

1. From the Snapshots form, select the **Create Snapshot** tab.

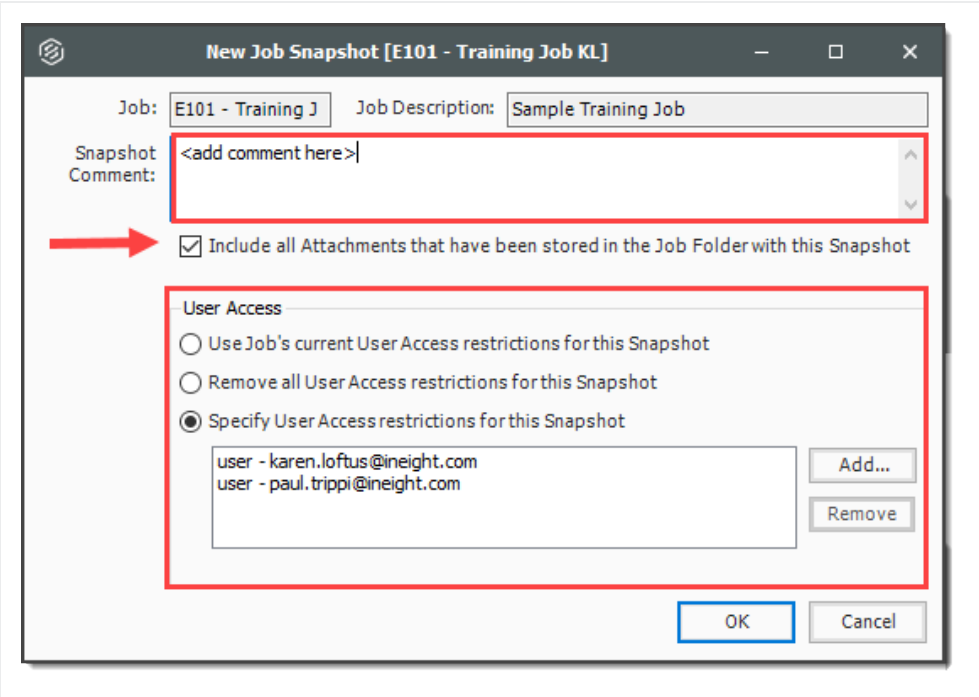


2. If an existing job is open select **Save**, if you haven't already done so.

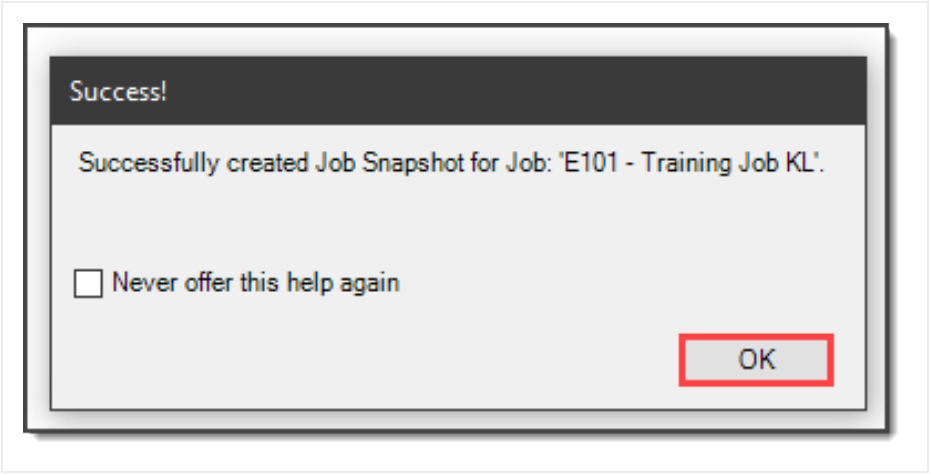


3. A New Job Snapshot [Job Code Here] dialog box appears. From there, you can add a Snapshot comment.
    - If you want to Include all Attachments that have been stored in the Job Folder with this Snapshot, select the check box, otherwise uncheck the box.
    - If you want to Use Job's current User Access 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.)



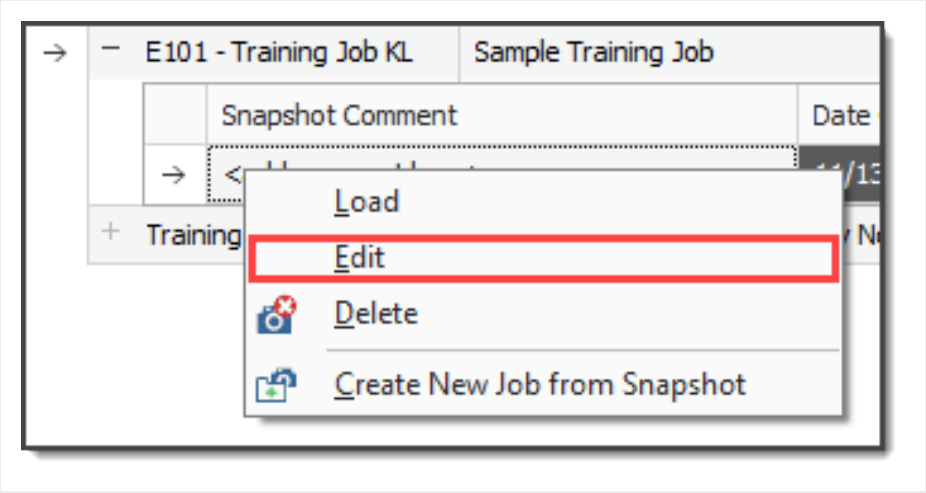
4. Click OK to create the snapshot.
5. A pop-up indicates when the snapshot has been created.



10.6.3 Editing a Job Snapshot

10.6 Step by Step 3 — 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**.

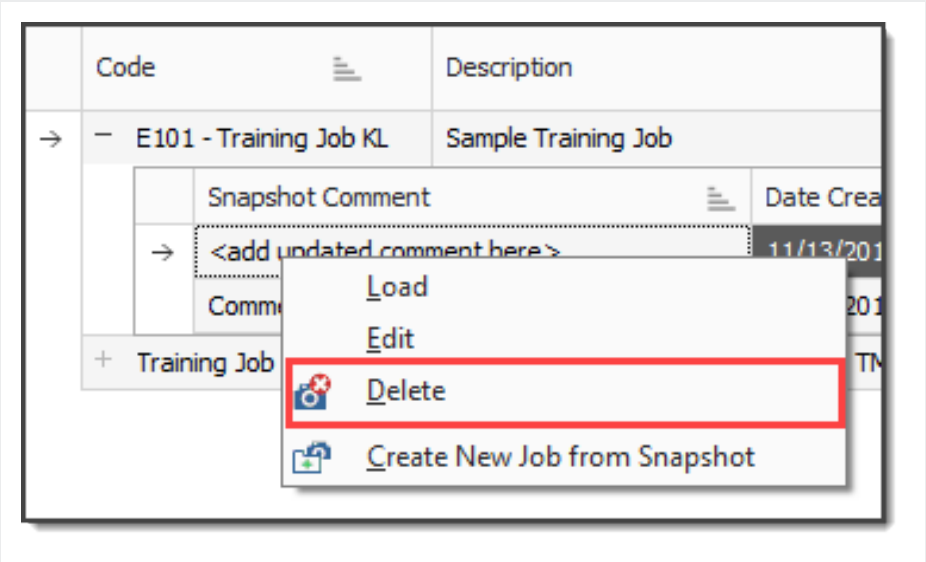


3. The same sort of dialog box opens up as when you created the Snapshot. In this case, from the Edit Job Snapshot [Job Code Here] dialog box, modify the Snapshot Comment and the User Access options as needed.
    - If you want to Include all Attachments that have been stored in the Job Folder with this 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.

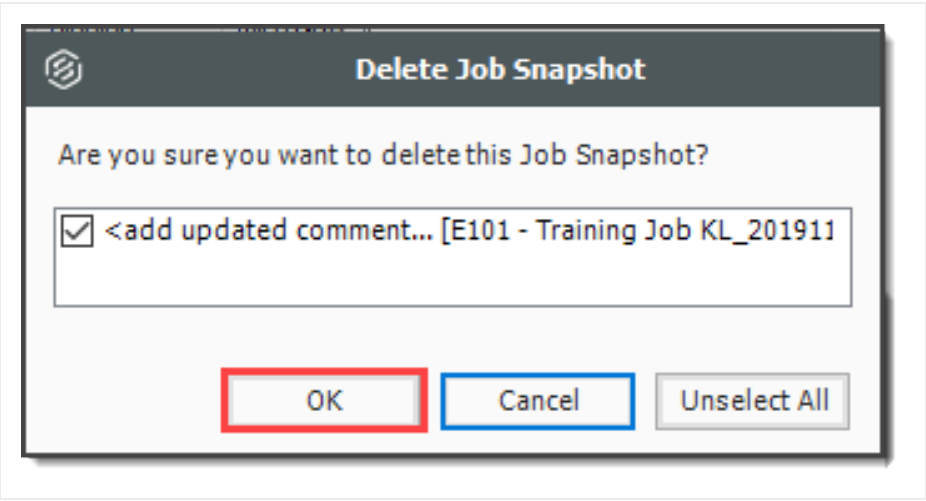
10.6.4 Deleting a Job Snapshot

10.6 Step by Step 4 — Delete a Job Snapshot

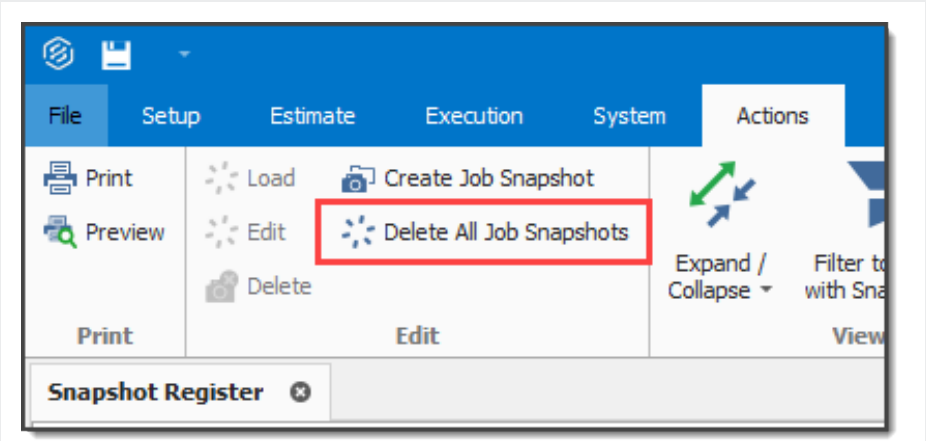
1. From the Snapshot Register, click the + icon next to the desired job to display snapshots.
2. Right-click on the individual snapshot you want to delete snapshots from and select **Delete**.



3. Click **OK**



Alternatively, you can delete all Job Snapshots by clicking **Delete All Job Snapshots** from the Actions tab.

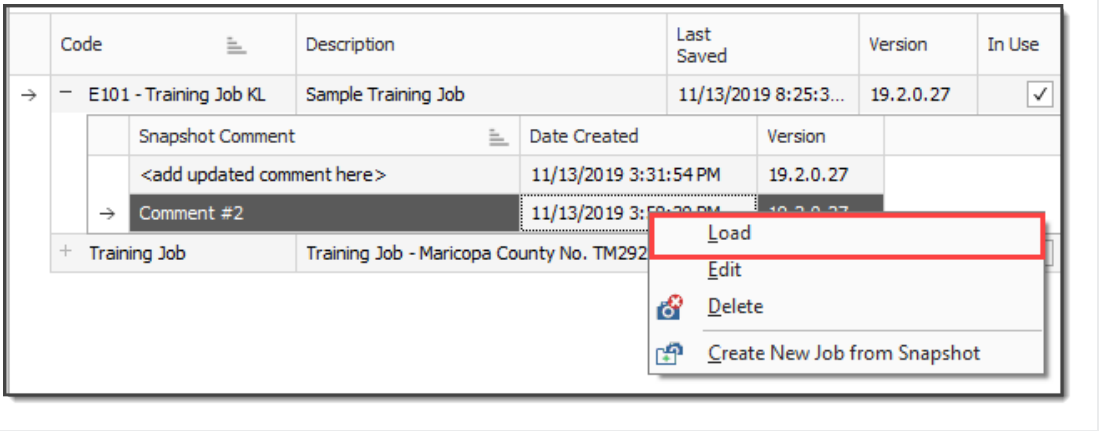


10.6.5 Loading a Job Snapshot

When you load an existing Snapshot, it loads into Estimate as any other job.

10.6 Step by Step 5 — Load a Job Snapshot

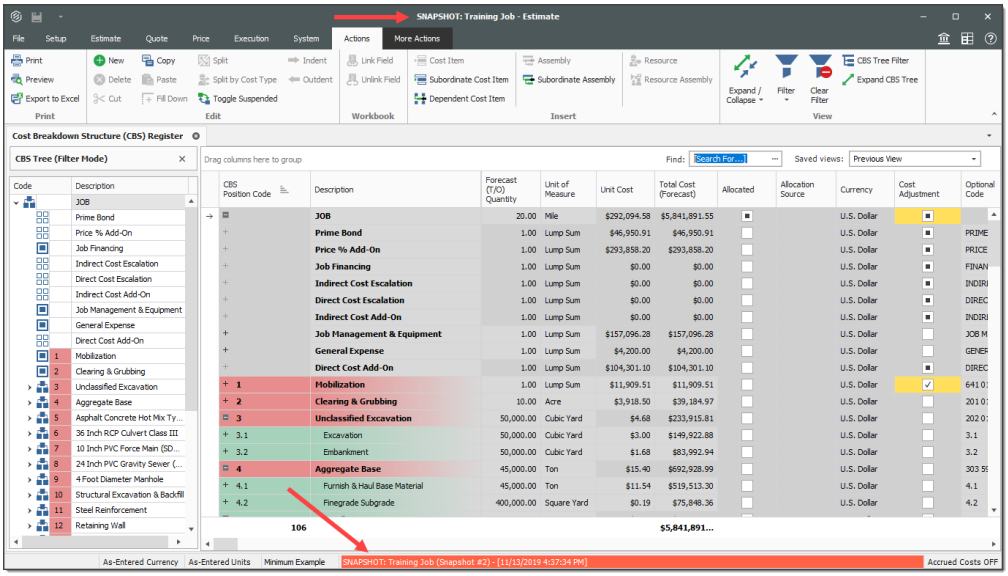
1. Click the File tab to open the Backstage View, then select **Snapshots**.
2. From the Snapshots form, select the **Snapshot Register** tab.
3. On the Snapshot Register, click the icon next to the desired job to display the list of snapshots.
4. Right-click on the individual snapshot you want to load 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.



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) Qu
+	**Indirect Cost Escalation**	INDIRECT COST ESCAL...	
+	**Direct Cost Escalation**	DIRECT COST ESCALAT...	
+	**Indirect Cost Add-On**	INDIRECT COST ADD-ON	
+	**Job Management & Equipment**	JOB MANAGEMENT & E...	
+	**General Expense**	GENERAL EXPENSE	
+	**Direct Cost Add-On**	DIRECT COST ADD-ON	
− **1**	**Aggregate Base**	303 5912	
+ 1.1	Furnish & Haul Base Material	4.1	
+ 1.2	Finegrade Subgrade	4.2	
− 1.3	Install Aggregate Base	4.3	
+ 1.3.1	Place Aggregate Base	4.3.1	
+ 1.3.2	Blue Top Aggregate Base	4.3.2	
− **2**	**Asphalt Concrete Hot Mix Type A**	303 4263	
+ 2.1	Furnish & Haul Hot Mix	5.1	
+ 2.2	Install Hot Mix Type A	5.2	
− **3**	**36 Inch RCP Culvert Class III**	413(B) 0464	
+ 3.1	Furnish RCP Materials	6.1	
+ 3.2	Excavate RCP Trench	6.2	
+ 3.3	Install RCP Pipe	6.3	
+ 3.4	Backfill RCP Pipe	6.4	
− **4**	**10 Inch PVC Force Main (SDR21)**	800 0220	
+ 4.1	Furnish 10 Inch PVC Materials	7.1	
+ 4.2	Excavate-Install-Backfill 10 Inch PVC	7.2	
− **5**	**24 Inch PVC Gravity Sewer (SDR35)**	800 0330	
− 5.1	Excavate 24 Inch PVC	8.1	
+ 5.1.1	Excavate 24 Inch PVC 0-6 ft Depth	8.1.1	
+ 5.1.2	Excavate 24 Inch PVC 6-10 ft Depth	8.1.2	
+ 5.2	Furnish & Install 24 Inch PVC	8.2	
+ 5.3	Backfill 24 Inch PVC	8.3	
− **6**	**4 Foot Diameter Manhole**	800 0400	
+ 6.1	Furnish 4 ft Manhole Materials	9.1	

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

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 Overview 393
11.2 Export to Excel 394
11.2.1 Cell Select 395
11.3 Linking to Excel 397
11.3.1 InEight Estimate Workbook 397
11.3.2 Linking to and from Excel 398
11.3.3 Update Links 402
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Lesson 11 Summary 404

11.1 OVERVIEW

InEight Estimate's integration with Microsoft Excel includes a two-way integration that allows you to update register fields in InEight Estimate with data contained in an Excel workbook, and update Excel cells with data contained in a register column in InEight Estimate.

The following sections cover exporting from InEight Estimate to Excel, linking with Excel data, and updating links.

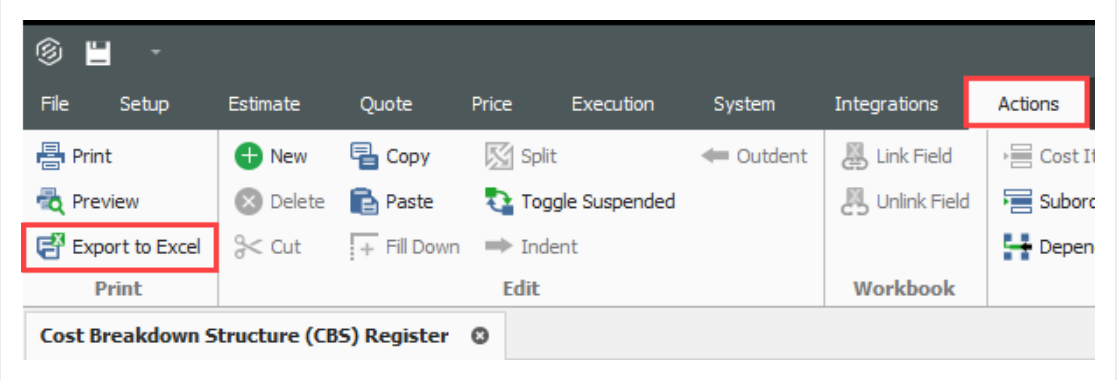
11.2 EXPORT TO EXCEL

InEight Estimate includes a worksheet export that makes it easy to transfer data out of InEight Estimate register forms to Microsoft Excel spreadsheets. This feature makes it faster and easier to send data from an InEight Estimate register to a spreadsheet, analyze it, modify it, and customize it for any other uses.

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.

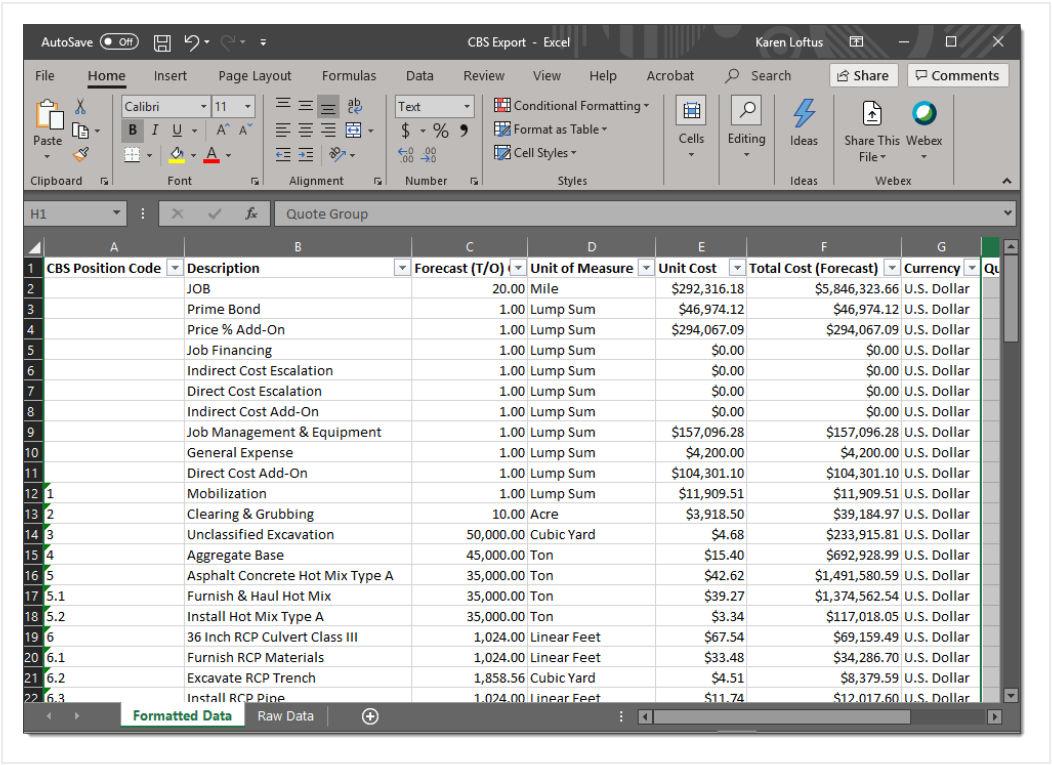
11.2 Step by Step 1 — Export Data to an Excel Workbook

1. Open the **Training** Job and from the Estimate tab, open the **CBS Register**.
2. From the Actions tab, select **Export to Excel**.



3. On the Export spreadsheet to... dialog, browse to the location (folder) in your system where you want to save the workbook, enter **CBS Export** in the File name field, and click **Save**.
    - The workbook is saved to that location with the specified file name, and Excel automatically launches and displays the workbook

- Notice that the columns are formatted, with column headers and filtering turned on



	A	B	C	D	E	F	G
1	CBS Position Code	Description	Forecast (T/O)	Unit of Measure	Unit Cost	Total Cost (Forecast)	Currency
2		JOB	20.00	Mile	$292,316.18	$5,846,323.66	U.S. Dollar
3		Prime Bond	1.00	Lump Sum	$46,974.12	$46,974.12	U.S. Dollar
4		Price % Add-On	1.00	Lump Sum	$294,067.09	$294,067.09	U.S. Dollar
5		Job Financing	1.00	Lump Sum	$0.00	$0.00	U.S. Dollar
6		Indirect Cost Escalation	1.00	Lump Sum	$0.00	$0.00	U.S. Dollar
7		Direct Cost Escalation	1.00	Lump Sum	$0.00	$0.00	U.S. Dollar
8		Indirect Cost Add-On	1.00	Lump Sum	$0.00	$0.00	U.S. Dollar
9		Job Management & Equipment	1.00	Lump Sum	$157,096.28	$157,096.28	U.S. Dollar
10		General Expense	1.00	Lump Sum	$4,200.00	$4,200.00	U.S. Dollar
11		Direct Cost Add-On	1.00	Lump Sum	$104,301.10	$104,301.10	U.S. Dollar
12	1	Mobilization	1.00	Lump Sum	$11,909.51	$11,909.51	U.S. Dollar
13	2	Clearing & Grubbing	10.00	Acre	$3,918.50	$39,184.97	U.S. Dollar
14	3	Unclassified Excavation	50,000.00	Cubic Yard	$4.68	$233,915.81	U.S. Dollar
15	4	Aggregate Base	45,000.00	Ton	$15.40	$692,928.99	U.S. Dollar
16	5	Asphalt Concrete Hot Mix Type A	35,000.00	Ton	$42.62	$1,491,580.59	U.S. Dollar
17	5.1	Furnish & Haul Hot Mix	35,000.00	Ton	$39.27	$1,374,562.54	U.S. Dollar
18	5.2	Install Hot Mix Type A	35,000.00	Ton	$3.34	$117,018.05	U.S. Dollar
19	6	36 Inch RCP Culvert Class III	1,024.00	Linear Feet	$67.54	$69,159.49	U.S. Dollar
20	6.1	Furnish RCP Materials	1,024.00	Linear Feet	$33.48	$34,286.70	U.S. Dollar
21	6.2	Excavate RCP Trench	1,858.56	Cubic Yard	$4.51	$8,379.59	U.S. Dollar
22	6.3	Install RCP Pipe	1,024.00	Linear Feet	$11.74	$12,017.60	U.S. Dollar

11.2.1 Cell Select

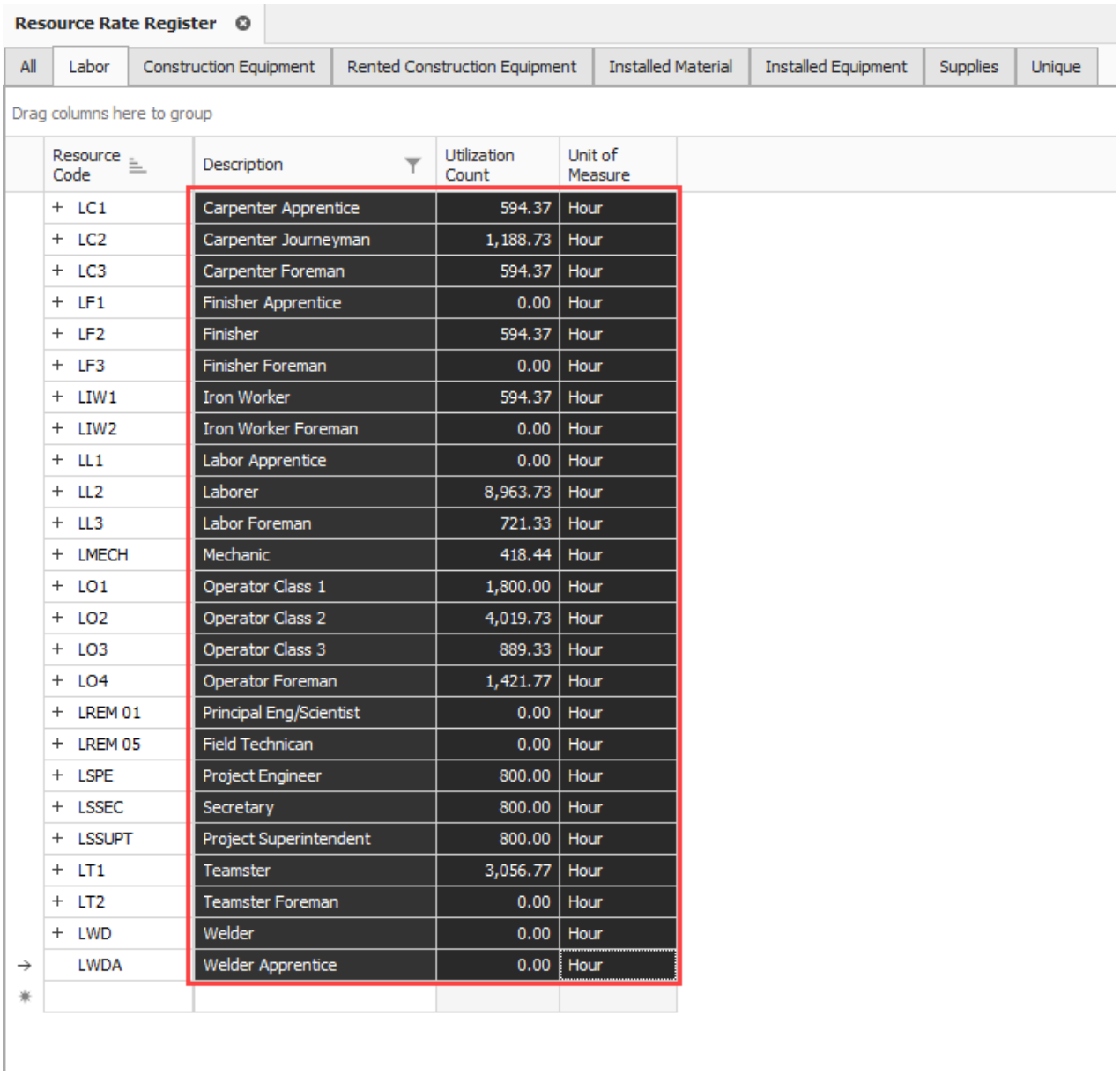
To copy and paste data in InEight Estimate or to Excel, you can use a feature called Cell Select. Walk through the following steps to learn how to copy specific fields in InEight Estimate to an Excel Spreadsheet.

11.2 Step by Step 2 — Cell Select

1. Open the **Training** Job and from the Setup tab, open the **Resource Rate Register**.
2. Select the **Labor** tab.
3. Select **Print View for Summary** from your Saved Views drop-down menu.
4. From the top-right corner, select the **Cell Select** icon, (next to the Help icon).

- This puts you in “cell-select” mode, so you can select cells to copy in the same way you would in Excel.

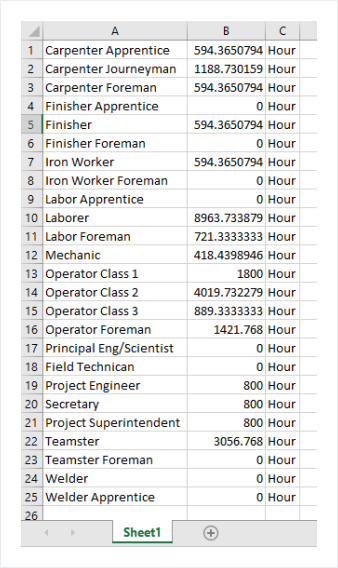
5. With the Cell Select icon active, highlight all information in the **Description**, **Utilization Count** and **Unit of Measure columns** for all Labor resources.



Resource Code	Description	Utilization Count	Unit of Measure
LC1	Carpenter Apprentice	594.37	Hour
LC2	Carpenter Journeyman	1,188.73	Hour
LC3	Carpenter Foreman	594.37	Hour
LF1	Finisher Apprentice	0.00	Hour
LF2	Finisher	594.37	Hour
LF3	Finisher Foreman	0.00	Hour
LIW1	Iron Worker	594.37	Hour
LIW2	Iron Worker Foreman	0.00	Hour
LL1	Labor Apprentice	0.00	Hour
LL2	Laborer	8,963.73	Hour
LL3	Labor Foreman	721.33	Hour
LMECH	Mechanic	418.44	Hour
LO1	Operator Class 1	1,800.00	Hour
LO2	Operator Class 2	4,019.73	Hour
LO3	Operator Class 3	889.33	Hour
LO4	Operator Foreman	1,421.77	Hour
LREM 01	Principal Eng/Scientist	0.00	Hour
LREM 05	Field Technican	0.00	Hour
LSPE	Project Engineer	800.00	Hour
LSSEC	Secretary	800.00	Hour
LSSUPT	Project Superintendent	800.00	Hour
LT1	Teamster	3,056.77	Hour
LT2	Teamster Foreman	0.00	Hour
LWD	Welder	0.00	Hour
LWDA	Welder Apprentice	0.00	Hour

6. Right click on the selection and select **Copy**.
7. Open an Excel spreadsheet, right click in the **A1** field and select **Paste Special,** choosing **CSV** as the Source.

8. Click **OK**.
    - The fields you copied from InEight Estimate paste into the spreadsheet



	A	B	C
1	Carpenter Apprentice	594.3650794	Hour
2	Carpenter Journeyman	1188.730159	Hour
3	Carpenter Foreman	594.3650794	Hour
4	Finisher Apprentice	0	Hour
5	Finisher	594.3650794	Hour
6	Finisher Foreman	0	Hour
7	Iron Worker	594.3650794	Hour
8	Iron Worker Foreman	0	Hour
9	Labor Apprentice	0	Hour
10	Laborer	8963.733879	Hour
11	Labor Foreman	721.3333333	Hour
12	Mechanic	418.4398946	Hour
13	Operator Class 1	1800	Hour
14	Operator Class 2	4019.732279	Hour
15	Operator Class 3	889.3333333	Hour
16	Operator Foreman	1421.768	Hour
17	Principal Eng/Scientist	0	Hour
18	Field Technican	0	Hour
19	Project Engineer	800	Hour
20	Secretary	800	Hour
21	Project Superintendent	800	Hour
22	Teamster	3056.768	Hour
23	Teamster Foreman	0	Hour
24	Welder	0	Hour
25	Welder Apprentice	0	Hour
26			

Sheet1

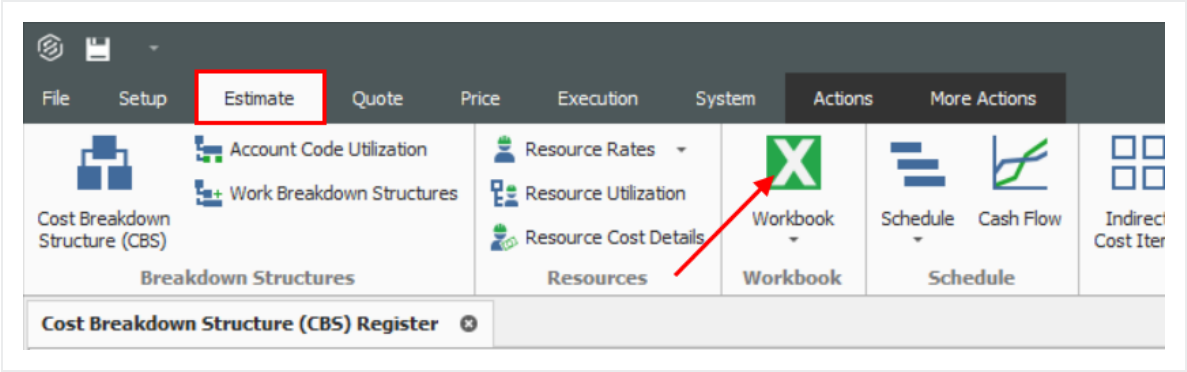
    - To turn off the Cell Select, simply click the Cell Select Icon again and it deselects

11.3 LINKING TO EXCEL

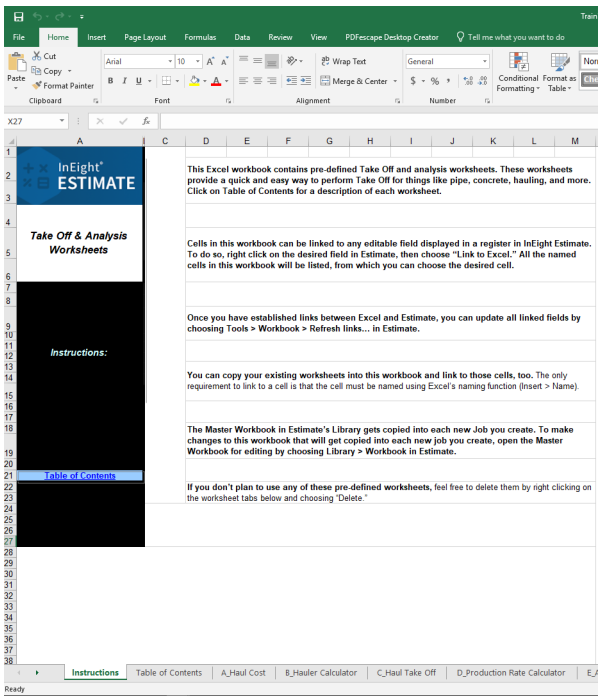
11.3.1 InEight Estimate Workbook

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.

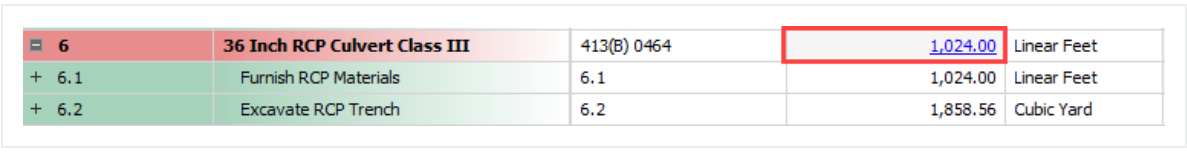


- The embedded Excel workbook for the job opens.



11.3.2 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.

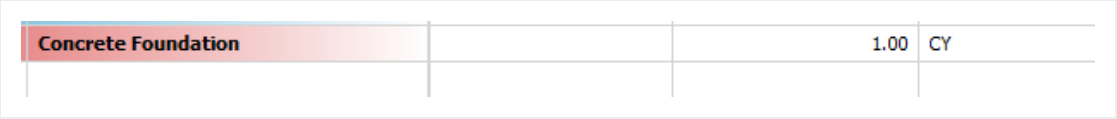


− 6	36 Inch RCP Culvert Class III	413(B) 0464	1,024.00	Linear Feet
+ 6.1	Furnish RCP Materials	6.1	1,024.00	Linear Feet
+ 6.2	Excavate RCP Trench	6.2	1,858.56	Cubic Yard

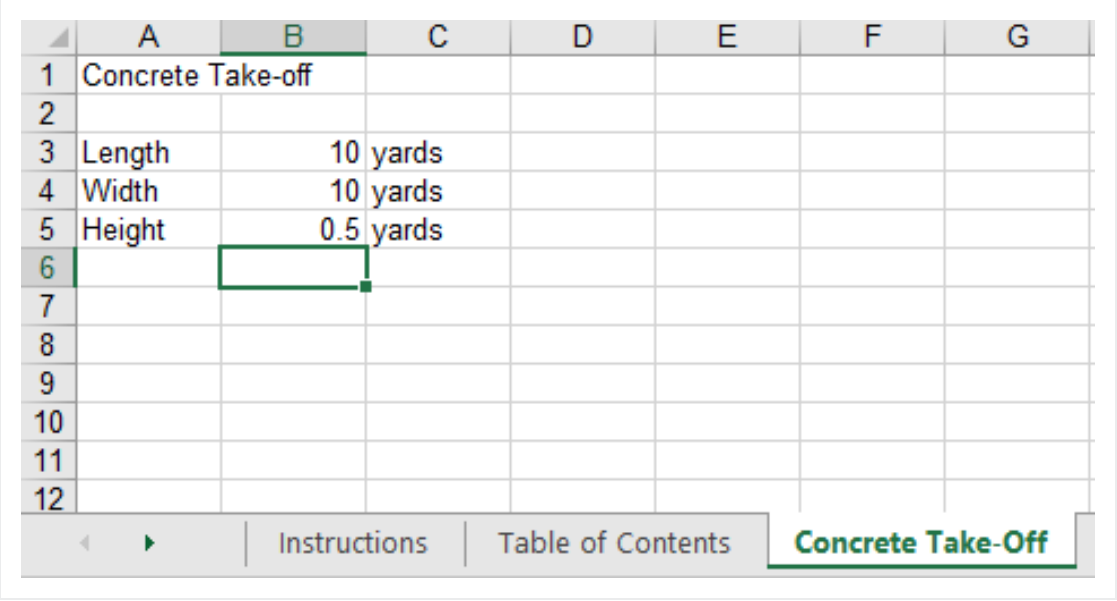
The following example walks through how to link a simple take-off calculation into InEight Estimate from Excel. It is a take-off to determine the size of a concrete foundation.

11.3 Step by Step 1 — Link Estimate to Excel

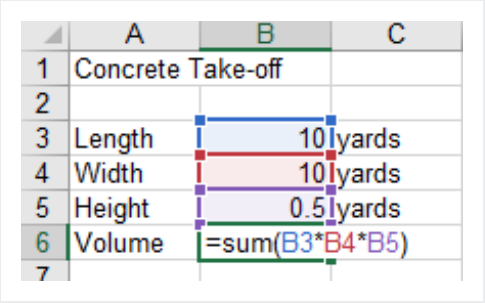
1. Open the **Training** Job and from the Estimate tab, open the **CBS Register**.
2. For this example, create a new cost item in the blank row at the bottom of the CBS register and name it **Concrete Foundation**.



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:

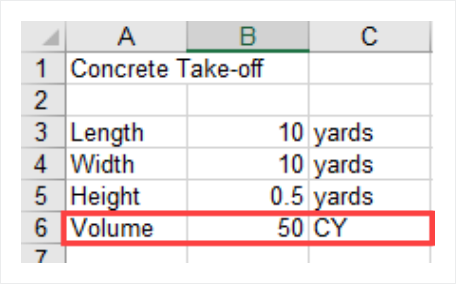


5. Create a new row to calculate the total cubic yards by factoring the length, width, and height quantities.



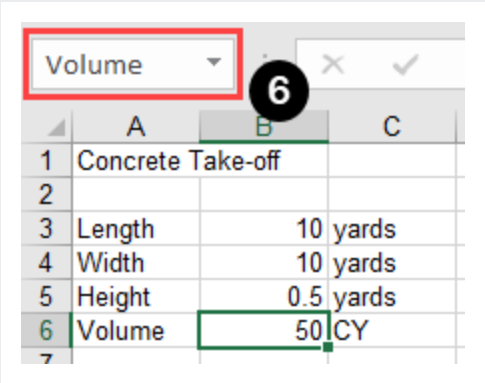
	A	B	C
1	Concrete Take-off		
2			
3	Length	10	yards
4	Width	10	yards
5	Height	0.5	yards
6	Volume	=sum(B3*B4*B5)	

- Your Volume Total should be 50 cubic yards



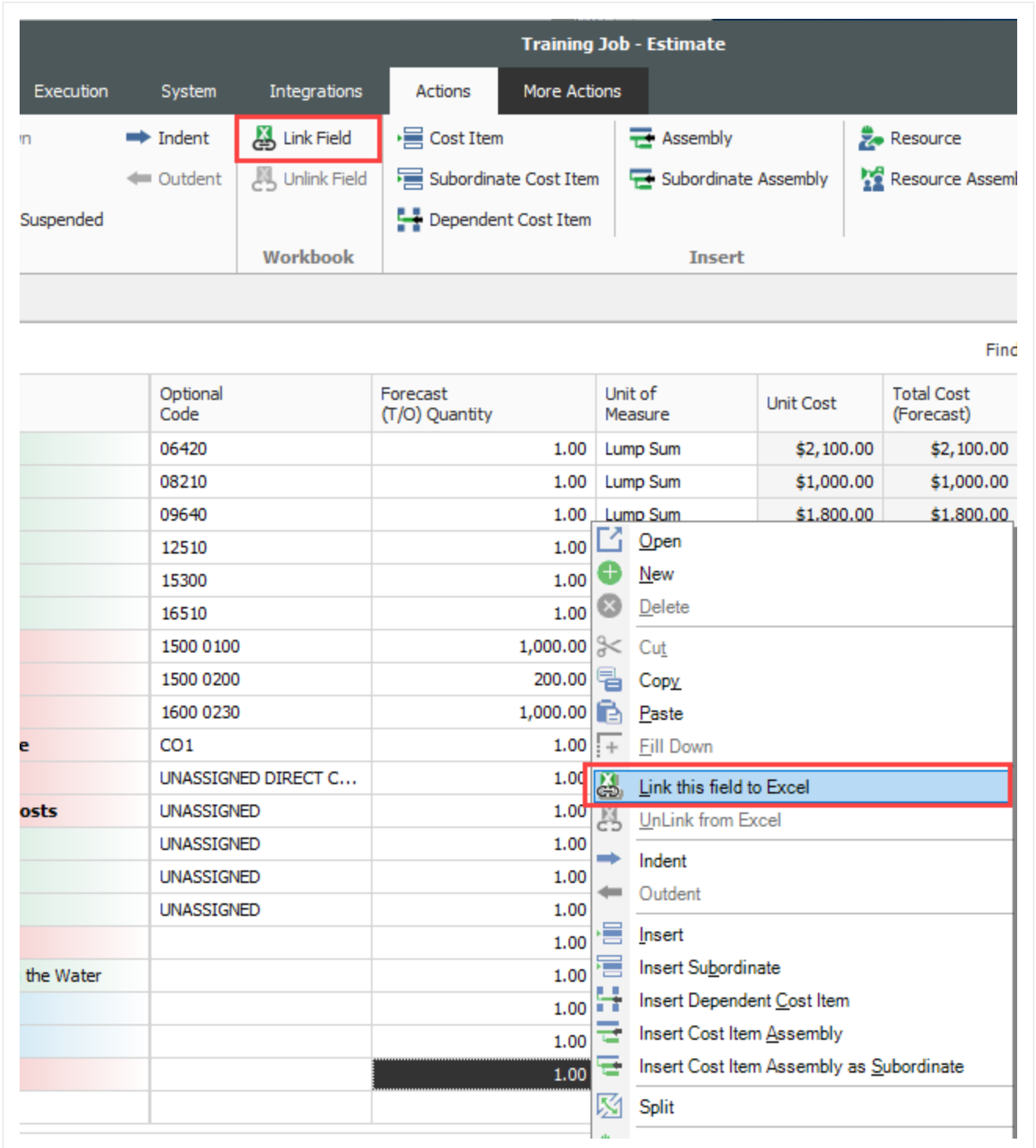
	A	B	C
1	Concrete Take-off		
2			
3	Length	10	yards
4	Width	10	yards
5	Height	0.5	yards
6	Volume	50	CY

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**.



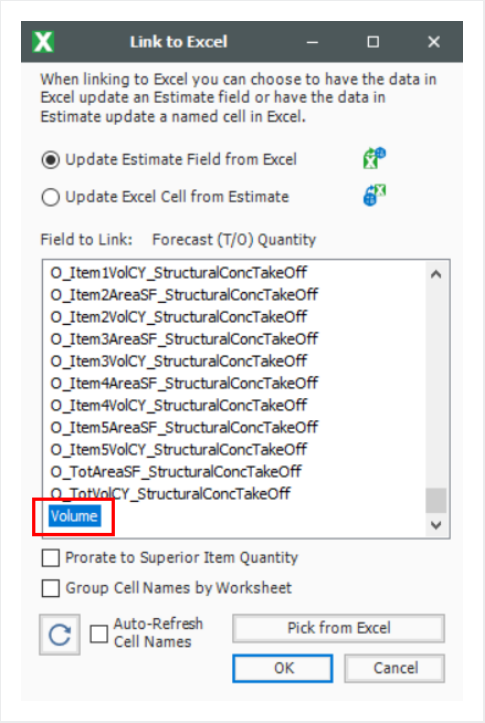
	A	B	C
1	Concrete Take-off		
2			
3	Length	10	yards
4	Width	10	yards
5	Height	0.5	yards
6	Volume	50	CY

7. Go back to the CBS Register and right click on the Concrete Foundation cost item **Forecast (T/O) Quantity** field.
8. 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



9. On the Link to Excel dialog, select the **Update InEight Estimate field from Excel** radio button.
10. In the Field to link window, select **Volume** (you may need to click the Refresh button for the

field name to display).

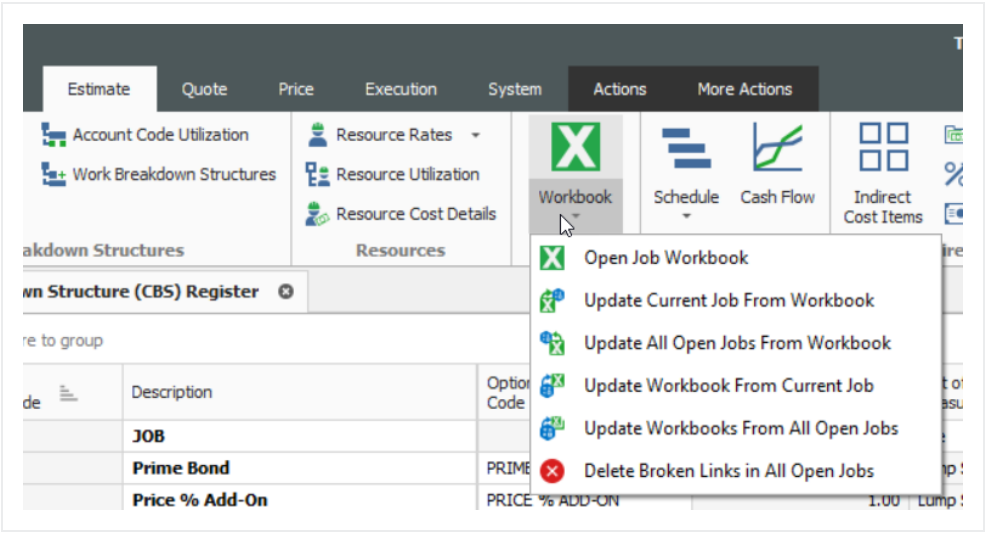


11. Click **OK**.

    - The Forecast Quantity field for Concrete now is linked to the Volume field in Excel and populates with the take-off quantity (50)

11.3.3 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
Resources
Workbook
Schedule
Cash Flow
Indirect Cost Items
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
Description
JOB
Prime Bond
Price % Add-On

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

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Lesson 12 Summary 447

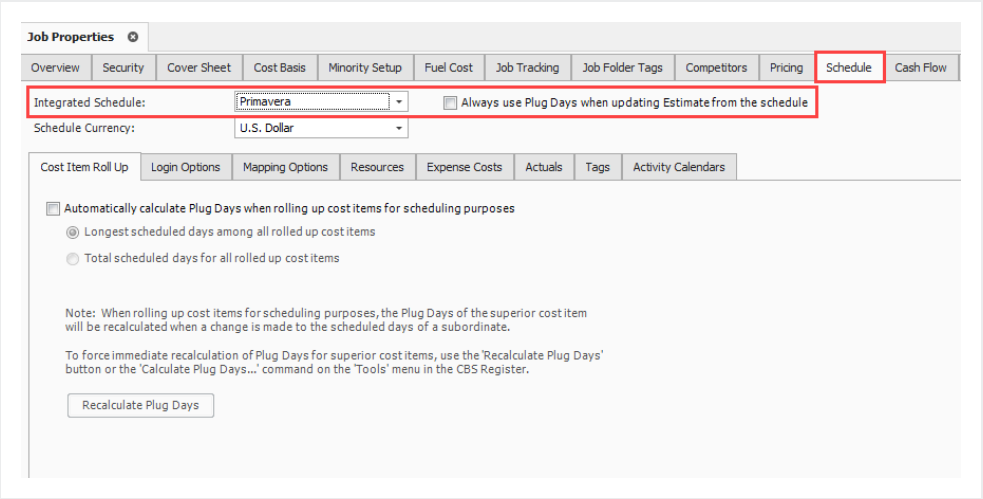
12.1 PRIMAVERA

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.

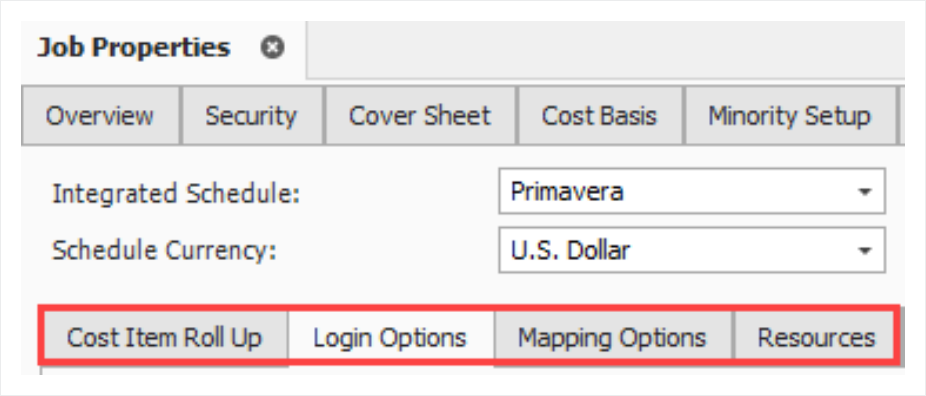
12.1.1.1 Job Properties Schedule Tab

Primavera scheduling options are configured on the **Setup > Job Properties > Schedule** tab.



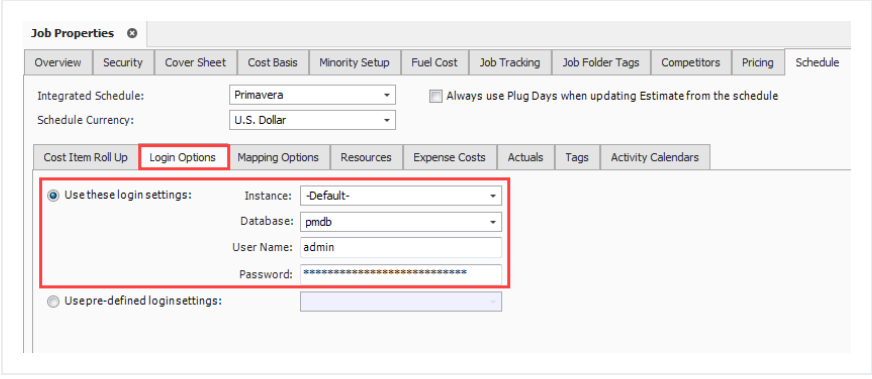
- At the top of the Schedule tab, the Integrated Schedule must be set to **Primavera**
- As a default, the **Always use Plug Days when updating InEight Estimate from the schedule** checkbox is not selected (on a job by job basis, this box can be checked later for jobs in which an estimator does not want 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



12.1 Step by Step 1 — Login Options Tab

1. 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.
2. Type your user name in the User Name field.
3. Type your password into the Password field.
    - You will have your own login settings specific to your company

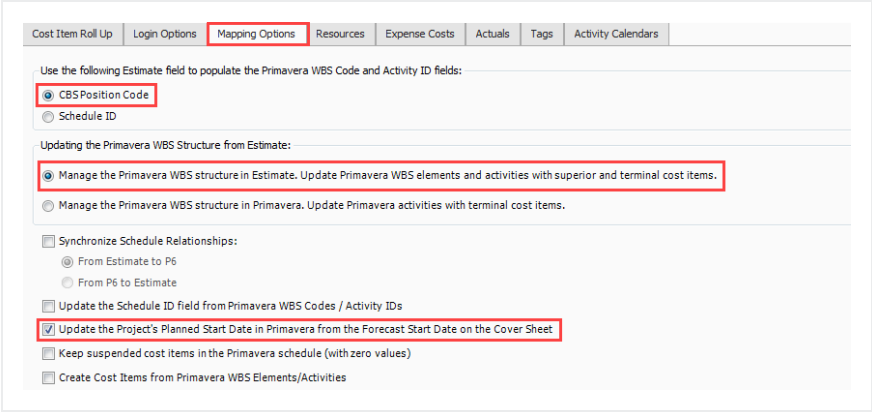


12.1.1.2 Mapping Options Tab

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.*

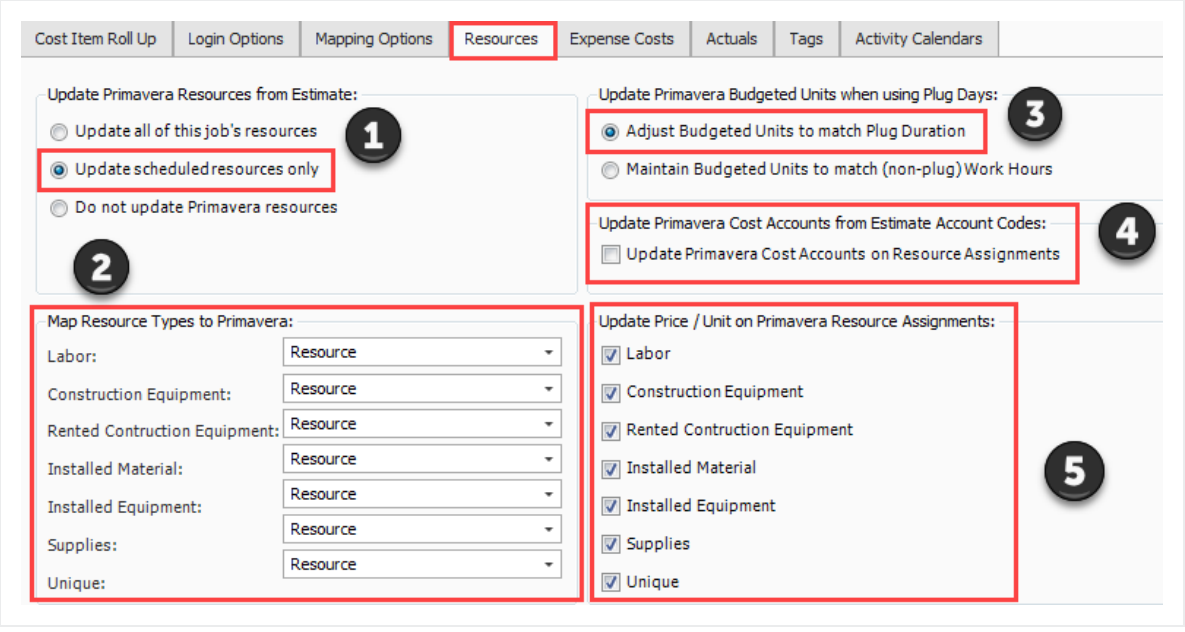


12.1.1.3 Resources Tab

The Resources tab dictates how resources are mapped between InEight Estimate and P6.

