eTakeoff Dimension Training Guide

This guide introduces eTakeoff Dimension. Each element is explained, followed by step-by-step activities that let you practice using the tool on a sample project. We encourage you to complete the practice steps, as they provide helpful hints, shortcuts, and suggested methods.

Contents

Using this guide

Throughout this guide, you'll see the following symbols, which point to useful training topics and videos. While using the software, you can always press F1 or click the green question mark for context-sensitive Help. In this guide, the green icon represents a link to a Help topic:

Link to Dimension Help topic

An extensive library of training videos is also available. You can visit the full Video Library here. In this guide, the blue icon represents a link to a training video:

Link to training video.

You'll sometimes see **links to other locations** in this document or on the eTakeoff website.

Practice steps

1. Instructions for completing optional training activities appear like this.

To return to this guide from the software, go to **File > Help > Display Online Training Guide**.

Available product editions

eTakeoff Dimension is available for purchase with an **Advanced** or **Premier** license. (The **Basic** edition is available at no cost or time limit.) This guide shows the features of the **Premier** edition, with notes on availability with an Advanced license. The differences between these editions are summarized here:

- The **Basic** edition includes a full-featured viewer and printer, which anyone in the organization can use to view drawings with takeoff measurements and annotations. You can complete simple takeoff with this version.
- The **Advanced** edition includes the full takeoff system. It does not allow you to create or edit extensions and assemblies—but you can use extensions and assemblies created by other users in your organization who have a **Premier** license.
- The **Premier** edition includes all features in the **Advanced** edition, plus the ability to separate drawings into zones for quantification of measurements in sections, create and edit extensions and assemblies; pattern search (autocount); an unlimited number of quantity results from each measurement; and other miscellaneous features.

Activating the 15-day trial

If you haven't yet purchased and installed a Dimension license, you will need to activate the 15 day Trial in order to complete the activities in this guide. To do this, go to the **eTakeoff** site and click **Free Trial**. Follow the instructions on that page.

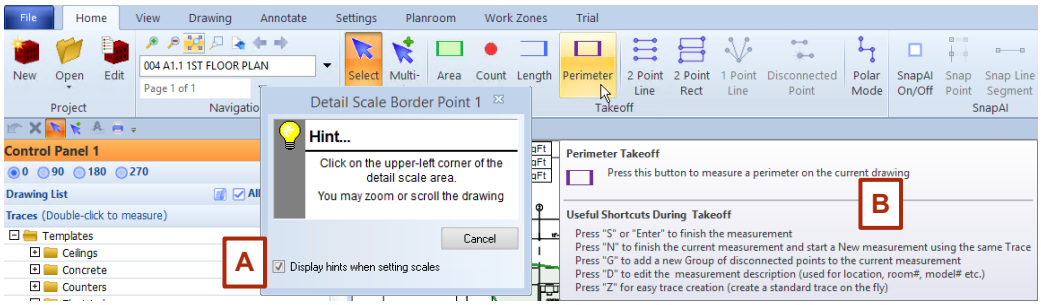
About Dimension's interface

Dimension is set up to support you in learning the product when you first get started, and to accommodate to your organization's processes and standards.

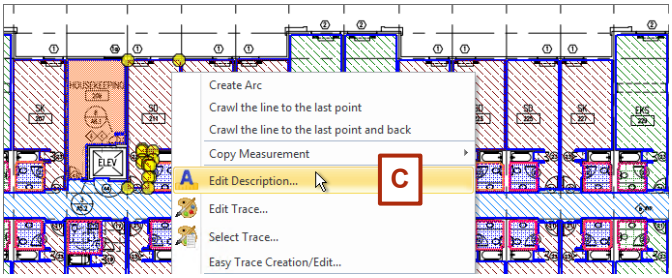
Hints, shortcuts, and tooltips

Extensive tooltips and **Hint** windows assist you in completing measurements or other tasks.

- As you become more familiar with the product, you can clear the **Display hints** check boxes in the **Hint** window [**A**].
- When you hold your mouse over a button, the tooltip shows the available keyboard shortcuts [**B**].



- You can right-click any measurement to open the context menu [**C**]. This is an alternative way to access many of the commands shown in the list of shortcuts in the tooltip.

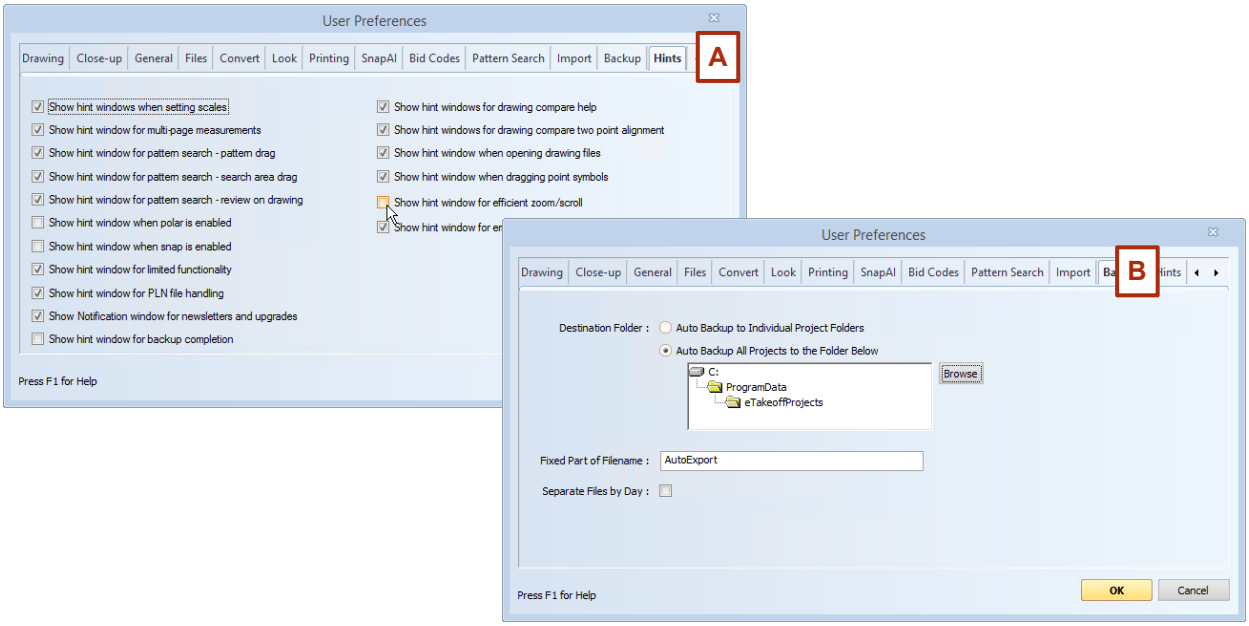


Context Help (F1)

As you work in Dimension, you can always press F1 to open the Help topic for the current task or window. The Help topics explain the details of all features, including some not included in this guide.

