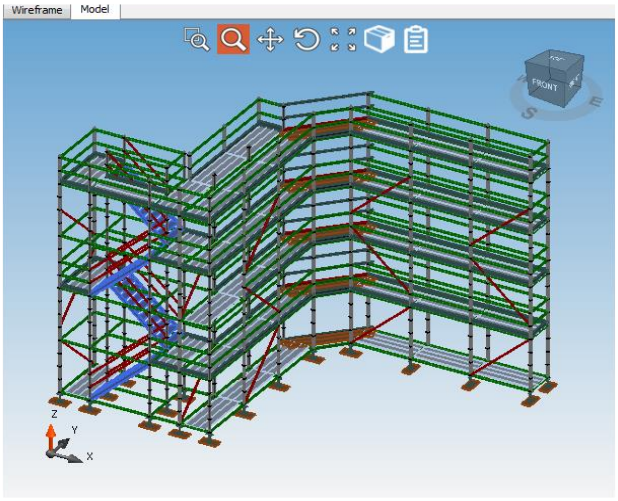
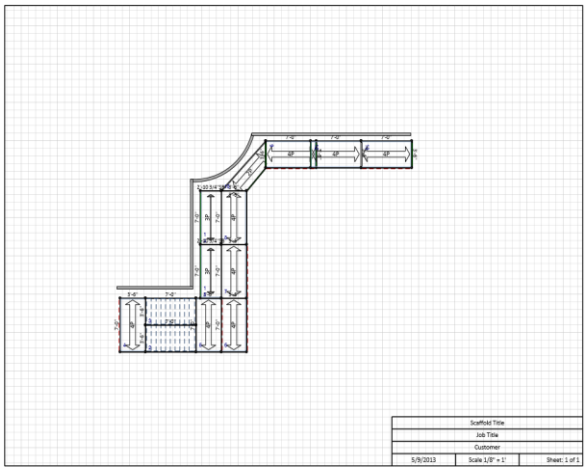
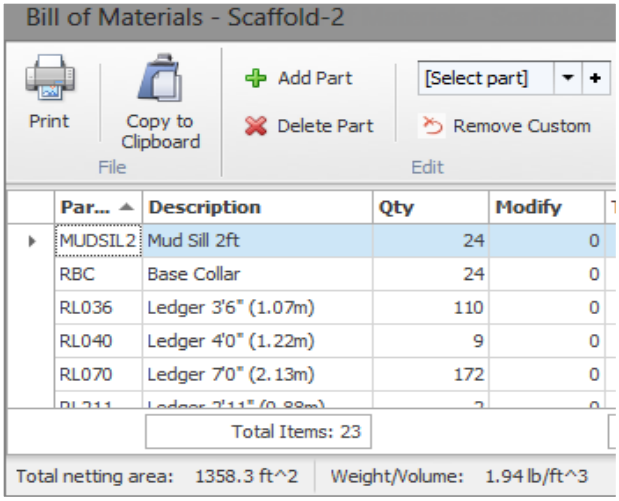
Scaffold Designer® User Guide







Scaffold Designer is a simple but powerful scaffold drawing tool that allows the design of scaffold structures of any complexity and generates a bill of materials automatically. This guide covers Scaffold Designer navigation, features, and use. Please see the *Scaffold Designer Installation Guide* for installation instructions.

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Contents

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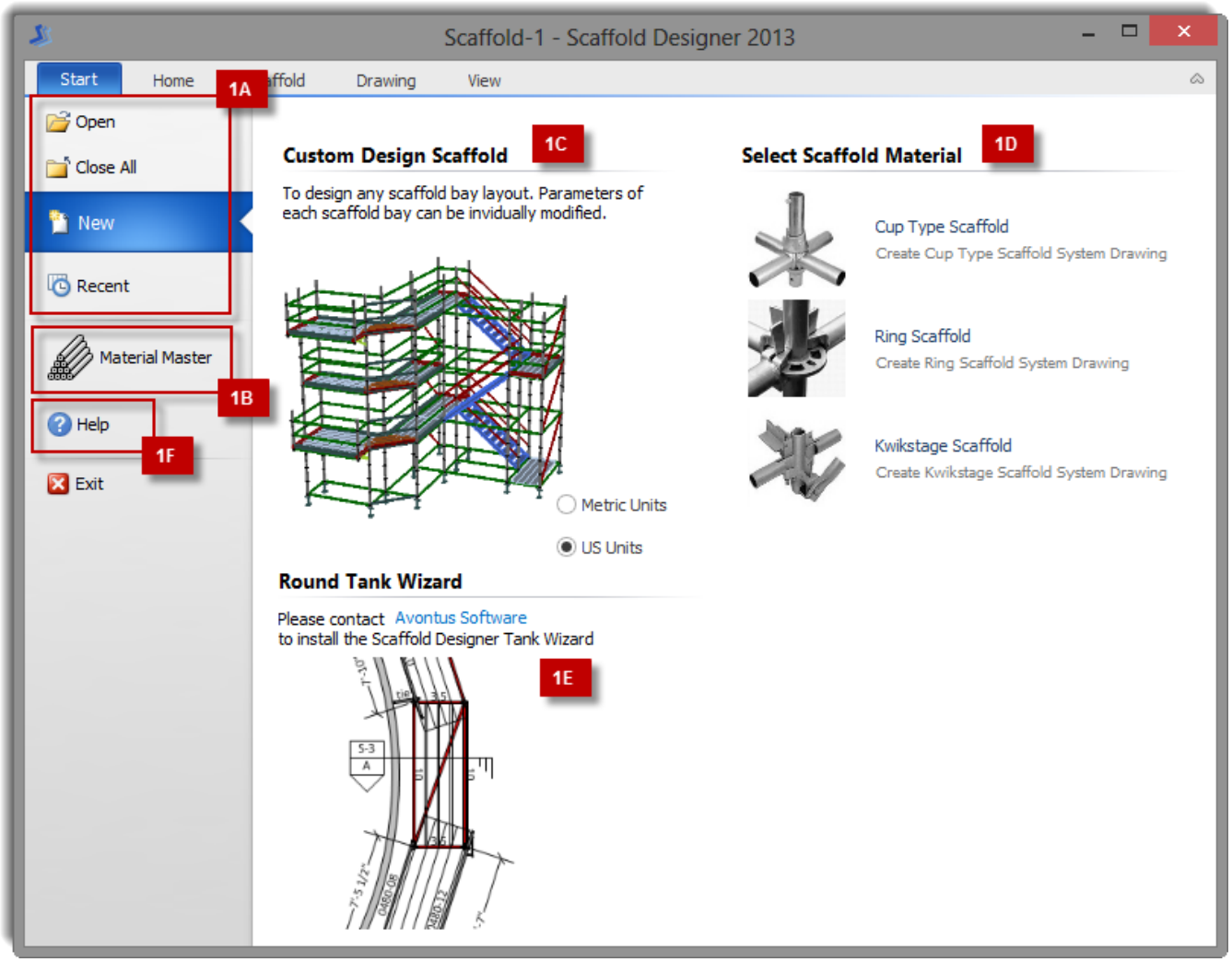
Warning:
This Product (as defined below) is intended for use by qualified scaffolding designers and/or competent persons as defined by OSHA and other applicable regulatory bodies. Use by unqualified persons may result in DEATH, SERIOUS PERSONAL INJURY, OR PROPERTY DAMAGE. Loads are determined by this Product based on the load-carrying capacity of a single leg. The total loads on individual components (plank, side bracket, etc.) as well as the loading of the scaffolding assembly (dead load, live load, wind load, seismic load, etc.) must be considered by any user of this Product. The Product provides no engineering checks or regulatory validation routines. You are entirely responsible for ensuring that the outputs generated by the Product are sufficient for your purposes and that they comply with any applicable laws or regulations.

Getting Started

Every time you launch Scaffold Designer, the Backstage within the *Start* tab will appear. While in a drawing, you navigate back to the Backstage by selecting *Start*.

Backstage

The **Backstage** is where new scaffold drawings begin, existing drawings are opened, and the Material Master is viewed as well as maintained. For information about the default parts in the Material Master and customization, see the *Material Master* section.



New

1A Select this option to start a new drawing. This is selected by default whenever the Backstage is open

Custom Design Scaffold

1C The **Custom Design Scaffold** section allows Metric or US units to be used for the scaffold bays and parts for a new scaffold drawing. By default **US Units** is selected, select Metric Units if this will be your standard of measurement for the new drawing.

Select Scaffold Material

1D The **Select Scaffold Material** section of the Backstage allows different scaffold systems to be used in the new scaffold drawing. The scaffold material type chosen for the drawing will affect the material available to be used and viewed in the bill of materials. As an example, choosing Cup Type scaffold material for the drawing will make Cup Type material available.

NOTE: While all three material types are available in the Material Master, choosing the material type for the drawing will dictate the material available for use in that drawing.

Round Tank Wizard

1E The **Round Tank Wizard** is a plug in to assist with the creation of scaffold drawings for the inside and/or outside of circular objects such as tanks. This plug in is disabled by default and requires separate installation to enable this feature.

For more information about using the Round Tank Wizard, please contact Avontus Software.

Open

1A Select **Open** to browse, select, and open an existing drawing. Scaffold Designer allows you have multiple drawings open at the same time. Drawings must have a file extension of .vsdx. If the drawing has been modified in another program, some features or functions may be disabled when editing in Scaffold Designer

Close All

1A Select **Close All** to close all of the currently open drawings. To close drawings individually, click X **Close** on the drawing's tab.

Recent

1A Selecting **Recent** will display a list of the most recently created or edited drawing. By default, this list will display 10 results.