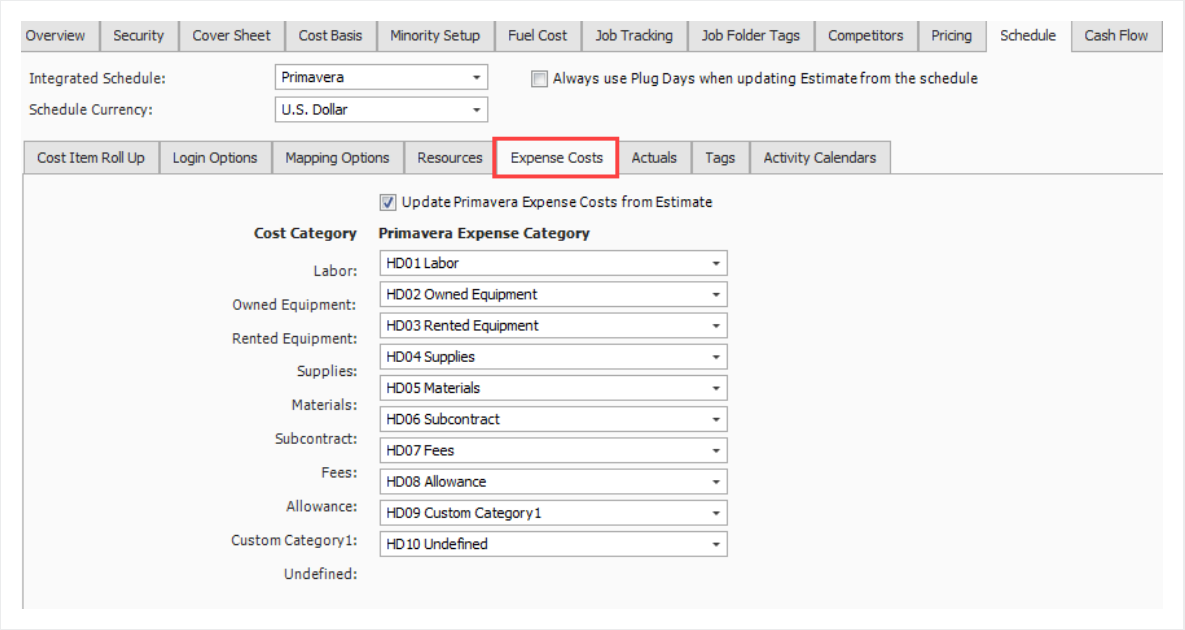
Section		Name
1	Update Primavera Resources from Estimate	Provides options for sending InEight Estimate resources to Primavera. • Typically, you would select the **Update scheduled resources only** option to send only resources that are employed on cost items • The **Update all of this job's resources** option updates Primavera with all of the resources in your project's Resource Rate Register
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



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.



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

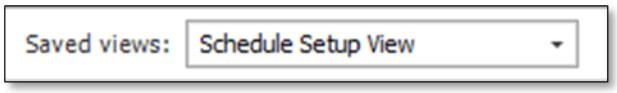
In the below example, notice that all of the cost items are scheduled, but the subordinates for Unclassified Excavation will be rolled up to the superior level.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ **1**	**Mobilization**	☑	☐
+ **2**	**Clearing & Grubbing**	☑	☐
− **3**	**Unclassified Excavation**	☑	☑
+ 3.1	Excavation	■	☐
+ 3.2	Embankment	■	☐
− **4**	**Aggregate Base**	☑	☐
+ 4.1	Furnish & Haul Base Material	☑	☐
+ 4.2	Finegrade Subgrade	☑	☐
− 4.3	Install Aggregate Base	☑	☐

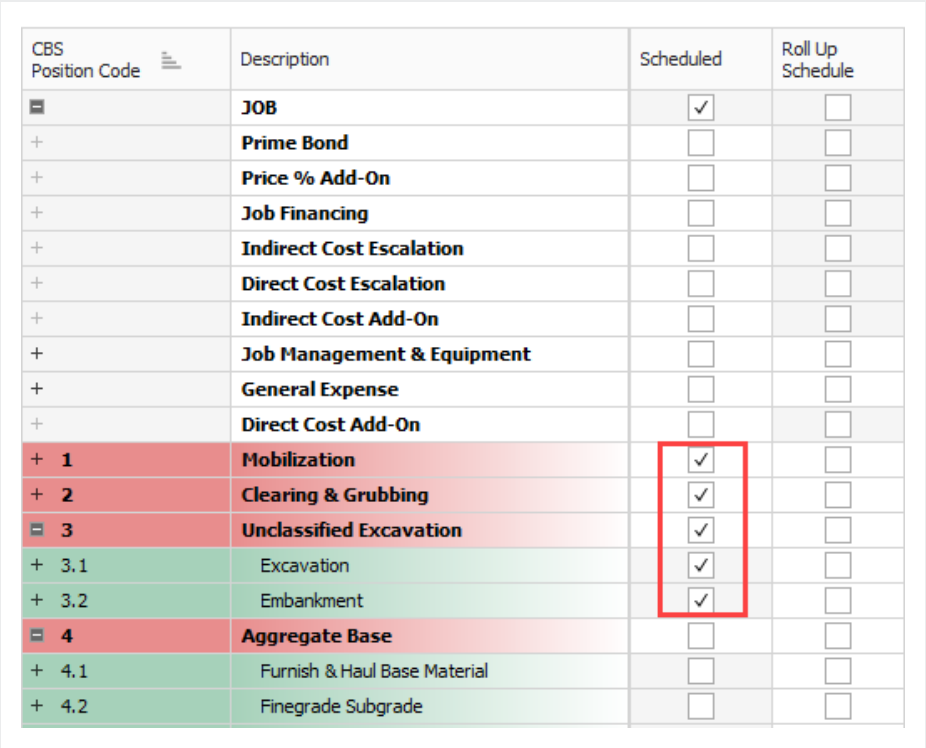
The following steps walk you through scheduling your cost items.

12.1 Step by Step 2 — 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**.



   - 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**.



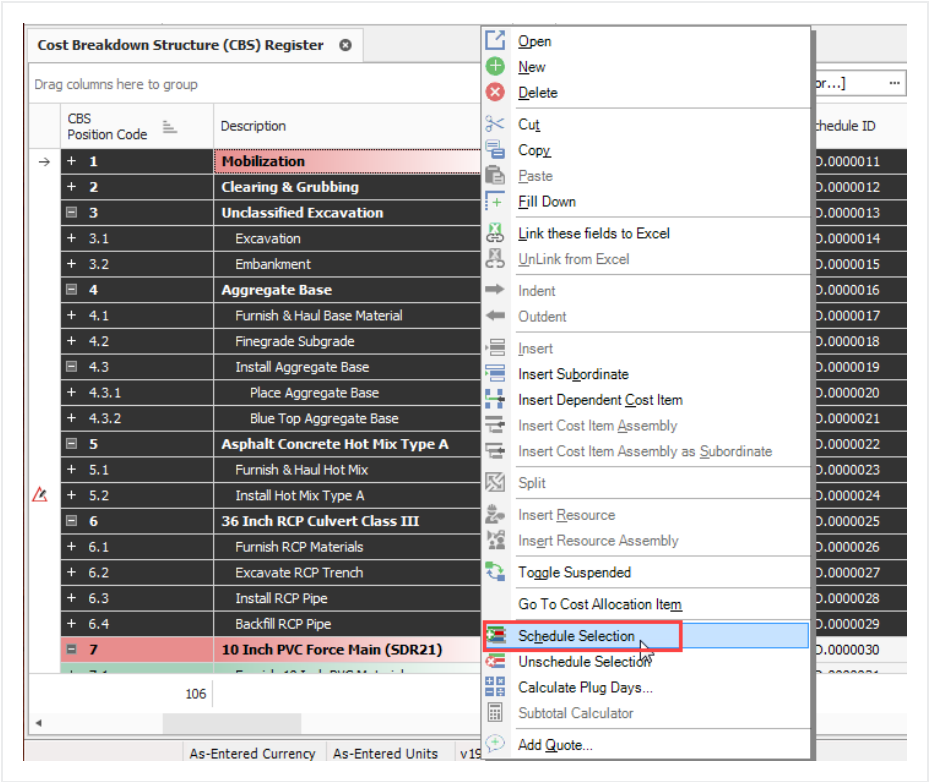
CBS Position Code	Description	Scheduled	Roll Up Schedule
	JOB	☑	☐
	Prime Bond	☐	☐
	Price % Add-On	☐	☐
	Job Financing	☐	☐
	Indirect Cost Escalation	☐	☐
	Direct Cost Escalation	☐	☐
	Indirect Cost Add-On	☐	☐
	Job Management & Equipment	☐	☐
	General Expense	☐	☐
	Direct Cost Add-On	☐	☐
1	**Mobilization**	☑	☐
2	**Clearing & Grubbing**	☑	☐
3	**Unclassified Excavation**	☑	☐
3.1	Excavation	☑	☐
3.2	Embankment	☑	☐
4	**Aggregate Base**	☐	☐
4.1	Furnish & Haul Base Material	☐	☐
4.2	Finegrade Subgrade	☐	☐

12.1 Step by Step 3 — 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.**

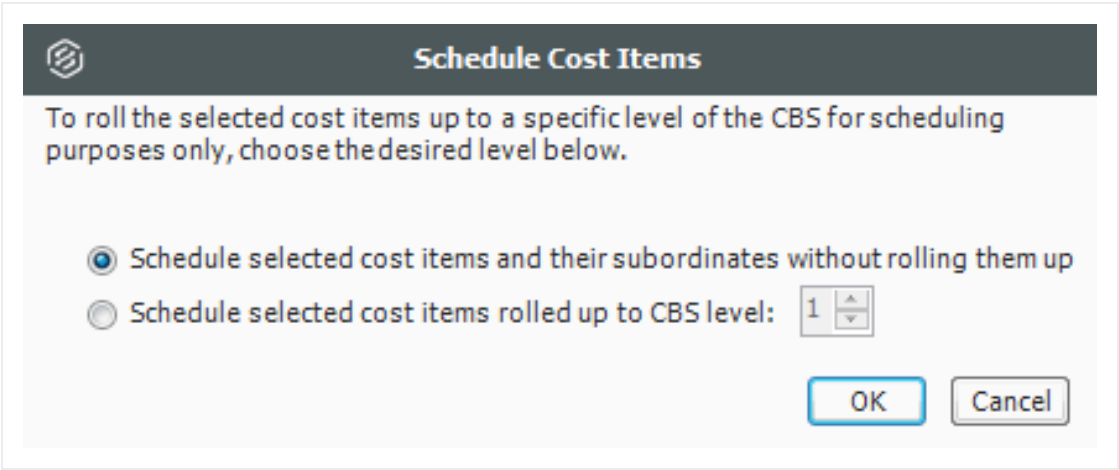
   TIP *To schedule all cost items, highlight the JOB row.*

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.

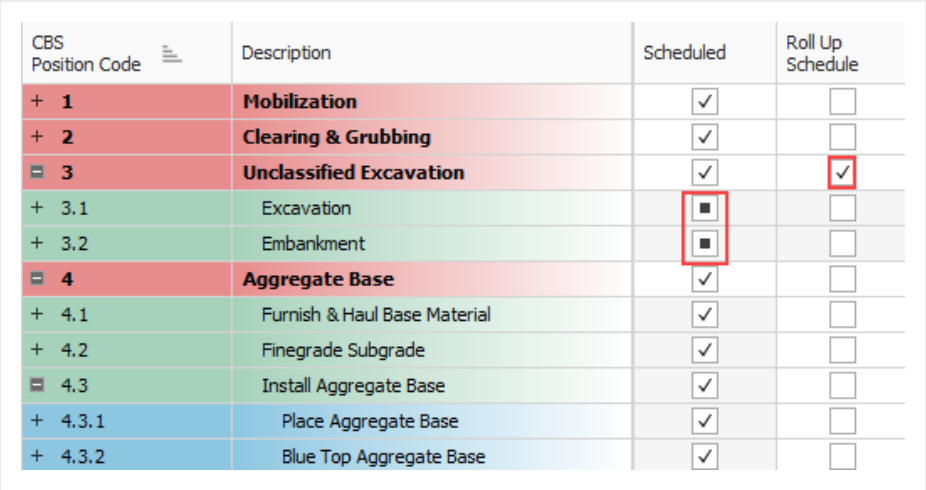
12.1.2.6 Roll Up Schedule

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.

12.1 Step by Step 4 — 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.



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:

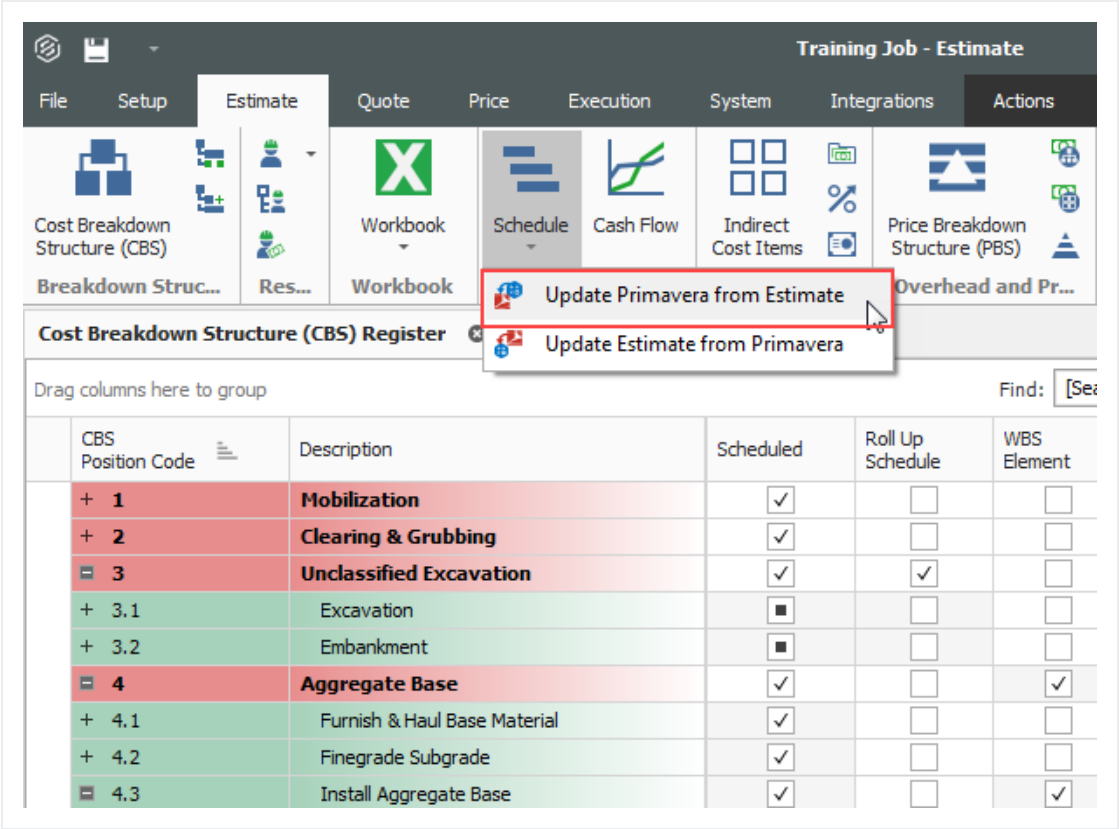
Data Sent from InEight Estimate to Primavera		
Data Type	InEight Estimate	Primavera
Project Data	Job Code	Project ID
	Job Description	Project Name
Activity Data	CBS Position Code//Schedule ID	WBS Code / Activity ID
	Description	WBS Element / Activity Name
	Hours	Planned Duration (Hours)
	Shift and Rate 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.

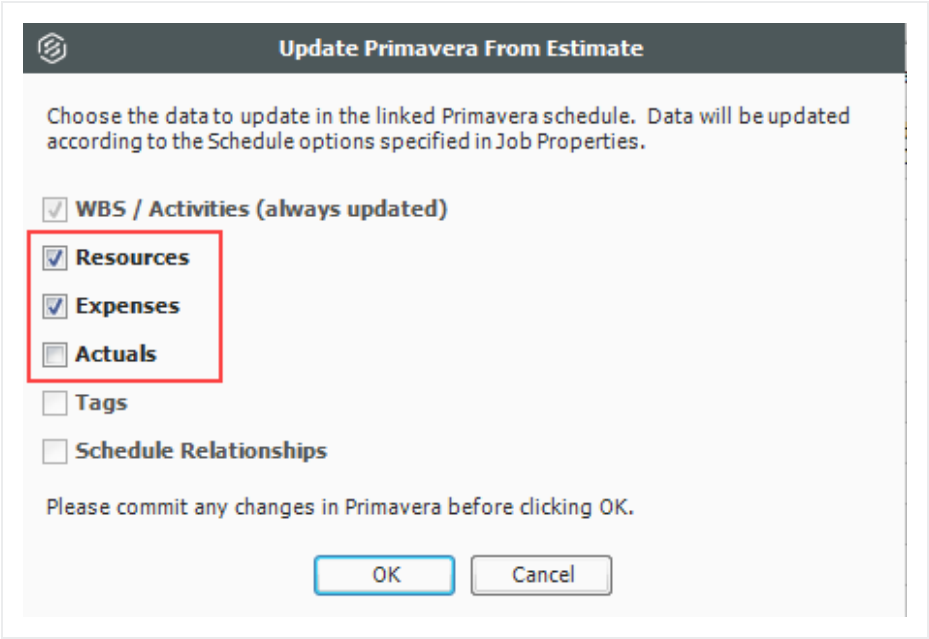
12.1 Step by Step 5 — Update Primavera from InEight Estimate

1. From the Estimate tab, select **Schedule > Update Primavera from InEight Estimate**.



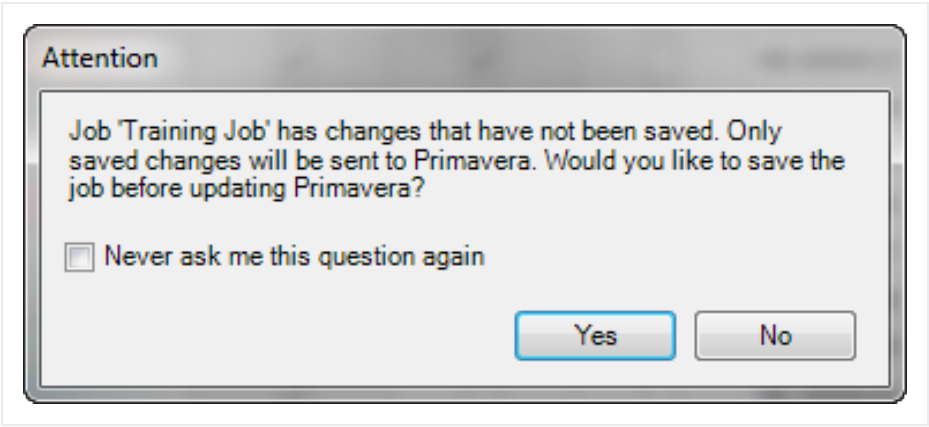
- The Update Primavera From Estimate dialog prompts you to indicate what data to update to Primavera

2. Make sure **Resources** and **Expenses** are checked. Deselect **Actuals** (For Job Tracking purposes) if auto selected, then click **OK**.

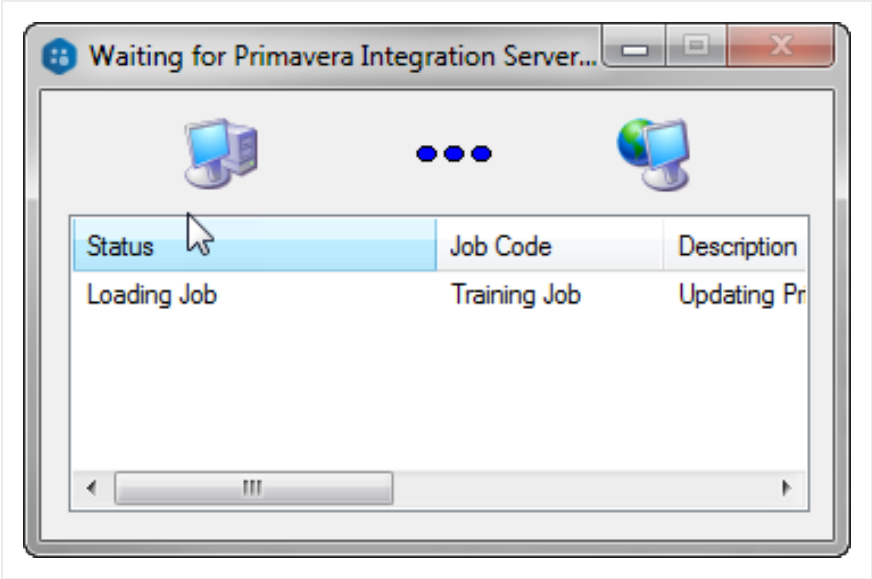


- An Attention prompt appears, letting you know that the job has not been saved.

3. Click **Yes** to save the job before updating Primavera.

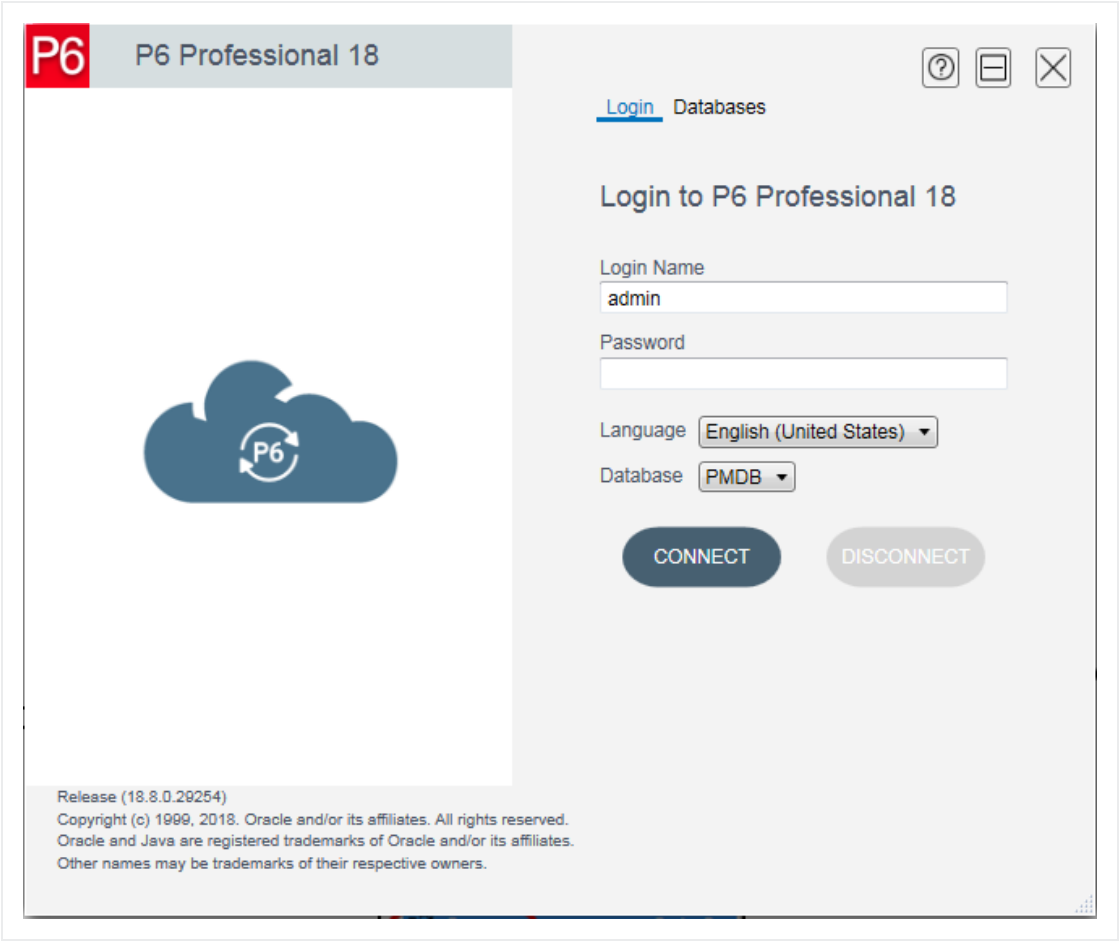


- A window appears that shows the progress of the data sync between InEight Estimate and Primavera. Depending on the size of the job, this can take several minutes

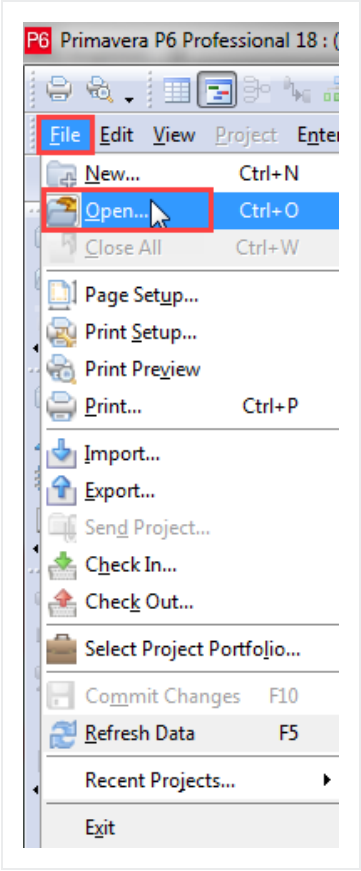


- When the window disappears, the update is complete

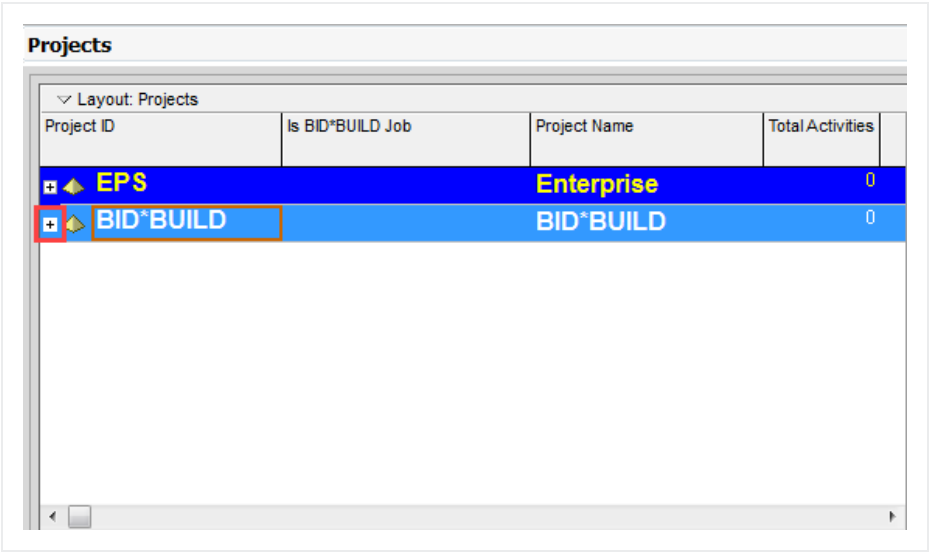
4. Open Primavera P6 (Project Management) client.
5. Log in to Primavera, using the same Username and Password that was entered on the Schedule > Login Options tab in InEight Estimate Job Properties.



6. In Primavera, open the project.



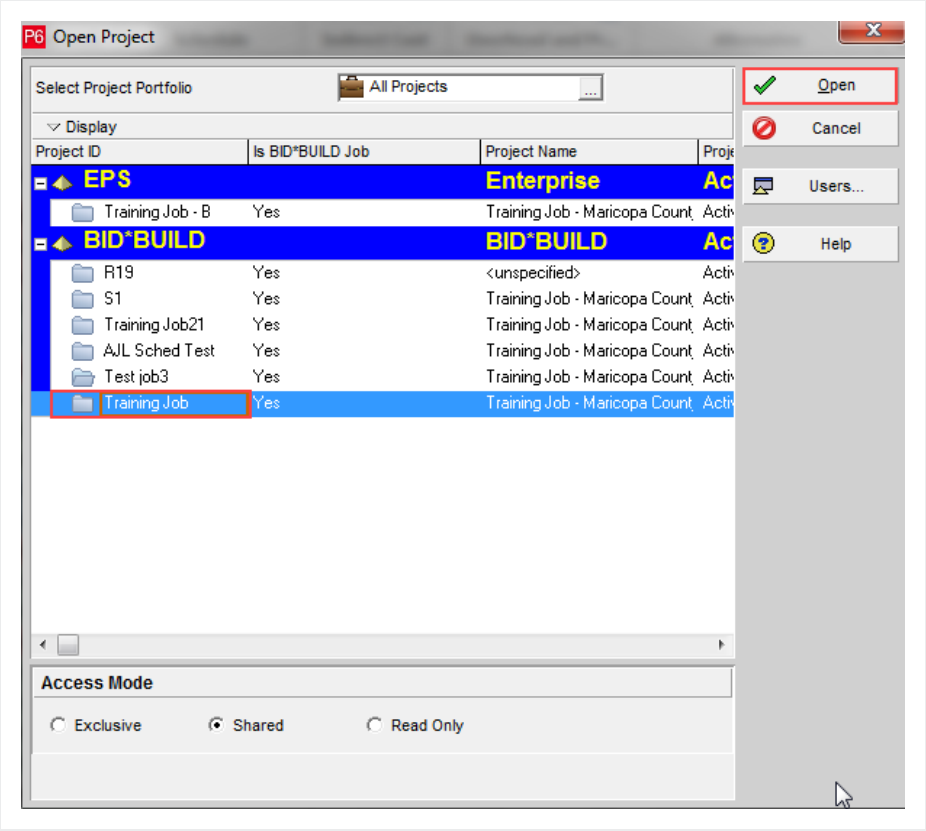
7. In the Open Project dialog, expand the **BID*BUILD** folder.



NOTE All projects created from InEight Estimate are created in the BID*BUILD folder by default.

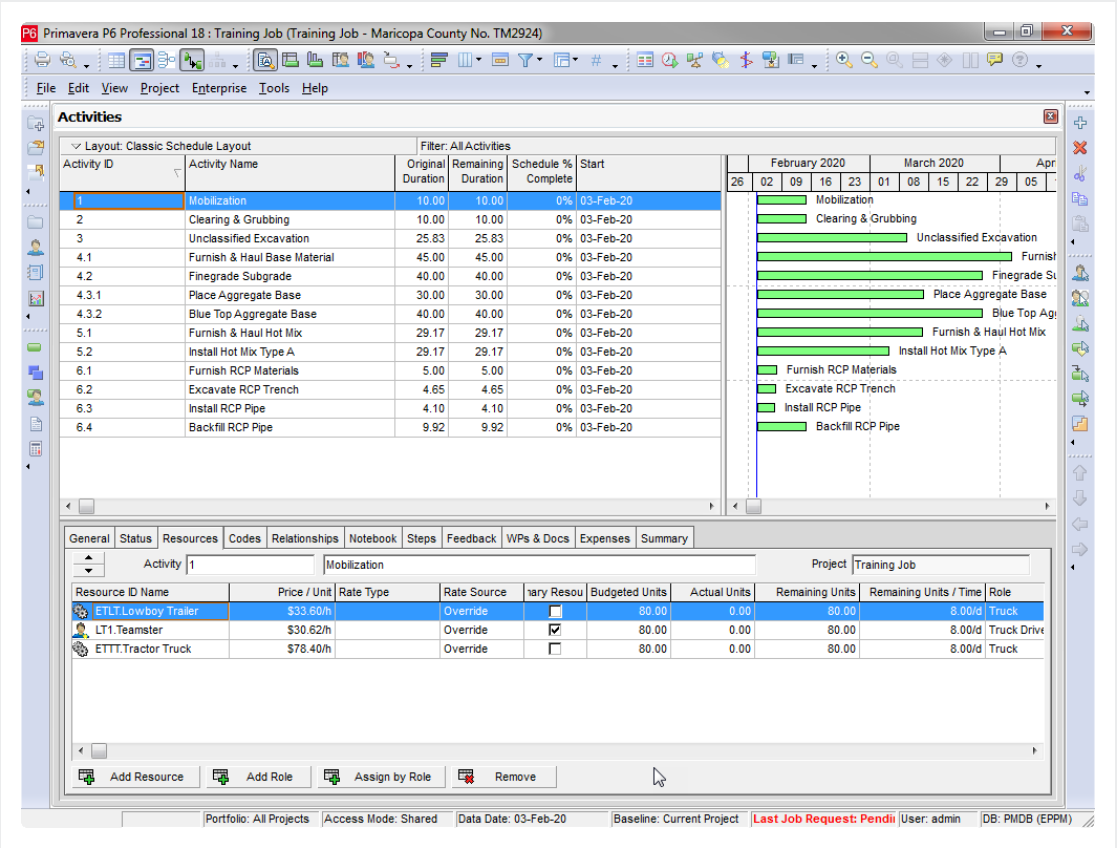
- Your available projects are sorted by their job names.

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

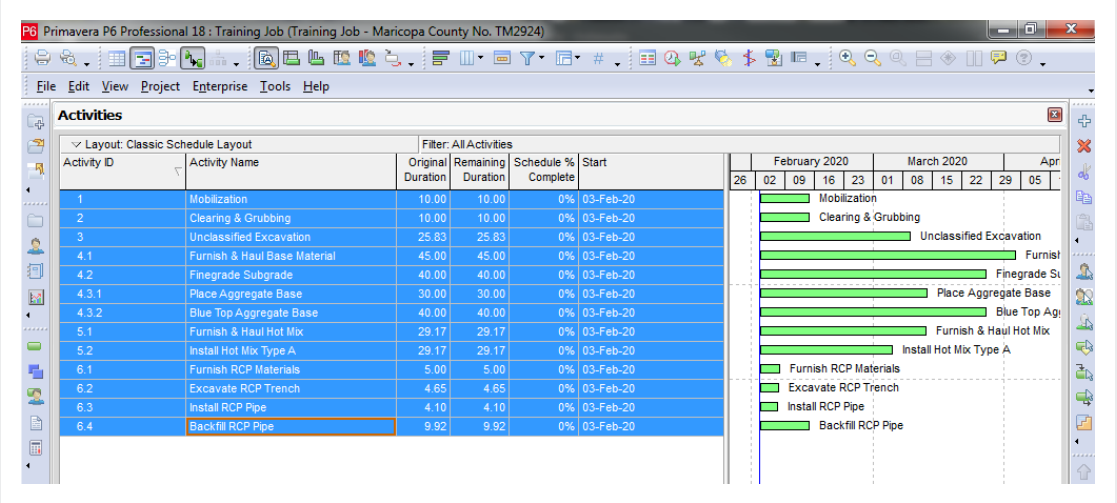
You can also bring information back from Primavera into InEight Estimate. When you update InEight Estimate from Primavera, the following information updates:

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

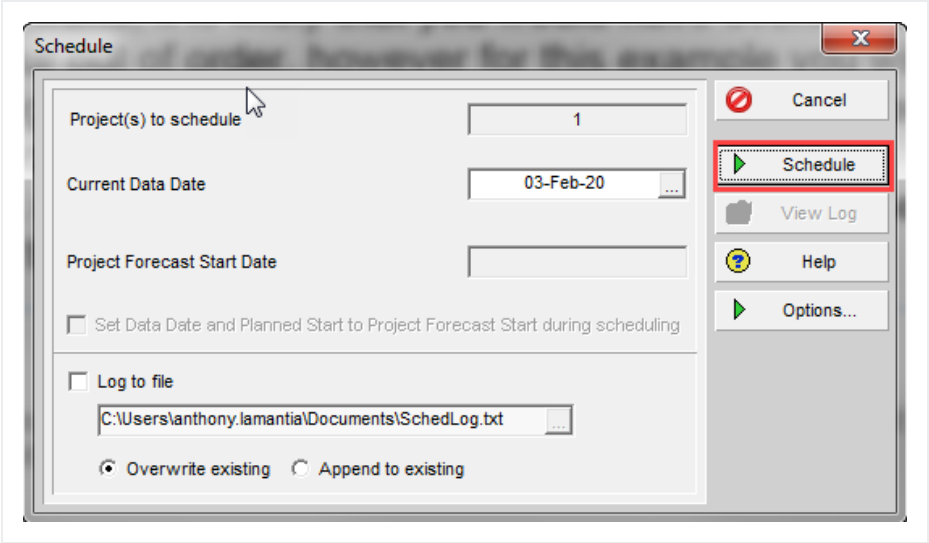
Complete the following steps to practice updating InEight Estimate from Primavera. You will create a scheduling relationship in Primavera, and then import the updated dates and relationships into InEight Estimate.

12.1 Step by Step 6 — Update InEight Estimate from Primavera

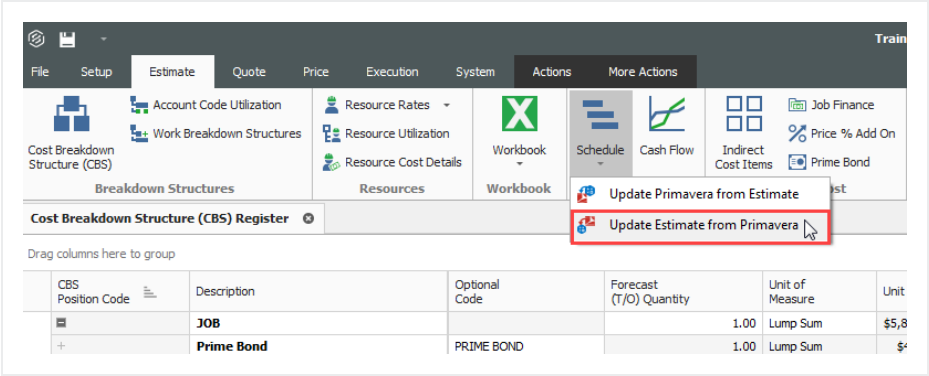
1. Open your version of the **Training Job** project in Primavera.
    - In the real world, it is likely that you would have overlapping activities, or your activities would occur out of order, however for this example you will link all activities from finish to start
2. Highlight all of your activities from **1-Mobilization** through **6.4-Backfill RCP Pipe**.



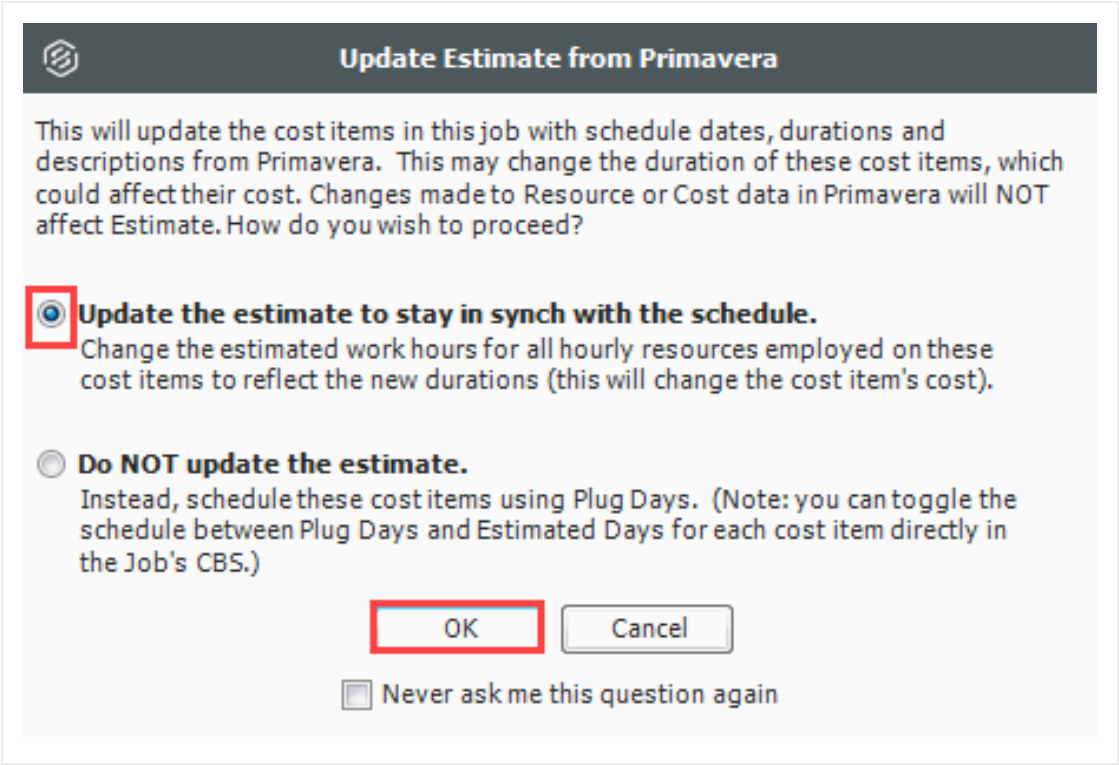
3. Right click on one of the selected rows and select **Link Selected Activities** to create the Finish to Start relationship.
    - You may have to select the Relationship Lines button to show the linked activities in the graph on the right side of the screen.
4. To schedule this new relationship, select the **Schedule** button (or press the **F9** key).
5. On the Schedule Project window, keep the default settings and select the **Schedule** button.



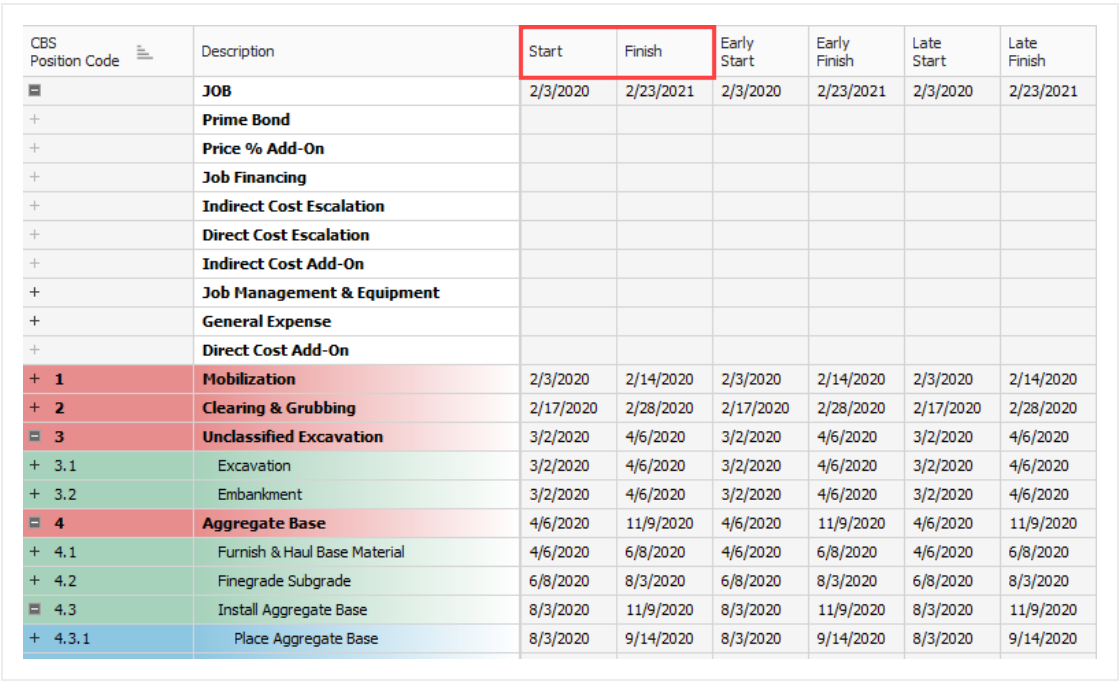
6. To update InEight Estimate with this change, go back to InEight Estimate and select **Estimate** tab.
7. Select **Schedule > Update Estimate from Primavera**.



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**.



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
	JOB	2/3/2020	2/23/2021	2/3/2020	2/23/2021	2/3/2020	2/23/2021
	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**	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	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	**Aggregate Base**	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

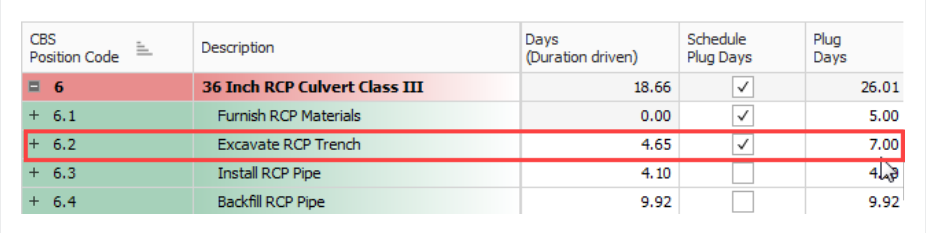
The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab.

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.

12.1 Step by Step 7 — 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	✓	26.01
6.1	Furnish RCP Materials	0.00	✓	5.00
6.2	Excavate RCP Trench	4.65	✓	7.00
6.3	Install RCP Pipe	4.10		4.10
6.4	Backfill RCP Pipe	9.92		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

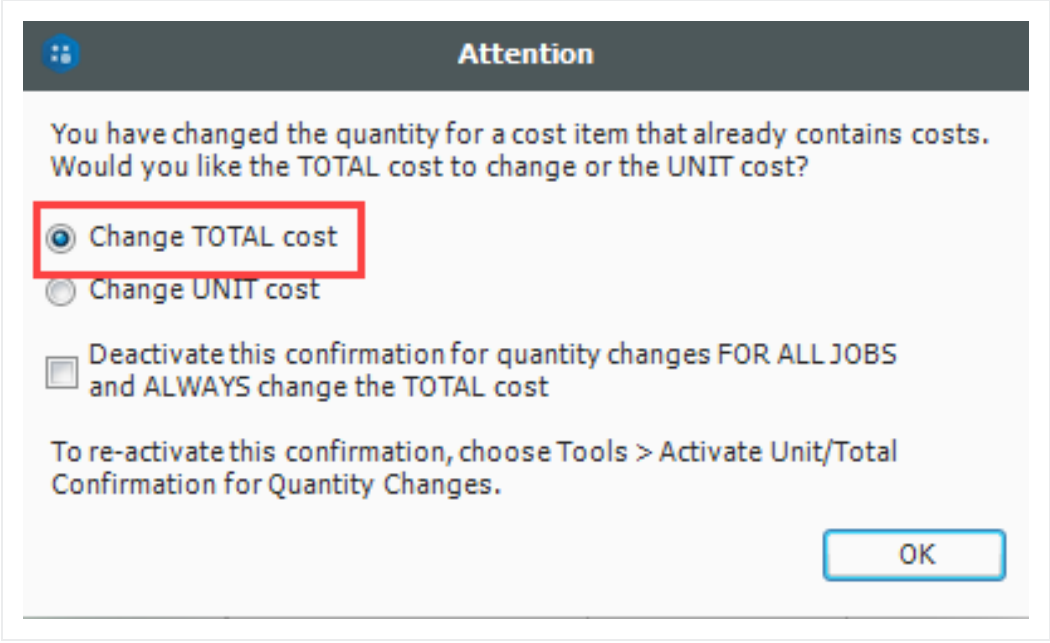
The following steps will walk you through updating the schedule with a scope change in your estimate.

12.1 Step by Step 8 — 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

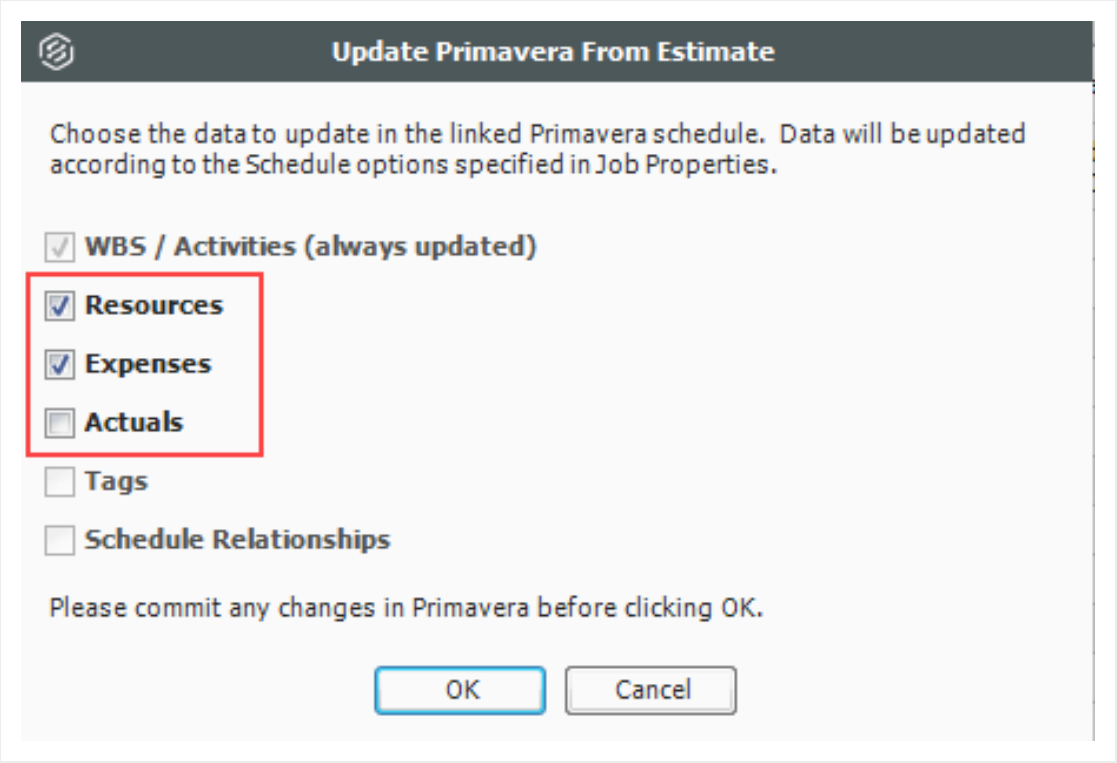
   - As you make your changes, take note of how your duration changes in the Days (Duration driven) column for these items
   - If prompted about changing Total or Unit Cost, select **Change TOTAL cost**, so that your unit costs stay intact, then click **OK**.



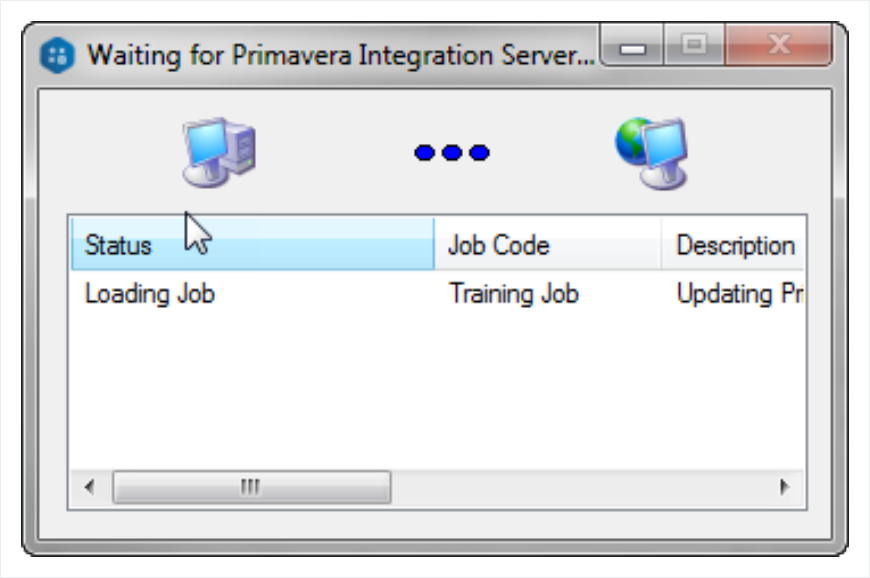
3. From the Estimate tab, select **Schedule > Update Primavera from InEight Estimate** to send the changed hours to Primavera.

- 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**.

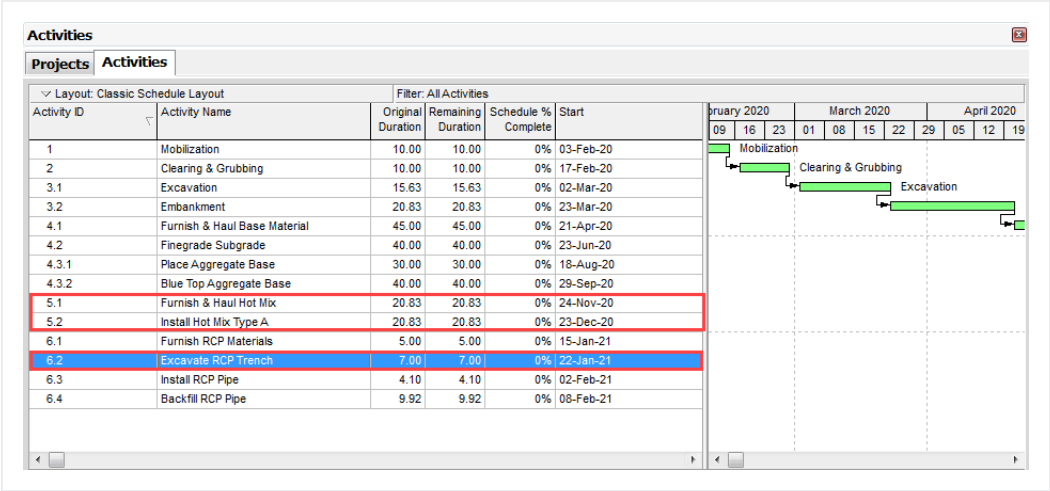


- A window appears that shows the progress of the data sync between InEight Estimate and Primavera. Depending on the size of the job, this can take a few minutes

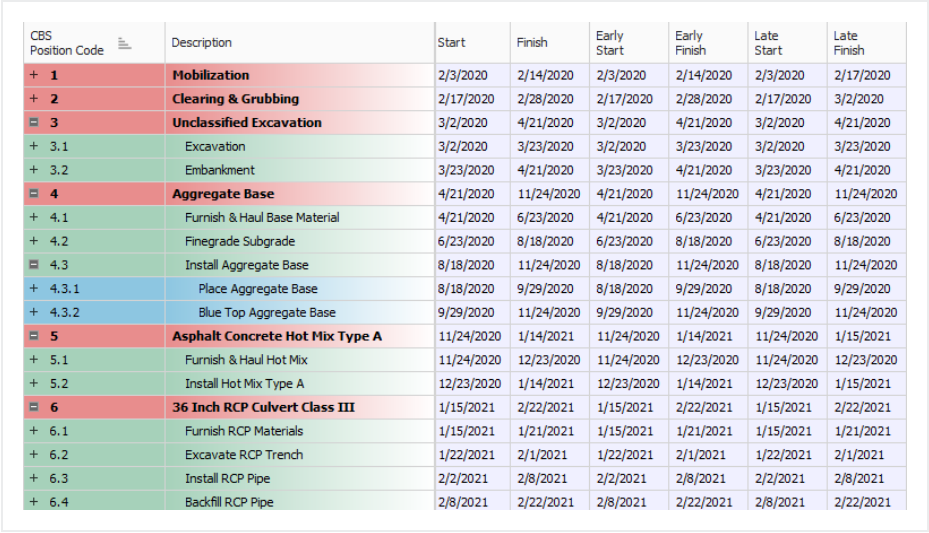


- When the window disappears, the update is complete

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
6	**36 Inch RCP Culvert Class III**	18.66	✓	46.00	1/15/2021	3/1/2021
6.1	Furnish RCP Materials	0.00	✓	5.00	1/15/2021	1/21/2021
6.2	Excavate RCP Trench	4.65	✓	7.00	1/22/2021	2/1/2021
6.3	Install RCP Pipe	4.10	✓	8.00	2/2/2021	2/11/2021
6.4	Backfill RCP Pipe	9.92	✓	12.00	2/12/2021	3/1/2021

Congratulations, you have completed this exercise!