User Preferences

On the **Settings** tab, the **User Preferences** window provides numerous settings related to every aspect of Dimension. As you learn the product, explore these settings to see how you can make Dimension work for you. The examples below show a couple of these options. You'll see more options related to respective features throughout this guide.



On the **Hints** tab [**A**], you can set options related to the hint windows that assist you in learning the product. You might start out with all of these options selected, and gradually clear them as you improve. On the **Backup** tab [**B**], you can specify where automatic backups should be stored. With the **User Preferences** window open, press F1 for explanations of all options.

The ribbon interface

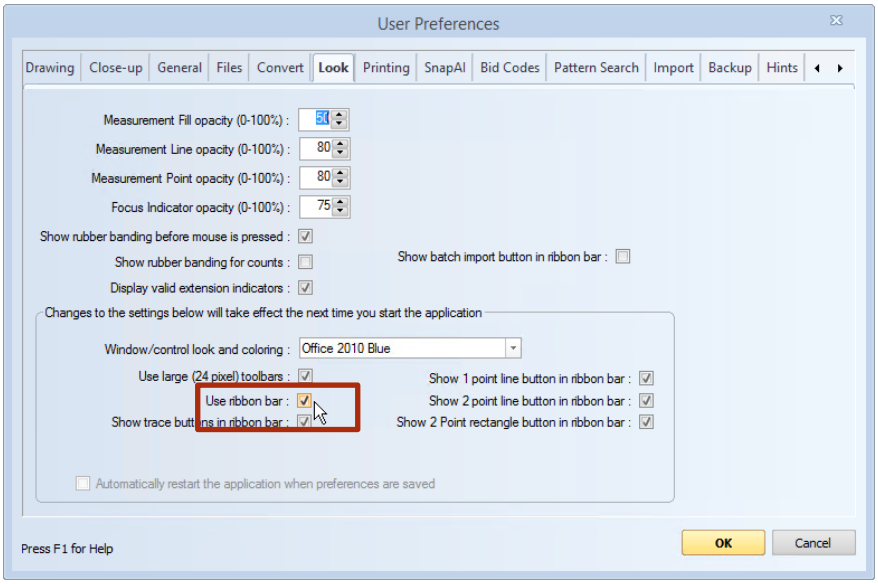
Videos and help topics:

- Ribbon Bar
- Quick Access Toolbar **(Time: 2:13)**

Dimension has a ribbon interface matching recent versions of Microsoft Office, Sage Estimating, and many other applications. This guide shows all screen shots in the ribbon interface.

If you see the older interface (with menus and toolbar) instead of this one, go to **Admin > User Preferences**. Click the **Look** tab and select **Use ribbon bar**. When you click **OK**, Dimension closes and restarts with the newer interface.

You may already be familiar with ribbon interfaces from working with other software products, such as Microsoft Office or Sage Estimating. If not, see the following links.



Dimension Basics

This section is an introduction to basic Dimension workflows. Once you master the basics, you can build upon your skills by working through the material in “Beyond the Basics” (starting on page 49).

Starting a new Dimension project

Video:

- **Getting Started with eTakeoff Dimension (Time: 8:30)**
- **Project Properties**
- **Starting a New Project (Time: 2:43)**
- **Moving the Project Folder (Time: 2:02)**

Dimension organizes your work into *projects*, or groups of drawing files, project settings, and takeoff data. Projects are associated with a single Windows folder that contains all drawings used in your project. (These files can be further organized into subfolders.) When you create a new project (**Home > New**), you specify the Windows folder. Dimension references the drawing files, but the drawings themselves are not modified when you perform takeoff. All measurements and annotations that you make in Dimension are stored in the project database.

During installation, a default project folder is created, which you can use to store drawings (or you can store them elsewhere if you prefer). Dimension supports the following file formats for drawings. You can use images with any of these extensions to complete traces.

With the Premier edition: You can use SnapAI with vector PDF drawings to speed up and improve the accuracy of your takeoff. For more information, see “About vector and raster PDFs” on page 17.

Format	Description
BMP	Windows bitmap format
CAL	US Department of Defense
CPC	Cartesian Perceptual Compression
GIF	Graphics Interchange Format
IVS	IPIN Viewing System Format
JPEG	Joint Photographic Experts Group Interchange Format
PDF	Adobe Acrobat – Single and Multi-page
PLN	FW Dodge Planroom Graphics Format – legacy
PNG	Portable Network Graphics Format
TIFF	Tagged Image File Format – Group 3 or 4

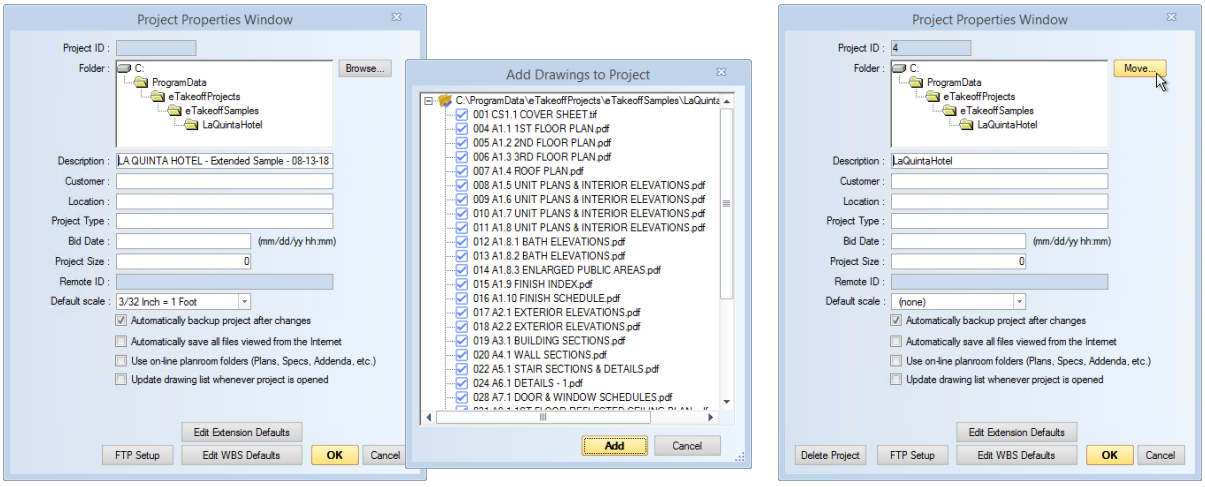
Importing a Dimension project

You can create a new project by clicking **Home > New**. You can also import a previously saved (exported) project by double-clicking any **.tpxzip** file, which is the compressed file type created when you export a project. With either method, the **Project Properties** window opens.

