Studio360

powered by

Smartware Studio™

Estimating Module User's Guide

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Smartware Technologies
1000 Young Street, Suite. 450
Tonawanda, NY 14150

Sales and Support
(716) 213-2222

http://www.smartwaretech.com

Table of Contents

1. Introduction / About This Guide

This Guide will describe the features and functionality of the Smartware Studio Estimating Module.

Installing and Administering Smartware Studio

For complete details on how to install, setup and configure Smartware Studio refer to the separate *Smartware Studio Setup and Administration Guide*. Specific Chapters of note include:

- *Configuring a Smartware Studio Workstation* (PDF Files and PDF Generator)
- *The Parts Database Manager*

To Learn More about Smartware Studio

Many of the topics covered in this Guide are better illustrated through visual examples. To that end, our video training sessions are available for viewing and downloading from our web site. We encourage you to use these videos as part of your training.

This guide also assumes a certain amount of familiarity with the basic concepts of Smartware Studio. For more information about using Smartware Studio projects, refer to the separate *Smartware Studio User's Guide*.

To Contact Us

Our technical support team is available weekdays from 8 am to 5 pm Eastern time at (716) 213-2222. You may also visit our web site at http://www.smartwaretech.com or e-mail us at techsupport@smartwaretech.com.

Additionally, all Smartware support and contact information can be found in the HELP → ABOUT SMARTWARE STUDIO / STUDIO 360 menu.

2. Estimate Projects and Estimate Nodes

An Estimate is based around an *Estimate Node*. This can be the root node of an *Estimate Project*, or you can add one (or more) Estimate Nodes to a Job or Customer Site project. You can also add a *shortcut* to link an Estimate Project to another Job or Customer Site project.

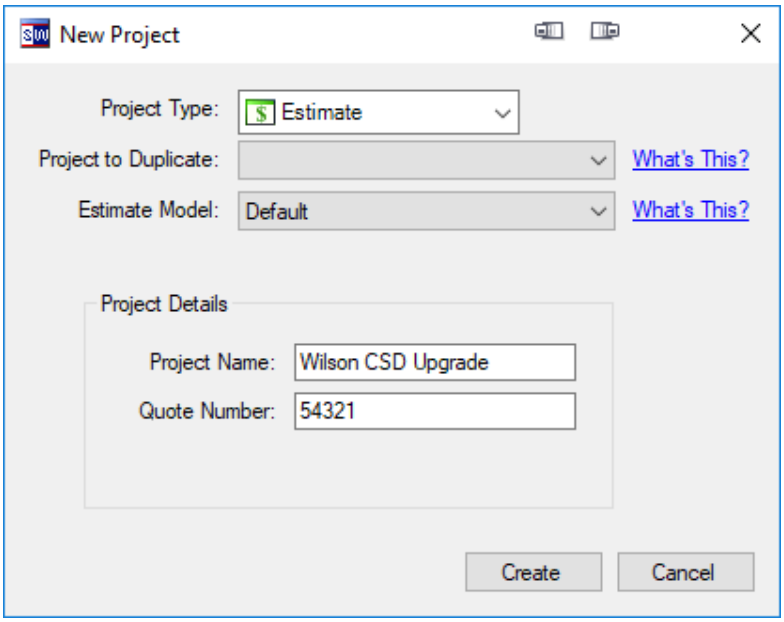
Creating a New Estimate Project

An Estimate Project is a Studio Project where the main root node is an Estimate. Estimate Projects appear in the Open Project List along with their quote numbers, making them easy for users to find.

- For full details on creating projects and adding them to the Server, refer to the *Smartware Studio User's Guide* chapter *Smartware Studio Projects*, and its section *Local and Server Projects*.

To create a new Estimate Project:

- Select FILE→NEW PROJECT; or from the Open Project List click NEW PROJECT.
- In the PROJECT TYPE list, select *Estimate*:



- Specify a PROJECT NAME and (optionally) a QUOTE NUMBER.
- Click the CREATE button.

Creating a New Estimate Project from a Template Project

If you or your company has an existing Estimate Project to be used as a template and starting point for a new estimate, you can select it from the *Project to Duplicate* list. This list includes any projects explicitly flagged as a *New Project Template*.

- For full details, refer to the *Smartware Studio User's Guide*, the chapter *Smartware Studio Projects*, and its section *New Project Templates*.

Selecting an Estimate Model for the New Estimate Project

As described in the later chapter, *The Estimate Model*, you and your company can store the various standard Estimate settings (such as labor rates and tax rates) in files called Estimate Model Templates. When you create a new Estimate, you can choose which set of settings to use by selecting it in the *Estimate Model* list.

- For full details, refer to the later chapter on *The Estimate Model*.

If you select a Project to Duplicate, that project will already include an Estimate Model. If you also select a different Estimate Model in the New Project form, that one will be imported after the project is duplicated.

Administrator's Note:
Since this can cause confusion, if your template Estimate Projects already contain the appropriate Estimate Model data, you can disable the option to allow a *Project to Duplicate* and an *Estimate Model* to be selected at the same time:

- In the *Smartware Studio.ini* file (from HELP→ABOUT SMARTWARE STUDIO / STUDIO360 press CTRL+ALT+SHIFT+I), add:

```
[Estimating]
LockEstimateModelDuringProjectDuplicate=True
```

- To make this setting company-wide, add this setting to the *Site.ini* file located in the Studio Server Folder in the *System Config* sub-folder.

Adding an Estimate to a Job or Customer Site Project

You can add an Estimate node inside of a Job or Customer Site Project instead of making it a Project of its own.

- Embedded estimates are very easy to duplicate within the project, allowing you to experiment with variations without modifying the original estimate.
- Estimates inside of other projects do not show on the Open Project list.

To add an Estimate inside an existing project:

- Right-click on the folder in the tree where you want to put the Estimate and select ADD→ESTIMATING→ESTIMATE.
- You will see the same New Project form that lets you choose an Estimate Model, and to create the estimate by duplicating an existing Estimate project.

Inserting a Shortcut to an Estimate into Another Project

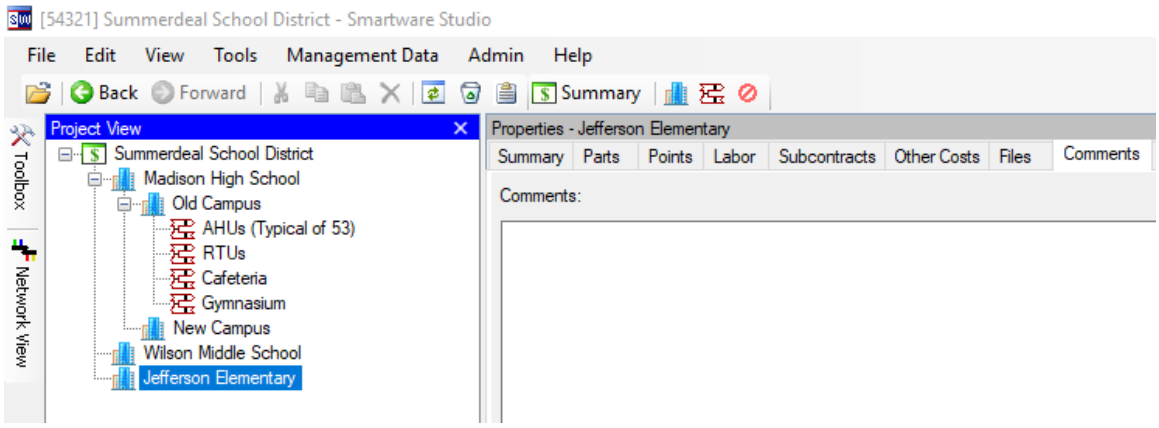
To associate an Estimate with a Customer Site or Job project:

- Create the Estimate and Upload it to the Server (you cannot create shortcuts to local projects).
- Open the Parent (Customer Site or Job) Project and check it out.
- Select the node to which you want to add the shortcut.
- Right-click on the node and select ADD→ESTIMATING→SHORTCUT TO ESTIMATE.
- Select the Estimate project from the list and click OK.

When you double-click the shortcut in the Parent Project's tree, a new instance of Smartware Studio will start, and the Estimate will be opened.

3. Building the Estimate Structure

The information in an Estimate is stored in the project tree as an Estimate Node, with a set of Area and Systems nodes below it.



Types of Estimating Nodes

There are four types of nodes relevant to Estimating: The *Estimate* node, *Area* and *System* nodes, and *Schedule* Nodes.

- You can also add *File Folder* nodes and *Submittal Generator Document* nodes to your Estimate. These nodes will have no effect on the Estimate's calculations and reports and can be placed anywhere.

The Estimate Node

The top node of the tree is the *Estimate Node*. The tabs available from this node provide summaries of all the elements of the estimate as well as access to the estimate reports.

The Estimate tabs are described in detail in the later chapter *The Estimate Summary Tabs*.

Area Nodes

While the System nodes represent the heart of the estimate, the *Area* nodes are used to logically group and organize the Systems however you see fit. Areas could represent physical parts of the site, such as *Building C*, or logical groupings of the systems, such as *Air Handling Units*.

- You can create as many Areas as you want.
- You can create Areas beneath other Areas to build a tree structure.

To add an Area to the Estimate or another Area:

- Select the Estimate or the existing Area node and click the ADD AREA icon () in the *Estimating* Toolbar; or
- Right-click the Estimate or the existing Area and select the ADD→ESTIMATING→AREA menu item; or
- Open the *Estimating* stencil in the Toolbox and drag an Area node onto the Estimate or another Area node.

System Nodes

A *System* node represents a self-contained unit of the estimate, usually a single system in the project (such as a Chiller or Air Handling Unit). For each system, you can add the detail that makes up the estimate: *Material*, *Points* and *Labor*.

To add a System to an Area or the Estimate:

- Select the Area or Estimate node and click the ADD SYSTEM icon () in the *Estimating* Toolbar; or
- Right-click the Area or Estimate node and select the ADD→ESTIMATING→SYSTEM menu item; or
- Open the *Estimating* stencil in the Toolbox and drag a *System* node onto the Area or Estimate node.

Systems are described in more detail in the later chapter *Estimating a System*.

Schedule Nodes

A Schedule Node allows you to create different types of schedules of data, such as a Valve Schedule or a Controller Schedule. When added to an Estimate, a Schedule Node acts like a System, and the parts on the schedules are automatically carried onto the Parts tab and thus included in the Estimate.

To add a Schedule Node to an Area or the Estimate:

- Select the Area or Estimate node, right-click it and select the ADD→SCHEDULES→SCHEDULE menu item; or open the *Schedules* stencil in the Toolbox and drag a *Schedule* node onto the Area or Estimate node.
    - Refer to the chapter *Schedules and the Schedule Builder* in the *Smartware Studio User's Guide* for full details on Schedule Nodes.

Working with the Estimating Structure Nodes

As with all nodes in the Smartware Studio trees, there are many ways to move and manipulate them and store information.

Moving and Copying Nodes

- You can move a node around the tree by simply dragging it onto another node.
- If you right-click a node and bring up its menu, you will find commands to COPY and PASTE nodes, as well as DUPLICATE, DUPLICATE X (Create X copies at one time), DELETE and RENAME.

Duplicating and Renaming Nodes

You can create multiple Systems quickly by right-clicking an empty system and selecting DUPLICATE X. You can then use the right-click → PROPERTY SHEETS AND REPORTS command to quickly edit the names and descriptions of each system, including pasting them from an Excel spreadsheet.

Storing Files with Nodes

Aside from the estimating data (material, points and labor), you can store any number or types of files on any node.

- Select a node in the tree and click on the *Files* tab in the right pane.
- Drag and Drop or Copy and Paste files from other nodes, other projects or Windows in the same way as you would in Windows Explorer.
- You can also add additional *File Folder* nodes under an Area or System.

Adding Comments to Nodes

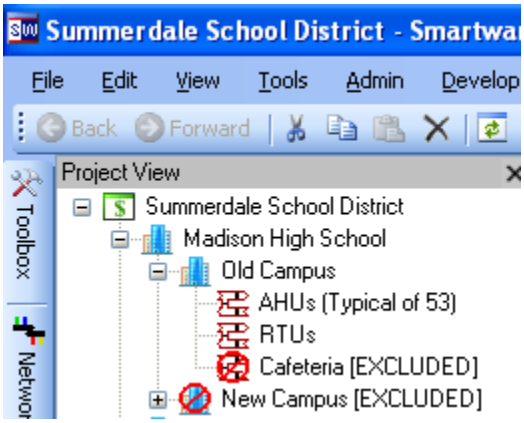
You can add notes with any node by selecting the COMMENTS tab.

Temporarily Excluding Areas and Systems

Areas and Systems can be marked as *excluded* from the Estimate. This allows you to consider various alternatives or to temporarily remove a portion of the estimate without deleting it permanently.

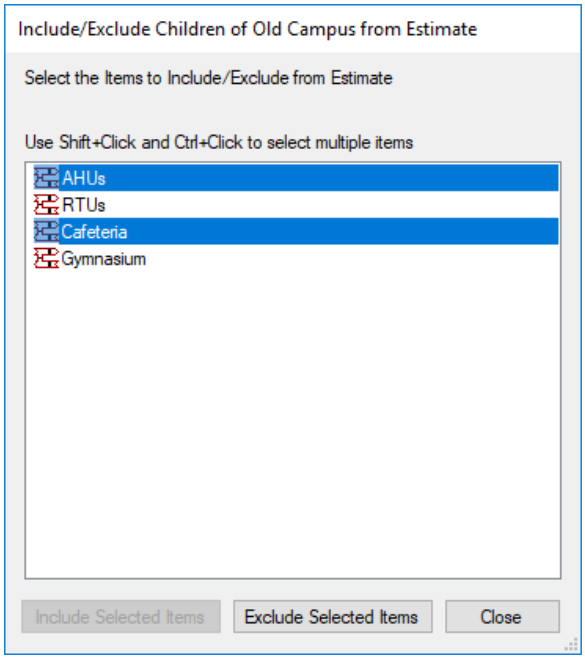
- To exclude an Area or System, right-click on the node and select the TOOLS →EXCLUDE FROM ESTIMATE menu item.
- To re-include the Area or System, select TOOLS →INCLUDE IN ESTIMATE.
- If an Area is excluded, all Systems in that Area are also excluded implicitly.

- An excluded Area or System will appear in the tree with a red circled line through it and the word "EXCLUDED."



You can also Include or Exclude multiple Areas or Systems from your estimate at one time.

- From the Estimate or an Area node, right-click and select TOOLS→INCLUDE/EXCLUDE CHILD ITEMS FROM ESTIMATE.



- You will be given a list of all the child nodes.
- You can use SHIFT+CLICK and CTRL+CLICK to select any combination of them.
- Click INCLUDE SELECTED ITEMS or EXCLUDE SELECTED ITEMS to change the status of the selected items.

Importing System Nodes

A System Node, with all its parts, points and other data, can be saved in a Studio Export File (*.stexp*) that allows users to quickly add a copy to their Estimate.

- These files can be stored in a Multi-File Library to provide a pre-estimated node that matches the other files in the library.

To import the node (or nodes) from an export file, copy the file onto the *Files* tab of the node you want them added to, then double-click the file to open it. Studio will offer to import the nodes.

- The *List Price* and *Discount Multiplier* for the parts on the *Parts* tab will automatically be updated to match the current values in the Parts Database.

4. Estimating a System

The heart of the Estimate is the underlying information for each System.

The System Node Tabs

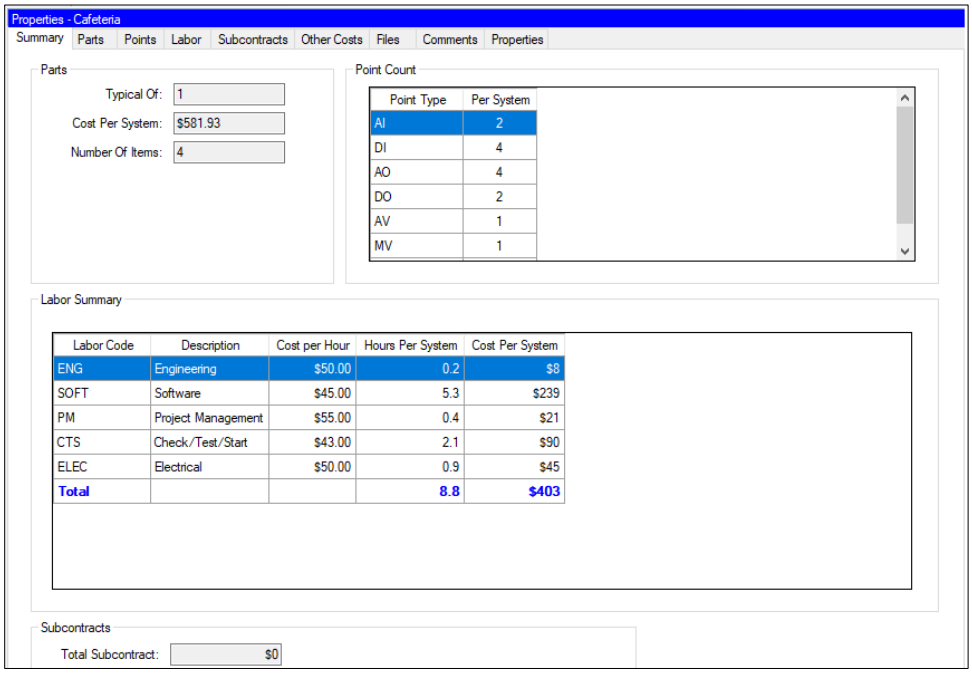
The cost of a System is based on different types of data:

- A list of the individual *Parts* that make up the Material list. Each part can add a cost in dollars as well as a number of labor hours.
- A count or list of control *Points*, each of which can add labor hours.
- *Labor* hours specified explicitly as well as calculated from the Parts and Points.
- *Subcontracts* associated with the system that will be aggregated into the Estimate.
- *Other Costs*, such as *Allowance for Risk* as a percent of the system's cost.

These items can be viewed on the appropriate tabs when a System is selected.

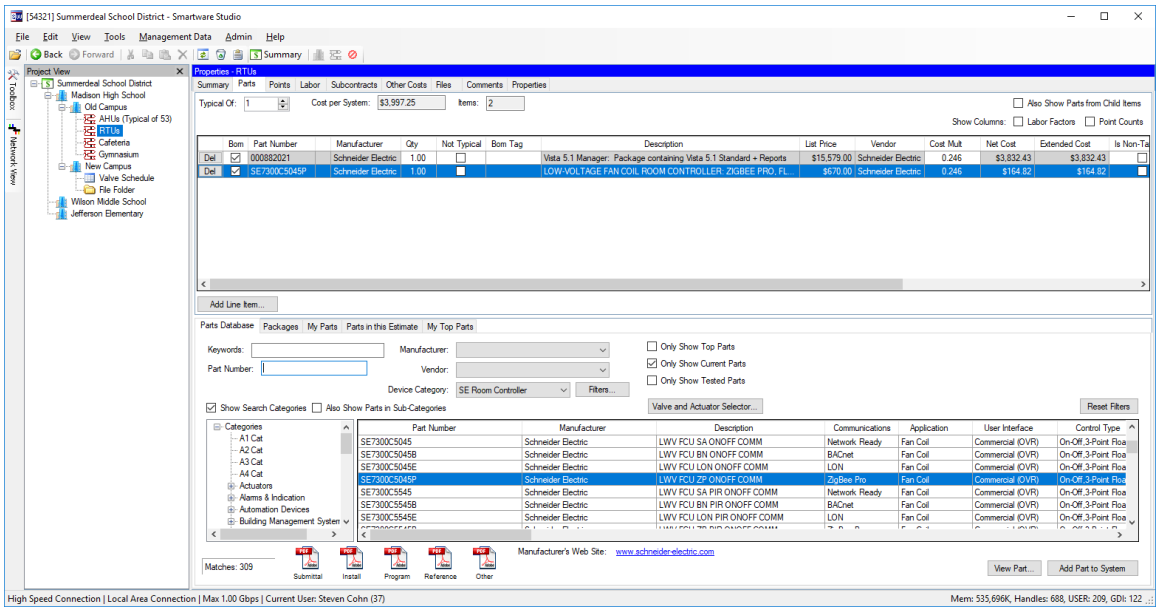
The Summary Tab

The first tab shows a summary of the Parts, Points, Labor and Subcontracts on the other tabs in the system:



The Parts Tab

When you select the Parts tab for a System, the screen is broken into two regions:



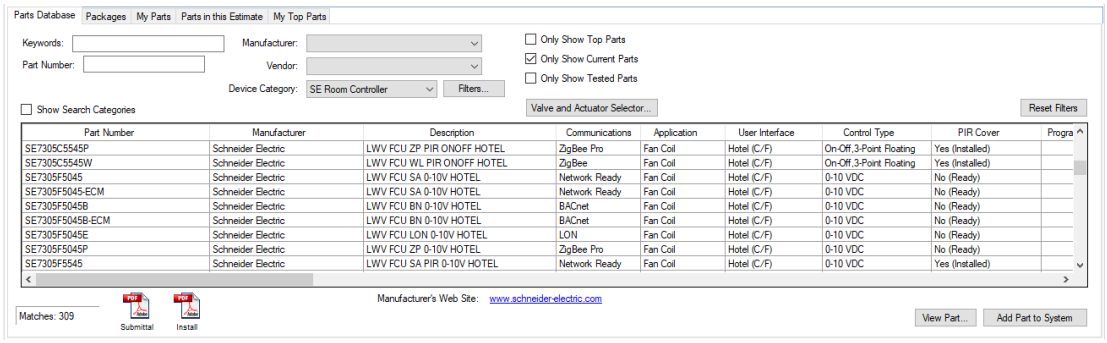
As seen in this screen:

- The top region shows a list of the parts that have already been added to the System.
- The bottom region is the *Parts Browser*, which shows a list of all the available parts in the *Parts Database* and helps you find what you need.
- You can adjust the size of the two regions by dragging and moving the splitter bar between them.

The Parts Browser

The Parts Browser contains a number of features to help locate parts.

The main *Parts Database* tab shows the view of all the parts in the database.



- You can sort by any column by clicking on the column heading,
- Select a MANUFACTURER or VENDOR to filter to just their parts.
- If you begin to type into the PART NUMBER box, the list will scroll to the parts beginning with those letters.
- If you enter one or more keywords (separated by spaces) into the KEYWORDS box, the list will be filtered to only those that include *all* the keywords in either the *Part Number* or *Description* columns.
- If you check the SHOW ONLY TOP PARTS checkbox, only those marked as Top Parts will be shown. Refer to the later sub-section, *Top Parts*, for more details.
- The VALVE AND ACTUATOR SELECTOR button will bring up the Valve and Actuator Selection tool in a separate window from which you can filter for and add valve and actuator parts.

Once you have selected a part:

- To add it from the Part Browser to the System's Part List, double-click it in the Part Browser's list or select it and click the ADD PART TO SYSTEM button.
  - If there are Accessories or recommended Alternate Parts specified in the Parts Database, they will be shown and offered to be added. Refer to the later sub-section on *Alternates and Accessories* for more details.
- If there are product information PDF files available for a part in the database, the PDF icons at the bottom will highlight for the various versions (*Submittal*, *Install*, etc.).
  - You can view the PDF by clicking on the Submittal or Install icon.
- There are additional commands available by right-clicking on the part:
  - Select VIEW PART to see detailed information about the part from the part database.

- Select COPY TO CLIPBOARD to copy the information from the part to paste into another document.
- If any Accessory parts are specified in the database, they will appear in ACCESSORY PARTS menu.

In addition to the Parts Database, there are other tabs to help you quickly find parts:

- *Packages* are pre-defined lists of parts that can be added to an estimate as a group. Refer to the later sub-section on *Part Packages*.
- The *My Parts* tab shows any custom parts you've added to your User Parts database. Refer to the later sub-section on *Adding Parts to Your User Parts Database*.
- The *Parts in this Estimate* tab shows a quick view of all the part numbers in use in the current Estimate.
- The *My Top Parts* tab shows a list of the Company Top Parts and your personal Top Parts. Refer to the later sub-section on *Top Parts*.

Top Parts

Individual parts can be flagged as Top Parts to make them easier to find. Parts can be flagged as a Company Top Part by a Parts Database Administrator, but individual users can flag their own top parts as well.

To view Company Top Parts:

- On the Parts Database tab, check the ONLY SHOW TOP PARTS checkbox.

To make a part a Top Part for a User:

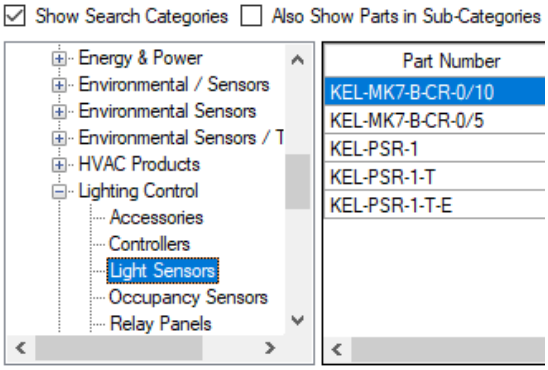
- Right-click on a part in Parts Database tab and select ADD TO MY TOP PARTS
- Custom top parts are shown on the new MY TOP PARTS tab when adding parts to a system.

Part Categories

For more advanced part searching, there are additional controls on the Parts Database tab that allow you to select from parts categorized in two ways:

The *Category Tree* lets you browse most parts based on their place in the category tree.

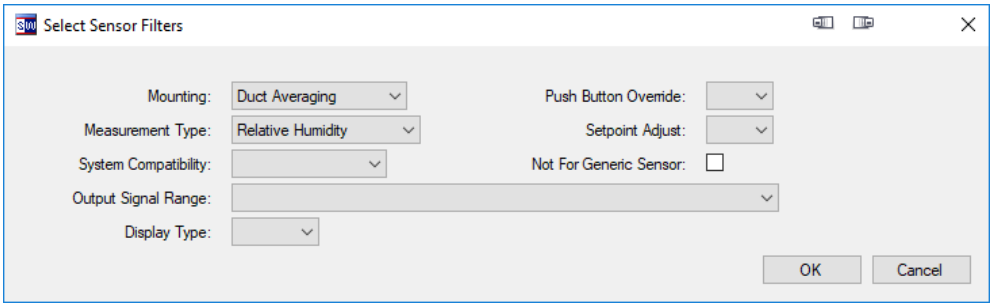
- Check SHOW SEARCH CATEGORIES to view the Category Tree



- Click on a category in the tree to view the parts in that category.
- Check the ALSO SHOW PARTS IN SUB-CATEGORIES to see the parts from an entire section.

The *Device Category* list lets you filter by a specific list of HVAC and Security device categories, such as *Controllers* or *Sensors*.

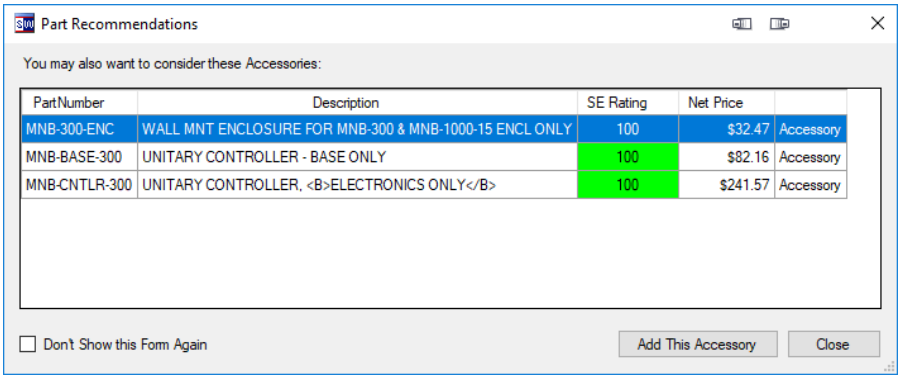
- Each Device Category defines extra properties you can use to filter the parts by clicking the FILTERS button.



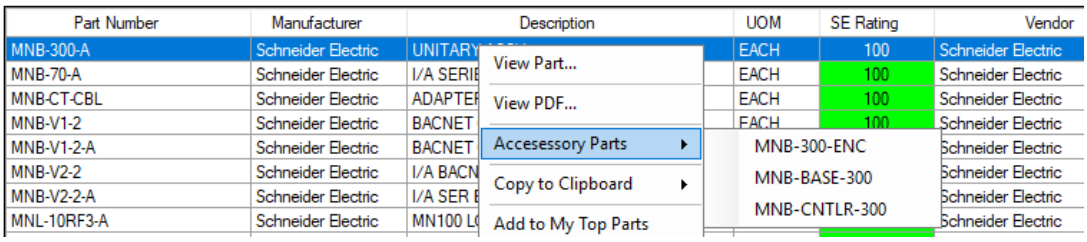
Alternates and Accessories

Some of the Parts in the database have information about Accessories or recommended *Alternate Parts.*

When you add one to a System, you can easily add them at the same time. A form will appear automatically:



As you are browsing parts, If any Accessory parts are specified in the database, they will appear in an ACCESSORY PARTS menu when you right-click on the part:



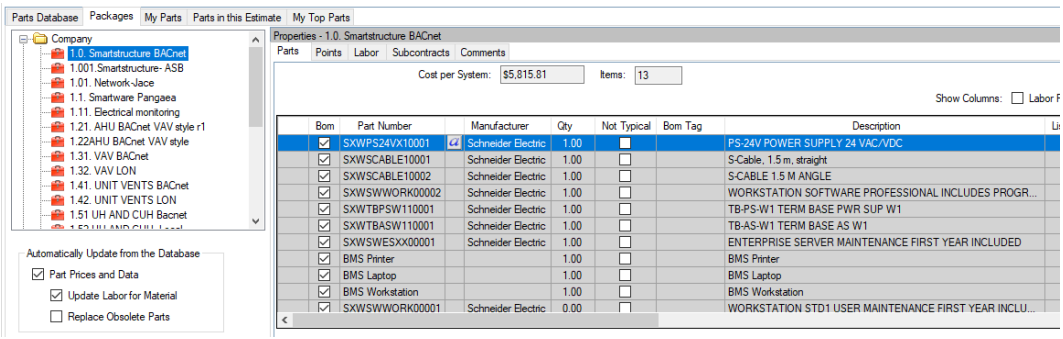
They will be listed and selectable wherever part selection is possible, generally from the context menu.

Once added to the System's Parts List, a blue 'a' icon will appear next to the Part Number. Clicking it will allow you to filter the Part List to just the accessories, so they can easily be added. You can also right-click the system node and select BROWSE ACCESSORY PARTS.

Part Packages

Part Packages are collections of parts (as well as points and labor) that can be added to the Estimate as a whole.

- To view the available Packages, select the *Packages* tab in the Part Browser window.



The packages will be shown in various folders on the left side, such as *Company* and *User*. As you select them on the left, the tabs on the right will show the list of Parts, Points, Labor and other data that is part of the package.

To add the contents of a package to your estimate:

- Double-click the package in the package list; or select it and click the ADD PACKAGE TO ESTIMATE button.
- The items in the package will be added individually to the current system.

There are options for how parts in the database are updated automatically:

- If PART PRICES AND DATA is checked, the prices will be shown and added using the current prices in your company's database.
- If UPDATE LABOR FOR MATERIAL is checked, any labor factors specified in the database will override those specified in the package itself.
- As you change the options, the preview will update accordingly.

Packages are created using the Parts Database Manager.

- To create and manage your own Part Packages, select TOOLS→PARTS→MANAGE MY PACKAGES.
- Refer to the *Smartware Studio Setup and Administration Guide* chapter on *The Parts Database Manager* for more information.

There are also a few additional package management tools discussed in the chapter on Estimate Tools in the section on *Managing Packages*.

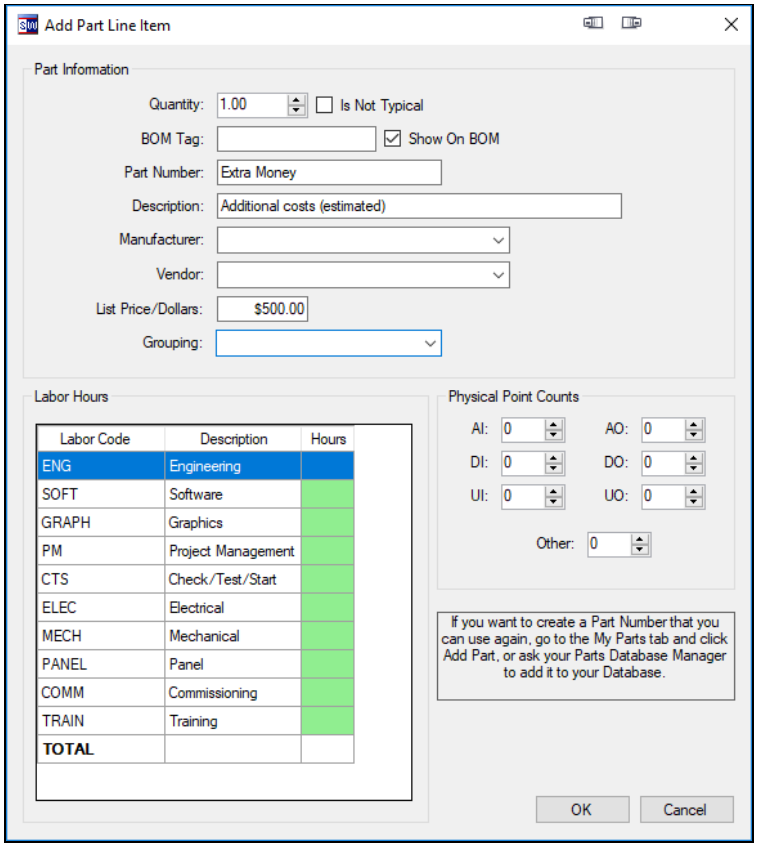
Adding a Custom One-Time Part to the Estimate

To add a part to the Part List that isn't in the Parts Database, you can choose one of two methods:

- Add a *Part Line Item*
- Add a Part to your *User Part Database* (see the later sub-section, *Adding Parts to your User Parts Database*)

To add a Part Line Item:

- Click the ADD LINE ITEM button at the bottom of a system's Part List



- Complete the appropriate fields. The part will be added to the system's part list.

Adding Parts to your User Parts Database

If there is a part that is not in your company's parts database, but you expect to use it frequently, you can start by adding it to your own *User Parts* Database. These parts are stored on your workstation and are available to use in the same way as the regular parts.

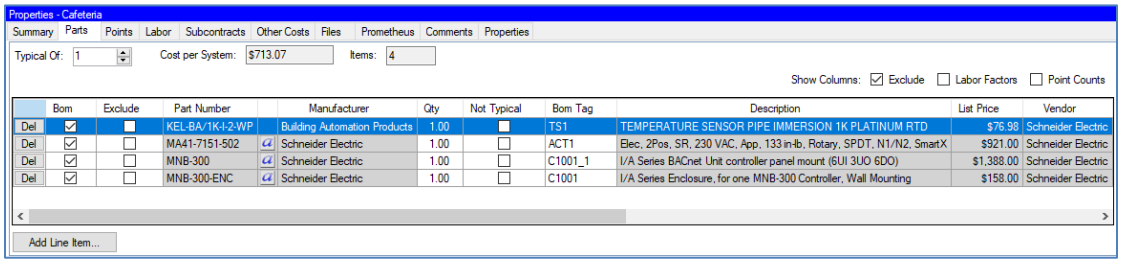
- Your User Parts will appear on the *My Parts* tab.
- The *My Parts* tab also has buttons for creating and editing your User Parts

If these parts become common, you can submit it to your Parts Database administrator for inclusion in the master database.

- For full details, refer to the chapter *The Parts Database* in *the Smartware Studio User's Guide* and in the *Smartware Studio Setup and Administration Guide*.

The System's Parts List

Once parts have been added to the System, they appear in the System's Parts List in the top region:



- The columns with a gray background are read only. The columns with a white background are editable.
- To delete a part, click the DEL button.
- The *BOM* checkbox column indicates whether the part should be shown on a Bill of Materials.
- The *Not Typical* checkbox, if checked, indicates that the part's quantity should not be multiplied by the System's *Typical Of* value.

Excluding Individual Parts

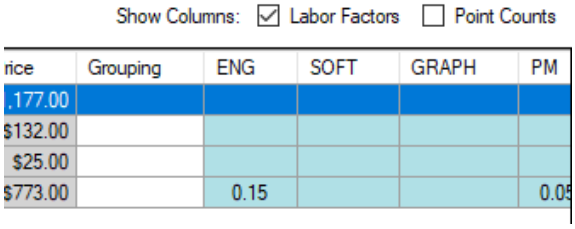
Parts that have been added to a System can be individually excluded from a System and Area without having to delete them completely or set their *Quantity* to zero. Excluded parts will be treated as if they are not in the Estimate for all calculations and reports.

- In the upper-right corner above the System's Parts List, check the EXCLUDE checkbox. The added EXCLUDE column will show in the Parts List, as illustrated in the image above.
- Check the EXCLUDE checkbox for one or more parts.

As noted in the previous section, unchecking the *Show on BOM* checkbox only indicates that the specified part will not be included on a Bill of Materials. This will not exclude that part from any Estimate calculations. Only explicitly unchecking the EXCLUDE checkbox will.

Viewing Labor Factors and Point Counts Columns

The *Labor Factors* and *Point Counts* columns can be shown or hidden with the SHOW COLUMNS checkboxes in the upper right corner above the Part List.



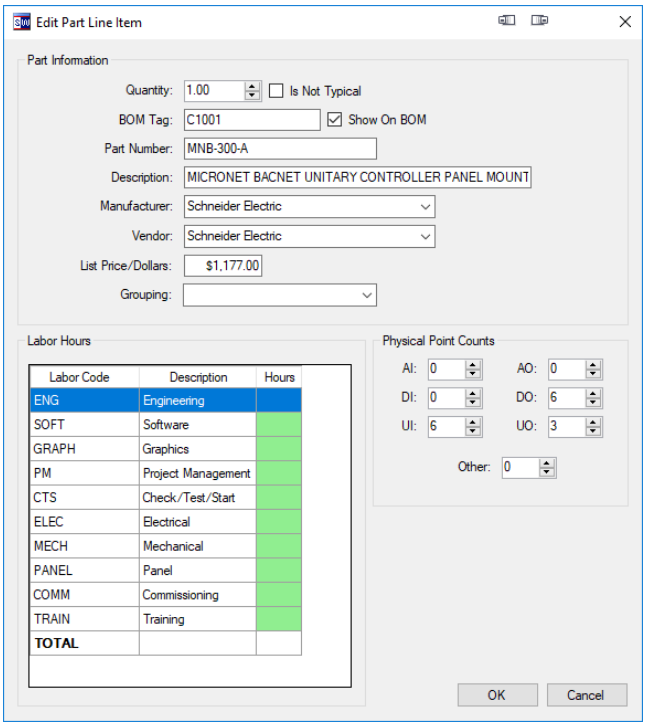
- Check LABOR FACTORS to view and edit the labor hours per part, which are shown with a blue background.
- Check POINT COUNTS to view and edit the Physical Point counts per part, which are shown with a tan background. Refer to the later sub-section on *Physical Point Counts* for more details.

Copying and Editing Parts in the System's Parts List

You edit much of the part data directly in the Parts List grid, or with commands from the right-click menu.

- To duplicate a part, right-click on the row and select COPY PART. You can then right-click in the background of the Part List in the same system or a different system and select PASTE PART.

- To edit the part in a form, right-click on the row and select EDIT PART.



Sell Price

The *Sell Price Multiplier* is an additional factor that is not part of the Estimate's cost calculations. Changing it does not affect the price or profit of the Estimate. Instead, the Sell Price Multiplier is used for a specific set of customer-facing reports that allow you to create a list of materials that show individually marked up prices.

- The *Sell Price* for each part is calculated as *List Price* * *Sell Price Multiplier*.

List Price	Cost Mult	Net Cost	Extended Cost	Is Non-Taxable?	Sell Price Mult	Sell Price	Ext Sell Price
$15,579.00	0.275	$4,284.23	$4,284.23	☐	0.650	$10,126.35	$10,126.35
$670.00	0.275	$184.25	$184.25	☐	0.650	$435.50	$435.50
$31.00	0.250	$7.75	$15.50	☐	1.000	$31.00	$62.00
$189.00	0.250	$47.25	$189.00	☐	0.850	$160.65	$642.60
$466.00	0.275	$128.15	$128.15	☐	0.650	$302.90	$302.90
$680.00	0.275	$187.00	$561.00	☐	0.650	$442.00	$1,326.00
$1,177.00	0.275	$323.68	$323.68	☐	1.000	$1,177.00	$1,177.00
$1,785.00	0.275	$490.88	$490.88	☐	1.000	$1,785.00	$1,785.00
$624.00	0.246	$153.50	$153.50	☐	1.000	$624.00	$624.00
$3,370.00	0.246	$829.02	$829.02	☐	1.000	$3,370.00	$3,370.00

The reports that use this value include:

- *Customer Pricing (By System)*
- *Estimate Summary for Customer*

- *Material List Sell Price (By System)*
- *Open Book Pricing Worksheet*

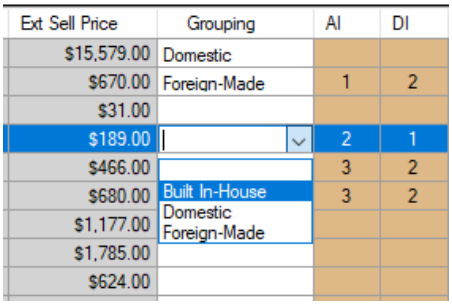
You can set or change the Sell Price Multiplier for a Vendor or for all Material from the Estimate node's *Material* tab, on the *Material by Vendor* sub-tab.