12.2 MICROSOFT PROJECT

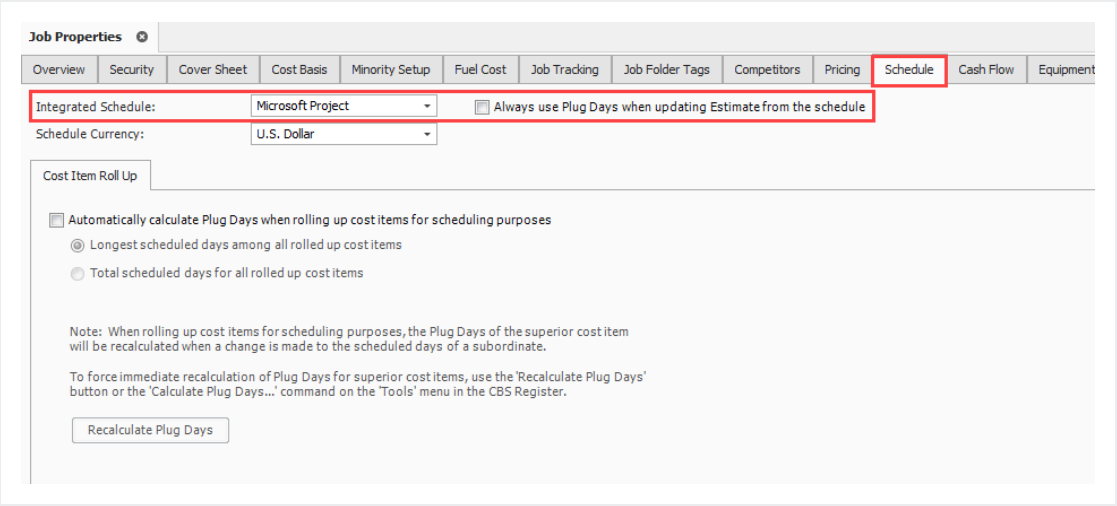
12.2.1 Set Up Scheduling Options

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)



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

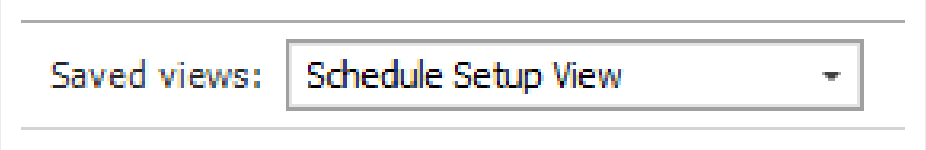
In the below example, notice that all of the cost items are scheduled, but the subordinates for Unclassified Excavation will be rolled up to the superior level.

CBS Position Code	Description	Scheduled	Roll Up Schedule
+ 1	**Mobilization**	☑	☐
+ 2	**Clearing & Grubbing**	☑	☐
− 3	**Unclassified Excavation**	☑	☑
+ 3.1	Excavation	■	☐
+ 3.2	Embankment	■	☐
− 4	**Aggregate Base**	☑	☐
+ 4.1	Furnish & Haul Base Material	☑	☐
+ 4.2	Finegrade Subgrade	☑	☐
− 4.3	Install Aggregate Base	☑	☐

The following steps walk you through scheduling your cost items.

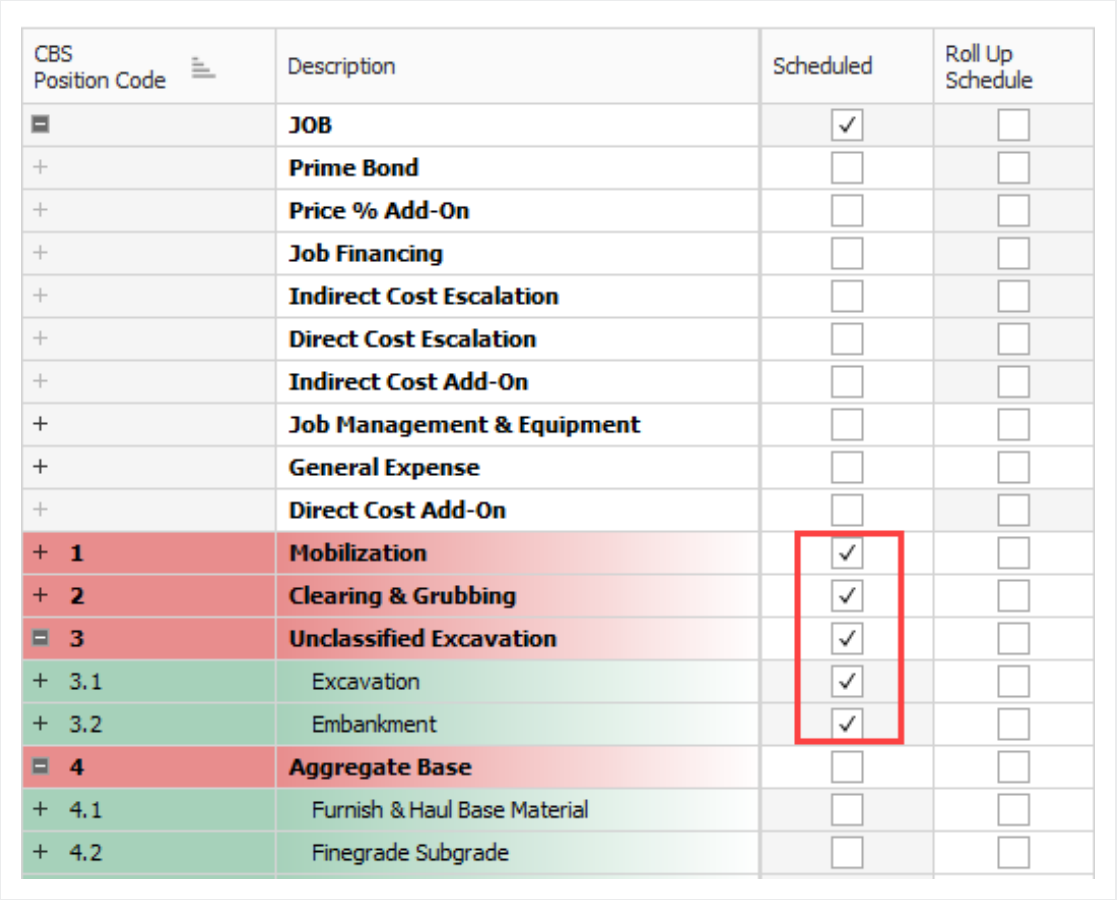
12.2 Step by Step 1 — Schedule a Cost Item in InEight Estimate

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**.



   - 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**.



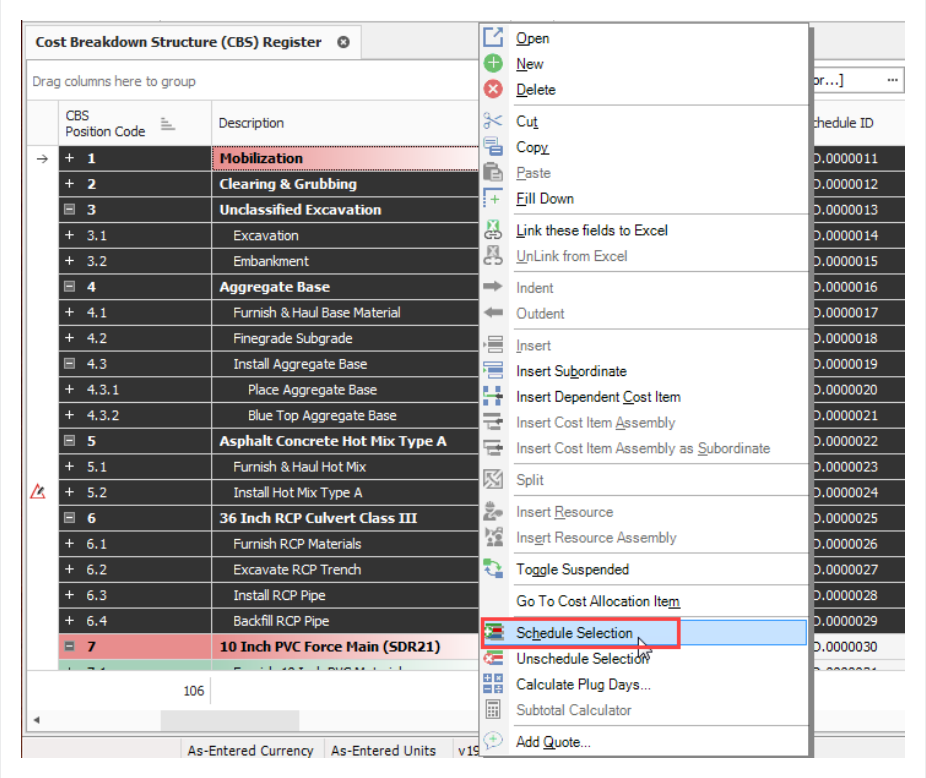
CBS Position Code	Description	Scheduled	Roll Up Schedule
−	**JOB**	✓	
+	**Prime Bond**		
+	**Price % Add-On**		
+	**Job Financing**		
+	**Indirect Cost Escalation**		
+	**Direct Cost Escalation**		
+	**Indirect Cost Add-On**		
+	**Job Management & Equipment**		
+	**General Expense**		
+	**Direct Cost Add-On**		
+ 1	**Mobilization**	✓	
+ 2	**Clearing & Grubbing**	✓	
− 3	**Unclassified Excavation**	✓	
+ 3.1	Excavation	✓	
+ 3.2	Embankment	✓	
− 4	**Aggregate Base**		
+ 4.1	Furnish & Haul Base Material		
+ 4.2	Finegrade Subgrade		

12.2 Step by Step 2 — 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.**

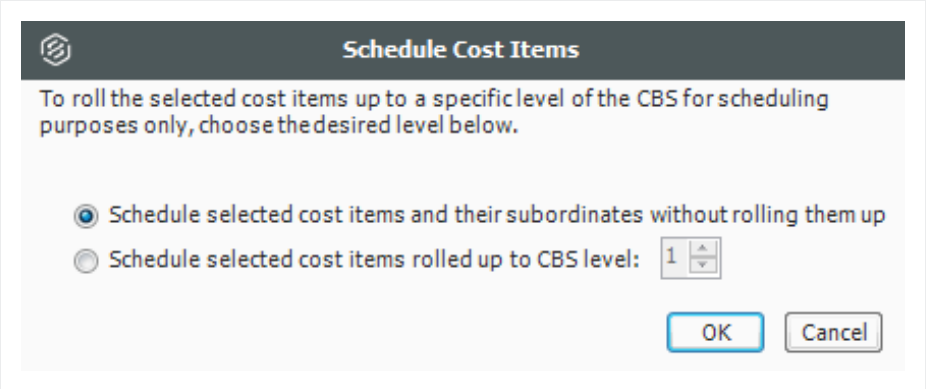
TIP	To schedule all cost items, highlight the JOB row

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.

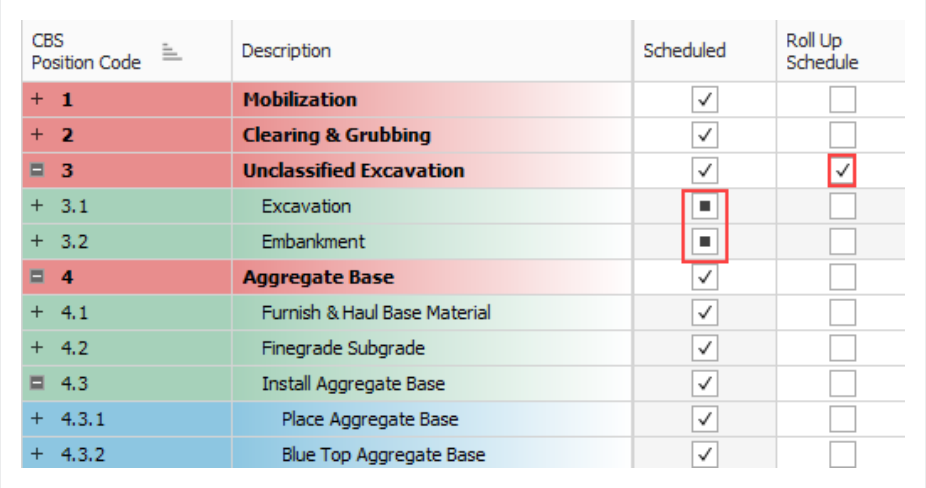
12.2.2.2 Roll Up Schedule

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.

12.2 Step by Step 3 — 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.



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.

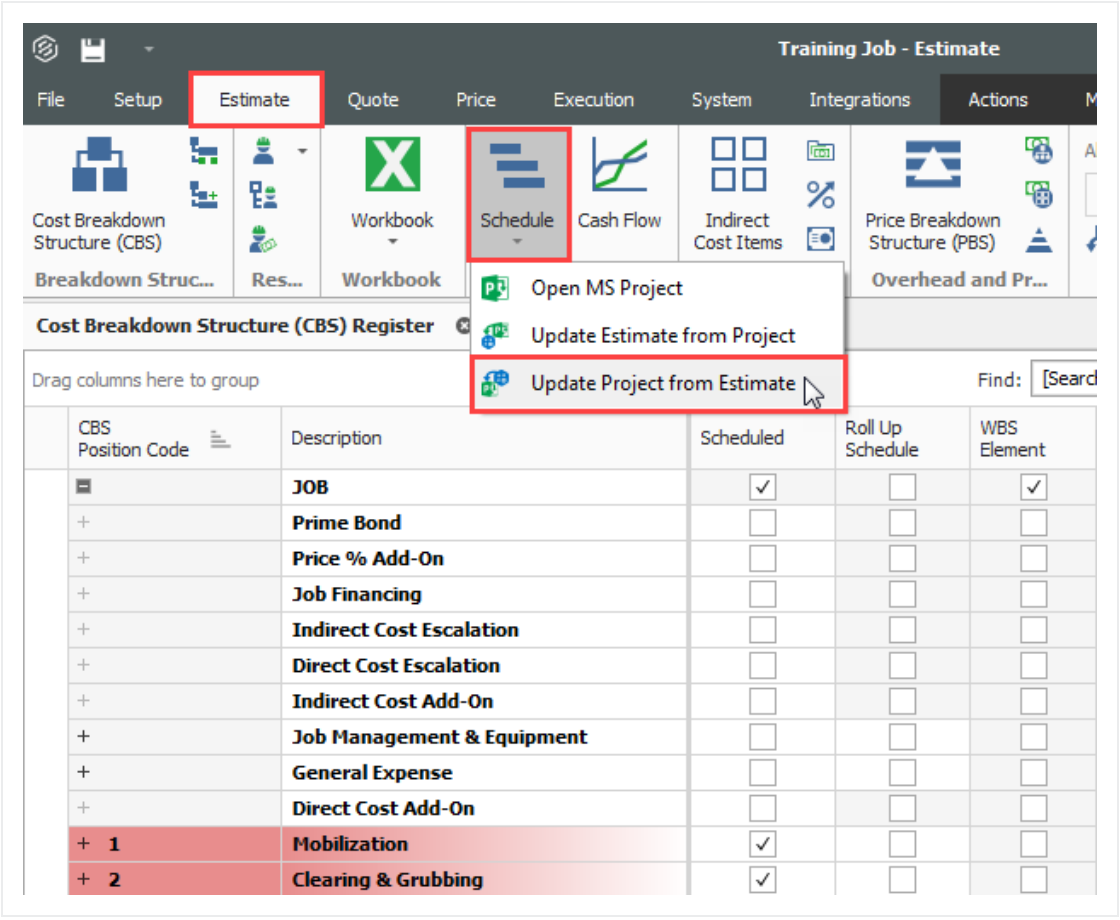
When you first update Microsoft Project from InEight Estimate, Microsoft Project will create a new project automatically and load it with the following information from InEight Estimate:

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.

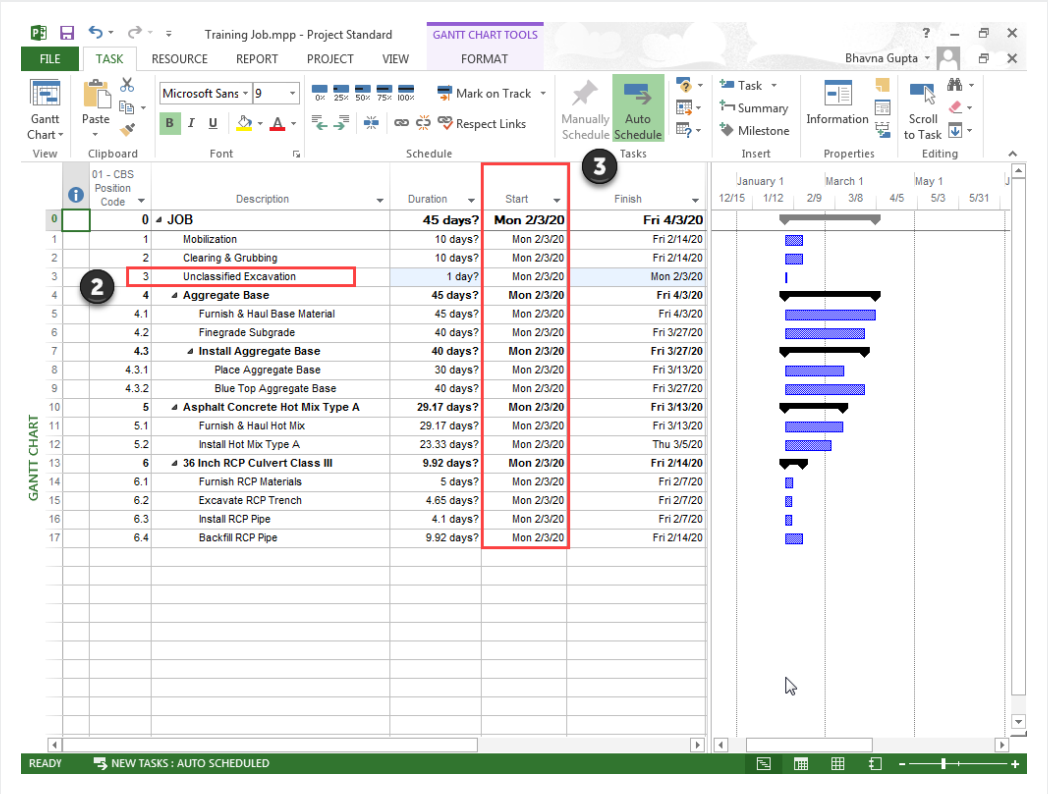
12.2 Step by Step 4 — Update MS Project from InEight Estimate

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

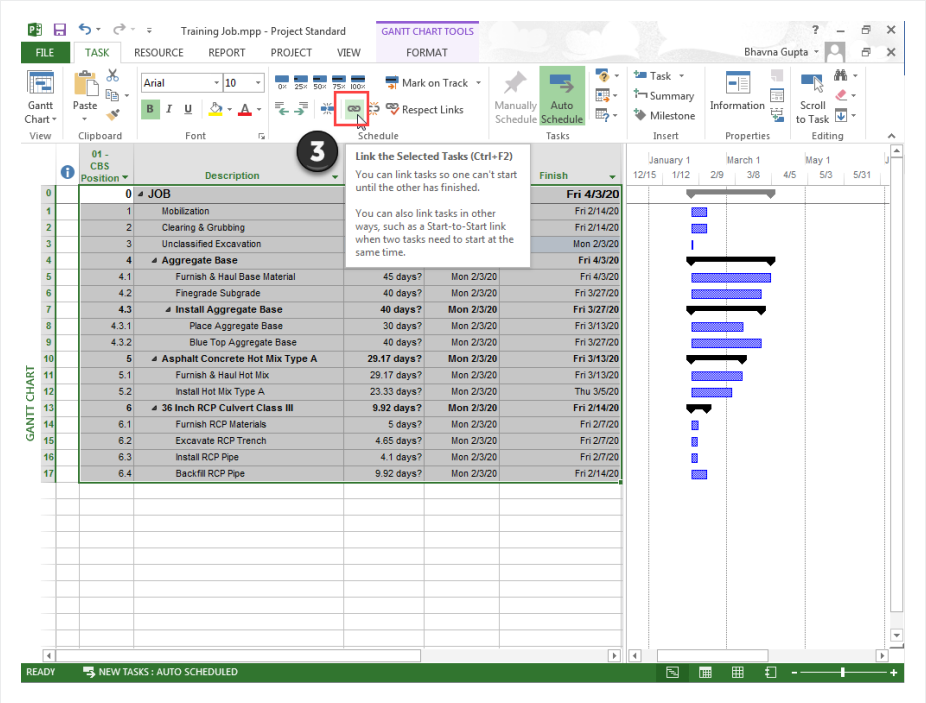
You can also bring information back from Microsoft Project into InEight Estimate. When you update InEight Estimate from Microsoft Project, the following information updates:

Update InEight Estimate from Microsoft Project		
Data Type	Microsoft Project	InEight Estimate
Activity Data	Start Dates	Start Dates
	Finish Dates	Finish Dates
	Hours	Hours

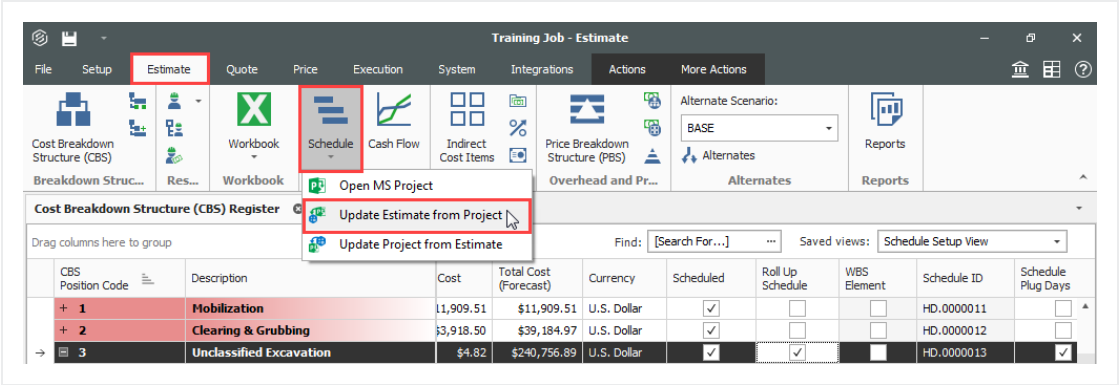
Walk through the following steps to practice updating InEight Estimate from Microsoft Project. You will create a scheduling relationship in Microsoft Project and then import the updated dates and relationships into InEight Estimate.

12.2 Step by Step 5 — Update InEight Estimate from MS Project

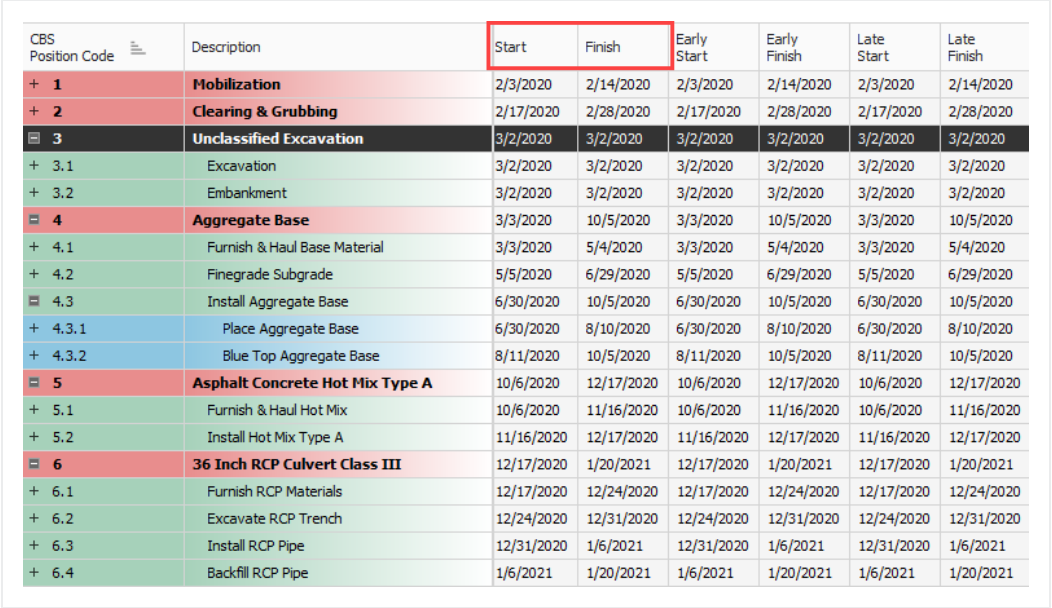
1. Open your version of the **Training Job** project in Microsoft Project.
    - In the real world, it is likely that you would have overlapping activities or your activities would be out of order, however for this example you will link all activities from finish to start
2. Click on the **Link Tasks** 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

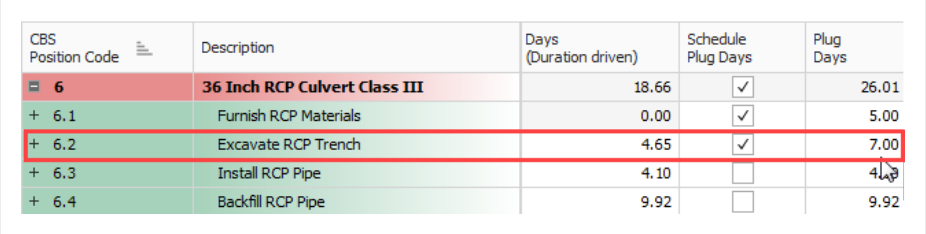
The Schedule Plug Days option allows you to define the duration in the schedule separate from the duration defined for your cost items on the Production tab. For example, your 10” PVC Pipe activity may have extra days in the schedule due to the delivery date of the pipe material, but you don’t want

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.

12.2 Step by Step 6 — 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	✓	26.01
6.1	Furnish RCP Materials	0.00	✓	5.00
6.2	Excavate RCP Trench	4.65	✓	7.00
6.3	Install RCP Pipe	4.10		4.10
6.4	Backfill RCP Pipe	9.92		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.

12.2 Step by Step 7 — Update MS Project with InEight Estimate Changes

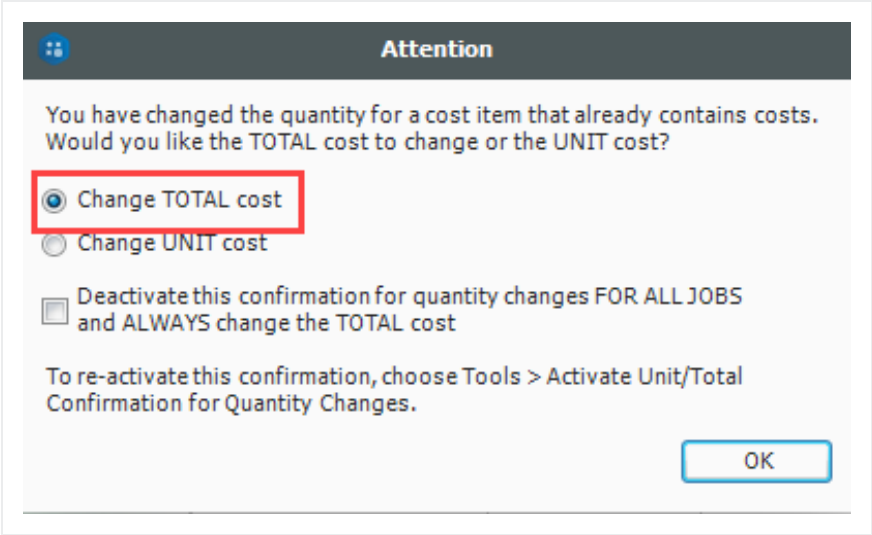
1. In the InEight Estimate **Training Job**, from the Estimate tab, select **Cost Breakdown Structure**.

- 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

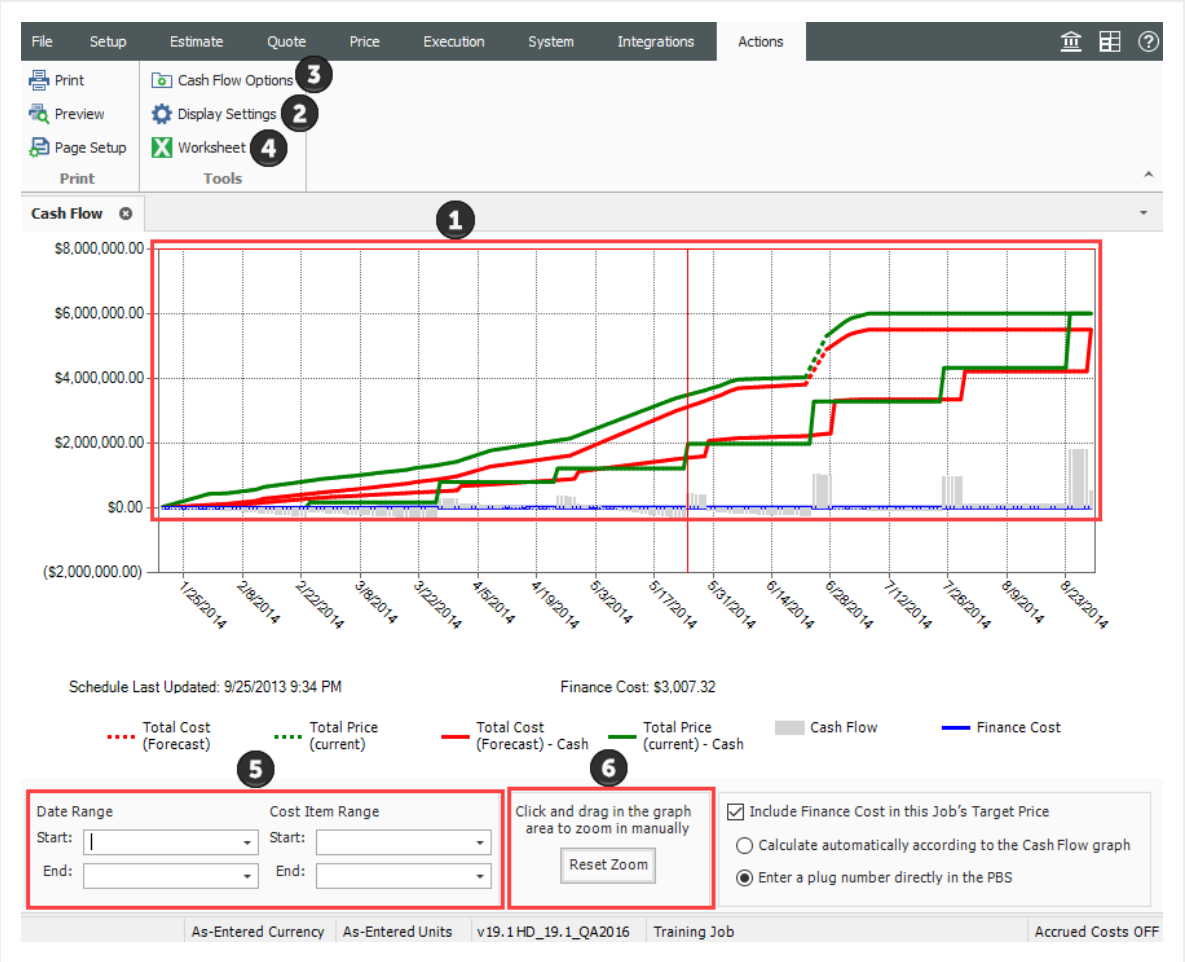
The Cash Flow form provides a graphical representation of the cash flow and resource utilization of your project, so you can quickly assess financing and resource needs.

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	The graph displays the projected cash flow of your project, along with job financing expense, individual cost category costs and resource utilization. • The x-axis measures time • The left y-axis measures amounts • The right y-axis measures quantities (when resource utilization is displayed) • All graphs depicted on the Cash Flow form can be displayed based on Pay Quantity or Forecast (T/O) Quantity
2	Click on the **Display Settings** icon to indicate what to display on the graph. • You can display total costs and price or specific cost categories • You can also set the display settings to report on Resource Utilization
3	Click on the **Cash Flow Options** icon to specify revenue timing, cost timing, and cost of money.
4	Click the **Excel** icon to export the numerical data represented on the graph into an Excel spreadsheet where you can run additional analysis.
5	You can filter the Cash Flow graph by date range or by a range of cost items.
6	Click and drag over the graph to zoom in on a particular section. Click the **Reset Zoom** button to restore the graph to its original state.



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.

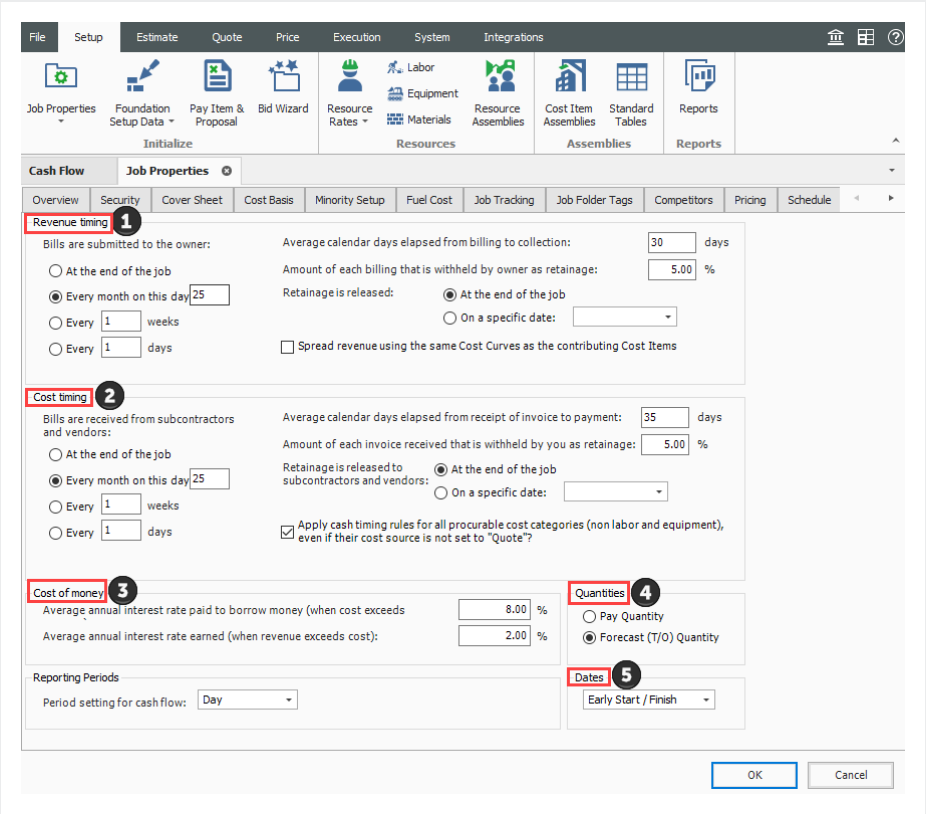
To open the Cash Flow Options, click on the **Cash Flow Options** icon in the Tools section of the Actions tab.

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.

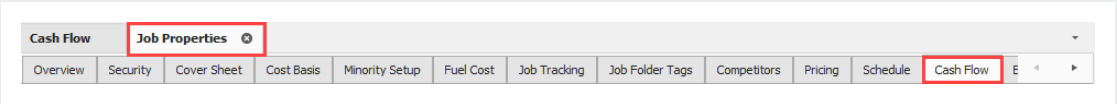


13.2.0.1 Cash Flow Options Set Up

The following steps walk you defining settings on the Cash Flow Options form.

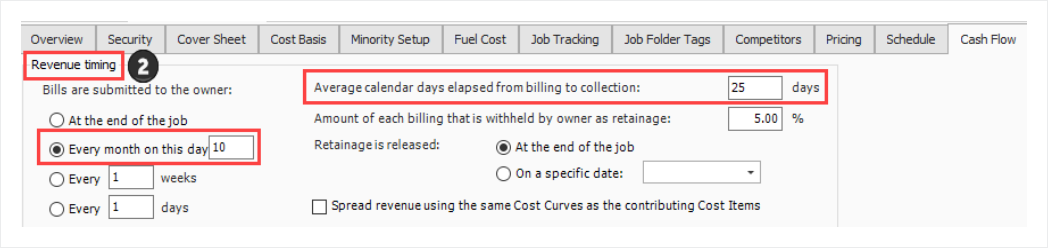
13.2 Step by Step 1 — Cash Flow Options Setup

1. In the **E101 – Training Job**, from the Estimate tab, select **Setup > Job Properties > Cash Flow**.

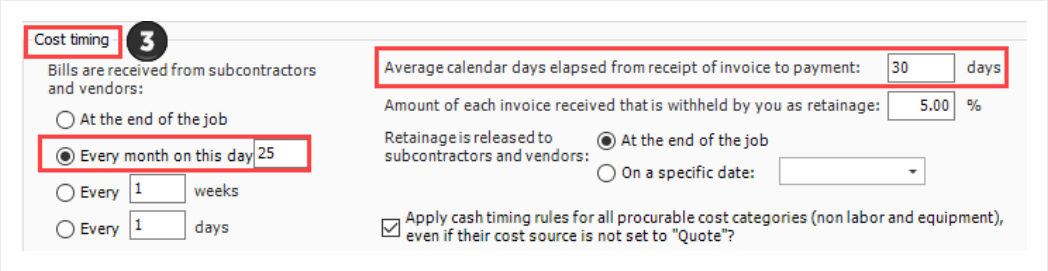


   - You will see the default options already there
   - You will adjust a few of those options
2. Change your Revenue timing to **Every month on the 10th**.

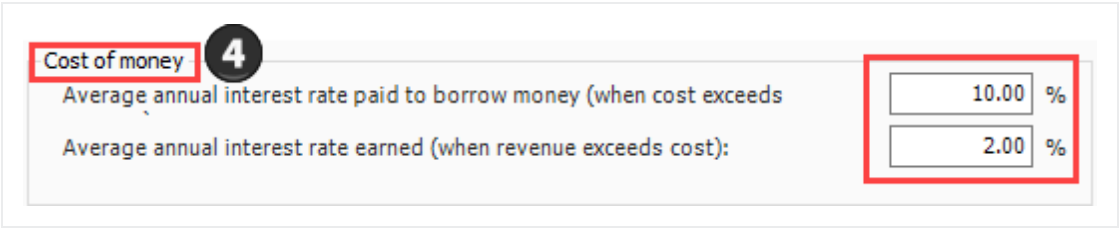
- The average calendar days from billing to collection should be set to 25 days



3. 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



4. 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).



5. Leave all remaining options as originally defaulted.

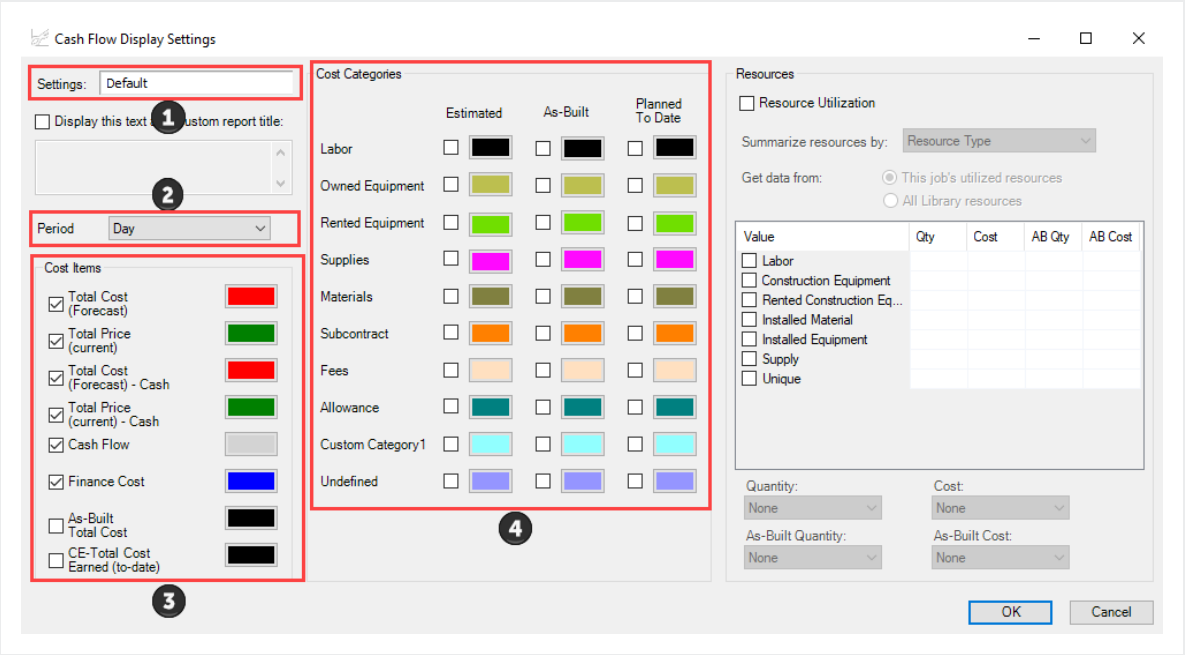
13.3 CASH FLOW DISPLAY SETTINGS

13.3.1 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	Under the Cost Items section, you can select: • **Total Cost (Forecast)**: 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 • **Total Price (current)**: 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 • **Total Cost (Forecast) – Cash**: 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 • **Total Price (current) – Cash**: 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 • **Cash Flow**: Displays the difference between your Total Cost – Cash and Total Price – Cash values, so you can see if you are making or losing money • **Finance Cost**: Displays the Cost of Money amount calculated from the settings you specify in the Cash Flow Options
4	You can check the Estimated box for any specific cost categories you need to display. • The other check boxes are used for InEight Estimate Performance



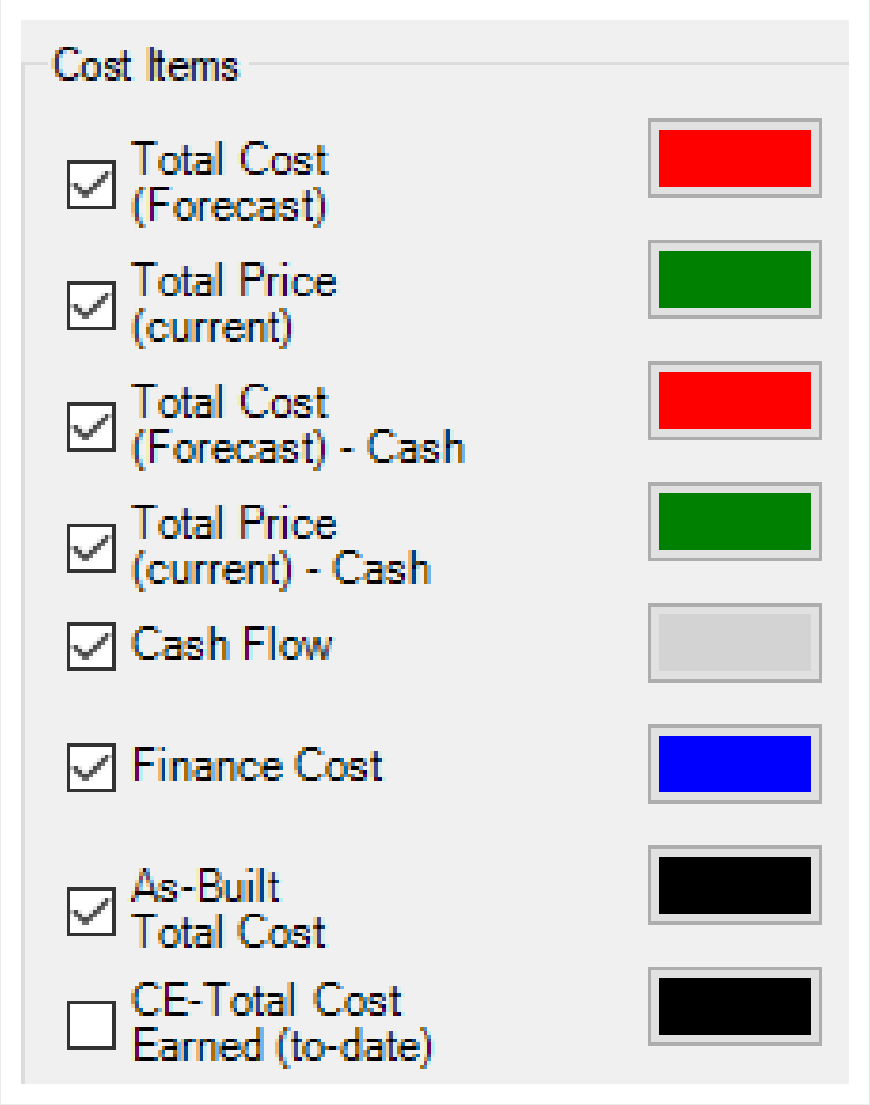
13.3.1.1 Cash Flow Display Set Up

The following steps walk you through setting up your Cash Flow Display Settings.

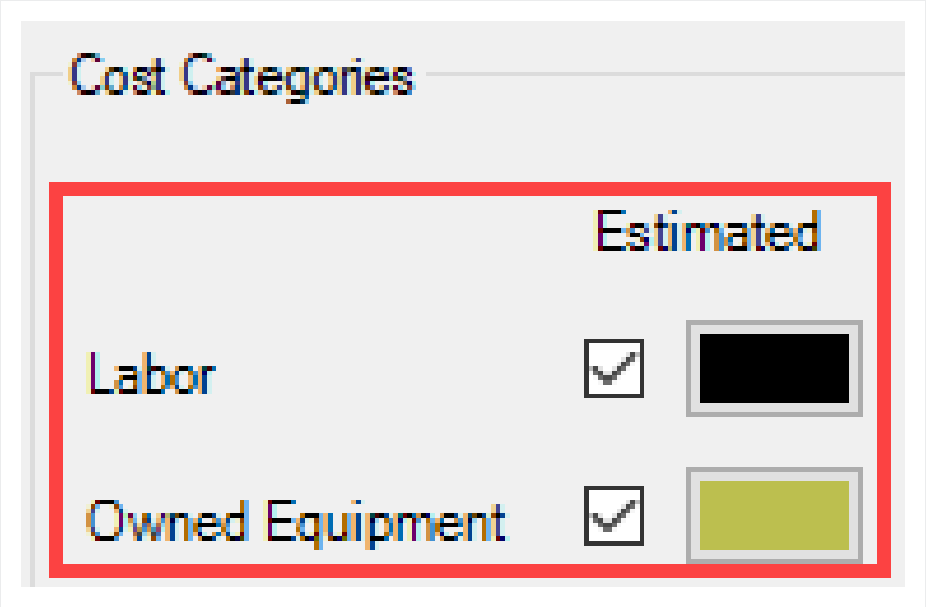
13.3 Step by Step 1 — Cash Flow Display Settings Set Up

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

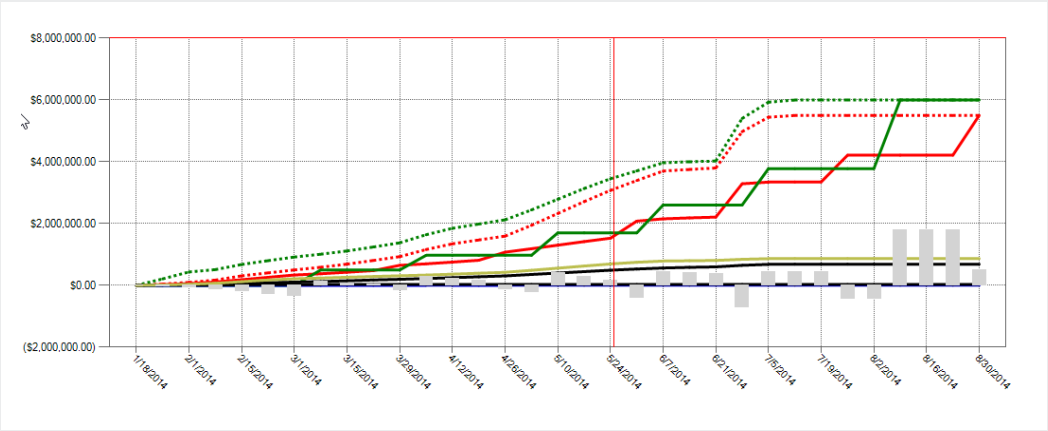


5. Under the **Cost Categories** section, check the **Estimated** checkbox for the Labor and Owned Equipment categories.

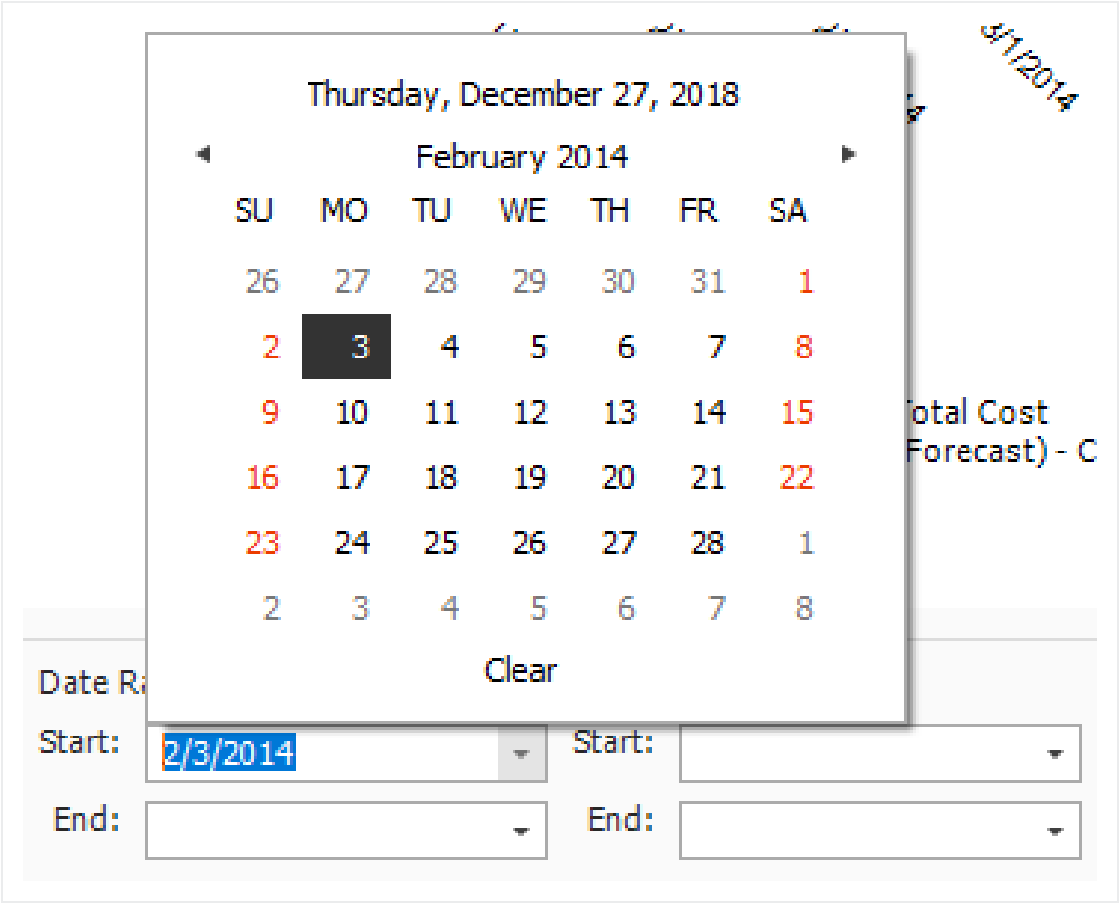


6. Click **OK** to close the Display Settings window.
    - Your Total Cost (Forecast) displays as a dashed red line, indicating your accrued costs based on when your cost items are scheduled and the assigned cost curves for each cost item.
    - Your Total Price (current) displays as a dashed green 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.



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.

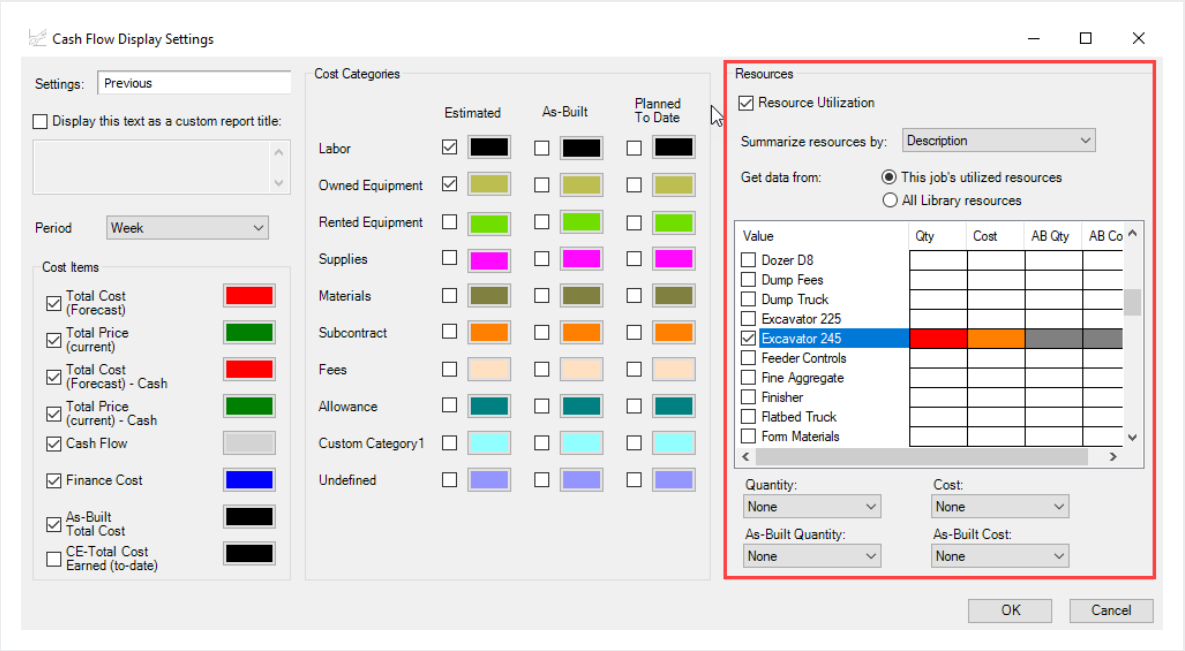
13.3.2 Resource Utilization

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.