About the Project Properties and Add Drawings windows

In **Project Properties** (**Home > Edit**), you enter general project information and specify the location of the project folder. This is the windows folder that contains your drawings and other files for this project. This window lets you specify the **Default scale**, auto-backup options, and other options.

When you click **OK**, the **Add Drawings to Project** window opens, showing a list of all drawings in the project folder and subfolders. By default, all files are selected. When you click **Add**, all selected drawings are added to the project.



To return to the **Project Properties Window** later, click **Home > Edit**.

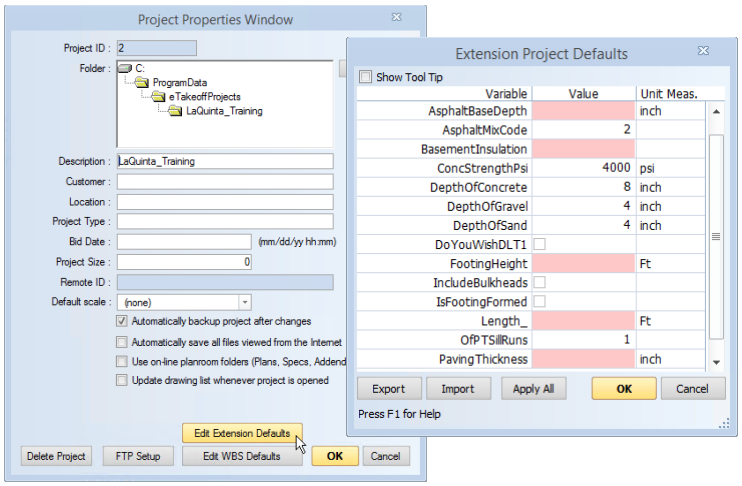
NOTE: The project drawings and files in the Windows project folder are never modified by Dimension. All takeoff and related project data is stored in the eTakeoff database (**Dimension50ProjData.ctr**).

IMPORTANT: The Dimension project database stores the path to the project folder in oder to display the drawings. Once you create the project, do not move the drawing files using Windows Explorer. If you need to move the drawings, click **Move** in the **Project Properties** window. This moves the files and updates the project folder path in the database to the new location.

Entering extension defaults

Frequently, projects have some variables or specifications that apply to the entire project. For example, a multi-structure office complex with several parking lot probably has the same asphalt mix code for all lots. You can add variables to the list of project defaults, and set them for the entire project in the **Project Properties > Edit Exension Defaults** window.

See “Configuring project defaults” on page 67 for more information about adding variables to this list.



Practice steps:

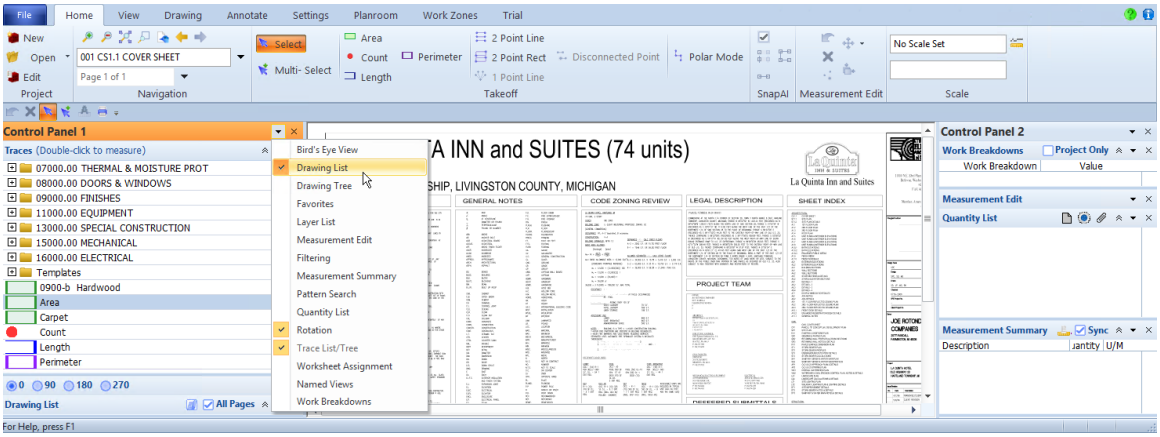
1. In Windows Explorer, browse to the folder **C:\ProgramData\eTakeoffProjects\eTakeoffSamples\LaQuintaHotel**.
2. Double-click the **LA QUINTA HOTEL – Extended SampleExport.tpxzip** file. This opens Dimension and automatically starts the import process. When the import is finished, the **Project Properties** window opens.
3. Click **OK** to accept the default properties.
4. In the **Add Drawings to Project** window, verify that all files are selected, and click **Add**.

Navigating the Dimension window

Help topics and videos

- Control Panels
- Drawing Scale Edit Dialog
- Quick Access Toolbar
- Zoom in and out
- Drawing List Window
- Setting Drawing Scales **(Time: 1:28)**

When you first open Dimension, you see the first drawing in the project in the center panel, with control panels open on either side. You can click the down arrow in any **Control Panel** heading to see the list of available Controls.



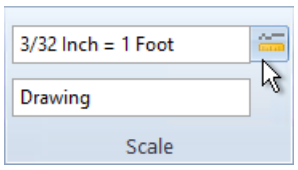
Double-click an item in the **Drawings List** to open that drawing.

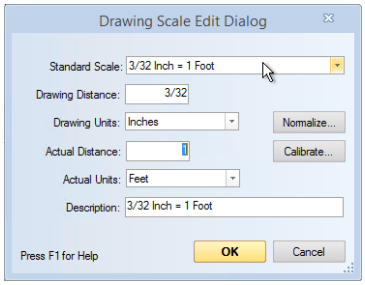
The control panels can be undocked and moved by clicking the header bar and dragging. To re-dock them, click the down arrow and select one of the **Dock Control Panel** options at the bottom of the list. You can also drag the cursor to one of the 4 arrows that appear when dragging to choose a location for the dock.