Help

1F From **Help** you can access the following tools:

- Activation Manager – For more information about Activation, please refer to the *Scaffold Designer Installation Guide*.
- Automatic Updates – Select this option to check for updates to Scaffold Designer.
- Contact Us

Material Master

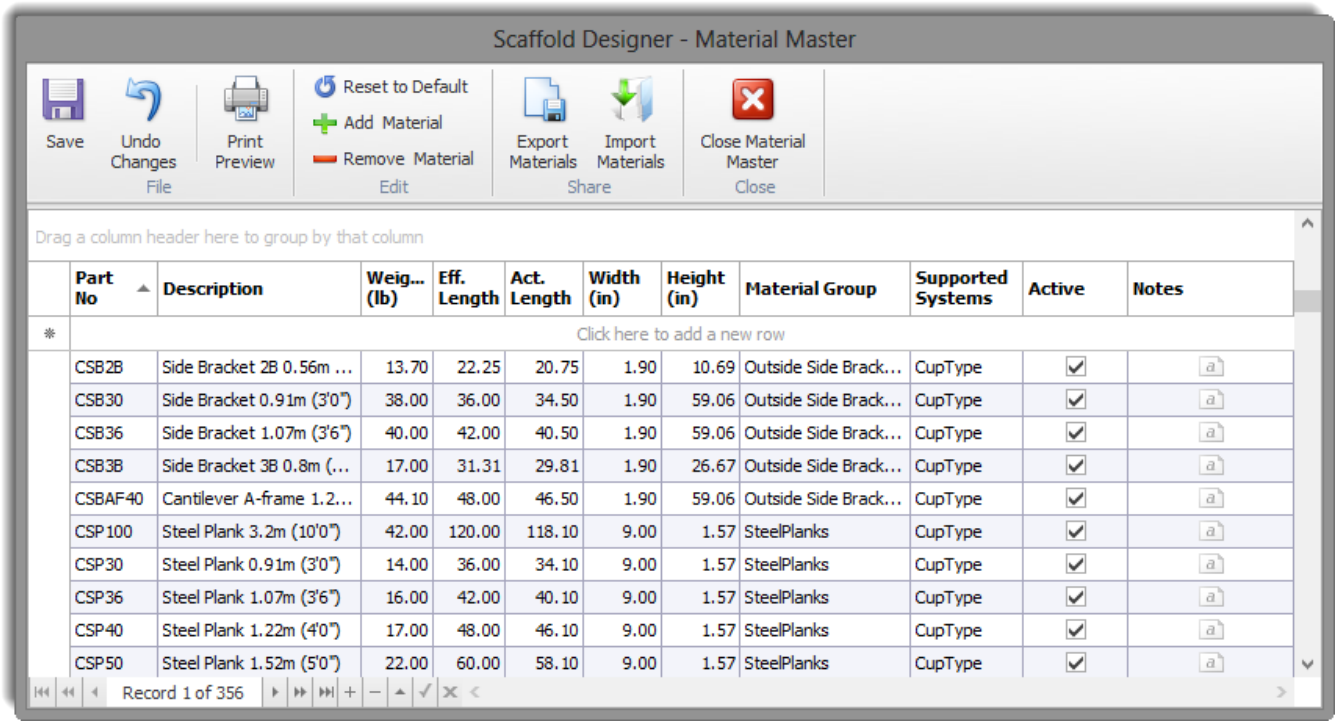
1B The **Material Master** is the core parts list used for drawings, the Bill of Materials, and scaffold calculations in Scaffold Designer. With a new installation of Scaffold Designer, this list will default with some materials already available for use. The Material Master is completely customizable so you can create a list that matches the materials available from your supplier(s) or within your own inventory. If you will be integrating with Quantify, this list should be updated to match your Quantify Product Catalog. For more information about integration, see *Integrating with Quantify/ Quantify Web* section.

NOTE: The Material Master can be viewed at any time, but to make changes, all drawings must first be closed before opening.

The measurements, weights, and other information entered here will be used when generating a Bill of Materials for a scaffold. Also, these measurements are used for calculations such as scaffold dimensions. It is important that these match your supplier's listed specifications to ensure drawing accuracy.

Editing Material

To edit the Material Master, select **Material Master** from the Backstage. This will launch the 'Material Master' dialog.



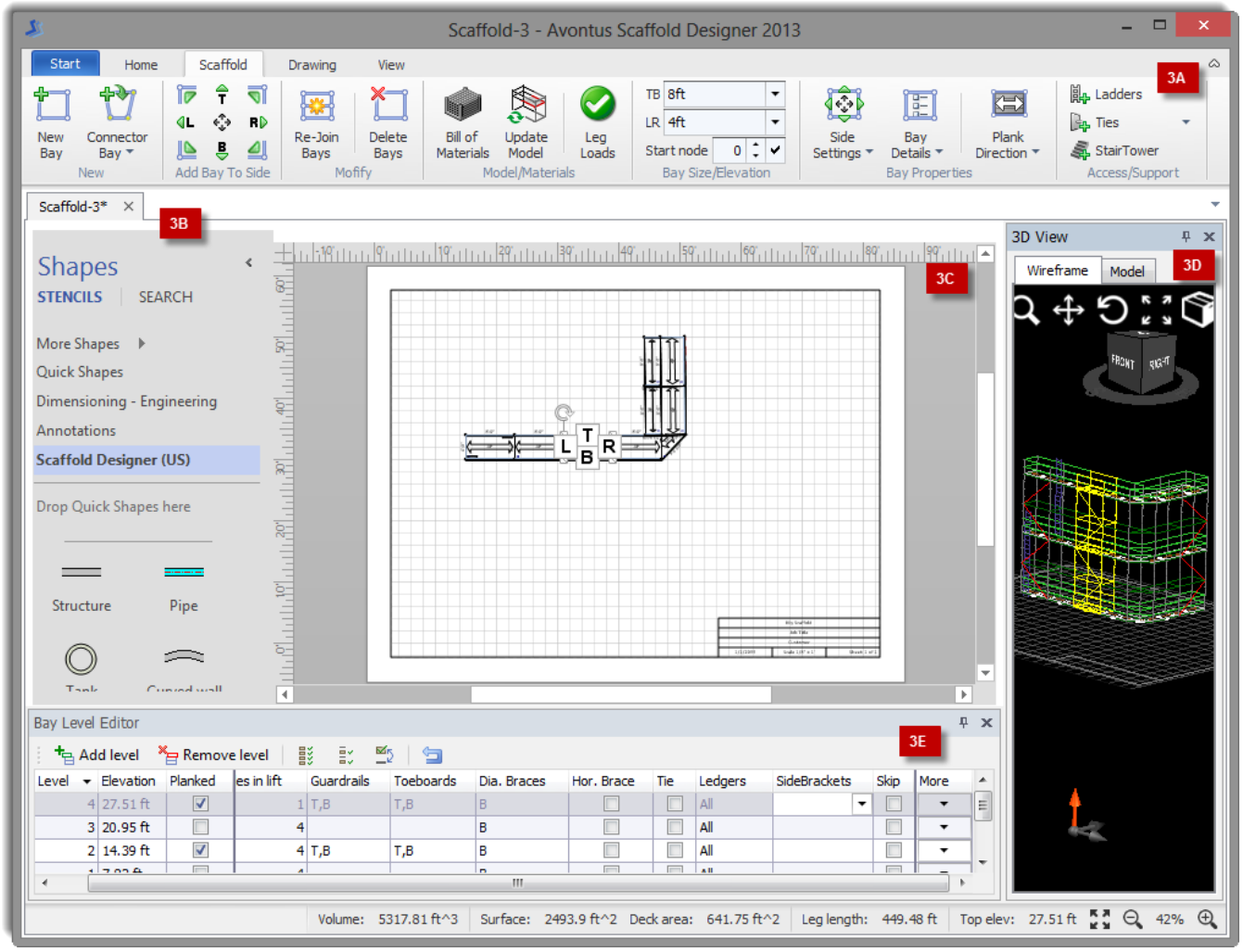
To edit an existing part, select the **Part** in the grid. Click in the desired field and edit the information. Continue to edit parts as desired. Click **Save** when ready.

WARNING: Clicking **Undo Changes** will undo all changes made since the last Save.

You may also add or remove parts from the Material Master list by using **Add Material** or **Remove Material** in the Edit group.

Inside Scaffold Designer

When working on a new drawing or editing an existing drawing, the following sections can be displayed or removed from the display. To add a section back onto the display, select the section from the *View* tab.



Scaffold Designer Ribbons

The ribbon contains the Start, Home, Scaffold, Drawing, and View tabs with multiple groups in each tab. Scaffold Designer controls are categorized in Ribbons, by tab and then by group. Similar type controls are combined within tabs and groups to make them logically easy to find and use.

3A Selecting the *Scaffold* tab will display the **Scaffold Ribbon** which contains many of the controls needed for creating a scaffold drawing. See the *Scaffold Ribbon – Controls by Group* section for details on each of the controls in the Scaffold Ribbon.

Drawing Stencil

3B The **Drawing Stencil** provides various smartshapes that can be used in Scaffold Designer drawings. These shapes can be added to the drawing by dragging and dropping the shape into the Drawing Page. Once a smartshape is added to the page, it can be sized as needed.

Drawing Page

3C The **Drawing Page** is where scaffold drawings are created. The page is blank when a new drawing is started. Additional pages can be added to a drawing as well as a Bill of Materials, 3D Model, and more.