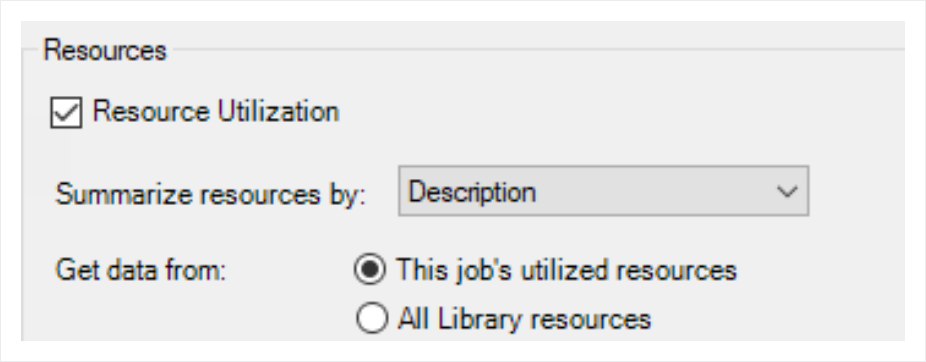


13.3.2.2 Resource Utilization Display Set Up

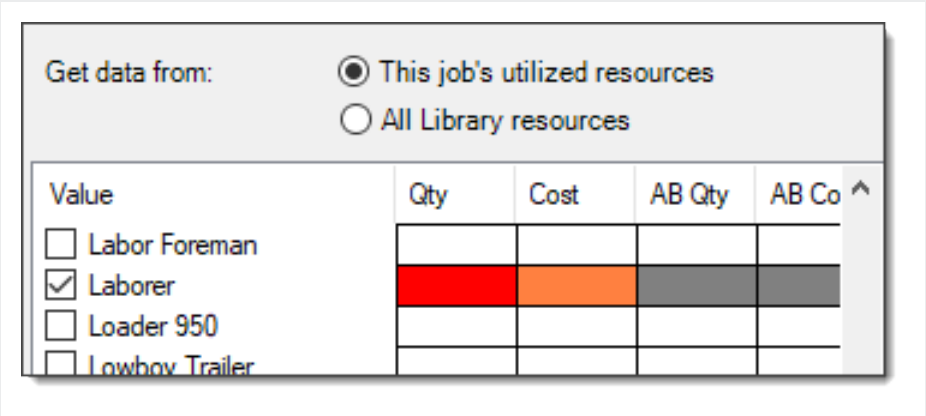
The following steps walk you through setting up your Cash Flow graph to report on Resource Utilization.

13.3 Step by Step 2 — Resource Utilization Display Setup

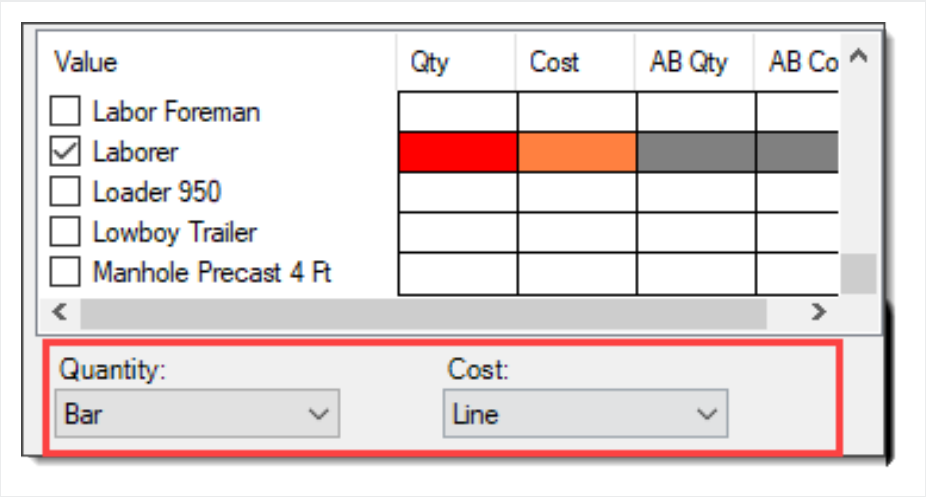
1. In the **E101 – Training Job**, from the Estimate tab, select **Cash Flow** from the Schedule section.
2. On the Actions tab, select **Display Settings** to open the Display Settings window**.**
3. Make sure the all checkboxes are unchecked under the Cost Items and Cost Categories sections.
4. Under the Resources section, check the **Resource Utilization** checkbox.
5. From the Summarize resources by drop-down list, select **Description**.



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.

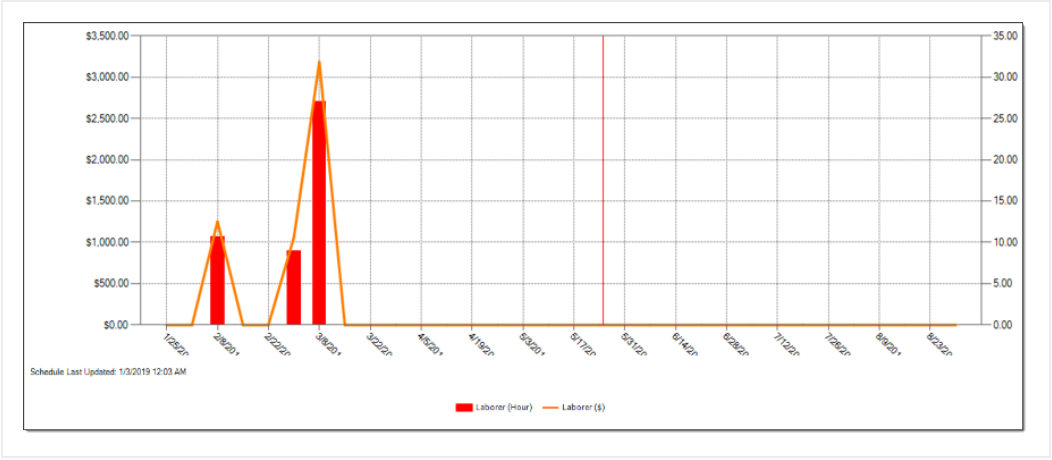


9. From the **Quantity and Cost** drop down lists, you can select how your quantities and costs will display on the graph. In this case select the Quantity to display as a **Bar** and Cost to display as a **Line**.



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

Lesson Topics

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14.2 Trench Calculator 470
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14.2.2 Trench Calculator – Pipe Tab 474
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14.1 HAUL CALCULATOR

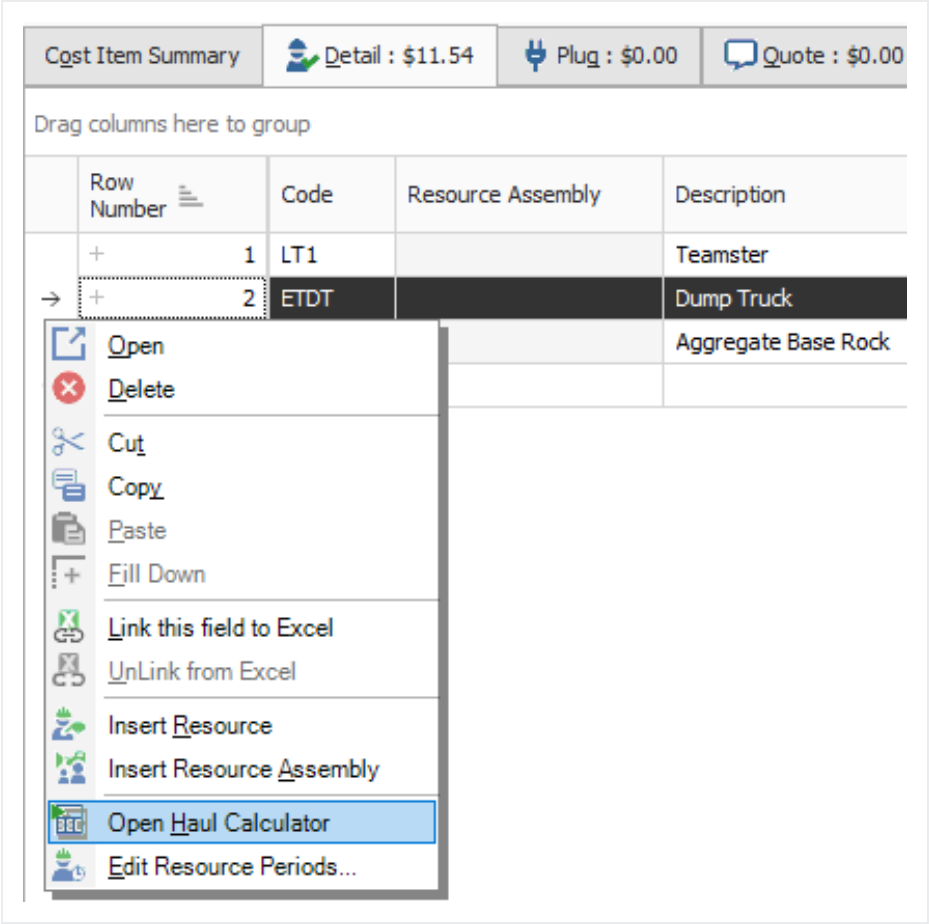
The **Haul Calculator** allows you to enter the specifics of up to three haul routes (distance, travel speed, etc.). Once entered, you can either:

- 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

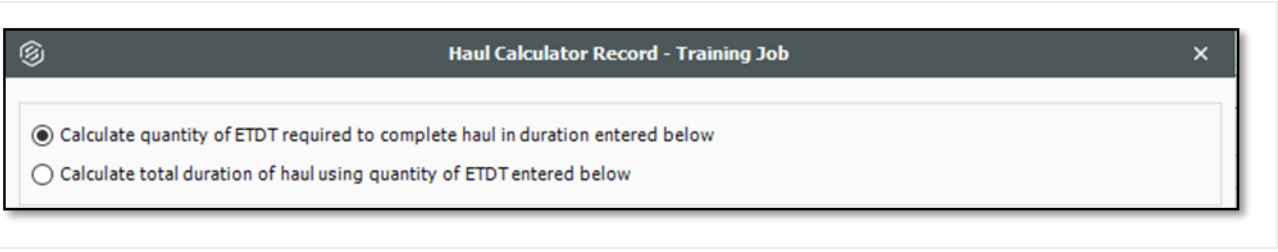
The following activity walks step by step through using the Haul Calculator to calculate the number of trucks needed for a cost item.

14.1 Step by Step 1 — 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**.

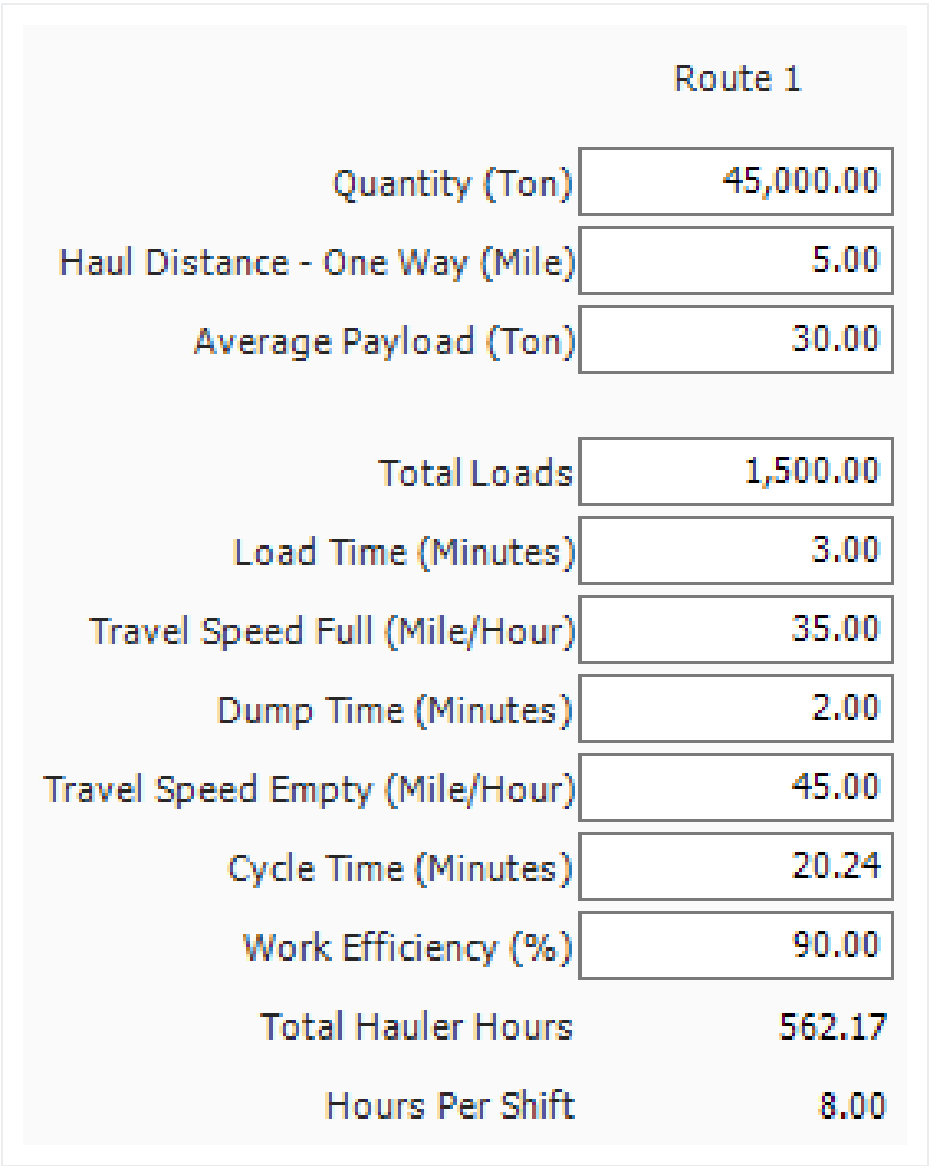


5. On the Haul Calculator, select the **Calculate quantity of ETDT required to complete haul in duration entered below** radio button. (ETDT is the resource code for the Dump Truck you selected.)



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.

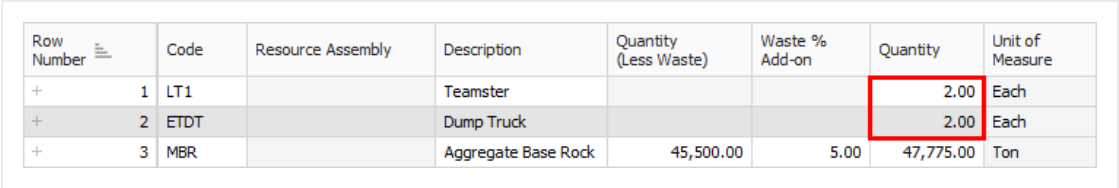
10. For **Dump Time (Minutes)**, type **2**.
11. Enter a **Travel Speed Empty** of **45** Mile/Hour. Notice this calculates a cycle time of 20.24.
12. Enter a **Work Efficiency** of **90 percent**.



	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

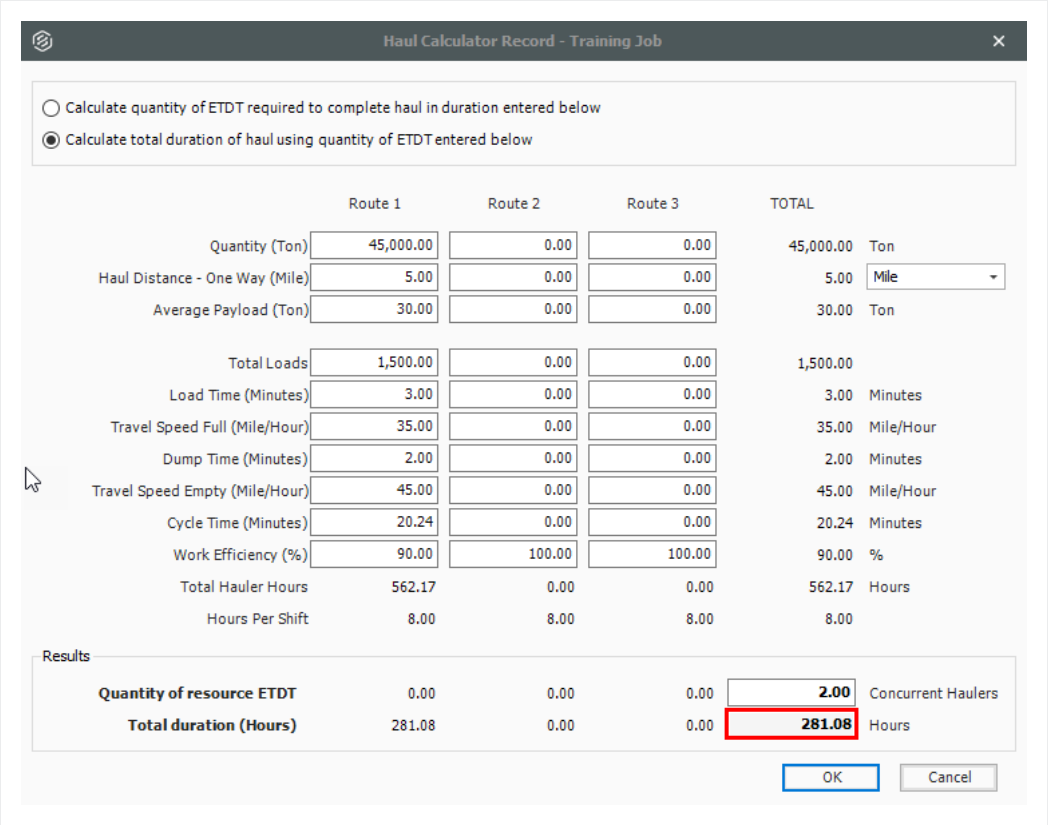
13. Click **OK**.
14. Your cost item now shows a quantity of 1.56. Round up the Quantity to **2**. Also, adjust the Teamster Quantity to **2** (if needed).



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

14.1 Step by Step 2 — 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



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

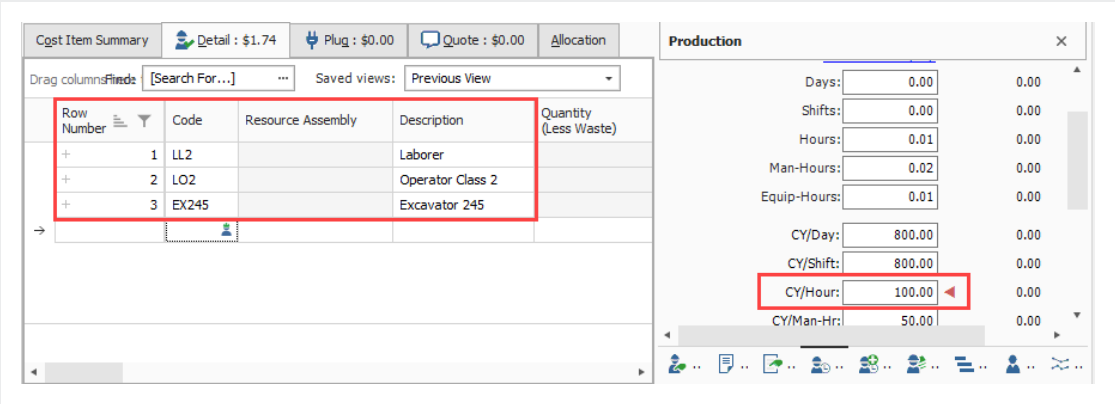
The following steps walk through using the Trench Calculator to take-off excavation volume.

14.2 Step by Step 1 — Trench Calculator – Trench

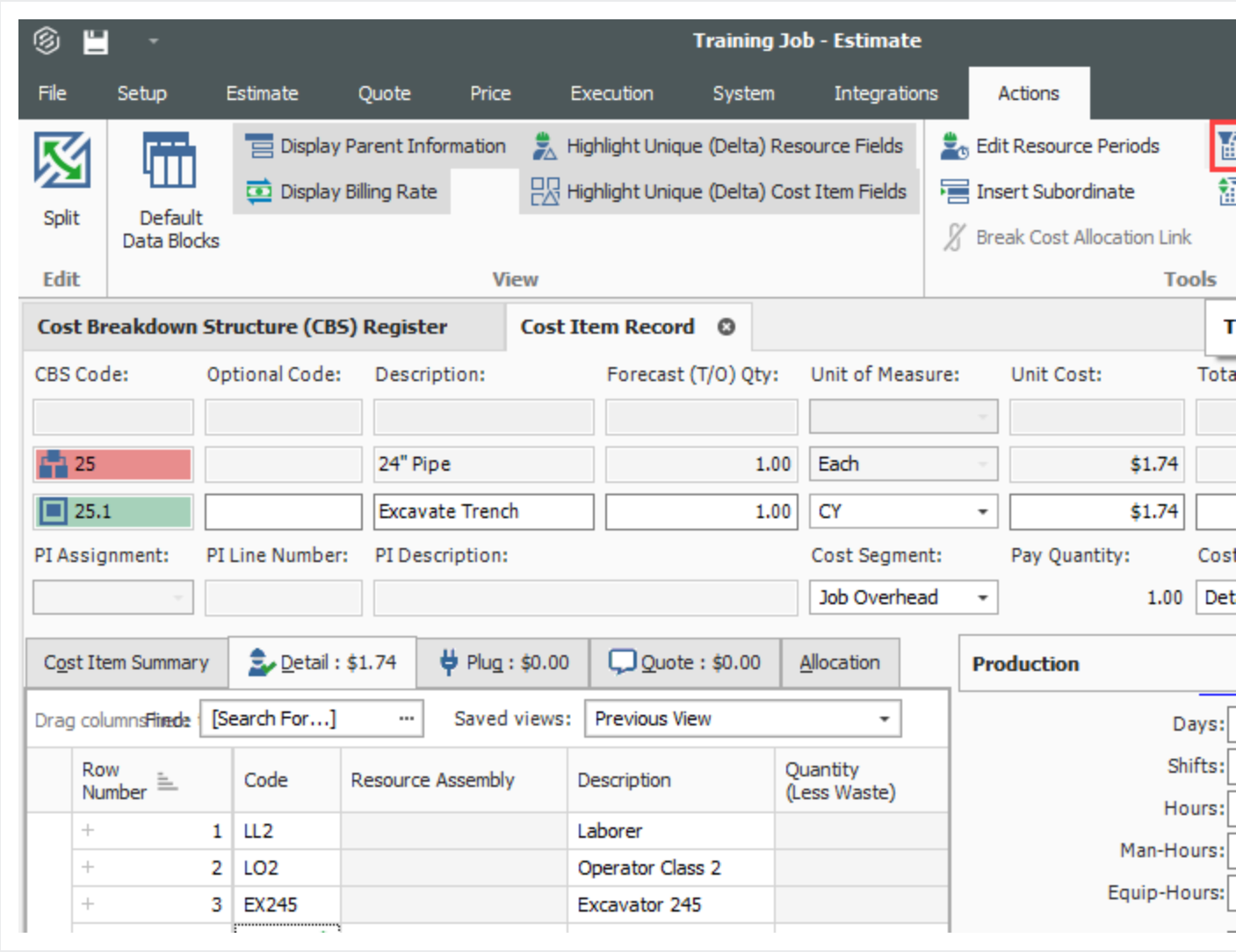
1. Open the **Training Job** and from the Estimate tab, select **Cost Breakdown Structure**.
2. Create a new cost item from the bottom row of your CBS and call it **24" Pipe**.
3. Add the following three subordinates and update their Units of Measure:
    - Excavate Trench: **CY**
    - Install Pipe: **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**

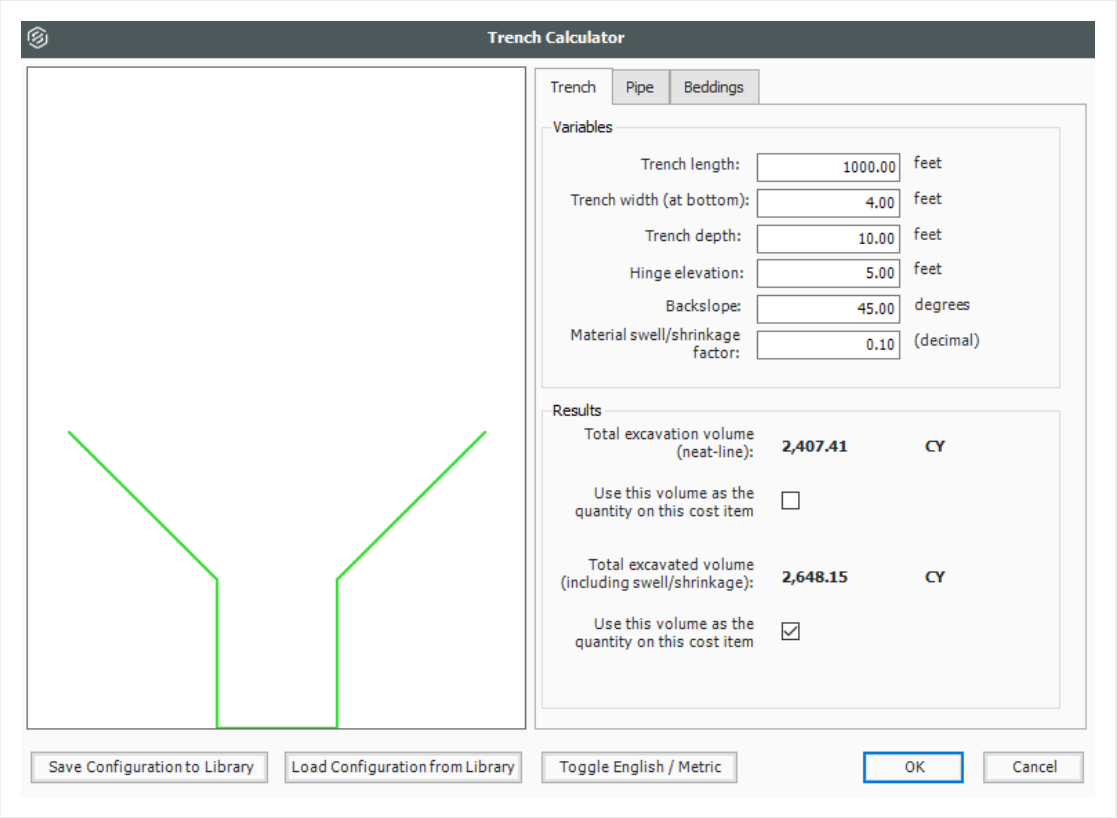
5. Adjust the Production to: **100 CY/Hour**.



6. On the Cost Item Record's Actions tab, select **Trench Calculator**.



7. For **Trench Length**, type 1**000.00** feet.
8. For **Trench Width** (at the bottom) type **4.00** feet.
9. Enter a **Trench Depth** of **10.00** feet.
10. 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.



14. Click **Save Configuration to Library** and save the Trench calculator as **Trench Example** with your initials.
15. Click **OK**.

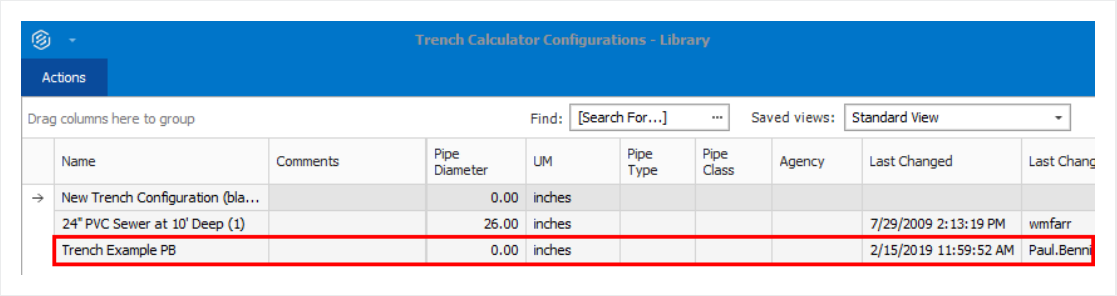
14.2.2 Trench Calculator – Pipe Tab

You can also use the Trench Calculator to take off how much piping and bedding you need for the trench.

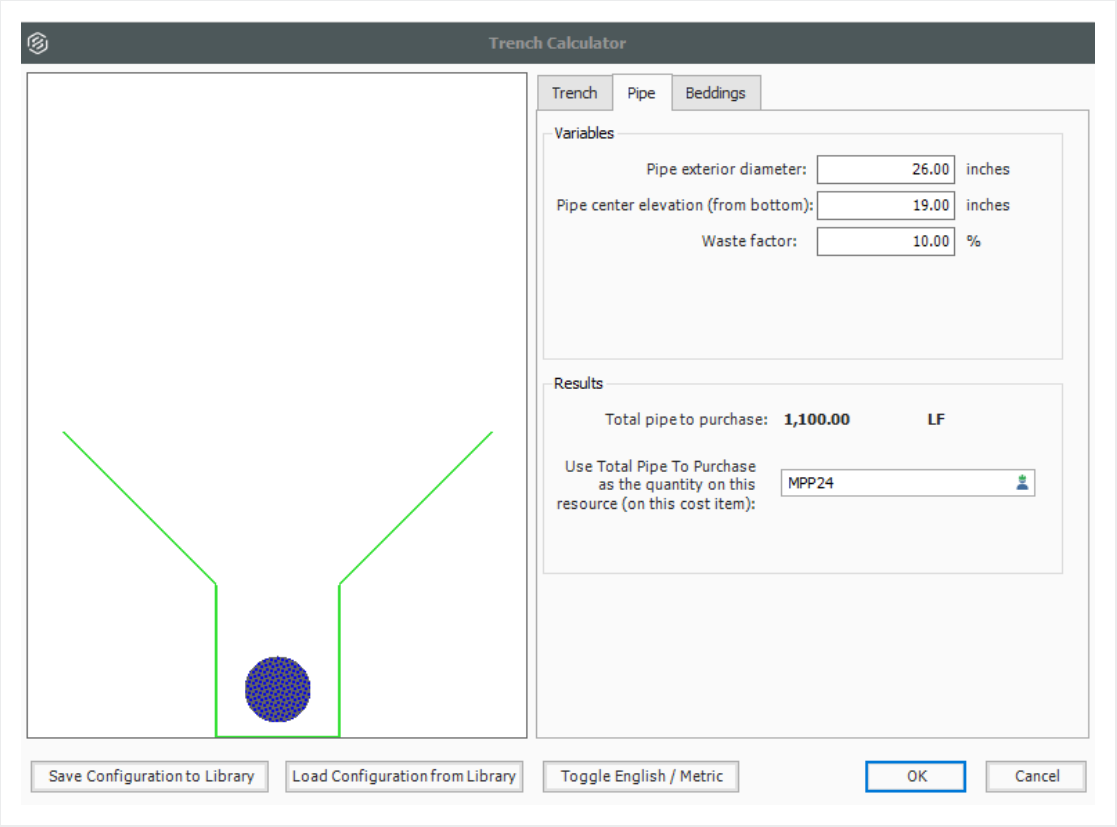
14.2 Step by Step 2 — Trench Calculator – Pipe

1. 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
2. Open the **Install Pipe** Cost Item Record.

3. Add the Resource Assembly of **CPIPE - Pipe Crew** and adjust the production to **300** LF / Day.
4. On the Cost Item Record's Actions tab, select **Trench Calculator**.
5. Select **Load Configuration from Library**.
6. Select **Trench Example** (with your initials).



7. Click **OK**.
8. On the Trench Calculator, select the **Pipe** tab.
9. 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**%
10. Click on the resource icon to pull up the Resource Rate Register.
11. Select the Installed Material tab.
12. 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.

14.2 Step by Step 3 — Trench Calculator – Beddings

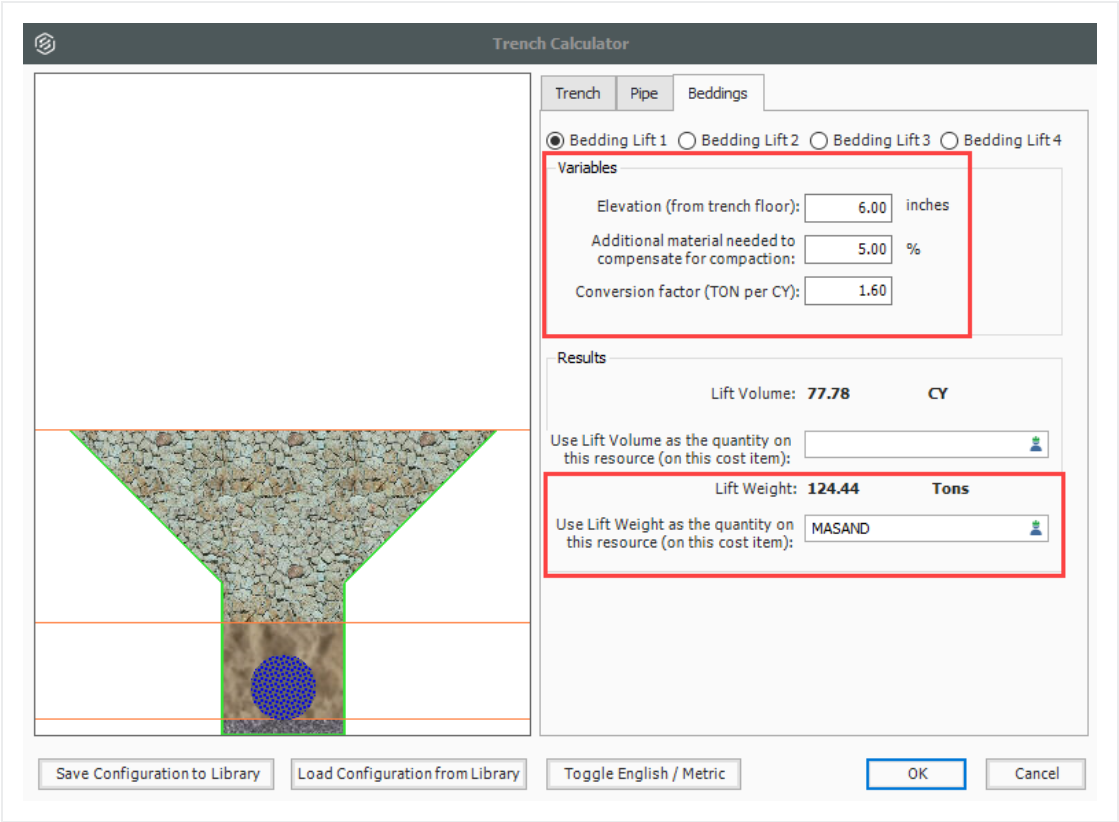
1. Back on the CBS Register, adjust the Forecast T/O Quantity for **Backfill Trench** to **2300** CY, based on manual calculations.
2. Open the **Backfill Trench** Cost Item Record.

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



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.

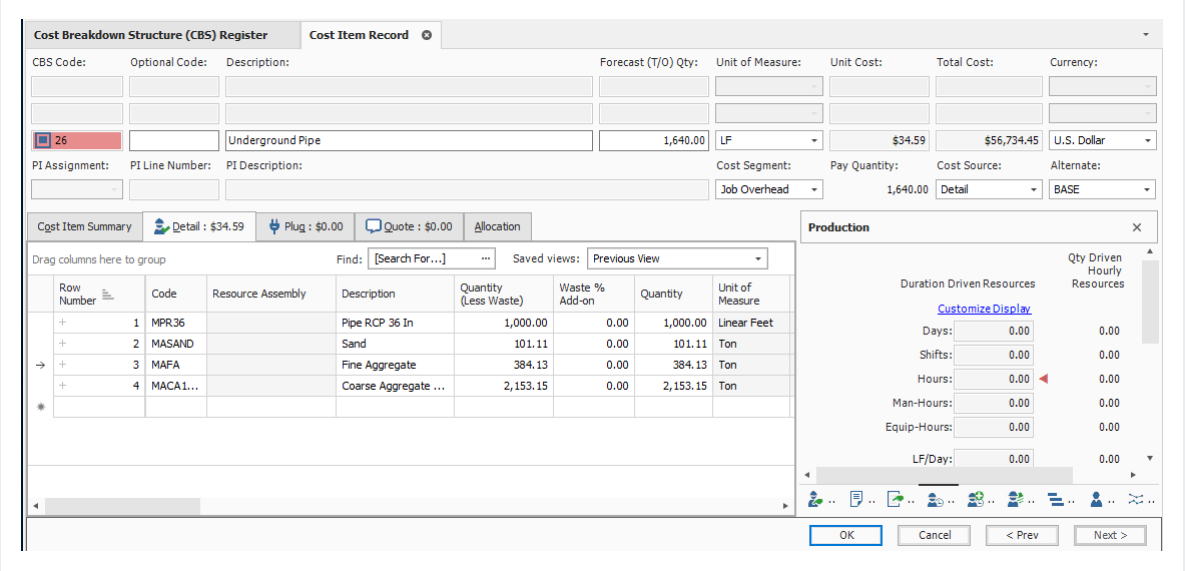
Bedding lift 1	
Elevation (from trench floor)	6 inches
Additional material needed to compensate for compaction	5.00%
Conversions factor (Ton per CY)	1.3
Bedding material resource (Tons)	MASAND

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



Congratulations, you have completed this exercise!

14.3 IN-FIELD CALCULATOR

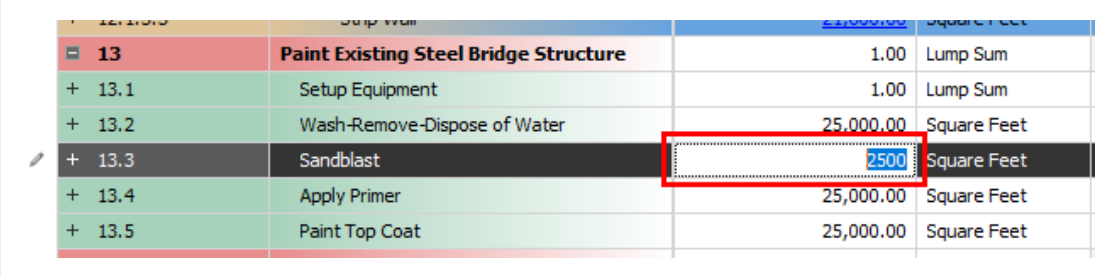
You can use the In-field Calculator to do simple mathematical calculations in any numeric field on records, registers, and tree lists. You use this calculator much like an Excel workbook field, by inserting the cursor in the field where you want to perform a calculation, then pressing the "=" key, followed 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.

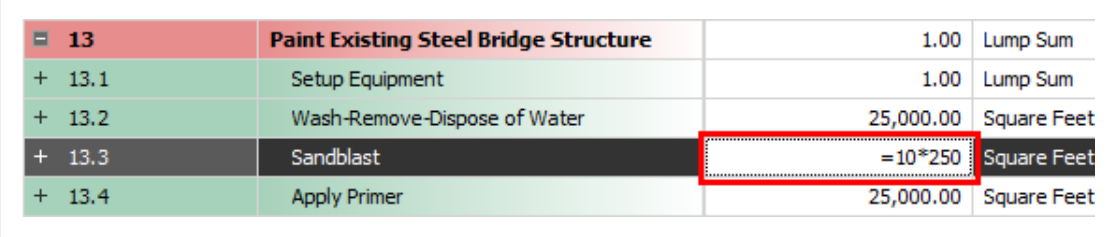
14.3 Step by Step 1 — In-Field Calculator

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.



13	Paint Existing Steel Bridge Structure	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**.



13	Paint Existing Steel Bridge Structure	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	=10*250	Square Feet
13.4	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

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	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. 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.
End User	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. 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.

15.1.3 Navigation / Data Blocks

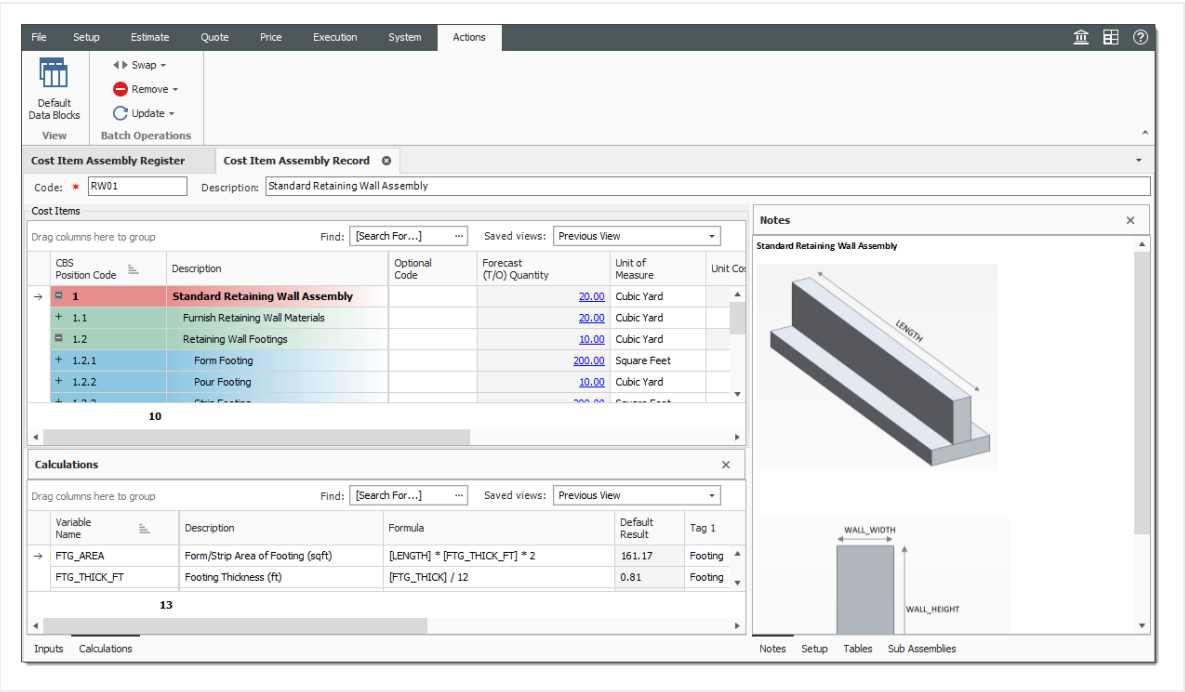
The use of data blocks in the Cost Item Assembly Register allows you to set up a layout that works best for you.

The data blocks in the Cost Item Assembly Record are:

- Cost Items
- Inputs
- Calculations

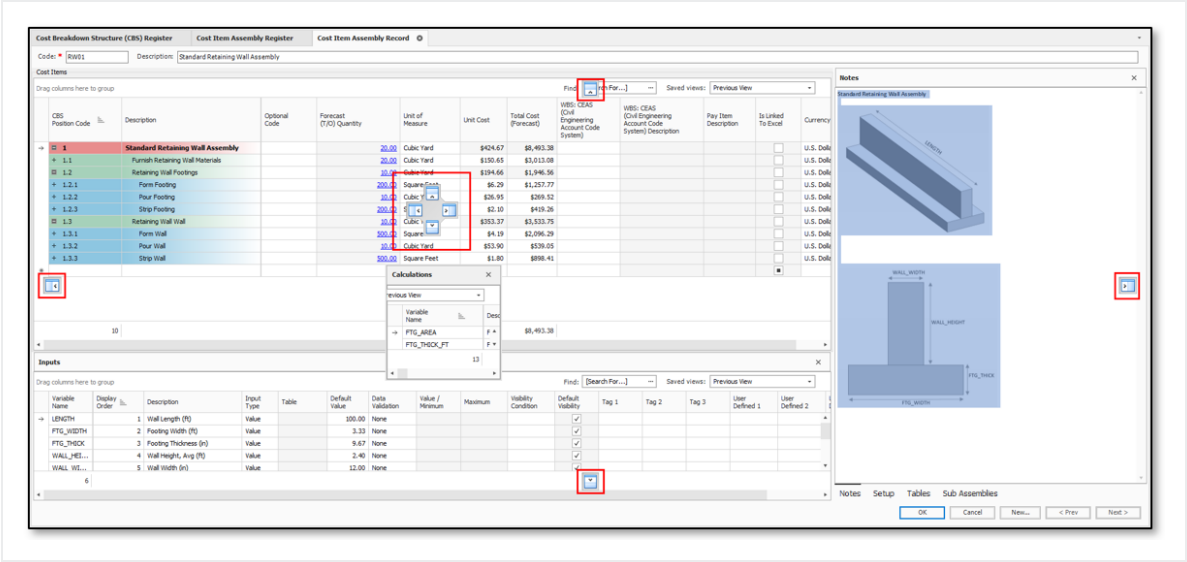
- Notes
- Setup
- Tables
- Sub Assemblies

The Default Data Block view looks like the following:

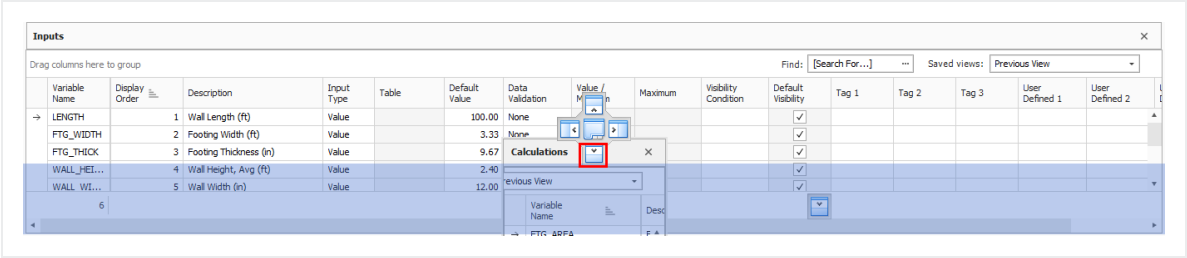


15.1.4 Move Data Blocks

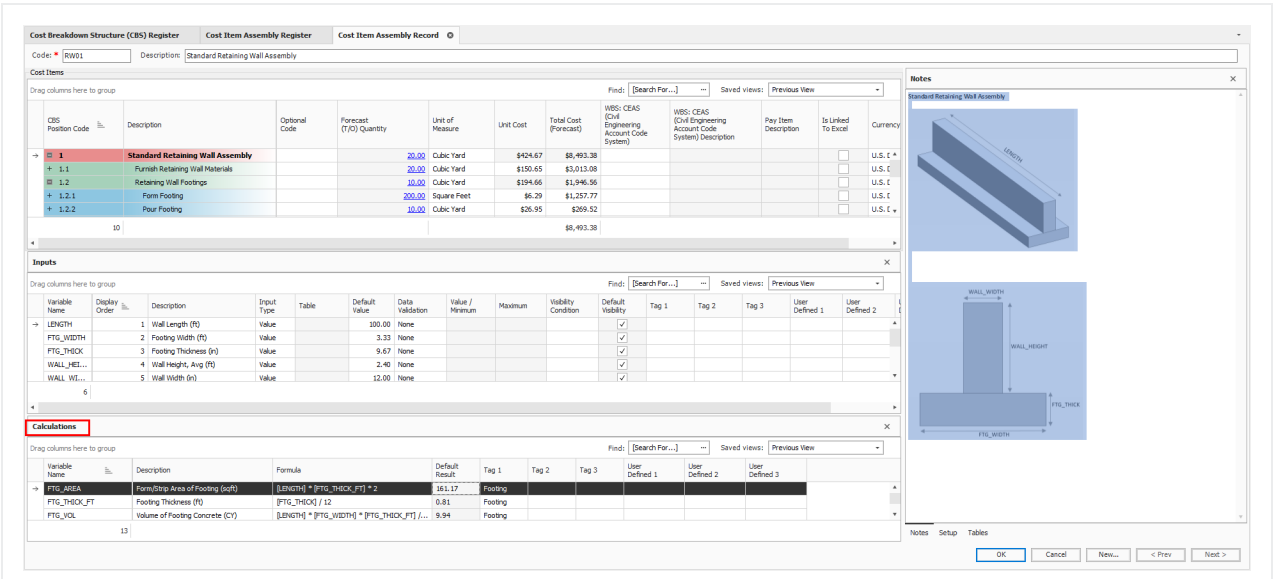
To move **Calculations** onto the screen, simply click on the name and drag it until the following options appear:



Next, choose where to place it on your screen:

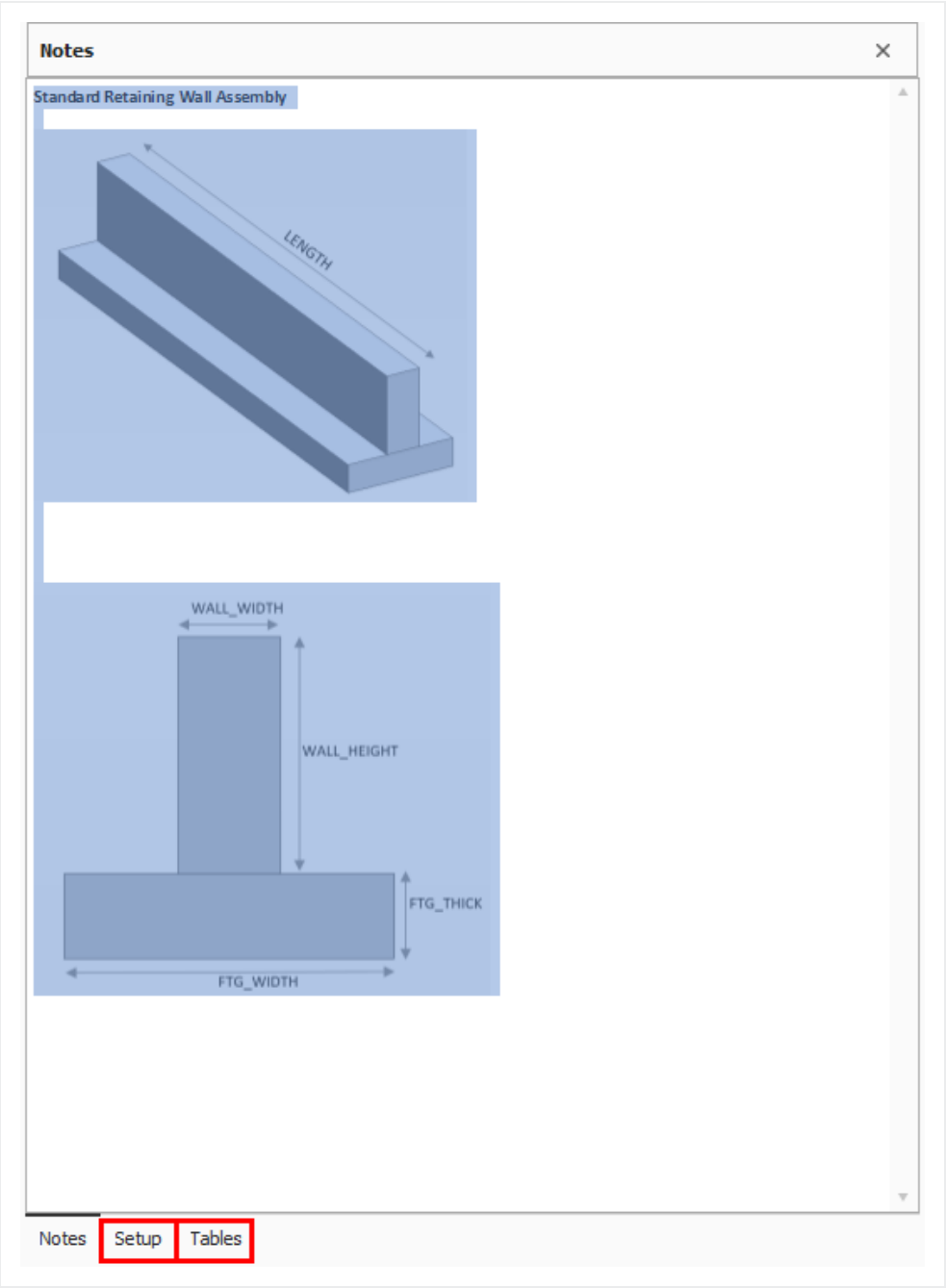


The calculations data block now appears on the screen.

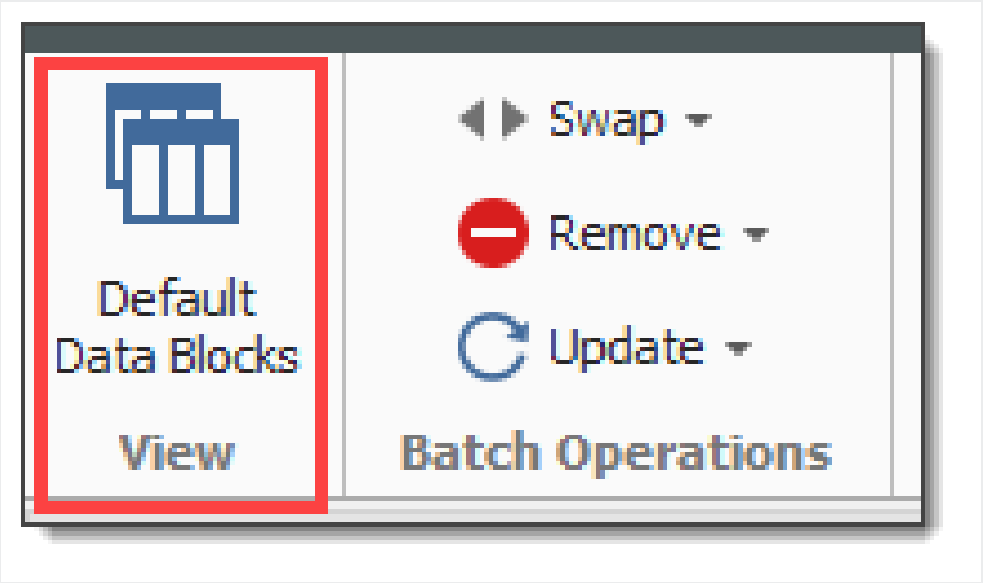


15.1.5 Add and Remove Data Blocks

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.

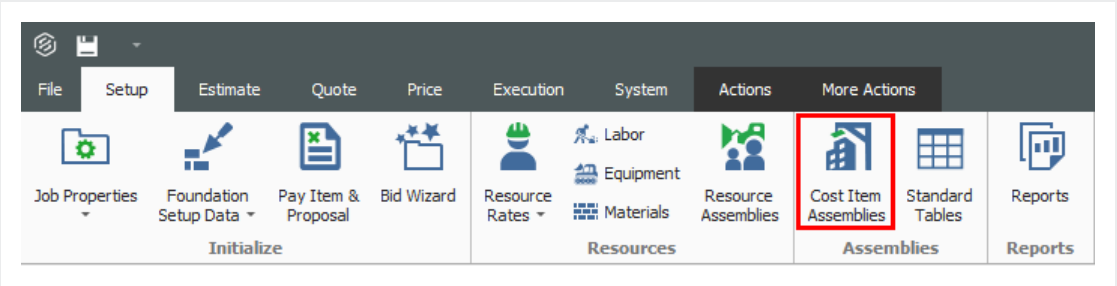
Cost Item Assemblies are created by entering a code and description for the assembly. Both fields can be changed at any time.