Use your mouse-wheel to quickly zoom in and out while viewing a drawing. To pan the view, hold down both mouse buttons and drag to the area you want to view.

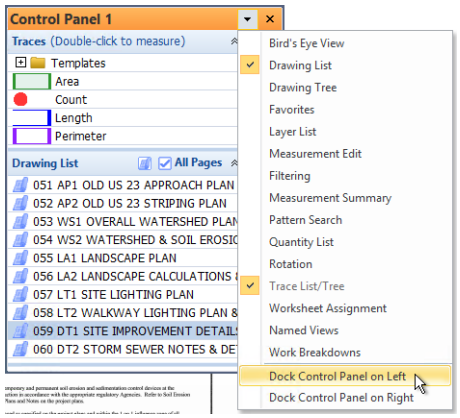
Setting the scale

For each drawing, you need to set a scale. You can do this by clicking the **Set Scale** button on the **Home** tab, and then selecting a **Standard Scale** from the list.





Note that if you don't set the scale before you begin measuring, you are prompted to select the scale when you begin the first measurement. Dimension lets you set multiple scales on a single drawing, such as for detail or section drawings. For more information, see "Setting multiple scales on a drawing sheet" on page 53.



Practice steps:

1. In the **Drawings List** (lower left pane), double-click drawing **004 A1.1 1st Floor Plan** to display it.
2. In the **Rotation** pane, click **180** to rotate the drawing. Then click **0** to re-orient it.
3. Hold your mouse over the drawing and use the mouse scroll-wheel to zoom in and out. Also, notice that the cursor shows a blue arrow indicating that you are in "Select" mode.
4. On the **Home** tab, click **Multi-Select** and notice that your cursor changes: . The cursor changes appearance based on the tools you have selected.
5. Click **Select** to change it back again.
6. Hold down both mouse buttons and drag the mouse over the window to pan across the drawing.
7. On the **Home** tab, click the **Set Scale** button.
8. Select **3/32 Inch = 1 Foot** from the **Standard Scale** dropdown, and click **OK**.

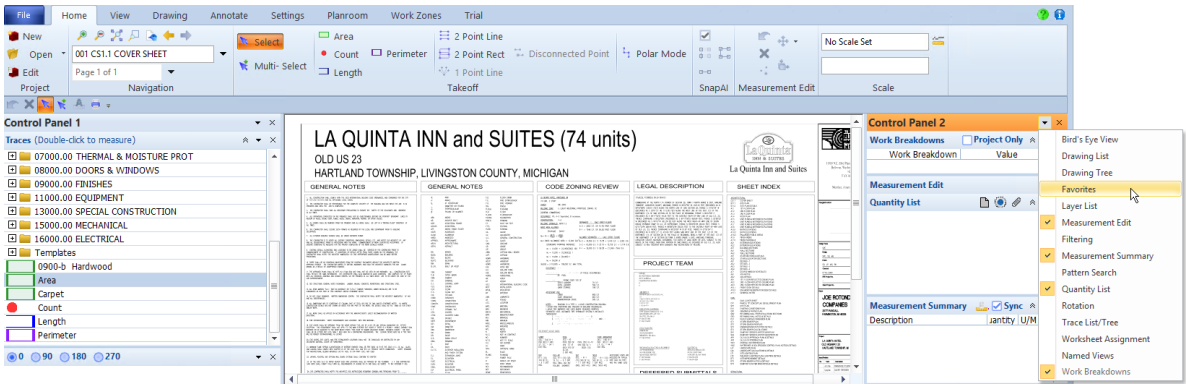
Favorites

Topics and videos:

- Favorites
- Annotation Tab
- Favorites (Time: 3:32)

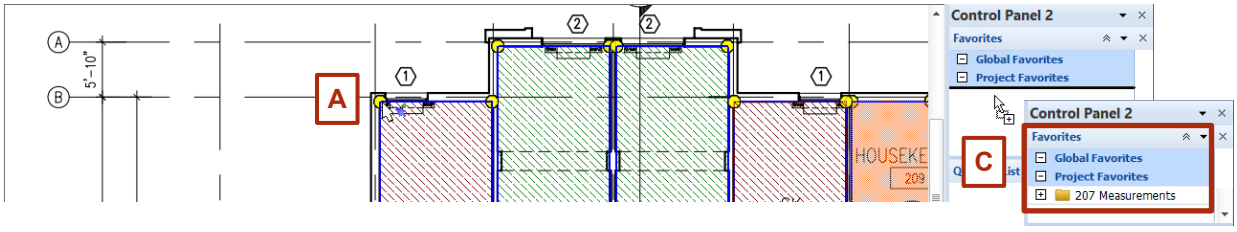
You can use **Favorites** to save commonly used measurements, annotations and detail scales as "favorites". You can then quickly add them to other drawings and projects. Show **Favorites** by selecting it in the **Control Panel** list.

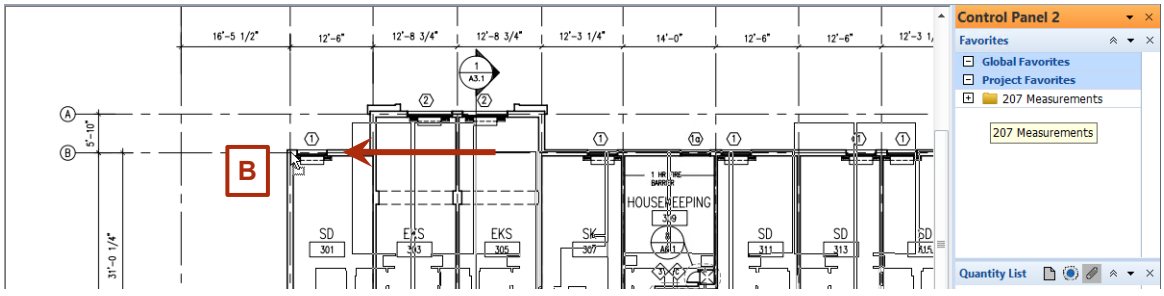
Favorites can pertain to specific projects (**Project Favorites**) or to all projects (**Global Favorites**).



Using Project Favorites to copy multiple traces to other drawings

On the **Home** tab, click **Multi-Select** and select multiple takeoff items. Zoom out. Choose the cursor position deliberately (for example, at point [**A**]), as this determines the position of your cursor when you drag the favorite back to a drawing [**B**]. Then, click and drag the items into the appropriate **Favorites** folder [**C**].