- Select a vendor, click the CUSTOM radio button under SELL PRICE MULTIPLIER, and set the value.
- Refer to the next chapter on *The Estimate Summary Tabs*, in the section on the *Sell Price Multiplier* for more details.

Part Grouping

There is a field named Grouping which allows you to pick from a custom list of values in order to group the parts in an estimate together for custom reporting needs.

For example, you may group the parts as "Domestic", "Foreign-Made" or "Built In-House" so that you may generate totals of the values of the material in each of these groups on a custom Booking Sheet report.



- You can enter new values for *Grouping* for any part. As you do, the new values will appear in the list automatically.
- You can use the Parts Database to pre-define the list of options, and to specify a value for Grouping for each part in the database.
  - Refer to the *Setup and Administration Guide* chapter on *The Parts Database Manager*, in the *Part Groupings* section.
  - If you populate one of the *UserGroup* fields in the Parts Database, you can have the Grouping value automatically filled in as the Estimator selects parts from the database. In the Estimate Settings form, select the *Other* tab and pick which of the three *UserGroup* fields to use.
- There is a report, *Material List (By Grouping)*, which shows the material grouped by this field.
- The *Estimate Report Field List* report shows how to extract the totals for a specific group into a custom report.

Non-Taxable Parts

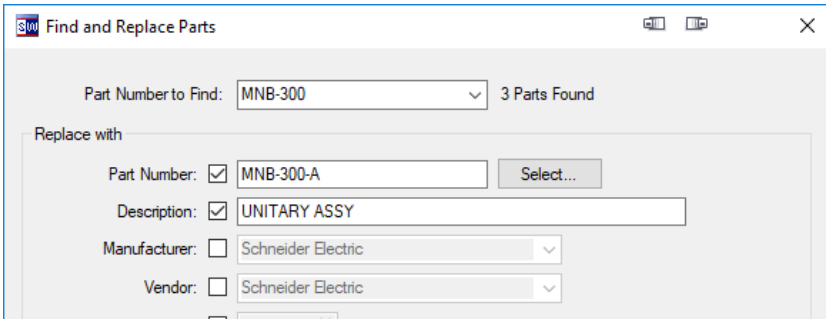
There is a checkbox column to mark certain parts as Non-Taxable.

- By default, all parts are Taxable.
- To designate a part as non-taxable, check the *Is Non-Taxable* box for that part; or right-click on the part and select SET AS NON-TAXABLE.
    - You can select multiple parts at once using SHIFT+CLICK and CTRL+CLICK while selecting.
- The Non-Taxable parts are excluded from the total used to calculate the tax on material with the rate shown on the *Expenses/Taxes and Freight* tab.
    - *Sales Tax* is not affected by these settings.

Find and Replace Parts

You can do a Find and Replace on the Parts lists of a System, Area or the entire Estimate.

- Right click on the node and select TOOLS→FIND AND REPLACE PARTS to bring up the Find and Replace form.
- Select the *Part Number* you wish to find.
- Select any or all of the fields you wish to update, including *Part Number*, *Description*, *List Price* and/or *Labor Hours*.

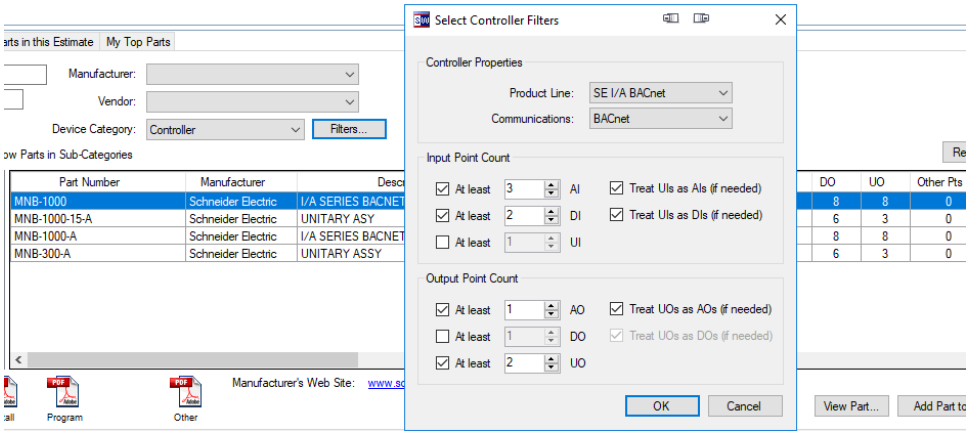


Physical Point Counts

There are seven columns in the Part List that show the physical I/O point counts for controller parts. This information is stored in the parts database, so in most cases the values will be set automatically as you add controller parts. This information is used on the *Points* tab in the *Physical Point Counts* section of that tab, as described in the next section.

- When you add a part to a System, the Point Counts will be copied to the part in the system.
- When you edit a part in a System, you can specify your own Point Counts.

You can filter on these values in the Part Browser. Select *Controller* for the DEVICE CATEGORY AND click the FILTERS button to select the protocol and point counts.



- Only the parts that meet the specified point count requirements will be shown in the list until you clear the Device Category or click Reset Filters.

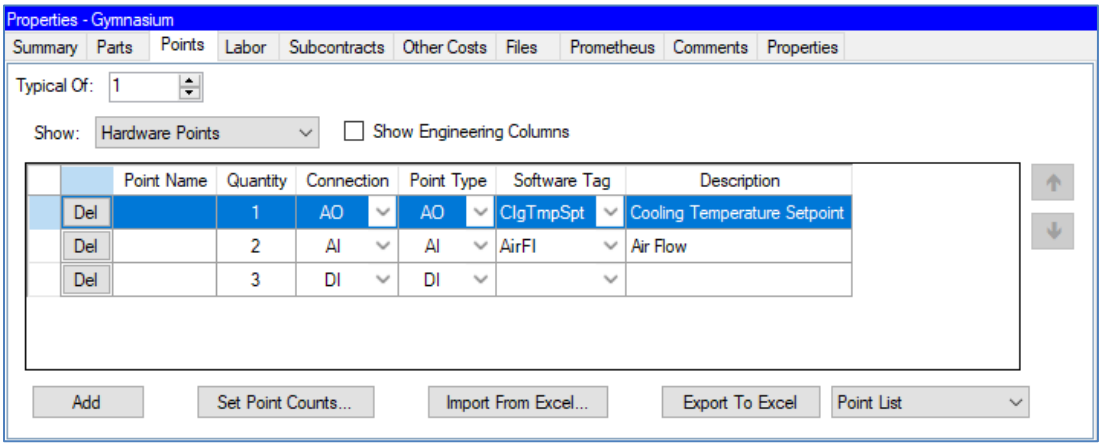
The Points Tab

The Points tab allows you to create a list of the logical and/or physical controller points in the System. These can serve a number of purposes:

- Each point adds a certain amount of labor hours to the estimate calculations.
- The total number of points in a system is a common metric for measuring the complexity of a system or project and for cross-checking the estimate calculations.
- Detailed information about the points, while optional, can be used to help document the system. Such information will be available for systems generated by the Prometheus or Designer modules.

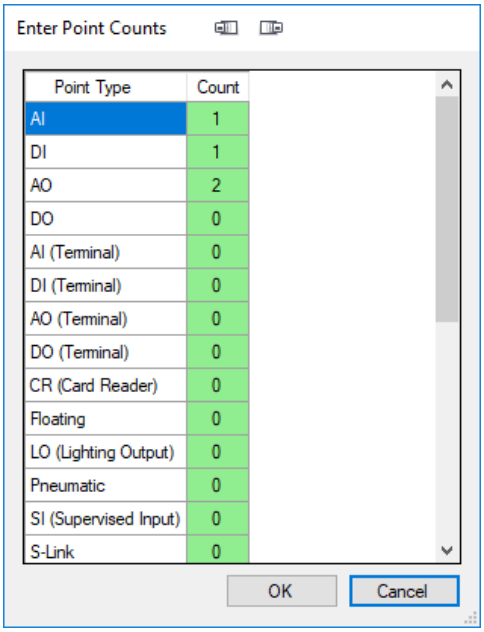
Adding Points to a System

The upper portion of the tab shows the list of points for the system:



- To add a single point, click the ADD POINT button
- You can specify a quantity of a point in the *Quantity* column.
- The only field that you need to specify is the *Point Type*. All other fields are optional and do not affect the Estimate calculations.
- You can specify physical (hardware) points or software points of various protocols (e.g., BACnet, LON, etc.).
- If you check the SHOW ENGINEERING COLUMNS checkbox, you can view or enter the advanced Engineering properties. These do not affect the Estimate calculations.
- You can copy and paste one or more part and/or point records from one System node to another, including between different projects running in different instances of Studio. Hold CTRL or SHIFT while clicking to select multiple points at once.
    - You can also multi-select and delete points from the System's Point List. Select the points and then right-click→DELETE.
- When the *Typical Of* value is greater than one and a point is marked as Not Typical, you will be able to specify a different *Quantity* value for that point. All other typical points have an assumed quantity equal to the *Typical Of* value.

To add multiple points at once, click the SET POINT COUNTS… button:

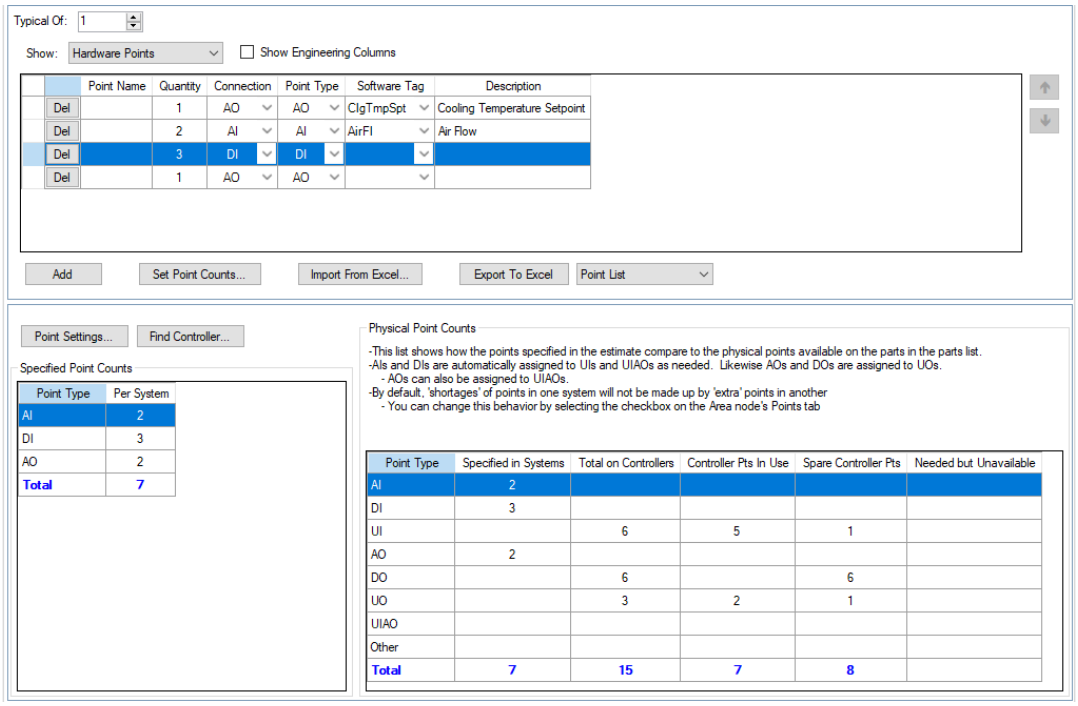


The points in the System's Point List will be updated to reflect these point counts. If there was already a greater number of a certain point type, the excess items will be deleted along with any detail you may have already entered (e.g., if there were 4 AO points in the list already when these counts were entered, the last two would be deleted).

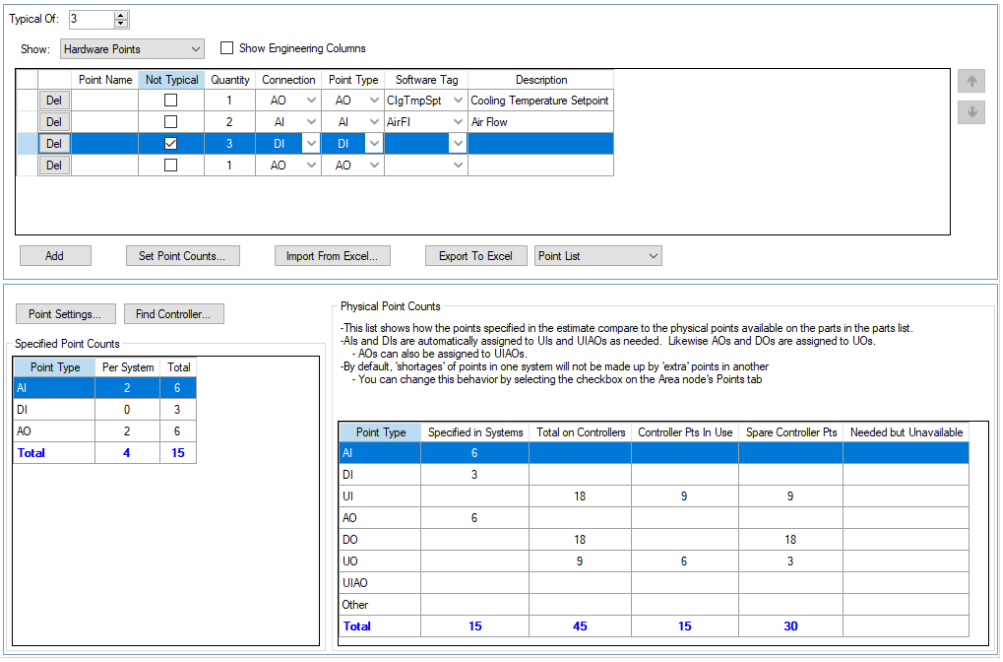
Point Counts

There are two sets of point counts: the points that you enter on the point list (*specified points*) and the points that are available on the controllers on the Parts List (*physical points*).

The two tables on the lower half of the Points tab show the counts for both and compares them to see if the controllers have enough points to cover the requirements.



If your system has a *Typical Of* value greater than one, the counts will reflect the total of the systems, taking into account points that are marked as *Not Typical*.

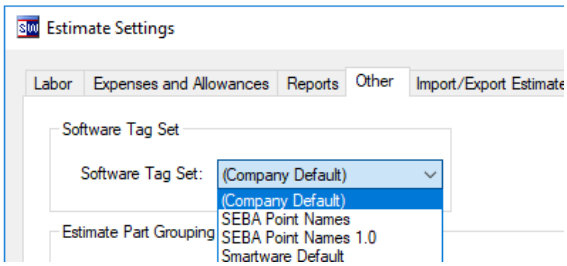


There are two reports, *Points Used and Available (By System)* and *Controller List (By System)* which include the Point Count information.

Software Tags

The Software Tag drop-down list can auto-populate with values based on the selected Point Type (e.g. AI, DI, etc.). A dictionary of Software Tags is referred to as a *Software Tag Set*.

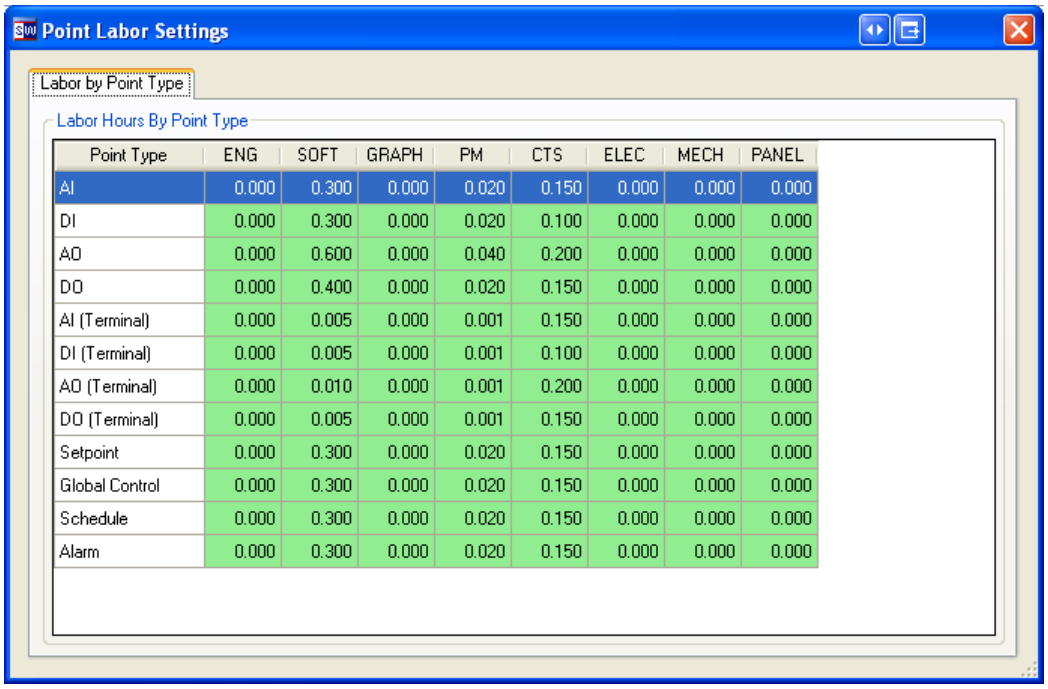
- Software Tag Sets are created in the Parts Database Manager. Refer to the *Setup and Administration Guid*e for full details.
- You can select the Software Tag Set to use when specifying point details. Go to the *Estimate Settings* dialog (from the *Estimate Summary* tab) and select the *Other* tab.



  - The selected Software Tag Set is saved as part of the Estimate Model.

Point Labor Settings

There is a table of values that specify how many hours of each Labor Code are calculated for each of the point types. To view and edit this table, click the POINT SETTINGS button:



Point Type	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL
AI	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000
DI	0.000	0.300	0.000	0.020	0.100	0.000	0.000	0.000
AO	0.000	0.600	0.000	0.040	0.200	0.000	0.000	0.000
DO	0.000	0.400	0.000	0.020	0.150	0.000	0.000	0.000
AI (Terminal)	0.000	0.005	0.000	0.001	0.150	0.000	0.000	0.000
DI (Terminal)	0.000	0.005	0.000	0.001	0.100	0.000	0.000	0.000
AO (Terminal)	0.000	0.010	0.000	0.001	0.200	0.000	0.000	0.000
DO (Terminal)	0.000	0.005	0.000	0.001	0.150	0.000	0.000	0.000
Setpoint	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000
Global Control	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000
Schedule	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000
Alarm	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000

- These values are part of the Estimate Model. You can set these in an Estimate Model Template to be used for future estimates. Refer to the later chapter, *Estimate Model Templates*, for more detail.

Importing and Exporting the Point List

You can export the list of points from a system to an Excel spreadsheet. This makes it easy to copy and paste into other documents or otherwise use the data.

- On the Points tab, click EXPORT TO EXCEL.
- There are multiple formats for the report to choose from.

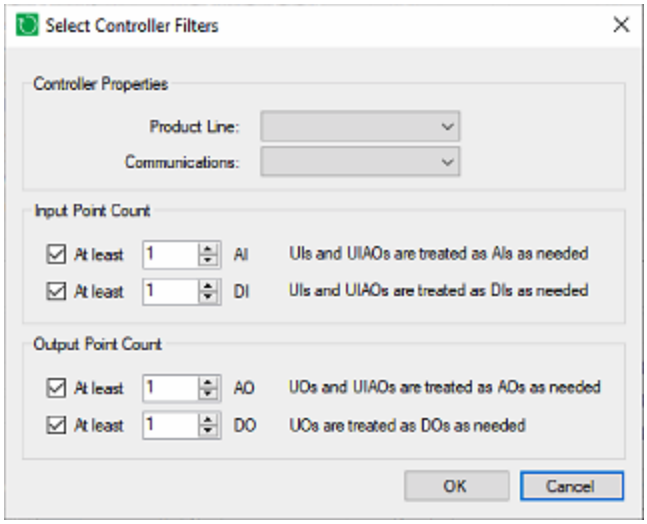
If you export using the *Point Import Template*, you will get a spreadsheet that can be populated and imported into the system.

- To import from a file, generate a template or copy a file to the *Files* tab of the system click IMPORT FROM EXCEL., then select the workbook and worksheet to import from.

- You can also import directly from an open Excel workbook by selecting the whole table (including headings) and selecting COPY to put it on the Windows clipboard. Then click IMPORT FROM EXCEL and choose the *From Clipboard* option.

Finding and Filtering Controllers

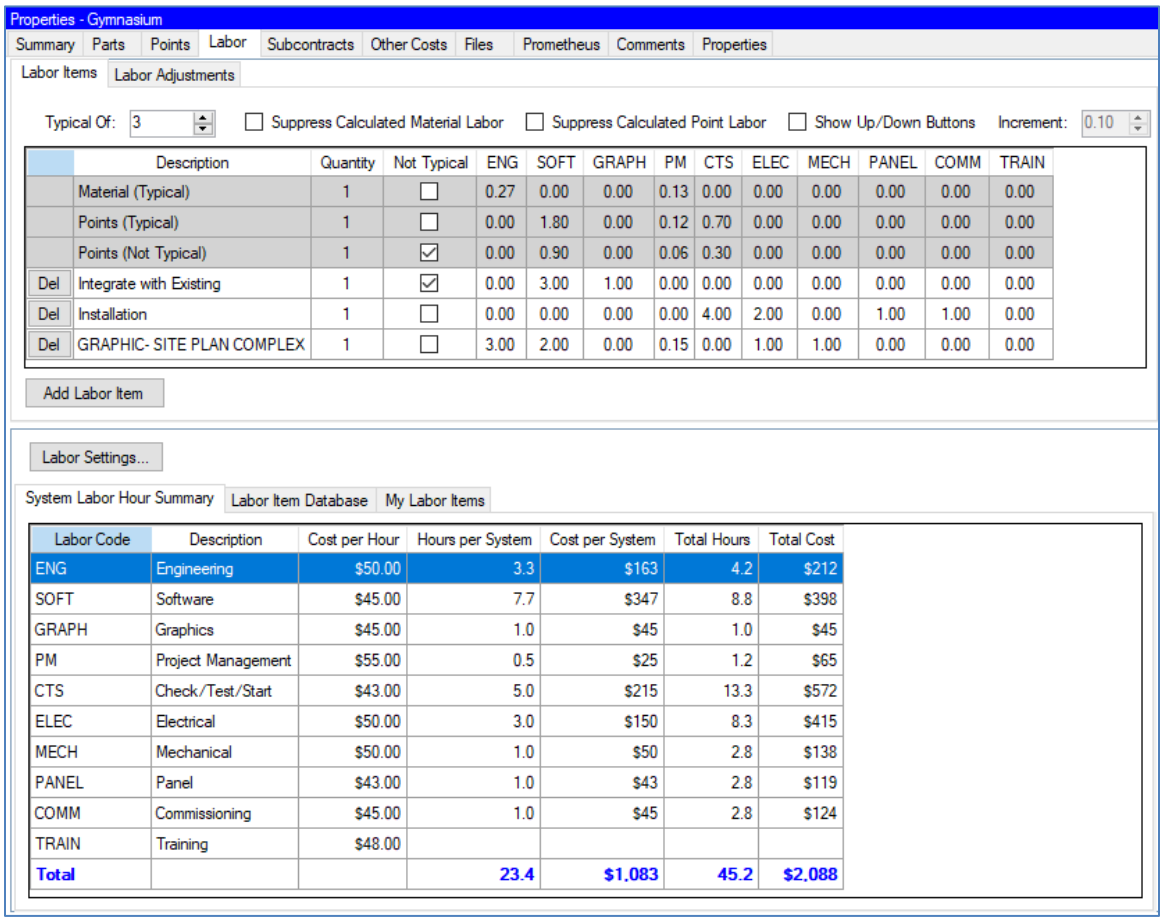
You can automatically find and filter controllers that have at least the minimum amount of points to cover the number of points specified in a System. Clicking the FIND CONTROLLERS button on the lower left side of the POINTS tab will take you to the PARTS tab and open up the SELECT CONTROLLER FILTERS window shown below with the required point counts filled in.



- Select the *Product Line* and *Communications* needed.
- Specify the desired minimum number of input and output Point Counts.
- The filtered results will show only the controllers that meet your System's Point criteria.

The Labor Tab

The Labor tab summarizes the labor hours calculated from the Parts and Points and allows you to add additional labor hours as line items.



The top region shows all the labor hours associated with the System:

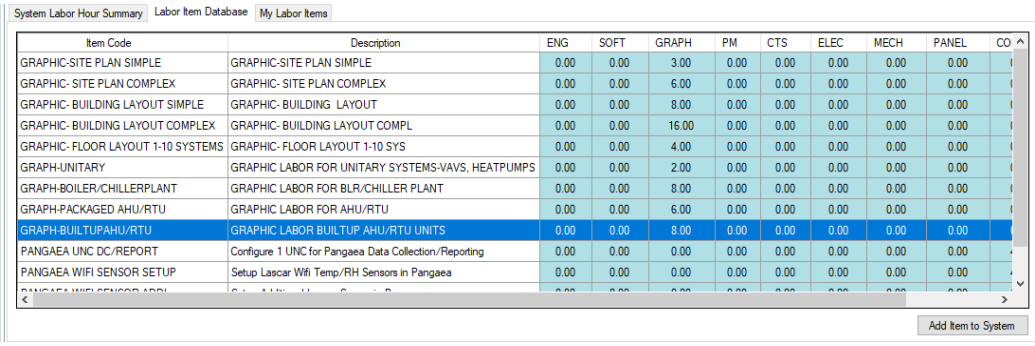
- The items in gray are calculated totals from the other tabs.
- The Material and/or Points labor will be broken up as *Typical* and *Not Typical*, if any of the items are marked as Not Typical.
- You can choose to exclude the calculated Material or Point labor from the estimate by checking the SUPPRESS CALCULATED MATERIAL LABOR or SUPPRESS CALCULATED POINT LABOR.
- To add additional line-item labor, click the ADD LABOR ITEM button. A new row will be added to the list. You can edit the hours for each task code directly in the list.
    - If you check the SHOW UP/DOWN BUTTONS checkbox, arrows will appear to make it easier to adjust the numbers.

The bottom region has several tabs. The *System Labor Hour Summary* tab shows a summary of the labor hours and their costs in dollars. Depending on other settings, additional columns will be shown.

- Labor factors are multiplied by the *Quantity* specified in the top region, taking into account the System's *Typical Of* value as well as the *Not Typical* checkbox.
- The *Cost per Hour* for each Labor Code is specified in the Labor Settings.
- The *Hours per System* reflects the total hours by labor code, and the *Cost per System* is the total in dollars.
- If the *Typical Of* value for the system is greater than one, *Total Hours* and *Total Cost* will show the total number of hours and dollars for all the typical systems.
    - The Total Hours is adjusted by the *Repetition Curves* in the Estimate Model as describe later in this chapter.
- If you specify *Global Labor Adjustments* (GLAs) for the Estimate or the system, as described in a later chapter, additional columns will show the effective GLA factor and adjusted version of the other columns.

The Labor Item Database

The *Labor Item Database* tab allows you to add line item labor by selecting from a pre-defined, customizable list.

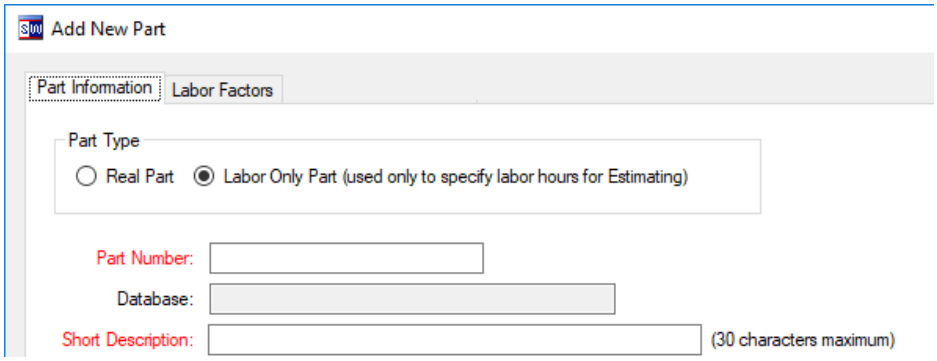


Item Code	Description	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	CO
GRAPHIC-SITE PLAN SIMPLE	GRAPHIC-SITE PLAN SIMPLE	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	
GRAPHIC- SITE PLAN COMPLEX	GRAPHIC- SITE PLAN COMPLEX	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	
GRAPHIC- BUILDING LAYOUT SIMPLE	GRAPHIC- BUILDING LAYOUT	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	
GRAPHIC- BUILDING LAYOUT COMPLEX	GRAPHIC- BUILDING LAYOUT COMPL	0.00	0.00	16.00	0.00	0.00	0.00	0.00	0.00	
GRAPHIC- FLOOR LAYOUT 1-10 SYSTEMS	GRAPHIC- FLOOR LAYOUT 1-10 SYS	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	
GRAPH-UNITARY	GRAPHIC LABOR FOR UNITARY SYSTEMS-VAVS, HEATPUMPS	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	
GRAPH-BOILER/CHILLERPLANT	GRAPHIC LABOR FOR BLR/CHILLER PLANT	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	
GRAPH-PACKAGED AHU/RTU	GRAPHIC LABOR FOR AHU/RTU	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	
GRAPH-BUILTUPAHU/RTU	GRAPHIC LABOR BUILTUP AHU/RTU UNITS	0.00	0.00	8.00	0.00	0.00	0.00	0.00	0.00	
PANGAEA UNC DC/REPORT	Configure 1 UNC for Pangaea Data Collection/Reporting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
PANGAEA WIFI SENSOR SETUP	Setup Lascar Wifi Temp/RH Sensors in Pangaea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

- Double-click an item, or select it and click ADD ITEM TO SYSTEM, to add a copy of the row to the labor list.

These rows consist of an *Item Code*, a more detailed *Description*, and values for a number of hours in one or more *Labor Codes*. These rows are actually stored in the Parts Database in the same table alongside regular parts, so they are managed in a very similar way through the Parts Database Manager. They are referred to as *Labor Only Parts*.

- Parts Database Administrators can add to the company's Labor Only Parts list by adding Labor Only Parts to the Parts table. When adding the parts, choose the *Labor Only Part* option on the *Part Information* tab. The *Part Number* field is the same as *Item Code*.



- Refer to the *Setup and Administration Guide* chapter on *The Parts Database* for full details.

Individual users can also create line items for themselves by using the *My Labor Items* tab on the bottom of the *Labor* tab.

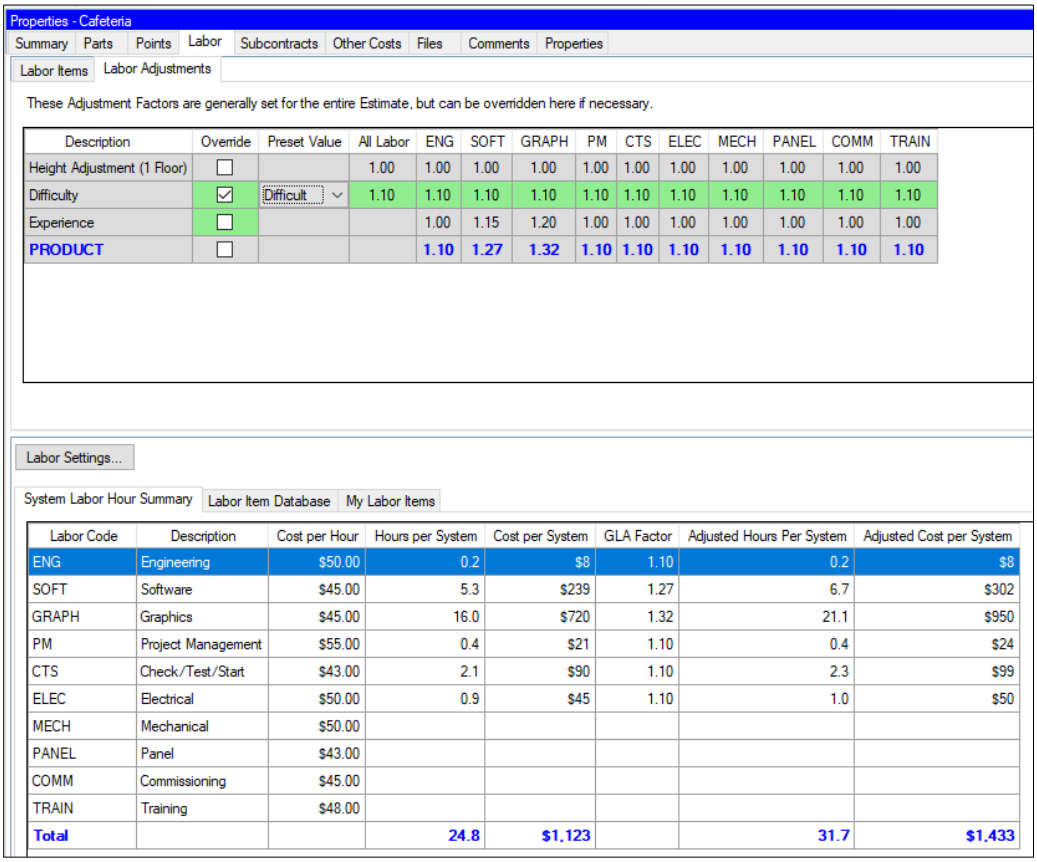
- On that tab, click the *New Item* button to add a new User Labor Only Part.
- User created Labor Only Parts can be submitted for approval to the company's Parts Database administrator in the same way that regular User Parts can be.
    - Refer to *The Parts Database* chapter in the *User's Guide* and *The Parts Database Manage*r chapter in the *Setup and Administration Guide* for more details on managing the Parts Database.

Labor Adjustments

Labor Adjustments allow you to apply factors that increase (or decrease) the total labor for a system, area or the entire Estimate to account for ways in which the project differs from an average project, such as additional difficulty or a lack of specific experience with a new type of project or technology.

These adjustments are normally applied as *Global Labor Adjustments* to the entire Estimate on the Estimate's *Labor* tab, but there may be times when you want to specify different values on a specific system or area.

The *Labor Adjustments* tab shows the current values specified for the Estimate and allows you to override them for the specific system:

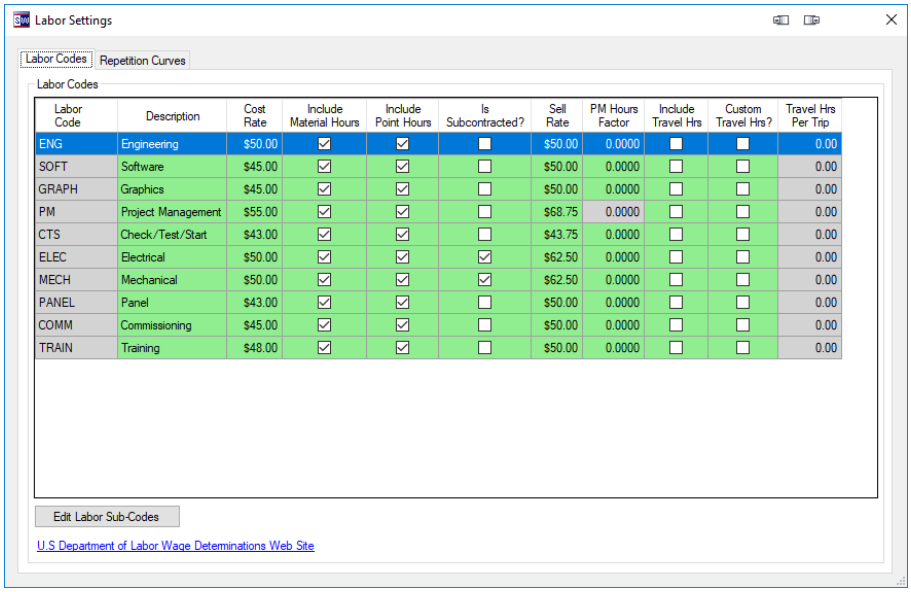


- Check the *Override* checkbox to set overriding values for one or more of the labor codes. Use the All Labor column to set the same value for all labor codes.
- Some rows might have a list of *Preset Values* to choose from (e.g., *Easy*, *Normal*, *Difficult*). These choices can be configured from the Estimate's ESTIMATE SETTINGS form (right-click Estimate Node→TOOLS→ESTIMATE SETTINGS).
- The effective Labor Adjustment factor for any labor code is the product of all the adjustment factors for that labor code. When using Labor Adjustments, the lower tab shows additional columns to illustrate the calculations.
- For more details on configuring and using the Global Labor Adjustments, refer to:
    - The later chapter on *The Estimate Summary Tabs*, in the *Global Labor Adjustments* section
    - The later chapter on *The Estimate Model* in the section *Global Labor Adjustments*.

Labor Settings

The Labor Settings are part of the Estimate Model and determine how the labor is calculated for a System.

To view the Labor Settings, click on the LABOR SETTINGS button.



Labor Code	Description	Cost Rate	Include Material Hours	Include Point Hours	Is Subcontracted?	Sell Rate	PM Hours Factor	Include Travel Hrs	Custom Travel Hrs?	Travel Hrs Per Trip
ENG	Engineering	$50.00	☑	☑	☐	$50.00	0.0000	☐	☐	0.00
SOFT	Software	$45.00	☑	☑	☐	$50.00	0.0000	☐	☐	0.00
GRAPH	Graphics	$45.00	☑	☑	☐	$50.00	0.0000	☐	☐	0.00
PM	Project Management	$55.00	☑	☑	☐	$68.75	0.0000	☐	☐	0.00
CTS	Check/Test/Start	$43.00	☑	☑	☐	$43.75	0.0000	☐	☐	0.00
ELEC	Electrical	$50.00	☑	☑	☑	$62.50	0.0000	☐	☐	0.00
MECH	Mechanical	$50.00	☑	☑	☑	$62.50	0.0000	☐	☐	0.00
PANEL	Panel	$43.00	☑	☑	☐	$50.00	0.0000	☐	☐	0.00
COMM	Commissioning	$45.00	☑	☑	☐	$50.00	0.0000	☐	☐	0.00
TRAIN	Training	$48.00	☑	☑	☐	$50.00	0.0000	☐	☐	0.00

There are several tabs, including *Labor Codes*, which shows the cost per hour for each labor code

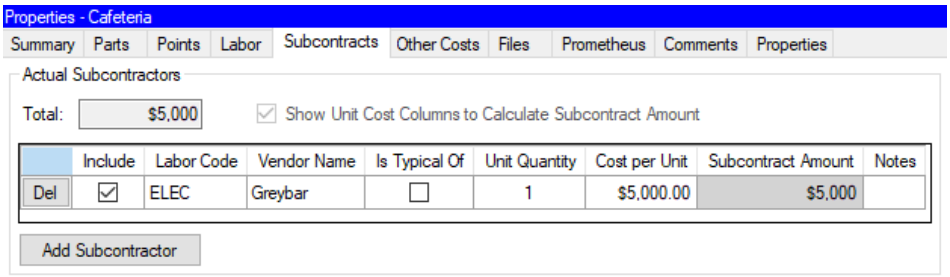
- The *Cost Rate* determines how labor hours are translated into dollars. The figure represents the dollars per labor hour.
- The *Include Material Hours* column indicates whether the hours calculated from the Material tab are included in the calculations for that Labor Code.
- The *Include Point Hours* column indicates whether the hours calculated from the Points tab are included in the calculations for that Labor Code.
- The *Is Subcontracted* column indicates whether the hours for that Labor Code are excluded from the Estimate's labor calculations and instead included in the calculated Subcontracts.
- Refer to the later chapter on *The Estimate Model*, in the section *Labor* for full details on the different values and tables in the model.

The *Repetition Curves* tab indicates how the labor is multiplied out when the System is considered Typical Of multiple instances. Refer to the later section on *Typical Systems* for more detail.

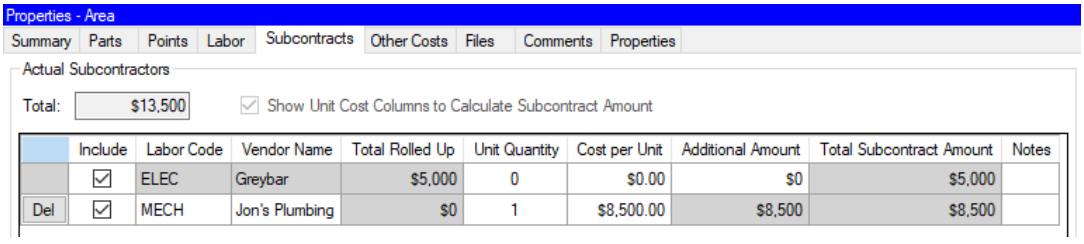
The Subcontracts Tab

The *Subcontracts* tab allows you to add in the cost of a known or estimated subcontract and associate it with the specific system. The total cost of all the subcontracts will roll up onto the Estimate's (and areas') *Subcontracts* tabs but assigning the subcontract to a system will automatically exclude that subcontract if the system is excluded as an option or other variation of an estimate.

You can add a subcontract by clicking ADD SUBCONTRACTOR on the *Subcontracts* tab.



- Subcontracts are, by default, associated with a *Labor Code* and custom *Vendor Name.*
    - You can also choose to associate the subcontracts with a Vendor and selectable subcontract code. Refer to the later subsection *Subcontract Codes*.
- By default, each subcontract is automatically included in your Estimate's calculations. You can change this by unchecking the *Include* checkbox.
- When viewing an Area, it will aggregate the subcontracts from the child Systems based on matching both the *Labor Code* and *Vendor N*ame. You can then add additional Area-specific costs to the subcontract.