Scenario

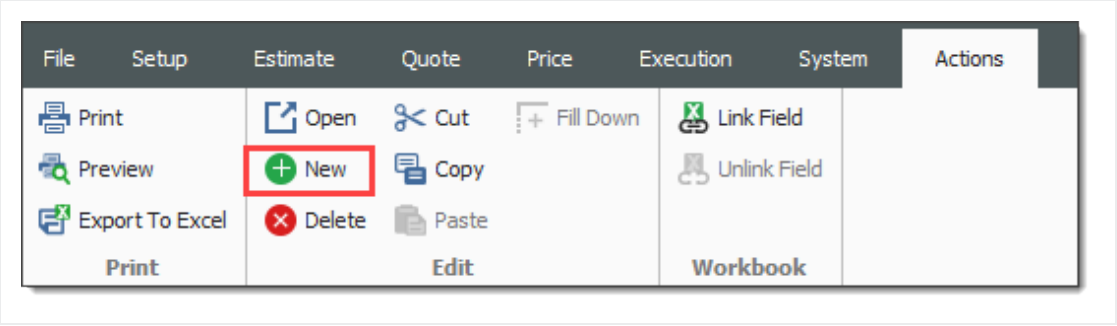
> One scope of work that is part of the estimate is a ductbank. This ductbank work entails excavating, laying the conduit, and then either backfilling it with concrete or soil depending on the location, and all conduit runs consist of two conduits. You want to estimate the cost and hours for this work using a cost item assembly.

15.2 Step by Step 1 — Create a Cost Item Assembly Record

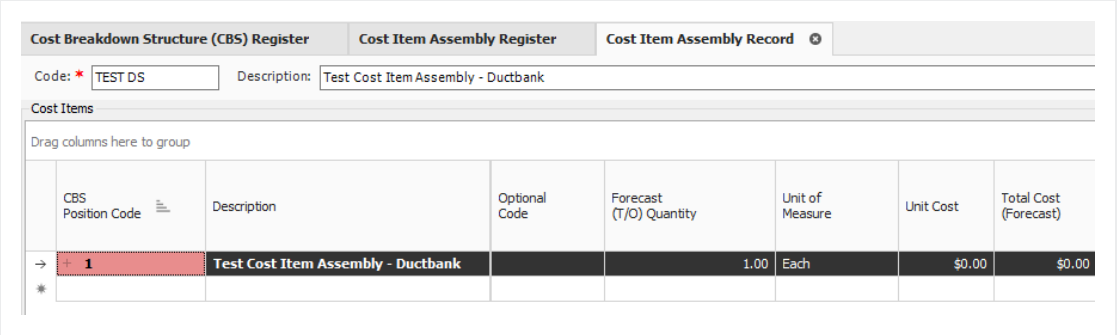
1. From the Setup tab, click on **Cost Item Assemblies**.



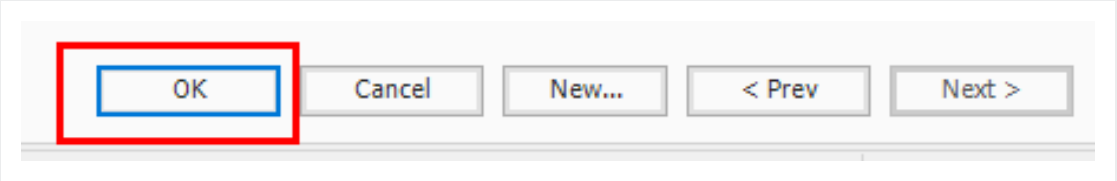
2. From the Actions tab, click on **New**.



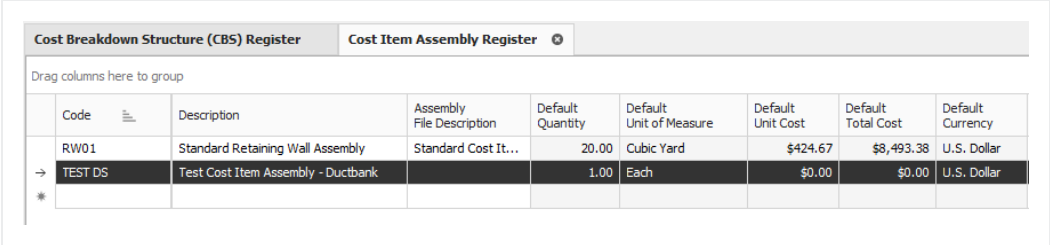
3. In the Code field, type **TEST – Your Initials**.
4. In the Description field, type **Test Cost Item Assembly - Ductbank**.



5. In the bottom right corner, click **OK**.



- Notice that your Cost Item Assembly now shows up in the Cost Item Assembly Register



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:

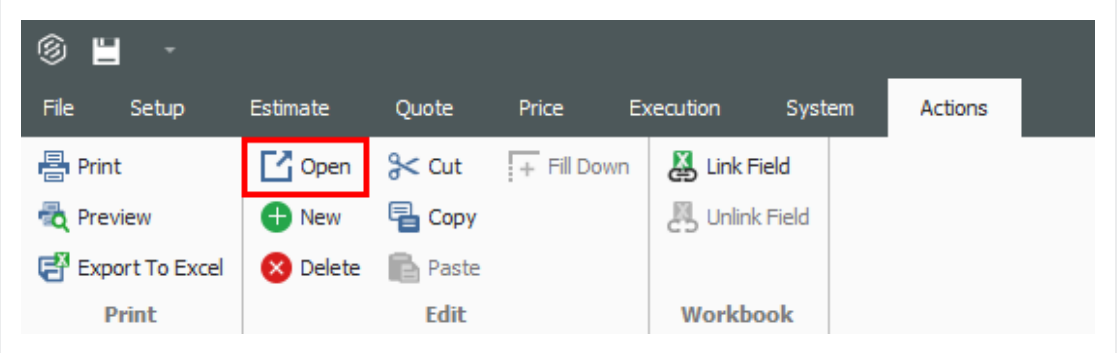
- Assembly file
- Geographic Areas
- Wage Zone
- Org. Category

- 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

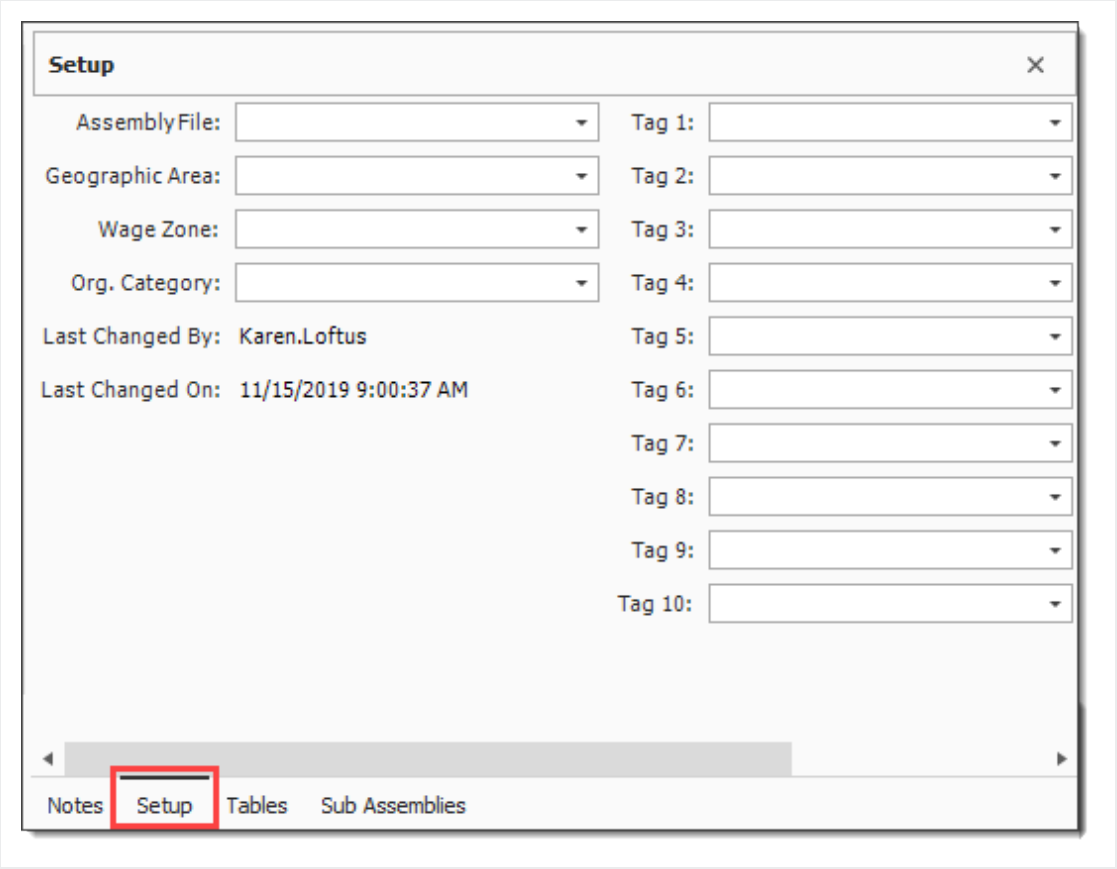
The first four fields are used the same way resource attributes are used to filter which resources are imported from the master library into a project. These will appear on the cost basis tab of job properties as filters to determine which cost item assemblies you import into a new estimate.

15.2 Step by Step 2 — Cost Item Assembly Set Up

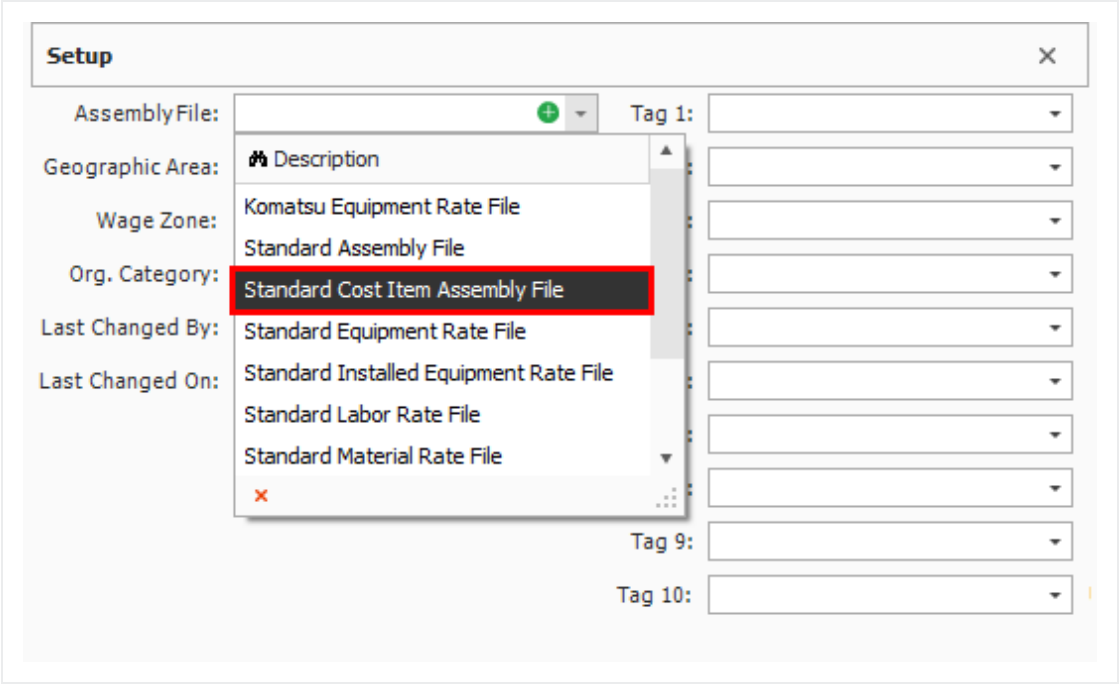
1. Select your assembly from the list and click **Open** from the ribbon.



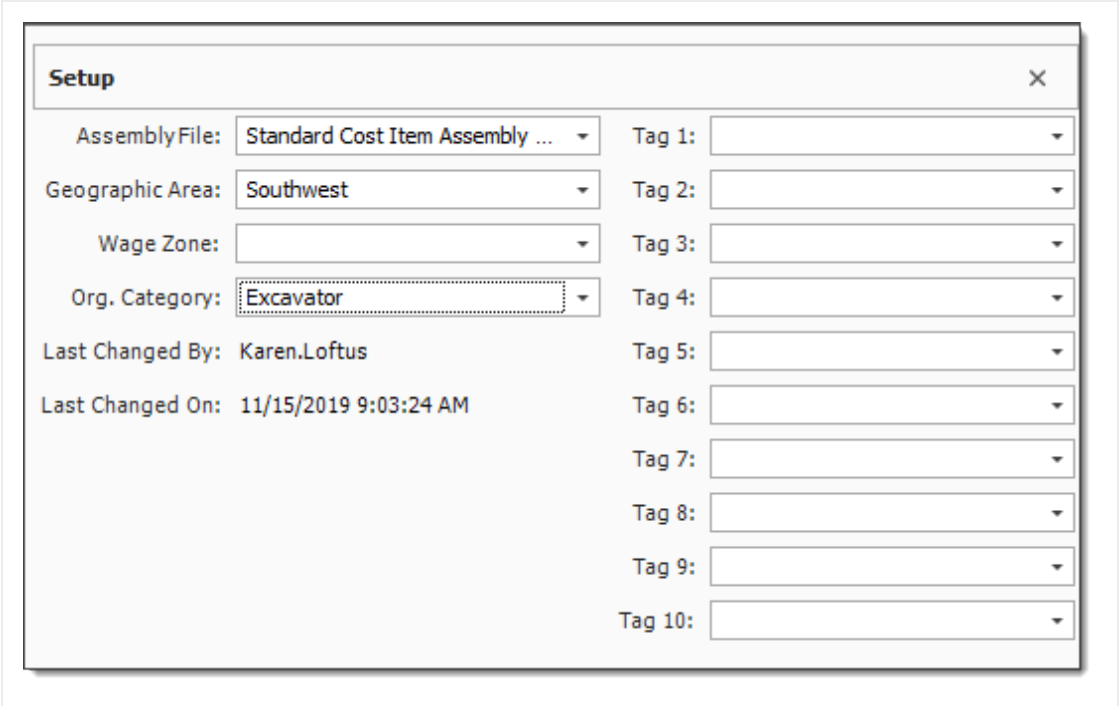
2. In the bottom right corner, click on the **Setup** tab.



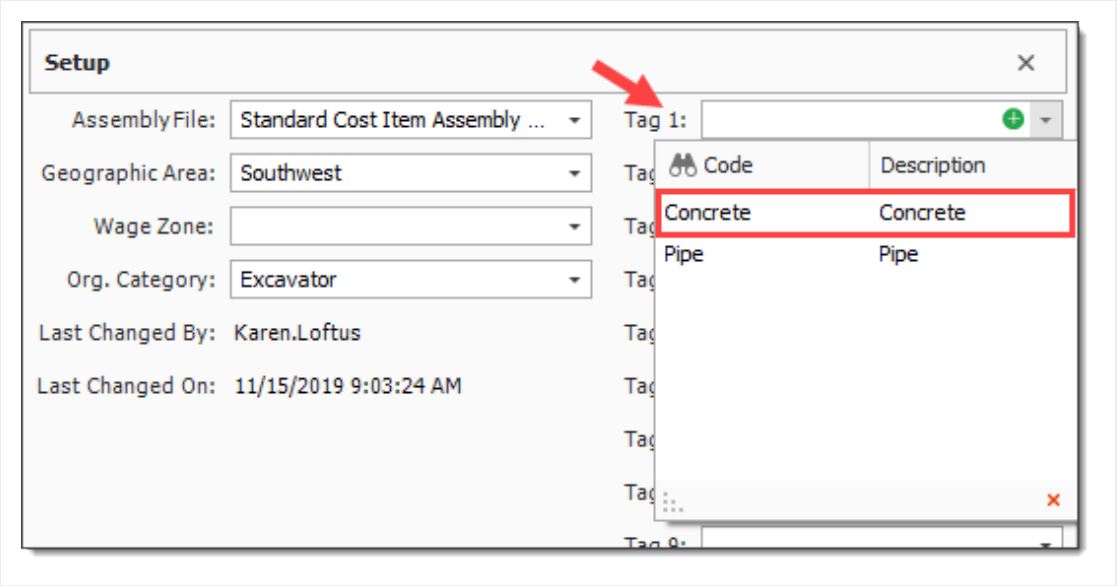
3. In the Assembly File drop-down, select **Standard Cost Item Assembly File**.



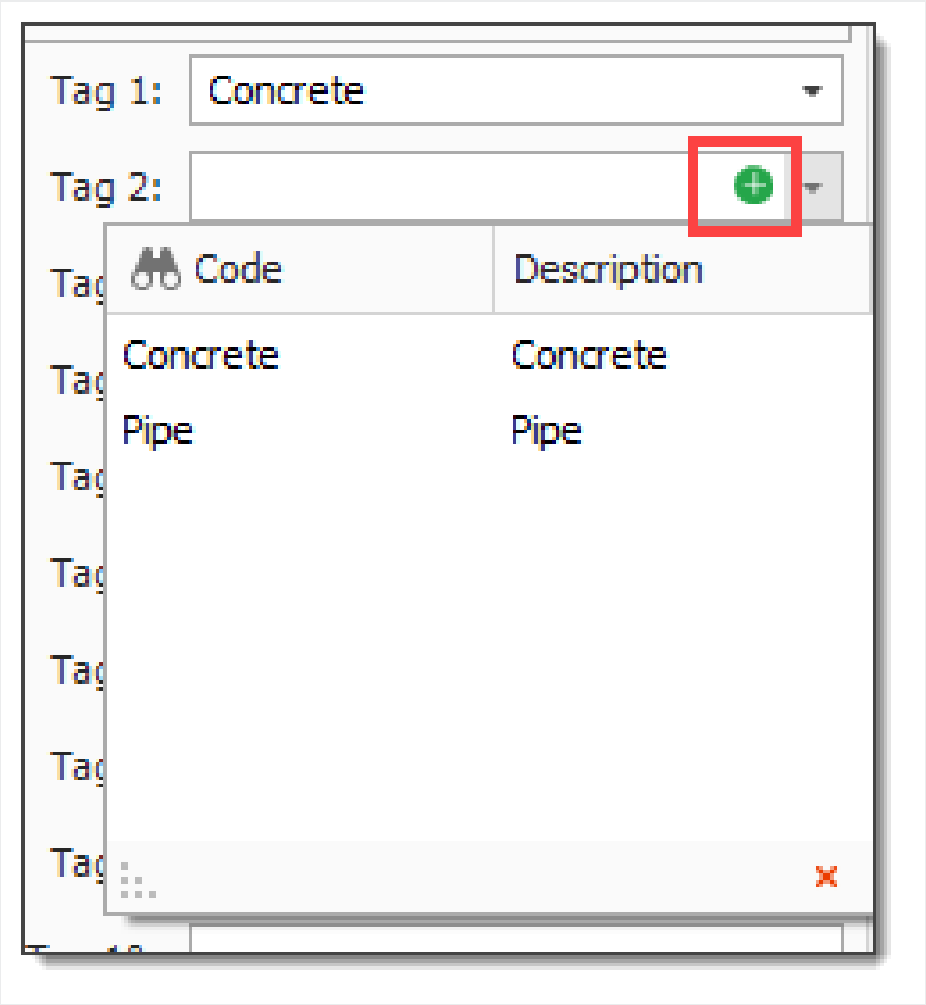
4. Select a Geographic Area and Org. Category.



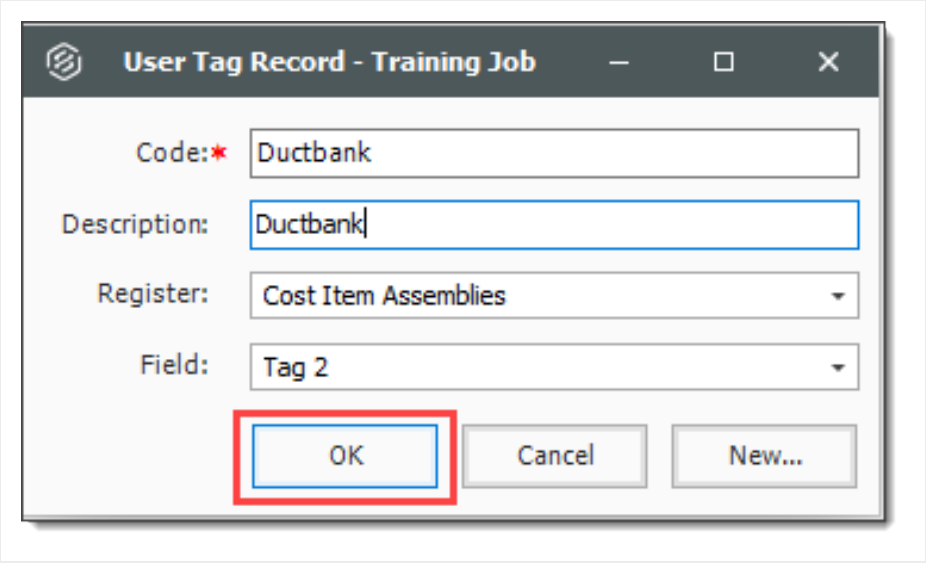
5. In the Tag 1 drop-down, select **Concrete**.


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.

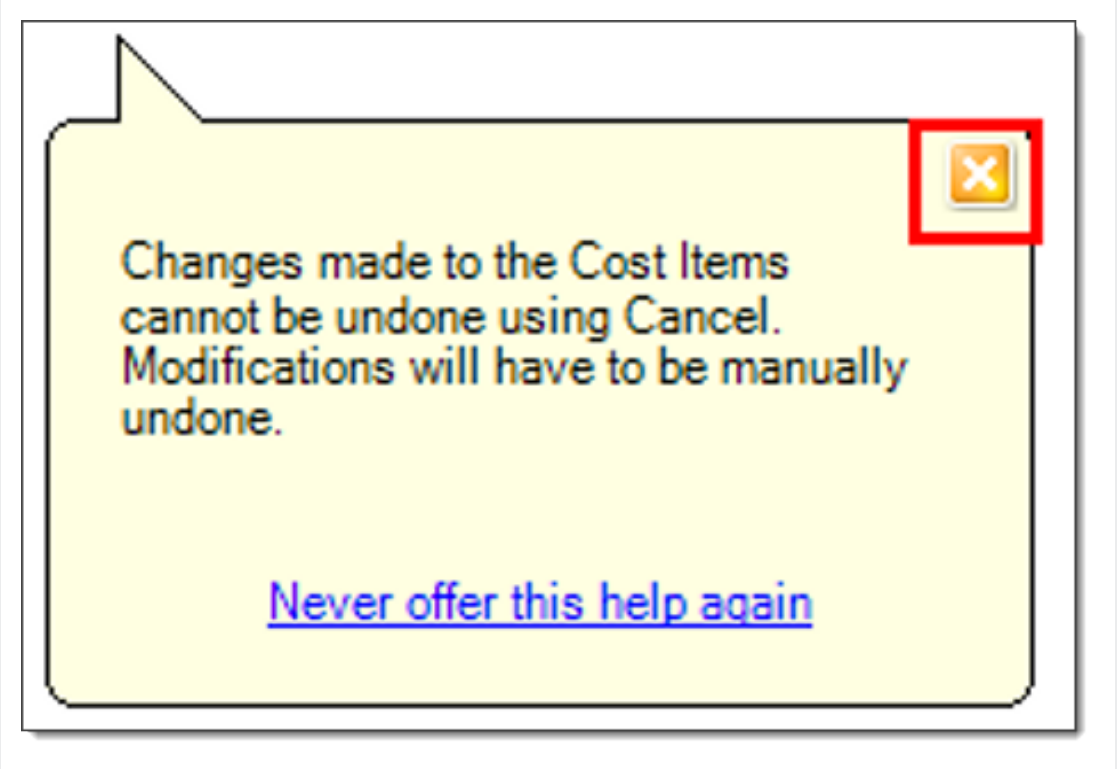
- Default Description is equal to the Assembly Description
- Default Forecast (T/O) Qty = 1
- This is the top-level cost item in the assembly. Any additional cost items will need to be created as subordinates to this cost item

> 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.

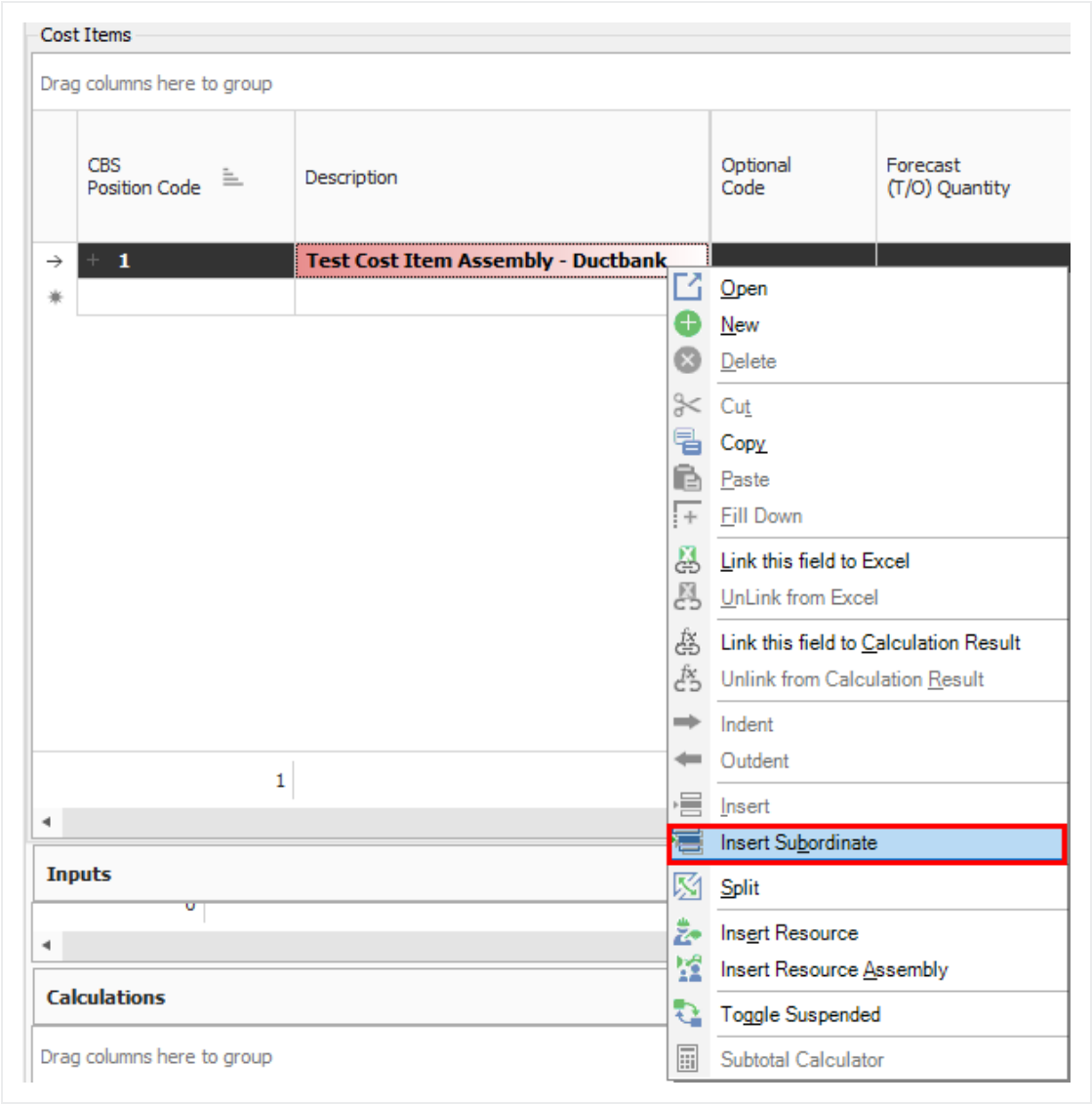
TIP This data block has the same functionality as the CBS register; double-clicking one of the cost items or selecting one of the cost items and choosing **Open** from the menu will open the Cost Item Record. To quickly perform this work, you can easily copy cost items from the CBS Register and paste them into the Cost Items data block of the Cost Item Assembly Record.

15.2 Step by Step 3 — Create Cost Items in an Assembly

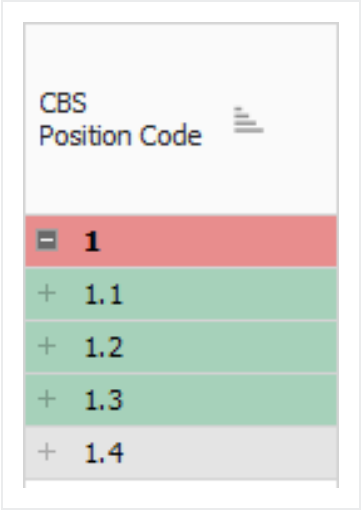
1. Click **X** on the pop up.



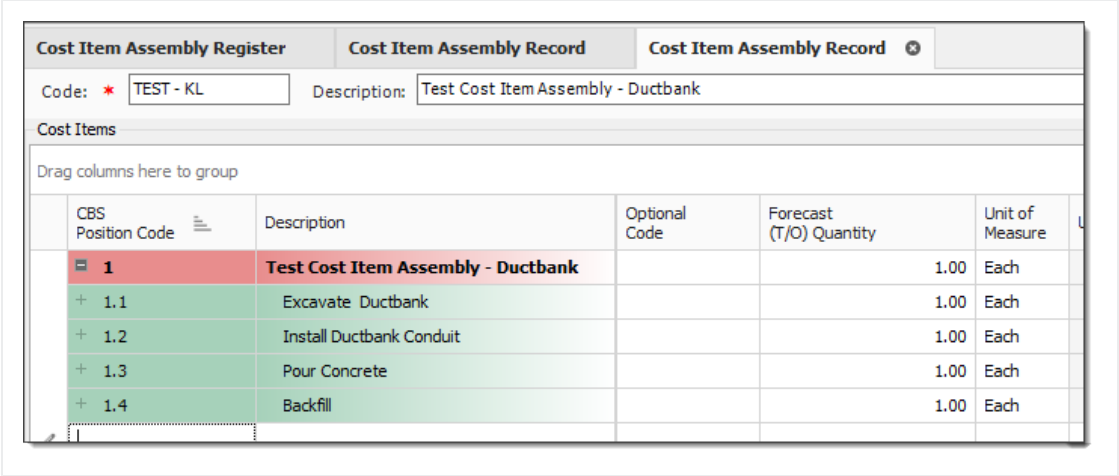
2. From the Cost Items data block, right click on your cost item and select **Insert Subordinate**.



3. Insert 4 subordinates.



4. Enter the descriptions and units of measure as follows:



15.2.5 Inputs and Tables

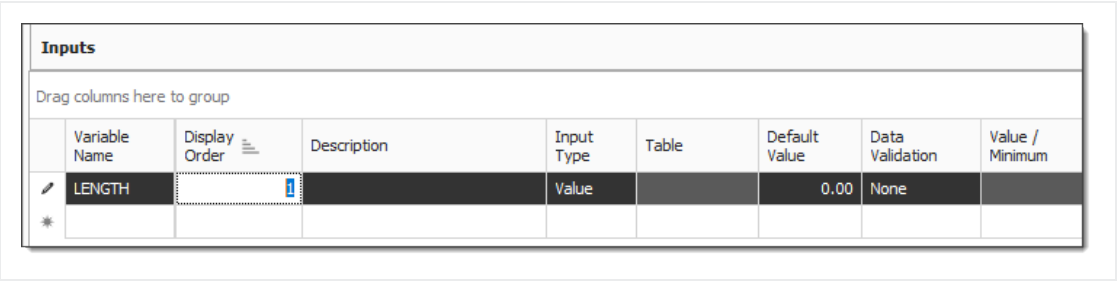
The **Inputs** data block is where you define the questions that will be asked of the user when they employ a Cost Item Assembly. Inputs can be value-type or table-type inputs and validation rules can be specified for value-type inputs such as minimum or maximum values that are acceptable, or default 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.

15.2 Step by Step 4 — Create Input Values

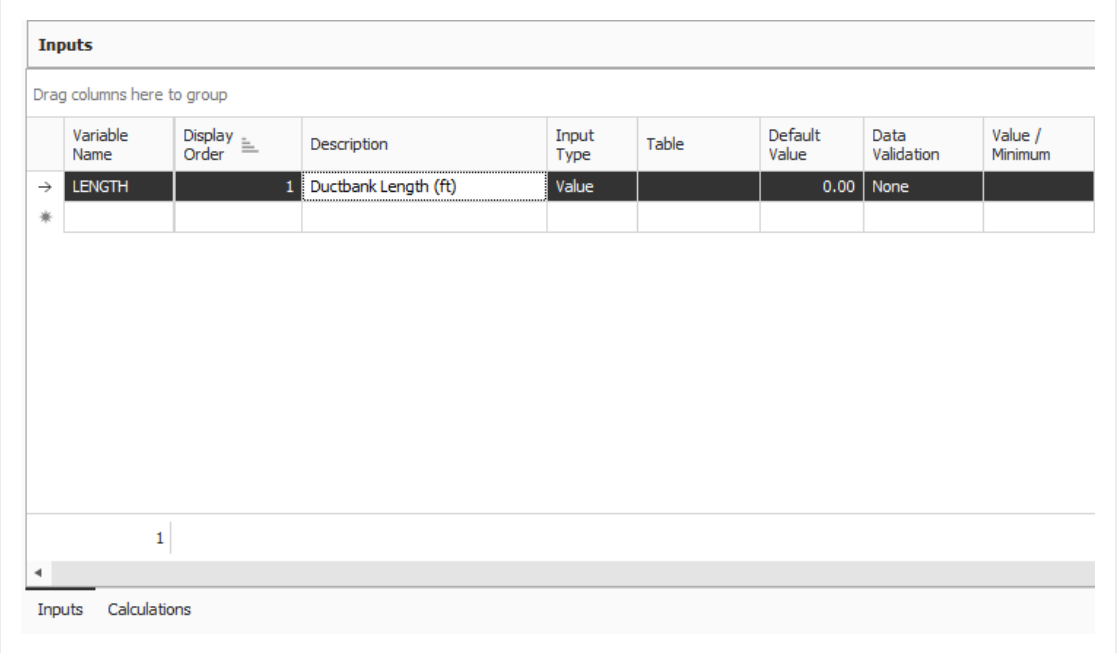
1. Navigate to the Inputs data block. In the first empty field under Variable Name, type **Length**, then press **Tab**.



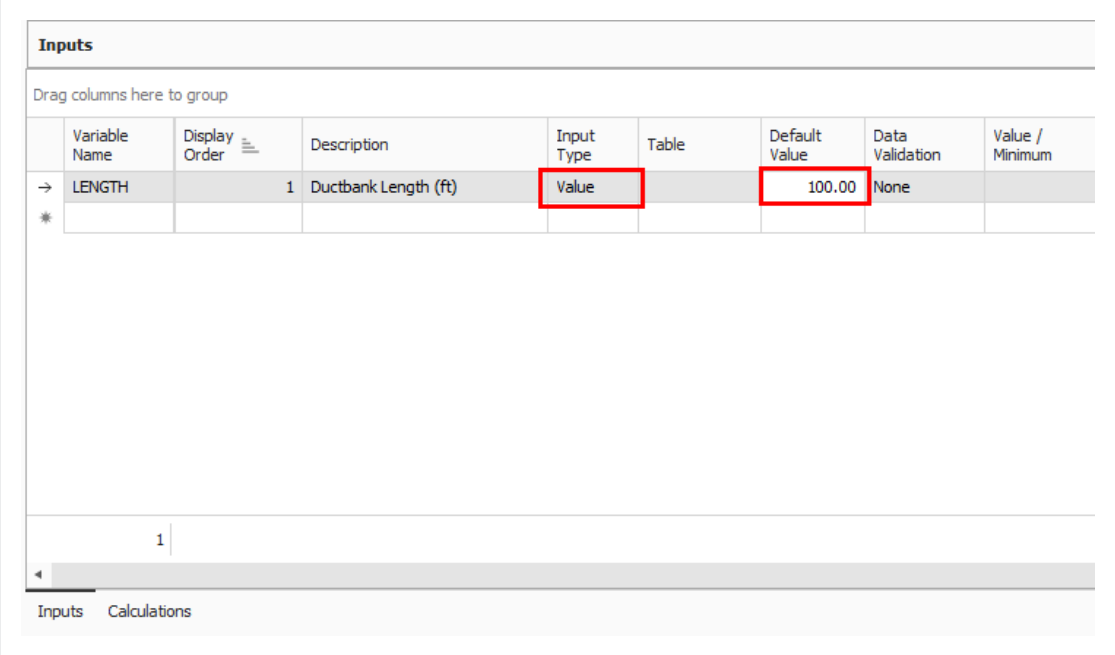
TIP The **Variable Name** is how the calculations will reference the input values.

- The Display Order field can be set to control the order in which you are prompted to provide the input values

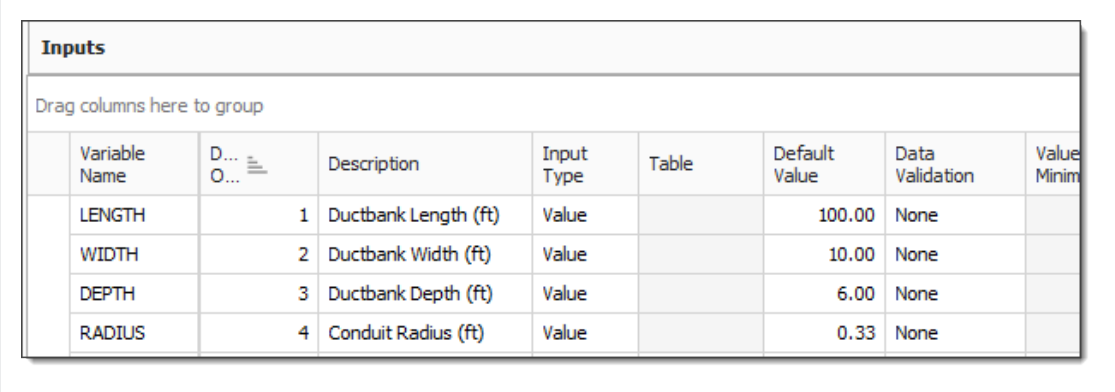
2. Select the Description field and type **Ductbank Length (ft)**, then press **Tab**.



3. In the Input Type field, select **Value** from the drop-down list. In the Default Value field, type **100**.



4. Fill out additional fields as shown below:



15.2.5.1 Data Validation

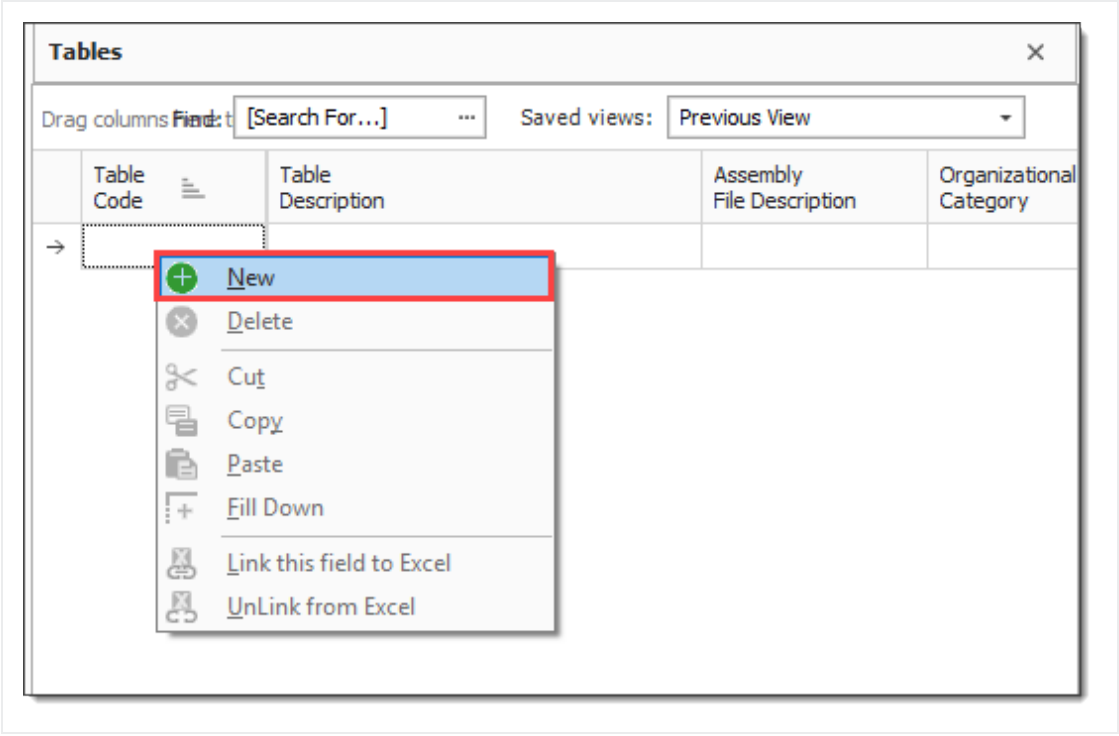
The **Data Validation** field determines what type of data validation is enforced when the Cost Item Assembly is employed. This field is enabled only when the Input Type is *Value*. The data validation options are as follows:

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 **Value/Minimum** field.
Not Equal	Permits the entry of a value that is not equal to the value entered in the **Value/Minimum** field.
Greater Than	Permits the entry of a value that is greater than the value entered in the **Value/Minimum** field.
Greater Than or Equal	Permits the entry of a value that is equal to or greater than the value entered in the **Value/Minimum** field.
Less Than	Permits the entry of a value that is less than the value entered in the **Value/Minimum** field.
Less Than or Equal	Permits the entry of a value that is less than or equal to the value entered in the **Value/Minimum** field.
Between	Permits the entry of a value that falls between the range of numbers defined by the values entered in the **Value/Minimum** field and the **Maximum** 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 **Value/Minimum** field and the **Maximum** field.

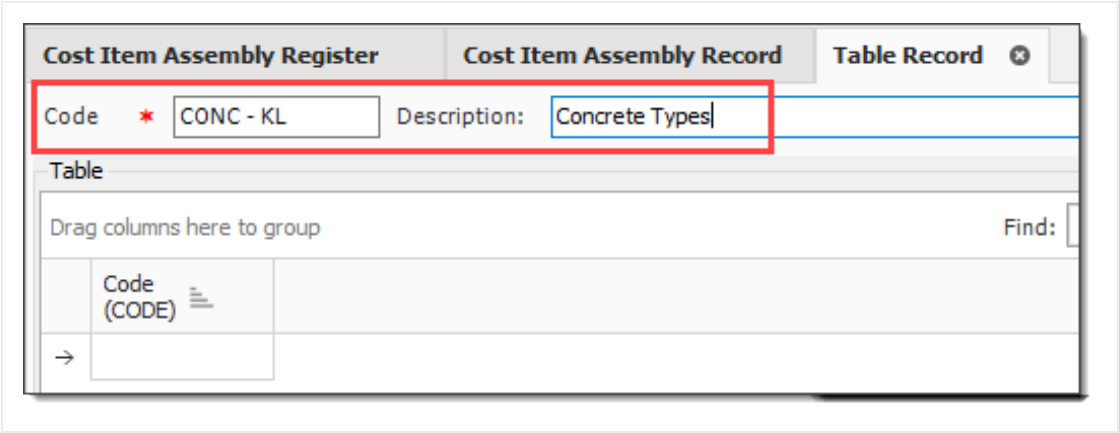
15.2 Step by Step 5 — Create Input Values from a Table

1. In the bottom right corner of the Cost Item Assembly Record, click on **Tables**.

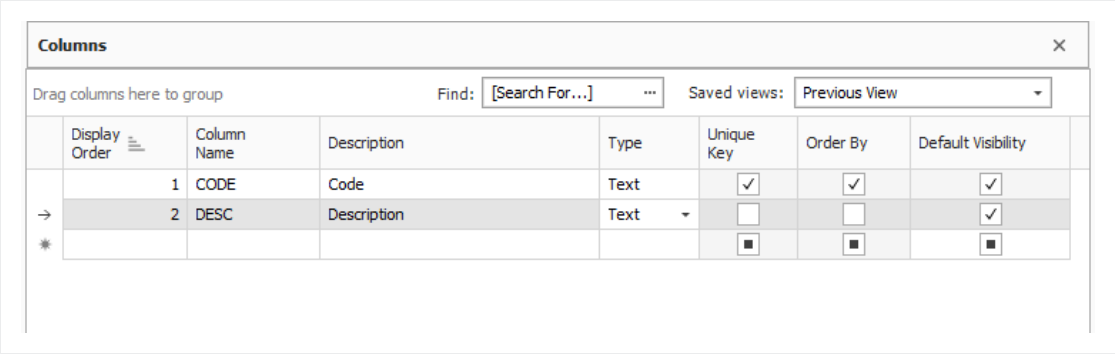
2. Right click in the Table Code field and select **New**.



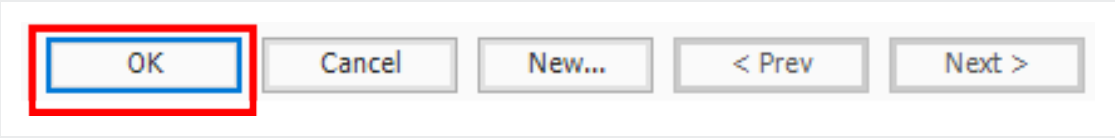
3. In the Code field, type **CONC – Your Initials**, and in the Description field, type **Concrete Types**.



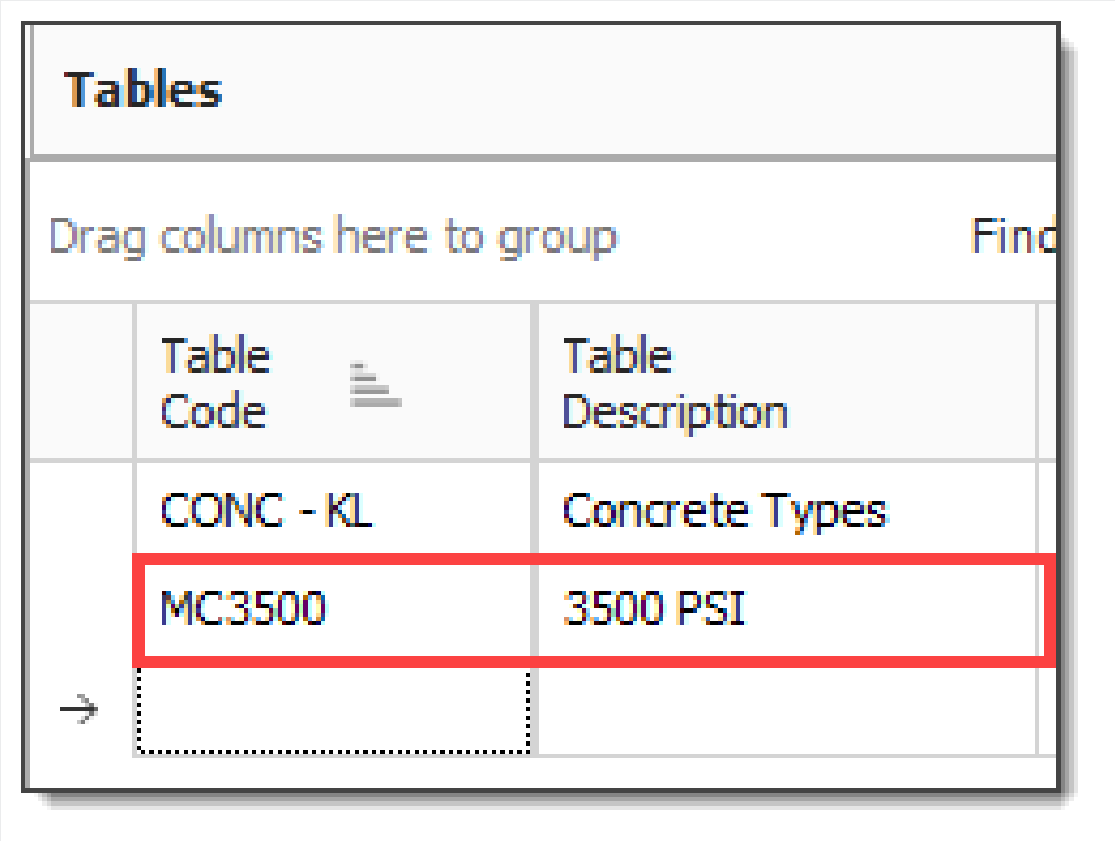
4. In the Columns section, enter in the following column names and descriptions, choosing the **Text** Type.



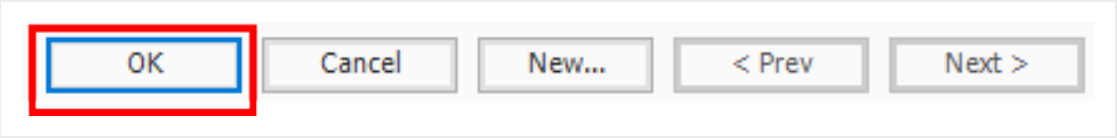
5. Click **OK** in the bottom right corner.



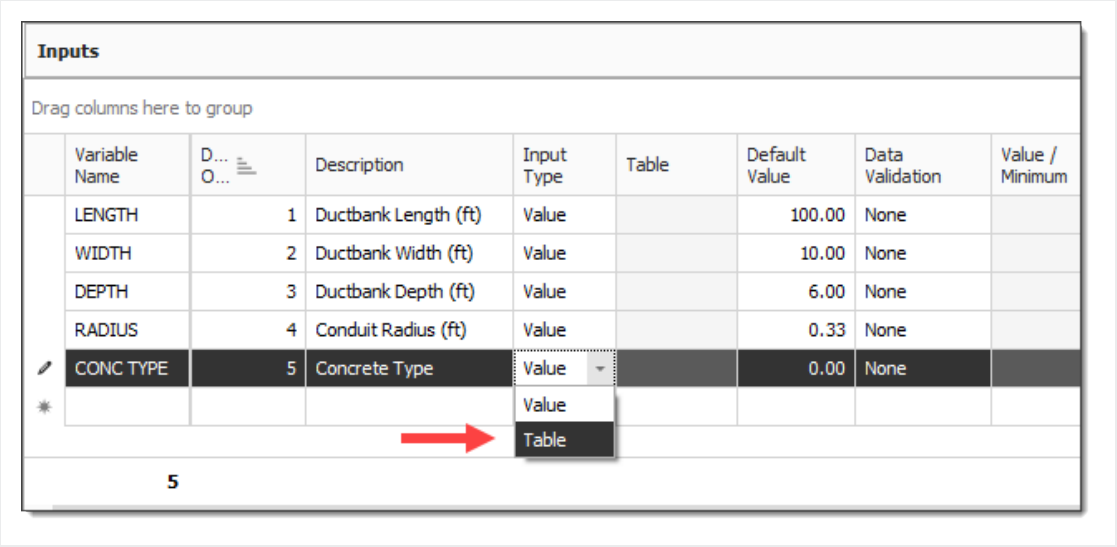
6. In the Tables section, enter in the following data for the Concrete resource codes and types:



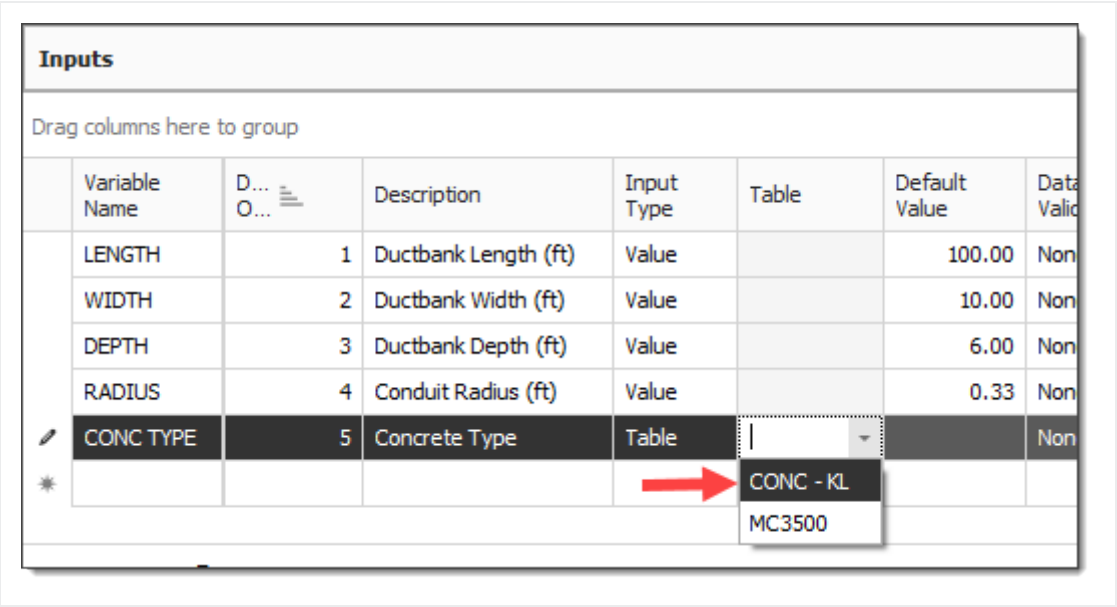
7. Click **OK** in the bottom right corner.



8. Add the following input, selecting **Table** for the Input Value from the drop-down.

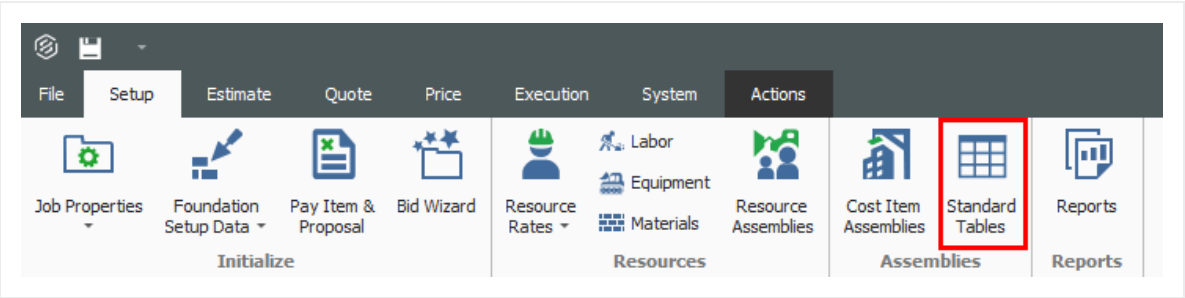


9. From the Table drop-down list, select your **CONC** table.



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.