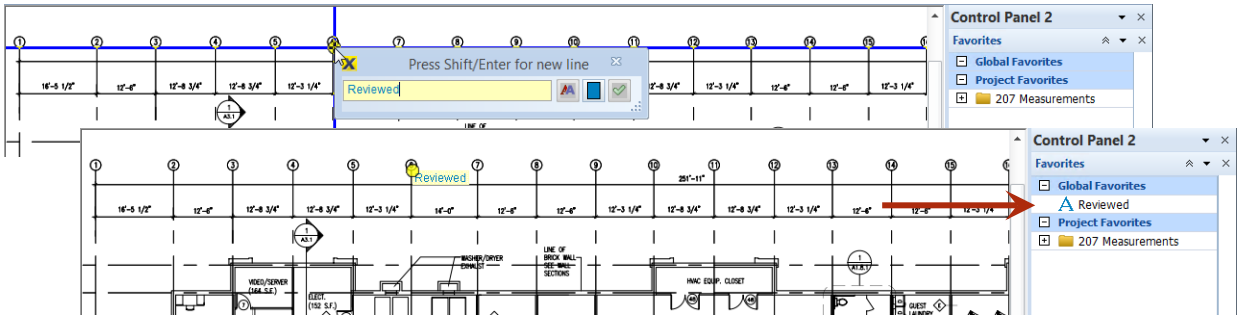


Once measurements are added to **Favorites**, you can drag the items—or the entire folder—onto other drawings as needed. The position of your cursor when you drop the items is the same relative to the starting point when you dropped them into **Favorites**. Note that you can right-click and rename the

Favorites item for future reference. If you drag the favorite measurement onto the drawing it will be replicated exactly as it was saved. If you double-click on the favorite, you can then perform a new takeoff in any format, but all the variable information will be replicated in the new takeoff measurement.

Using Global Favorites to create a library of annotations

On the **Annotate** tab, click **Text**. Click once in the drawing and begin typing a word, such as "Reviewed." Press Enter, and then click and drag the annotation to **Global Favorites**. Adding it to **Global Favorites** makes it available to you from any project. If you put it in **Project°Favorites**, it is available for any drawing in this project, but not other projects.



To re-use this annotation, drag it to subsequent drawings in any project.

See Error! Reference source not found. on page **Error! Bookmark not defined.** for more information about annotations.

Practice steps:

1. In **Control Panel 2**, click the down arrow and select **Favorites**.
2. Double-click drawing **005 A1.1 1st Floor Plan** to open it. Use the mouse wheel to zoom out so you can see the entire floor plan.
3. Click **Multi-Select**, and then click and drag to select all measurements on the drawing.
4. Choose a deliberate cursor location in the selection. Click and drag that point to **Favorites > Project Favorites**.
5. Now double-click drawing **005 A1.2 2nd Floor Plan** to open it.
6. Click the folder containing the measurements in **Project Favorites** and drag it to the drawing, dropping your mouse at exactly the same location that you used in step 4.
7. On the **Annotate** tab, click **Text** and create a text annotation. Drag it to **Global Favorites** to store it for re-use.

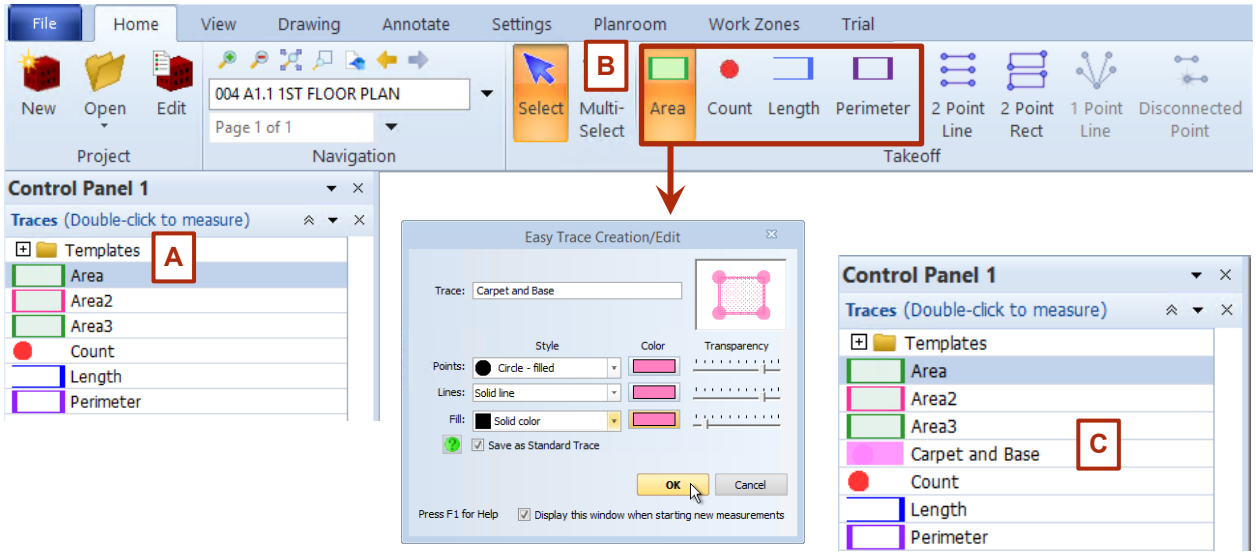
Taking measurements

Dimension provides a variety of measuring tools, called **Traces**, which you see in **Control Panel 1** [**A**]. When you first begin using Dimension, the takeoff buttons on the **Home** tab [**B**] are set up to automatically help you create custom traces as you work. This lets you build a library of traces for use with all projects. For example, clicking **Home > Area** opens the **Easy Trace Creation/Edit** window, where you can create a new trace, name it, and select its display characteristics.

With the Premier edition: You can use SnapAI with vector PDF drawings to speed up and improve the accuracy of your takeoff. For more information, see “About vector and raster PDFs” on page 17.

The new trace is then added to the **Traces** list [**A**] for use at any future point. Use the four standard ribbon bar measurement buttons [**B**] (**Area**, **Count**, **Length**, or **Perimeter**) when you want to start a new measurement not in your trace library. Otherwise, use the **Traces** list in the **Control Panel**. Simply double-click a trace to begin a new measurement.