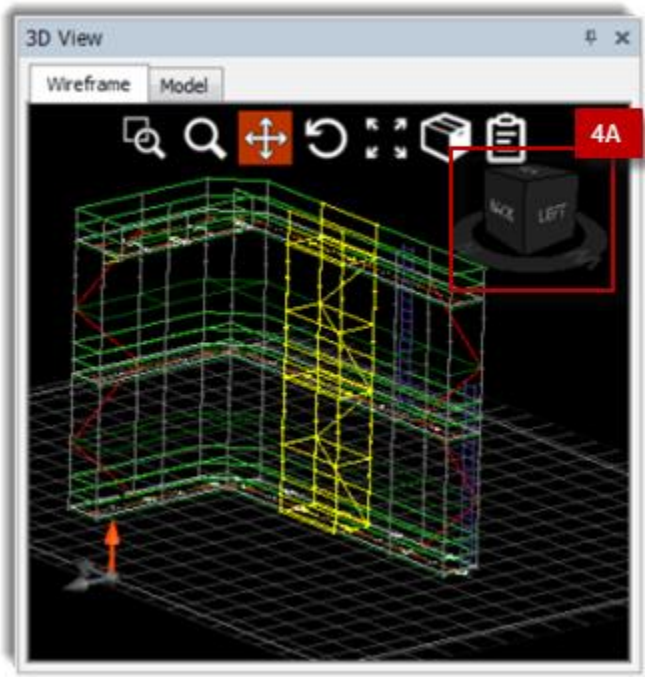
3D View

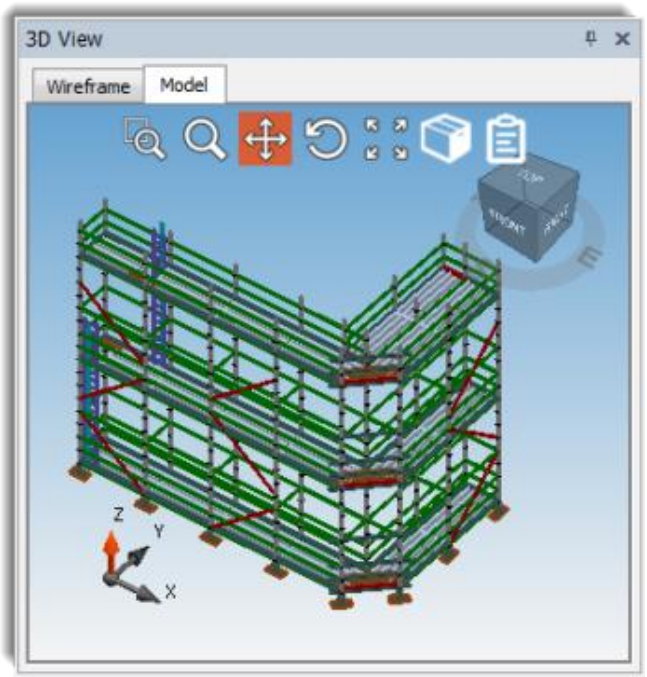
3D The **3D View** displays a 3D rendering of the drawing. Use the *Wireframe* or *Model* tabs to toggle between the available views. Use the controls within each tab to adjust the image:

- Zoom Window – Zoom to fit a drawn window area.
- Zoom – Increase or decrease the zoom manually.
- Pan – Move the image location in the window.
- Rotate – Rotate the image on an axis. The axis is determined by the location where the image is clicked.
- Zoom Fit – Changes the image size to fit the complete image or grid in the window.
- Toggle Perspective/Parallel View – Changes the perspective to be parallel with the image. Click again to change back to the previous perspective.
- Copy to Clipboard – Copies the image to the clipboard. Some adjustments may occur during this process.

4A The View Cube is a useful tool that allows you to adjust the image's pan and rotation at the same time. You can also use the View Cube to toggle the perspective to a specific location. Click the desired location on the cube and drag to change the image's orientation. To view the image parallel to a specific side, edge, or corner, click that location on the cube and release. The image will automatically adjust using the selected location as a center point. Use the compass below the cube to reference the image's orientation to the drawing as designed in the Drawing Page.

Below are the *Wireframe* and *Model* views as shown in the 3D View section for the same scaffold drawing.



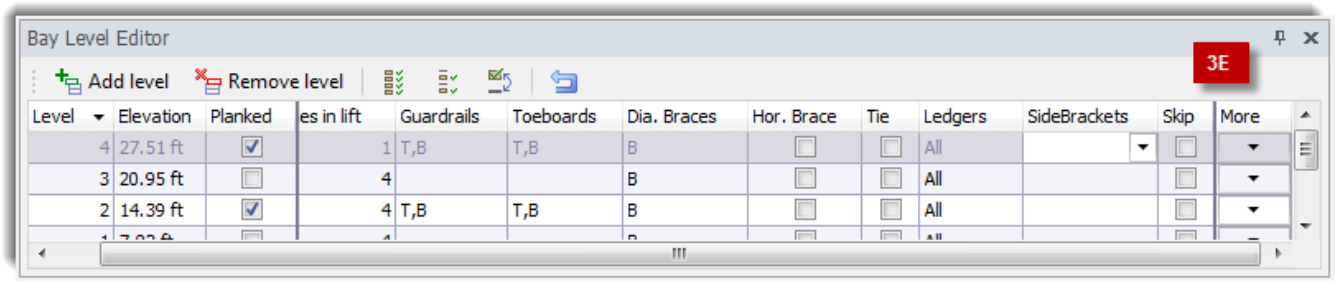


Bay Level Editor

3E The **Bay Level Editor** contains the controls for individual Bays. The details and controls for a specific Bay will appear when that Bay is selected in the Drawing Page. Controls in the Bay Level Editor include:

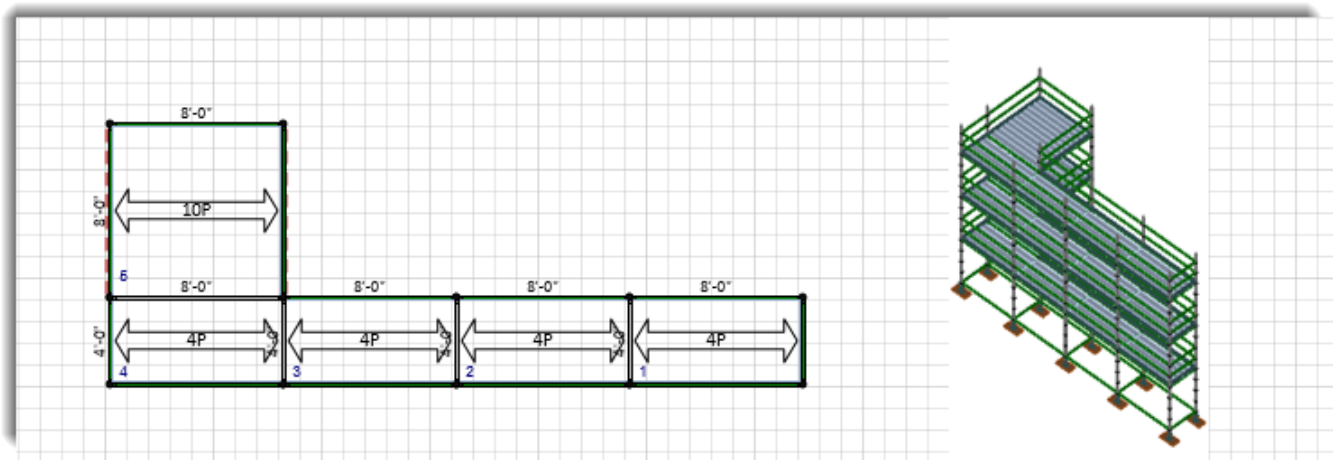
- Plank All – Planks every level of a Bay
- Plank Every Other – Planks every other level of a Bay. Defaults to plank odd numbered levels.
- Invert Planked – Planks the currently non-planked levels and removes the planks from the currently planked levels.
- Reset Overrides – Removes customizations made to the Bay.
- Side Brackets – Add or remove side brackets from any side of the Bay.
- More – Additional controls such as Guardrail Type, Toeboard Type, and Diagonal Brace Direction.

TIP: If you will have many Bays with similar or the same details, add the first Bay to the drawing. Edit the Bay Levels to include the attributes needed. Then, use the **Add Bay to Side** or **Copy** and **Paste** features to add another Bay with the same attributes.



Create a Scaffold Designer Drawing

This section will outline how to create this example L-shaped scaffold drawing using some of the key controls and features of Scaffold Designer. This example uses default Material Master parts.

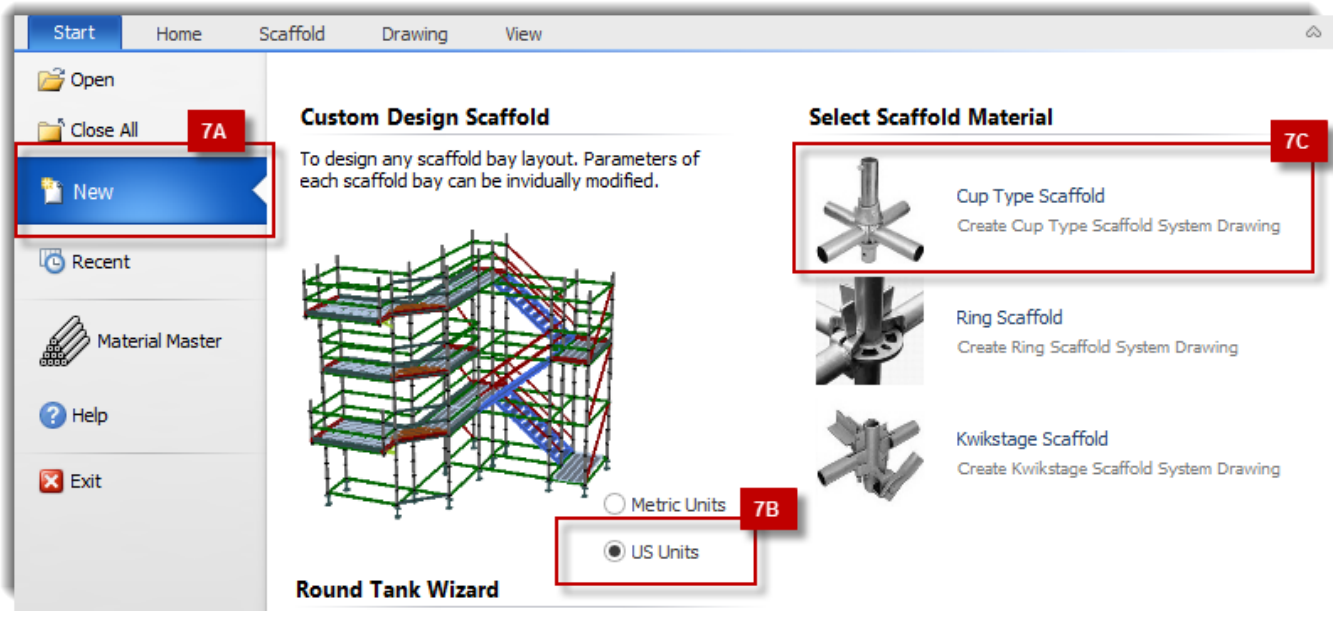


Start a Drawing

7A To start a new drawing, open Scaffold Designer. The Backstage will launch with the **New** option already selected.