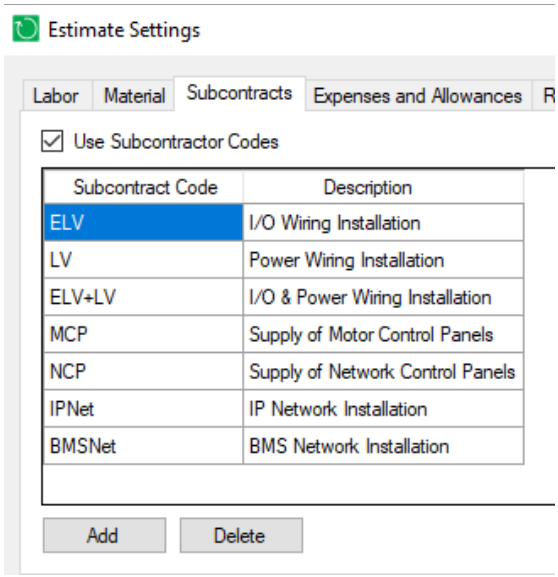


- The subcontracts from the Areas and Systems will be shown on the Estimate's *Subcontracts* tab. There you can choose to include them and to specify custom markups.

Subcontract Codes

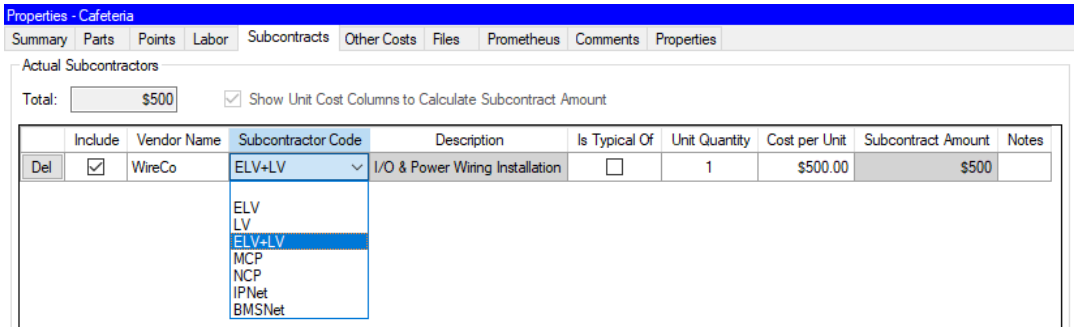
Much like Labor Codes, you can categorize Subcontracts with *Subcontract Codes* to control how your Estimate's subcontract costs are calculated. As these codes are specified on each System, they are aggregated up and listed on the Area and Estimate levels of your Estimate. Therefore, as individual systems containing these codes are excluded or included, the rolled-up values will change accordingly.

- Access the Subcontract Code Table from the *Subcontracts* tab in the Estimate Model (select the Estimate Node→right-click→TOOLS→ESTIMATE SETTINGS).
- Check the USE SUBCONTRACT CODES checkbox in order to utilize the codes in place of Labor Codes.
- Click the ADD or DELETE buttons to add or delete a set of *Code* and *Description* values.

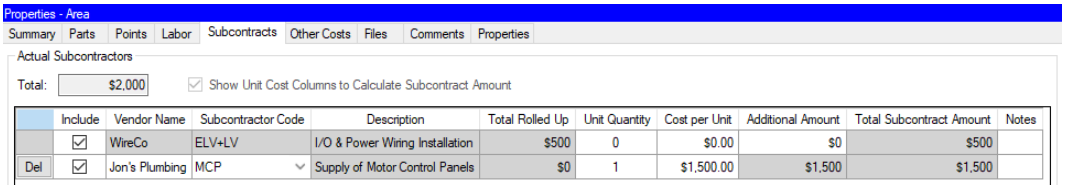


- The Subcontracts Codes will then be available to choose from the drop-down list in the *Subcontracts Codes* column and the *Description* will automatically be filled in upon selection.

- In this mode, the *Subcontracts* tab will hide the *Labor Code* and display a column for *Subcontract Codes* and *Description*.



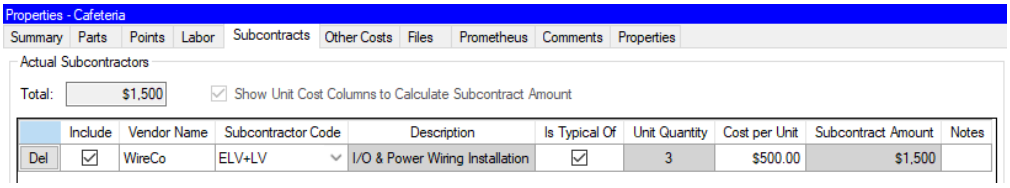
When viewing an Area, it will aggregate the subcontracts from the child Systems based on matching both the *Subcontract Code* and *Vendor N*ame. You can then add additional Area-specific amounts explicitly (or calculated using the *Unit Quantity* and *Cost per Unit* values) which will then aggregate to the Estimate. Refer to the later section, *The Subcontracts Tab,* for more detail.



Typical Of and Unit Quantity

You can specify that a subcontract is *Typical of* a given system and align the *Unit Quantity* value to the *Typical Of* value of that system.

- Check the *Is Typical Of* checkbox
- The *Unit Quantity* column and value will be fixed (and greyed-out) to the *Typical Of* value for the System previously set on the *Parts, Points,* or *Labor* tab.

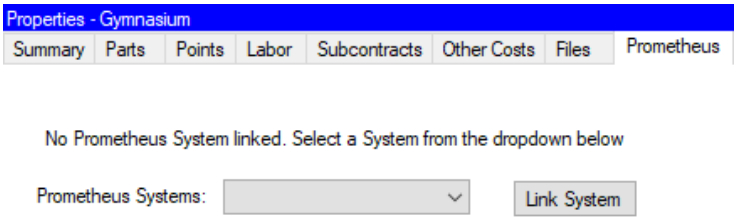


- The Subcontract amount will be calculated with the specified fixed *Unit Quantity* and the defined *Cost per Unit.* Therefore, as you set or adjust your *Typical Of* value for your system, the Subcontract amount will automatically adjust accordingly.
- Refer to the later section on *Typical Systems* for more detail.

The Prometheus Tab

If you are licensed for the separate Prometheus Module you will see the additional *Prometheus* tab, which enables you to link a Prometheus System to a System node. When linked to a Prometheus System, you answer questions about the system and Prometheus will generate a list of Parts, Points, and potentially Labor, and automatically copy the data to the respective *Parts, Points,* and *Labor* tabs for the System in an Estimate.

- Refer to the separate *Smartware Studio Prometheus Module User's Guide* for more detail.

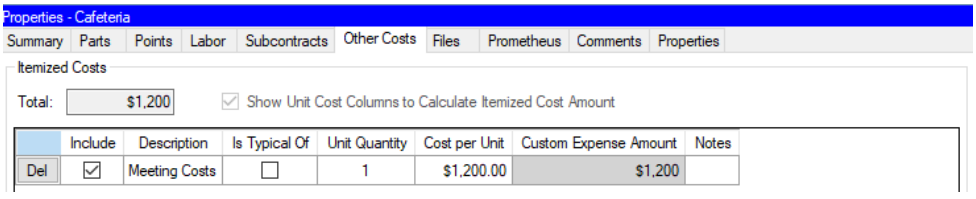


Other Costs

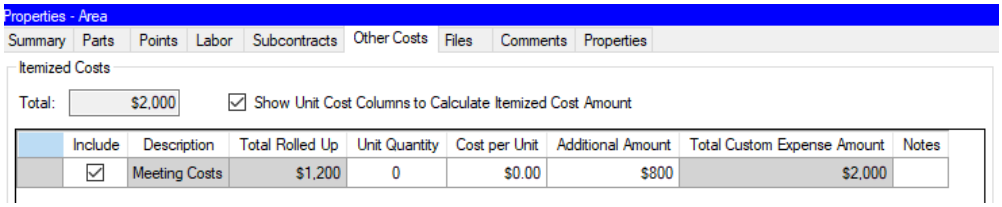
The *Other Costs* tab contains an area to specify an *Allowance for Risk* and additional *Itemized Costs* that you can apply to individual Systems, Areas and Estimates. Each value will aggregate and roll up to their respective Risk and Itemized Costs totaled for the entire System.

The *Itemized Cost* list allows you to add additional cost items with custom markups at the System, Area, and Estimate levels. These items can be individually included or excluded and will roll up from the System to Area level, affecting the calculated cost depending on their inclusion.

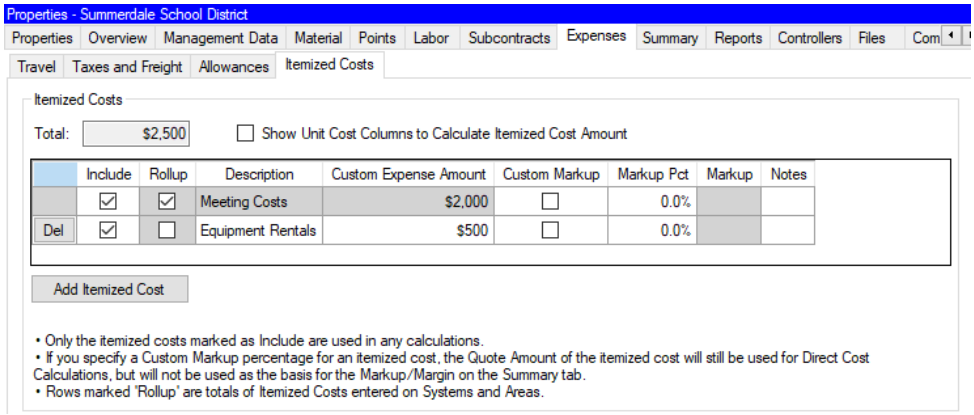
- To add an *Itemized Cost*, click the ADD ITEMIZED COST button.
- You can customize the *Unit Quantity* and *Cost per Unit*, or check the *Is Typical Of* checkbox to align the *Unit Quantity* to the *Typical Of* value specified on the *Parts, Points,* or *Labor* tab.



- At the Area level, the Systems' itemized costs will be rolled up, and you can also use the *Additional Amount* column to include an additional amount for the same item. You can also add any other costs solely specific to an Area.
- *Itemized Costs* are matched based on *Description,* therefore if you add an identical *Description,* its cost will be included within one row.
- The *Total Rolled Up* column will show you the values aggregated from each level.



- At the Estimate level, any System, Area or additional costs will aggregate up and show the totals for the whole Estimate. Here, you have the option to add any additional costs specific to the Estimate and specify a *Custom Markup* percentage to be used for direct cost calculations.
- Rows marked *'Rollup'* are totals of *Itemized Costs* entered on Systems and Areas.
- Additional helpful information is given on the bottom of the *Itemized Cost* tab.

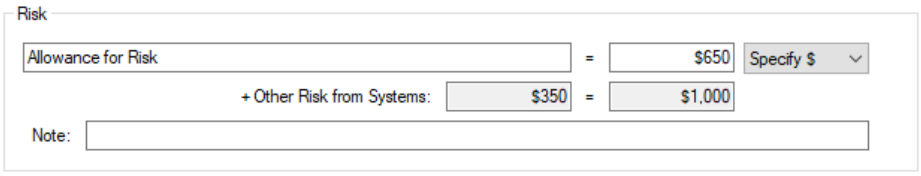


Allowance for Risk

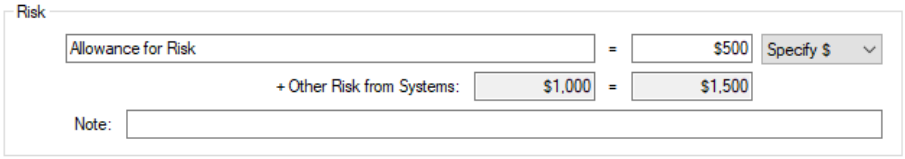
The *Allowance for Risk* value is a dollar amount that can be applied to individual Systems and Areas. Ultimately, all values add up into the Estimate's total *Allowance for Risk*, found under the Estimate's *Expenses / Allowances* tab.

- To specify an *Allowance for Risk* dollar amount for a System, define an amount as shown below. You can also add any notes that may be helpful.

- At the Area level, the Systems' specified Risk amounts will roll up to show the current total dollar amount and provide a place to add additional cost.



- At the Estimate level, the *Allowance for Risk* is aggregated and automatically totaled from the Systems and Area nodes. From here, you can again add any additional Risk amounts for an Estimate.
- You can specify the Risk as a fixed dollar amount, *$ (specific)* or as a percentage, *% (of total cost)*.

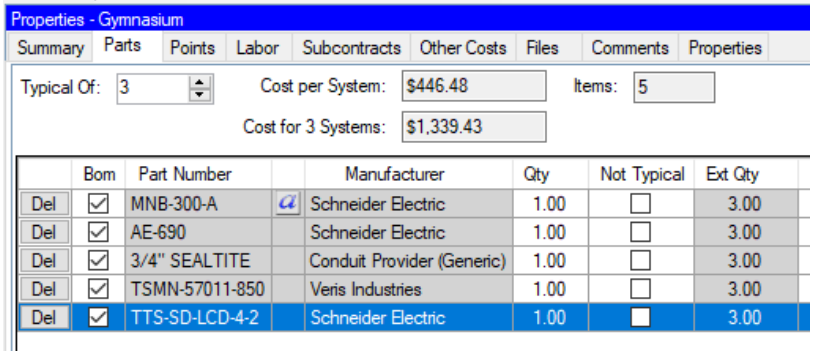


Typical Systems

There are many cases where a System represents one of a set of identical systems. These are commonly referred to as *Typical Systems*, and the number of instances is called the *Typical Of* value.

Setting the Typical Of Value for a System

To set the *Typical Of* value, change the value on the Parts, Points or Labor tab of the System.



- The quantities of the Parts, Points and Labor Hours in the System will automatically be multiplied by the *Typical Of* value. *Subcontracts* and *Other Costs* will not.
- The totals on the *Parts*, *Points* and *Labor* tab will indicate the totals for the first system, as well as the total for all the systems.
- You can also set the Typical Of for a System by selecting the Area node→right-click→TOOLS→SET TYPICAL OF FOR SYSTEMS.
- You may come upon a reason to want to multiply all the existing Typical Of values by a specific number. For example, to double all existing Typical Of values, select the desired Area node, right-click→TOOLS→MULTIPLY TYPICAL OF VALUE FOR SYSTEMS BY X.

Not Typical Items

Each Part, Point, or Labor item in a System can be marked as *Not Typical*. These items will not be multiplied by the *Typical Of* value for the System when calculating totals. Instead, they will be included only once.

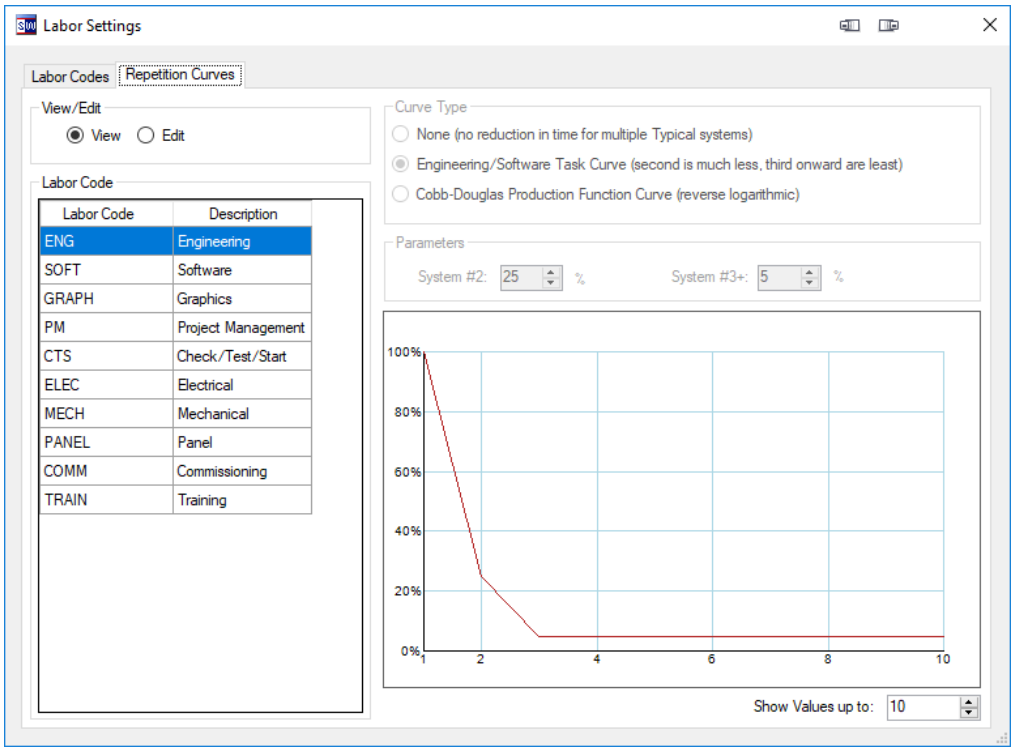
- In each case, Not Typical items can have a separate quantity specified, which will not be multiplied by the Typical Of value.
- In the Labor Item list for the System, Typical and Not Typical hours for Material and Points are broken out to help illustrate the calculations.

Description	Not Typical	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	COMM	TRAIN
Material (Typical)	☐	0.00	0.00	0.00	0.00	0.00	10.33	0.00	0.00	0.00	0.00
Material (Not Typical)	☑	5.00	0.00	3.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00
Points (Typical)	☐	0.00	1.80	0.00	0.12	0.70	0.00	0.00	0.00	0.00	0.00
Points (Not Typical)	☑	0.00	0.60	0.00	0.04	0.20	0.00	0.00	0.00	0.00	0.00

Repetition Curves

In most cases, Typical Systems have a benefit of requiring less labor for the second and successive systems that are implemented. These reductions are represented by a *Repetition Curve* for each Labor Code that indicates how much labor these secondary instances require compared to the first instance.

The Repetition Curves are part of the Estimate Model. To view and edit the Repetition Curves, click the LABOR SETTINGS button and select the *Repetition Curves* tab:

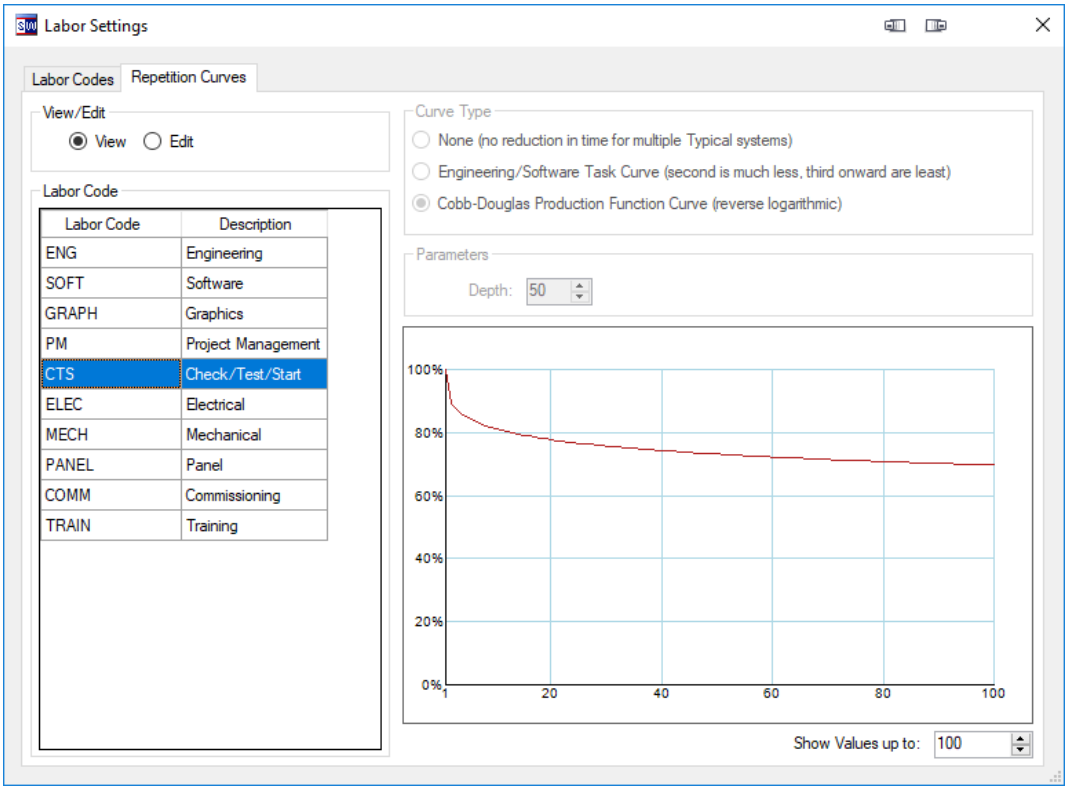


There are two types of curves to represent two classes of labor and their reductions:

- An *Engineering/Software Task Curve* is designed for a task (such as Engineering and Software) in which the resulting effort can be "copied and pasted" for the secondary instances. The curve specifies a percentage for the second instance (e.g., the time it takes to convert a specific system into one where certain parameters, such as Air Flow, can be customized for each instance), and a percentage for the third and successive instances (often just adding a row to a table or spreadsheet to specify those parameters for the additional system).

- A *Cobb-Douglas Production Function Curve* is designed for other physical tasks that, presumably, the worker would be able to do faster as they develop, optimize or create assembly-line style procedures for themselves. They are essentially inverse logarithmic curves.

An example of a Cobb-Douglas curve for tasks such as Check/Test/Start:



The settings for the Repetition Curves are part of the Estimate Model and can be saved with a template for use in other Estimates. Refer to the later chapter on *The Estimate Model* for more details.

Area Nodes

As described in the earlier chapter on *Building the Estimate Structure*, systems can be grouped together into multiple levels of Areas to organize your estimate.

Area nodes have a similar set of tabs as a System node. In most cases the data shown are totals and aggregations, but in some cases, there are values you can specify that apply to its systems.

The Summary Tab

The *Summary* Tab shows the total costs for the systems in the Area.

The Parts Tab

The *Parts* tab shows a list of all the parts in all the systems in the Area for easy viewing and sorting.

The Points Tab

The *Points* tab shows the total point count for all the systems in the Area.

It also shows the aggregated *Physical Point Count*s for the controllers specified on the Parts tabs of the systems.

- You can choose whether you want extra points from one system to offset missing points from another.

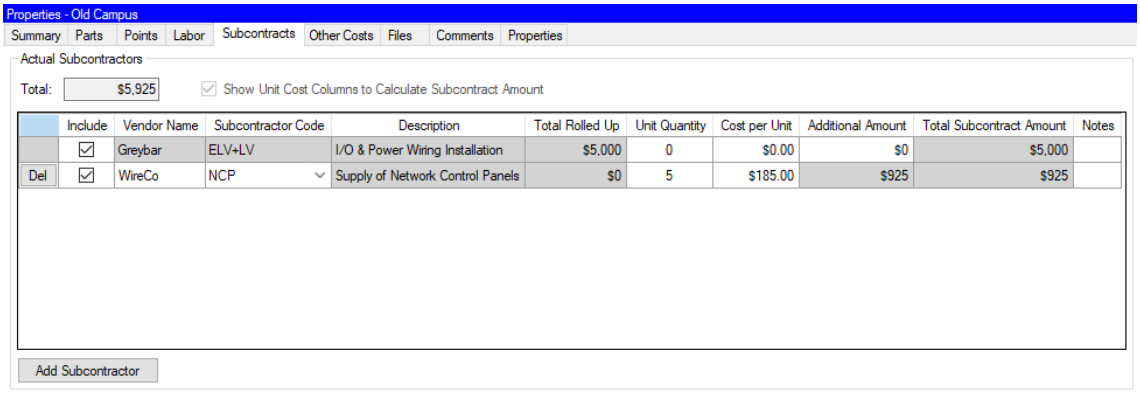
The Labor Tab

The *Labor* Tab shows the total hours and dollars for the systems in the Area, but also allows you to adjust some area-specific settings.

- You can choose to suppress the labor hours calculated for all the systems in the area based on their Material and Points by checking *Suppress Calculated Material Labor* and *Suppress Calculated Point Labor*.
  - When these options are set to suppress labor at the Area level, a system in the Area cannot turn those calculations back on.
- You also specify Labor Adjustments that override the ones specified in the Estimate and apply them to just the systems in the Area.
  - Individual systems will still have the option of overriding the Area specifying adjustments for just that system.
  - Refer to the earlier section on *Labor Adjustments* for more details.

The Subcontracts Tab

The Subcontracts tab shows an aggregation of the subcontracts from the child systems based on matching both the *Labor Code* and *Vendor N*ame. You can then add additional Area-specific costs to the subcontract.



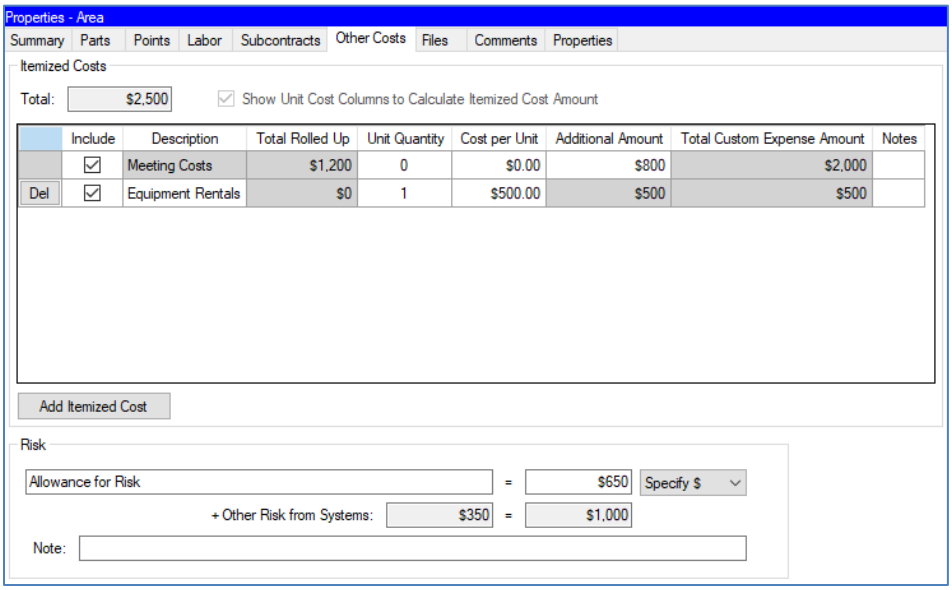
Refer to the section *The Subcontracts Tab*The Subcontractsin the earlier chapter on *Estimating a System*.

The Other Costs Tab

The Other Costs tab allows you to add a custom amount of Risk as well as any additional Itemized Costs to the Area. This is in addition to any custom Risk and Itemized Costs from the system nodes below that aggregate up to this Area node.

The *Other Costs* tab shows you any aggregated or rolled-up totals of itemized costs and allowance for risk added at the System level.

- You can use the *Additional Amount* column to add additional costs to the same item or add new costs specific to the Area node.
- You can add additional Area-specific *Allowance for Risk* here as well.
- Ultimately, all the values add into the Estimate's *Allowance for Risk* and *Itemized Costs*.
- Refer to the earlier section, *Other Costs*, in the *Estimating a System* chapter for more detail.



5. The Estimate Summary Tabs

Once the Areas and Systems have been created and the Parts, Points and Labor specified for each System, the rest of the information and tasks for completing the Estimate is specified on the tabs for the Estimate Node itself.

Selecting the Estimate Node

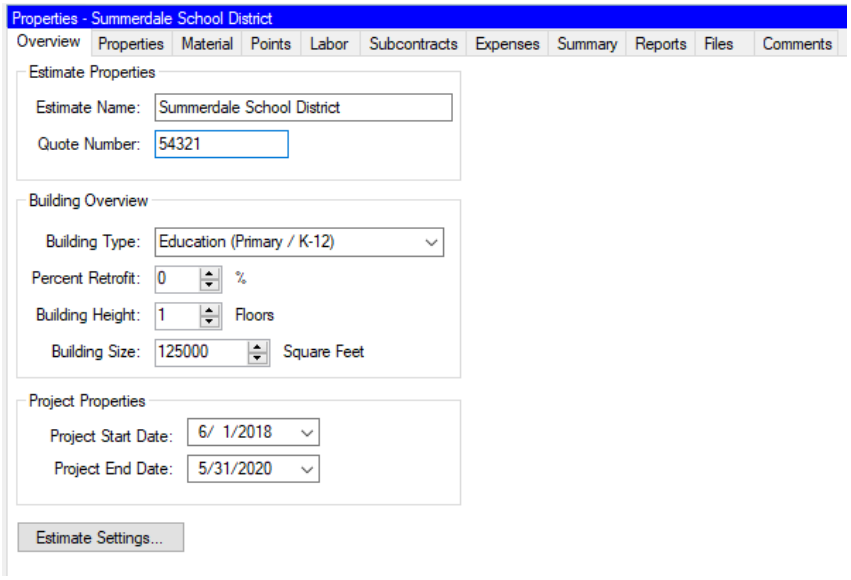
To view the Estimate Node tabs, simply click on the Estimate Node () at the top of the Estimate tree.

- You can also go directly to the Estimate Node's Summary tab from anywhere else in the Estimate by clicking the ESTIMATE SUMMARY button in the Estimate Toolbar:

The Estimate Node has a larger set of tabs, some of which are similar to those in the Areas and Systems, but which all have information that is specific to the Estimate as a whole. It is a good idea to review each tab in order as you get closer to completing an Estimate.

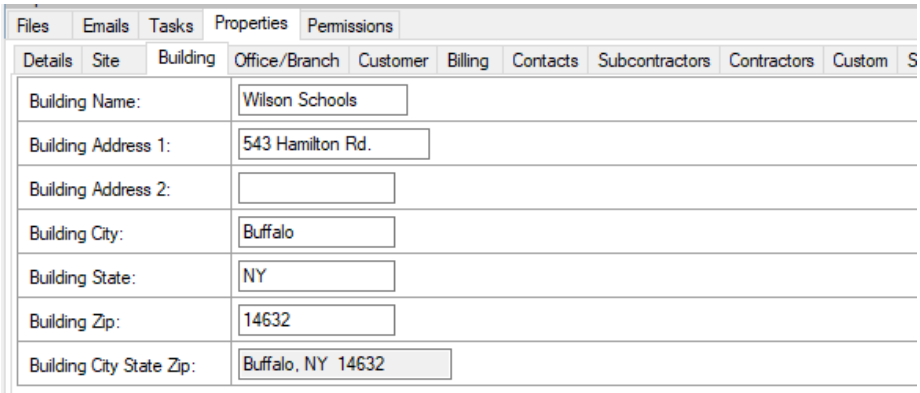
The Overview and Properties Tabs

The *Overview* tab allows you to set some global values for the estimate and the project buildings.



- The *Estimate Name* and *Quote Number* are key fields that are used in many reports and other tools throughout Smartware Studio.
- The *Building Overview* properties affect the *Global Labor Adjustments*, essentially scaling up (or down) the calculated labor from the system. Refer to the later subsection on *The Labor Tab* for more information.
- The *Project Start Date* and *Project End Date* values affect the *PM Hours Worksheet* calculations, described later in this section.

The *Properties* Tab contains a series of sub-tabs with an extensive set of data, such as information about the Customer, the Building, the Contacts and the Subcontractors for the Project. These *Project Properties* can be used for easy reference and when generating reports, documents and submittals for your projects.



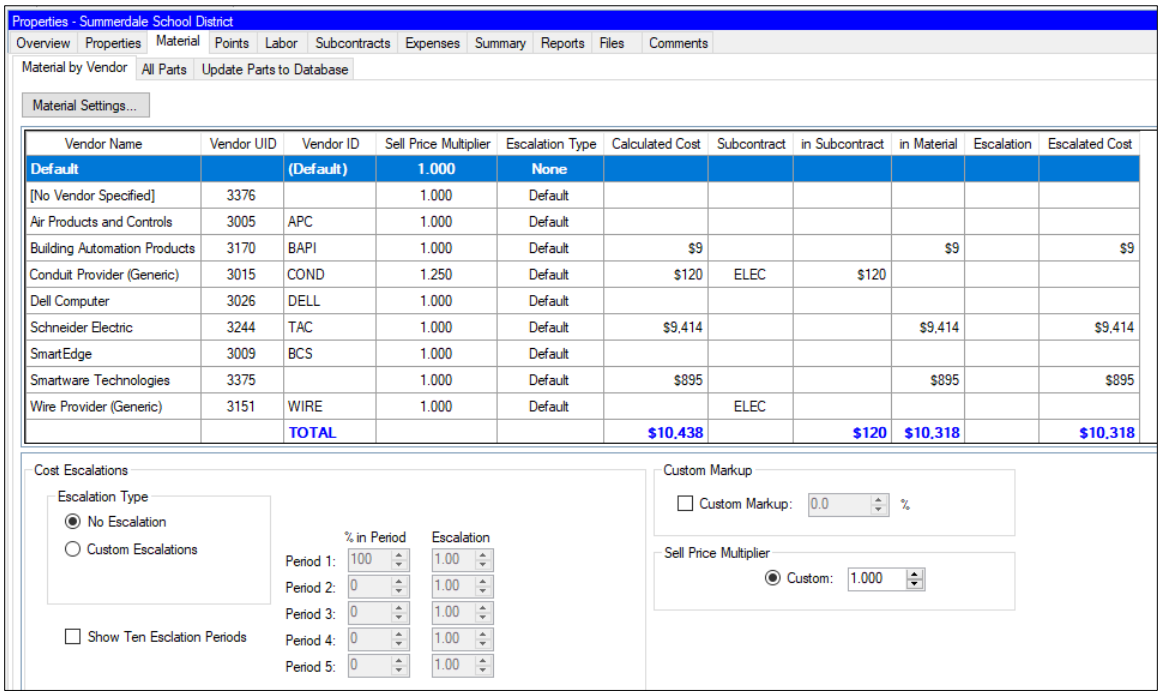
- For convenience, users who do not have a license for the Estimating module can still edit an Estimate's Project Properties.
- The Project Properties are generally text strings. For a more database-driven version of this type of information, consider the *Studio Management Module*.

The Material Tab

The Material Tab summarizes all the parts in the Estimate. There are three sub-tabs:

- *Material By Vendor*
- *All Parts*
- *Update Parts to Database*

There is also a button to access the MATERIAL SETTINGS, allowing you to edit the material related values in the Estimate Model.
The *Material by Vendor* sub-tab summarizes all the parts in the Estimate, breaking them down according to the Vendor.



Cost Escalations (for Long Term Projects)

For projects that may require multiple years to complete, you can make allowances for any expected cost inflation over time. You can specify a single escalation model for all material or custom escalations for each vendor.

To specify a Cost Escalation for a specific Vendor:

- Select the Vendor's row in the table.
- Choose the CUSTOM ESCALATIONS radio button.
- Fill in values for the *% in Period* and *Escalation* columns.

To specify a Cost Escalation for all Material:

- Select the first row of the table ("Default").
- Choose the CUSTOM ESCALATIONS radio button.
- Fill in values for the *% in Period* and *Escalation* columns.

The amount of increase due to the Escalation, as well as the Escalated Cost, is shown in individual columns in the table as you make the changes.

By default, there are five periods. Check the SHOW TEN ESCALATION PERIODS checkbox to view ten.

Assign Material to a Subcontract

For some Material, specifically Wire and Conduit, you may want to transfer the cost into the calculated value of a subcontract.

- Select the Vendor's row in the table.
- In the ASSIGN TO SUBCONTRACT FOR drop-down list, select the appropriate Labor Code. Only those Labor Codes that have been marked as *Is Subcontracted* in the Labor Settings will be available.
- You can specify whether to calculate the subcontract cost at a discount or premium by specifying the CALCULATE COST IN SUBCONTRACT AS percentage.
- The dollars for these vendors will be removed from the total material cost, and be added to the calculated subcontract costs on the Subcontracts tab. Refer to the later section on *The Subcontracts Tab*.

Custom Markup

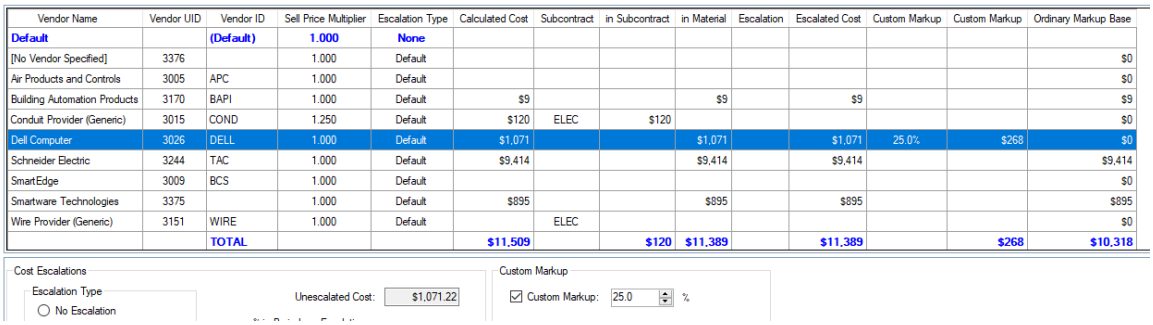
You can specify a *Custom Markup* percentage for all material or separately for each vendor, intended to replace the markup applied to the Estimate as a whole. This is sometimes a requirement of government or corporate purchasing contracts.

To specify a custom markup:

- Select a row in the Material by Vendor table, check the CUSTOM MARKUP checkbox, and adjust the Markup Percentage.

- When you specify a Custom Markup, the cost of that will be excluded when calculating the markup on the rest of the Estimate. This other markup is referred to as Ordinary Markup.
- If you specify a Custom Markup of 0%, no markup will be calculated on that material, but its cost will still be excluded from the calculation of Ordinary Markup.
- If you select the top row ("Default") you can specify the Custom Markup for all material. If you select a Vendor row, you will specify the Custom Markup for just that vendor (and override any Custom Markup in the Default row).

The table will show additional columns to show how the Custom Markup for material is being calculated and how it has reduced the Ordinary Markup Base.



Vendor Name	Vendor UID	Vendor ID	Sell Price Multiplier	Escalation Type	Calculated Cost	Subcontract	in Subcontract	in Material	Escalation	Escalated Cost	Custom Markup	Custom Markup	Ordinary Markup Base
Default		**(Default)**	**1.000**	**None**									
[No Vendor Specified]	3376		1.000	Default									$0
Air Products and Controls	3005	APC	1.000	Default									$0
Building Automation Products	3170	BAPI	1.000	Default	$9			$9		$9			$9
Conduit Provider (Generic)	3015	COND	1.250	Default	$120	ELEC	$120						$0
Dell Computer	3026	DELL	1.000	Default	$1,071			$1,071		$1,071	25.0%	$268	$0
Schneider Electric	3244	TAC	1.000	Default	$9,414			$9,414		$9,414			$9,414
SmartEdge	3009	BCS	1.000	Default									$0
Smartware Technologies	3375		1.000	Default	$895			$895		$895			$895
Wire Provider (Generic)	3151	WIRE	1.000	Default		ELEC							$0
		TOTAL			**$11,509**		**$120**	**$11,389**		**$11,389**		**$268**	**$10,318**

- Refer to the later section on *The Summary Tab* for more details on markup and margin calculations.

Sell Price Multiplier

The *Sell Price Multiplier* is an additional factor that is not part of the Estimate's cost calculations. Changing it does not affect the price or profit of the Estimate. Instead, the Sell Price Multiplier is used for a specific set of customer-facing reports that allow you to create a list of materials that show individually marked up prices.

- The Sell Price for each part is calculated as *List Price* * *Sell Price Multiplier*.

The reports that use this value include:

- *Customer Pricing (By System)*
- *Estimate Summary for Customer*
- *Material List Sell Price (By System)*
- *Open Book Pricing Worksheet*

The Sell Price Multiplier is set for each line item of material on the Systems nodes. You can update these values globally by setting the Sell Price Multiplier for all Material or for each Vendor individually.

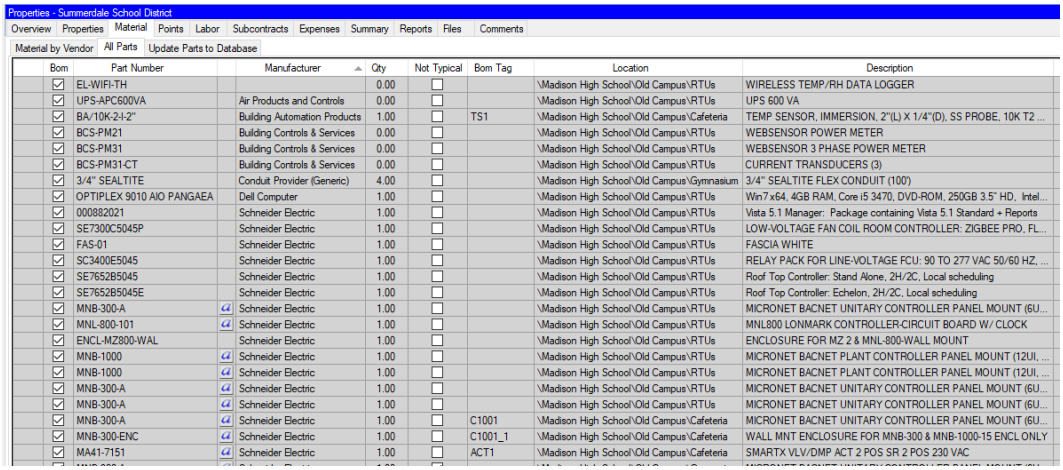
- Select a row in the Material by Vendor table, check the CUSTOM radio button, and specify the Sell Price Multiplier. Select the DEFAULT radio button to use the default instead.
- If you select the top row ("Default") you can specify the Sell Price Multiplier for all material that doesn't have its own custom value. If you select a Vendor row, you will specify the Sell Price Multiplier for just that vendor (and override the Multiplier in the Default row).