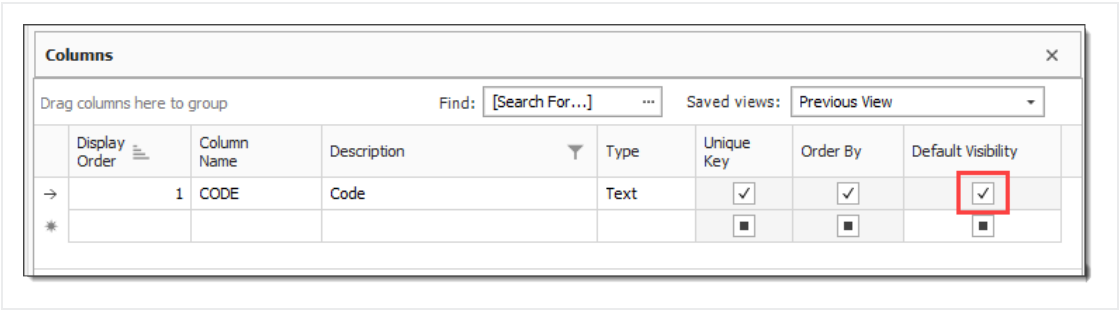
15.2.6 Conditional Inputs

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

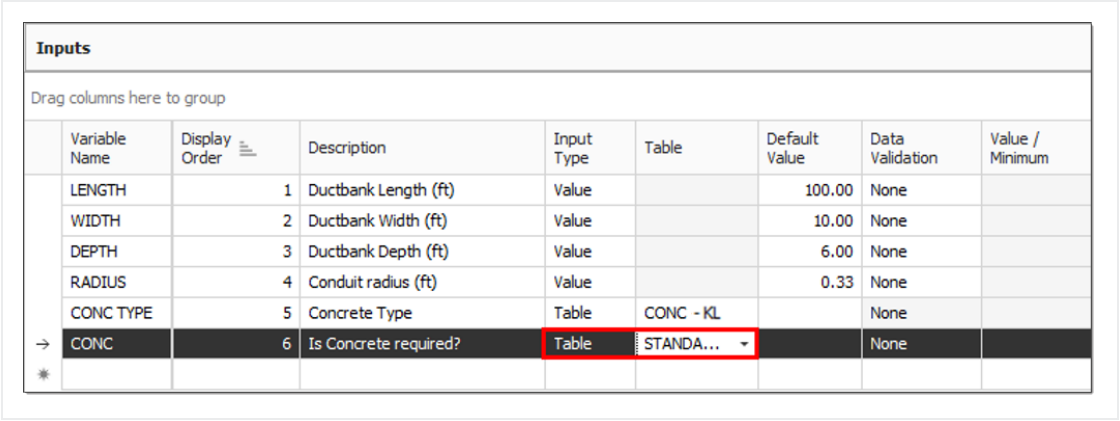
and clear the Default Visibility checkbox to hide columns in the table



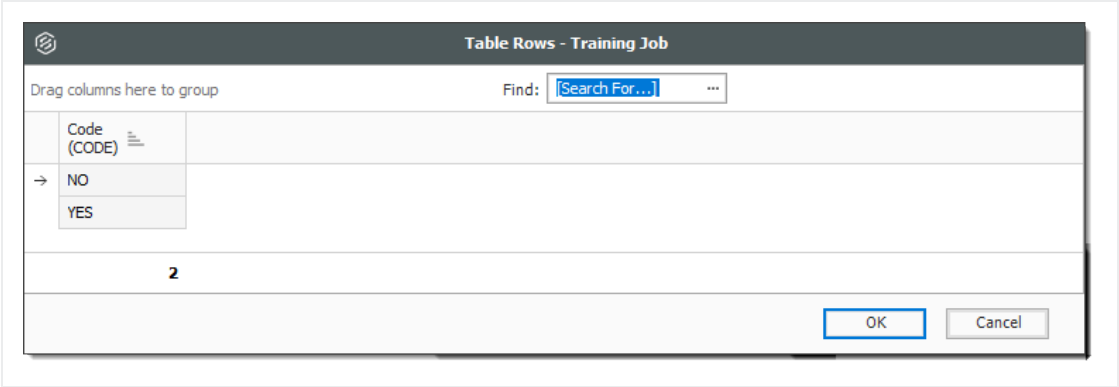
More user tags and user defined fields are available on the Cost Item Assembly > Inputs data block related to a group of variables or with other similarities. A Standard View also exists, so you can define saved views to make use of the additional tags and fields.

15.2 Step by Step 6 — Set Conditional Inputs

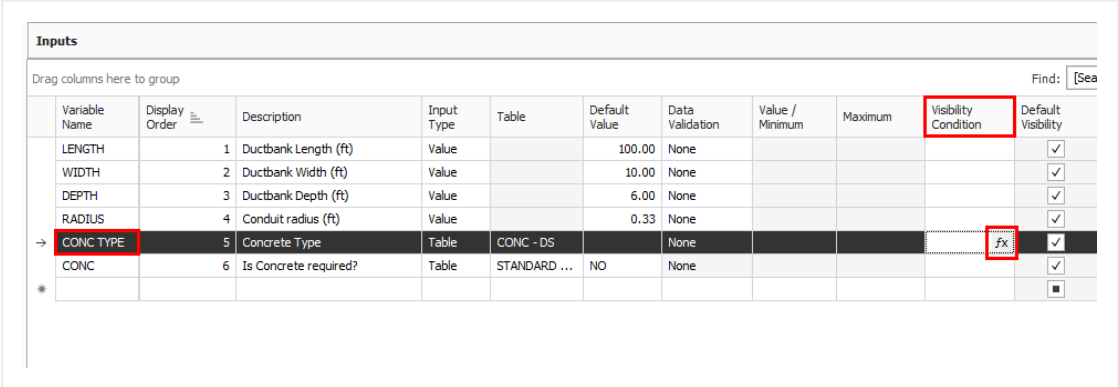
1. Create a new input as follows, choosing **Table** as the Input Type, and selecting **Standard Table** from the drop-down.



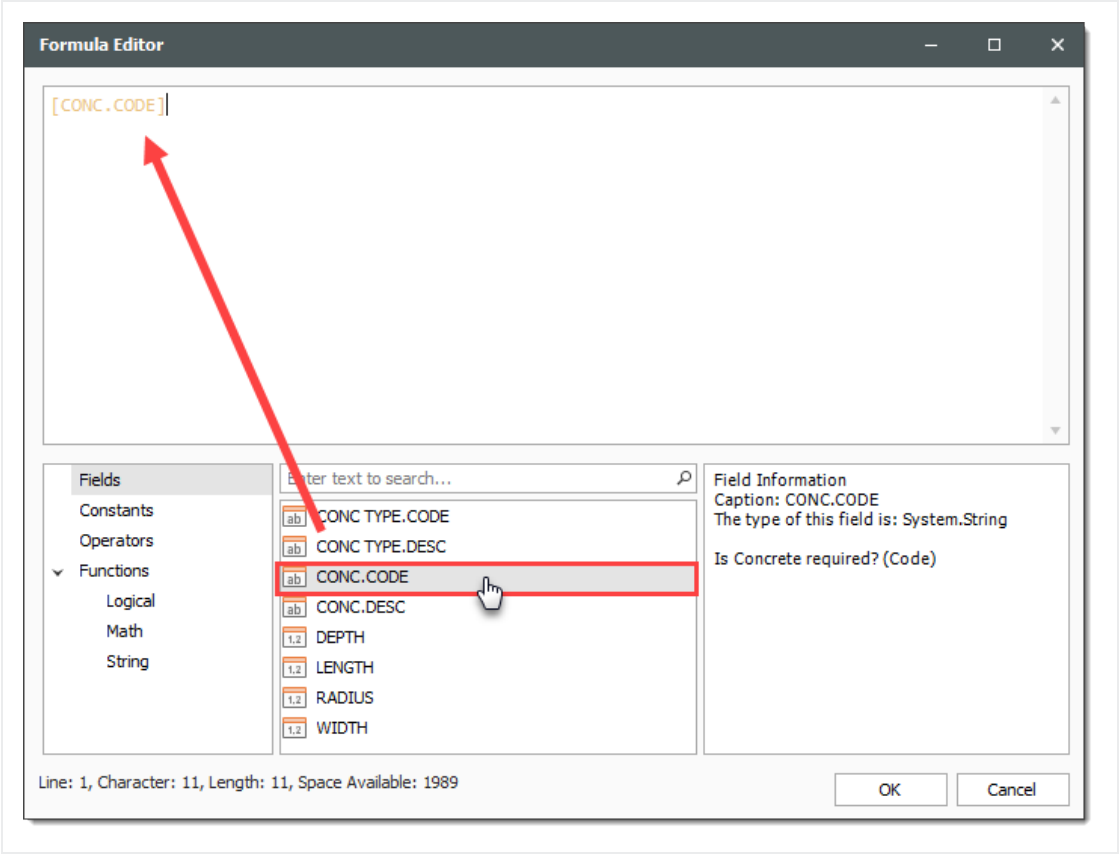
2. Set the Default Value of the CONC variable as **No**, then click **OK**.



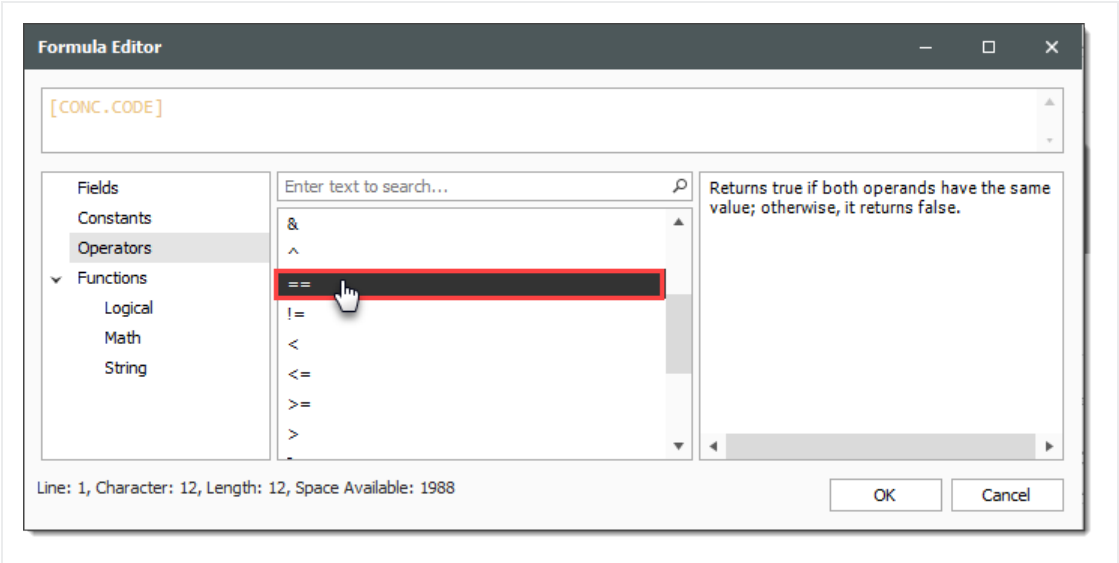
3. In the Visibility Condition field for the CONC TYPE variable, click the **fx** button.



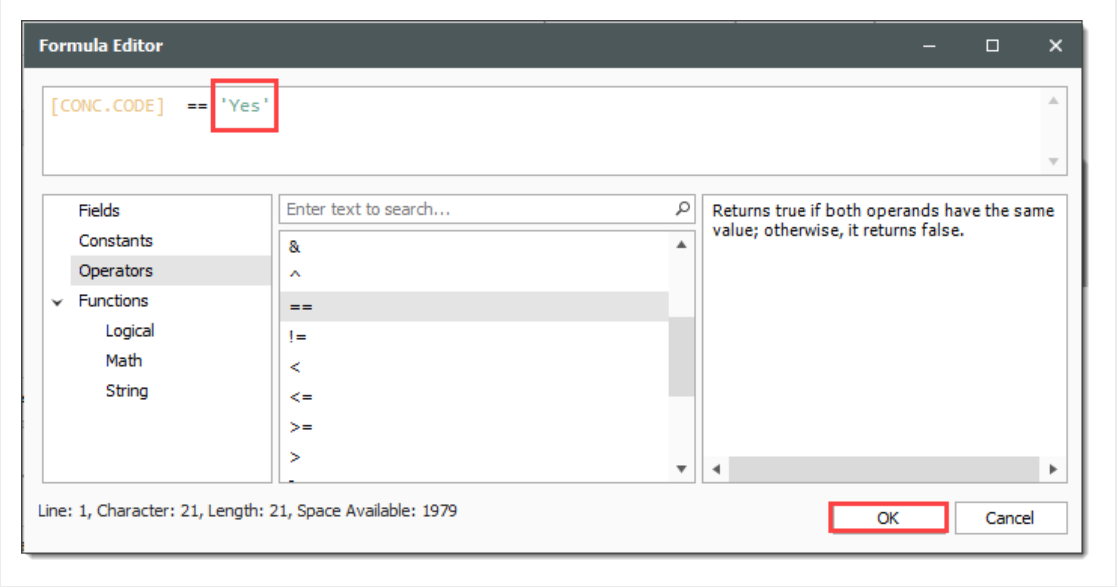
4. In the Formula Editor, and from the Fields section, double click **[CONC.CODE].**



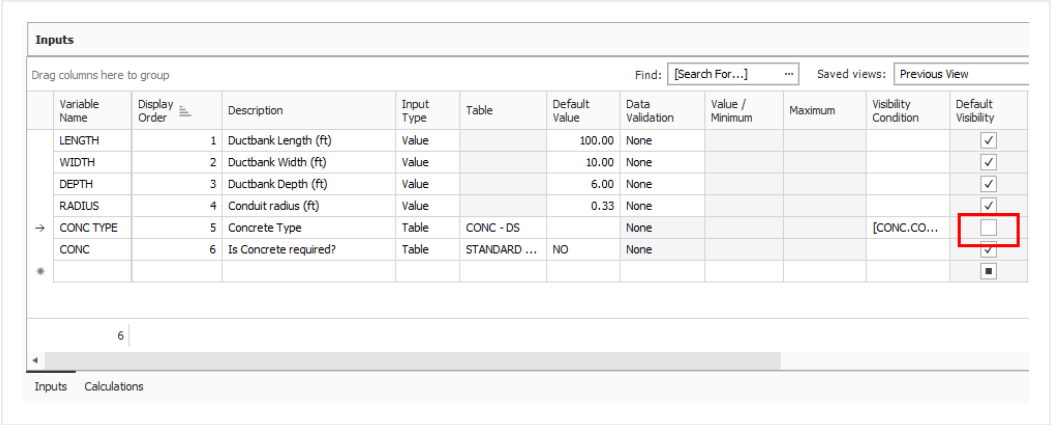
5. In the Operators field, double click on the **'=='**



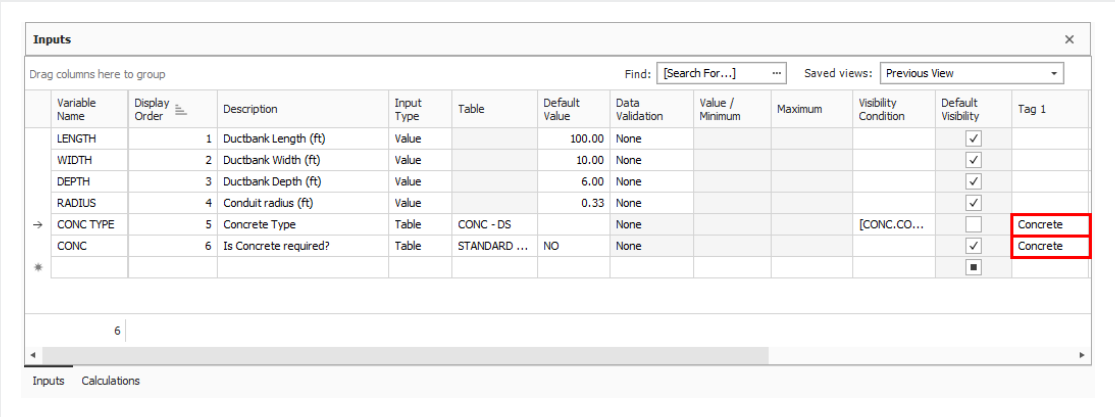
6. In the Formula Editor, type **'Yes'**.
7. Click **OK**.



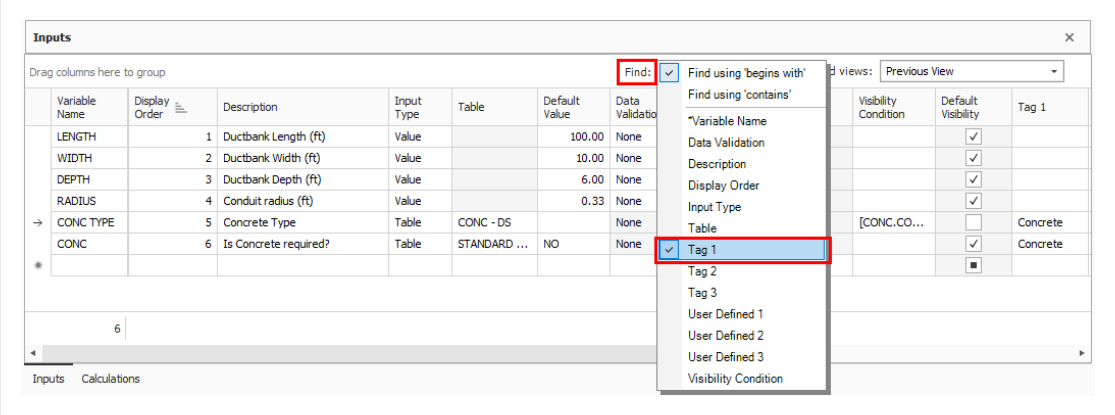
- Notice that the Default Visibility field for CONC TYPE becomes unchecked
- This means that only when the answer to Is Concrete required is Yes, the CONC TYPE input will become visible; otherwise, it will stay hidden



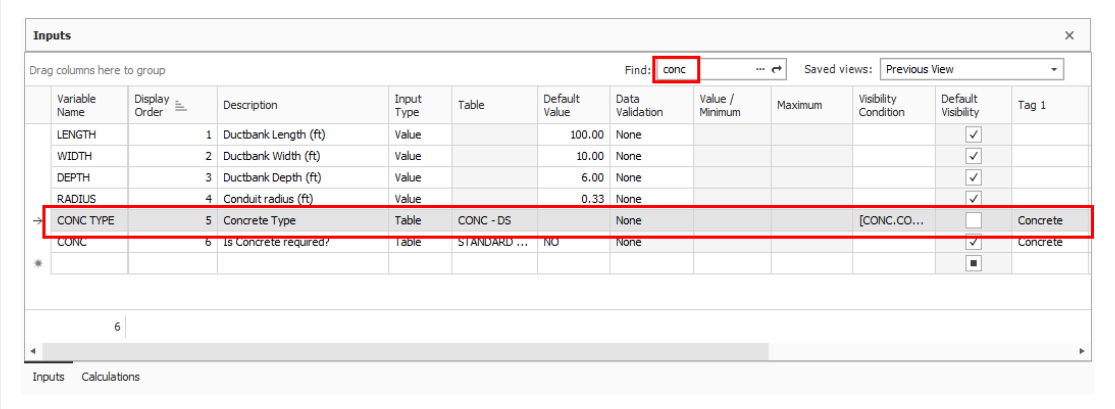
8. In the Tag 1 fields for CONC TYPE and CONC, select **Concrete**.



9. In the Find field under Inputs, select **Tag 1**.



10. Begin typing in Concrete and notice that the CONC TYPE row becomes highlighted.



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.

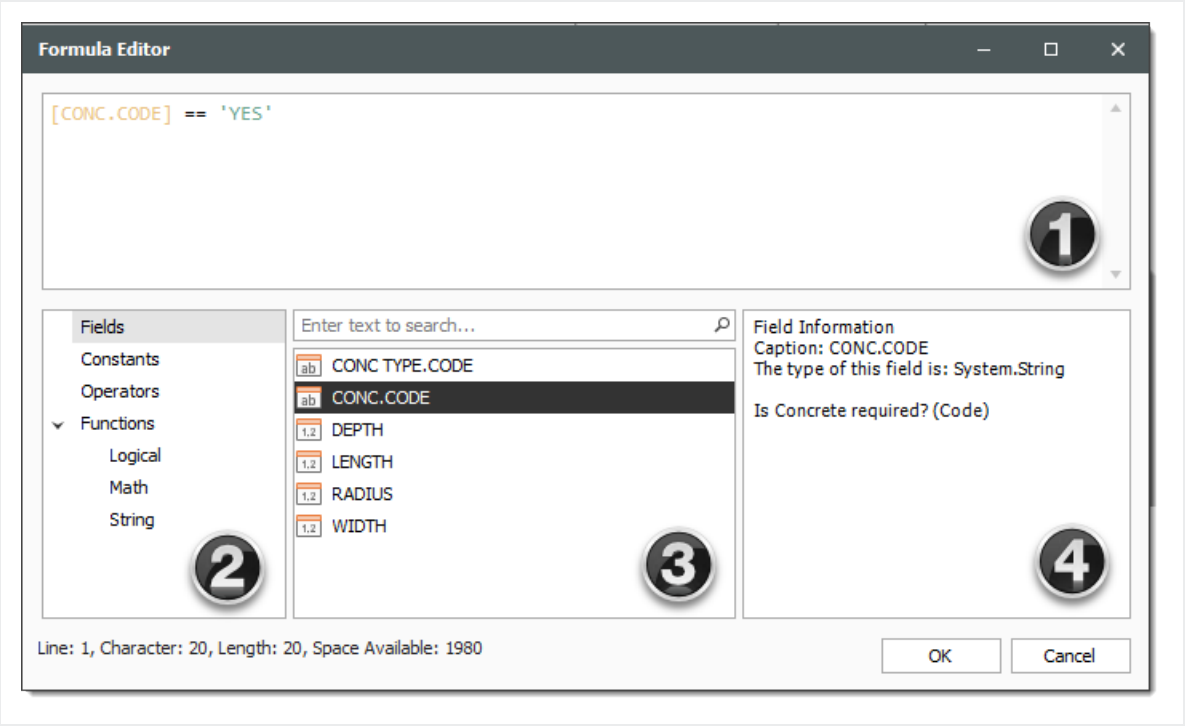
Variable Name	Description	Formula	Default Result
CALC1	Formula Error Example	1/0	?

15.2.7.7 Formula Editor

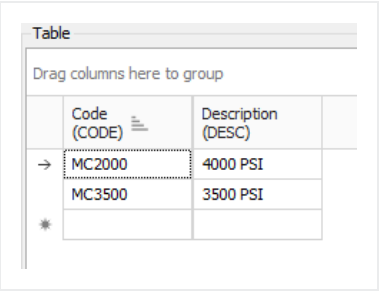
The **Formula Editor** is a tool you can use to assist in the creation of validated formulas that correctly reference variables and ensure the use of proper syntax. Select the *fx* button to open the Formula Editor.

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 **(3)**.
3	Expression Values	Double-click a value to add it to the Expression Box. • If Functions 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.
4	Information and Help	When an expression is selected from the Expression Values list **(3)**, an explanation of that expression and how it is used will appear in this window. • If **Fields** is the selected Expression Element **(2)**, 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 • If **Constants** is the selected Expression Element **(2)**, then choosing any of the values in the Expression Values section will provide a brief explanation of the constant • If **Operators** is the selected Expression Element **(2)**, then choosing a mathematical operator in the Expression Values section will display a brief description of what the operator does • If **Functions** is the selected Expression Element **(2)**, 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

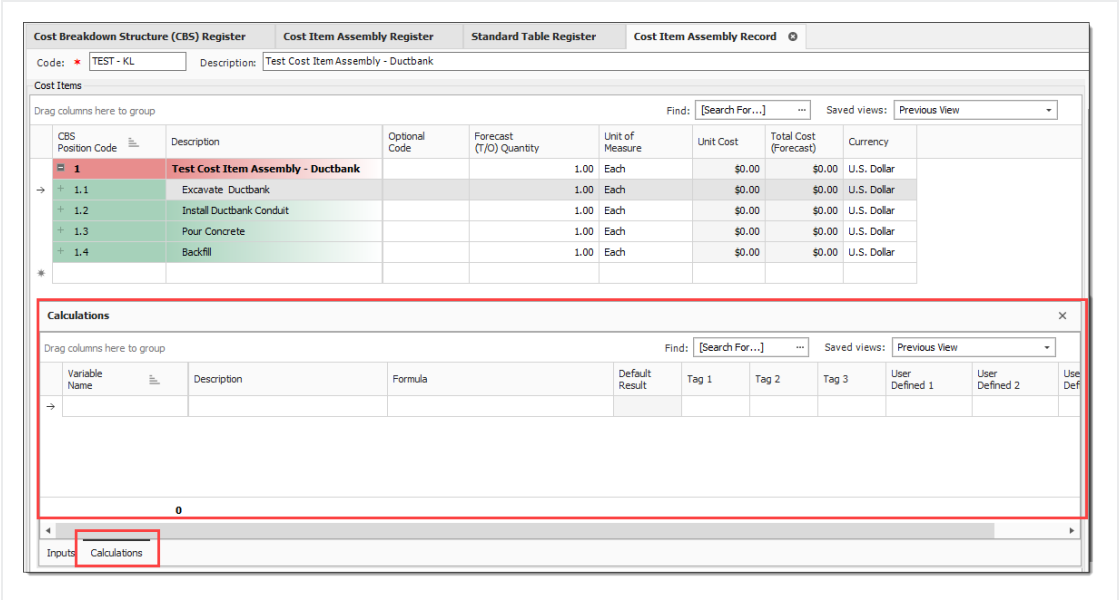


Within the Formula Editor, you can use tables to provide reference data for use in calculations. For example, the following illustration shows a table that stores values for various Concrete Strengths along with their associated resource code values.

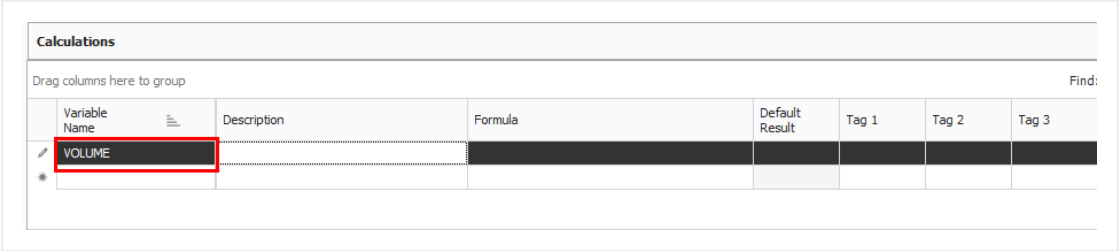


15.2 Step by Step 7 — Create Calculations

1. Drag the **Calculations** data block into view.

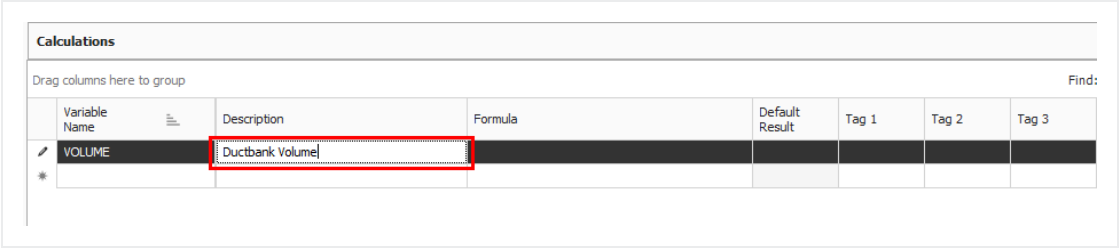


2. In the Variable name field, type **Volume**, then press **Tab**.

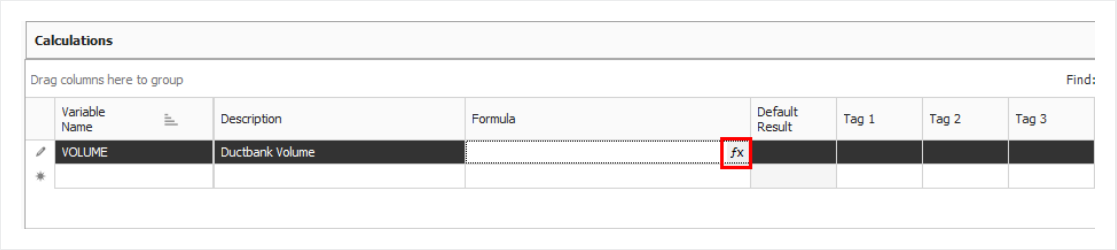


> **NOTE** The **Variable Name** field in the Calculations section will be the name that other Calculations can refer or link to and this name must be unique within the context of the Cost Item Assembly, and unique with respect to input variable names.

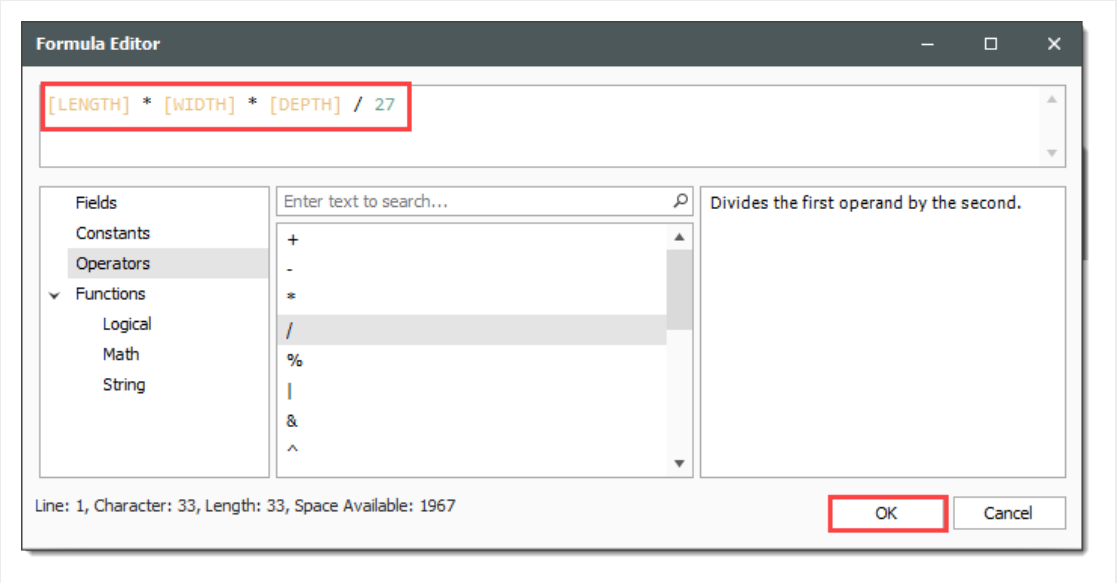
3. Enter the Description **Ductbank Volume**, then press **Tab**.



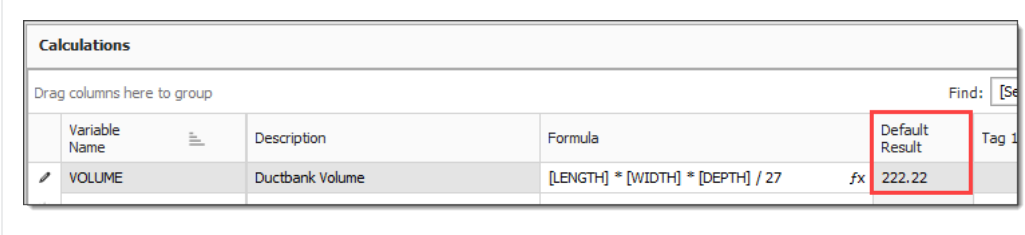
4. In the Formula field, select the **fx** formula editor button.



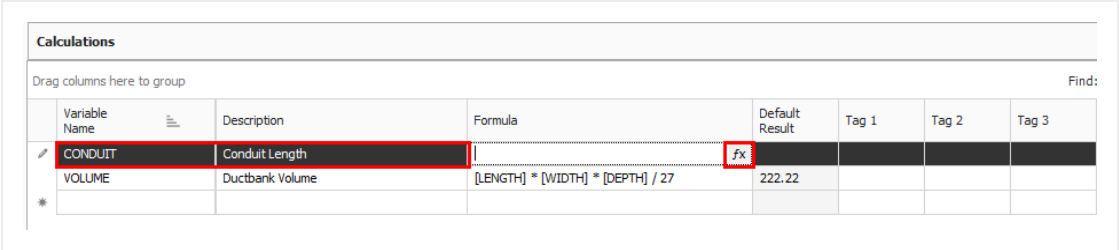
5. Select the Field values and Operators as indicated below to create the displayed formula, then click **OK**.



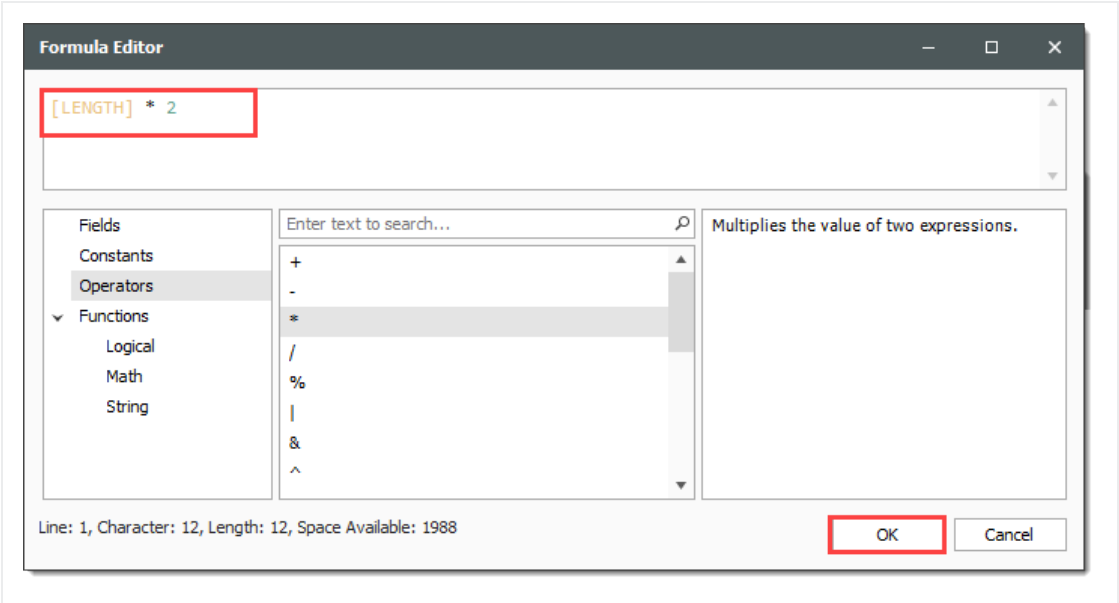
- Notice that the Default Result auto calculates using the calculation and input values provided



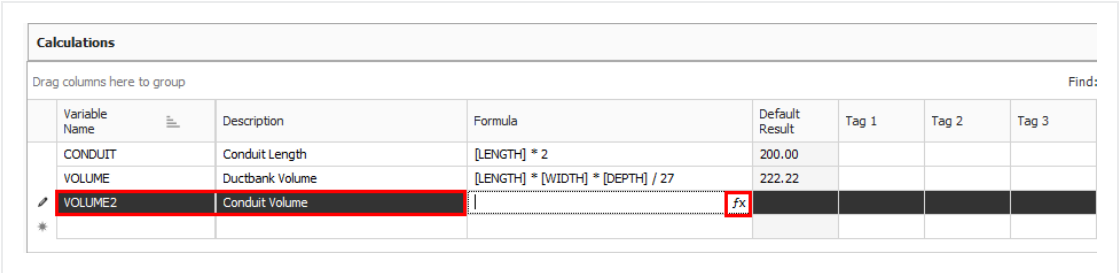
6. In the blank row under the Variable Name field, type **Conduit** and enter the Description **Conduit Length**, then click the **fx** button to open the formula editor.



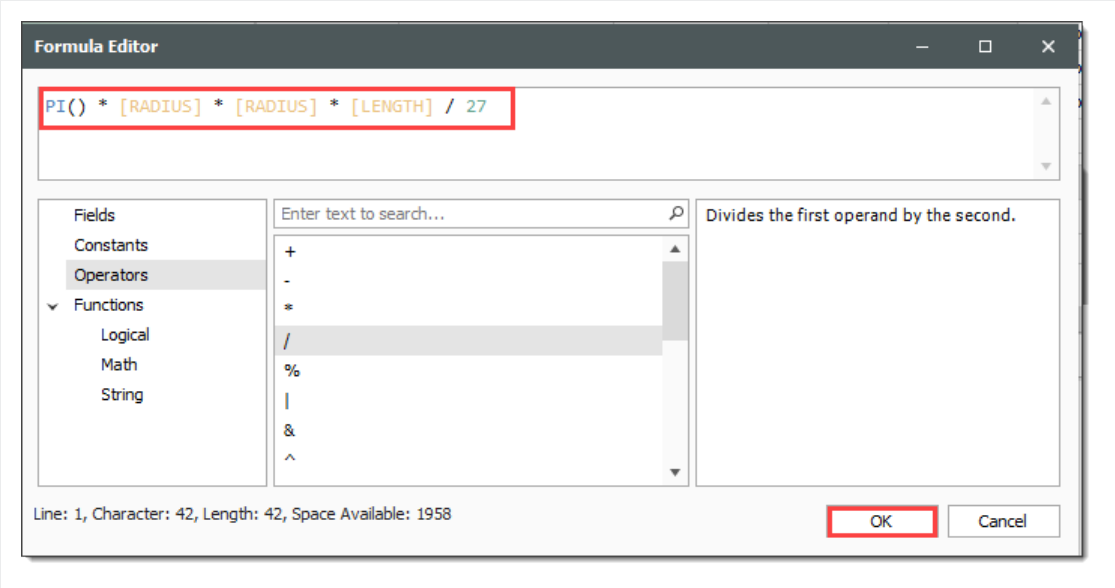
7. Select the Fields value and Operators as indicated below to create the displayed formula, then click **OK**.



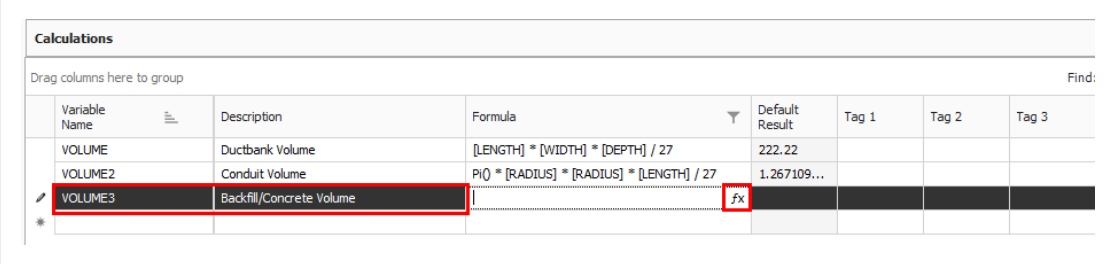
8. In the blank row under the Variable Name field, type **Volume2** and enter the Description **Conduit Volume**, then click on the **fx** button to open the formula editor.



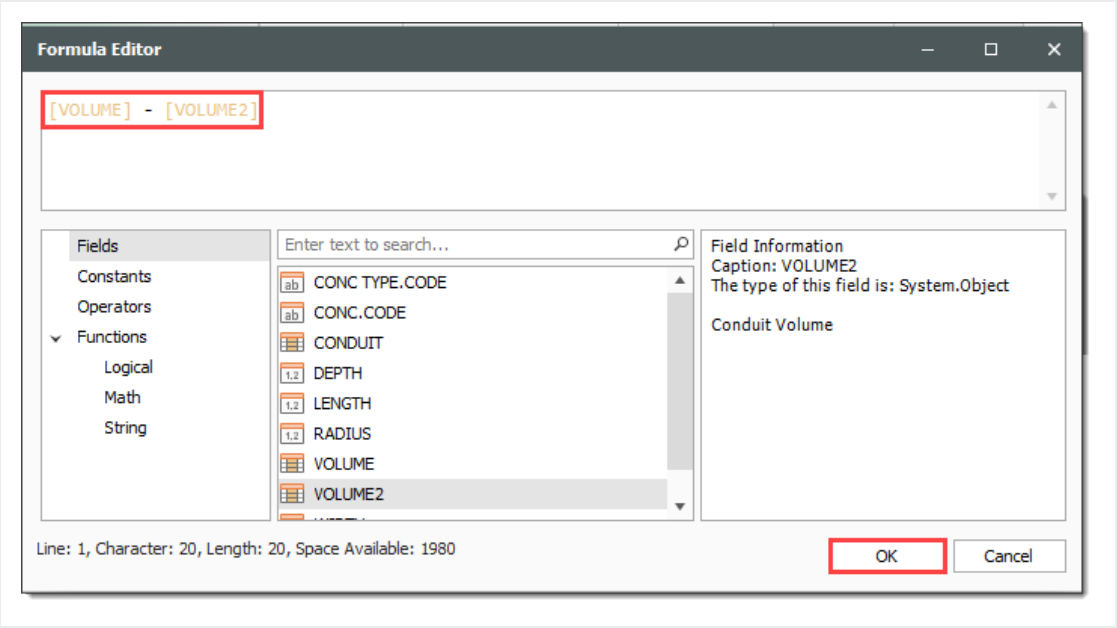
9. Enter the following formula, using the PI() function from the Functions > Math tab, the radius and length from the Fields tab, and the available Operators tab, then click **OK**.



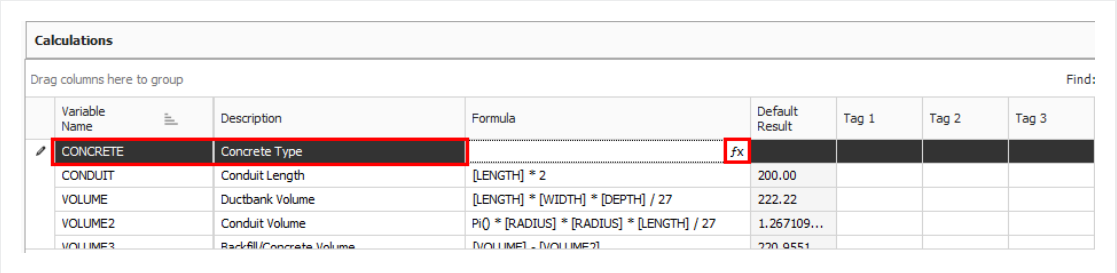
10. In the blank row under the Variable Name field, type **Volume3** and enter the Description Backfill/Concrete volume, then click on the **fx** button to open the formula editor.



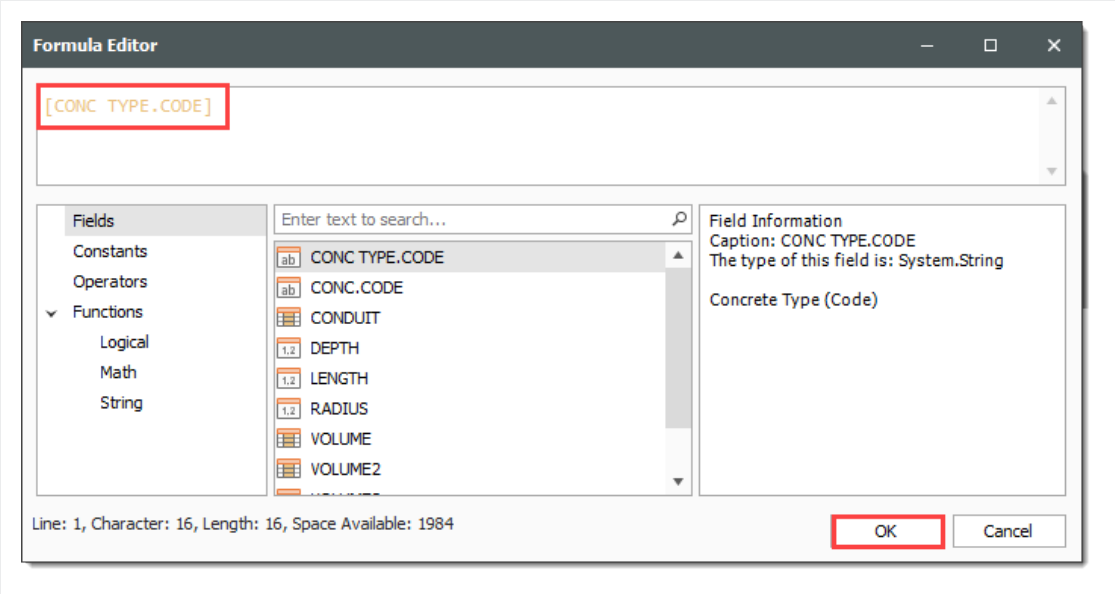
11. Enter the following formula, selecting the already created calculations from the Fields section. Click **OK**.



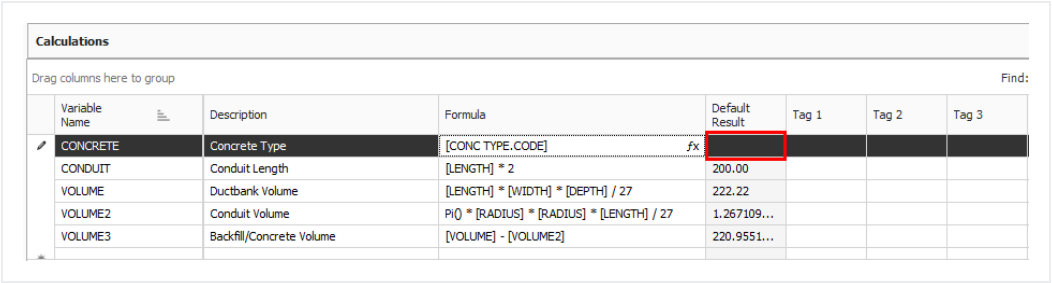
12. In the blank row under the Variable Name field, type **Concrete** and enter the Description Concrete type, then click on the **fx** button to open the formula editor.



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.

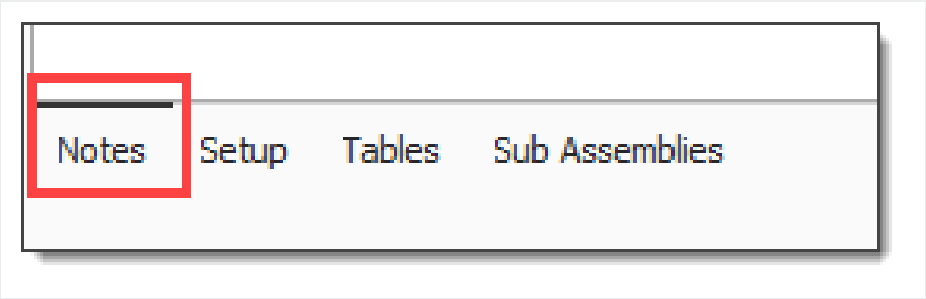


15.2.8 Notes

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.

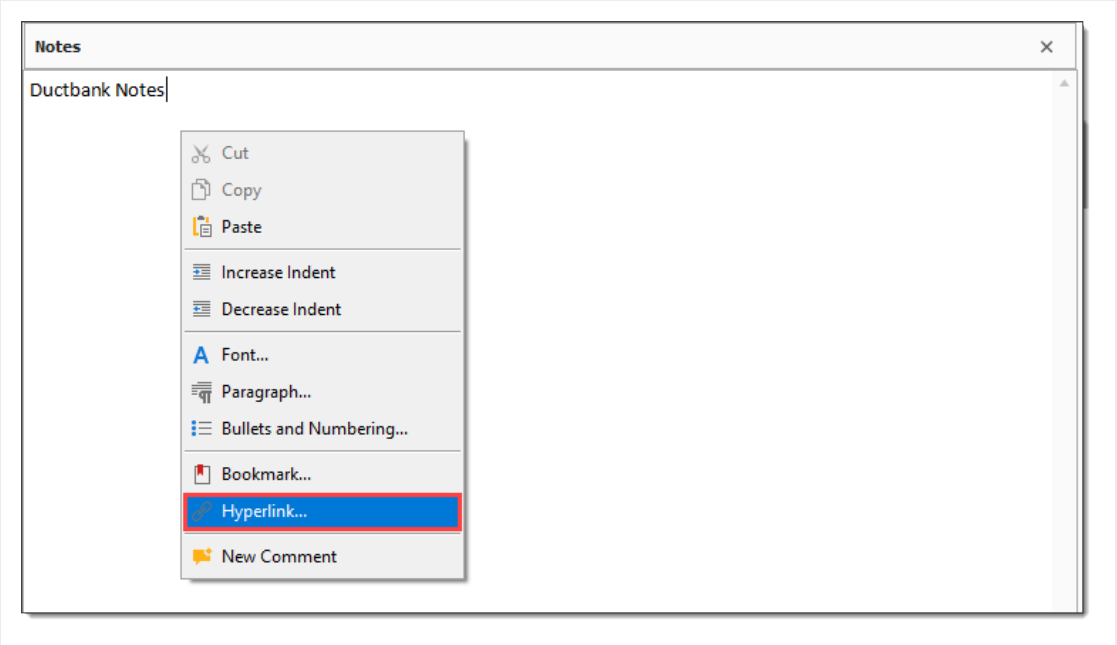
15.2 Step by Step 8 — Add to the Note Section

1. Click on the **Notes** tab in the bottom right corner.

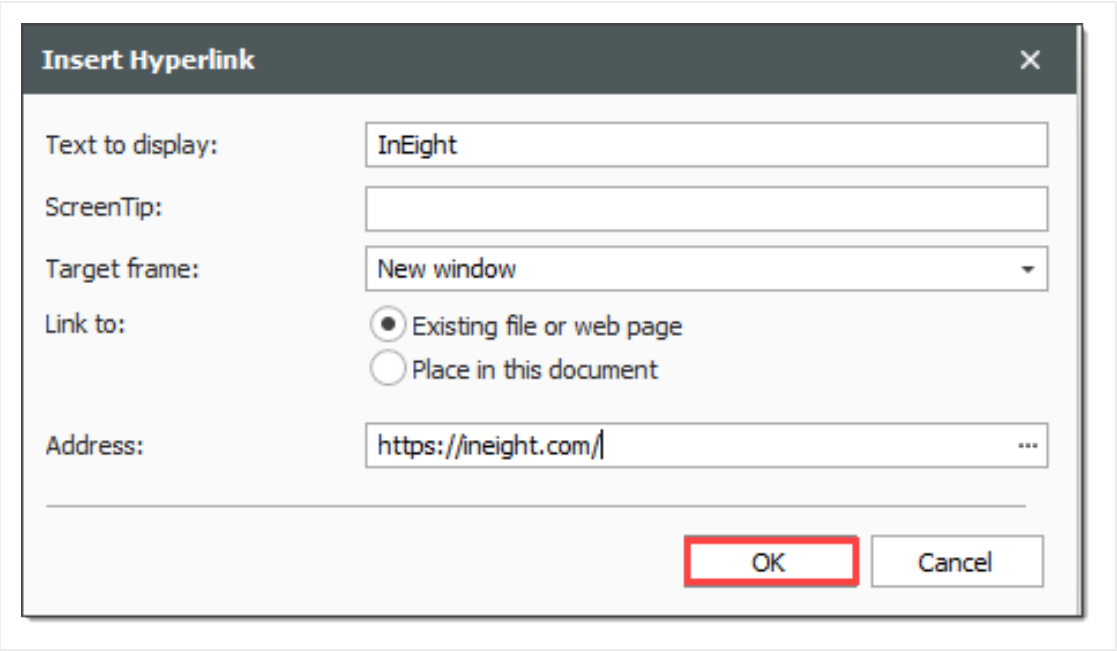


2. In the Notes text box, type **Ductbank Notes**.

3. Right click within the notes section and select **Hyperlink**.

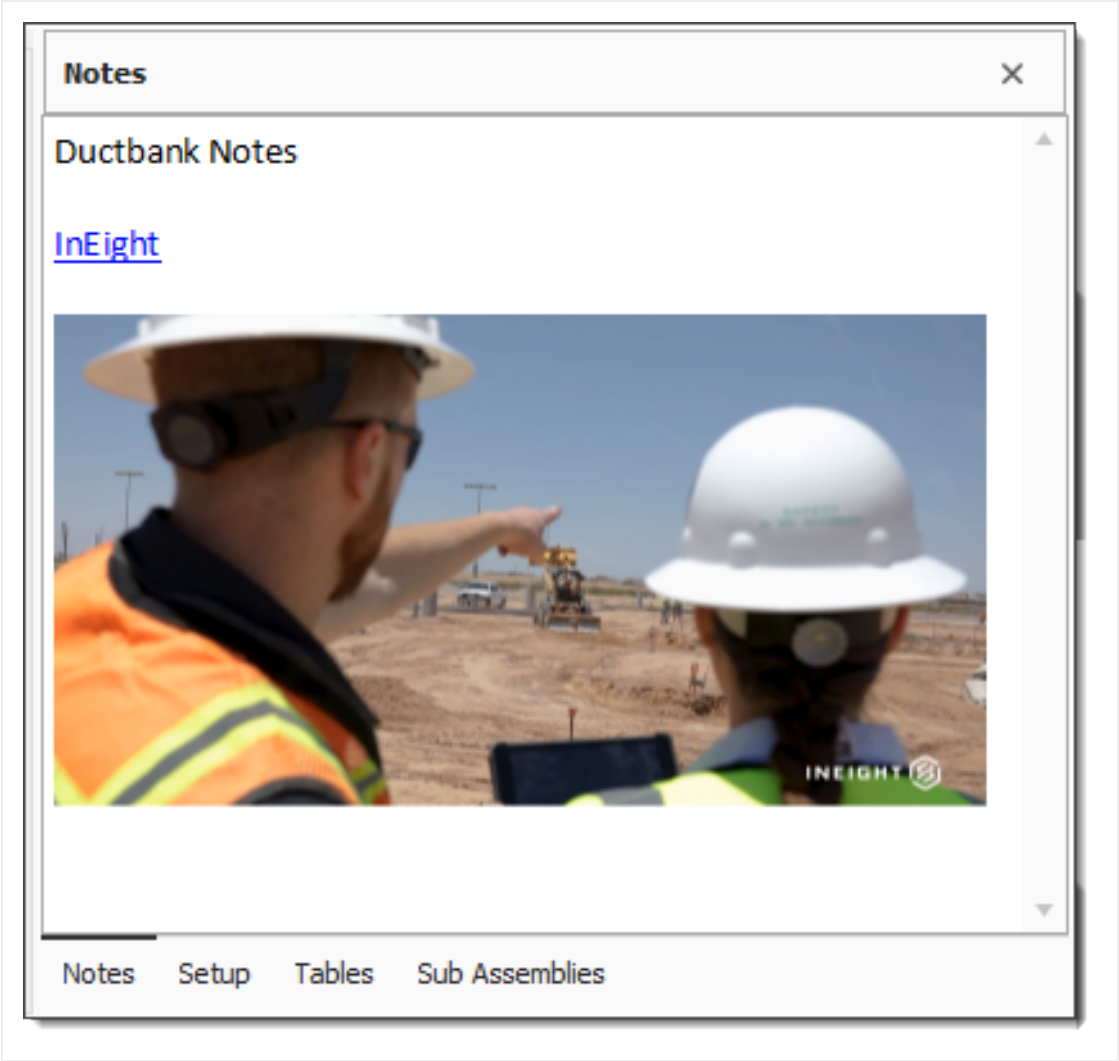


4. Type in a link to your SharePoint or document sharing site, then click **OK**.



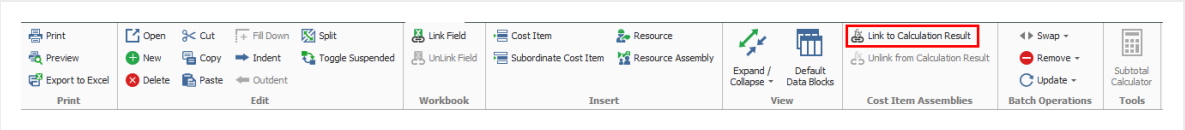
- Note how the hyperlink appears in the notes section.