7B First, the unit of measure must be selected. This drawing will use the default selection **US Units**.

7C Next, select the Scaffold Material. This drawing uses **Cup Type Scaffold**. After selecting the Scaffold Material, a new Drawing Page will launch.

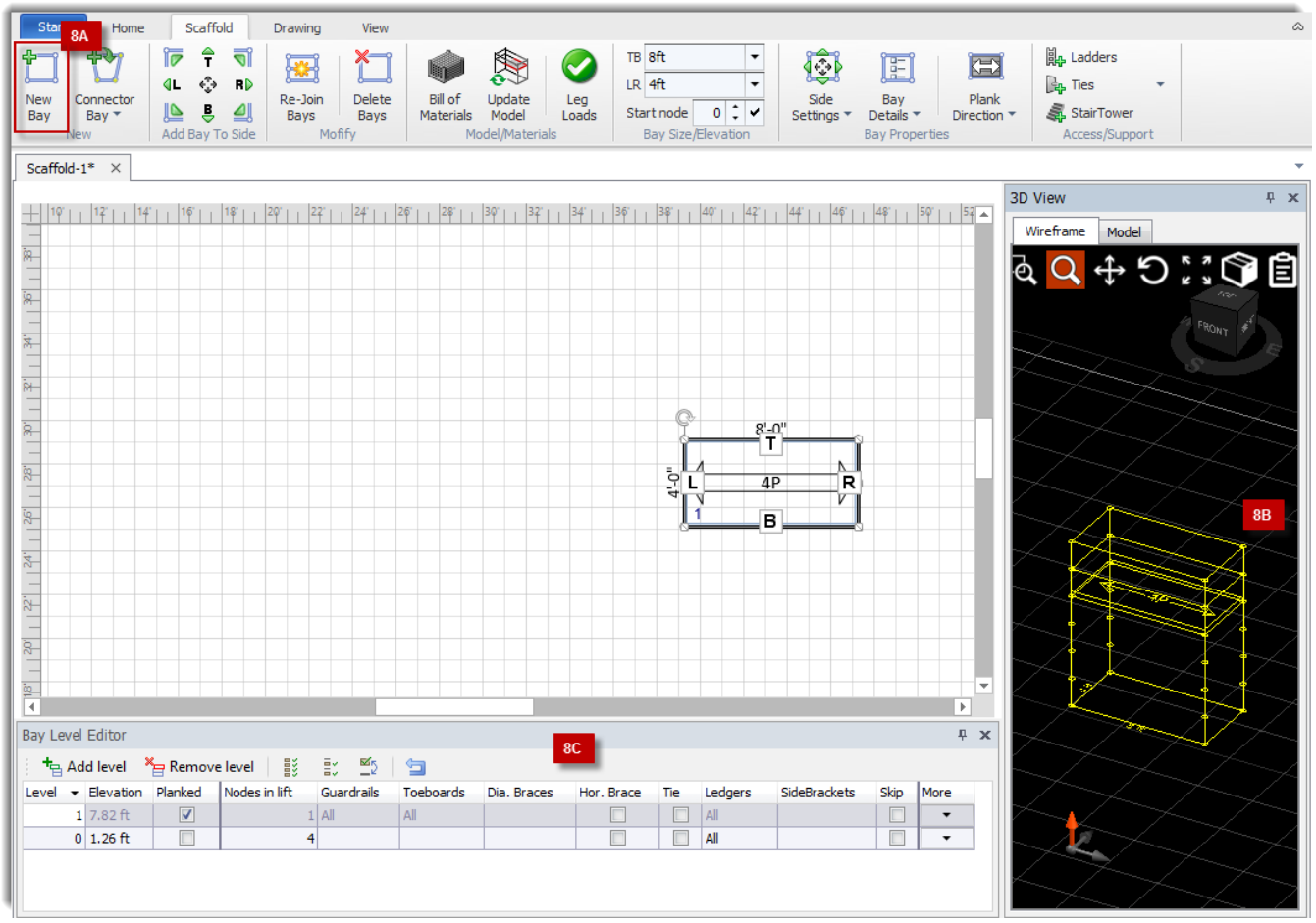


Add a Bay

8A The *Scaffold* tab will be active by default. From this tab, click and drag the **New Bay** shape to the middle of the Drawing Page. A new default Bay is added.

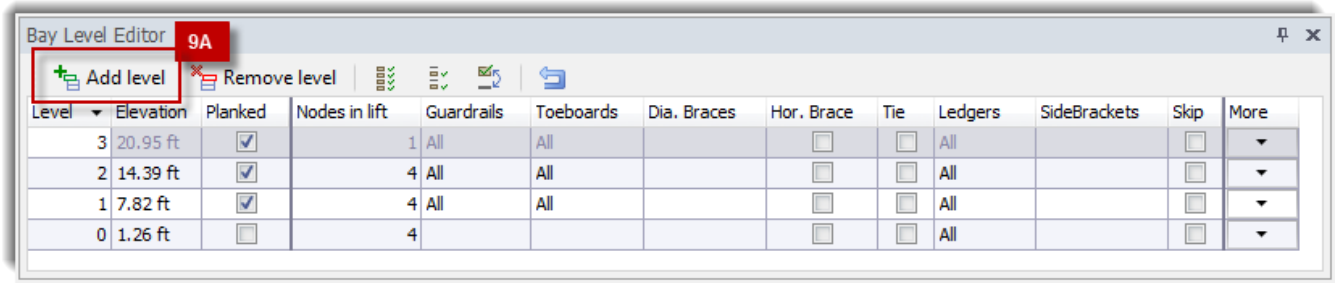
8B The 3D view will update to reflect the newly added bay on the drawing page.

8C The Bay Level Editor will display details for this Bay.



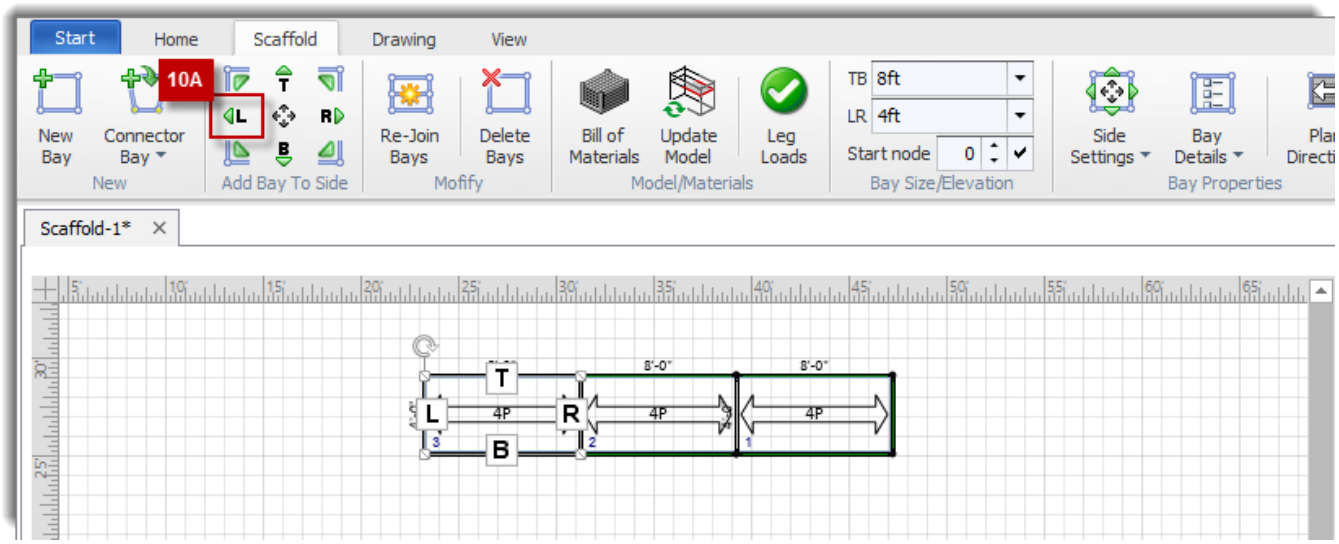
Edit Bay Levels

9A Within the Bay Level Editor, click **Add Level** to add a planked level to the selected Bay. Repeat to create a Bay with 3 levels.