When you set the Sell Price Multiplier for a vendor, the Sell Price Multiplier values for all the parts in the Estimate associated with that vendor are changed to the new value – but only if they were already set to the previous value.

- For example, if the Sell Price Multiplier for a vendor was 1.000, and it is changed to 0.750, all the parts in the Estimate for that vendor that were at 1.000 are changed to 0.750. If any parts had a different value already, those values are not changed.

The All Parts Tab

The All Parts tab shows a combined list of all the parts on all the Systems' Parts lists. Parts are <u>not</u> combined in this list – if a part number appears multiple times in different systems (or even the same system), it will appear the same number of times in this list.



Bom	Part Number	Manufacturer	Qty	Not Typical	Bom Tag	Location	Description
☑	EL-WIFI-TH		0.00	☐		\Madison High School\Old Campus\RTUs	WIRELESS TEMP/RH DATA LOGGER
☑	UPS-APC600VA	Air Products and Controls	0.00	☐		\Madison High School\Old Campus\RTUs	UPS 600 VA
☑	BA/10K-2-I-2"	Building Automation Products	1.00	☐	TS1	\Madison High School\Old Campus\Cafeteria	TEMP SENSOR, IMMERSION, 2"(L) X 1/4"(D), SS PROBE, 10K T2 ...
☑	BCS-PM21	Building Controls & Services	0.00	☐		\Madison High School\Old Campus\RTUs	WEBSENSOR POWER METER
☑	BCS-PM31	Building Controls & Services	0.00	☐		\Madison High School\Old Campus\RTUs	WEBSENSOR 3 PHASE POWER METER
☑	BCS-PM31-CT	Building Controls & Services	0.00	☐		\Madison High School\Old Campus\RTUs	CURRENT TRANSDUCERS (3)
☑	3/4" SEALTITE	Conduit Provider (Generic)	4.00	☐		\Madison High School\Old Campus\Gymnasium	3/4" SEALTITE FLEX CONDUIT (100')
☑	OPTIPLEX 9010 AIO PANGAEA	Dell Computer	1.00	☐		\Madison High School\Old Campus\RTUs	Win7 x64, 4GB RAM, Core i5 3470, DVD-ROM, 250GB 3.5" HD, Intel...
☑	000882021	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	Vista 5.1 Manager: Package containing Vista 5.1 Standard + Reports
☑	SE7300C5045P	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	LOW-VOLTAGE FAN COIL ROOM CONTROLLER: ZIGBEE PRO, FL...
☑	FAS-01	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	FASCIA WHITE
☑	SC3400E5045	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	RELAY PACK FOR LINE-VOLTAGE FCU: 90 TO 277 VAC 50/60 HZ, ...
☑	SE7652B5045	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	Roof Top Controller: Stand Alone, 2H/2C, Local scheduling
☑	SE7652B5045E	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	Roof Top Controller: Echelon, 2H/2C, Local scheduling
☑	MNB-300-A	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	MICRONET BACNET UNITARY CONTROLLER PANEL MOUNT (6U...
☑	MNL-800-101	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	MNL800 LONMARK CONTROLLER-CIRCUIT BOARD W/ CLOCK
☑	ENCL-MZ800-WAL	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	ENCLOSURE FOR MZ 2 & MNL-800-WALL MOUNT
☑	MNB-1000	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	MICRONET BACNET PLANT CONTROLLER PANEL MOUNT (12UI, ...
☑	MNB-1000	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	MICRONET BACNET PLANT CONTROLLER PANEL MOUNT (12UI, ...
☑	MNB-300-A	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	MICRONET BACNET UNITARY CONTROLLER PANEL MOUNT (6U...
☑	MNB-300-A	Schneider Electric	1.00	☐		\Madison High School\Old Campus\RTUs	MICRONET BACNET UNITARY CONTROLLER PANEL MOUNT (6U...
☑	MNB-300-A	Schneider Electric	1.00	☐	C1001	\Madison High School\Old Campus\Cafeteria	MICRONET BACNET UNITARY CONTROLLER PANEL MOUNT (6U...
☑	MNB-300-ENC	Schneider Electric	1.00	☐	C1001_1	\Madison High School\Old Campus\Cafeteria	WALL MNT ENCLOSURE FOR MNB-300 & MNB-1000-15 ENCL ONLY
☑	MA41-7151	Schneider Electric	1.00	☐	ACT1	\Madison High School\Old Campus\Cafeteria	SMARTX VLV/DMP ACT 2 POS SR 2 POS 230 VAC

- You can sort by any column by clicking the column heading at the top of the table. This makes it easier to search for specific *Part Numbers*, *Vendors*, *Manufactures* or prices.

- The *Location* column shows you exactly which system contains that instance of the part on its Parts list.

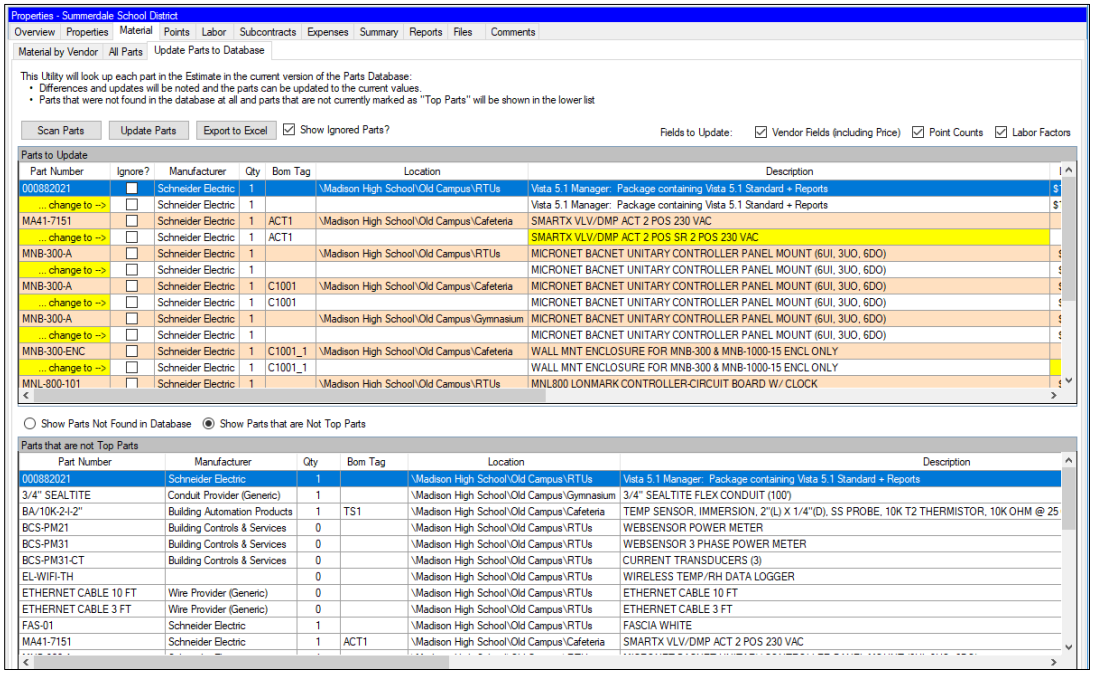
Update Parts to Database

There will be times, such as when revisiting an older estimate, that you will want to compare the parts in the estimate against the latest version of the values in the Parts Database. The *Update Parts to Database* sub-tab provides a utility to compare and update the prices, descriptions and labor factors if they have changed.

To check the parts in the estimate with the Parts Database:

- Select the UPDATE PARTS TO DATABASE sub-tab.
- Click the SCAN PARTS button.

There will be two lists of parts shown:



The upper list shows any parts that have been updated. The changes will be highlighted in yellow.

- Click the UPDATE PARTS button to accept the changes. All the differences noted will be updated to match the parts database. These changes cannot be undone.

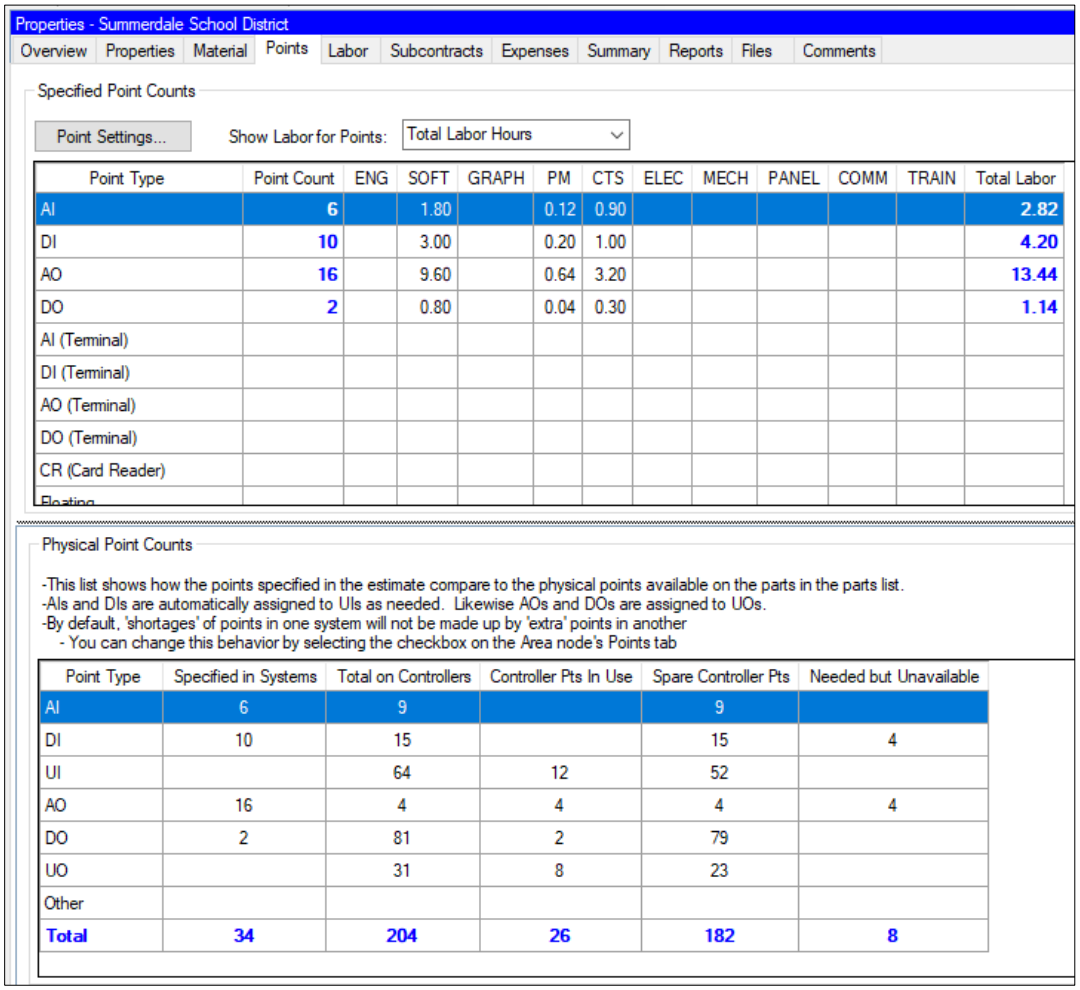
- You can choose which sets of fields are updated with the checkboxes in the upper-right corner: VENDOR FIELDS (INCLUDING PRICE), POINT COUNTS, and/or LABOR FACTORS.
- You can flag parts that should be ignored and left alone during the update. This allows you to filter your parts you accept as different when you rerun the scan.
    - Check the IGNORE checkbox next to the part number to ignore the changes to that part.
    - To view the ignored parts again, check the SHOW IGNORED PARTS? checkbox above the part list.

The lower list shows the parts that were not found in the Parts Database at all (and therefore cannot be updated).

- You can also show a list of the parts that are not flagged as Top Parts in your Company's version of the Parts database by clicking the SHOW PARTS THAT ARE NOT TOP PARTS radio button.
- You can export these three lists of parts to Excel for further review by clicking the EXPORT TO EXCEL button.

The Points Tab

The Points tab provides a total of each point type for the entire estimate, as well as other statistics:



Properties - Summerdale School District

Overview | Properties | Material | Points | Labor | Subcontracts | Expenses | Summary | Reports | Files | Comments

Specified Point Counts

Point Settings... Show Labor for Points: Total Labor Hours

Point Type	Point Count	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	COMM	TRAIN	Total Labor
AI	6		1.80		0.12	0.90						2.82
DI	10		3.00		0.20	1.00						4.20
AO	16		9.60		0.64	3.20						13.44
DO	2		0.80		0.04	0.30						1.14
AI (Terminal)												
DI (Terminal)												
AO (Terminal)												
DO (Terminal)												
CR (Card Reader)												
Floating												

Physical Point Counts

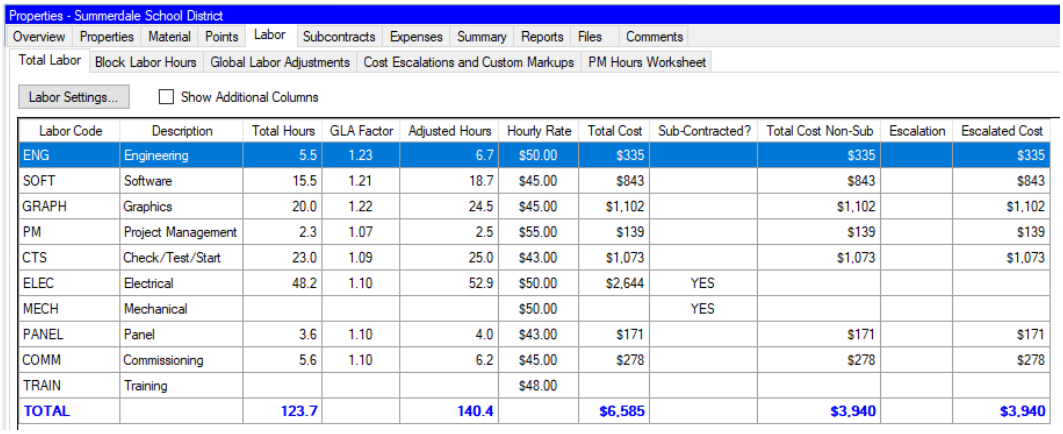
-This list shows how the points specified in the estimate compare to the physical points available on the parts in the parts list.
-AIs and DIs are automatically assigned to UIs as needed. Likewise AOs and DOs are assigned to UOs.
-By default, 'shortages' of points in one system will not be made up by 'extra' points in another
- You can change this behavior by selecting the checkbox on the Area node's Points tab

Point Type	Specified in Systems	Total on Controllers	Controller Pts In Use	Spare Controller Pts	Needed but Unavailable
AI	6	9		9	
DI	10	15		15	4
UI		64	12	52	
AO	16	4	4	4	4
DO	2	81	2	79	
UO		31	8	23	
Other					
Total	**34**	**204**	**26**	**182**	**8**

- Choose from the options in the SHOW LABOR FOR POINTS drop-down list to show how the points translate to labor in hours or dollars.
- Click the POINT SETTINGS button to access the Estimate Model settings related to Points, such as the hours per point type.
- The bottom section shows the total *Physical Point Counts* for the Estimate, based on the points associated with the controller parts on the *Parts* tabs and the points specified on the *Points* tabs of the systems. Refer to the previous chapter's discussion of *Physical Point Counts* and *The Points Tab* for systems for more details.

The Labor Tab

The *Labor* tab contains a number of sub-tabs that summarizes the labor hours and dollars for the Estimate and allows you to specify various adjustments and calculations:



Labor Code	Description	Total Hours	GLA Factor	Adjusted Hours	Hourly Rate	Total Cost	Sub-Contracted?	Total Cost Non-Sub	Escalation	Escalated Cost
ENG	Engineering	5.5	1.23	6.7	$50.00	$335		$335		$335
SOFT	Software	15.5	1.21	18.7	$45.00	$843		$843		$843
GRAPH	Graphics	20.0	1.22	24.5	$45.00	$1,102		$1,102		$1,102
PM	Project Management	2.3	1.07	2.5	$55.00	$139		$139		$139
CTS	Check/Test/Start	23.0	1.09	25.0	$43.00	$1,073		$1,073		$1,073
ELEC	Electrical	48.2	1.10	52.9	$50.00	$2,644	YES			
MECH	Mechanical				$50.00		YES			
PANEL	Panel	3.6	1.10	4.0	$43.00	$171		$171		$171
COMM	Commissioning	5.6	1.10	6.2	$45.00	$278		$278		$278
TRAIN	Training				$48.00					
TOTAL		**123.7**		**140.4**		**$6,585**		**$3,940**		**$3,940**

Total Labor Table

The Total Labor tab summarizes all the labor in the Estimate by Labor Code.

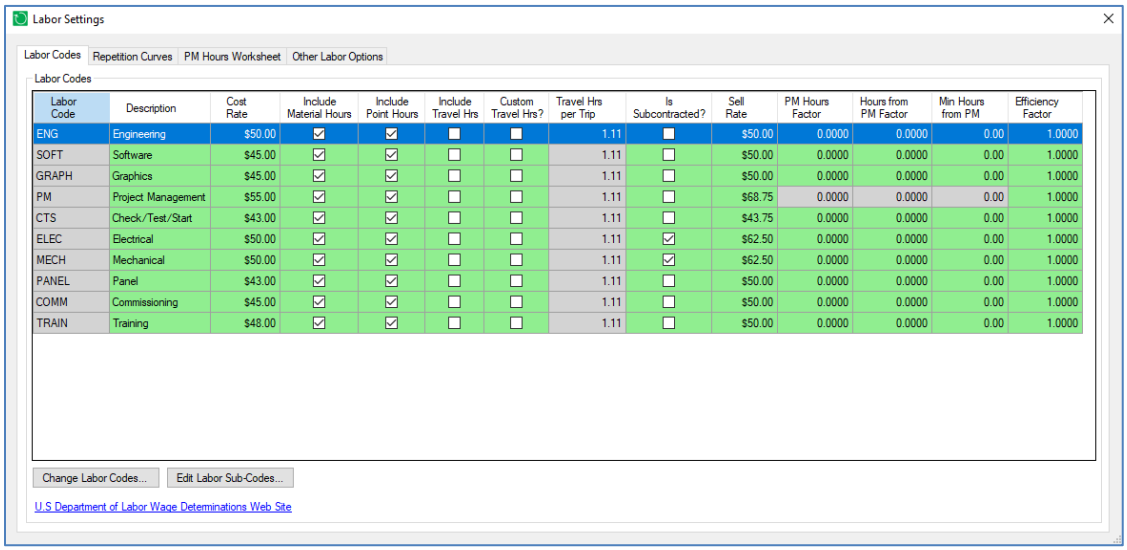
- The Total Hours column adds the hours from each System, taking into account the repetition curves used for Typical Systems.
- The *GLA Factor* column represents the aggregate adjustment factors from the *Global Labor Adjustments* tab, described later in this section. The *Adjusted Hours* are *Total Hours* multiplied by the *GLA Factor*.
- The Labor Codes that are indicated as *Is Subcontracted* in the LABOR SETTINGS are broken out from the labor calculated in the rest of the Estimate.

Check the SHOW ADDITIONAL COLUMNS checkbox to see additional statistical information (such as percentage of total for each Labor Code).

Labor Settings

The Labor Settings are part of the Estimate Model and determine how the labor is calculated for a System.

To view the Labor Settings, click on the LABOR SETTINGS button.

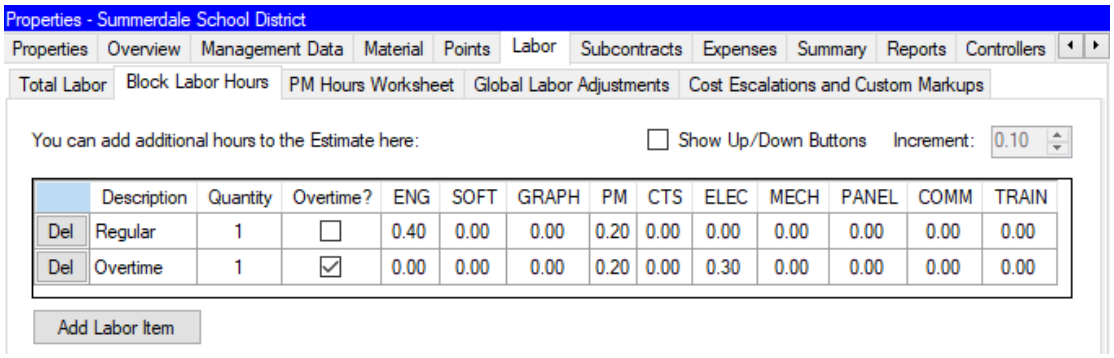


Labor Code	Description	Cost Rate	Include Material Hours	Include Point Hours	Include Travel Hrs	Custom Travel Hrs?	Travel Hrs per Trip	Is Subcontracted?	Sell Rate	PM Hours Factor	Hours from PM Factor	Min Hours from PM	Efficiency Factor
ENG	Engineering	$50.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
SOFT	Software	$45.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
GRAPH	Graphics	$45.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
PM	Project Management	$55.00	☑	☑	☐	☐	1.11	☐	$68.75	0.0000	0.0000	0.00	1.0000
CTS	Check/Test/Start	$43.00	☑	☑	☐	☐	1.11	☐	$43.75	0.0000	0.0000	0.00	1.0000
ELEC	Electrical	$50.00	☑	☑	☐	☐	1.11	☑	$62.50	0.0000	0.0000	0.00	1.0000
MECH	Mechanical	$50.00	☑	☑	☐	☐	1.11	☑	$62.50	0.0000	0.0000	0.00	1.0000
PANEL	Panel	$43.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
COMM	Commissioning	$45.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
TRAIN	Training	$48.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000

- Refer to the later chapter on *The Estimate Model*, in the section *Labor* for full details on the different values and tables in the model.

Block Labor Hours

The Block Labor Hours tab provides a place to add additional hours to the Estimate. Here, you can fully customize each set of rows, allowing you to change the *Description*, set overtime, specify quantity, and add or remove rows.

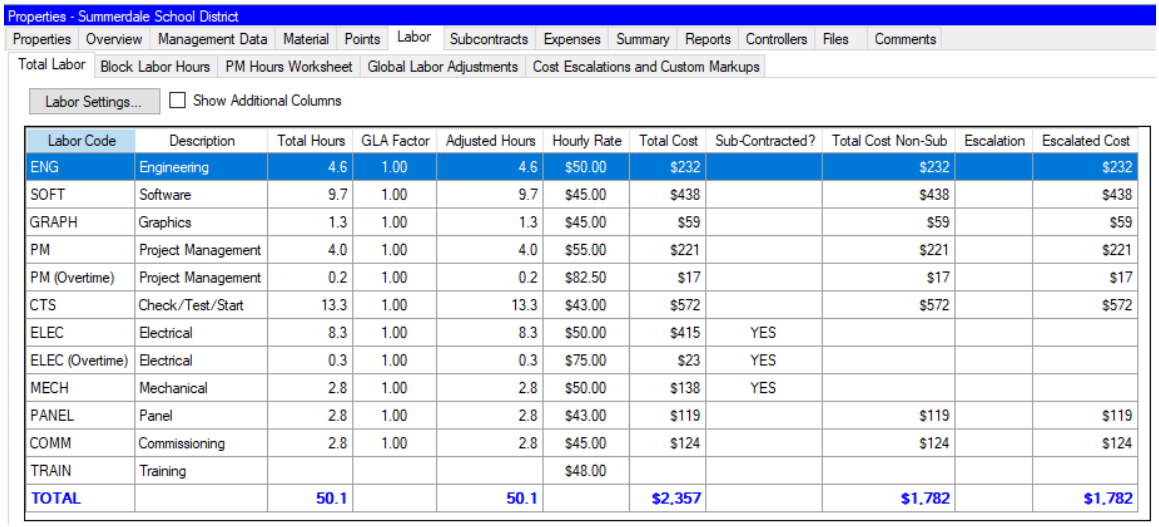


	Description	Quantity	Overtime?	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	COMM	TRAIN
Del	Regular	1	☐	0.40	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00
Del	Overtime	1	☑	0.00	0.00	0.00	0.20	0.00	0.30	0.00	0.00	0.00	0.00

- You can use negative hours to reduce the calculated totals.
- Set the *Quantity* for each row under the *Quantity* column.
- Select the OVERTIME? checkbox to designate a row to overtime hours.

- Select the SHOW UP/DOWN BUTTONS checkbox to make up/down arrows appear next to each value, enabling easier adjustment.

Depending on how you configure your *Block Labor Hours*, the calculated totals for the Estimate will be reflected under the *Total Labor* tab, where overtime hours will be indicated as *(Overtime)* under the *Labor Code* column as shown below.



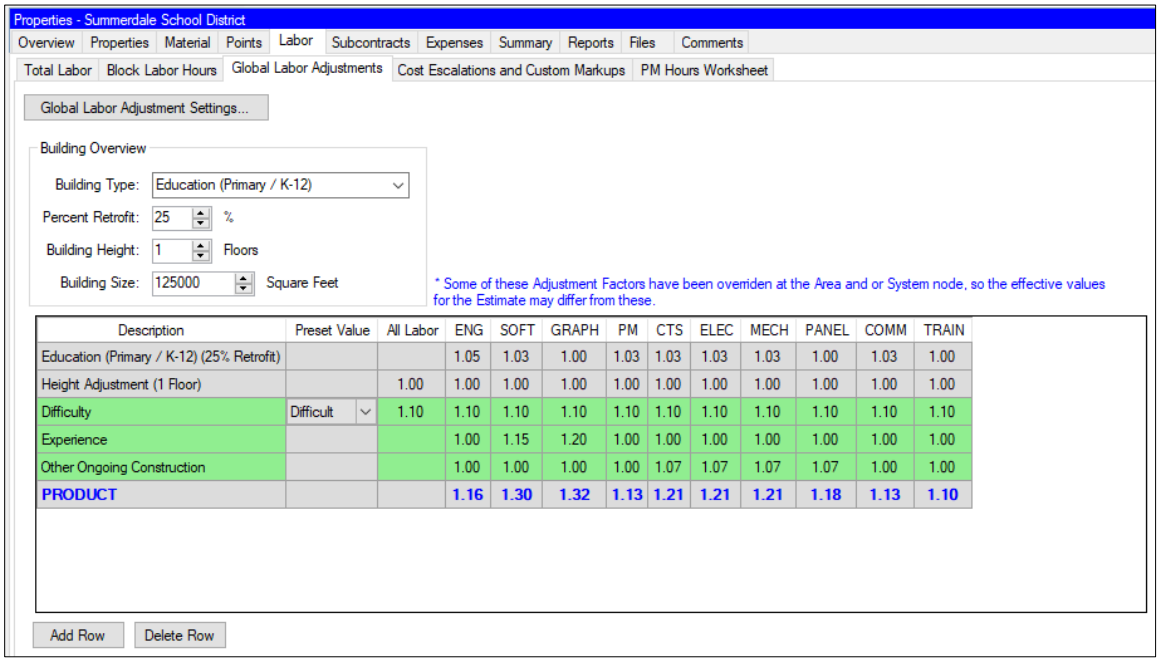
Labor Code	Description	Total Hours	GLA Factor	Adjusted Hours	Hourly Rate	Total Cost	Sub-Contracted?	Total Cost Non-Sub	Escalation	Escalated Cost
ENG	Engineering	4.6	1.00	4.6	$50.00	$232		$232		$232
SOFT	Software	9.7	1.00	9.7	$45.00	$438		$438		$438
GRAPH	Graphics	1.3	1.00	1.3	$45.00	$59		$59		$59
PM	Project Management	4.0	1.00	4.0	$55.00	$221		$221		$221
PM (Overtime)	Project Management	0.2	1.00	0.2	$82.50	$17		$17		$17
CTS	Check/Test/Start	13.3	1.00	13.3	$43.00	$572		$572		$572
ELEC	Electrical	8.3	1.00	8.3	$50.00	$415	YES			
ELEC (Overtime)	Electrical	0.3	1.00	0.3	$75.00	$23	YES			
MECH	Mechanical	2.8	1.00	2.8	$50.00	$138	YES			
PANEL	Panel	2.8	1.00	2.8	$43.00	$119		$119		$119
COMM	Commissioning	2.8	1.00	2.8	$45.00	$124		$124		$124
TRAIN	Training				$48.00					
TOTAL		**50.1**		**50.1**		**$2,357**		**$1,782**		**$1,782**

Global Labor Adjustments

The labor hours are calculated for each System and the totaled in the summary. You can also specify other properties that, taken together, create a set of *Adjustment Factors* that increase (or decrease) these totals by a certain percentage to account for these other challenges, such as:

- *Building Type* (e.g., a *Correctional Facility* requires more technician time than a *School*)
- *Retrofit Percentage* (e.g., *New Construction* is easier than *Retrofit*)
- *Building Height* (e.g., taller buildings require more on-site time to get around)

The Global Labor Adjustments are summarized and calculated on a separate tab and carried over into the Total Labor tab:



Description	Preset Value	All Labor	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	COMM	TRAIN
Education (Primary / K-12) (25% Retrofit)			1.05	1.03	1.00	1.03	1.03	1.03	1.03	1.00	1.03	1.00
Height Adjustment (1 Floor)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Difficulty	Difficult	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
Experience			1.00	1.15	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Other Ongoing Construction			1.00	1.00	1.00	1.00	1.07	1.07	1.07	1.07	1.00	1.00
PRODUCT			**1.16**	**1.30**	**1.32**	**1.13**	**1.21**	**1.21**	**1.21**	**1.18**	**1.13**	**1.10**

- The BUILDING OVERVIEW settings (which also appear on the Estimate's OVERVIEW tab) generate the first two (calculated and read-only) rows.
  - The *Difficulty* and *Experience* rows shown in this image are examples of user-editable rows that were specified as part of the Estimate Model template.
  - Some rows might have a list of *Preset Values* to choose from (e.g., *Easy*, *Normal*, *Difficult*). These choices can be configured from the Estimate's Settings.
- You can add additional rows for custom adjustments by clicking the ADD ROW button.
  - Refer to the later chapter on *The Estimate Model* in the section *Global Labor Adjustments* for complete information on how these adjustments are calculated and how you can add to and customize these calculations in your own templates.

Since these are multipliers, a value of 1.00 indicates no adjustment. Values above 1.00 are increases (i.e., 1.06 represents a 6% increase) and values below 1.00 are decreases (e.g., 0.98 indicates a 2% reduction, or 98% of the original).

The values for each Labor Code are multiplied together (not added!) to get the overall adjustment factors. Therefore, two factors of 1.10 (e.g., a 10% increase) each yield 1.10 x 1.10 = 1.21 (a 21% combined increase).

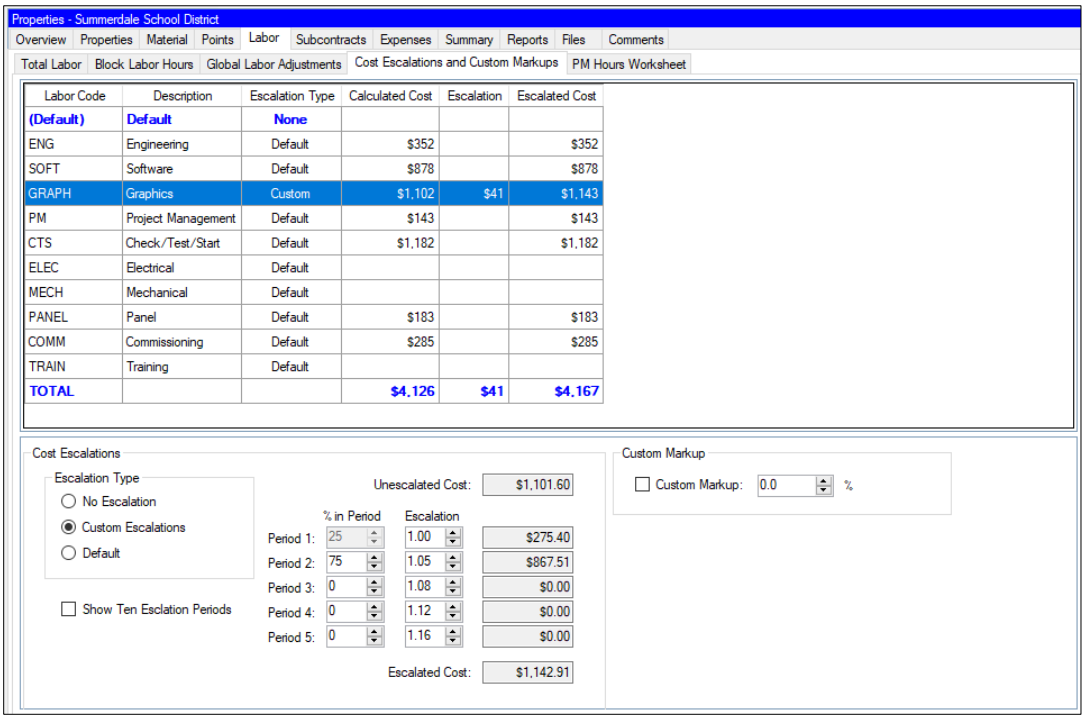
As described in the previous chapter's section on *Labor Adjustments*, you can override the Labor Adjustments for individual areas or systems. When you do, the Global Labor

Adjustments apply to other systems and the *GLA Factor* shown on the Total Labor table will be a blended rate that accounts for the differences.

Cost Escalations (for Long Term Projects)

For projects that may require multiple years to complete, you can make allowances for any expected cost inflation over time. You can specify a single escalation model for all labor or custom escalations for each labor code.

The Cost Escalations are specified on the *Cost Escalations and Custom Markups* sub-tab:



To specify a Cost Escalation for a specific Labor Code:

- Select the Labor Codes row in the table.
- Choose the CUSTOM ESCALATIONS radio button.
- Fill in values for the *% in Period* and *Escalation* columns.

To specify a Cost Escalation for all Labor:

- Select the first row of the table ("Default").
- Choose the CUSTOM ESCALATIONS radio button.
- Fill in values for the *% in Period* and *Escalation* columns.

The amount of increase due to the Escalation, as well as the Escalated Cost, is shown in individual columns in the table as you make the changes.

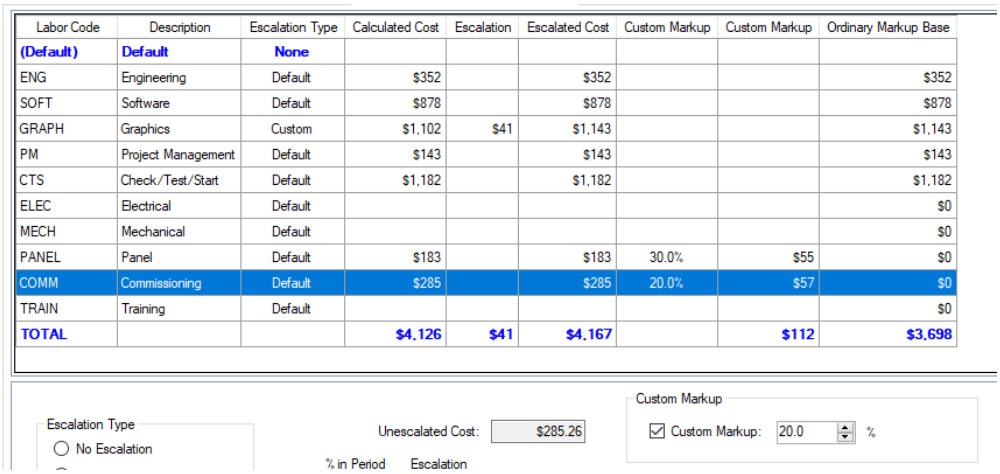
By default, there are five periods. Check the SHOW TEN ESCALATION PERIODS checkbox to view ten.

Custom Markups

You can specify a *Custom Markup* percentage for all labor or separately for each Labor Code, intended to replace the markup applied to the Estimate as a whole.

To specify a custom markup:

- On the *Cost Escalations and Custom Markups* tab select a row, check the CUSTOM MARKUP checkbox, and adjust the Markup Percentage.



Labor Code	Description	Escalation Type	Calculated Cost	Escalation	Escalated Cost	Custom Markup	Custom Markup	Ordinary Markup Base
(Default)	Default	None						
ENG	Engineering	Default	$352		$352			$352
SOFT	Software	Default	$878		$878			$878
GRAPH	Graphics	Custom	$1,102	$41	$1,143			$1,143
PM	Project Management	Default	$143		$143			$143
CTS	Check/Test/Start	Default	$1,182		$1,182			$1,182
ELEC	Electrical	Default						$0
MECH	Mechanical	Default						$0
PANEL	Panel	Default	$183		$183	30.0%	$55	$0
COMM	Commissioning	Default	$285		$285	20.0%	$57	$0
TRAIN	Training	Default						$0
TOTAL			$4,126	$41	$4,167		$112	$3,698

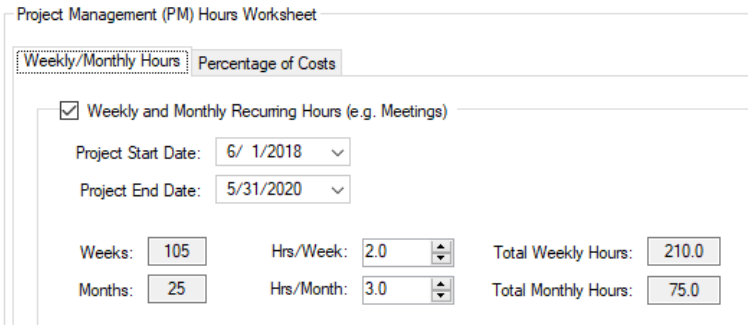
- When you specify a Custom Markup, the cost of that labor will be excluded when calculating the markup on the rest of the Estimate. This other markup is referred to as Ordinary Markup.
- If you specify a Custom Markup of 0%, no markup will be calculated on that labor, but its cost will still be excluded from the calculation of Ordinary Markup.
- If you select the top row ("Default") you can specify the Custom Markup for all labor. If you select a Labor Code row, you will specify the Custom Markup for just that labor (and override any Custom Markup in the *Default* row).

PM Hours Worksheet

Unlike other types of hours, Project Management hours are often less a function of the Parts and Points in the Estimate and more closely related to the length and various magnitudes of the project. The *PM Hours Worksheet* tab lets you use one or more of these calculations.

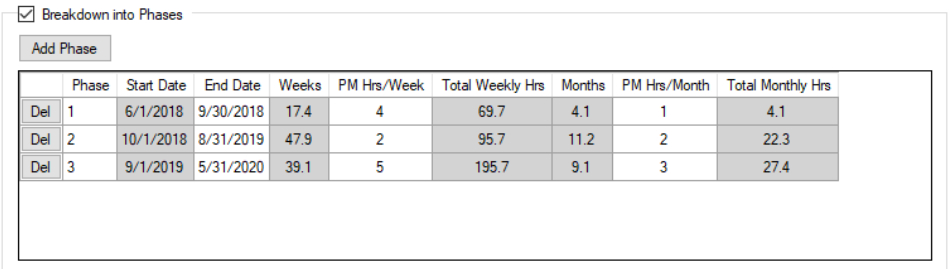
Weekly and Monthly Recurring Hours

One calculation assumes a certain number of weekly and monthly hours for the duration of the project, for internal or customers meetings or other overhead.



- Check the WEEKLY AND MONTHLY RECURRING HOURS checkbox to include these hours in the Estimate.
- The PROJECT START DATE and PROJECT END DATE, which can also be specified on the Estimate's *Overview* tab, determine the number of Weeks and Months for the project. Specify the HRS/WEEK and HRS/MONTH values to calculate the hours.

If the project contains a number of phases which are likely to have different amounts of hours per week and month, you can break these values down accordingly. Check the BREAKDOWN INTO PHASES checkbox:

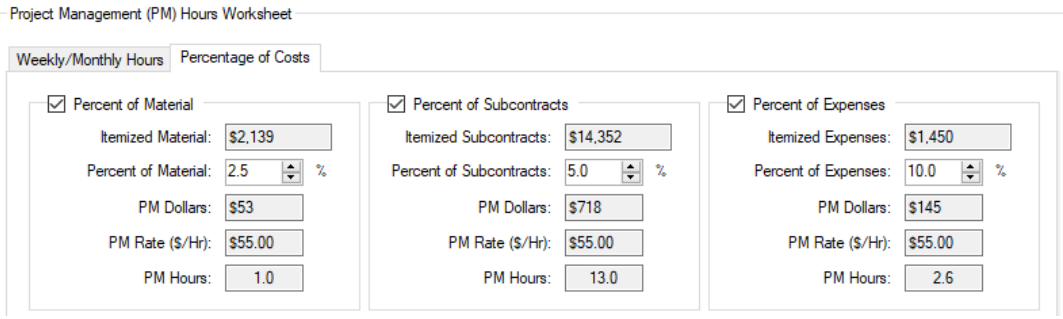


	Phase	Start Date	End Date	Weeks	PM Hrs/Week	Total Weekly Hrs	Months	PM Hrs/Month	Total Monthly Hrs
Del	1	6/1/2018	9/30/2018	17.4	4	69.7	4.1	1	4.1
Del	2	10/1/2018	8/31/2019	47.9	2	95.7	11.2	2	22.3
Del	3	9/1/2019	5/31/2020	39.1	5	195.7	9.1	3	27.4

- These hours are added to the ones specified for the HRS/WEEK and HRS/MONTH, so set those others to zero if they should not be used as the same time.