5. Still in Notes, copy a picture or drawing from your computer, then Paste it into the notes section.



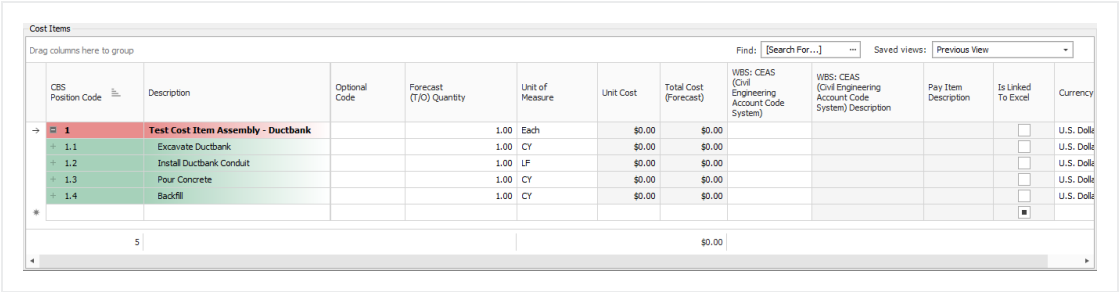
15.2.9 Linking Calculations to Cost Items

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.

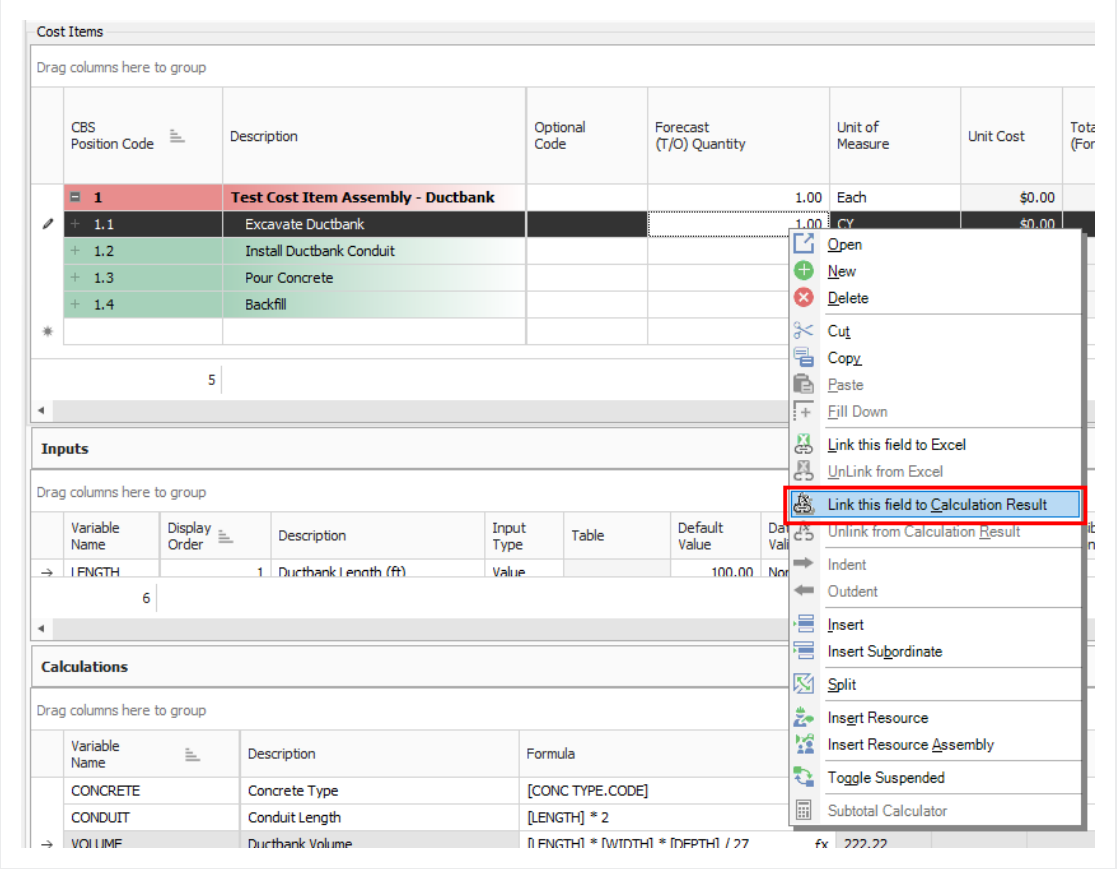


15.2 Step by Step 9 — Link Calculations to Cost Items

1. Expand your **Cost Items** window so that you can see all the cost items.

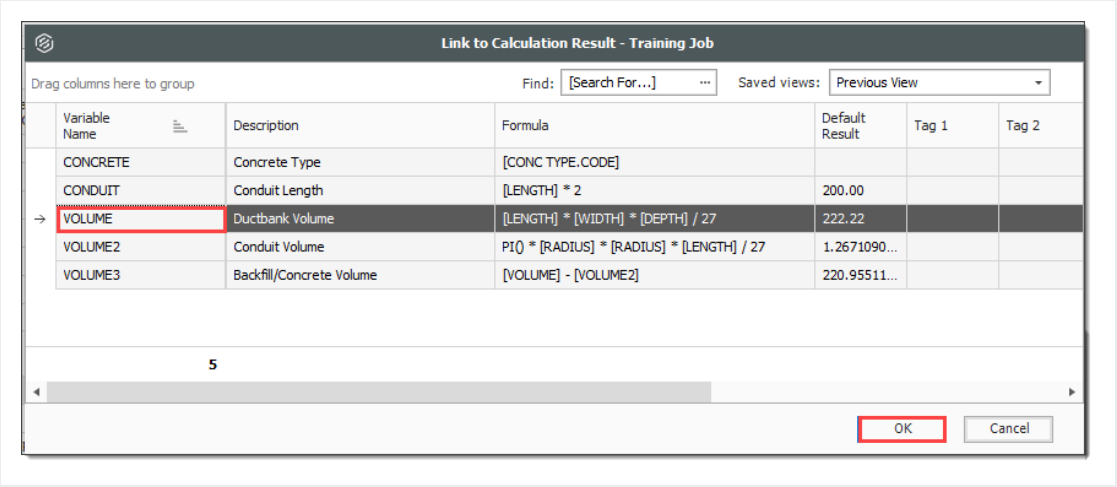


2. Right click on the **Excavate Ductbank** Forecast (T/O) Quantity field and select **Link this field to Calculation Result**.

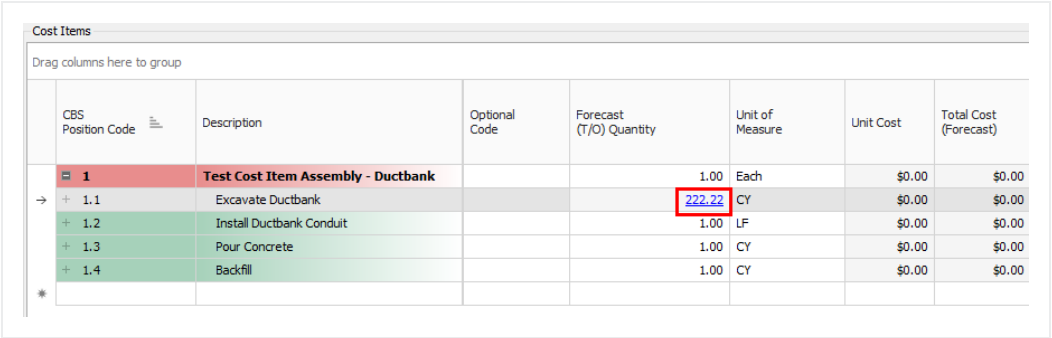


TIP You create calculations prior to linking the values field. The linking of calculation results is similar to linking to Excel values except all linked values update automatically.

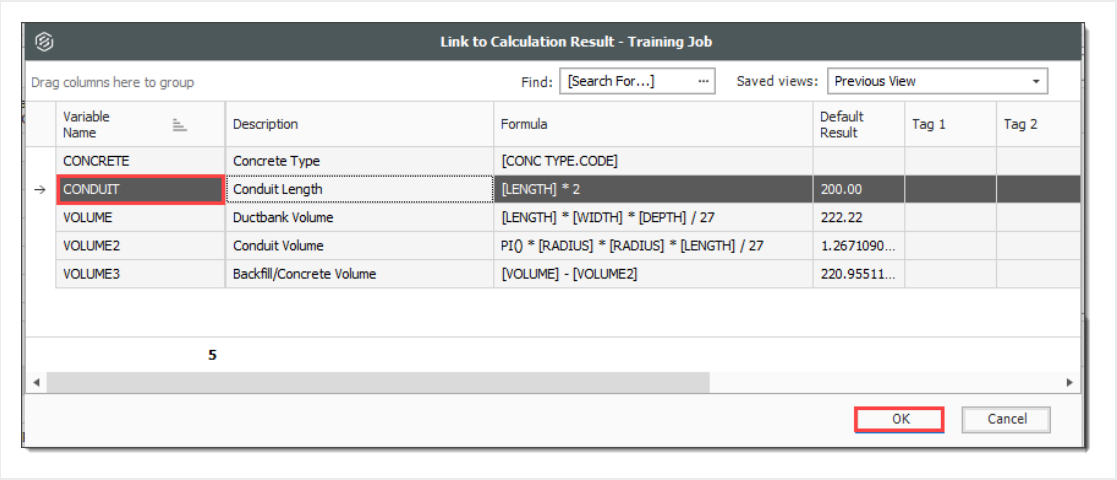
3. Select **VOLUME**, then click **OK**.



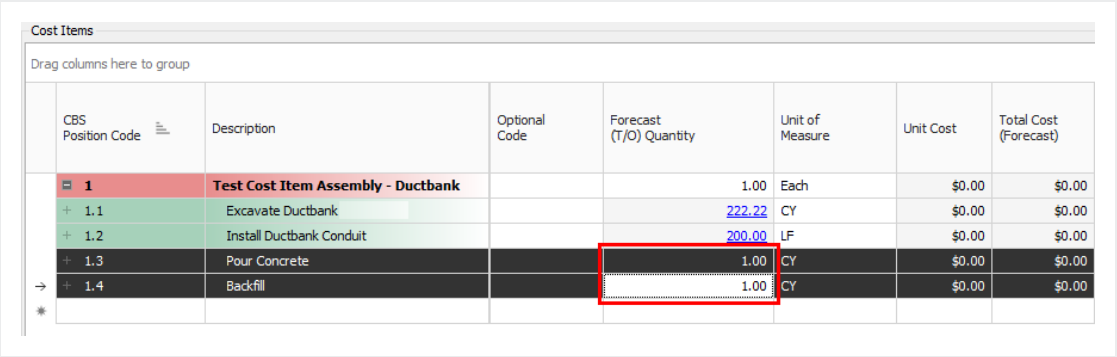
- Note how the Forecast (T/O) Quantity field is now populated with a linked quantity



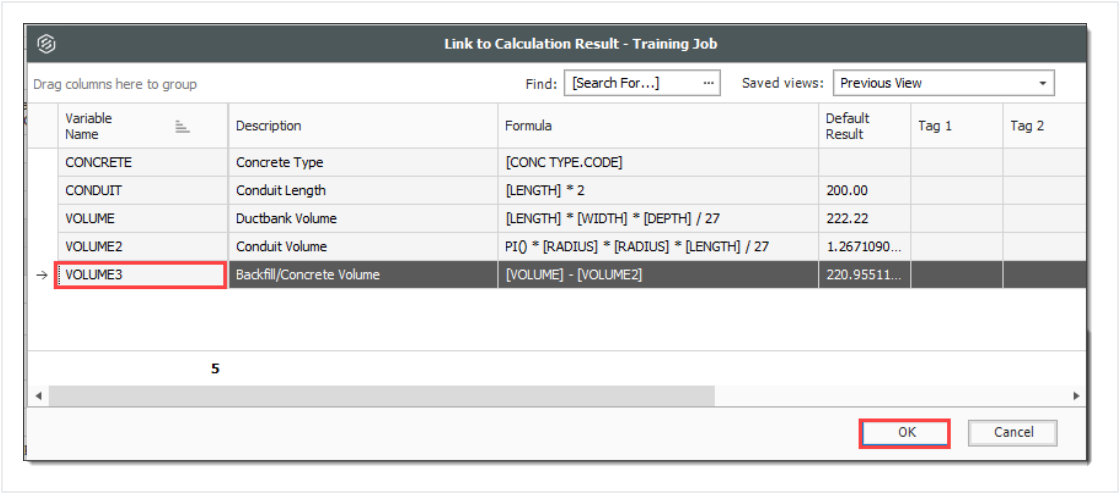
4. Right click on the **Install Ductbank Conduit** Forecast (T/O) Quantity field and select **Link this field to Calculation Result**.
5. Select **CONDUIT**, then click **OK**.



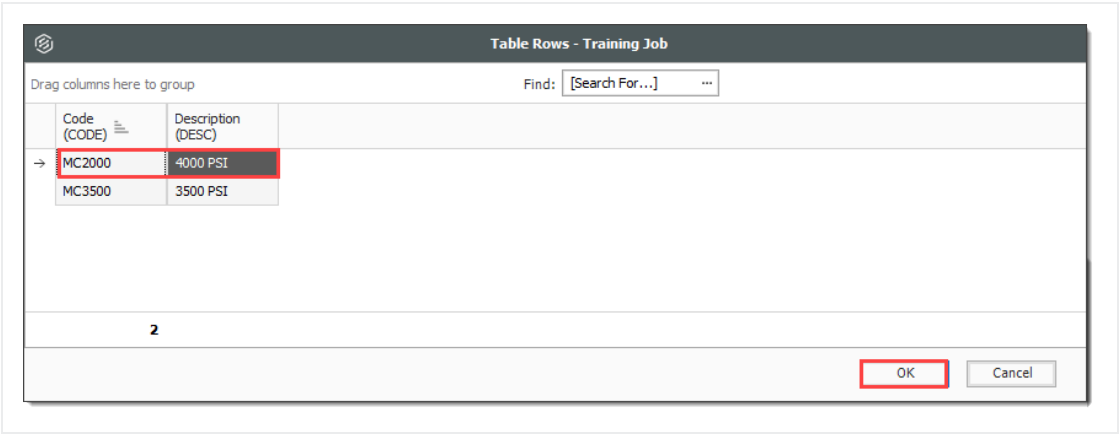
6. Select the Forecast (T/O) Quantity field for **Pour Concrete**, hold down CTRL, and select the Forecast (T/O) Quantity field for **Backfill**.



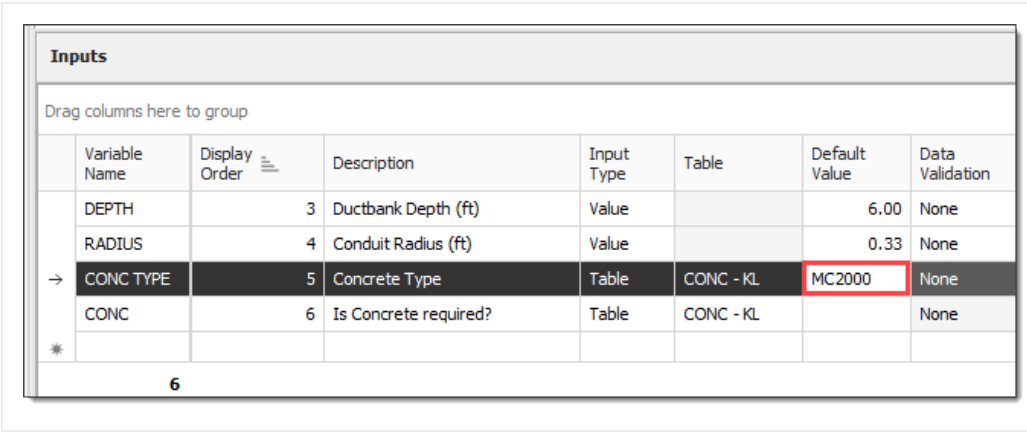
7. Right click and select **Link this field to Calculation Result**.
8. Select **VOLUME3**, then click **OK**.



9. In the Inputs data block, select the **Default Value** field for the CONC TYPE input.
10. Select **MC2000**, then click **OK**.

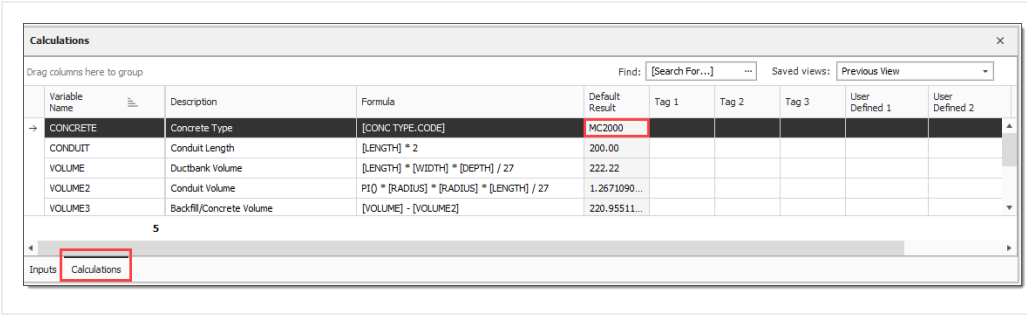


- Notice that this value is now populated in the Default Value field.

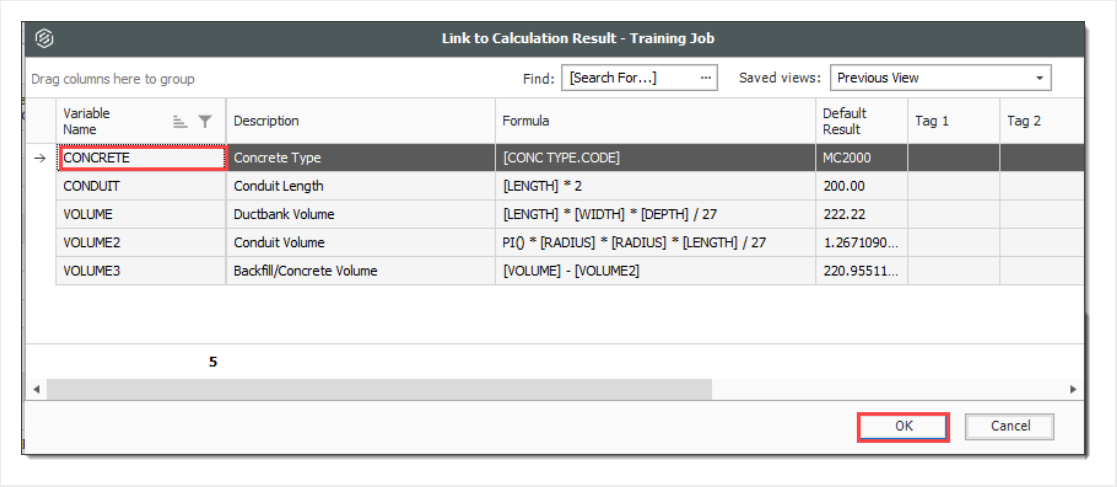


11. Navigate to the **Calculations** data block.

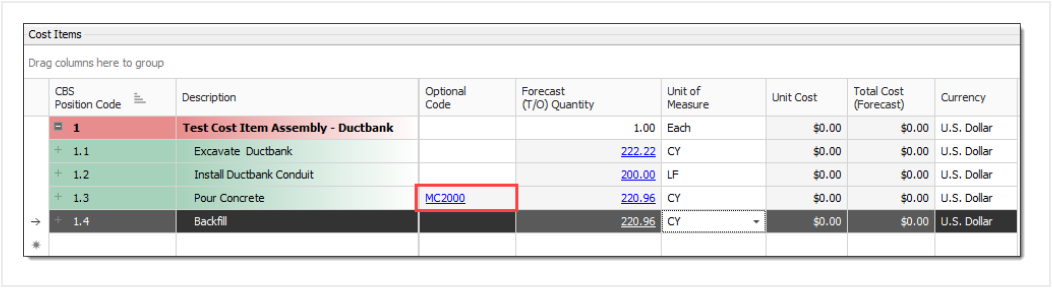
- Note that the Default Result field is now populated



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**.

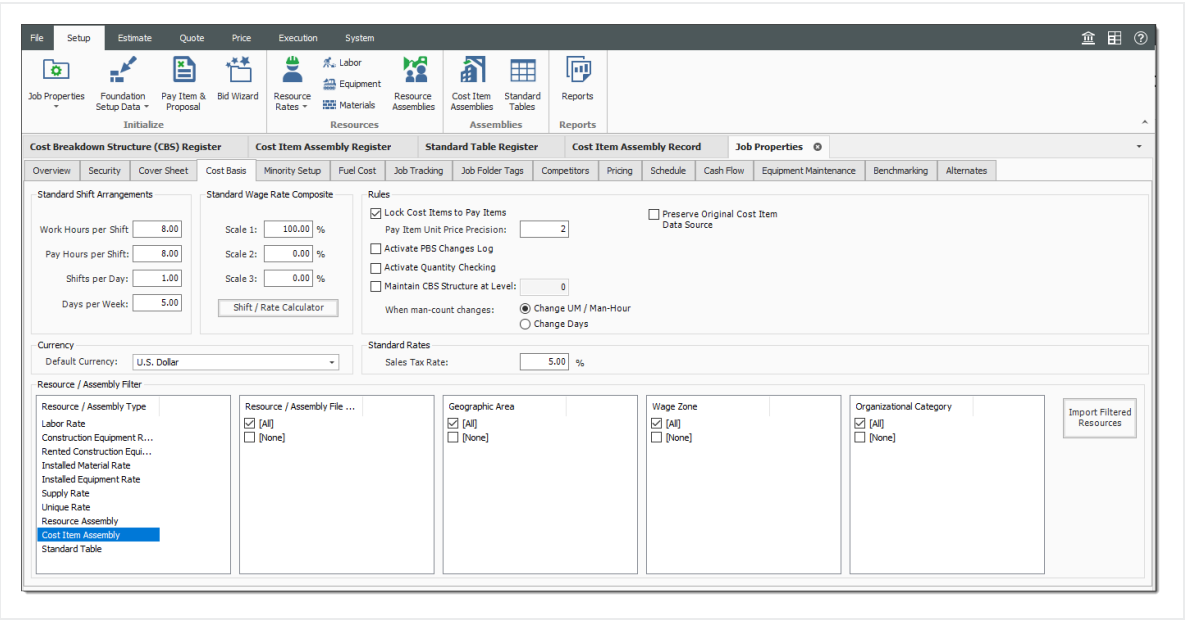


- Note how the optional code for Pour Concrete is now populated



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.



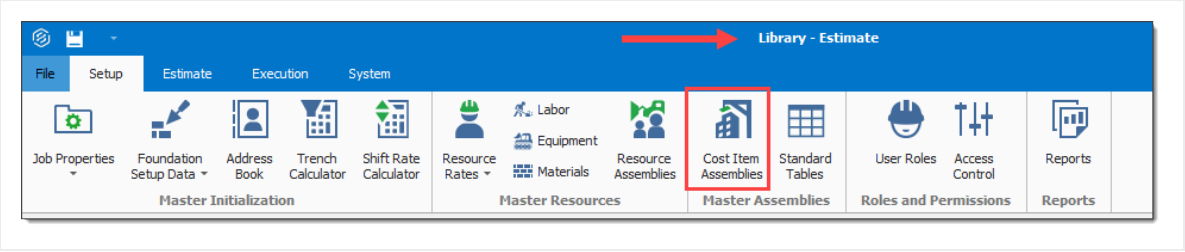
15.3.1 Employment

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.



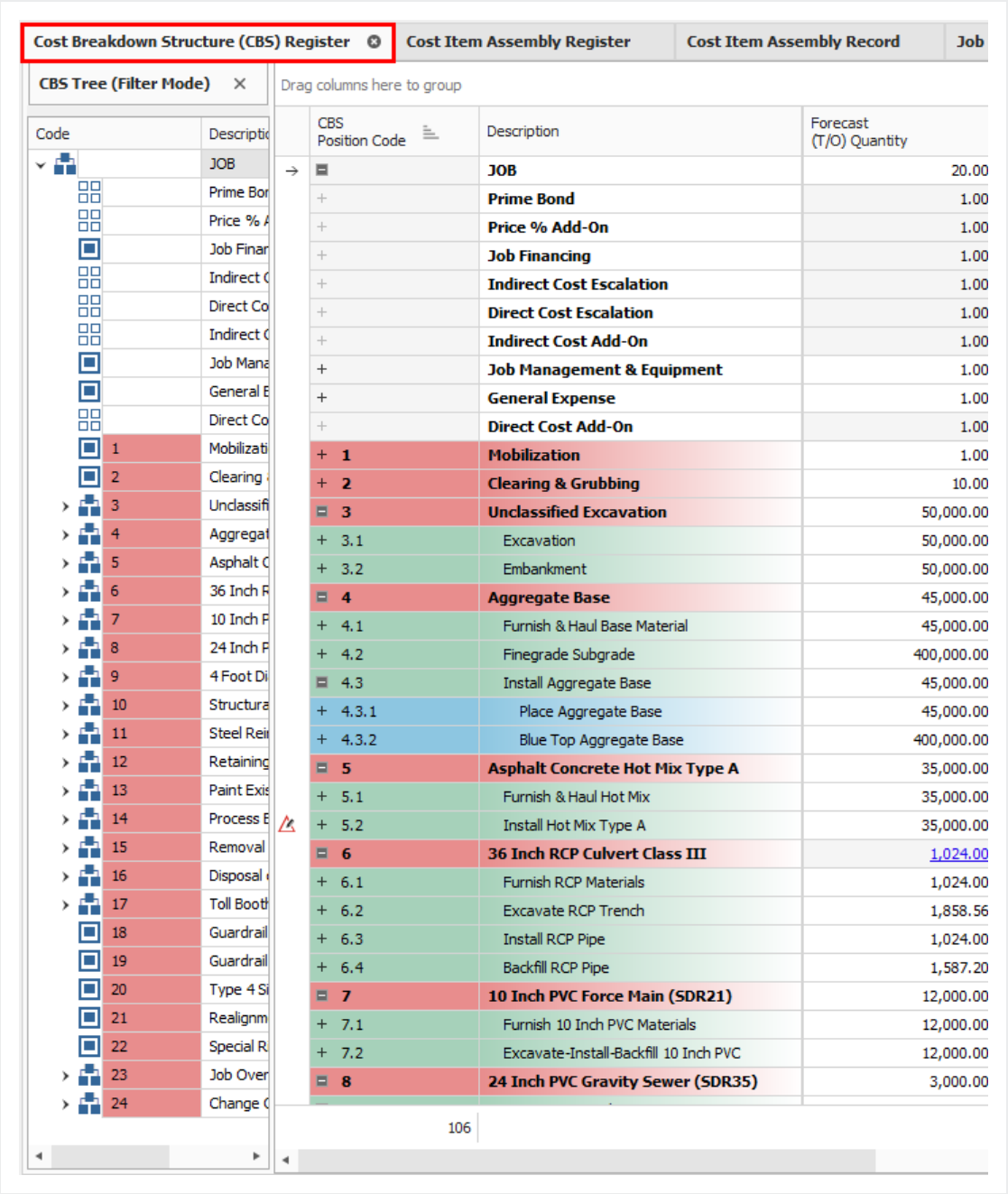
15.3.3 Insert Cost Item Assemblies

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.

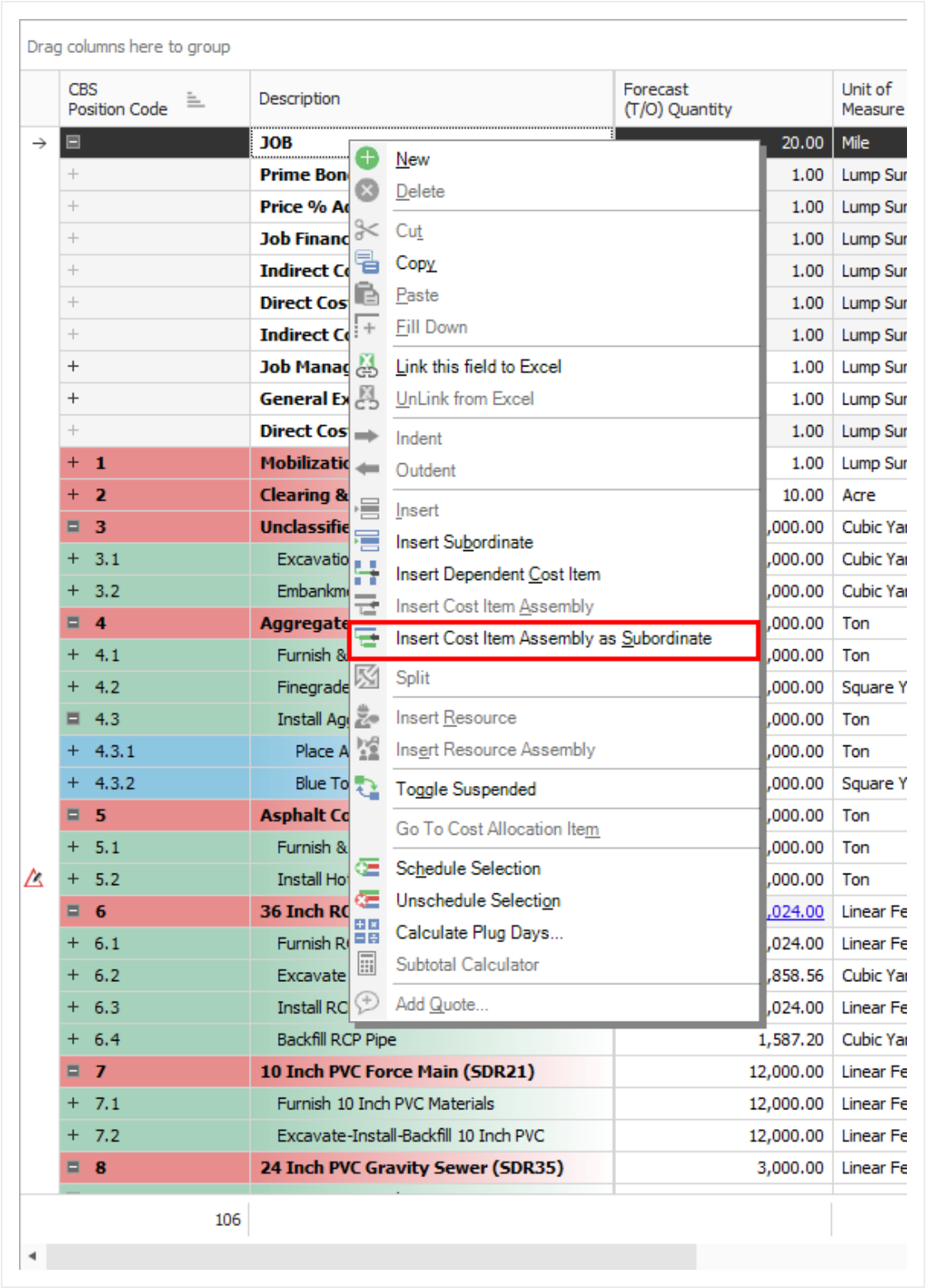
Once the cost items are inserted into the CBS, you can hover over Forecast (T/O) Quantity to see the associated calculation.

15.3 Step by Step 1 — Insert Cost Item Assemblies

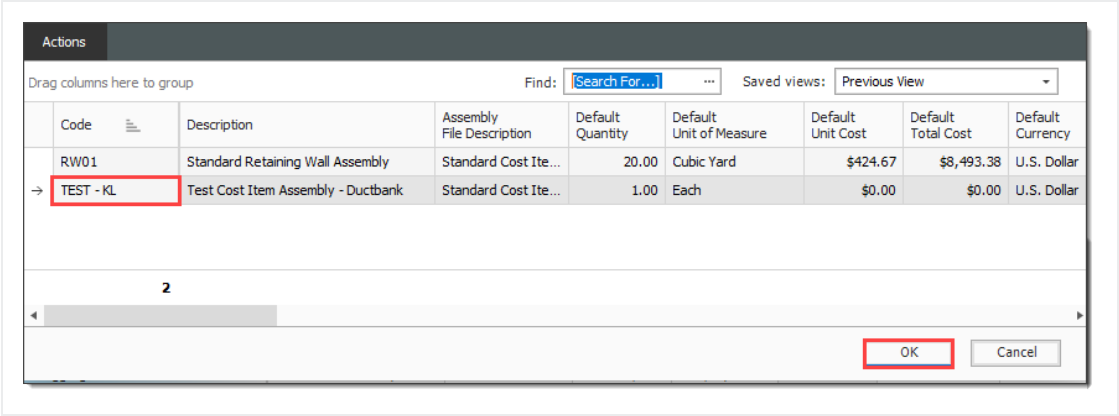
1. Navigate to the **CBS Register**.



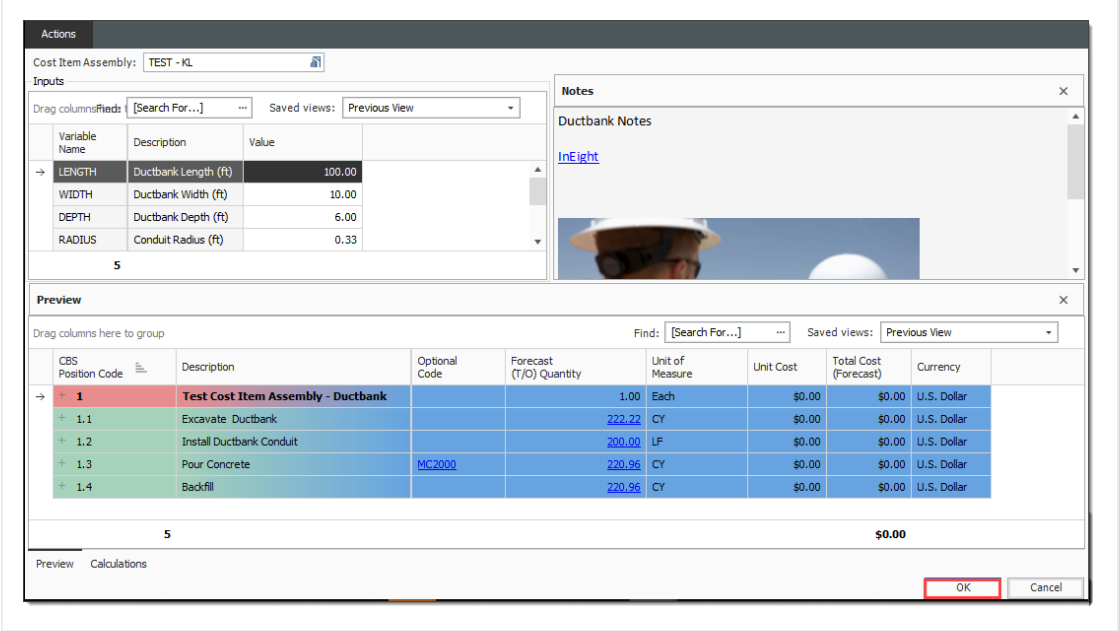
2. Right click on the first cost item in the hierarchy and select **Insert Cost Item Assembly as Subordinate**.


Drag columns here to group
CBS Position Code
Description
Forecast (T/O) Quantity
Unit of Measure
JOB
20.00
Mile
Prime Bon
1.00
Lump Sur
Price % Ac
1.00
Lump Sur
Job Financ
1.00
Lump Sur
Indirect C
1.00
Lump Sur
Direct Cos
1.00
Lump Sur
Indirect C
1.00
Lump Sur
Job Manag
1.00
Lump Sur
General Ex
1.00
Lump Sur
Direct Cos
1.00
Lump Sur
1
Mobilizatio
1.00
Lump Sur
2
Clearing &
10.00
Acre
3
Unclassifie
,000.00
Cubic Yar
3.1
Excavatio
,000.00
Cubic Yar
3.2
Embankm
,000.00
Cubic Yar
4
Aggregate
,000.00
Ton
4.1
Furnish &
,000.00
Ton
4.2
Finegrade
,000.00
Square Y
4.3
Install Ag
,000.00
Ton
4.3.1
Place A
,000.00
Ton
4.3.2
Blue To
,000.00
Square Y
5
Asphalt Co
,000.00
Ton
5.1
Furnish &
,000.00
Ton
5.2
Install Ho
,000.00
Ton
6
36 Inch RC
,024.00
Linear Fe
6.1
Furnish R
,024.00
Linear Fe
6.2
Excavate
,858.56
Cubic Yar
6.3
Install RC
,024.00
Linear Fe
6.4
Backfill RCP Pipe
1,587.20
Cubic Yar
7
10 Inch PVC Force Main (SDR21)
12,000.00
Linear Fe
7.1
Furnish 10 Inch PVC Materials
12,000.00
Linear Fe
7.2
Excavate-Install-Backfill 10 Inch PVC
12,000.00
Linear Fe
8
24 Inch PVC Gravity Sewer (SDR35)
3,000.00
Linear Fe
106
New
Delete
Cut
Copy
Paste
Fill Down
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
Insert Resource
Insert Resource Assembly
Toggle Suspended
Go To Cost Allocation Item
Schedule Selection
Unschedule Selection
Calculate Plug Days...
Subtotal Calculator
Add Quote...

3. Select your Cost Item Assembly, then click **OK**.



4. Click **OK** again.



- 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:

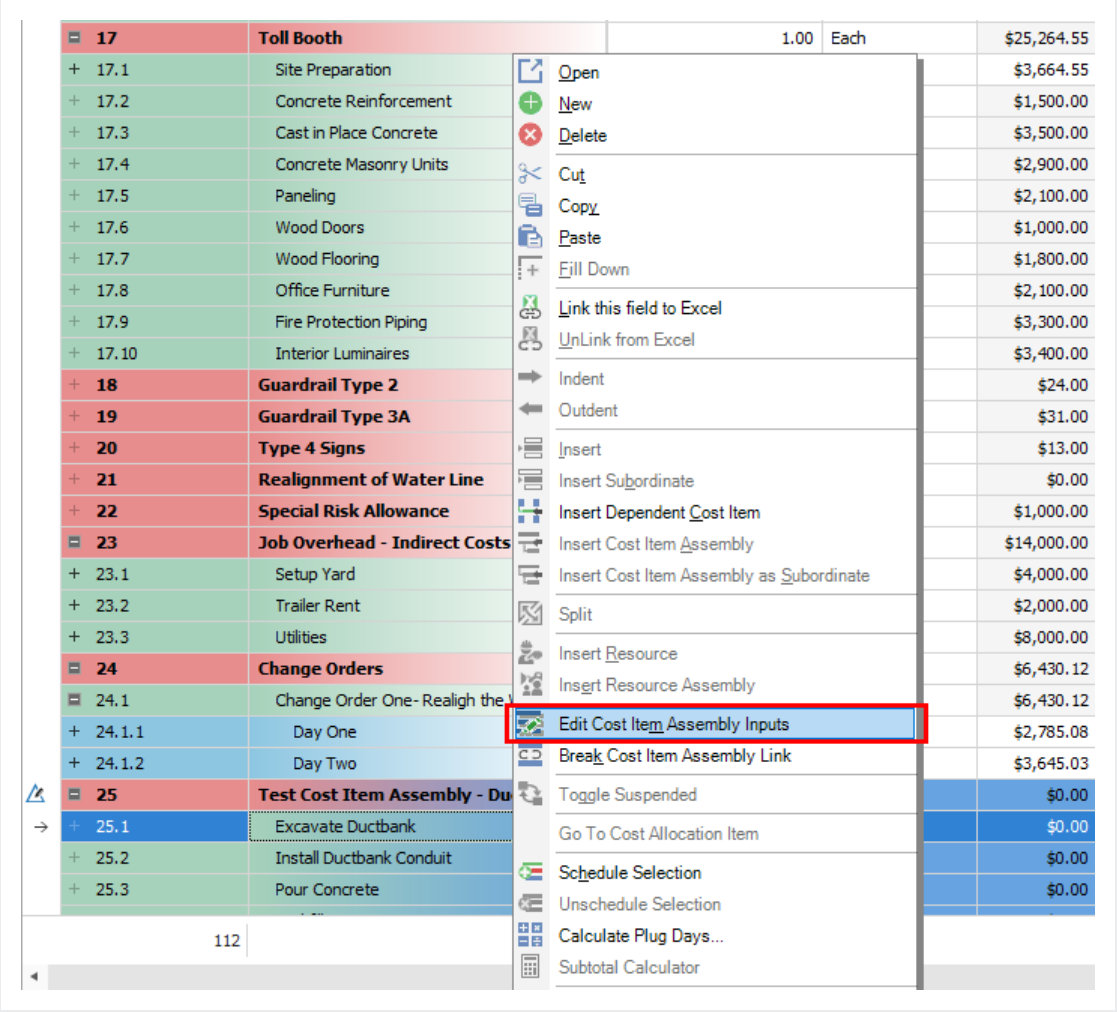
- From the CBS Register
- From the Cost Item Assembly Register

15.3.5 From the CBS Register

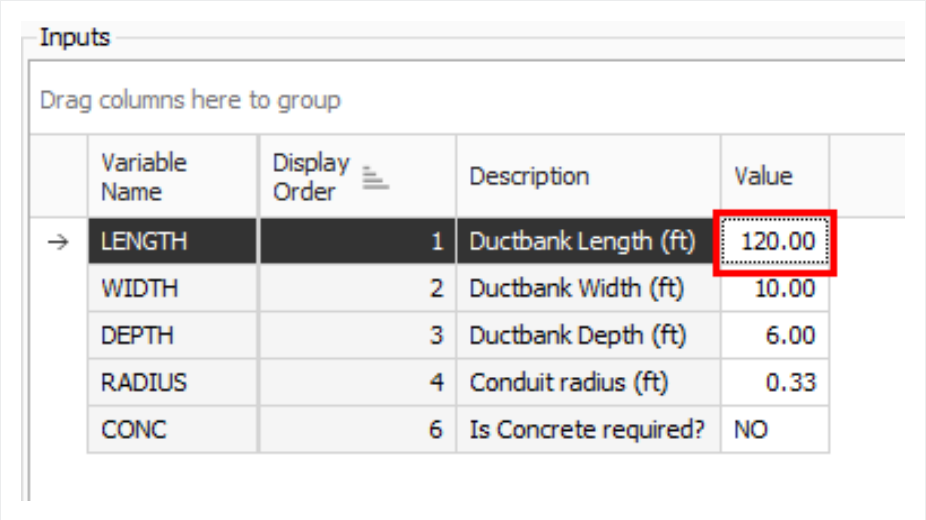
You can edit the entire Cost Item Assembly from within the CBS Register.

15.3 Step by Step 2 — 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.**

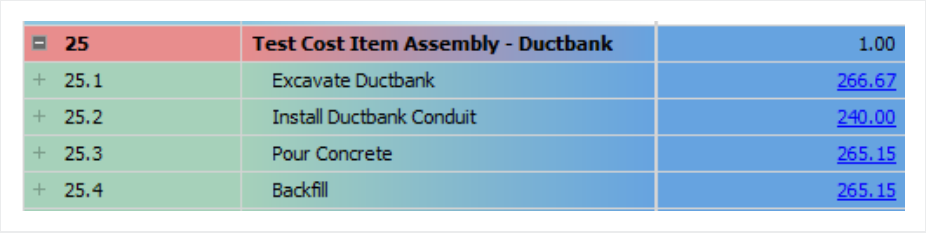


2. Maximize your screen.
3. Change the Length input value to **120**.



4. Click **OK**.

- Notice how all the quantities for the cost items using the input Length change



15.3.6 From the Cost Item Assembly Register

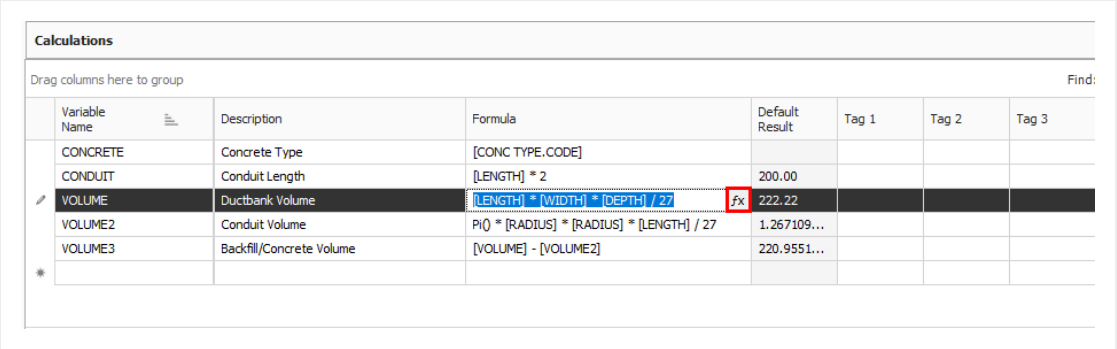
You can navigate back to the Cost Item Assembly Register, select your Cost Item Record, and make any changes there. Once the Cost Item Assemblies have been employed, to update the cost items with any changes made in the Cost Item Assembly Register, you need to go back to the CBS Register to update the 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

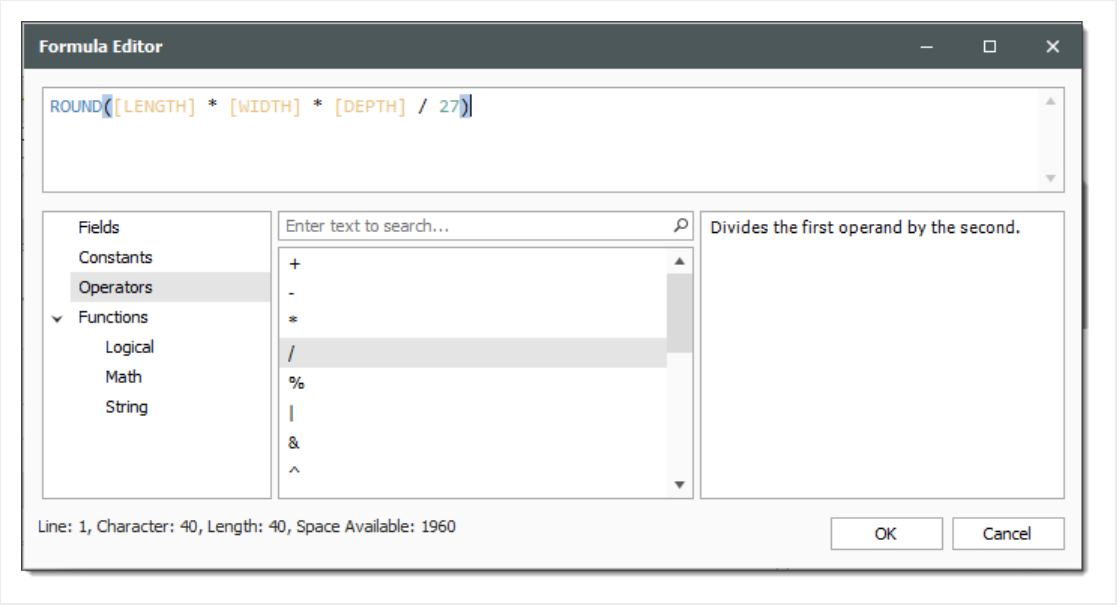
The following step by step demonstrates some advanced options within Cost Item Assemblies, such as conditional inputs and functions.

15.3 Step by Step 3 — Advanced Options

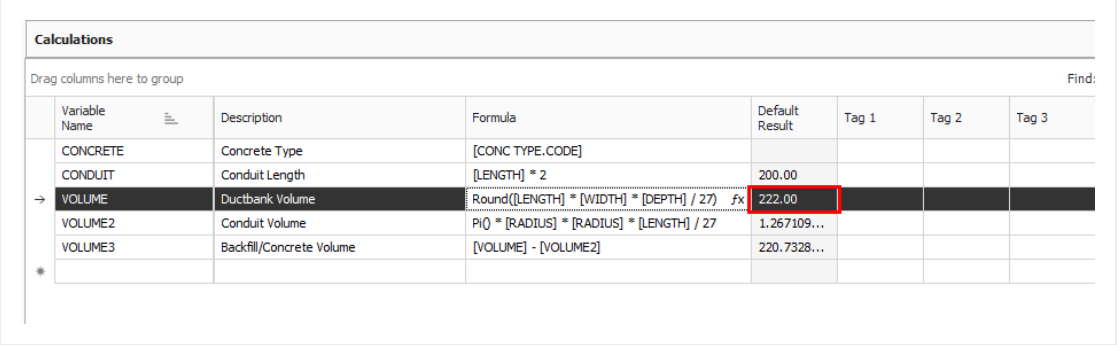
1. Navigate to your Cost Item Assembly Record.
2. In the **Calculations** data block, click on the formula editor for the “Volume” calculation.



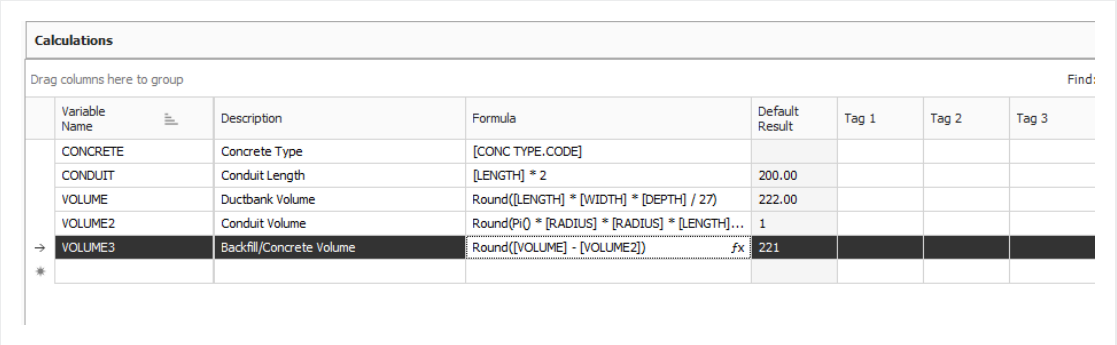
3. Using the Functions tab, select the Round function and put your existing formula within its parenthesis, then click **OK**.



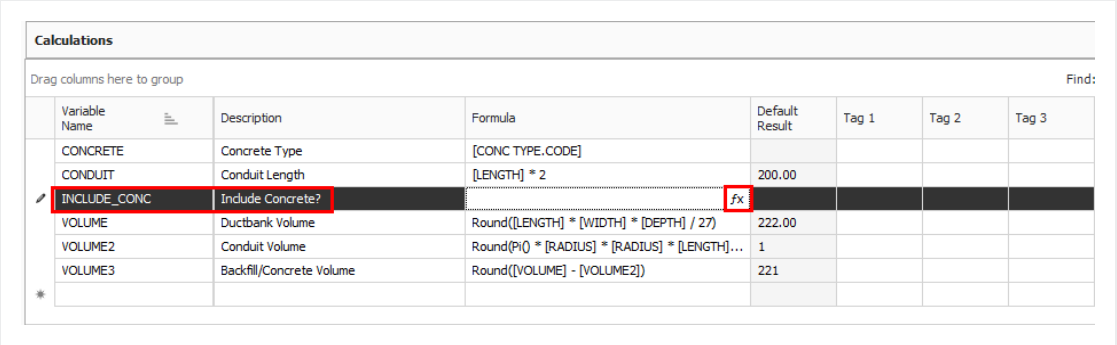
- You now see a rounded number in the Default Result field



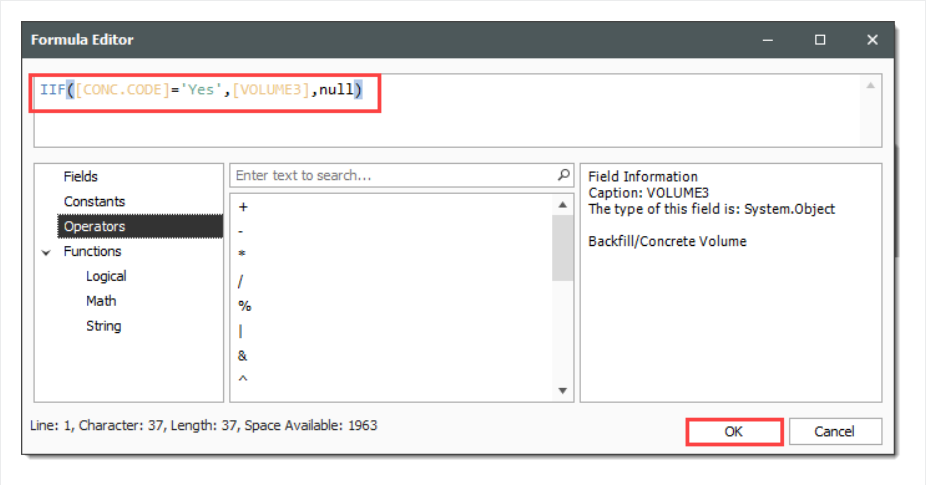
4. You now see a rounded number in the Default Result field
5. Do the same for the Volume2 and Volume3 calculations.



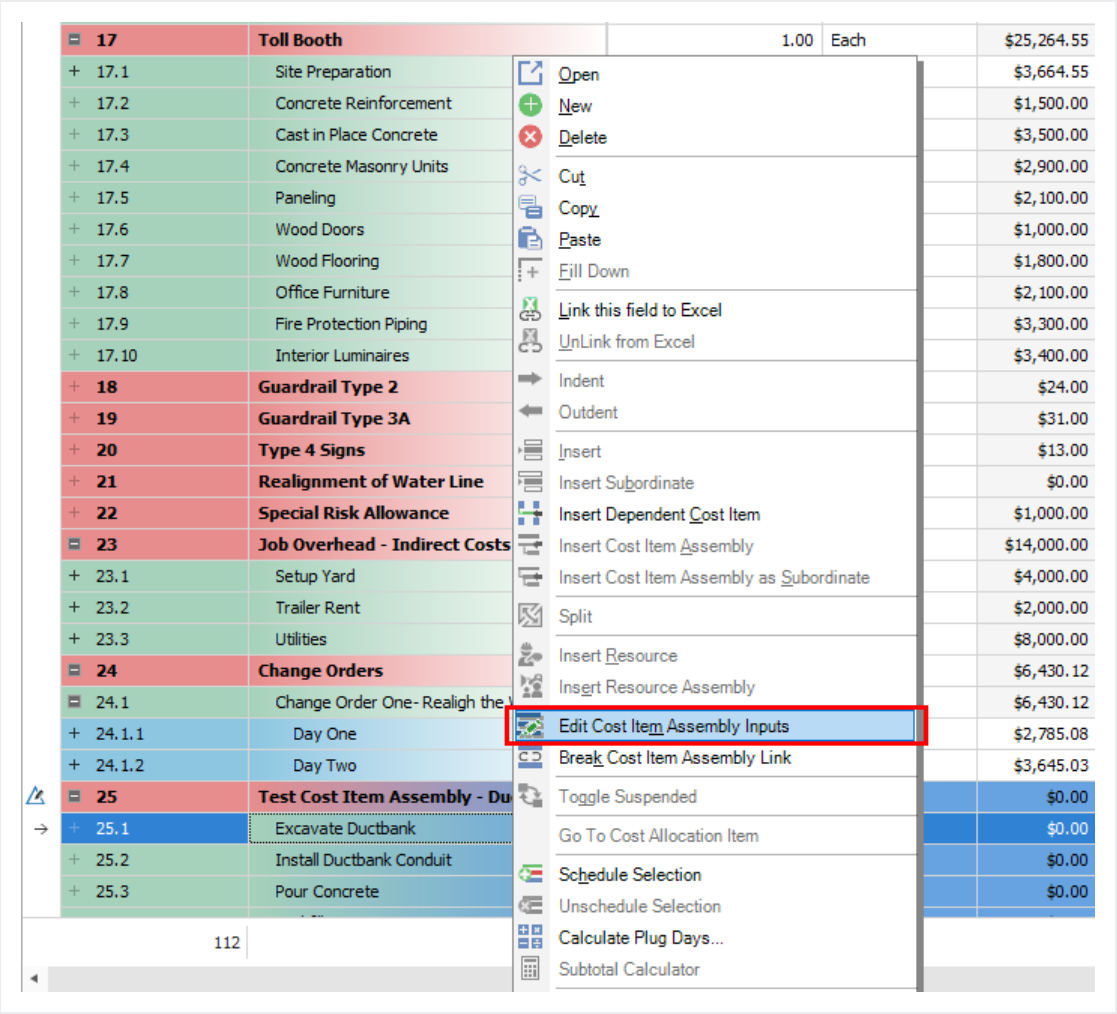
6. Create a new calculation. In the Variable Name field, type **Include_Conc**, enter **Include Concrete?** in the Description field, then click on the **fx** button to open the formula editor.