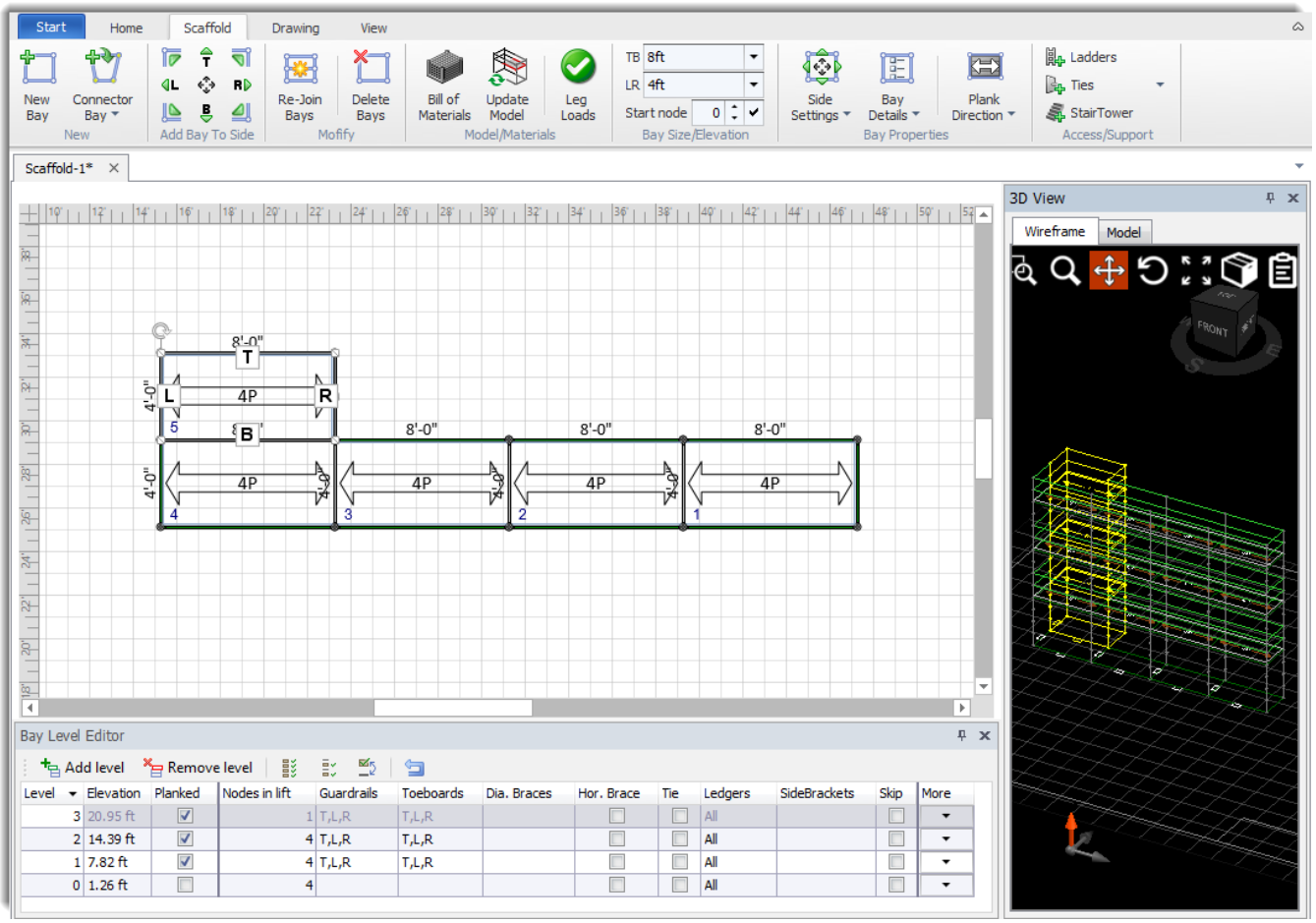


Add Additional Bays

10A The selected Bay will be used as a template for Bays added to any of its sides. With this Bay still selected in the Drawing Page, locate the Add Bay to Side control in the *Scaffold* tab. Click the **Left** direction to add a Bay to the left side of the selected Bay. Repeat to create a total of 4 Bays. The added Bays will have the same dimensions and properties as the copied Bays.



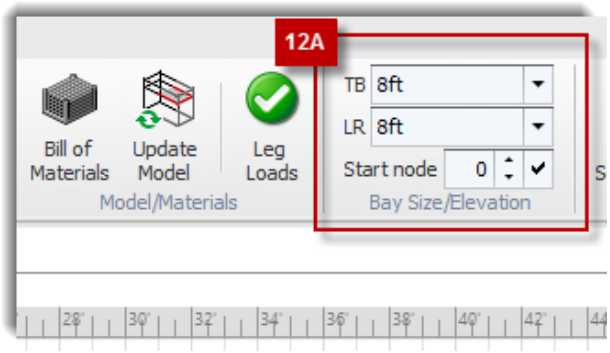
The most recently added Bay will be selected in the Drawing Page by default. Click the **Top** direction in the Add Bay to Side control to add a Bay to the Top of Bay 4.

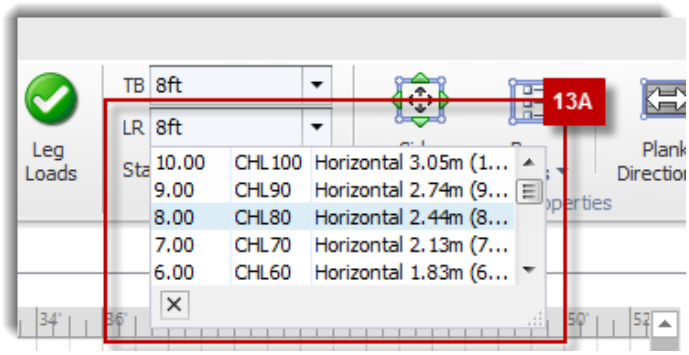


Change Bay Dimensions

12A Bay 5 will have different dimensions from the rest of the Bays. The most recently added Bay will be selected in the Drawing Page by default. With **Bay 5** selected, locate the Bay Size/Elevation control in the *Scaffold* tab.

13A Edit the **LR** dimension to 8ft. Once this option is selected, the drawing and 3D View will update.





Save

To save a drawing at any time, select the *Home* tab. Click **Save** > **Save As** to choose a save location and filename for the active drawing. The L-shaped example drawing is complete!

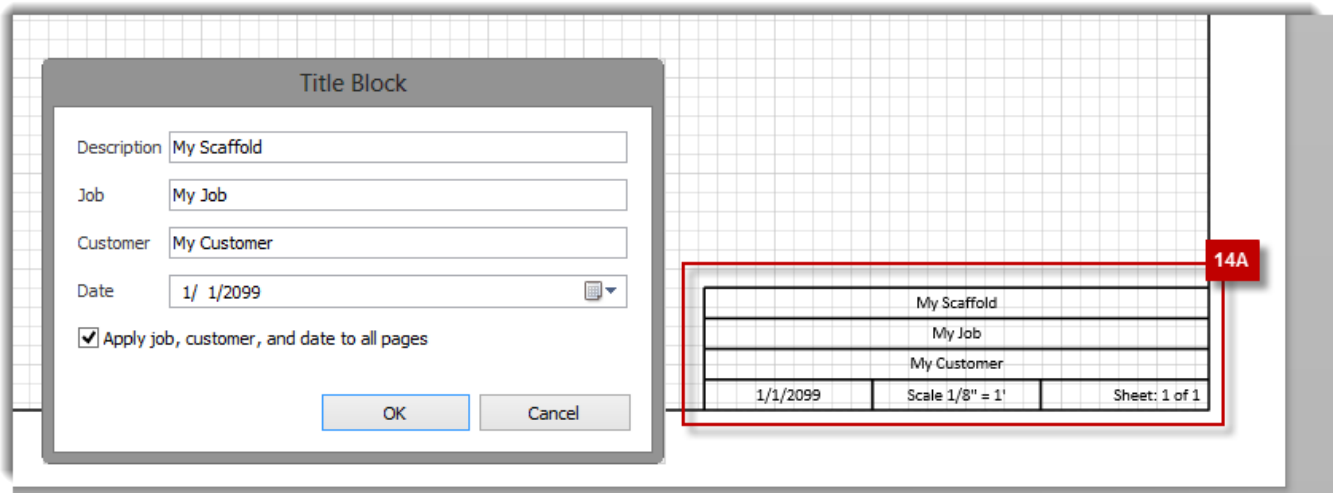
Finishing a Drawing

Title Block

14A A Title Block is placed on each drawing so that the various project properties can be printed with the drawing. Each page of a drawing will contain a unique Title Block in the lower right hand corner.

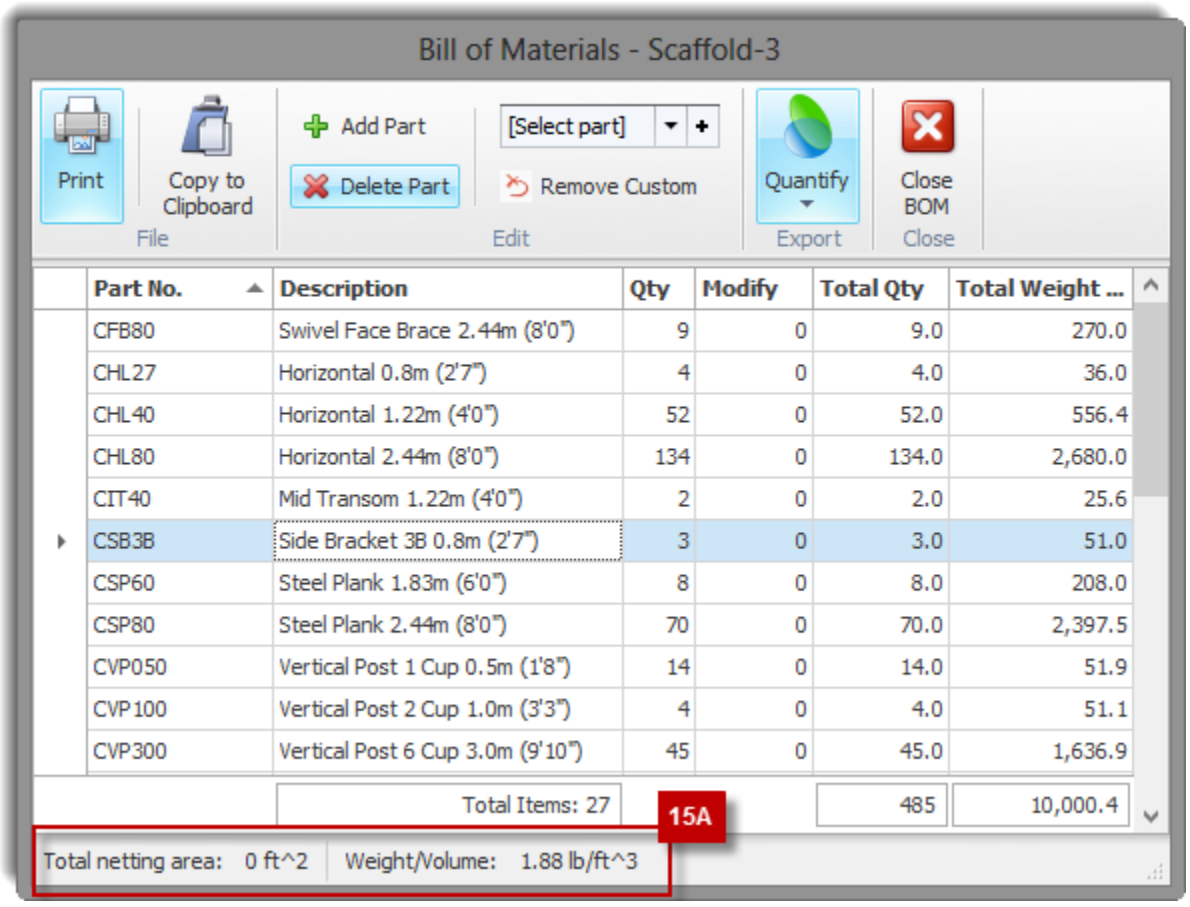
NOTE: The Scale and Sheet sections of a Title Block are automatically updated with the properties of a drawing.