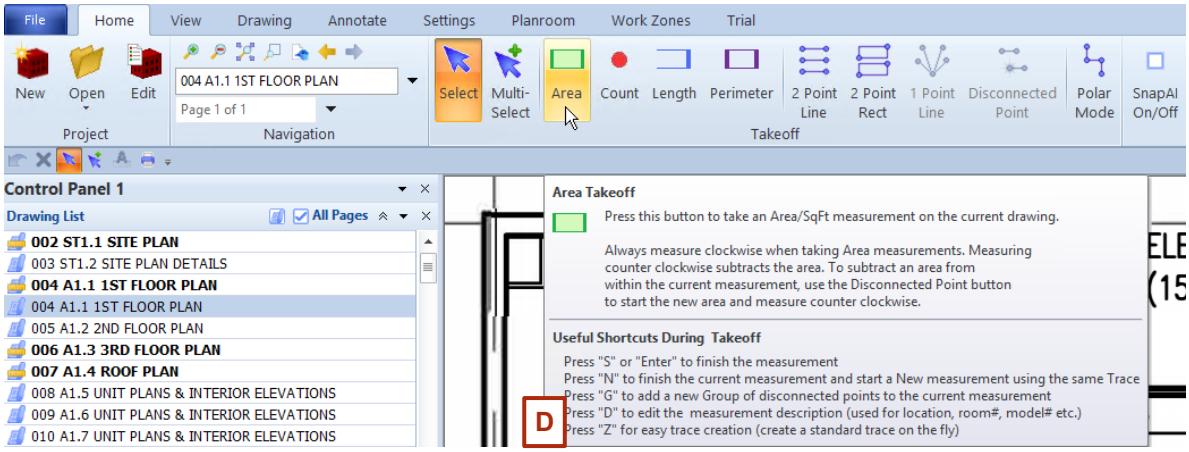
NOTE: In addition to traces, Dimension’s *extension* feature lets you add additional variables to a trace to use with estimating assemblies. Dimension comes with several pre-defined extensions that you can use for takeoff with an **Advanced** license. With a **Premier** license, you can create and modify additional extensions and provide them to any users with an **Advanced** license. Extensions are explained in the **Beyond the Basics** section, under “Configuring extensions” on page 66.



When you hover over one of the measurement types, notice the extensive tooltip to help you remember shortcuts and steps to complete the measurement [**C**].

- While using any trace, press Z to open the **Easy Trace Creation/Edit** window.

- When you finish a measurement, press D to enter a description for the measurement (as indicated in the tooltip [**D**]). This helps you differentiate measurements of the same type on a drawing. If you don't assign a description, the name of the trace is used by default.



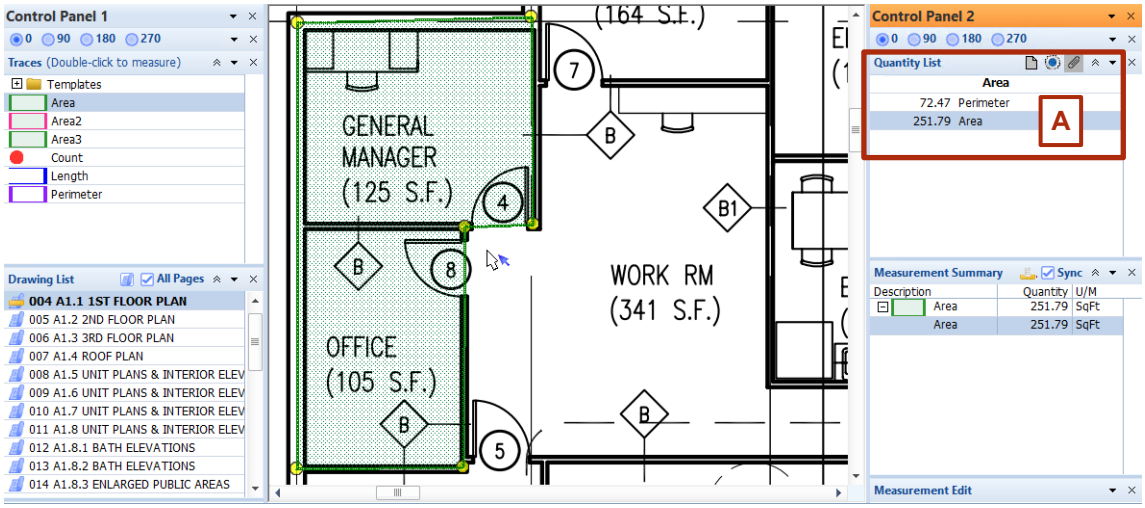
Using the basic Trace tools: Area, Count, Length, and Perimeter

Clicking any of the tools, such as **Area**, changes the cursor to an arrow with a ruler, indicating you are in **Trace** mode.

For an **Area** trace, click multiple times in a *clockwise* direction to define the shape of the area you want to measure. If you click in counter-clockwise direction, the area is treated as a negative value or cutout. As you click, the area of the shape is shaded green and each point registers as a yellow circle.

To finish any trace, press Enter or S to return to select mode. (You can also double-click.) While creating a trace, press the H key to toggle the display of cross-hairs. If you make a mistake, you can press Backspace or Ctrl + Z to undo the last point (or multiple times if you need to undo more than one point).

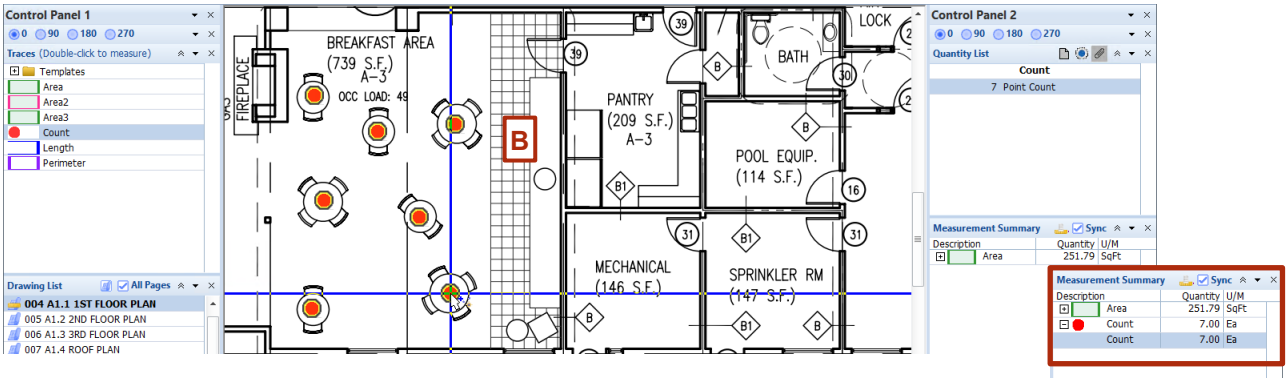
Notice that the **Quantity List** pane shows both the **Perimeter** and the **Area** of the shape you defined. When multiple measurement types are included with a trace, the primary measurement is shaded blue (**Area** in this example [**A**]).