Percent of Material, Subcontract, and Expenses

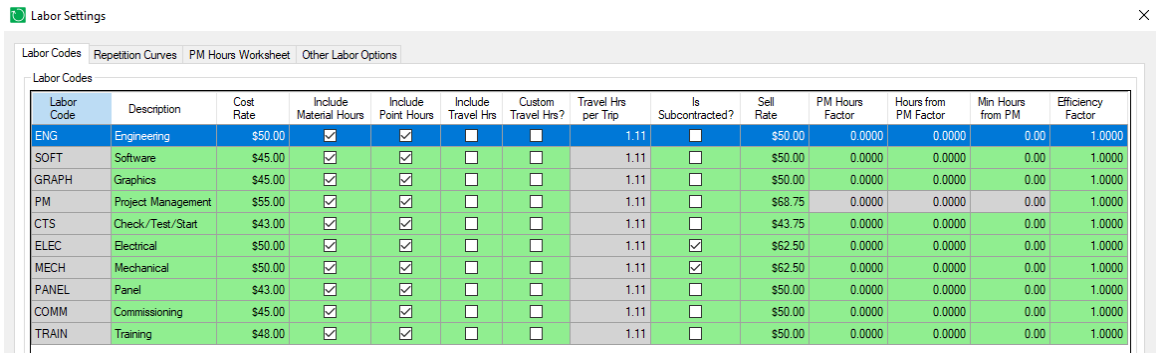
Another method is to take a percentage of the Material, Subcontracts, and/or Expenses and add it as additional Project Management hours.



- Check one or more of the PERCENT OF MATERIAL, PERCENT OF SUBCONTRACTS, PERCENT OF EXPENSES checkboxes and set the PERCENT OF MATERIAL, SUBCONTRACTS and/or EXPENSES percentage.
- The calculated dollars are divided by the Project Management hourly rate to derive a number of Project Management hours, which are added to the Estimate.

Percentage of Labor

You can also calculate Project Management hours as a percentage of other labor. In the LABOR SETTINGS or ESTIMATE SETTINGS, the *Labor Codes* tab has a column, *PM Hours Factor*, which specifies how many PM hours to calculate for each hour of that Labor Code.



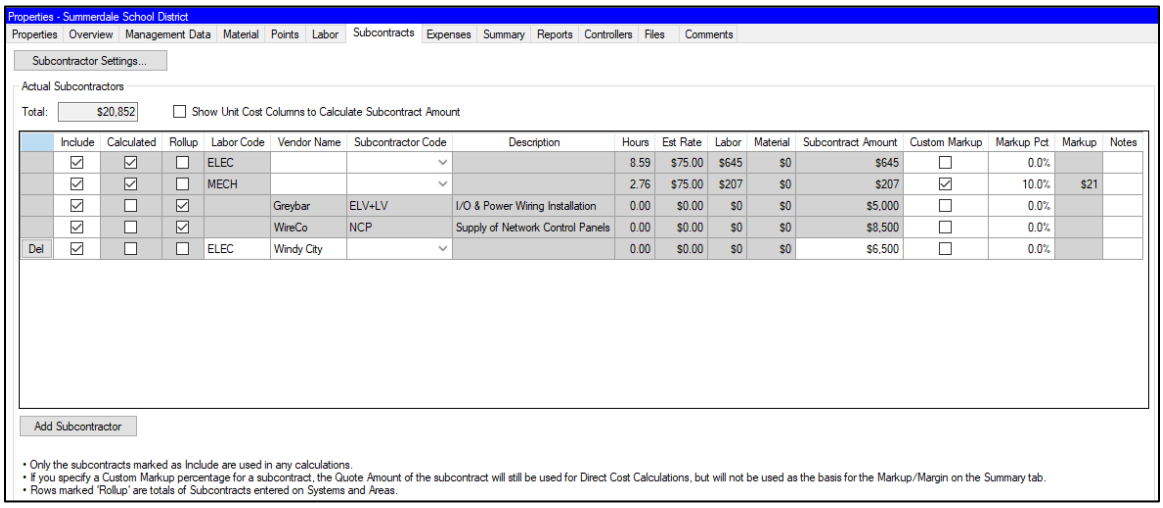
Labor Code	Description	Cost Rate	Include Material Hours	Include Point Hours	Include Travel Hrs	Custom Travel Hrs?	Travel Hrs per Trip	Is Subcontracted?	Sell Rate	PM Hours Factor	Hours from PM Factor	Min Hours from PM	Efficiency Factor
ENG	Engineering	$50.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
SOFT	Software	$45.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
GRAPH	Graphics	$45.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
PM	Project Management	$55.00	☑	☑	☐	☐	1.11	☐	$68.75	0.0000	0.0000	0.00	1.0000
CTS	Check/Test/Start	$43.00	☑	☑	☐	☐	1.11	☐	$43.75	0.0000	0.0000	0.00	1.0000
ELEC	Electrical	$50.00	☑	☑	☐	☐	1.11	☑	$62.50	0.0000	0.0000	0.00	1.0000
MECH	Mechanical	$50.00	☑	☑	☐	☐	1.11	☑	$62.50	0.0000	0.0000	0.00	1.0000
PANEL	Panel	$43.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
COMM	Commissioning	$45.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000
TRAIN	Training	$48.00	☑	☑	☐	☐	1.11	☐	$50.00	0.0000	0.0000	0.00	1.0000

- For example, specifying 0.0150 for this value in the GRAPH row indicates to add 1.5 additional hours of PM for each 100 hours of Graphics.

- The *PM Hours Worksheet* tab will show the total of these hours. You must check the PERCENT OF LABOR checkbox to have these hours included in the Estimate.
    - The hours used in the calculation are those before *the Global Labor Adjustments* are applied.
    - You cannot apply a factor to the PM Hours themselves.

The Subcontracts Tab

The Subcontracts Tab shows a list of the total subcontracts for the Estimate.



There are three types of rows in the table:

- *Calculated* from Labor Codes and Vendors that are explicitly assigned to a subcontract.
- *Rolled Up* shows subcontracts specified on individual System or Area nodes.
- *Added* directly to the Estimate on this tab.

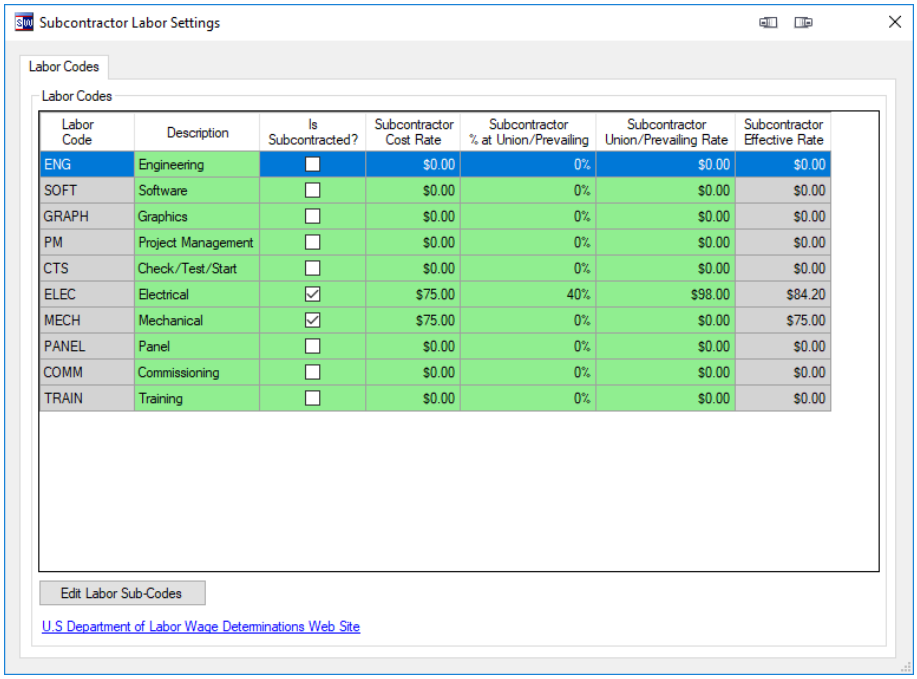
Calculated Subcontract Labor and Material

You can configure specific labor hours and/or material to be allocated to a subcontract. When you do, the costs for these will be excluded from the base estimate's labor and material and combined into an estimated, calculated cost. These estimates can then be replaced by actual costs as information from the actual subcontractors is received.

	Include	Calculated	Rollup	Labor Code	Vendor Name	Hours	Est Rate	Labor	Material	Quote Amount
	☐	☑	☐	ELEC		58.11	$75.00	$4,358	$120	$4,478
	☐	☑	☐	MECH		74.54	$75.00	$5,591	$0	$5,591

- The calculated values will show on the Subcontracts table, with the *Calculated* box checked.
  - You can't delete them, but you can uncheck the *Include* box and the calculated costs will be ignored.
  - Subcontracted labor is shown explicitly as separate columns on the Labor Table on the *Labor* tab.

To edit the settings for configuring the calculated subcontracts, click SUBCONTRACTOR SETTINGS on the Subcontracts tab:



- Check the *Is Subcontracted* checkbox to move the labor from the Labor Code to the calculated subcontract. In this case, ELEC and MECH are being subcontracted,
- Specify the Subcontractor *Cost Rate* as the hourly cost to use in the calculation.
- As an option, you can specify a second rate, *Union/Prevailing Rate*. You can then set the *% of Union/Prevailing* value to calculate the *Effective Rate*.
  - For example, if the Cost Rate is $75, the Union/Prevailing Rate is $100 and the % of Union/Prevailing is 25%, the Effective Rate will be $81.25.

You can assign individual Vendors or all material to a subcontract as well from the *Material* tab on the *Material by Vendors* sub-tab.

- Refer to the previous section on *Assign Material to a Subcontract* for more details.

Rolled Up Subcontracts

Subcontracts can be entered on individual systems and Areas, as described in the previous chapter in the *The* Subcontracts section. These are then aggregated and listed on the Subcontracts list.

Include	Calculated	Rollup	Labor Code	Vendor Name	Hours	Est Rate	Labor	Material	Quote Amount
☐	☑	☐	ELEC		58.11	$75.00	$4,358	$120	$4,478
☐	☑	☐	MECH		74.54	$75.00	$5,591	$0	$5,591
☑	☐	☑	MECH	Jon's Plumbing	0.00	$0.00	$0	$0	$8,500
☑	☐	☑	ELEC	Wire Guys	0.00	$0.00	$0	$0	$11,396

- Subcontracts are combined on matching both the *Labor Code* and *Vendor Name* columns.
- The rolled-up rows in the Subcontract list will have the *Rollup* box checked.
- You can exclude the rolled up up values from the Estimate by unchecking the *Include* box.
- When individual systems containing these subcontracts are excluded or included, the rolled-up values will change accordingly.

Other Subcontracts

It is also very common to add the subcontracts directly to the Subcontract list.

- Click ADD SUBCONTRACTOR to add a row and enter the *Labor Code*, *Vendor Name* and *Quote Amount*.
- You can temporarily exclude a subcontract by unchecking the *Include* box,
- Click DEL to delete the row.
- If you are adding a subcontract to replace a calculated one, be sure to uncheck the calculated row's *Include* box.

Custom Markup

You can specify a custom markup for each individual subcontract. This markup will replace the estimate's normal markup. To use a custom markup for a subcontract:

- Check the *Custom Markup* checkbox and specify the custom *Markup Pct*. The value of the custom *Markup* (Quote Amount x Markup Pct) will be shown.
- The Summary tab will show that the Markup percentage is applied to the Total Cost less the total of those subcontracts' Quote Amounts.
- The total of the subcontract's Custom Markups is then added to show the Total Markup.

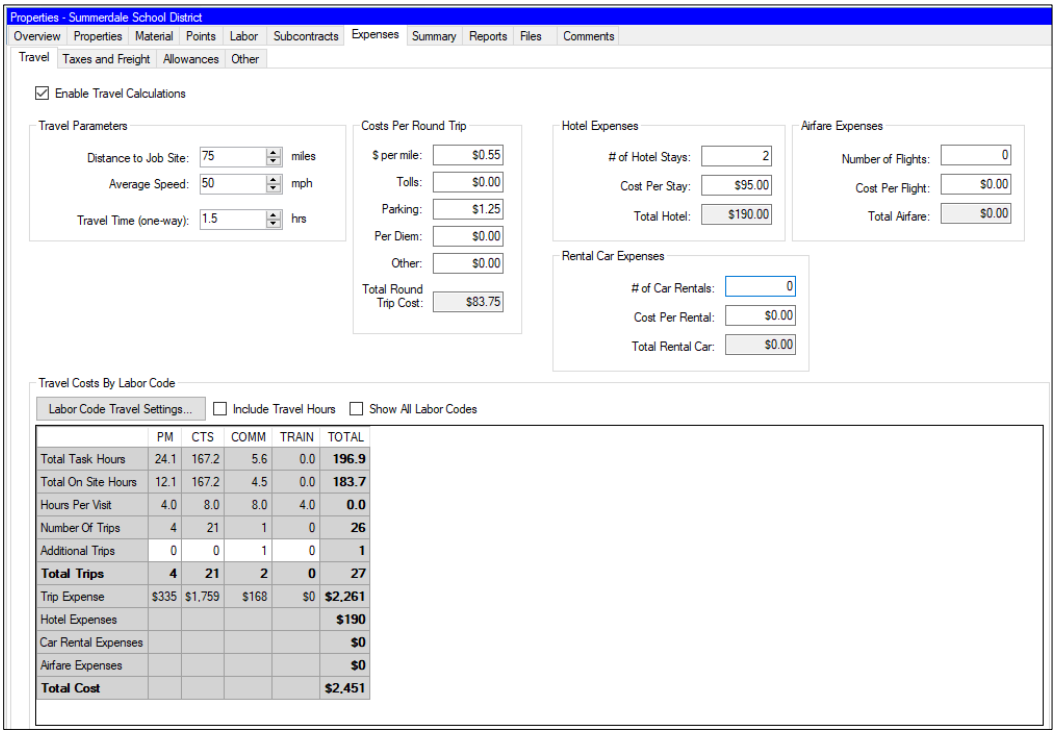
The Expenses Tab

The *Expenses* Tab has several sub-tabs that allow you to add other allowances and expenses to the Estimate.

Travel Expenses

Smartware Studio can calculate an estimate of the travel expenses based on the number of hours estimated for each labor code and the travel distance and cost from your office to the job site.

- You can exclude all the calculated Travel Expenses by unchecking the ENABLE TRAVEL CALCULATIONS at the top of tab.

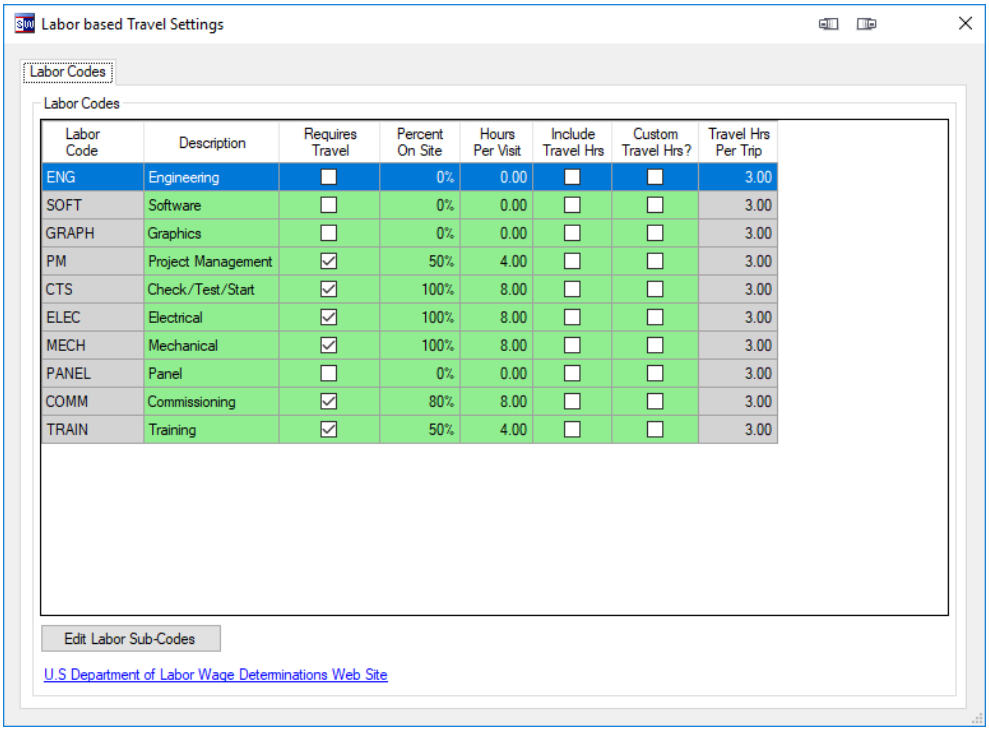


Trip Costs

The *Travel Parameters* and *Cost per Round Trip* are used to calculate the cost of a trip to and from the job site.

- Fill in the DISTANCE TO JOB SITE field to calculate the mileage cost.
- Enter the $ per mile and the other per-trip costs to calculate the TOTAL ROUND TRIP COST.

The calculation for the number of trips is based on the percentage of time (for each labor code) that the worker will need to be on-site and the number of on-site hours per visit. You can update these parameters by clicking LABOR CODE TRAVEL SETTINGS:



Labor Code	Description	Requires Travel	Percent On Site	Hours Per Visit	Include Travel Hrs	Custom Travel Hrs?	Travel Hrs Per Trip
ENG	Engineering	☐	0%	0.00	☐	☐	3.00
SOFT	Software	☐	0%	0.00	☐	☐	3.00
GRAPH	Graphics	☐	0%	0.00	☐	☐	3.00
PM	Project Management	☑	50%	4.00	☐	☐	3.00
CTS	Check/Test/Start	☑	100%	8.00	☐	☐	3.00
ELEC	Electrical	☑	100%	8.00	☐	☐	3.00
MECH	Mechanical	☑	100%	8.00	☐	☐	3.00
PANEL	Panel	☐	0%	0.00	☐	☐	3.00
COMM	Commissioning	☑	80%	8.00	☐	☐	3.00
TRAIN	Training	☑	50%	4.00	☐	☐	3.00

- Labor Codes that are subcontracted are automatically excluded, regardless of these settings.
- These settings are saved as part of an Estimate Model template. Refer to the later chapter on *The Estimate Model* for more detail.

Travel Hours

You can also calculate the hours used for travel and add them to the Estimate as labor cost. First, configure the settings for each labor code in the LABOR CODE TRAVEL SETTINGS.

- If *Include Travel Hrs* is set, then the calculated Travel Hours for that labor code will be added back to the total labor.
- If *Custom Travel Hrs* is not set, the travel time per trip will be calculated as twice the *Travel Time (one-way)* calculated in the *Travel Parameters* section.
- If *Custom Travel Hrs* is set, you can specify a custom number of hours per trip for that labor code in the *Travel Hrs per Trip* column.

Second, check the INCLUDE TRAVEL HOURS checkbox above the table to turn on the calculation based on those settings.

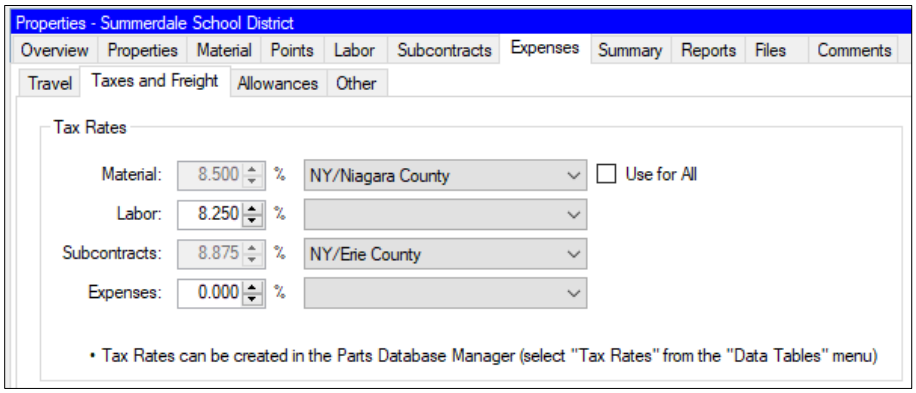
- The total *Travel Hours* will be shown as a separate row in the Travel Costs by Labor Code table.
- These calculated hours are added into the *Total Hours* on the *Labor* tab's *Total Labor* sub-tab and in other places that use the calculated Total Hours (but not the hours used to calculate the needed trips).
- These are similar to Block Labor Hours, as they are not associated with any System or Area and will not be included in the reports that show hours by System or Area.

Taxes and Freight

There are several types of Taxes and Freight costs you can add into your Estimate.

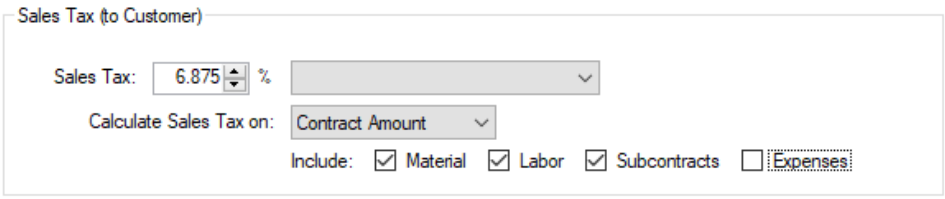
- These settings are part of an Estimate Model template. Refer to the later chapter *The Estimate Model* for more detail.

You can specify separate *Tax Rates* for each of the four main categories of costs: *Material*, *Labor*, *Subcontracts* and *Expenses*. These taxes are added into the *Direct Cost* (pre-markup) of the Estimate.

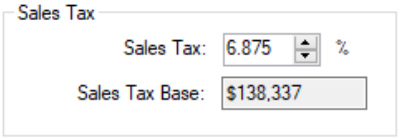


- You can choose individual rates for each type of cost or check the USE FOR ALL checkbox and specific a single rate to apply to all four.
- You can use the Parts Database Manager to create and maintain your own named tax rates to select from. Refer to *The Parts Database Manager* chapter in the *Setup and Administration Guide* for full details.

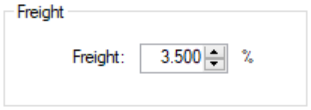
You can also specify a *Sales Tax* for the customer that is added to the final Contract Amount:



- You can calculate the Sales Tax on the *Contract Amount*, *Total Cost* or *Direct Cost* (as shown on the Estimate Summary).
- You can choose to include the amounts from any or all of the four cost groups.
- The tax rate and the calculated base amount are also shown on the lower-right side of the *Summary* tab.

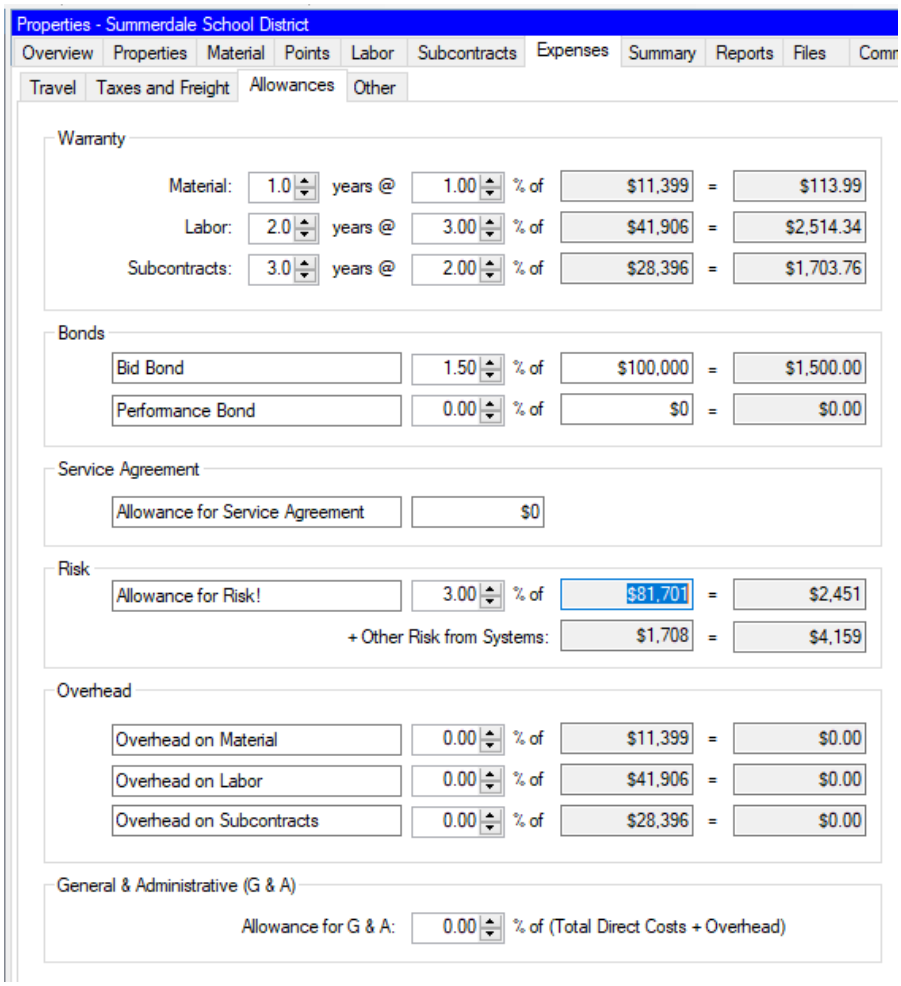


You can also specify the rate for calculating estimated *Freight* costs as a percent of the *Material Cost*.



Allowances

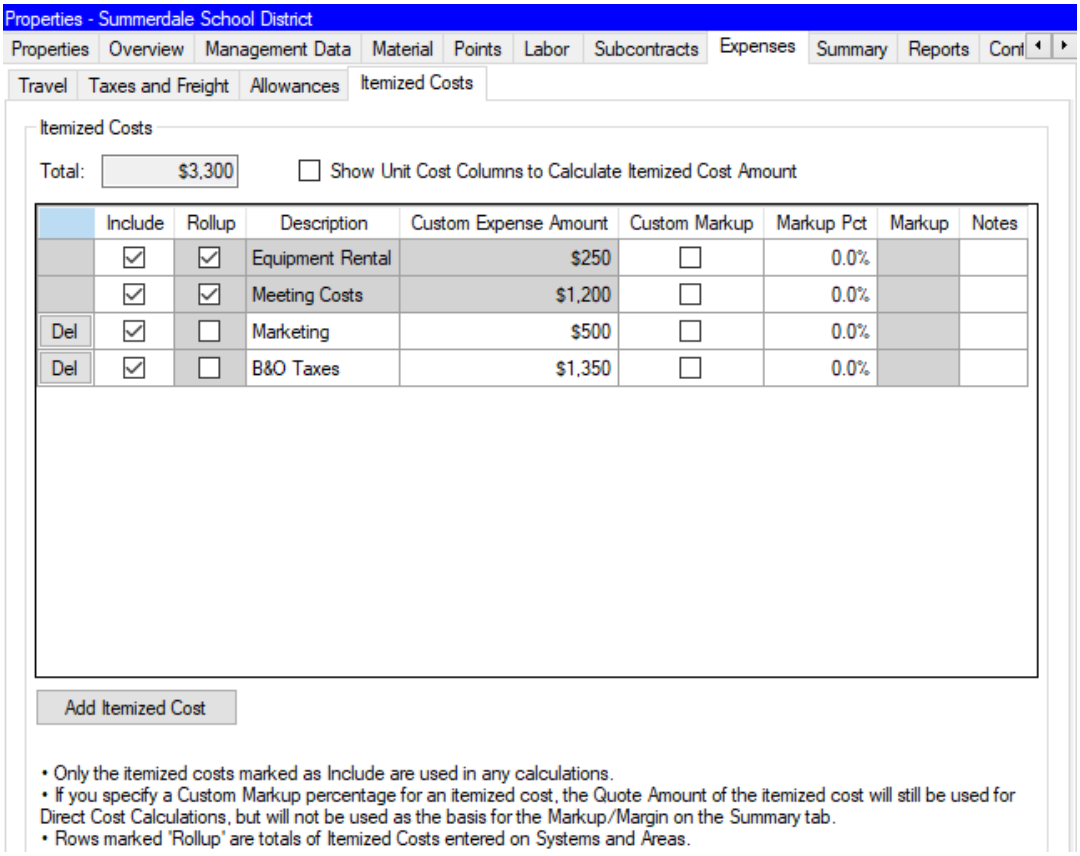
You can add allowances for *Warranty* costs, *Bonds*, *Service Agreements* and general *Risk, Overhead and G & A*. These items are itemized on the Estimate *Summary* tab and report.



- You can customize the description of most of these allowances. These descriptions will show on the *Estimate Summary* report, but not on the Estimate *Summary* Tab.
- These settings are part of an Estimate Model template. Refer to the later chapter *The Estimate Model* for more detail.

Itemized Costs

Any other expenses not covered anywhere else can be added on the ITEMIZED COSTS tab.



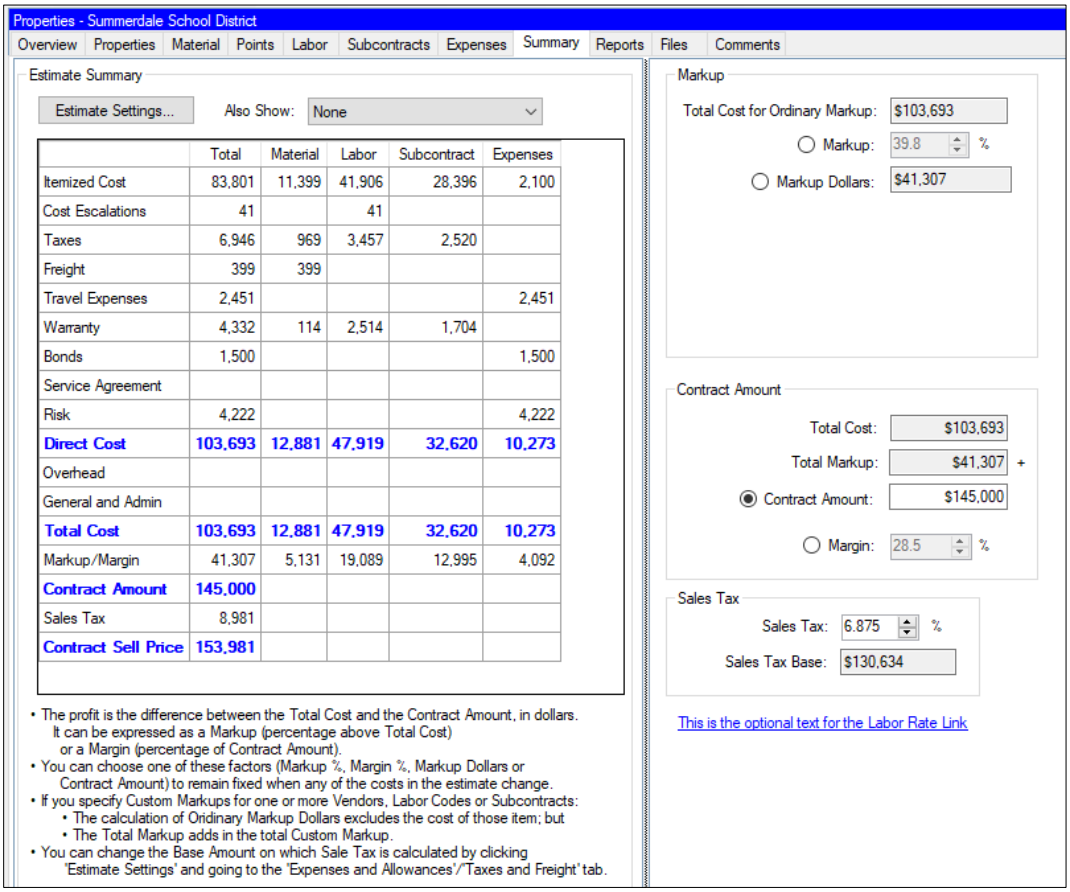
- Click the ADD ITEMIZED COST button to add a new, editable row to the list.
- The text on the bottom of the window provides helpful information to consider when working with these costs.

The Summary Tab

The *Summary* tab is the central location for reviewing the totals and breakdowns for all elements of the Estimate.

- You can also go directly to the Estimate Node's *Summary* tab from anywhere else in the Estimate by clicking the ESTIMATE SUMMARY button in the Estimate Toolbar:

The Summary tab contains a table of all the estimate costs on the left side and the controls for calculating the *Profit*, *Contract Amount* and Sales Tax on the right:

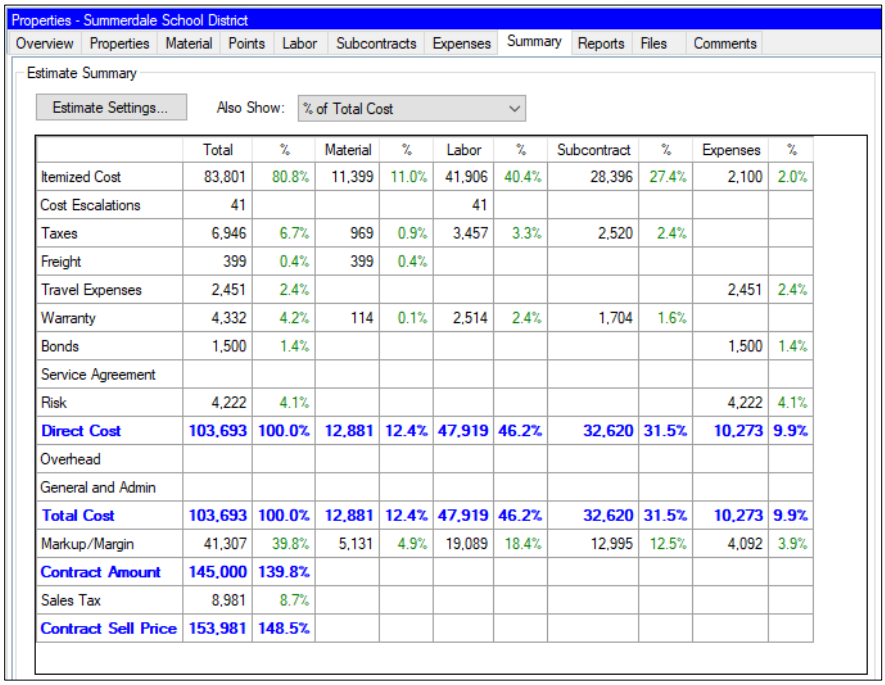


The Summary Table

The Summary Table shows a breakdown of the costs and totals in the Estimate and how they are calculated.

- The first column of figures is the total for the Estimate. The other four columns show the breakdown of costs by the four major cost categories.
- As you hover the mouse cursor over a cell or amount, it will highlight to indicate that you can click on it to jump to the tab that shows the detail for that figure. Use the ESTIMATE SUMMARY button in the toolbar to quickly jump back.
- The ESTIMATE SETTINGS button allows you to change all of the Estimate Model settings in one place. Most of these settings are available separately from buttons on other tabs, such as POINT SETTINGS or SUBCONTRACT SETTINGS. It also provides the place to import or export the settings to a template file. Refer to the later chapter *The Estimate Model* for more detail.

The ALSO SHOW list allows you to juxtapose some additional columns, such as *% of Total Cost*:



	Total	%	Material	%	Labor	%	Subcontract	%	Expenses	%
Itemized Cost	83,801	80.8%	11,399	11.0%	41,906	40.4%	28,396	27.4%	2,100	2.0%
Cost Escalations	41				41					
Taxes	6,946	6.7%	969	0.9%	3,457	3.3%	2,520	2.4%		
Freight	399	0.4%	399	0.4%						
Travel Expenses	2,451	2.4%							2,451	2.4%
Warranty	4,332	4.2%	114	0.1%	2,514	2.4%	1,704	1.6%		
Bonds	1,500	1.4%							1,500	1.4%
Service Agreement										
Risk	4,222	4.1%							4,222	4.1%
Direct Cost	**103,693**	**100.0%**	**12,881**	**12.4%**	**47,919**	**46.2%**	**32,620**	**31.5%**	**10,273**	**9.9%**
Overhead										
General and Admin										
Total Cost	**103,693**	**100.0%**	**12,881**	**12.4%**	**47,919**	**46.2%**	**32,620**	**31.5%**	**10,273**	**9.9%**
Markup/Margin	41,307	39.8%	5,131	4.9%	19,089	18.4%	12,995	12.5%	4,092	3.9%
Contract Amount	**145,000**	**139.8%**								
Sales Tax	8,981	8.7%								
Contract Sell Price	**153,981**	**148.5%**								

Calculating the Contract Amount and Markup/Margin

You can calculate the *Contract Amount* by specifying any of the following four parameters:

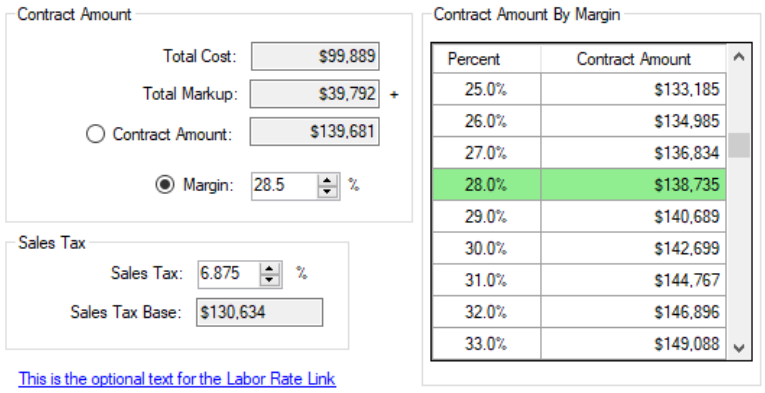
- The MARKUP percentage (the amount of the *Contract Amount* that is profit)
- The MARGIN percentage (the amount of profit as a percentage on top of the *Total Cost*)
- The MARKUP/MARGIN in dollars
- The CONTRACT AMOUNT itself

In the Markup and Contract Amount sections, these four values have radio buttons next to them. Use these to choose which value to set manually and the others will adjust as other costs are added or removed from the estimate.

For example, consider the example in the first column and how the other values change as a single one is modified.

Total Cost	$100,000		**$110,000**	$100,000	$100,000	$100,000
Markup $	$20,000		$20,000	**$30,000**	$30,000	$25,000
Contract Amount	$120,000		$130,000	$130,000	**$130,000**	$125,000
Markup %	20.0%		18.2%	30%	30%	**25%**
Margin %	16.7%		15.4%	23%	23%	**20%**

When you're selecting the *Markup* or *Margin* percent, a table of options will appear. You can choose a value by double-clicking a row:



You can choose to lock out the option to specify a markup, leaving only the *Margin Percent* or *Contract Amount* choices. This setting can be found in the Estimate Settings dialog, on the *Other* tab.

Custom Markup

Some parts of the Estimate allow you to specify a *Custom Markup*, such as:

- *Material (by Vendor)*
- *Labor (by Labor Code)*
- *Subcontracts (individually)*

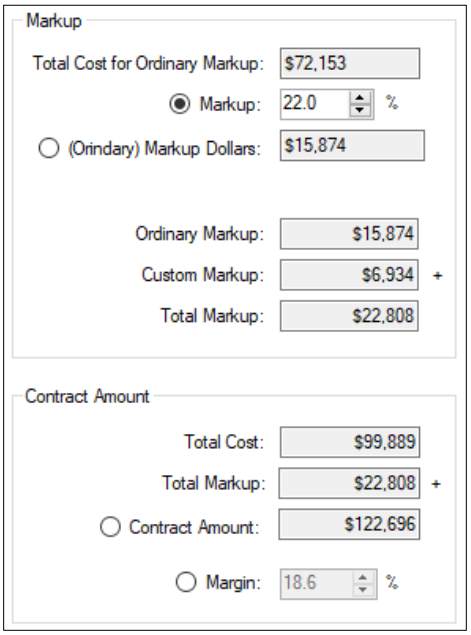
Refer to the earlier sections on each tab for more details.

For all the costs that are given a custom markup, the calculated custom markup is added together as the *Total Custom Markup*, and the cost it is based on is removed from the total costs to get the *Total Cost for Ordinary Markup*.

In the following example, the PM labor of $27,736 has been given a *Custom Markup* of 25% ($6,934).

Labor Code	Description	Escalation Type	Calculated Cost	Escalation	Escalated Cost	Custom Markup	Custom Markup	Ordinary Markup Base
(Default)	**Default**	**None**						
ENG	Engineering	Default	$352		$352			$352
SOFT	Software	Default	$878		$878			$878
GRAPH	Graphics	Custom	$1,102	$41	$1,143			$1,143
PM	Project Management	Default	$27,736		$27,736	25.0%	$6,934	$0

Further, the *Total Cost* of the Estimate is $99,889. This will show on the Summary Tab as follows:

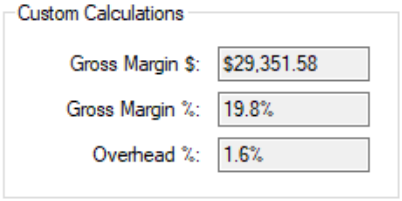


- The $27,736 has already been marked up, so it is removed from the *Total Cost* ($99,889) to get the *Total Cost for Ordinary Markup* ($72,153).
- We are using a 22% *Markup* on this remaining total, yielding an *Ordinary Markup Dollars* value of $15,874.
- The *Ordinary Markup* ($15,874) is added to the *Custom Markup* ($6,934) to get the *Total Markup* of $22,808 and the *Contract Amount* of $122,696.