To edit the information within the Title Block including the Description, Job, Customer, and Date, select **Title Block** from the *Home* tab. This will launch the 'Title Block' dialog for the active Drawing Page. Make any of the desired changes. To apply these changes to all pages of a drawing, select the option **Apply Job, Customer, and Date to All Pages**. Click **OK** when ready.



Bill of Materials

15A Scaffold Designer can create a Bill of Materials for a scaffold drawing. The Bill of Materials calculates and displays a list of materials required to build a scaffold as drawn. This will include the Quantity of Parts, total Weight/Volume, and Netting Area which will appear in the drawing's selected Unit of Measure. To create a Bill of Materials, click **Bill of Materials** from the *Scaffold* tab. The 'Bill of Materials' dialog will launch.



The Bill of Materials for a drawing can be edited to Add Parts, Modify quantities, change the Description of a Part, and more. Once complete, the Bill of Materials can be Printed, Copied, or exported to Quantify to create an estimate. See *Integrating with Quantify/ Quantify Web* section for more information about exporting the Bill of Materials.

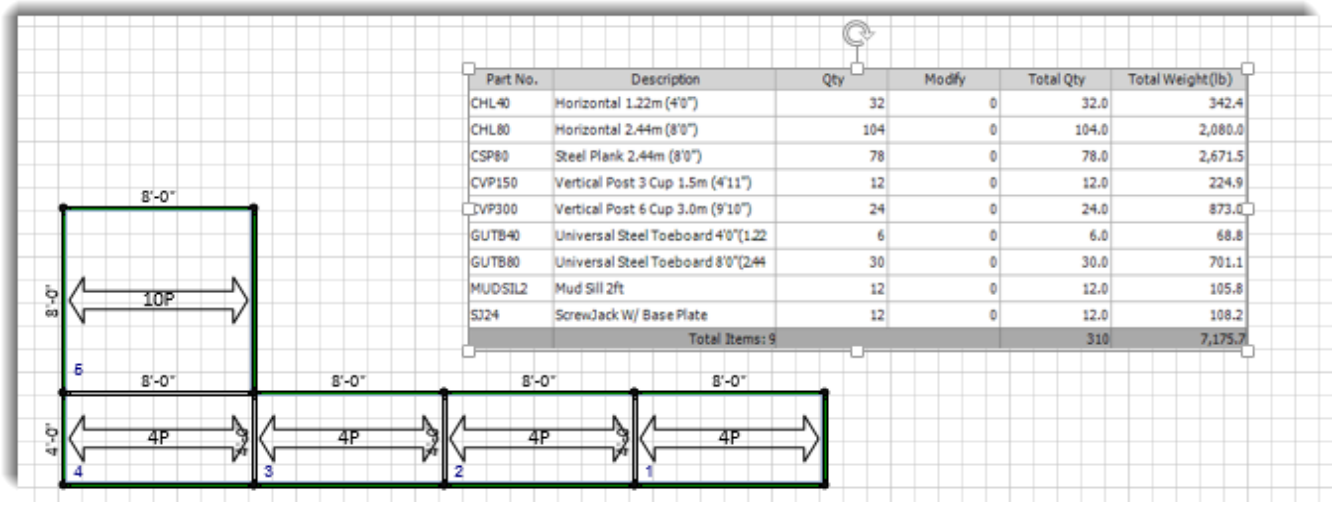
NOTE: Changes made to the Bill of Materials, such as modifying quantities, will not change the parts used in the associated drawing.

WARNING: Changes made to the drawing after adding the Bill of Materials will not be included in the drawing image. To include these changes, delete the Bill of Materials image and copy the updated Bill of Materials to the drawing.

Copying the Bill of Materials to a Drawing

A copy of the Bill of Materials can be added to any page of a drawing. To add the Bill of Materials, select **Bill of Materials** from the *Scaffold* tab. Make any desired changes such as adjusting the Weight of materials. Once changes are complete, click **Copy to Clipboard**. Click **Close BOM** to return to the Drawing Page.

You can paste the Bill of Materials to any page of the drawing using standard Windows commands. Right-click the Drawing Page and select **Paste** to paste an image of the Bill of Materials. This image can be sized and moved to the desired location on the page.



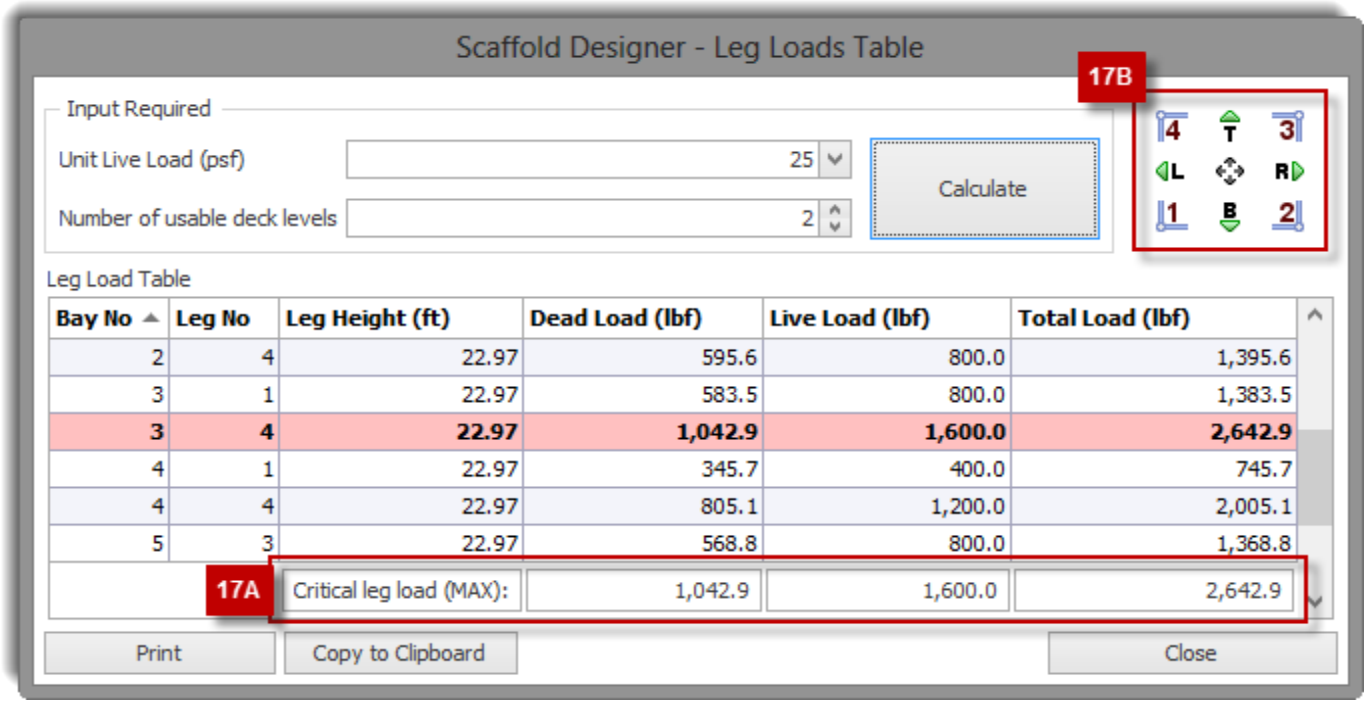
Leg Loads

Scaffold Designer can calculate the Leg Loads for a scaffold. The Leg Loads Table calculates the Dead Load, Live Load, and Total Load for each leg in a scaffold drawing based upon the size, height, location, materials, braces, and other variable factors.

To calculate Leg Loads for a drawing, click **Leg Loads** from the *Scaffold* tab. The 'Leg Loads Table' dialog will launch. Enter the **Unit Live Load** amount and the **Number of Usable Deck Levels**. Both of these values will be used to calculate the Live Load and Total Load. Click **Calculate** when ready.

TIP: Use the directional graphic to quickly identify Leg numbers for a Bay. 17B

17A The table will display all legs based upon the drawing's specifications. If Legs are shared, they will only be displayed once in the table. The Leg with the most load will be highlighted in red and the load details for this leg will also be displayed in the Critical Leg Load status line.



Copying Leg Loads to a Drawing

A copy of the Leg Loads Table can be added to any page of a drawing. To add the Leg Loads Table, select **Leg Loads** from the *Scaffold* tab. Add the required values and **Calculate**. Click **Copy to Clipboard**. Click **Close** to return to the Drawing Page.