A **Length** trace lets you click multiple times to measure the length (total distance between points).

For a **Count** trace, click each object you want to count. As you click, each item registers as a red circle with a green outline. Notice the “cross-hairs,” or solid blue lines, which serve as guidelines for horizontal or vertical measurements. You might prefer to turn these off for some traces such as counts. To do this, just press H while taking off a measurement.

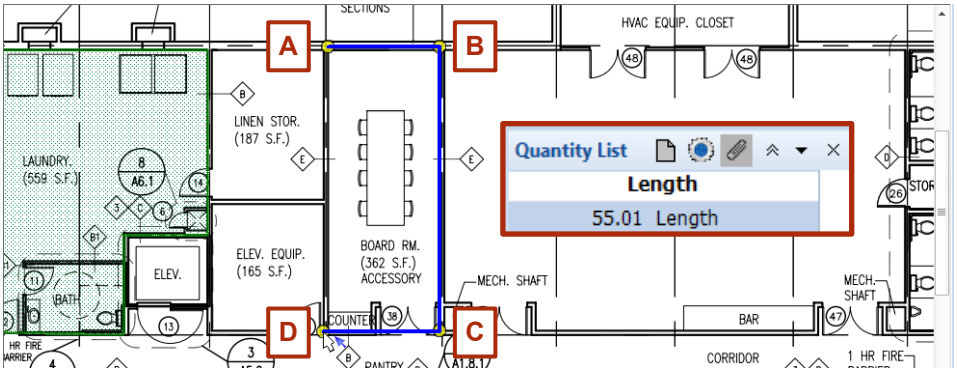
When you finish (by pressing Enter, S, or double-clicking), the **Measurement Summary** pane shows the quantities you have accumulated so far *for this drawing* (not for the entire project).



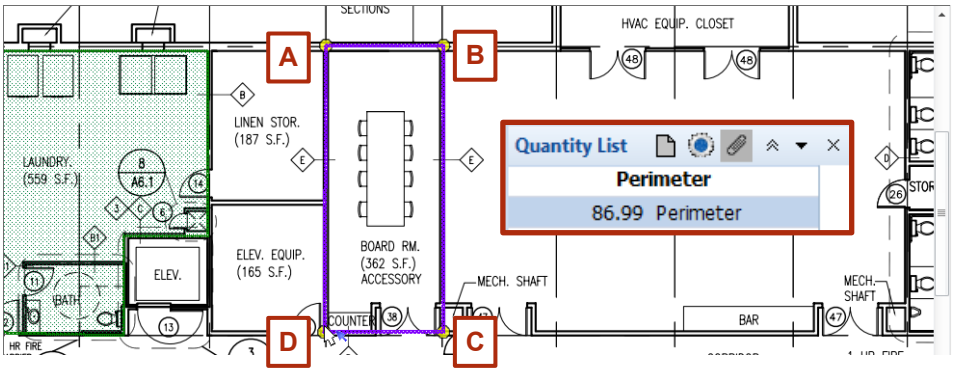
A **Perimeter** trace calculates the perimeter of points defined.

Length and **Perimeter** traces are distinguished by the results when you complete the measurement.

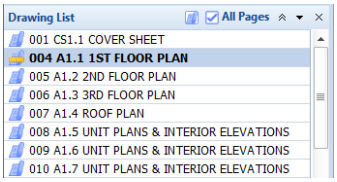
Length traces measure the distance between clicks, stopping at the final click. In this example, clicking points [**A**], [**B**], [**C**], and [**D**] gives you the lengths of walls [**AB**], [**BC**], and [**CD**], but not wall [**AD**].



A **Perimeter** trace completes the measurement by closing the shape. The same four points in this example give you the perimeter of all four walls.



Once you add measurements to a drawing, notice that the **Drawing List** shows the drawing in bold text with a special icon: 



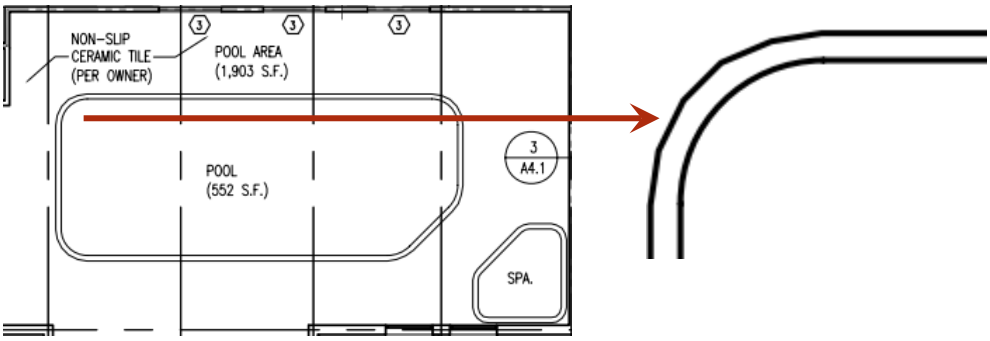
About SnapAI

With the Premier version: Dimension's SnapAI technology analyzes drawing information in vector PDF files to "snap" traces to points, lines, and polylines while taking off a project. This technology works with vector PDFs only—if you open a raster PDF in Dimension, the Snap features are unavailable.

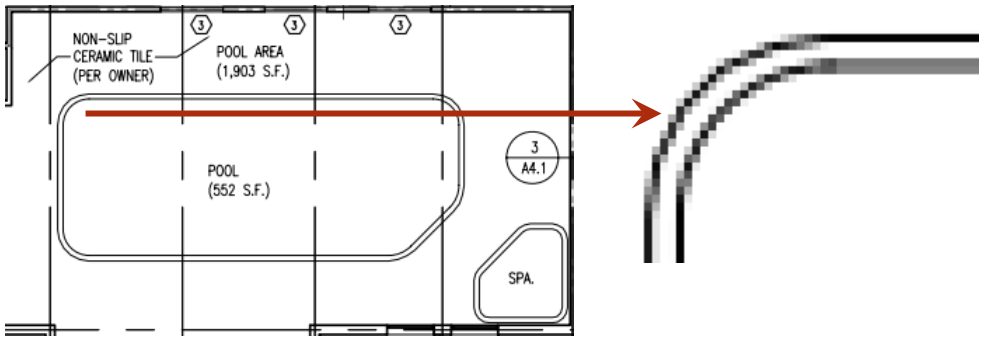
About vector and raster PDFs

The terms "vector" and "raster" refer to the way drawing information is stored in the file.