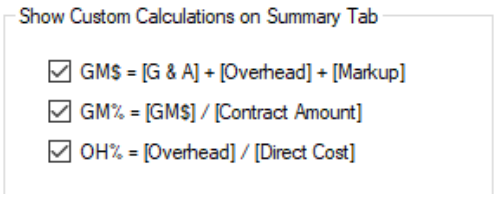
If you specify and lock the *Markup Dollars* or *Contract Amount*, the other parameters will again adjust so that the rest adds up correctly.

Custom Calculations

There are a few additional calculations that you can add to the Estimate Summary tab. The values appear in the upper-right corner of the screen:



You can see the definition of these values and turn then on from the Estimate Settings form, on the *Other* tab:



- If there are additional similar calculations that would benefit your company, we invite your suggestions at techsupport@smartwaretech.com.

Labor Rate Html Link

On the bottom-right corner of the Summary Tab is a place where you can add a link to a web site or PDF containing relevant labor rates or other information that might change or a regular basis.

To edit this link, you need to edit the *Smartware Studio.ini* file.

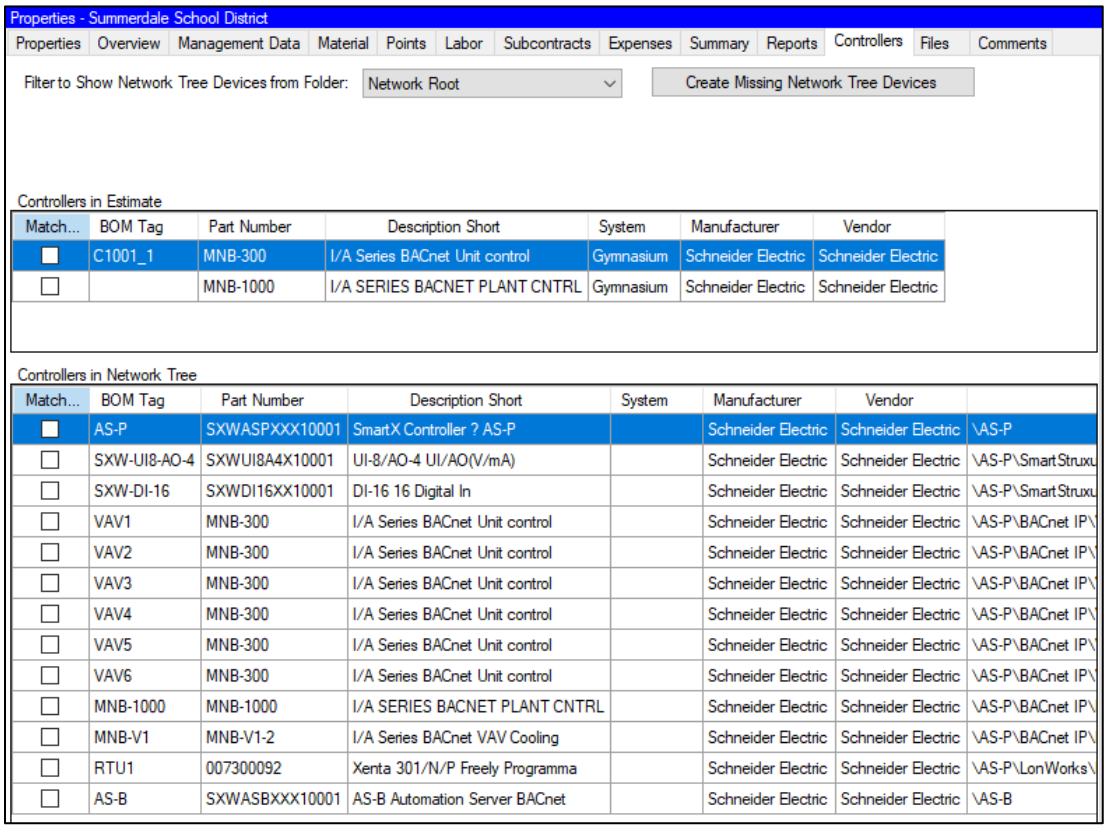
- In the *Smartware Studio.ini* file (from HELP→ABOUT press CTRL+ALT+SHIFT+I), add two lines to the [Estimating] section:

```
[Estimating]
. . .
LaborRateLinkUrl=www.smartwaretech.com
LaborRateLinkDescription=This is the link text
```

- To make this setting company-wide, add this setting to the *Site.ini* file located in the Studio Server Folder in the *System Config* sub-folder.

The Controllers Tab

The Controller Tab shows a list of all the controller parts in the Estimate and allows you to synchronize the list to a set of devices on the Network Tree.



There are two lists of Controllers, as shown in the image above.

- The upper list shows controllers found in the Estimate.
- The lower list shows controllers found in the Network Tree.
    - You can filter the Network Tree list to search all devices or only the devices within a specific Network Tree folder.

Each list will indicate if there is a match for the controller in the corresponding list. This will show in the *Matched* column.

- Click CREATE MISSING NETWORK TREE DEVICES to create any missing devices in the Network Tree.
- Keep controller names unique as multiple controllers with identical names will be unmatched. If you run into this issue, you will need to rename one of the controllers.
    - You could also select a different Network Tree folder to potentially help resolve this issue.

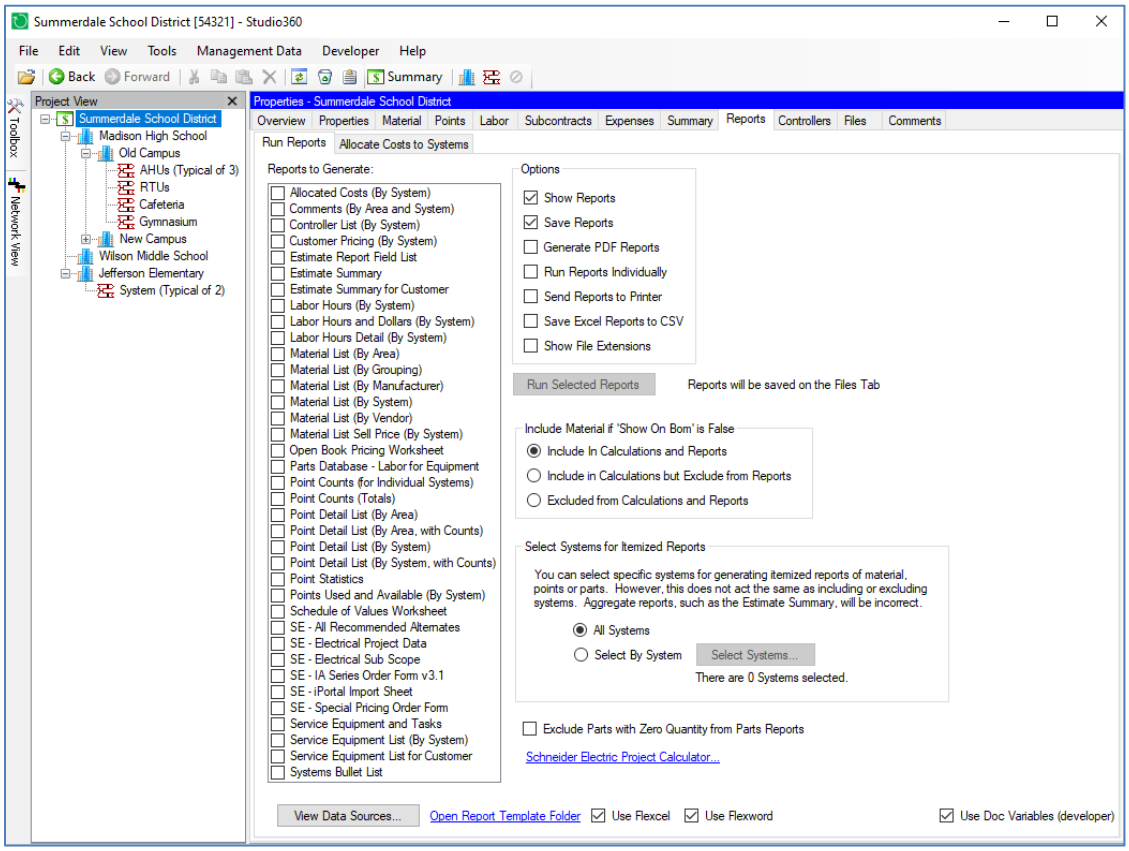
6. Reports

Once created, Smartware Studio can generate a full range of reports of the data in your Estimate. These reports can be created in Microsoft Excel and PDF formats.

- Microsoft Excel and Word are not required to be installed on your computer to generate reports as spreadsheets and documents. However, they are required to view and edit reports.
- Minimum versions of Microsoft Excel 2010 or later and Word 2013 or later are required to view and edit the .xlsx and .docx files generated by Smartware Studio.
- Some additional configuration is required to generate PDF files. Refer to the *Configuring a Smartware Studio Workstation* chapter of the *Smartware Studio Setup and Administration Guide*

Generating Reports

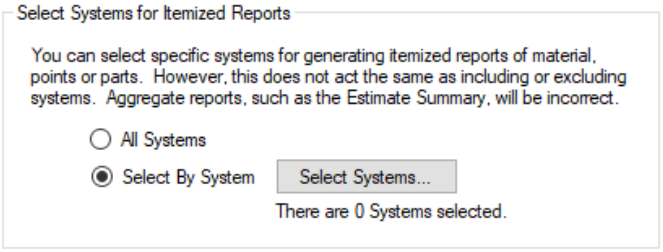
Reports are created by selecting the Estimate node in the Estimate tree and then selecting the *Reports* tab:



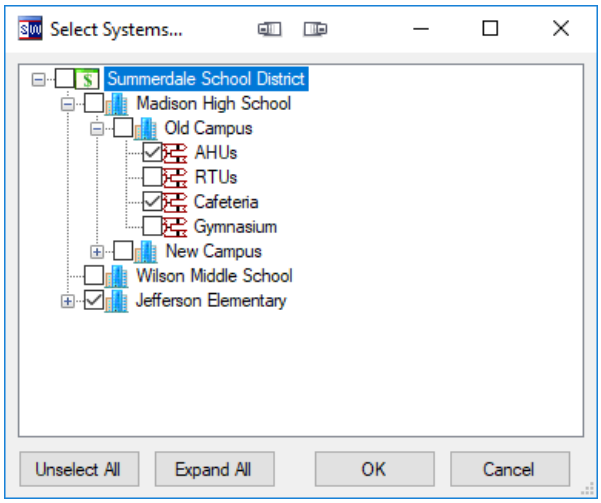
- Select the reports you want to run and click RUN SELECTED REPORTS.
- You can run as many reports as you want at one time. Multiple reports are generated into a single Excel Workbook (with multiple worksheets), Word Document and/or PDF document.
    - You can choose to create individual files instead of merged ones by checking RUN REPORTS INDIVIDUALLY.
- Select the EXCLUDE PARTS WITH ZERO QUANTITY FROM PARTS Reports checkbox to exclude parts from an itemized material report when the *Quantity* of that part is zero.
- The generated Excel, Word and PDF files are saved on the FILES tab of the Estimate node.

Reporting on Selected Systems

For itemized reports that group parts and labor by System or Area, you can choose to run the report on a selected subset of the systems in the Estimate.



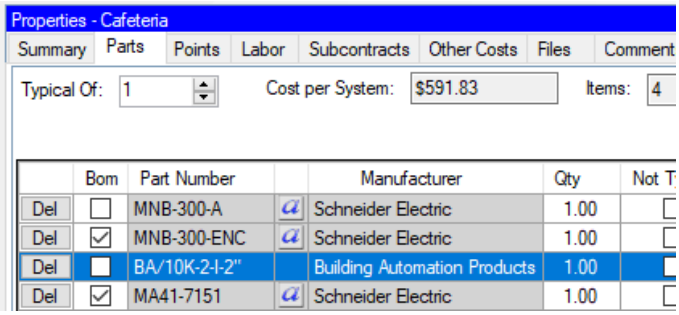
- Click SELECT SYSTEMS to choose the Areas and Systems to include in the report:



- As noted, selecting systems here is not the same as including or excluding them from the estimate. Aggregate reports, such as the Estimate Summary, will still show some full values from the estimate, will not appear to add up properly, and should not be run with this setting.

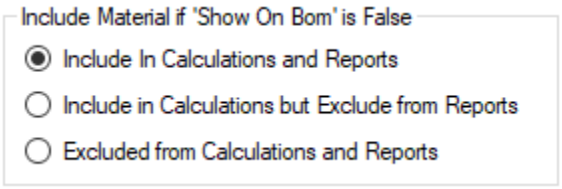
The Show on Bill of Material (Bom) Flag

The parts on the Parts tab have a SHOW ON BOM checkbox (labeled *Bom*) that can be turned off for certain parts.



- This flag *<u>does not</u>* exclude the part from the calculations that flow through the estimate.

You can choose how parts that are flagged with *Show on Bom* turned off should be handled in the reports.



Schedules of Values

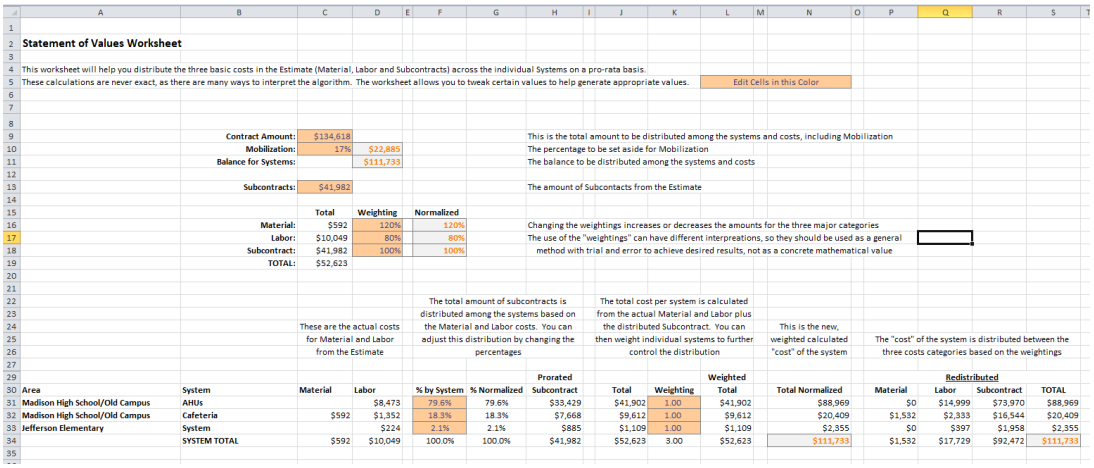
There are two methods of creating a Schedule of Values, such as for use in standard AIA reports and billing schedules.

The principle is the same in both cases – to allocate the total costs of the estimate to the systems in a way that is generally proportional to the cost of each system

- The allocation takes into account global costs such as subcontracts and expenses.
- You can adjust the weightings of specific costs, categories and systems.

The Schedule of Values Worksheet Report

The *Schedule of Values Worksheet* report creates a worksheet for assigning estimate Material, Labor and Subcontract cost to each system with adjustments for mobilization and various customizable weightings.



Statement of Values Worksheet

This worksheet will help you distribute the three basic costs in the Estimate (Material, Labor and Subcontracts) across the individual Systems on a pro-rata basis.
These calculations are never exact, as there are many ways to interpret the algorithm. The worksheet allows you to tweak certain values to help generate appropriate values.

Edit Cells in this Color

Contract Amount:	$134,618		This is the total amount to be distributed among the systems and costs, including Mobilization
Mobilization:	17%	$22,885	The percentage to be set aside for Mobilization
Balance for Systems:		$111,733	The balance to be distributed among the systems and costs
Subcontracts:	$41,982		The amount of Subcontacts from the Estimate

	Total	Weighting	Normalized	
Material:	$592	120%	120%	Changing the weightings increases or decreases the amounts for the three major categories
Labor:	$10,049	80%	80%	The use of the "weightings" can have different interpreations, so they should be used as a general
Subcontract:	$41,982	100%	100%	method with trial and error to achieve desired results, not as a concrete mathematical value
TOTAL:	$52,623			

The total amount of subcontracts is distributed among the systems based on the Material and Labor costs. You can adjust this distribution by changing the percentages

The total cost per system is calculated from the actual Material and Labor plus the distributed Subcontract. You can then weight individual systems to further control the distribution

These are the actual costs for Material and Labor from the Estimate

This is the new, weighted calculated "cost" of the system

The "cost" of the system is distributed between the three costs categories based on the weightings

						Prorated			Weighted		Redistributed			
Area	System	Material	Labor	% by System	% Normalized	Subcontract	Total	Weighting	Total	Total Normalized	Material	Labor	Subcontract	TOTAL
Madison High School/Old Campus	AHUs		$8,473	79.6%	79.6%	$33,429	$41,902	1.00	$41,902	$88,969	$0	$14,999	$73,970	$88,969
Madison High School/Old Campus	Cafeteria	$592	$1,352	18.3%	18.3%	$7,668	$9,612	1.00	$9,612	$20,409	$1,532	$2,333	$16,544	$20,409
Jefferson Elementary	System		$224	2.1%	2.1%	$885	$1,109	1.00	$1,109	$2,355	$0	$397	$1,958	$2,355
	SYSTEM TOTAL	$592	$10,049	100.0%	100.0%	$41,982	$52,623	3.00	$52,623	$111,733	$1,532	$17,729	$92,472	$111,733

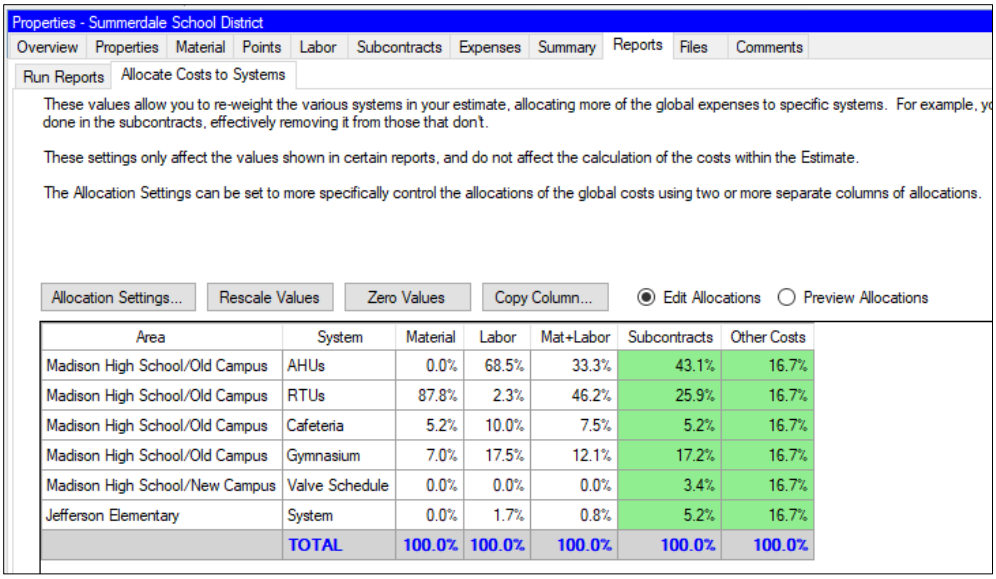
As you change values, the calculations in the worksheet will ensure that the totals continue to add up properly. Only the distribution of the costs between systems is affected.

- You can change the percentages for *Mobilization*, which is considered an up-front cost and removed from the balance that is allocated to the systems.
- You can change the relative *Weighting* for Material, Labor and Subcontracts. They do not need to add to 100%.
- You can adjust the *Weighting* for each System individually. These do not need to add to anything specific.

Allocate to Systems

The second option allows you to allocate the costs within the Estimate and then run the report. This ensures that the allocation settings are saved and not needed to be reentered if the costs in the Estimate changes.

- On the Estimate's *Reports* tab, select the *Allocate Costs to Systems* tab.

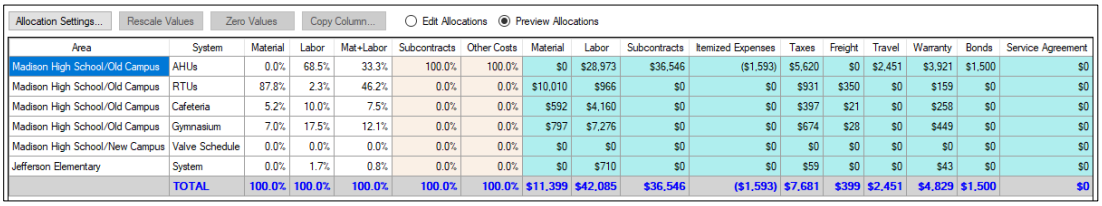


Area	System	Material	Labor	Mat+Labor	Subcontracts	Other Costs
Madison High School/Old Campus	AHUs	0.0%	68.5%	33.3%	43.1%	16.7%
Madison High School/Old Campus	RTUs	87.8%	2.3%	46.2%	25.9%	16.7%
Madison High School/Old Campus	Cafeteria	5.2%	10.0%	7.5%	5.2%	16.7%
Madison High School/Old Campus	Gymnasium	7.0%	17.5%	12.1%	17.2%	16.7%
Madison High School/New Campus	Valve Schedule	0.0%	0.0%	0.0%	3.4%	16.7%
Jefferson Elementary	System	0.0%	1.7%	0.8%	5.2%	16.7%
	TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

The table shows a list of the Systems in the Estimate with their relative percentages of each of the four cost categories. The *Material* and *Labor* costs are calculated from the Estimate itself. The percentages of *Subcontracts* and *Other Costs* can be adjusted manually.

- The *Mat+Labor* column shows the percentage of the two costs combined and can be used as a guideline to determine values for Subcontract and Other Costs columns.
- All subcontracts are added together as if they were all global, regardless of what System they might be associated with in the Estimate.
- If the numbers in a column don't add to 100%, click the RESCALE VALUES button to rescale them so they do. This isn't required.
- The ZERO VALUES button will clear all the values for *Subcontracts* and *Other Costs* to zero, except the first row which is set to 100%.
- To copy all the values from one column to another, click COPY COLUMN.

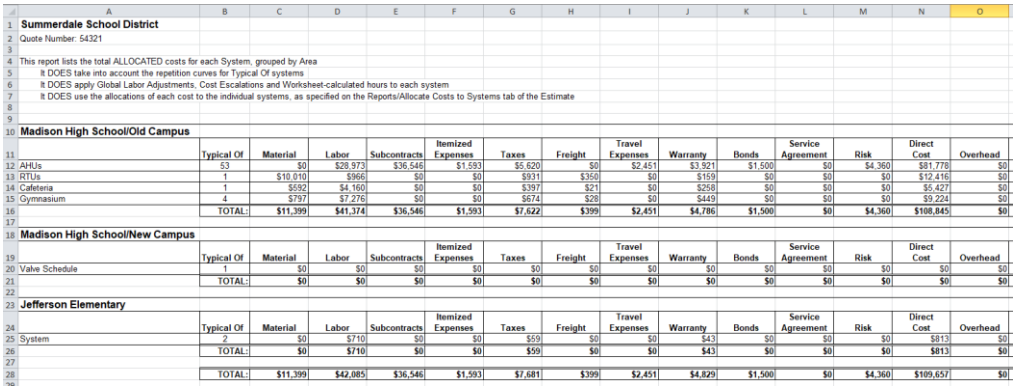
Click the PREVIEW ALLOCATIONS radio button to see the calculated dollars for each System and Cost.



Allocation Settings... | Rescale Values | Zero Values | Copy Column... | ○ Edit Allocations | ◉ Preview Allocations

Area	System	Material	Labor	Mat+Labor	Subcontracts	Other Costs	Material	Labor	Subcontracts	Itemized Expenses	Taxes	Freight	Travel	Warranty	Bonds	Service Agreement
Madison High School/Old Campus	AHUs	0.0%	68.5%	33.3%	100.0%	100.0%	$0	$28,973	$36,546	($1,593)	$5,620	$0	$2,451	$3,921	$1,500	$0
Madison High School/Old Campus	RTUs	87.8%	2.3%	46.2%	0.0%	0.0%	$10,010	$966	$0	$0	$931	$350	$0	$159	$0	$0
Madison High School/Old Campus	Cafeteria	5.2%	10.0%	7.5%	0.0%	0.0%	$592	$4,160	$0	$0	$397	$21	$0	$258	$0	$0
Madison High School/Old Campus	Gymnasium	7.0%	17.5%	12.1%	0.0%	0.0%	$797	$7,276	$0	$0	$674	$28	$0	$449	$0	$0
Madison High School/New Campus	Valve Schedule	0.0%	0.0%	0.0%	0.0%	0.0%	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Jefferson Elementary	System	0.0%	1.7%	0.8%	0.0%	0.0%	$0	$710	$0	$0	$59	$0	$0	$43	$0	$0
	TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	$11,399	$42,085	$36,546	($1,593)	$7,681	$399	$2,451	$4,829	$1,500	$0

The *Allocated Costs (By System)* report uses these values as well:



Summerdale School District

Quote Number: 54321

This report lists the total ALLOCATED costs for each System, grouped by Area
- It DOES take into account the repetition curves for Typical Of systems
- It DOES apply Global Labor Adjustments, Cost Escalations and Worksheet-calculated hours to each system
- It DOES use the allocations of each cost to the individual systems, as specified on the Reports/Allocate Costs to Systems tab of the Estimate

Madison High School/Old Campus

	Typical Of	Material	Labor	Subcontracts	Itemized Expenses	Taxes	Freight	Travel Expenses	Warranty	Bonds	Service Agreement	Risk	Direct Cost	Overhead
AHUs	53	$0	$28,973	$36,546	$1,593	$5,620	$0	$2,451	$3,921	$1,500	$0	$4,360	$81,778	$0
RTUs	1	$10,010	$966	$0	$0	$931	$350	$0	$159	$0	$0	$0	$12,416	$0
Cafeteria	1	$592	$4,160	$0	$0	$397	$21	$0	$258	$0	$0	$0	$5,427	$0
Gymnasium	4	$797	$7,276	$0	$0	$674	$28	$0	$449	$0	$0	$0	$9,224	$0
TOTAL:		$11,399	$41,374	$36,546	$1,593	$7,622	$399	$2,451	$4,786	$1,500	$0	$4,360	$108,845	$0

Madison High School/New Campus

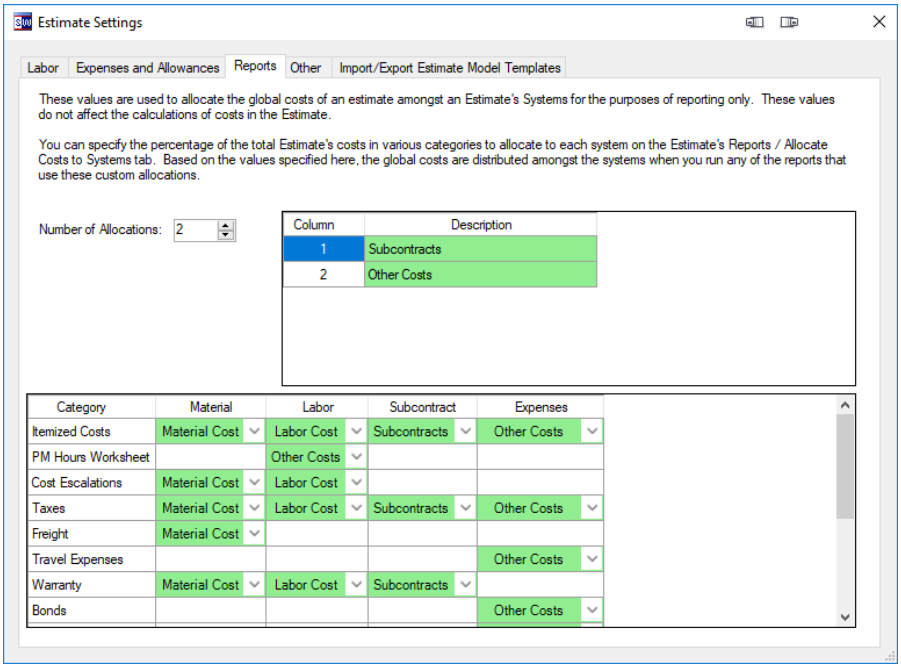
	Typical Of	Material	Labor	Subcontracts	Itemized Expenses	Taxes	Freight	Travel Expenses	Warranty	Bonds	Service Agreement	Risk	Direct Cost	Overhead
Valve Schedule	1	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TOTAL:		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Jefferson Elementary

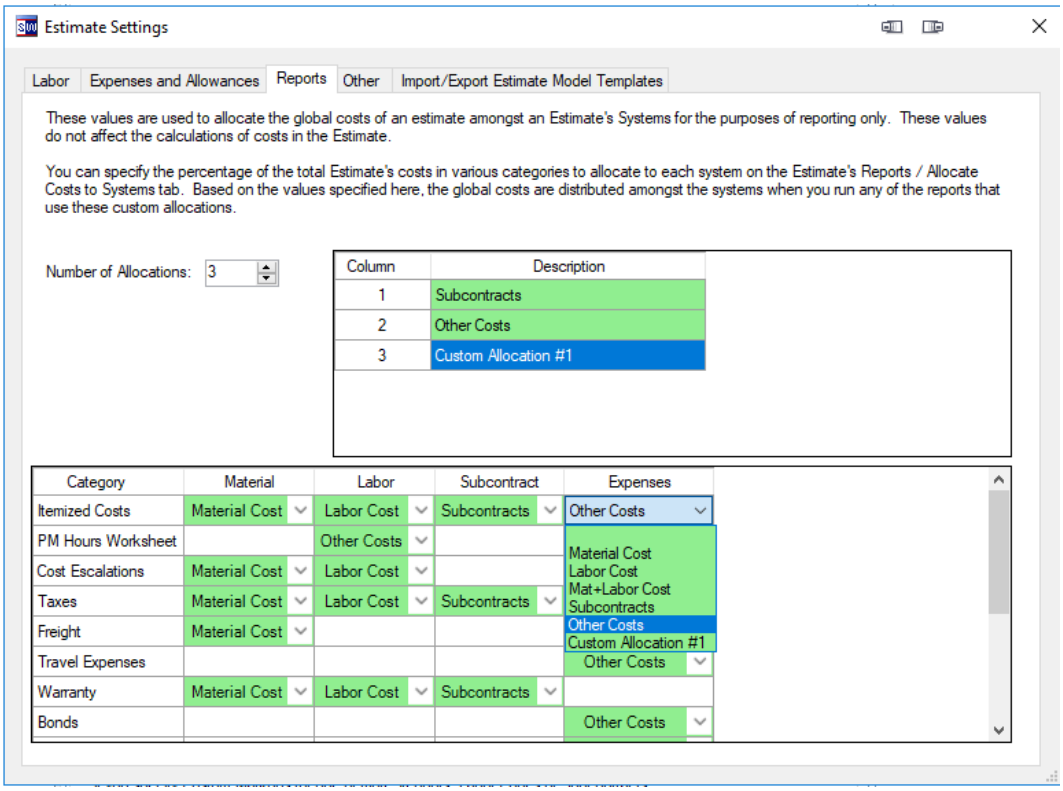
	Typical Of	Material	Labor	Subcontracts	Itemized Expenses	Taxes	Freight	Travel Expenses	Warranty	Bonds	Service Agreement	Risk	Direct Cost	Overhead
System	2	$0	$710	$0	$0	$59	$0	$0	$43	$0	$0	$0	$813	$0
TOTAL:		$0	$710	$0	$0	$59	$0	$0	$43	$0	$0	$0	$813	$0
TOTAL:		$11,399	$42,085	$36,546	$1,593	$7,681	$399	$2,451	$4,829	$1,500	$0	$4,360	$109,657	$0

You can further customize the allocations from the Estimate Settings.

- From the *Estimate Summary* tab, click ESTIMATE SETTINGS, and select the Reports tab



For each line in each cost category, you can choose which column of the allocation you want to use to distribute the costs to the systems. You can also create additional, custom allocation columns by changing the NUMBER OF ALLOCATIONS value and naming the new column.



- The new column will now become one of the options for each value to distribute.

Customer Sell Price Reports

The *Sell Price Multiplier* is an additional factor that is not part of the Estimate's cost calculations. Changing it does not affect the price or profit of the Estimate. Instead, the Sell Price Multiplier is used for a specific set of customer-facing reports that allow you to create a list of materials that show individually marked up prices.

- The Sell Price for each part is calculated as *List Price * Sell Price Multiplier.*
- Refer to the earlier sections on *Sell Price Multiplier* in the *Estimating a System* and *The Estimate Summary Tabs* chapters for more detail on setting the multipliers.

The reports that use these values include:

- *Customer Pricing (By System)*
- *Material List Sell Price (By System)*
- *Estimate Summary for Customer*
    - This report follows the same format as the Estimate Summary but calculates all the costs by increasing them proportionally such that they add to the Contract Amount.
    - Taxes on direct costs are excluded from the report and the calculations.
    - This report is different from the Open Book Pricing Worksheet, which uses the Sell Prices for Material, Labor and Subcontracts specified in the Estimate.
    - The actual costs are in hidden rows and columns, so this report should be printed or generated to PDF, and not distributed as an Excel file
- *Open Book Pricing Worksheet*
    - This report is intended as a worksheet for generating a report that can be given to a customer.
    - It uses the Customer Sell Price (Material), Customer Sell Rate (Labor) and Custom Marked Up Quote Amount (Subcontracts) for itemized costs.
    - All other costs are shown the same as on the Estimate Summary.
    - There is no margin or markup shown on the report.

Creating Custom Reports

Reports are generated from templates created in Microsoft Excel or Microsoft Word. You can create new reports by copying existing report templates and modifying them as you need.

Reports are stored in the *\Reports\Estimating* subfolder of Smartware Studio, usually:

C:\Program Files\Smartware Technologies\Smartware Studio\Reports\Estimating

If you copy your reports into this folder, they will be available in the Report list.

- Do NOT modify the standard reports and overwrite the originals with your changes. Your changes will be lost with the next update to Smartware Studio. Always work with a renamed copy of a standard report.

Refer to the *Smartware Studio Reporting Guide* for full details on creating and modifying custom reports.

Distributing Custom Reports to Other Users

You can easily share your custom reports with the other users in your Company by copying them to the shared network Studio folder.

- Consult your Smartware Studio or Network Administrator to discuss access to the shared folder.
- Refer to the *Setup and Administration Guide* chapter *on Libraries, Templates and Distributions* for more details.

There is a sub-folder in your shared network folder on your file server that Smartware Studio will automatically check for new report files. If you copy your custom reports there, Smartware Studio will automatically download them onto the local workstation the next time it starts up.

- This sub-folder may need to be created on your server by hand.

If the shared folder on your file server is:

\\OurServer\Smartware Studio Data

Then the distribution folder for custom Estimate reports is:

\\OurServer\Smartware Studio Data\Resources\Reports\Estimating

7. The Estimate Model

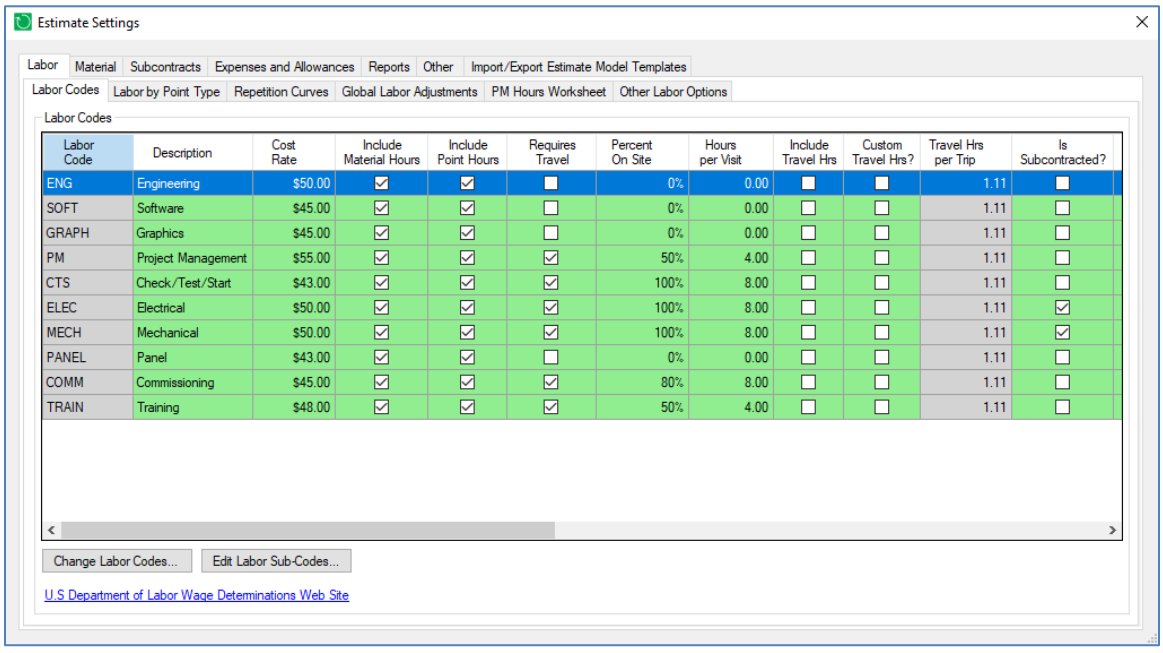
There are a number of parameters and settings that are used throughout the Estimate that affect how the calculations are performed. Together they are referred to as the *Estimate Model.*

Very often these settings can be configured once for a company and then rarely changed from Estimate to Estimate. To make this easier, you can save these settings into a file called an *Estimate Model Template*. You can then share the template, use the template as the starting point for new estimates and update an existing estimate with a template's values.

- You may also have a few standard estimate models that the estimator chooses from based on region (different travel rates) or project type (prevailing wage rate).

Accessing the Estimate Model

The Estimate Model settings are viewed and edited in the Estimate Settings dialog, which is brought up from a number of locations throughout the Estimate.



Labor Code	Description	Cost Rate	Include Material Hours	Include Point Hours	Requires Travel	Percent On Site	Hours per Visit	Include Travel Hrs	Custom Travel Hrs?	Travel Hrs per Trip	Is Subcontracted?
ENG	Engineering	$50.00	☑	☑	☐	0%	0.00	☐	☐	1.11	☐
SOFT	Software	$45.00	☑	☑	☐	0%	0.00	☐	☐	1.11	☐
GRAPH	Graphics	$45.00	☑	☑	☐	0%	0.00	☐	☐	1.11	☐
PM	Project Management	$55.00	☑	☑	☑	50%	4.00	☐	☐	1.11	☐
CTS	Check/Test/Start	$43.00	☑	☑	☑	100%	8.00	☐	☐	1.11	☐
ELEC	Electrical	$50.00	☑	☑	☑	100%	8.00	☐	☐	1.11	☑
MECH	Mechanical	$50.00	☑	☑	☑	100%	8.00	☐	☐	1.11	☑
PANEL	Panel	$43.00	☑	☑	☐	0%	0.00	☐	☐	1.11	☐
COMM	Commissioning	$45.00	☑	☑	☑	80%	8.00	☐	☐	1.11	☐
TRAIN	Training	$48.00	☑	☑	☑	50%	4.00	☐	☐	1.11	☐

To access the complete Estimate Model, along with the Template management features:

- Click the ESTIMATE SETTINGS button on the Estimate *Overview* or *Summary* tab
- Right-clicking the Estimate node and selecting the TOOLS→ESTIMATE SETTINGS menu item

For convenience, many of the tabs on the Estimate node have a button to access a specific portion of the Estimate Model:

- The MATERIAL SETTINGS button on the *Material* tab.
- The POINT SETTINGS button on the *Points* tab
- The LABOR SETTINGS button on the *Labor* tab
- The GLOBAL LABOR ADJUSTMENT SETTINGS on the *Global Labor Adjustments* sub-tab (on the *Labor* tab).
- The SUBCONTRACTOR SETTINGS on the *Subcontracts* tab
- The LABOR CODE TRAVEL SETTINGS button on the *Expenses*/*Travel* tab

The Estimate Model parameters are laid out in various tabs and sub-tabs.

- Green squares indicate values that can be changed.
- The purpose of many of the settings has been discussed in the relevant sections of the earlier chapters on *Estimating a System* and *The Estimate Summary Tabs*.

Labor

The Labor Tab has a number of sub-tabs.

Labor Codes

The Labor Codes table contains quite a few columns that control how labor is calculated.

- The *Labor Code* itself is fixed, but you can edit the *Description*, which will appear on reports such as the *Estimate Summary*.
- The *Cost Rate* determines how labor hours are translated into dollars. The figure represents the dollars per labor hour.
- The *Include Material Hours* column indicates whether the hours calculated from the Material tab are included in the calculations for that Labor Code.
- The *Include Point Hours* column indicates whether the hours calculated from the Points tab are included in the calculations for that Labor Code.

The next set of columns control how Travel costs are calculated:

- *Requires Travel*, *Percent On Site* and *Hours per Visit* control how the number of Trips are calculated.
- *Include Travel Hrs*, *Custom Travel Hrs* and *Travel Hrs per Trip* control how Travel Time is accounted for.
- Refer to the earlier chapter on *The Estimate Summary Tabs* in the section on *Travel Expenses*.

The next set relate to Subcontracts:

- The *Is Subcontracted* column indicates whether the hours for that Labor Code are excluded from the Estimate's labor calculations and instead included in the calculated Subcontracts.
- The *Subcontract Cost Rate* is the amount used to translate labor hours into the estimated, calculated subcontracts.
- *Union/Prevailing Rate* and *% at Union/Prevailing Rate*, allow you to specify a rate for subcontractors working at Union or Prevailing Wage rates and the percentage of the labor expected to be done at that rate. The *Subcontractor Effective Rate* will then be calculated with these parameters and used in the subcontractor calculations. For example, if the Cost Rate is $75, the Union Rate is $100 and the % Union Rate is 25%, the Effective Rate will be $81.25.