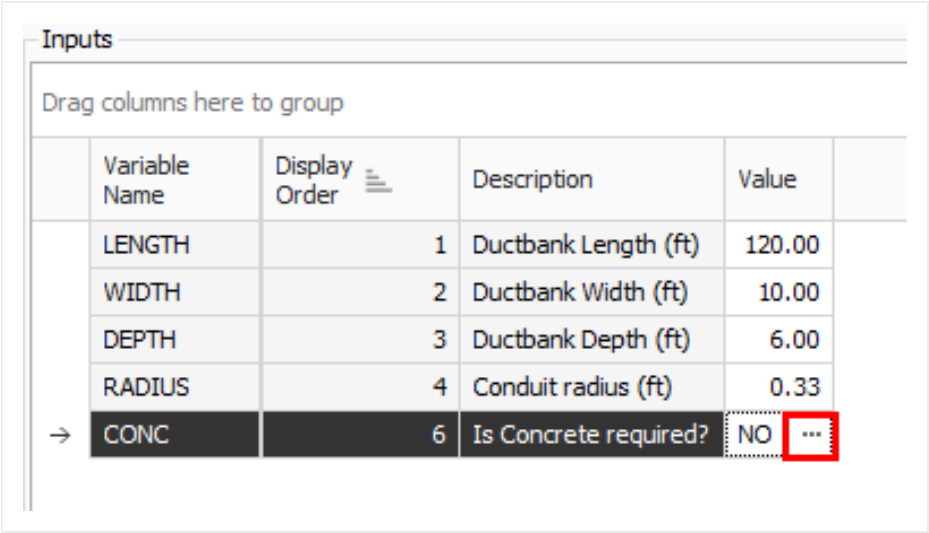
7. Using the **Iif(, ,)** function from the Functions tab, and the existing Volume3 calculations from the Fields tab, enter in the following formula, then click **OK**.



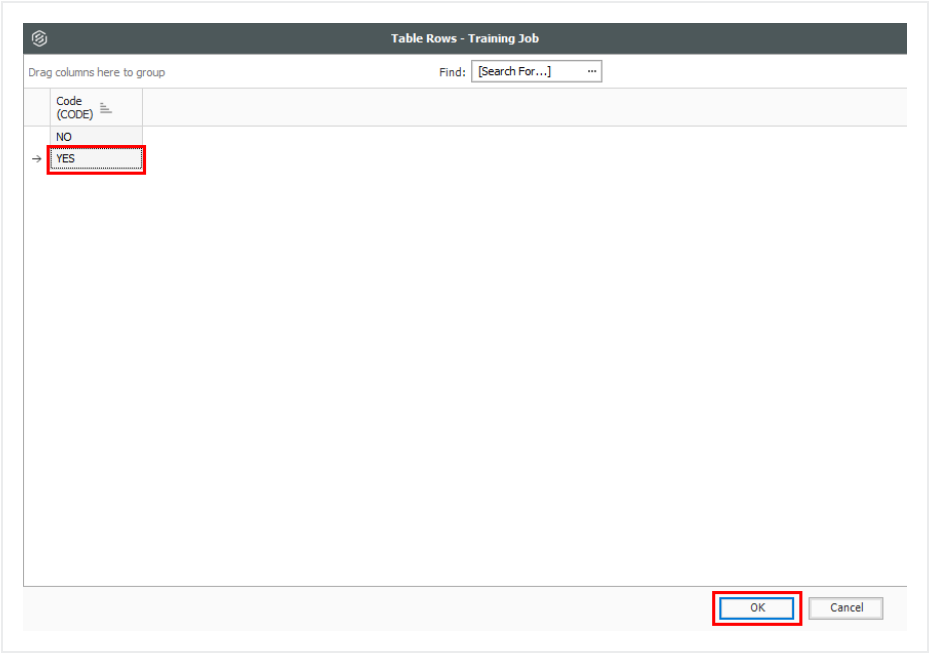
8. Navigate to the **CBS Register**.
9. Right click on one of your cost assembly items, and select **Edit Cost Item Assembly Inputs**.



10. On the CONC input, select the ellipses next to the Default Value.

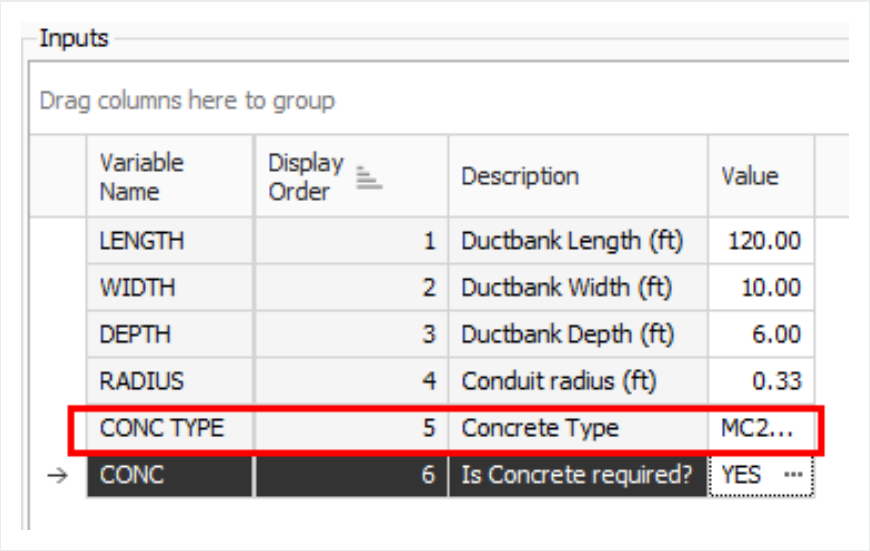


11. Select **Yes**.

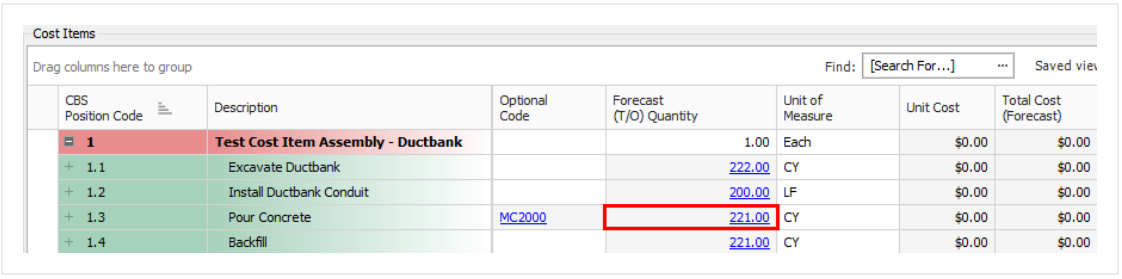


12. Click **OK**.

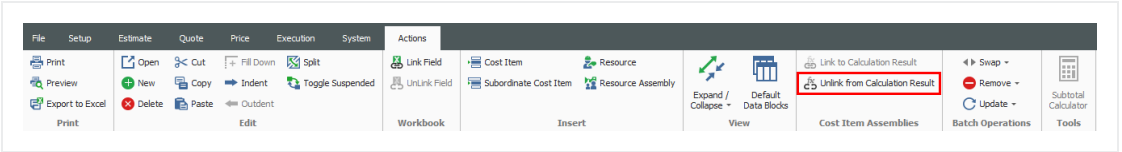
- Note how the conditional input CONC TYPE is now displayed



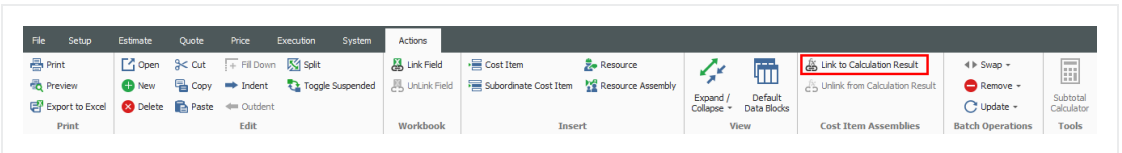
13. Click **OK**.
14. Navigate back to your Cost Item Assembly Record.
15. In the Cost Items data block, right click on the Pour Concrete **Forecast (T/O) Quantity** field.



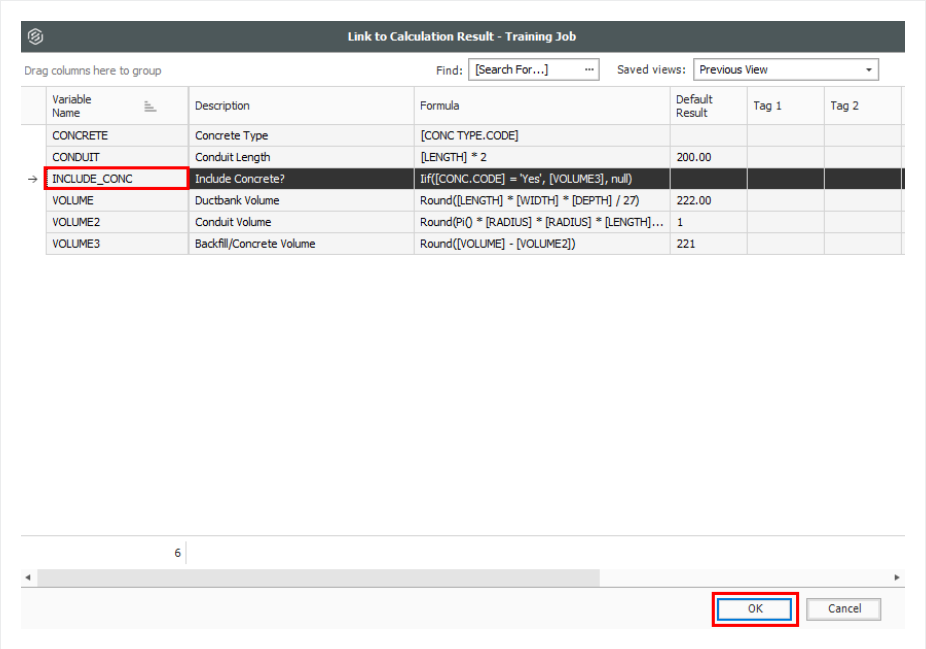
16. From the ribbon, click the **Unlink from Calculation Result** option.



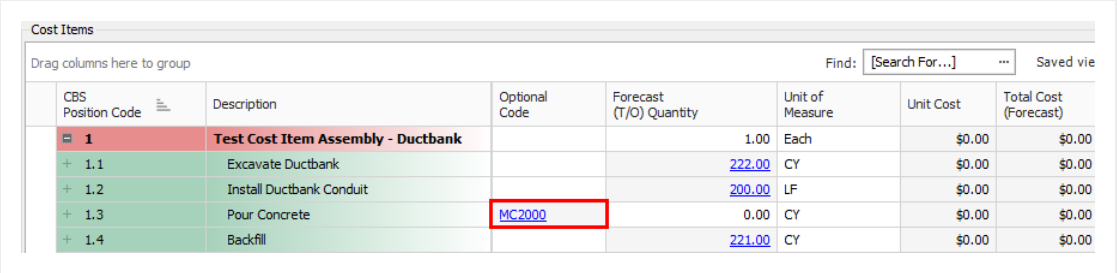
17. Now click **Link to Calculation result**.



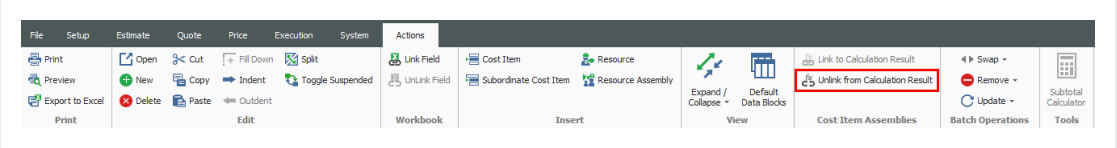
18. Select the **INCLUDE_CONC** calculation, then click **OK**.



19. Right click on the Pour Concrete **Optional Code** field.

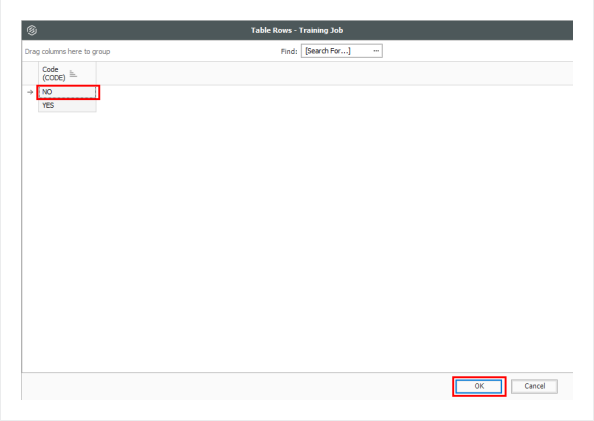


20. From the ribbon, click the **Unlink from Calculation Result** option.



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

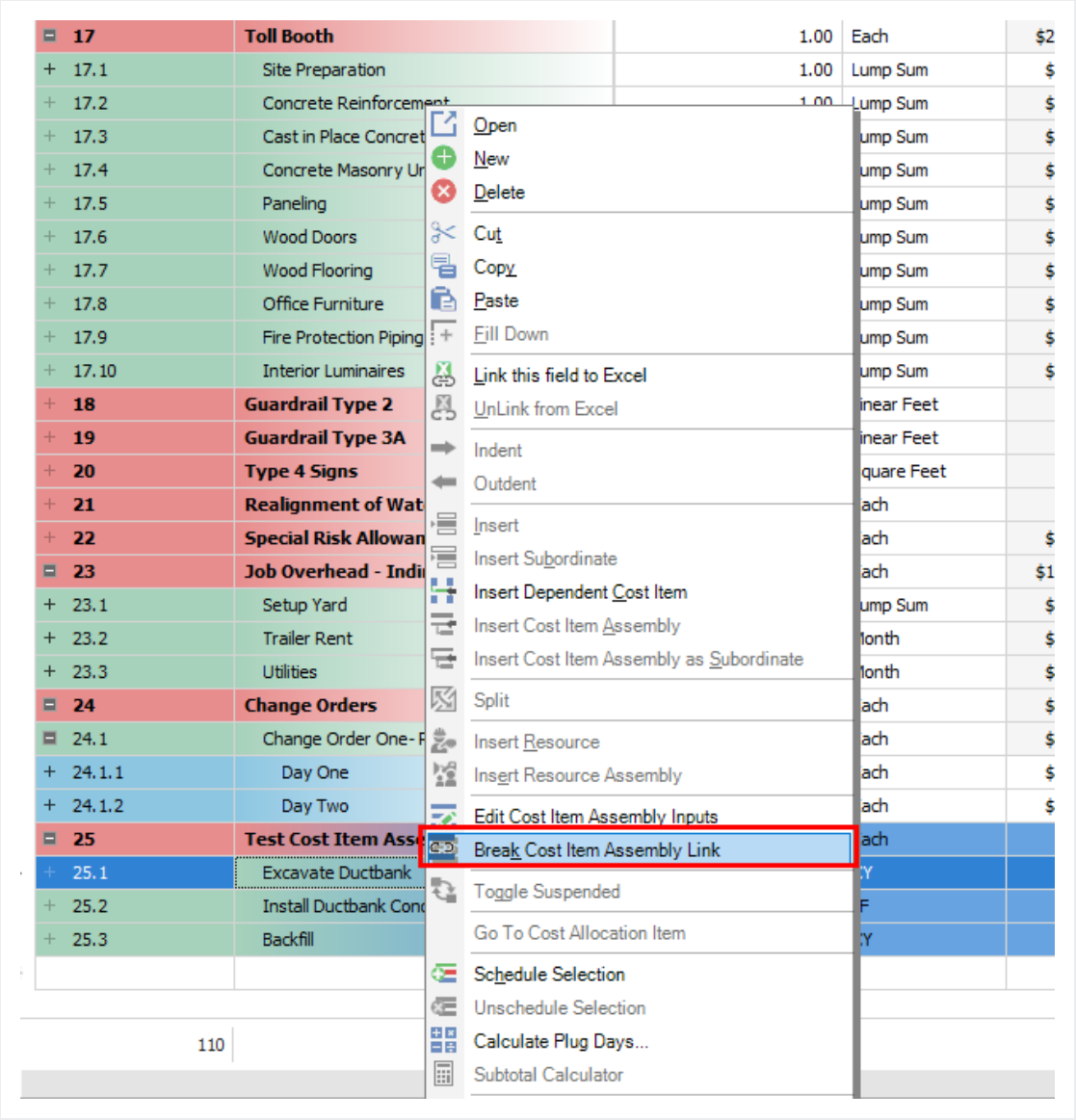
25	**Test Cost Item Assembly - Ductbank**	1.00	Each	$0.00
25.1	Excavate Ductbank	267.00	CY	$0.00
25.2	Install Ductbank Conduit	240.00	LF	$0.00
25.3	Backfill	265.00	CY	$0.00

15.3.8 Breaking the Link to a Cost Item Assembly

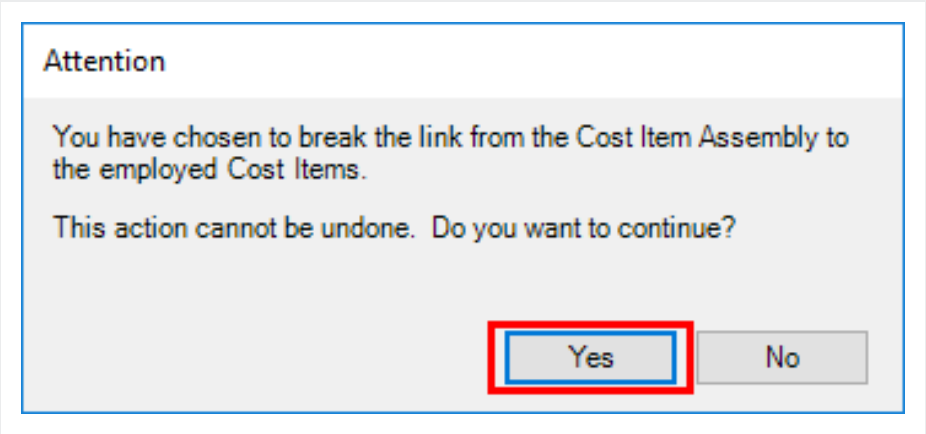
To ensure that the logic used in the calculation of a Cost Item Assembly is retained, employed Cost Item Assemblies are not directly editable in the CBS Register. To customize the results of an employed Cost Item Assembly, you can disassociate it from the originating Cost Item Assembly logic as per the following steps.

15.3 Step by Step 4 — Break the Link to a Cost Item Assembly

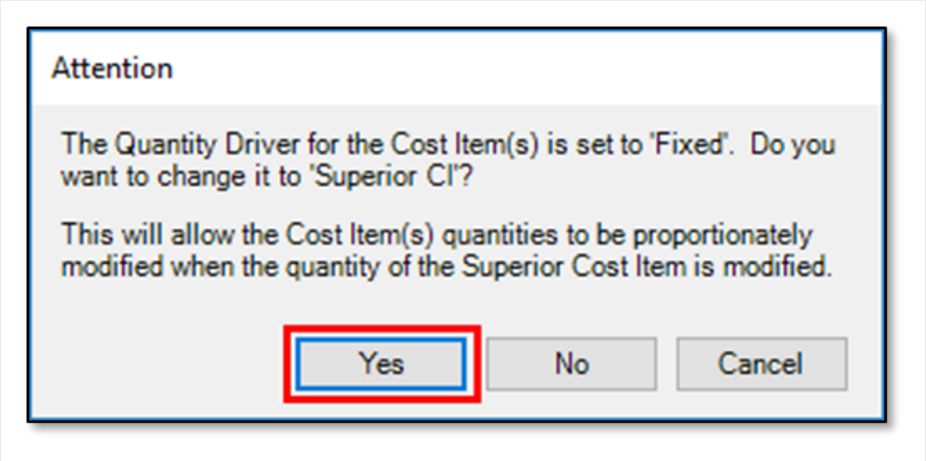
1. Right click your **Excavate Ductbank** cost item and select **Break Cost Item Assembly Link**.



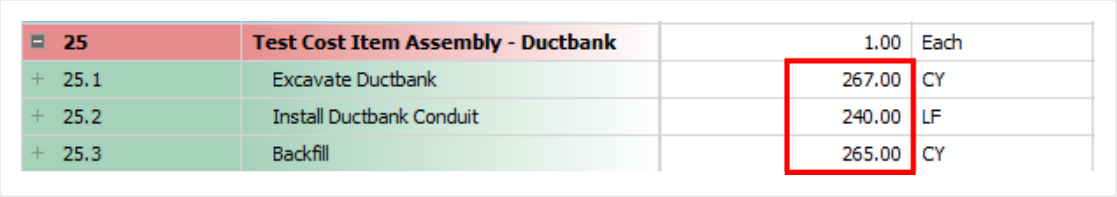
2. On the resulting Attention prompt, click **Yes**.



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!

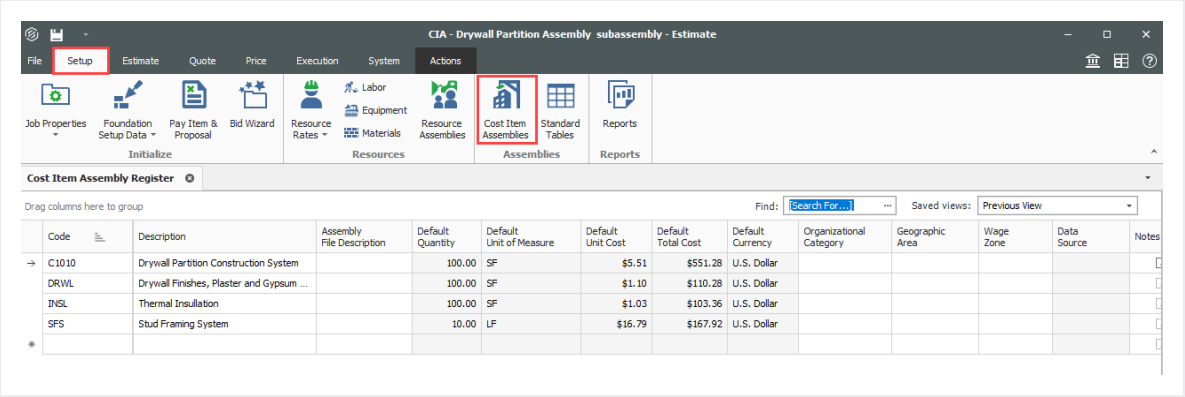
15.4 COST ITEM SUB-ASSEMBLIES

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.

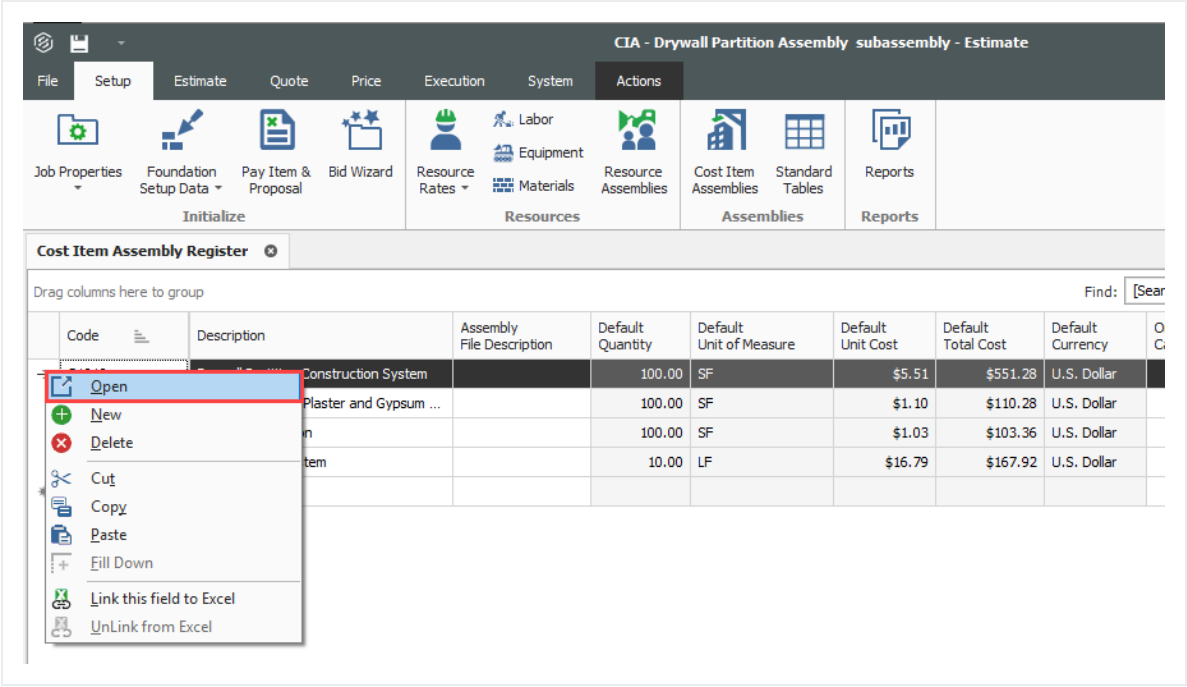
15.4.1 Accessing the Cost Item Assembly Sub Assemblies

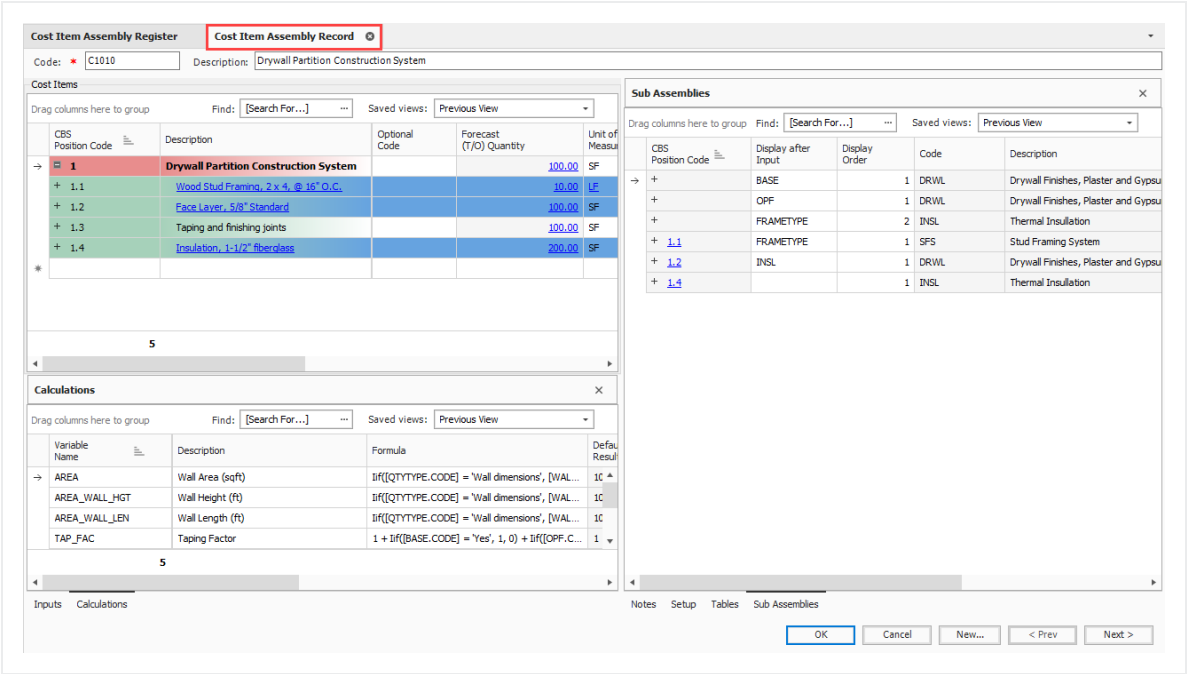
A sub-assembly can be created within a cost item assembly by simply inserting it as a subordinate cost item.

To access a cost item assembly record, select **Setup > Cost Item Assemblies**. The Cost Assembly register will open.



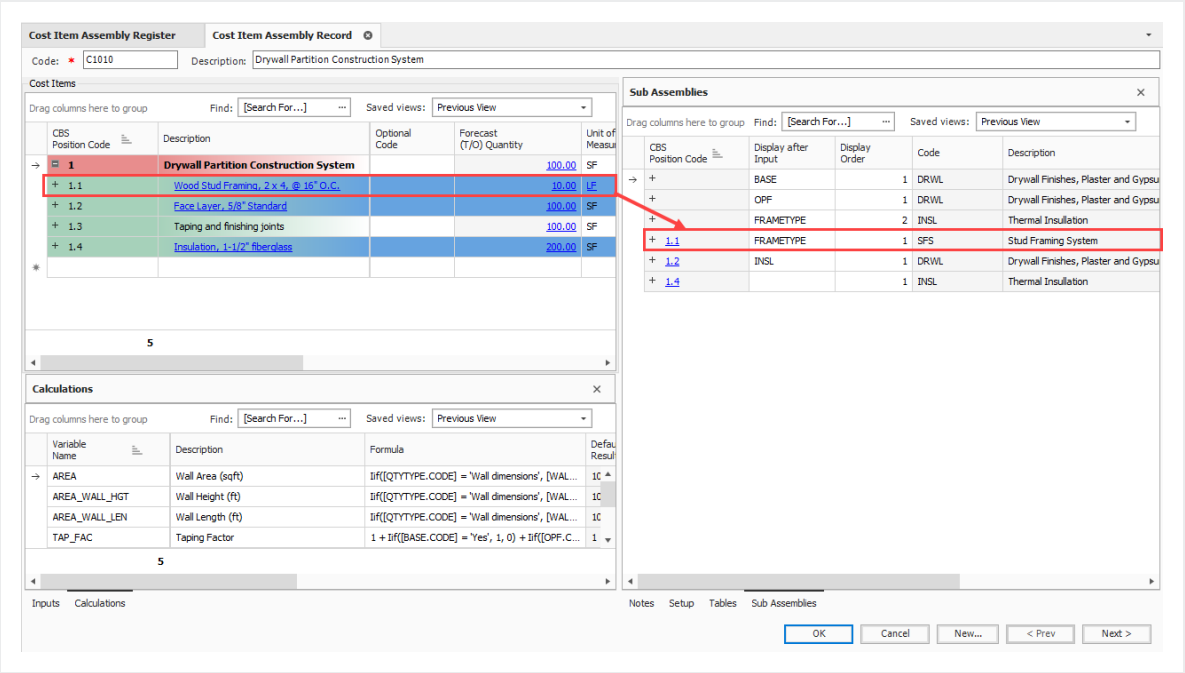
Select the cost item you want to open by double clicking or right click and select **Open**.



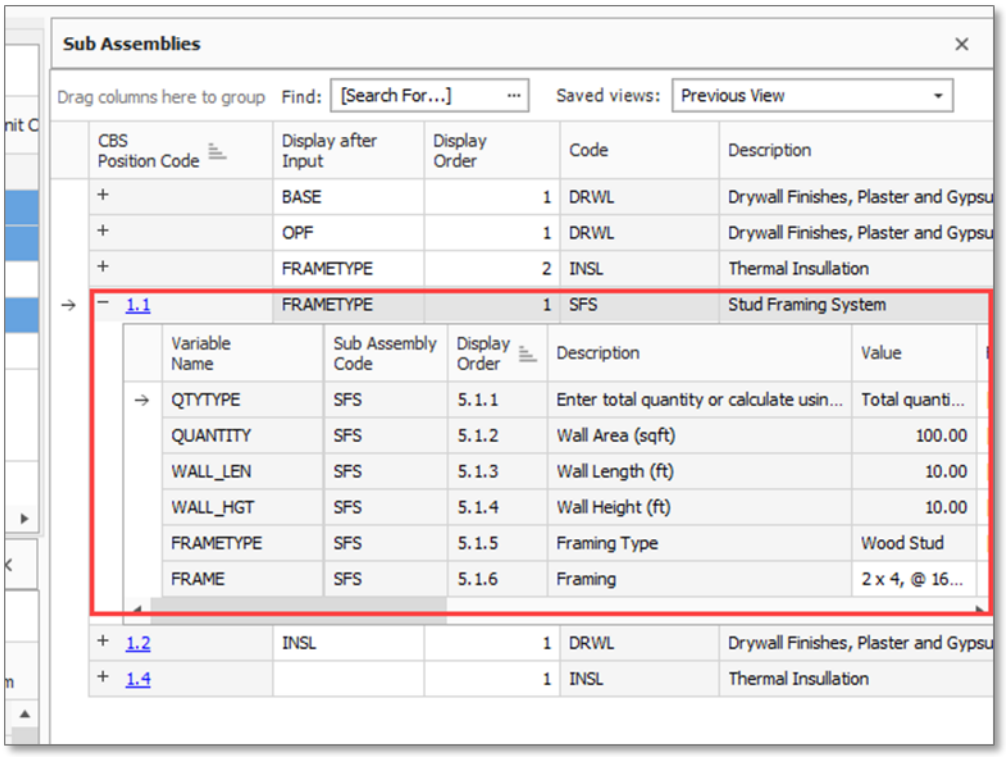


15.4.2 Overview of the cost item assembly sub assembly

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.

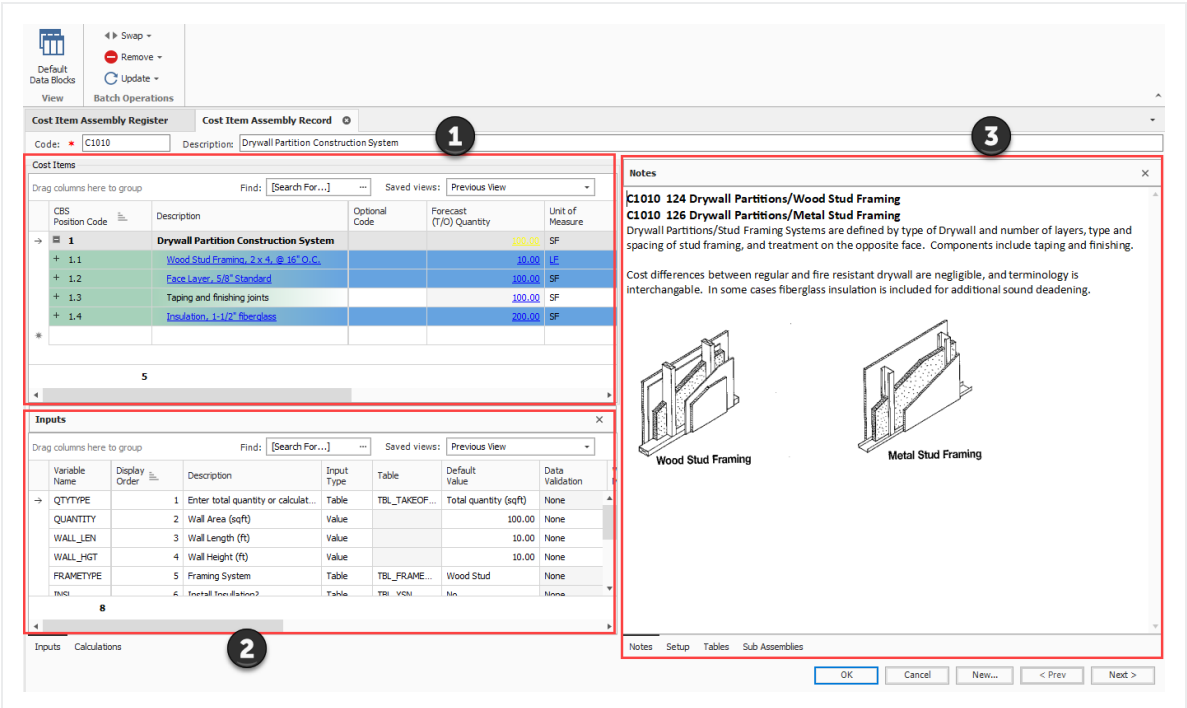


When you expand the sub assemblies on the right, it lists all the elements which make up that sub assembly.

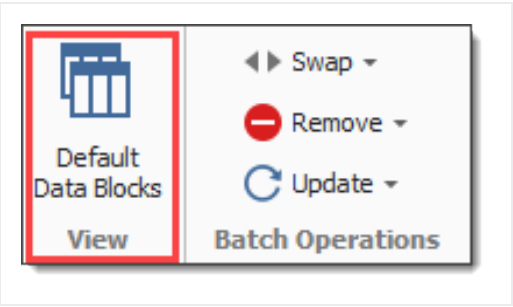


On the Cost Item Assembly Record screen there are three windows. Below are their functions:

	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	**Inputs**: 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. **Calcutions**: 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.
3	Sub Assemblies	Four tabs appear: Notes, Setup, Tables, and Osub Assemblies. • **Notes** are displayed when the assembly is employed • **Setup** shows file and Tag information • **Tables** link to individual Table Records by Table Code • **Sub Assemblies** list all the elements which make up that sub assembly

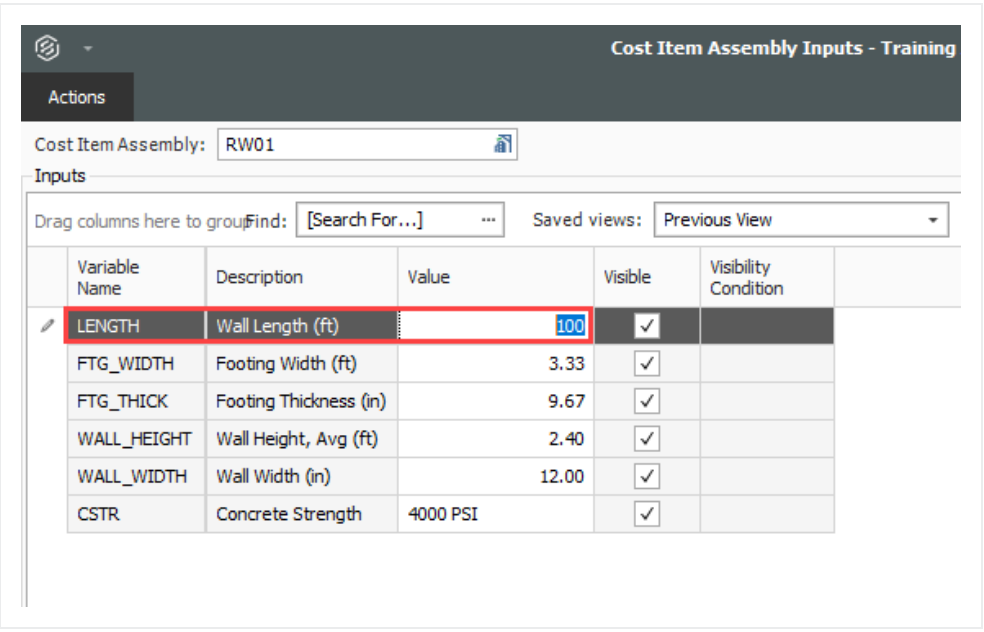


Selecting the **Default Data Blocks** icon in the top left of the screen will change the view of the Cost Item Assembly Record.



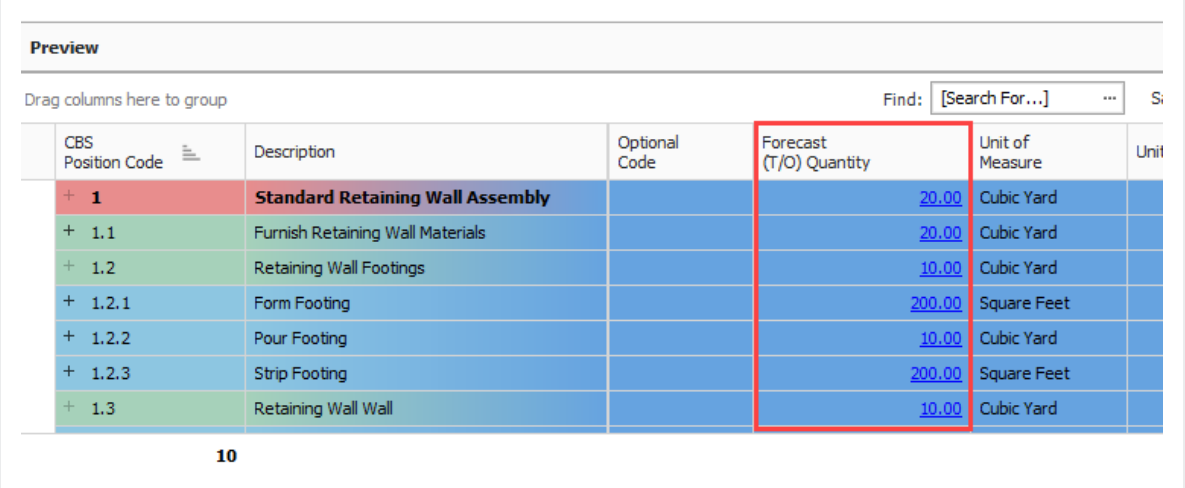
The cost item assemblies input values can then be assigned to the sub-assembly input values for you to answer a question only one time. For example, when providing the total square footage of a wall system, the single input can be used by the cost item assembly and its sub-assemblies. Adjusting values 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:



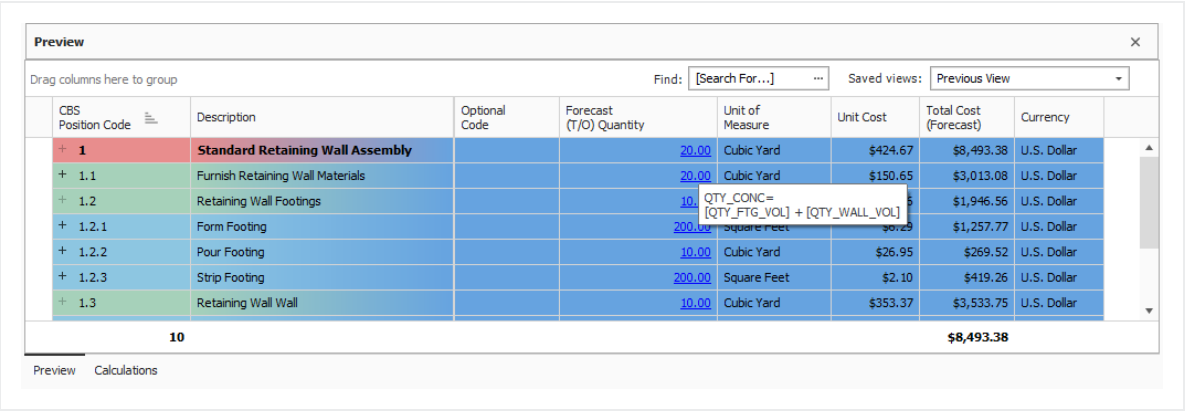
Changing these values will…

adjust these totals.

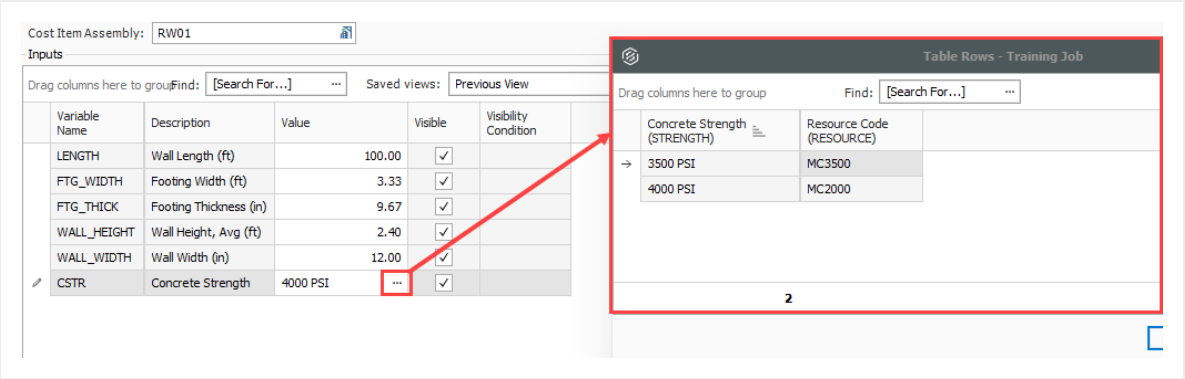


Sub-assembly input values can be sorted and shown conditionally based upon your inputs. Then you can employ a cost item assembly which only views the questions that are relevant. For example, a question in the cost item assembly could be, "Is insulation required?". If the answer to the question is yes, 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.

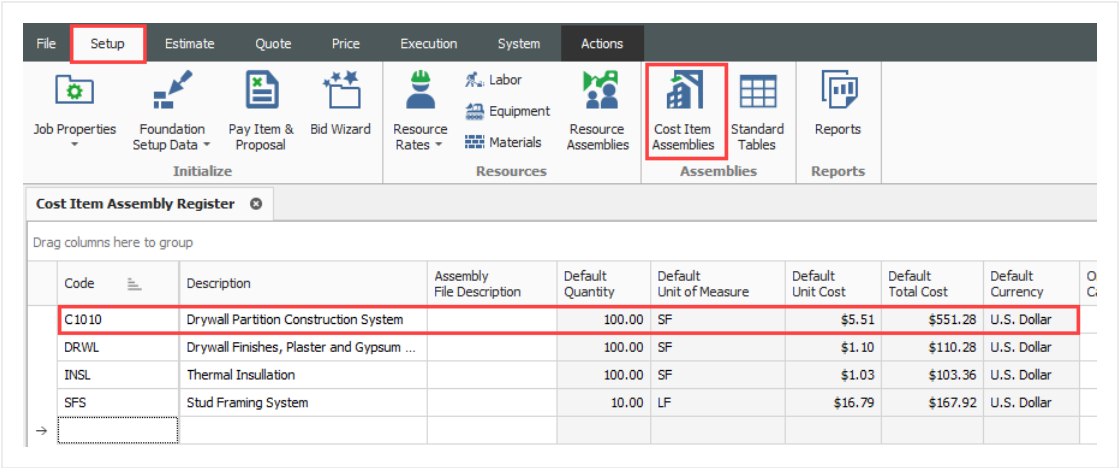


When your Input questions require answers as Yes/No, Unit of Measure, etc., select the field's ellipse to open the table screen. Here you can select the item(s) which relate to your initial selection. When OK is selected, the line item will update with the new selection.

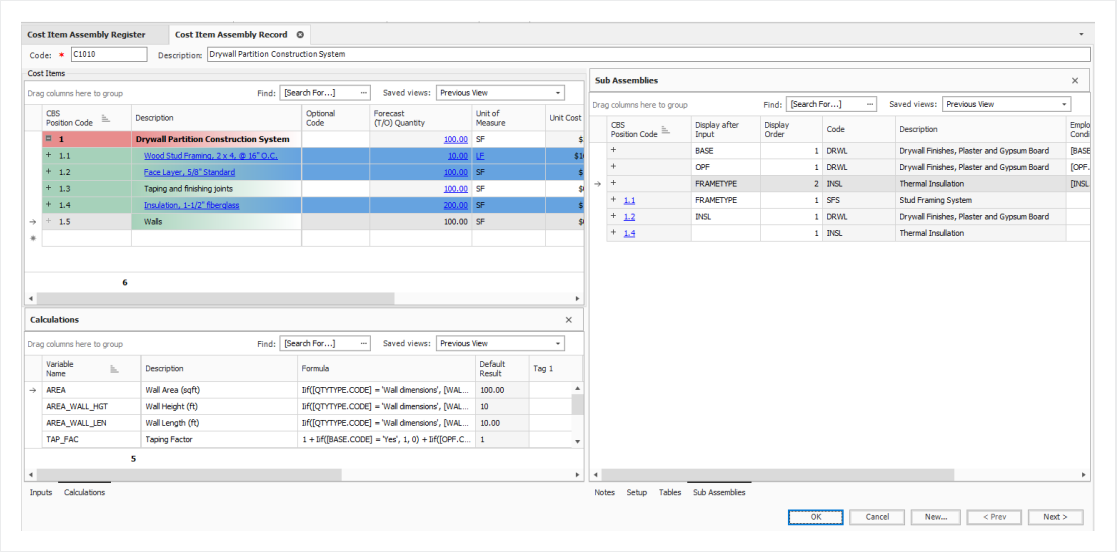


15.4 Step by Step 1 — Creating a Cost Item Assembly Sub Assembly

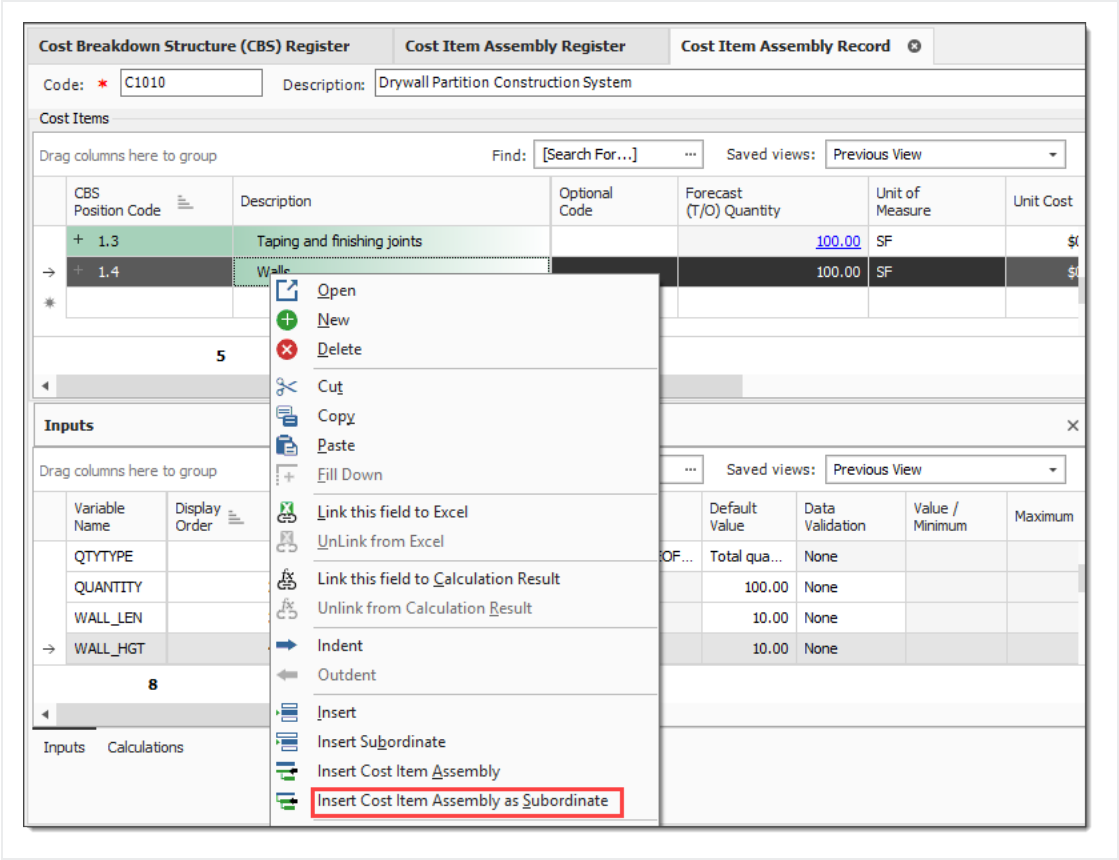
1. Navigate to **Setup > Cost Item Assemblies**.
2. Select a cost item assembly.



- The cost item assembly record will open

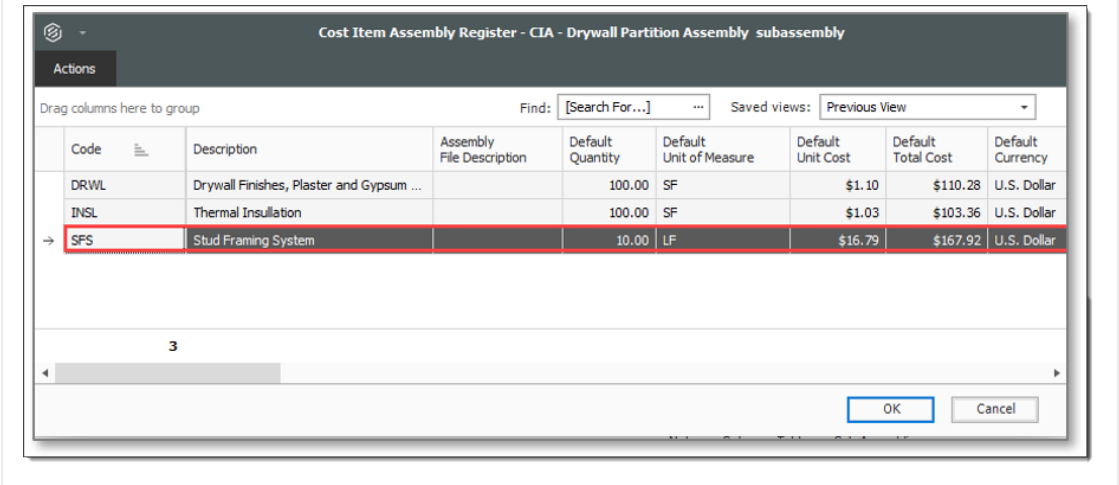


3. With the addition of “Walls” as our example. select a blank line in the **Cost Item Assembly** and give it a number and description.
4. Right click on the line item and select **Insert Cost Item Assembly as Subordinate**.



- The Cost Item Assembly Register sub assembly opens

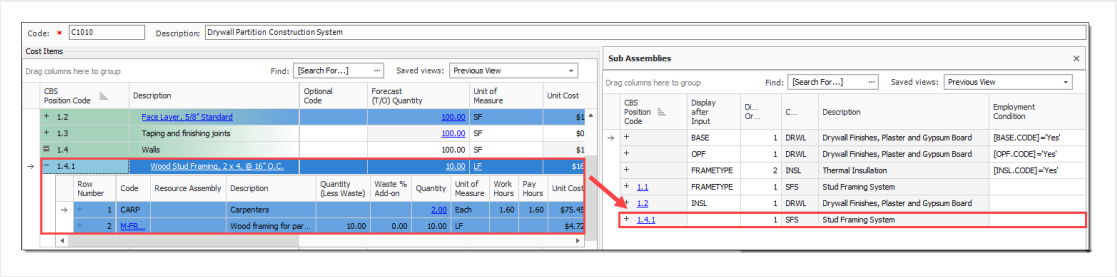
5. From this screen, select a sub assembly to add and click **OK**.



- 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:



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
Iif	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