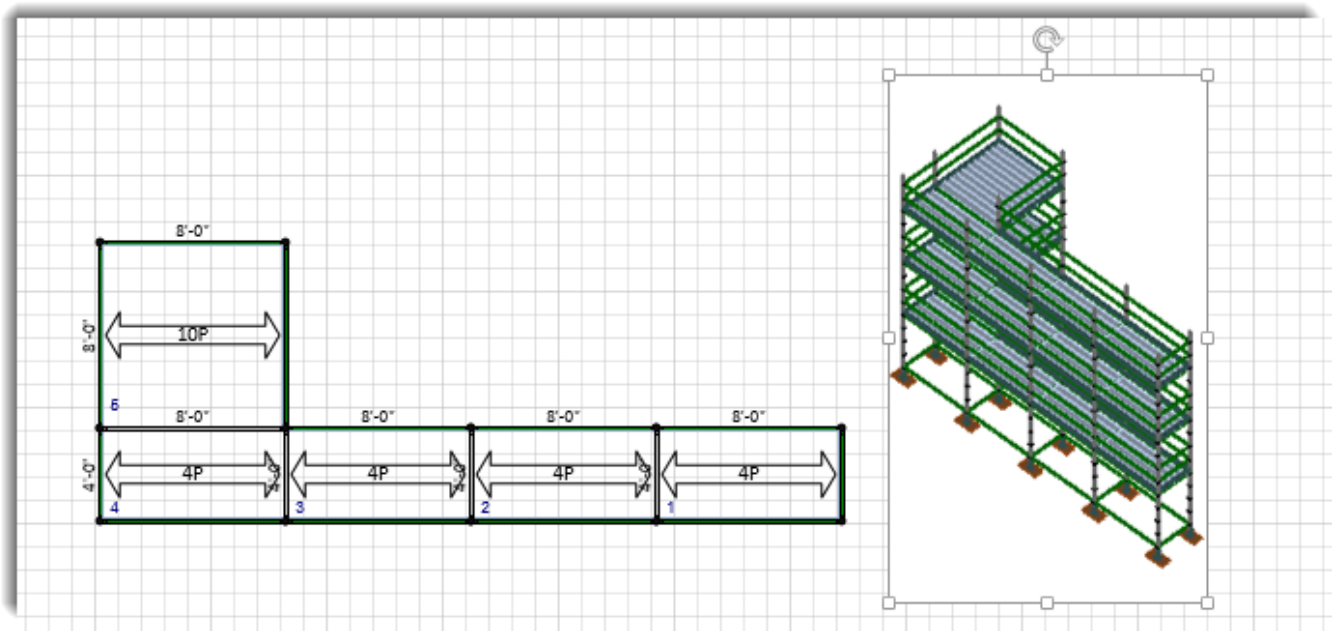
You can paste the Leg Loads Table to any page of the drawing using standard Windows commands. Right-click the Drawing Page and select **Paste** to paste an image of the Leg Loads Table. This image can be sized and moved to the desired location on the page.

Adding a 3D View to a Drawing

The Wireframe and Model views of a scaffold can be copied to the clipboard as an image file. These images can then be added to a Scaffold Designer drawing or used in other programs. To make this image visible in Quantify Web, see *Integrating with Quantify/ Quantify Web* section.

To add a 3D View to a drawing, select the *Wireframe* or *Model* tab within the **3D View** section. Make any desired changes such as adjusting the Angle. Click **Copy to Clipboard** when ready. You can paste the 3D View to any page of the drawing using standard Windows commands. Right-click the Drawing Page and select **Paste** to paste an image of the 3D View. This image can be sized and moved to the desired location on the page. You may repeat these steps to add multiple 3D Views, such as different Perspectives, to the same drawing.

WARNING: Changes made to the drawing after adding the 3D View will not be included in the drawing image. To include these changes, delete the 3D View image and copy the updated 3D View to the drawing.



Integrating with Quantify/ Quantify Web

Quantify

Scaffold Designer integrates with Quantify to turn your drawing into an estimate, eliminating the need to duplicate effort entering materials needed for a job. For successful integration, some setup is required.

Material Master and Product Catalog Matching

Quantify uses the Bill of Materials calculated for a drawing to automatically populate the Products on a new Estimate. To ensure all Products are added properly, Scaffold Designer's Material Mater should contain the same parts, part numbers, and information as Quantify's Products Catalog. The Part Number detailed in Scaffold Designer's Material Master will be used during integration to identify matching materials with the same Part Number in Quantify's Product Catalog. Details such as part descriptions, weight, etc are not required to match, however it is recommended that these fields match as well to prevent incorrect entries.

If a conflict exists, such as a Part Number that is not in Quantify's Product Catalog, the material will not be added to the Estimate. A list of excluded materials will display in Quantify after the integration is complete.

Create an Estimate from a Drawing

Once a drawing is complete, click **Bill of Materials** from the *Scaffold* tab. This will launch the 'Bill of Materials' dialog. Make any desired changes to the list of materials. Click **Quantify** when ready. If Quantify is installed on the same computer, choose **Open in Quantify**. If Quantify is not currently open, you will be prompted to login during the integration. If Quantify is not installed on the same computer as Scaffold Designer, or if you want to integrate with another user's Quantify, choose **Save as Quantify File...** Then, in Quantify, the user will need to select **Import File from Scaffold Designer** in the *Estimates* tab to complete the integration.

In Quantify, the 'Estimate' dialog will launch. In the *Products* tab, the matched materials from the Scaffold Designer Bill of Materials will already have the appropriate Quantities entered. In the *Summary* tab, the Scaffold Designer drawing and Scaffold Designer web drawing are added as attachments to the Estimate. Complete the Estimate by adding any additional information as desired. Click **OK** when ready.

Quantify Web

Quantify Web is specially designed to display Scaffold Designer drawings that have been attached to Scaffold Tag jobs. To make a drawing visible on Quantify Web, first create an Estimate. See *Create an Estimate from a Drawing* for more information.

NOTE: Drawings in Quantify Web are view only. To make changes to a drawing, use Scaffold Designer. After saving the changes, the new drawing will need to be attached to the Scaffold Tag Job manually.

Attach the Drawing to a Scaffold Tag Job

After saving the Estimate in Quantify, it can be used to create a Shipment to a Scaffold Tag job. Select the **Estimate** in the *Estimates* tab in Quantify and select **Copy To** > **Shipment to Scaffold Tag**. Enter the required information and confirm the option **Copy Attachments from Estimate…** is selected. Click **OK** when ready. The 'New Direct Ship' dialog will launch. Enter additional information as desired and click **OK** when ready.

Viewing a Drawing in Quantify Web

To view a drawing in Quantify Web, **Login** to the customer site. Select the **Scaffold Tag Job** from the Organization Tree. Select the *Drawings* tab. Click to open the desired drawing. The drawing will launch in a new tab or window of your browser.

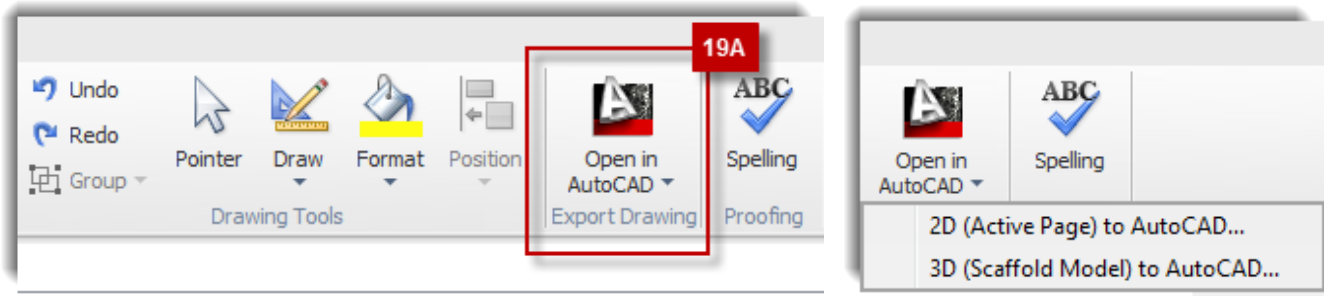
TIP: Use Internet Explorer to gain access to drawing controls such as zoom and bay details.

Export to AutoCAD

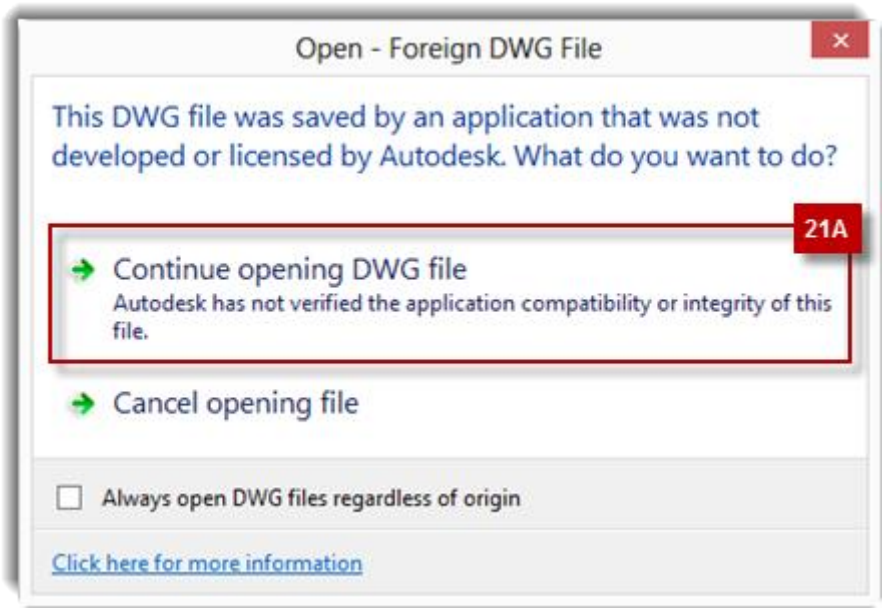
You can export your Scaffold Designer drawing into AutoCAD using either the 2D or 3D option. Exporting to 2D will preserve the drawing block and all text, while opening in 3D provides objects that are ready for rendering in 3D.

TIP: Use the AutoCAD zoom extents command to view the drawing after opening in AutoCAD.

19A To export your drawing to AutoCAD, you must have AutoCAD installed or accessible on the same computer as Scaffold Designer. When ready, select the *Home* tab. Click **Open in AutoCAD**, then select the desired format, **2D (Active Page)** or **3D (Scaffold Model)**.



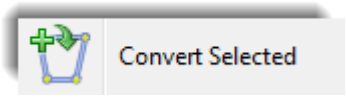
21A The drawing will open in AutoCAD. You may be presented with a dialog box informing you that the drawing did not originate in an Autodesk product. Select **Continue Opening the DWG File** to open the drawing.