The other columns include:

- The *Sell Rate* is a separate hourly labor rate used for Custom Pricing reports. Refer to the earlier chapter on Reports in the section on *Customer Sell Price Reports*.
- The *PM Hours Factor* is used by the Project Management Hours Worksheet on the Estimate's *Labor* Tab. Refer to the earlier subsection *PM Hours Worksheet* in *The Estimate Summary Tabs* chapter.
- The *Hours from PM Factor* and *Min Hours from PM* are used to calculate additional Labor Hours as a function of PM Hours.
    - The number of PM Hours is multiplied by the factor to determine how many additional hours of the specified labor type will be added.
    - If the calculated amount is less than the *Min Hours from PM,* the minimum value will be added instead.

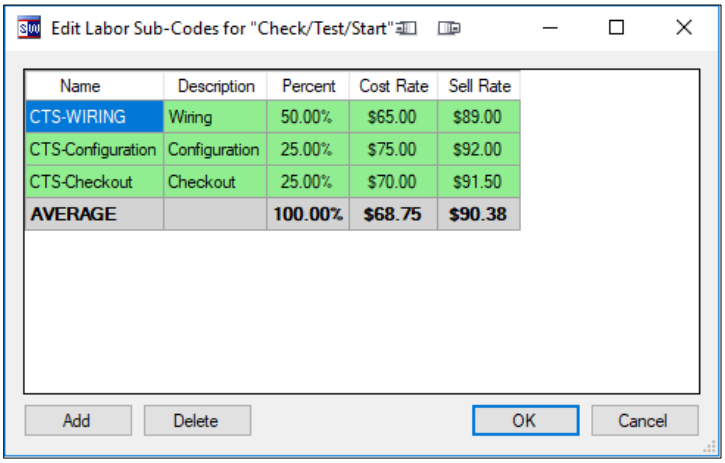
Labor Sub-Codes

You can break down a Labor Code into several sub-classifications using *Labor Sub-Codes*. For example, you could create three sub-codes of CTS called *CTS-Wiring*, *CTS-Configuration* and *CTS-Checkout*. You cannot use these labor codes individually within the Estimate. Instead, you specify a breakdown of percentages for each sub-code and the Estimate will:

- Calculate the weighted average for the *Cost Rate* and *Sell Rate*.
- Apply the weightings to the end results of the Estimate (e.g., *Total Hours*, *Total Cost*) and make them available for custom reports, such as Booking Sheets.

To specify Labor Sub-Codes:

- Select the labor code for which you want to create sub-codes and click the EDIT LABOR SUB-CODES button at the bottom of the form. There you can add any number of sub-codes.



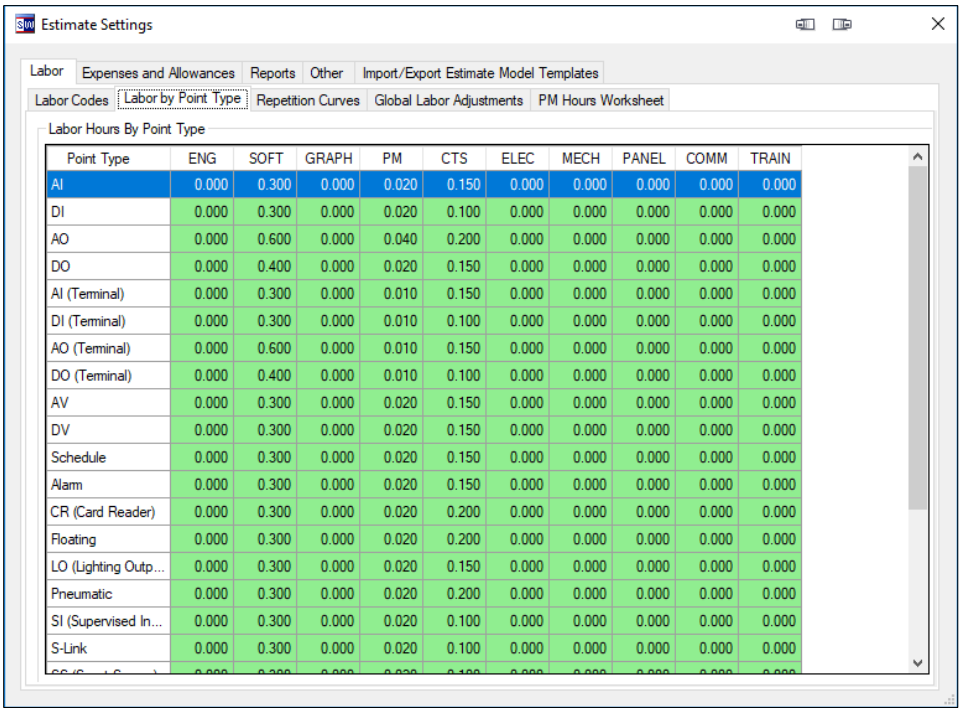
- For each sub-code, you specify a name for the sub-code (e.g., “CTS-Install”), as well as the percentage of time for that labor code that should be allocated to the sub-code. You also specify the hourly *Cost Rate* and *Sell Rate* for the sub-code.
- The total percentages for all the Sub-Codes must equal 100%. The effective Cost and Sell Rates for the main Labor Code will then be frozen at the weighted average of the values specified for the sub-codes.

To extract individual Sub-Code values on an Estimate report:

- Refer to the notes in the *Estimate Report Field List* report, in the Labor Codes Table section of that report. It shows how to use expressions such as *<LaborCodes[CTS].TotalCost>* to put specific values on a report.
- For Labor Sub-Codes, you would substitute the Labor Sub-Code name, as in *<LaborCodes[CTS-Install].TotalCost>*
- Refer to the *Smartware Studio Reporting Guide* for more details on creating custom reports and using field codes.

Labor by Point Type

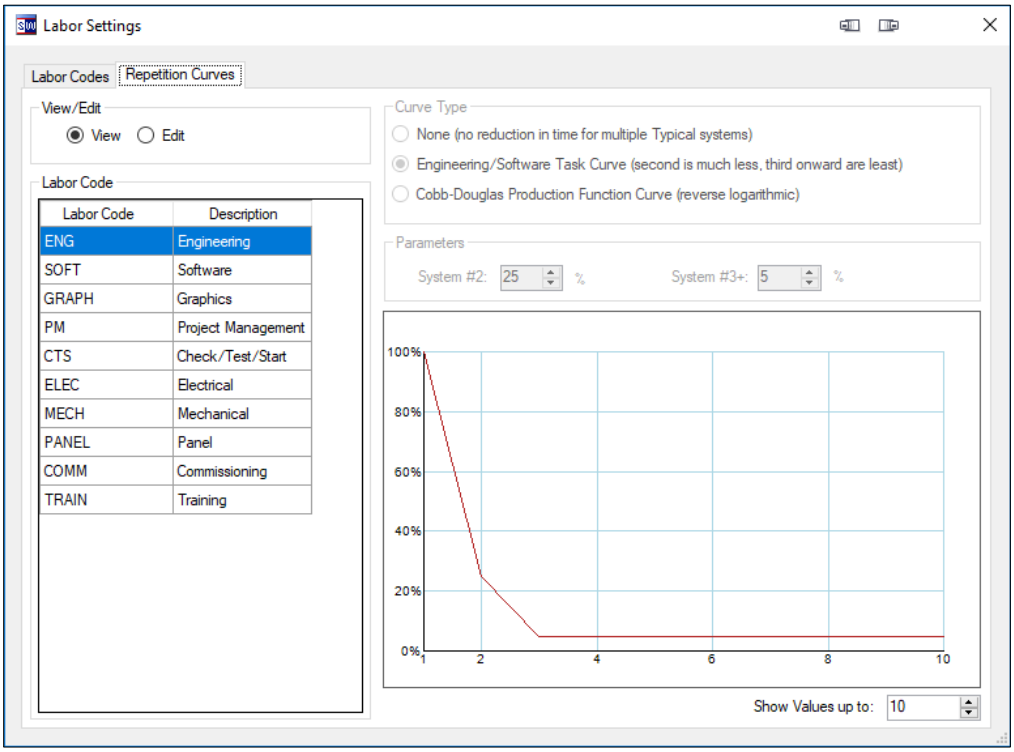
On a System node, the specified points are used to calculate a number of labor hours based on the point type. The *Labor Hours by Point Type* table indicates the number of hours (or partial hours) to use for each point type and Labor Code.



Point Type	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	COMM	TRAIN
AI	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
DI	0.000	0.300	0.000	0.020	0.100	0.000	0.000	0.000	0.000	0.000
AO	0.000	0.600	0.000	0.040	0.200	0.000	0.000	0.000	0.000	0.000
DO	0.000	0.400	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
AI (Terminal)	0.000	0.300	0.000	0.010	0.150	0.000	0.000	0.000	0.000	0.000
DI (Terminal)	0.000	0.300	0.000	0.010	0.100	0.000	0.000	0.000	0.000	0.000
AO (Terminal)	0.000	0.600	0.000	0.010	0.150	0.000	0.000	0.000	0.000	0.000
DO (Terminal)	0.000	0.400	0.000	0.010	0.100	0.000	0.000	0.000	0.000	0.000
AV	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
DV	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
Schedule	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
Alarm	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
CR (Card Reader)	0.000	0.300	0.000	0.020	0.200	0.000	0.000	0.000	0.000	0.000
Floating	0.000	0.300	0.000	0.020	0.200	0.000	0.000	0.000	0.000	0.000
LO (Lighting Outp...	0.000	0.300	0.000	0.020	0.150	0.000	0.000	0.000	0.000	0.000
Pneumatic	0.000	0.300	0.000	0.020	0.200	0.000	0.000	0.000	0.000	0.000
SI (Supervised In...	0.000	0.300	0.000	0.020	0.100	0.000	0.000	0.000	0.000	0.000
S-Link	0.000	0.300	0.000	0.020	0.100	0.000	0.000	0.000	0.000	0.000

Repetition Curves

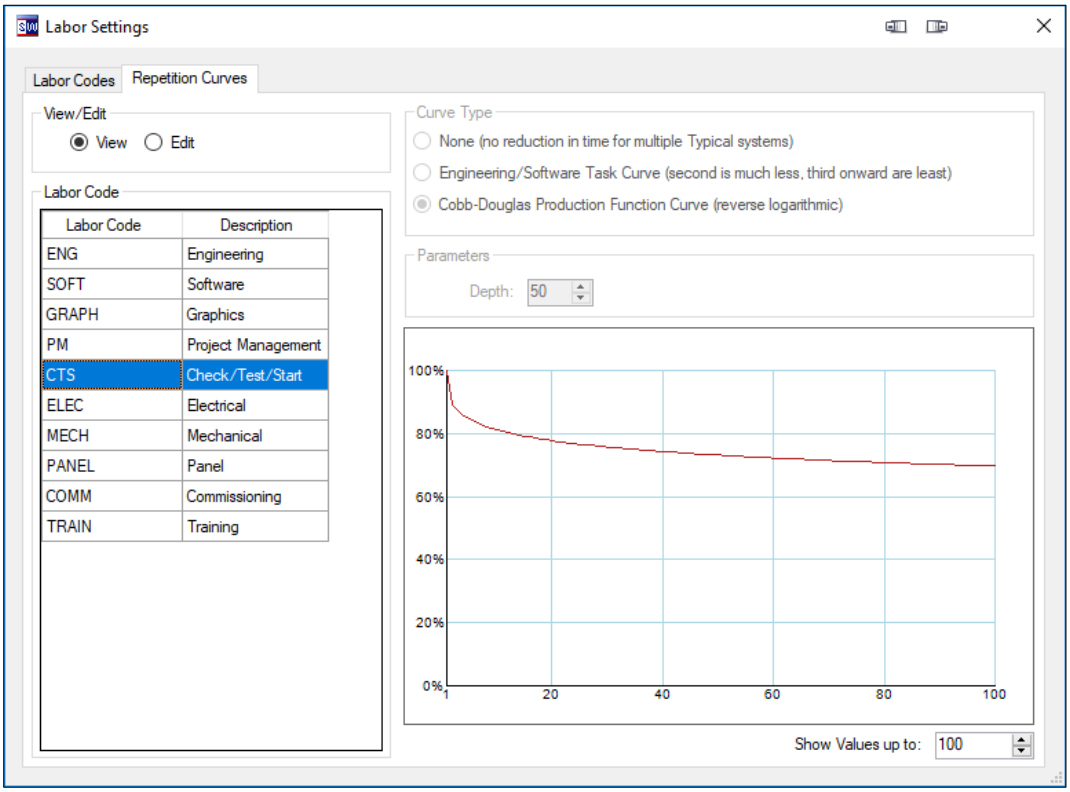
Repetition Curves indicate how the labor is multiplied out when the System is considered Typical Of multiple instances. In most cases, Typical Systems have a benefit of requiring less labor for the second and successive systems that are implemented. These reductions are represented by a Repetition Curve for each Labor Code that indicates how much labor these secondary instances require compared to the first instance.



There are two types of curves to represent two classes of labor and their reductions:

- An *Engineering/Software Task Curve* is designed for a task (such as Engineering and Software) in which the resulting effort can be "copied and pasted" for the secondary instances. The curve specifies a percentage for the second instance (e.g., the time it takes to convert a specific system into one where certain parameters, such as Air Flow, can be customized for each instance), and a percentage for the third and successive instances (often just adding a row to a table or spreadsheet to specify those parameters for the additional system).
- A *Cobb-Douglas Production Function Curve* is designed for other physical tasks that, presumably, the worker would be able to do faster as they develop, optimize or create assembly-line style procedures for themselves. They are essentially inverse logarithmic curves.

An example of a Cobb-Douglas curve for tasks such as Check/Test/Start:



Global Labor Adjustments

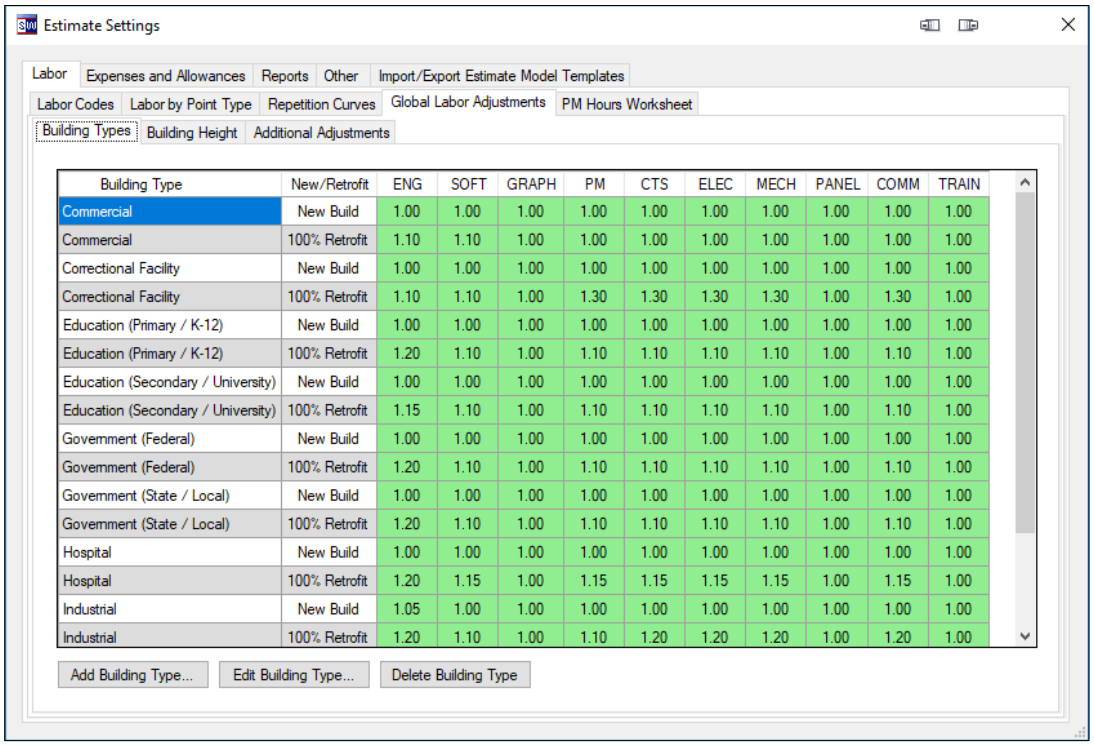
The Global Labor Adjustments tab contains detailed information about how the Building Overview settings (on the Estimate's *Overview* tab or it's *Labor / Global Labor Adjustments* tab) are used to calculate the Global Labor Adjustment Factors.

There are three types of Adjustments:

- *Building Types*
- *Building Height*
- *Additional Custom Adjustments*

Building Types

The *Building Types Table* lists all the different *Building Types* and specifies adjustment factors for each labor code. There are two rows for each Building Type – one that indicates the factors for a *New Build* (0% Retrofit) and another for *100% Retrofit*.



Building Type	New/Retrofit	ENG	SOFT	GRAPH	PM	CTS	ELEC	MECH	PANEL	COMM	TRAIN
Commercial	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Commercial	100% Retrofit	1.10	1.10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Correctional Facility	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Correctional Facility	100% Retrofit	1.10	1.10	1.00	1.30	1.30	1.30	1.30	1.00	1.30	1.00
Education (Primary / K-12)	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education (Primary / K-12)	100% Retrofit	1.20	1.10	1.00	1.10	1.10	1.10	1.10	1.00	1.10	1.00
Education (Secondary / University)	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education (Secondary / University)	100% Retrofit	1.15	1.10	1.00	1.10	1.10	1.10	1.10	1.00	1.10	1.00
Government (Federal)	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Government (Federal)	100% Retrofit	1.20	1.10	1.00	1.10	1.10	1.10	1.10	1.00	1.10	1.00
Government (State / Local)	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Government (State / Local)	100% Retrofit	1.20	1.10	1.00	1.10	1.10	1.10	1.10	1.00	1.10	1.00
Hospital	New Build	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hospital	100% Retrofit	1.20	1.15	1.00	1.15	1.15	1.15	1.15	1.00	1.15	1.00
Industrial	New Build	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Industrial	100% Retrofit	1.20	1.10	1.00	1.10	1.20	1.20	1.20	1.00	1.20	1.00

When a *Building Type* or *Percent Retrofit* value is selected or changed in the estimate, the system calculates the adjustment factors as a straight-line interpolation between the two rows. For example, if the New Build value is 1.00 and the 100% Retrofit value is 1.20, then:

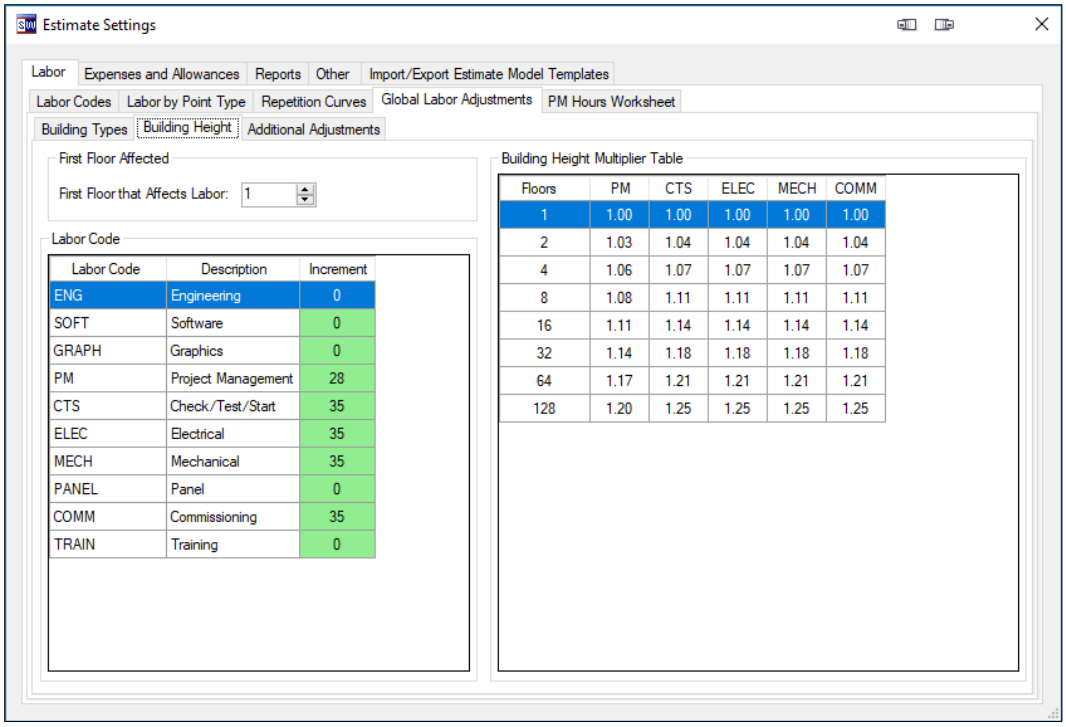
- With Percent Retrofit = 0%, the calculated factor will be 1.00
- With Percent Retrofit = 25%, the calculated factor will be 1.05
- With Percent Retrofit = 100%, the calculated factor will be 1.20

You can modify the factors for the existing Building Types, and you can add your own.

- To modify the factors for an existing type, edit the values in the green cells.
- To create a new Building Type, click ADD BUILDING TYPE.
- To rename an existing or custom Building Type, click EDIT BUILDING TYPE.

Building Height Table

The *Building Height Table* determines how the height of the building is used to calculate the Building Height adjustment factors.



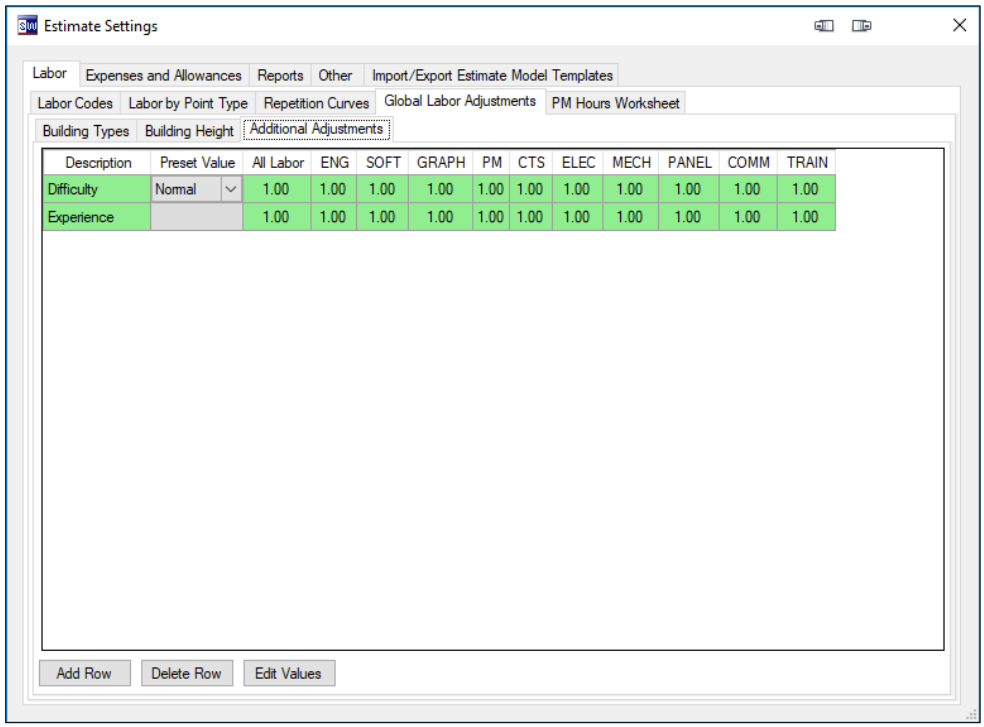
The table on the right shows sample values for specific numbers of floors. The values are calculated using a formula with two parameters:

- The *Increment* value for each Labor Code indicates how much the factors increase for each doubling of the number of floors. It is specified as a value from 0 to 100, representing increments from 0.000 to 0.100. In the example above, the Increment for CTS is 35, so as the number of floors doubles, the factor increases by 0.035 (e.g., 1.00, 1.035, 1.070, 1.105, 1.140, etc.).
- The *First Floor that Affects Labor* parameter allows you to shift the entire table down by indicating when the increments should begin.

When the number of floors is selected for the Estimate, these parameters are used in a formula to calculate the adjustment factors. It is a logarithmic function, and not a straight-line interpolation.

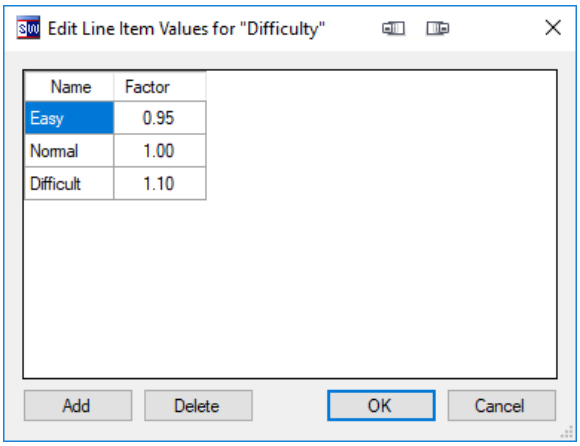
Additional Adjustments

You can also create additional rows for factors that the user can specify.



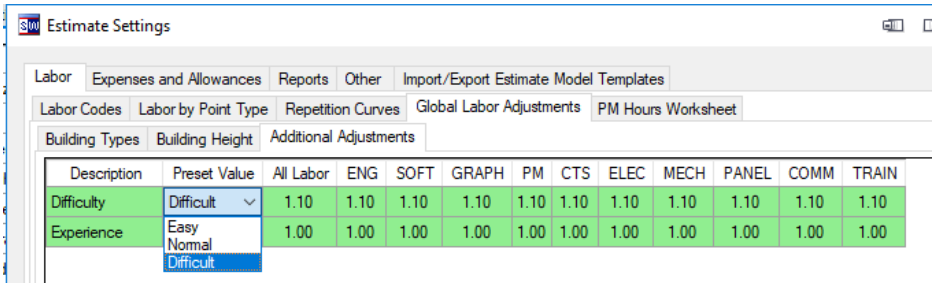
- When the user completes the estimate, they will see these rows on the *Global Labor Adjustments* tab and can enter values for the factors. They will not, however, be able to change the description or delete the row. These *In the Model* rows are meant for adjustments that the company wants considered for every estimate.
- The estimator can also add rows while on the Global Labor Adjustments tab. Those *In the Estimate* rows are fully editable by the user, and will not be saved as part of the Estimate Model Template if exported.

You can create names for specific values to make it easier to create standards. Click EDIT VALUES to define them:



- Click ADD to create names for specific values to use for all the Labor Codes.

The names will appear in a drop-down list for the row. Selecting one will set all the Labor Codes to the associated value.

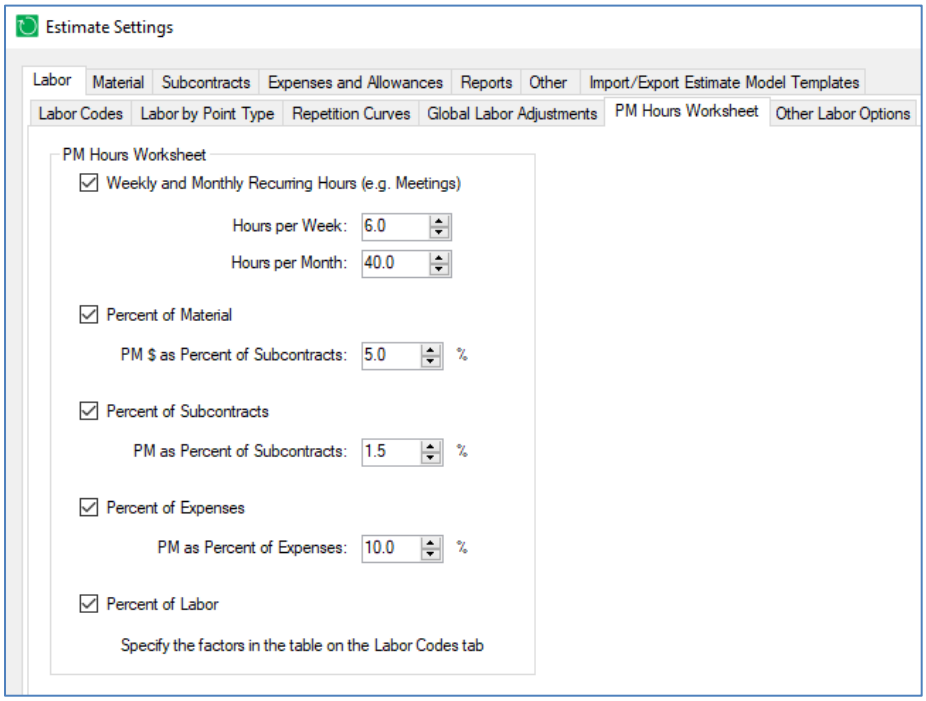


PM Hours Worksheet

The *PM Hours Worksheet* tab consolidates the various parameters from the *Project Management (PM) Hours Worksheet* from the Estimate's *Labor* tab, including calculations based on the other calculated labor hours.

- The *PM Hours Factor* column in the *Labor Codes* tab of the Estimate or Labor Settings specifies how many PM hours to calculate for each hour of that Labor Code.
    - e.g., specifying 0.1500 for this value in the ENG row indicates to add 1.5 additional hours of PM for each 10 hours of Engineering.
- You must check the PERCENT OF LABOR checkbox in order to have these hours included.
- Calculated hours are before the *Global Labor Adjustments* are applied, and therefore not included in the total.

- A factor cannot be applied to the PM Hours themselves.
- You can choose to calculate PM Hours as a percent of *Material, Subcontracts, Expenses, Labor,* and *Weekly and Monthly Recurring Hours,* as illustrated in the image below.



Other Labor Options

The *Other Labor Options* tab gives you additional options and adjustments to account for in the Estimate calculations, including *Calculated Fringe Rates* and *Shift Differential*, as shown below.

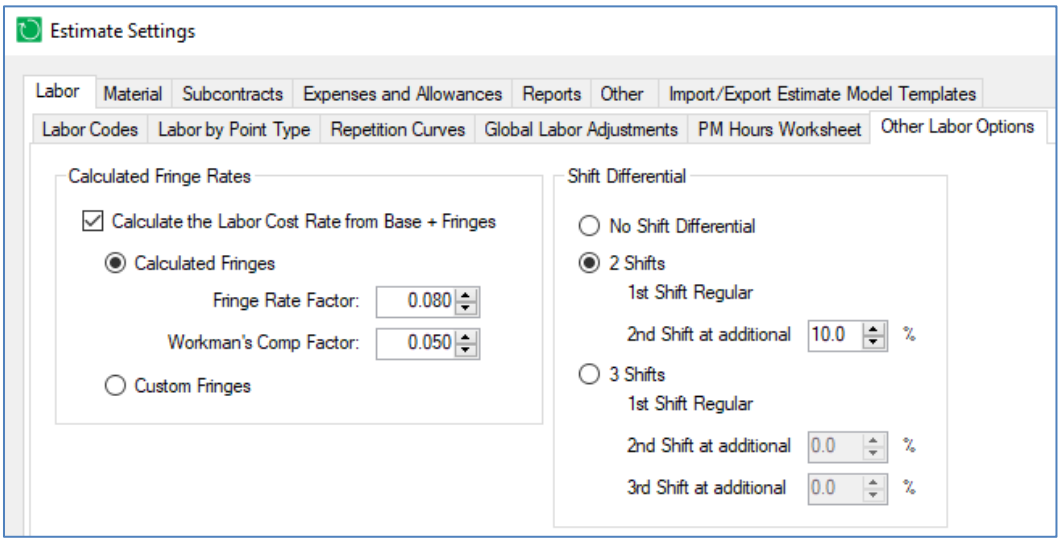
You can specify parameters to calculate an adjustment for *Shift Differential:*

- You can specify that there are two or three shifts as well as what the additional percentage cost is for the second or third shifts.
- These additional costs are aggregated and shown as a single value on the Estimate Summary tab and report.

You can also calculate the *Cost Rate* for each Labor Code based on Base, Fringe, and Worker's Compensation amounts:

- Select the CALCULATE THE LABOR COST RATE FROM BASE + FRINGE checkbox to enable. When selected and enabled, the addition columns will appear on the *Labor Codes* tab.

- Select CALCULATED FRINGES and specify FRINGE RATE FACTOR and WORKER'S COMP FACTOR to calculate Fringe and Worker's Compensation based on factors.
- Or select the CUSTOM FRINGES radio button to specify individual custom amounts in the Labor Code Table.



Subcontracts

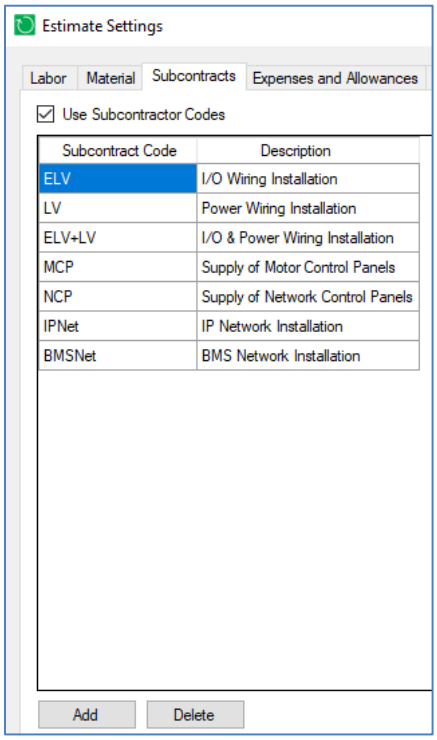
The *Subcontracts* tab in the Estimate Model (Estimate Settings) allows you to specify and store the subcontract codes that will be available to choose from in the Area and System nodes.

Subcontract Codes

You can categorize Subcontracts with *Subcontract Codes* to control how your Estimate's subcontract costs are calculated. As these codes are specified on each System, they are then aggregated up and listed on the Area and Estimate levels of your Estimate. Therefore, as individual systems containing these codes are excluded or included, the rolled-up values will change accordingly.

- Access the Subcontract Code Table from the *Subcontracts* tab in the Estimate Model (select the Estimate Node→right-click→TOOLS→ESTIMATE SETTINGS).
- Check the USE SUBCONTRACT CODES checkbox in order to utilize the codes.
- Click the ADD or DELETE buttons to add or delete a pair of *Code* and *Description* values.

- When using this mode, the *Subcontracts* tab in the Estimate will hide the *Labor Code* and display a column for *Subcontract Codes* and *Description*.



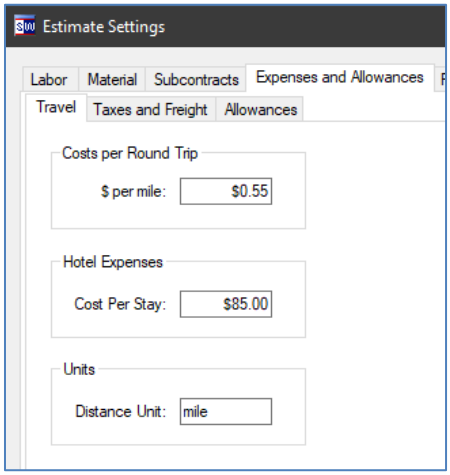
Refer to the earlier section, *The Subcontracts Tab*, in the *Estimating a System* chapter and *The Estimate Summary Tabs* chapter for more detail.

Expenses and Allowances

Most of the values on the *Expenses* tab of the Estimate Node are stored in the Estimate Model.

Travel

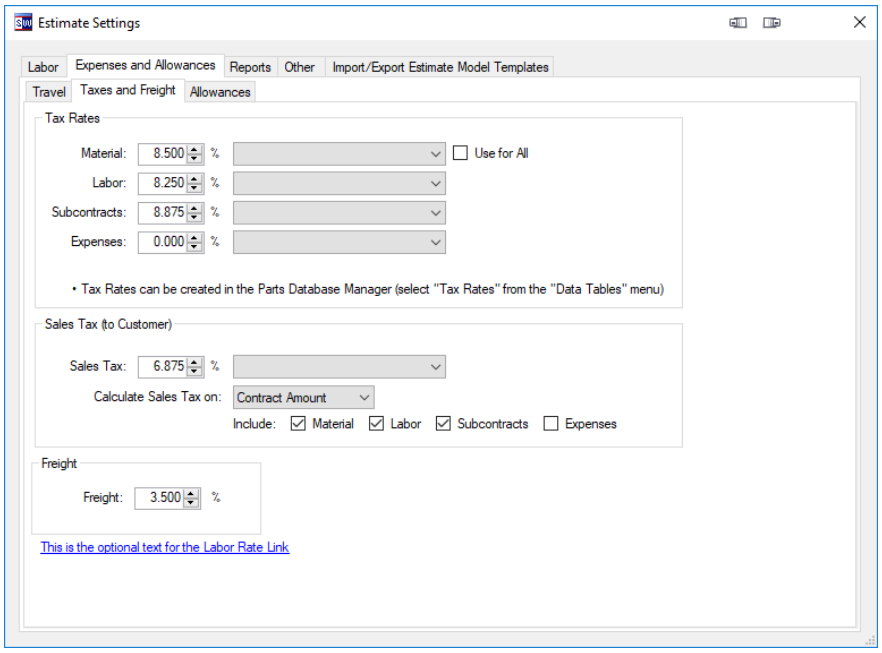
The *Cost per Round Trip* / *$ per mile* and *Hotel* Expenses / *Cost per Stay* values as well as *Units / Distance Unit* are stored in the Estimate Model.



- The other Travel parameters that are likely to vary from job to job (such as *Distance to Job Site*, *Average Travel Speed*, *Tolls*, etc.) are not included in the Estimate Model.

Taxes and Freight

The Taxes and Freight values from the Estimate are all part of the Estimate Model.



- The values in the Model are the same as those in the Estimate. Editing them in the *Estimate Setting*s form will change the values in the Estimate's *Expenses* / *Taxes and Freight* tab, and vice-versa.

Creating Tax Rates in the Parts Database

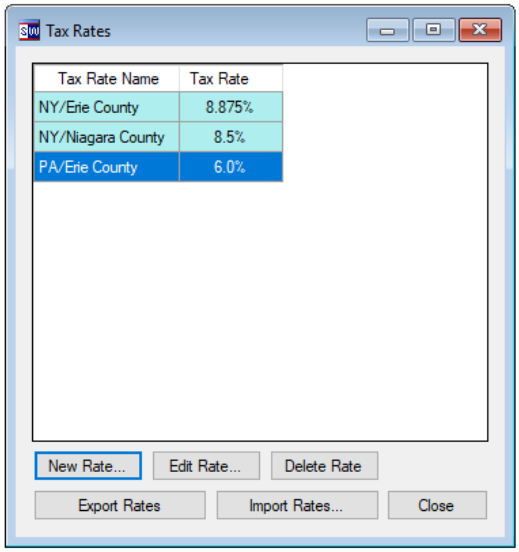
You can specify the tax rates to select from in the Parts Database Manager.

- You must be a Parts Database Administrator in the Studio User database.
- Refer to the *Setup and Administration Guide* for more details on using the Parts Database Manager.

To edit the Tax Rates in the Parts Database Manager:

- Select ADMIN→PARTS DATABASE. If the Dashboard opens automatically, you can close it.

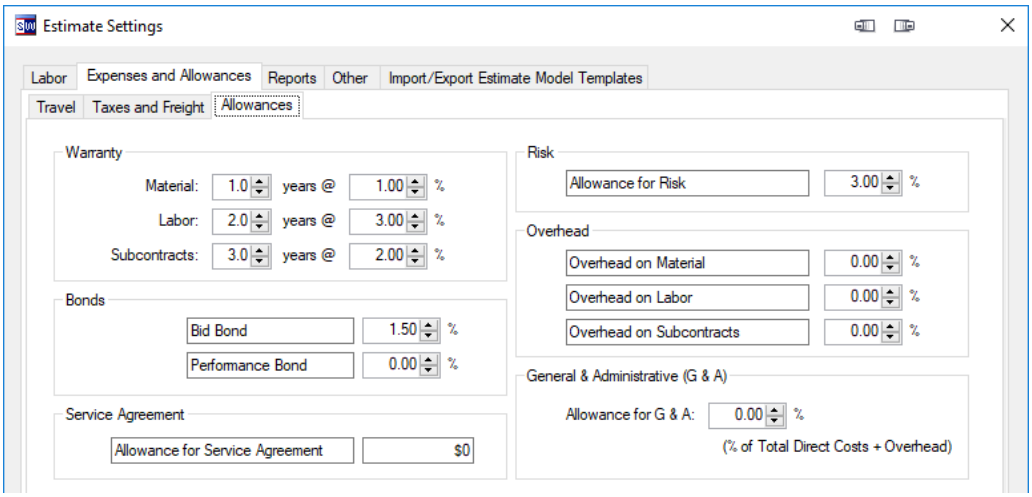
- Select DATA TABLES→TAX RATES.



- You can add rates manually by clicking NEW RATE.
- You can import a list of rates.
  - Click EXPORT RATES to create a template to use for the import.
  - Add your values to the template and save the file.
  - Click IMPORT RATES and select the file. You will get a preview of the import with any warnings or errors.
  - Click IMPORT. If there are new rates listed, they will be added. If there are existing rates and the OVERWRITE EXISTING ENTRIES checkbox is set, the existing rates will be updated with the new values.