Scaffold Ribbon – Controls by Group

Below is a detailed list of the Controls located in the *Scaffold* tab of Scaffold Designer. For information about the controls located elsewhere in Scaffold Designer, please refer to the Help resources for Microsoft Visio® 2013.

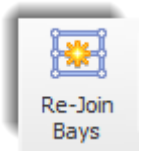
New

	**New Bay** Adds a new default Bay to the drawing. To add a Bay, drag Bay shape to the Drawing Page and place where desired. This Bay can now be edited using the Bay Level Editor and other controls.
	**Connector Bay** Adds a new default Connector Bay to the drawing. To add a Connector Bay, drag Connector Bay shape to the Drawing Page. Drag the corners to the desired connection points on the adjoining Bays. For triangular Bays, drag both corners to the same connection point on the adjoining Bay.
	**Convert Selected** A sub-control of Connector Bay. Converts the selected Bay to a Connector Bay. See *Connector Bay* control for details.

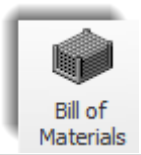
Add Bay to Side

	Adds a new Bay to the selected Bay. The new Bay will have the same attributes as the selected Bay. To add a Bay to a side, select an existing Bay in the drawing, then click a side or corner location. To add Bays to all sides, click ✥ All.

Modify

	**Re-Join Bays** Updates and recalculates selected Bay. This can be used to ensure added bays share legs with existing Bays, Guardrails do not block the deck path, and other necessary adjustments. To Re-Join Bays, you can use standard Windows commands to select multiple Bays. Click an area of the Drawing Page and drag to highlight an area, all Bays within that area will be selected. Click Re-Join Bays when ready
	**Delete Bays** Deletes the selected Bay(s). To delete Bays, you can use standard Windows commands to select multiple Bays. Click an area of the Drawing Page and drag to highlight an area, all Bays within that area will be selected. Click Delete Bays when ready. **NOTE:** Only adjoining Bays can be deleted at once. To delete separated Bays, delete each individually.

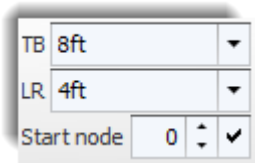
Model/Materials

	**Bill of Materials** Creates a Bill of Materials for the active drawing. See *Bill of Materials* section for more information.

Update Model
Updates the 3D Model View of the drawing. Some changes to a drawing such as adding smartshapes require an update to include these changes in the Model View. To update the 3D Model View, make any desired changes to the drawing then click Update Model when ready.

Leg Loads
Calculates the Leg Loads for a scaffold. See *Leg Loads* section for more information.

Bay Size/Elevation



TB
Sets the selected Bay(s) width. The width is the distance between the Top and Bottom Ledgers of a Bay. To set the width of Bays, you can use standard Windows commands to select multiple Bays. Click an area of the Drawing Page and drag to highlight an area, all Bays within that area will be selected. Choose the desired width and materials for the Bays when ready.

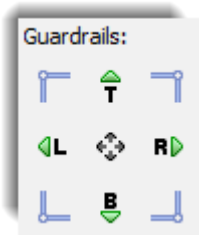
NOTE: The size and material options provided in these lists are based upon the parts in the Material Master. The lists are filtered to display only those parts for the selected Scaffold Material for the drawing.

LR
Sets the selected Bay(s) height. The height is the distance between the Left and Right Ledgers of a Bay. To set the height of Bays, you can use standard Windows commands to select multiple Bays. Click an area of the Drawing Page and drag to highlight an area, all Bays within that area will be selected. Choose the desired height and materials for the Bays when ready.

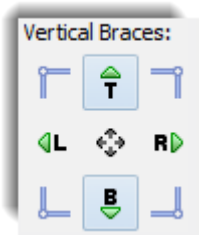
Start Node
Changes the starting elevation of the Bay(s). Each increment increases or decreases the elevation by 0.5 meters (1.64 feet). To change the elevation of Bays, you can use standard Windows commands to select multiple Bays. Click an area of the Drawing Page and drag to highlight an area, all Bays within that area will be selected. Choose the desired Start Node for the Bays and click ✔ Apply when ready.

Bay Properties

Side Settings
Modifies side attributes of a selected Bay. To update Side Settings, select an existing Bay and click Side Settings to access the following controls:



Guardrails
A sub-control of Side Settings. Click the desired side to add a Guardrail. Click the corner location to add Guardrails to the adjacent sides. Click ✥ All to add Guardrails to all sides of the selected Bay. By default, the Guardrails will be added to all planked levels within the Bay. To further edit Guardrail locations, adjustments can be made in the Bay Level Editor. For information about editing the Guardrail Type, see *Bay Details* control.



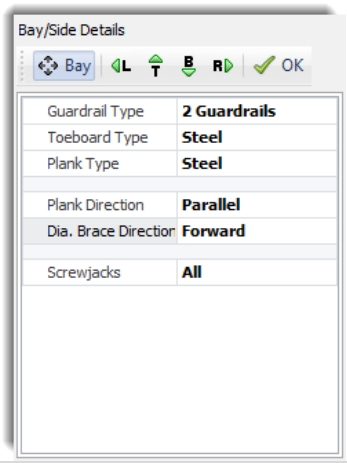
Vertical Braces

A sub-control of Side Settings. Click the desired side to add Vertical Braces. Click the corner location to add Vertical Braces to the adjacent sides. Click All to add Vertical Braces to all sides of the selected Bay. By default, Vertical Braces will be added to all levels of a Bay with a Forward direction. To further edit Vertical Brace locations, adjustments can be made in the Bay Level Editor. For information about editing the Diagonal Brace Direction, see *Bay Details* control.

NOTE: The number and locations of Vertical Braces will effect Leg Load calculations.

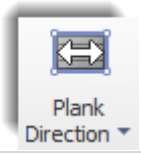
Netting

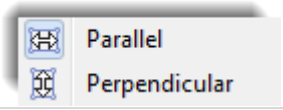
A sub-control of Side Settings. Click the desired side to add Netting. Click the corner location to add Netting to the adjacent sides. Click All to add Netting to all sides of the selected Bay. By default, Netting will be added to all levels of a Bay. To further edit Netting locations, adjustments can be made in the Bay Level Editor using the More control.



Bay Details

Changes the details of the selected Bay. By default, the changes made will apply to all sides of the Bay, where applicable. To make changes to a specific side, select the side location at the top, then make the desired changes. Click OK when ready. These changes will apply to all levels that contain this type of item. To make similar changes to specific levels of a Bay, use the Bay Level Editor.





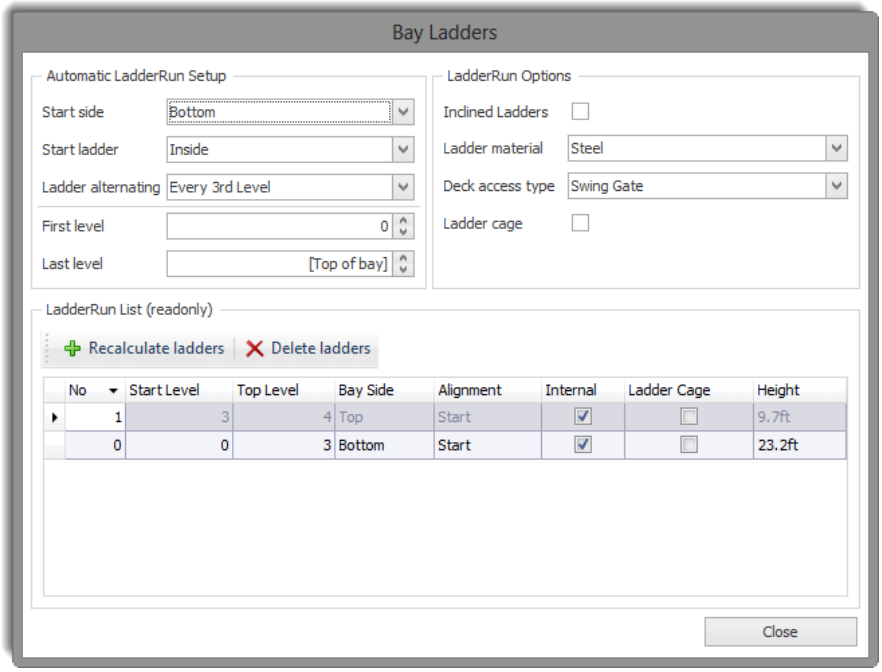
Plank Direction

Changes the direction of the Planks for selected Bay(s). Planks can be Parallel or Perpendicular in direction. To change the direction of Planks within Bays, you can use standard Windows commands to select multiple Bays. Click an area of the Drawing Page and drag to highlight an area, all Bays within that area will be selected. Click Plank Direction to change all planks to match direction or choose the desired Plank Direction from the drop-down options.

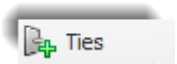
Access/Support

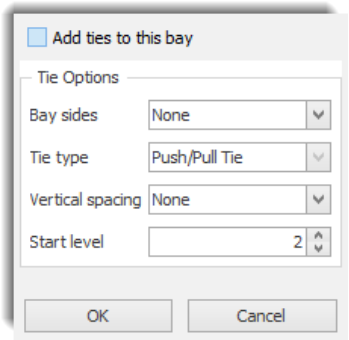
Ladders

Adds Ladders to the selected Bay. To add Ladders, select a Bay within the drawing and click Ladders. This will launch the 'Bay Ladders' dialog.



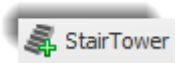
Select the desired settings for the Ladder and click Add Ladders when ready. To edit an existing Ladder, select the Bay containing the Ladder and click Ladders. Make the desired changes and click Recalculate Ladders when ready.





Ties

Adds Ties to the selected Bay. To add Ties, select a Bay within the drawing and click Ties. Select the desired Tie Options and click OK when ready.



Stair Tower

Adds a new default Stair Tower to the drawing. To add a Stair Tower, drag Stair Tower shape to the Drawing Page and place where desired. This Stair Tower can now be edited using the Bay Level Editor and other controls.