Allowances

The names and rates for the various Allowances can also be pre-defined as part of an Estimate Model:



- The values in the Model are the same as those in the Estimate. Editing them in the *Estimate Setting*s form will change the values in the Estimate's *Expenses* / *Allowances* tab, and vice-versa.

Reports and Other Values

The *Reports* and the *Other* tabs in the Estimate Settings contain a number of settings not grouped elsewhere.

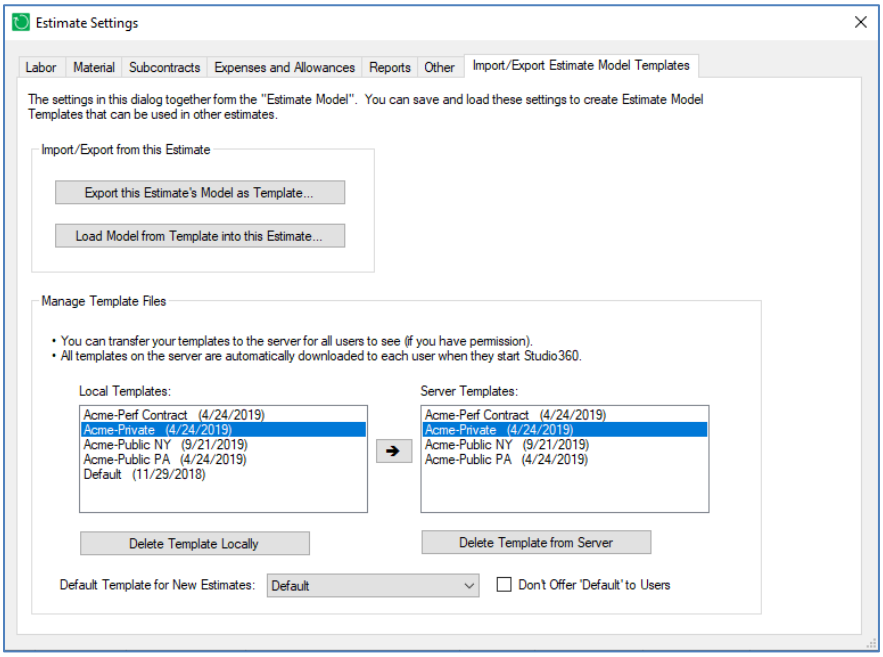
The *Reports* tab has settings related to the Allocate to Systems feature. Refer to the earlier *Reports* chapter in the section on *Allocate to Systems*.

The *Other* tab shows the settings for:

- The *Software Tag Set*, described in the earlier chapter on *Estimating a System*, in the section on *Software Tags*.
- The *User Group Field*, discussed in the earlier chapter on *Estimating a System*, in the section on *Part Grouping*.
- The *Show Custom Calculations*, described in the earlier chapter on *The Estimate Summary Tabs*, in the section on *Custom Calculations*.
- The *Fix the Margin* option, which allows you to fix the margin at a certain percentage and not let it be changed from the Estimate *Summary* tab.

Estimate Model Templates

You can save and load the Estimate Model settings to and from files called *Estimate Model Templates*. To create and manage the Templates, select the *Import/Export Estimate Model Templates* tab:

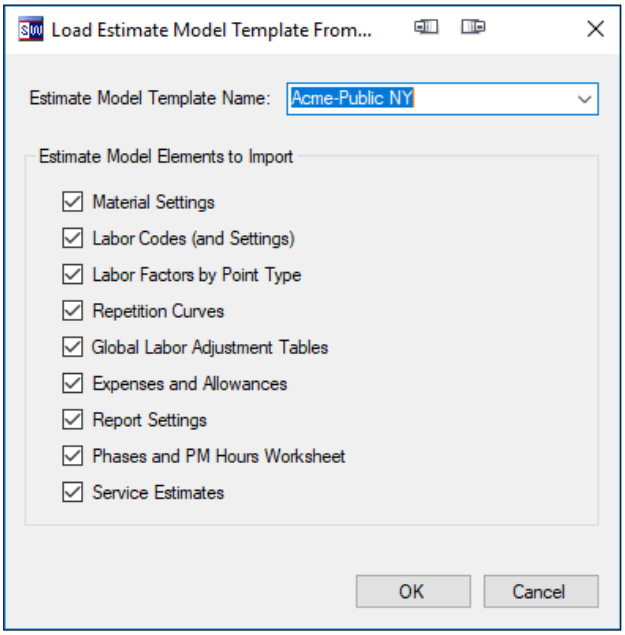


- To save the settings in the current estimate to a Template, click the EXPORT THIS ESTIMATE'S MODEL AS TEMPLATE button.
    - You cannot overwrite the *Default* template.
- To load some or all of the settings from a Template into the current estimate, click the LOAD MODEL FROM TEMPLATE INTO THIS ESTIMATE button.
- To delete a local template you created, select it in the Local Templates list and click DELETE TEMPLATE LOCALLY.

Loading Specific Model Elements into an Estimate

When loading the settings from an Estimate Model Template into the current Estimate, you can control which portions of the Template's Model are imported. This allows you to bring in portions that have been updated (such as the *Global Labor Adjustment* tables) in a template, without overwriting values that were customized in the Estimate (such as the *Expenses and Allowances*).

When you select LOAD MODEL FROM TEMPLATE INTO THIS ESTIMATE, you will be given the choices of what to import:



Selecting a Default Template for New Estimates

To select a template to use as the default settings for any new estimates, select it in the DEFAULT TEMPLATE FOR NEW ESTIMATE drop-down list.

- You will still have an option to choose from the other Estimate Models when the new Estimate is created.

There is a Company-wide option that will remove the choice of *Default* from the list of Estimate Model templates that can be chosen. This is intended to force the estimator to choose from one of the Company's custom templates.

- To enable this restriction, check the DON'T OFFER 'DEFAULT' TO USERS checkbox.

Sharing Estimate Model Templates

If you have the appropriate permission, you can copy templates to the server for all users to have.

- To copy your template to the server, select it in the LOCAL TEMPLATES list and click the right-pointing arrow.
- All templates on the server are automatically downloaded to each user's workstation any time they start Smartware Studio.

- You can also access the Estimate Model Template management features from the TOOLS→OPTIONS dialog on the *Estimating* Module tab.
- If Permissions are enabled for your Company, you must have the *Upload Templates to Server* Project Permission for Estimate Projects in order to upload your templates to the server. Refer to the *Smartware Studio Setup and Administration Guide* for more information.

Using Custom Labor Codes

The default Estimate template contains 10 standard labor codes for projects. You can customize the list of labor codes used in an Estimate, adding new ones and hiding others, to match the ones used in your accounting or other systems. Before you do, you should be aware of some other changes that you may have to make or things to consider.

- There can be a number of hours per labor code associated with Parts in the Parts Database, or Packages created for use in Estimates. These include labor only parts and labor associated with a Part Category. In these cases, the labor codes used are defined in the Parts Database itself, and not in the Estimate. If you want to use these features with your new labor codes, you should add the labor codes in the Parts Database Manager first. Refer to the later sub-section, *Editing Labor Codes in the Parts Database*.
- If you remove a labor code from an existing estimate or import an Estimate Model into an existing estimate such that an existing labor code is no longer there, then hours associated with the labor code will be removed from the Estimate and likely change the calculations. You should avoid modifying the labor code list on an existing estimate.
- The standard labor reports in the Estimating Module that have labor codes as columns of the report will only display values from the standard labor codes. If you use these reports, you will need to duplicate and update them to match yours.
    - Reports that list the labor in rows, include the Estimate Summary, do not need to be updated. They should report the new labor codes automatically.

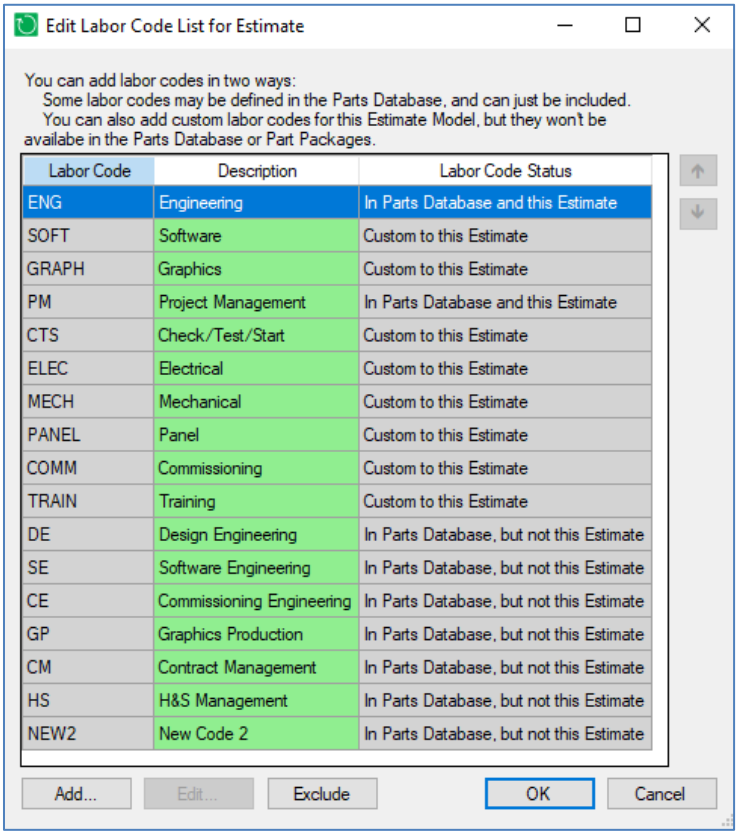
If you do change the labor codes, you will probably want to export these to a new Estimate Model Templates to use for your new Estimates. Refer to the previous section on *Estimate Model Templates*.

Editing the Labor Codes in an Estimate

To change the labor codes in an Estimate

- From the Estimate's *Overview* or *Summary* tab, click the ESTIMATE SETTINGS button.

- Go the *Labor* tab and the *Labor Codes* sub-tab.
- At the bottom of the *Labor Codes* list, click the CHANGE LABOR CODES button.



- Select a labor code and click the EDIT button to edit a *Labor Cod*e (e.g., "ENG") and *Description* of an existing Labor Code.
- To remove an existing labor code, click the EXCLUDE button.
- The *Labor Code Status* column indicates which labor codes are fully custom to this Estimate (*Custom to this Estimate*) or are part of the labor code list defined in the Parts Database (*In Parts Database*).
- You can reorder the labor codes using the arrows on the right side of the list.

It is highly recommended that you leave the PM Labor Code in your list, as the PM Hour Worksheet will use it explicitly.

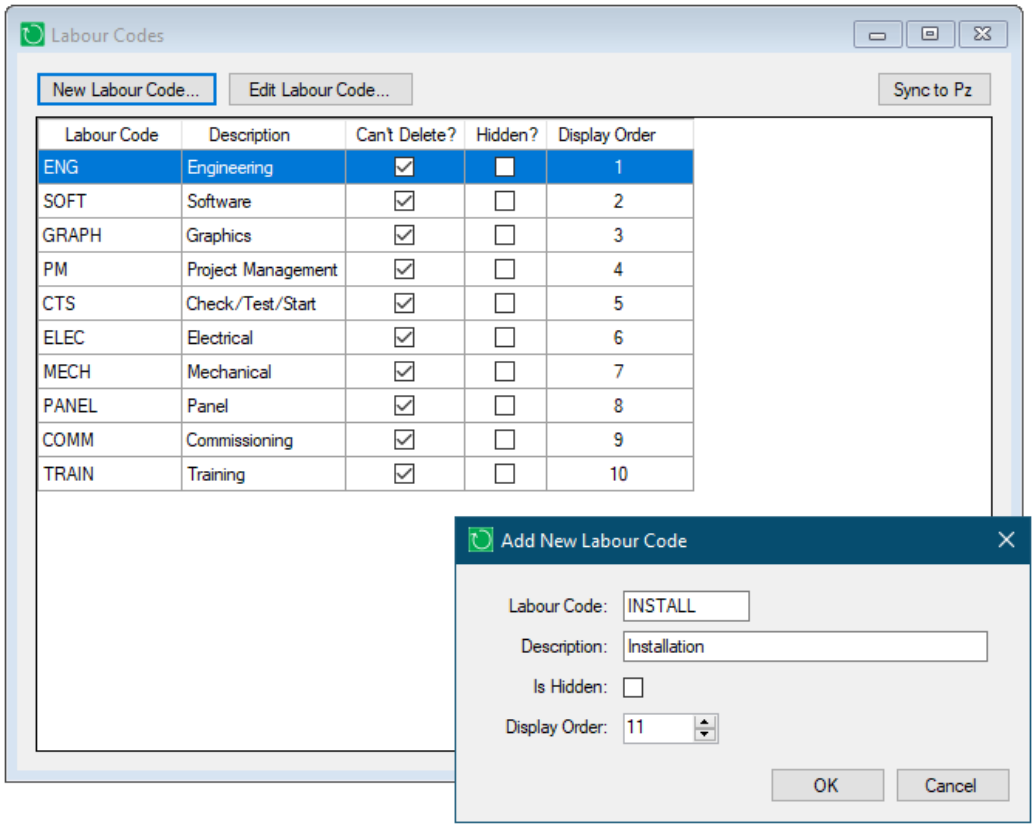
Editing the Labor Codes in the Parts Database

If you plan on reusing a labor code often or want to associate labor in some ways with Parts or Packages, then you should first add the labor codes to the Parts Database.

- You will need to be a Parts Database Administrator to do this. Please contact your Studio Administrator if necessary.

To edit the Labor Code list in the Parts Database:

- From Studio, select ADMIN→PARTS DATABASE
- If the Parts Database Dashboard opens, close it.
- From the DATA TABLES menu, select LABOR CODES.



- To add a new labor code, click NEW LABOR CODE.
- Once you add a code, it updates database tables and queries, so you can't delete them. Instead, you can mark them as *Is Hidden*. Items marked hidden here won't be shown in the Estimate Model's list of Labor Codes to choose from.
- To update the order of the labor code, you can change the *Display Order* value of the non-hidden items. You can skip values in the ordering without issue.

When your changes are complete you will need to republish the database to your users for them to see these changes in the Estimate Model's list of available labor codes. Refer to *The Parts Database Manager* in the separate *Smartware Studio Setup and Administration Guide*.

8. Estimate Groups

Estimate Groups provide a way to organize a set of Estimates together to create aggregate reports of costs, material and other information.

Creating an Estimate Group

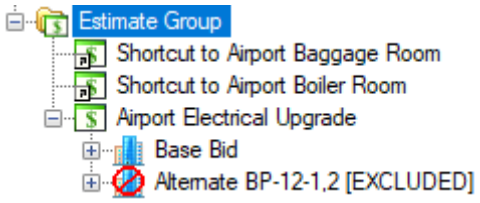
To add an Estimate Group to your Customer Site or Job project:

- Drag one in from the *Estimating* stencil in the Toolbox; or
- Right-click on a folder in your project and select ADD→ESTIMATING→ESTIMATE GROUP.

You can add Estimates to the Estimate Group by:

- Adding a shortcut to an existing Server Estimate Project.
  - Right-click on the Estimate Group node and select ADD→SHORTCUT TO ESTIMATE. You will be able to select the existing Estimate
- Copying and pasting in an existing Estimate from somewhere else in the project, or from another open project.
- Exporting and then importing an Estimate from another project.
  - To export an Estimate, right-click on it and select EXPORT→EXPORT TREE NODES. It will create a *.stexp* file for the Estimate and save it to the Estimate's *Files* tab.
  - To import the Estimate into the Estimate Group, copy the *.stexp* file onto the Estimate Group's *Files* tab, and then double-click it to import a copy of the Estimate into the group.

The following shows three Estimates in an Estimate Group. Two of them are shortcuts to other server projects and the third was copied in from an existing project.



Including and Excluding Estimates

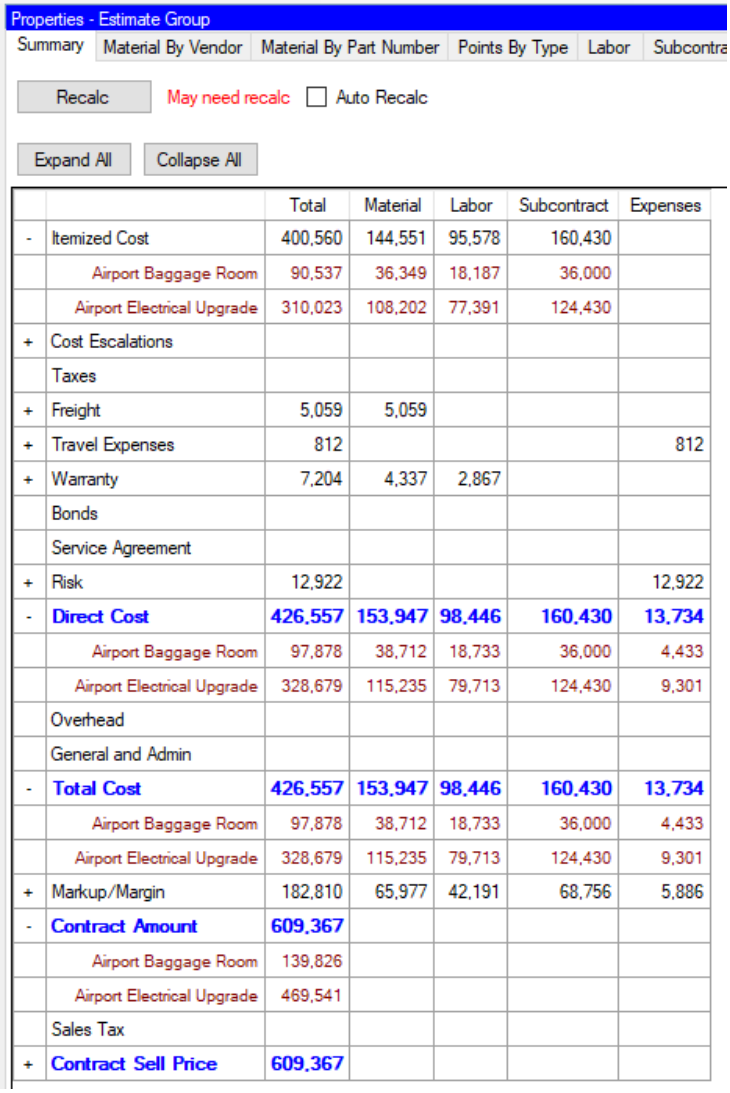
As with Systems in an Estimate, you can temporarily exclude an Estimate from being used in the Estimate Group calculations.

To exclude (or include) an Estimate:

- Select the Estimate or Estimate Shortcut and click the Exclude (red slashed circle) button in the Estimate Toolbar; or
- Right-click on the Estimate or Estimate Shortcut and TOOLS→EXCLUDE (or INCLUDE) FROM ESTIMATE GROUP AGGREGATION.

The Estimate Group Tabs

Each tab contains a table of information totaled for all the Estimates in the Estimate Group.



		Total	Material	Labor	Subcontract	Expenses
-	Itemized Cost	400,560	144,551	95,578	160,430	
	Airport Baggage Room	90,537	36,349	18,187	36,000	
	Airport Electrical Upgrade	310,023	108,202	77,391	124,430	
+	Cost Escalations					
	Taxes					
+	Freight	5,059	5,059			
+	Travel Expenses	812				812
+	Warranty	7,204	4,337	2,867		
	Bonds					
	Service Agreement					
+	Risk	12,922				12,922
-	**Direct Cost**	**426,557**	**153,947**	**98,446**	**160,430**	**13,734**
	Airport Baggage Room	97,878	38,712	18,733	36,000	4,433
	Airport Electrical Upgrade	328,679	115,235	79,713	124,430	9,301
	Overhead					
	General and Admin					
-	**Total Cost**	**426,557**	**153,947**	**98,446**	**160,430**	**13,734**
	Airport Baggage Room	97,878	38,712	18,733	36,000	4,433
	Airport Electrical Upgrade	328,679	115,235	79,713	124,430	9,301
+	Markup/Margin	182,810	65,977	42,191	68,756	5,886
-	**Contract Amount**	**609,367**				
	Airport Baggage Room	139,826				
	Airport Electrical Upgrade	469,541				
	Sales Tax					
+	**Contract Sell Price**	**609,367**				

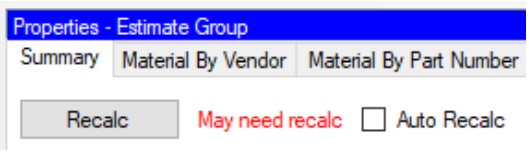
- Click the plus and minus signs to expand or collapse the detail. You can also use the EXPAND ALL and COLLAPSE ALL buttons.

The tabs include:

- *Summary*
- *Material by Vendor*
- *Material by Part Number*
- *Points by Type*
- *Labor*
- *Subcontracts*

Recalculating

The Estimate Group may need to recalculate the totals at different times as you move between the tabs. You can choose to have these recalculations automatically or manually.



- Click RECALC at any time to update all the data.
- The red *May need recalc* should appear if there is a chance that a recalculation may be necessary. It may not actually be necessary.
- Check the AUTO RECALC checkbox to have the recalculation occur any time the message would be shown.

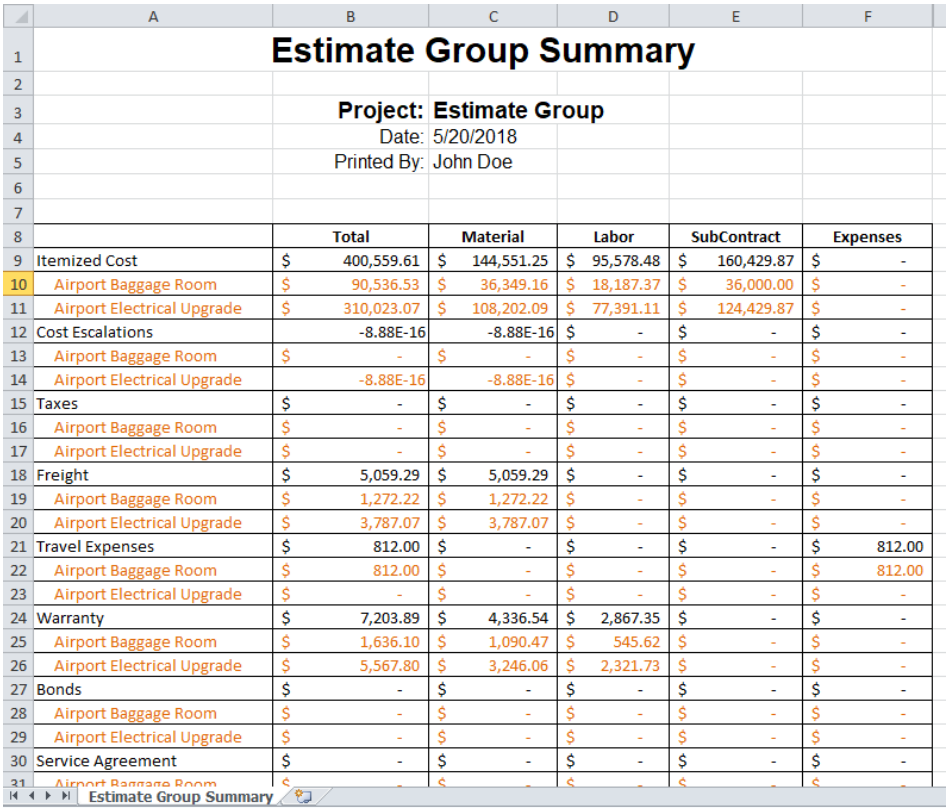
Generally, unless you are editing an Estimate in the Estimate Group, you shouldn't need to recalculate more than once per tab after opening the project.

Reports

The *Reports* tab contains a set of reports that correspond to the data available on the tabs.

- You can customize these reports in the same way as with other Estimate reports. Refer to the earlier chapter on *Reports*.

The reports will include the totals and the individual values from each Estimate:



Estimate Group Summary

Project: Estimate Group
Date: 5/20/2018
Printed By: John Doe

	Total	Material	Labor	SubContract	Expenses
Itemized Cost	$ 400,559.61	$ 144,551.25	$ 95,578.48	$ 160,429.87	$ -
Airport Baggage Room	$ 90,536.53	$ 36,349.16	$ 18,187.37	$ 36,000.00	$ -
Airport Electrical Upgrade	$ 310,023.07	$ 108,202.09	$ 77,391.11	$ 124,429.87	$ -
Cost Escalations	-8.88E-16	-8.88E-16	$ -	$ -	$ -
Airport Baggage Room	$ -	$ -	$ -	$ -	$ -
Airport Electrical Upgrade	-8.88E-16	-8.88E-16	$ -	$ -	$ -
Taxes	$ -	$ -	$ -	$ -	$ -
Airport Baggage Room	$ -	$ -	$ -	$ -	$ -
Airport Electrical Upgrade	$ -	$ -	$ -	$ -	$ -
Freight	$ 5,059.29	$ 5,059.29	$ -	$ -	$ -
Airport Baggage Room	$ 1,272.22	$ 1,272.22	$ -	$ -	$ -
Airport Electrical Upgrade	$ 3,787.07	$ 3,787.07	$ -	$ -	$ -
Travel Expenses	$ 812.00	$ -	$ -	$ -	$ 812.00
Airport Baggage Room	$ 812.00	$ -	$ -	$ -	$ 812.00
Airport Electrical Upgrade	$ -	$ -	$ -	$ -	$ -
Warranty	$ 7,203.89	$ 4,336.54	$ 2,867.35	$ -	$ -
Airport Baggage Room	$ 1,636.10	$ 1,090.47	$ 545.62	$ -	$ -
Airport Electrical Upgrade	$ 5,567.80	$ 3,246.06	$ 2,321.73	$ -	$ -
Bonds	$ -	$ -	$ -	$ -	$ -
Airport Baggage Room	$ -	$ -	$ -	$ -	$ -
Airport Electrical Upgrade	$ -	$ -	$ -	$ -	$ -
Service Agreement	$ -	$ -	$ -	$ -	$ -

Estimate Group Summary

9. Estimate Tools

There are some additional tools you can use when working with Estimates.

Managing Packages

If you are creating a library of packages, it may help to store a master copy in the form of Systems in an Estimate. To support this format, there are a few specific tools:

Add All Packages for Review

You can create an Estimate that consists of each package as a System.

- Create a new Estimate.
- Right-click on the Estimate node and select TOOLS→IMPORT ALL PART PACKAGES.

After importing, you can use the *Update Parts to Database* utility on the *Material* tab to validate the parts, to find obsoleted and replaced parts, and to run other reports.

Export All Systems as Packages

You can also do the opposite and save each System as a User package, which you can manage with TOOLS→PARTS→MANAGE MY PACKAGES.

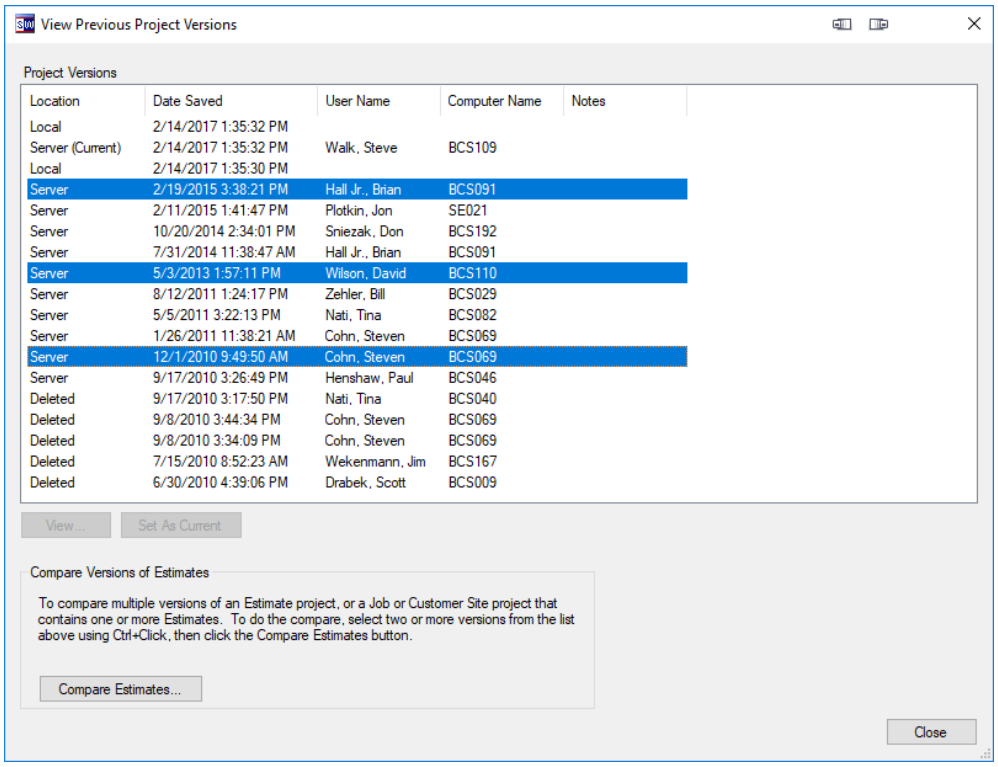
To export all the Systems as packages

- Right-click on the Estimate and select EXPORT→EXPORT ALL SYSTEMS AS PACKAGES TO MY PACKAGES

Compare Estimates

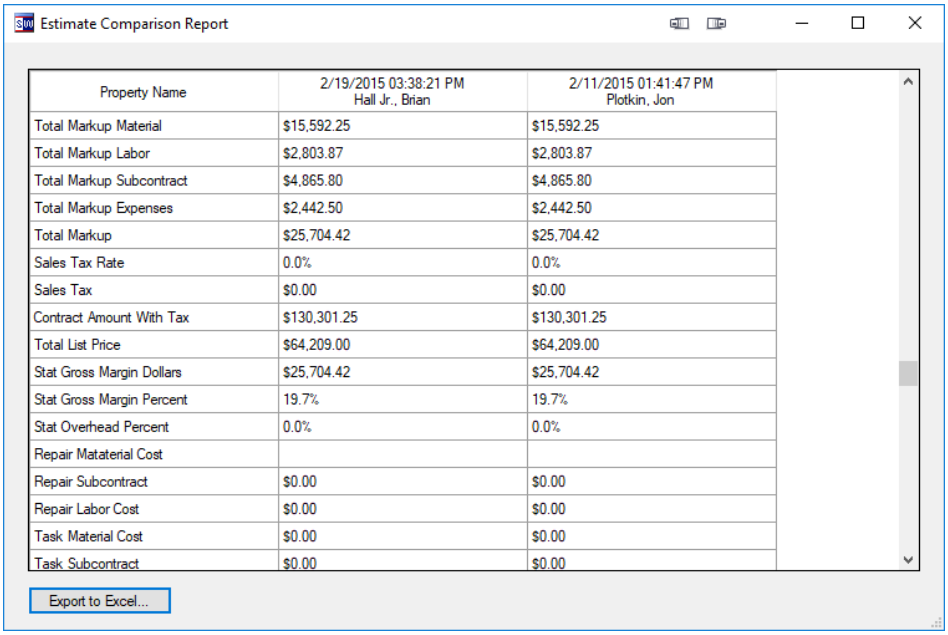
You can compare the values from two or more versions of an Estimate project (or each of the Estimates in a Site or Job project)

- In the *Open Project* dialog, right-click on the project and select VIEW PREVIOUS PROJECT VERSIONS.



- Use CTRL+CLICK to select two or more version to compare.

- Click the COMPARE ESTIMATES button. A side-by-side comparison of each key field in each version will be shown, with differences highlighted.

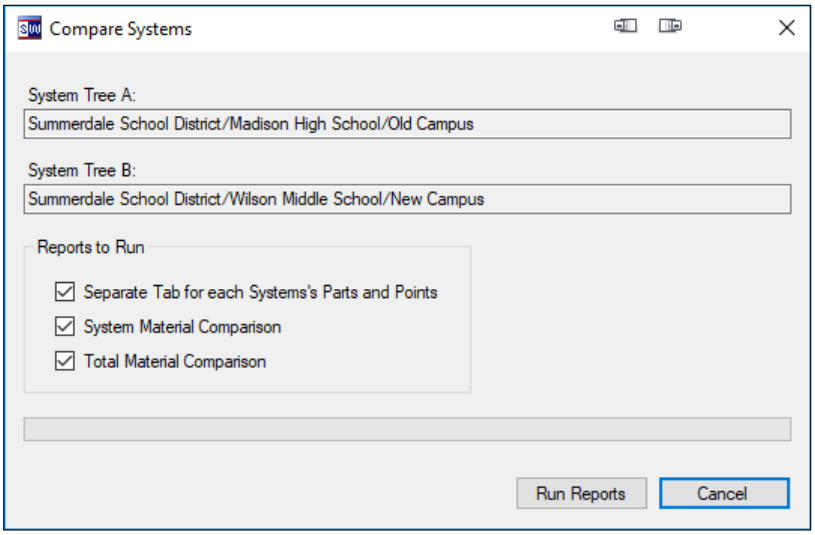


Compare System Trees

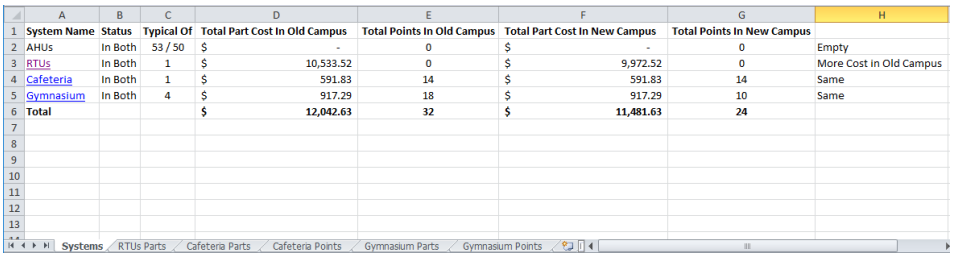
There is a special report that compares the systems in an Estimate project with those in a Design Project (or two Design or Estimate projects, if you wish).

- Start by selecting the first Estimate or Design Project (or an Area node within either), right-clicking and selecting TOOLS→SELECT FOR COMPARE SYSTEMS.
- Next, right-click on the other Estimate or Design Project (or an Area node within either), right-clicking and selecting TOOLS→COMPARE SYSTEMS WITH 'OTHER NODE'.

There are a few options for the report:



- An Excel report will be generated with multiple tabs.
  - The first tab shows a list of systems in either or both and compares their *Typical Of* values, their total *Part Cost* and total *Point Count*.
  - There are then two tabs for each system, one comparing the list of parts and the other comparing the list of points.
  - Hyperlinks on the *System Names* in the first tab and the upper-left cell in the other tabs will help you navigate around the workbook.



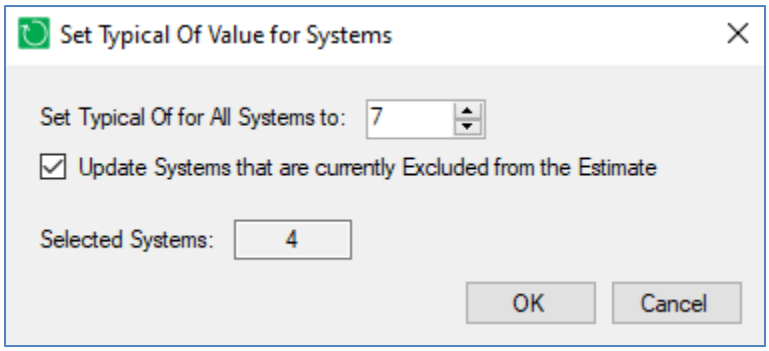
	A	B	C	D	E	F	G	H
1	**System Name**	**Status**	**Typical Of**	**Total Part Cost In Old Campus**	**Total Points In Old Campus**	**Total Part Cost In New Campus**	**Total Points In New Campus**	
2	AHUs	In Both	53 / 50	$ -	0	$ -	0	Empty
3	RTUs	In Both	1	$ 10,533.52	0	$ 9,972.52	0	More Cost in Old Campus
4	Cafeteria	In Both	1	$ 591.83	14	$ 591.83	14	Same
5	Gymnasium	In Both	4	$ 917.29	18	$ 917.29	10	Same
6	**Total**			**$ 12,042.63**	**32**	**$ 11,481.63**	**24**	
7								
8								
9								
10								
11								
12								
13								

Systems | RTUs Parts | Cafeteria Parts | Cafeteria Points | Gymnasium Parts | Gymnasium Points

Set *Typical Of* for Systems

Depending on how you structure your areas and systems, you may want to set the *Typical Of* value for all the systems in an area to the same value.

Right-click on the Area (or Estimate) and select TOOLS→SET TYPICAL OF FOR SYSTEMS:

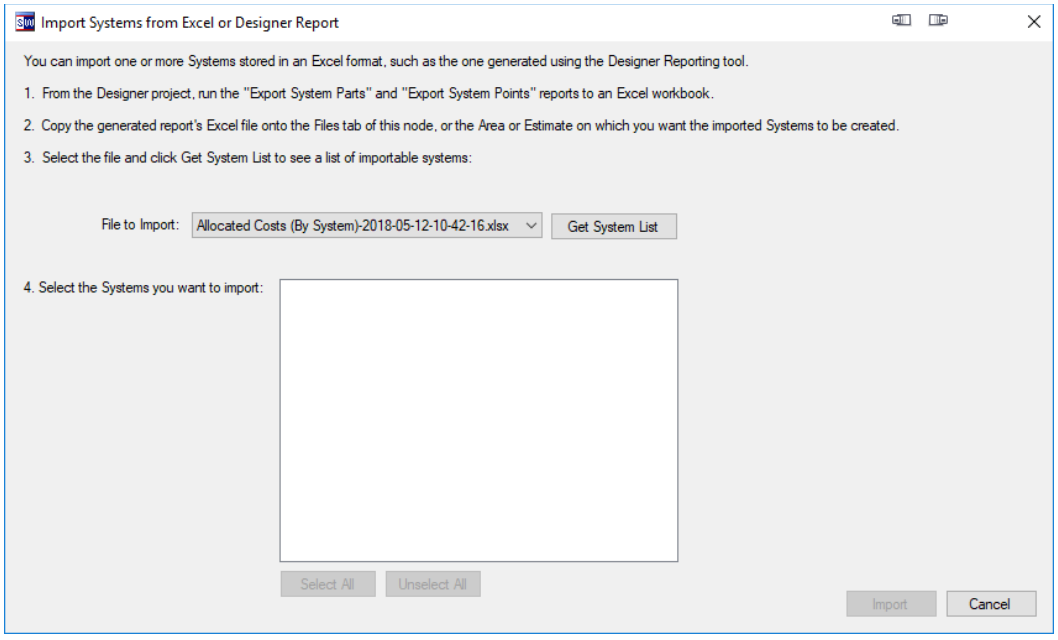


- You can choose whether to include systems that are currently *Excluded*.

Import Systems from Excel

You can import one or more Systems stored in an Excel format, such as ones generated using the Design360 Reporting tool.

- On an Estimate node, Right-click→TOOLS→ IMPORT SYSTEMS FROM EXCEL.
- Follow the instructions presented on the window, as shown in the below image.



Signing an Estimate

As with files, you can also "sign" an Estimate (in its own project or as part of a Customer Site or Job project) for the purposes of tracking approvals.

- To sign an Estimate, right-click on the Estimate node and select Sign Estimate. You will be prompted to add an optional comment to the signature.
- When an Estimate is signed, it and all of its areas and systems are automatically locked and made read-only.
- Once signed, a new tab called Signature will be shown on the Estimate with the history of the signatures with comments.
- Anyone can remove a signature and edit the Estimate again. To unsign an Estimate, right-click the Estimate and select Unsign Estimate. The history of the signing and unsigning, along with all comments, will remain and is shown.
- Multiple people can sign the same Estimate.
- To Sign or Unsign and Estimate, the project must not be checked out to someone other than you. It does not, however, need to be checked out by you to be signed.

Importing from Concerto Suite (SOCC)

If you have an existing estimate created with Concerto Suite/SOCC you can import much of its data into a Smartware Studio Estimate.

- You do not need to have Concerto Suite installed on your computer to import an estimate.

Only the following information will be imported:

- Area and System Tree (with *Typical Of* values and *Excluded* flags)
- Parts and Labor

No other values or settings are imported. These include: Global adjustments, labor rates, cost escalations, template values, travel expenses, allowances, taxes, etc.

To import a Concerto Suite estimate:

- Create a new Estimate
- Right-click on the Estimate node and select the TOOLS→ESTIMATING→IMPORT FROM SOCC menu item.

- Browse to the .KST file and click OPEN. By default, it will look in the *C:\Concerto Suite Projects*, but you can open an estimate from any folder.

The import will do the following:

- The Areas and Systems will be created in the Estimate tree.
- The Parts will be populated in each System's Parts list. The labor factors, prices and multipliers will be taken directly from the SOCC estimate. They will *not* be updated automatically.
- The POINTS items will be moved to the System's Points tab.
- The HRS items will be moved to the System's Labor tab

Creating Designer Drawings from an Estimate

Smartware Studio offers the simplicity of creating template Designer drawings from your Estimates, including Areas and Systems. The resulting Designer file will contain shapes found for the available part numbers within a System.

- Select an Estimate, Area, or System node and select right-click→TOOLS→GENERATE DESIGNER DRAWING.
- Refer to the separate *Smartware Studio Designer Module User's Guide* for more details on working with Designer Files.

Import Systems from Bluebeam Revu

Smartware Studio allows you to import data and Systems from PDF files marked up or exported from Bluebeam Revu.

- On an Estimate node, right-click→TOOLS→IMPORT SYSTEMS FROM BLUEBEAM EXPORT.

- Refer to the *Bluebeam Import Guide* available from Smartware Studio's HELP menu for more details.