- *Vector* drawings are made up of shapes, or paths, such as points and lines that include a mathematical formula specifying how the path is shaped. When you zoom in to a vector drawing, the sharpness of the lines, curves, and points is retained, because the shapes are still calculated using their formula. Most plan drawings created from CAD, Revit, or other 2D design software generate vector PDFs.



- *Raster* drawings are bitmaps, with individual pixels of color. Slight color variations in the pixels produce a sharper appearance when viewed at 100%—but when you zoom in to a raster drawing, the image becomes increasingly pixelated and difficult to interpret. When you scan or photograph a hard copy of an image, the result is always a raster drawing. Also, if you export a vector drawing to common raster file formats such as BMP, JPG, TIF, or PNG, the result is a raster drawing. You need the vector PDF to work with SnapAI.

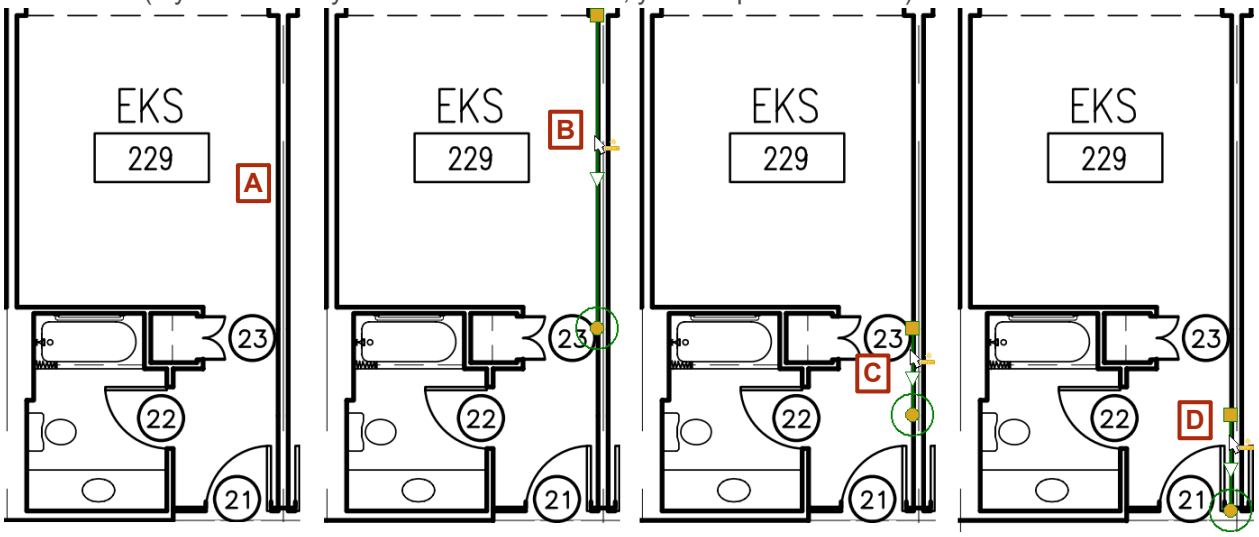


Performing takeoff with SnapAI

Based on the SnapAI mode you select, you can snap to points, line segments, or polylines (continuous lines composed of one or more line segments). SnapAI requires vector files because it looks for the mathematically-defined lines and their endpoints to snap to the boundaries of areas in your plan. That said, architects vary widely in how they create drawings, and their methods can affect how SnapAI recognizes lines. Consider this example.

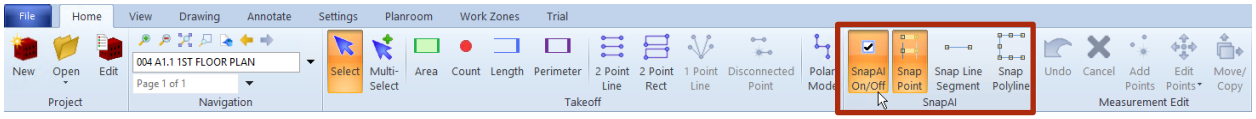
Drawing A1.2 of the La Quinta project shows that the right-hand wall of room 229 is a single line [**A**]. However, when you take off the length of the wall using SnapAI, three different line segments are detected: [**B**], [**C**], and [**D**]. SnapAI, using the direction you're taking off, will try to connect the lines for you, so you can get one length measurement for the wall, instead of 3 separate wall lengths

You enable SnapAI by clicking **Home > SnapAI On/Off** when you have a vector drawing open in Dimension. (If you've already started a measurement, you can press Ctrl + S.) This makes the three



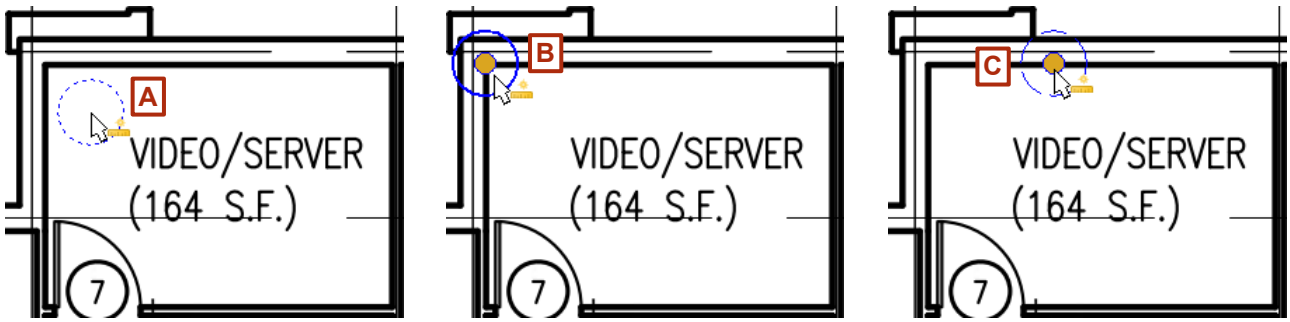
Snap mode buttons available: **Snap Point**, **Snap Line Segment**, and **Snap Polyline**.

We'll go over each mode in detail. You'll find that each mode works well for certain drawing

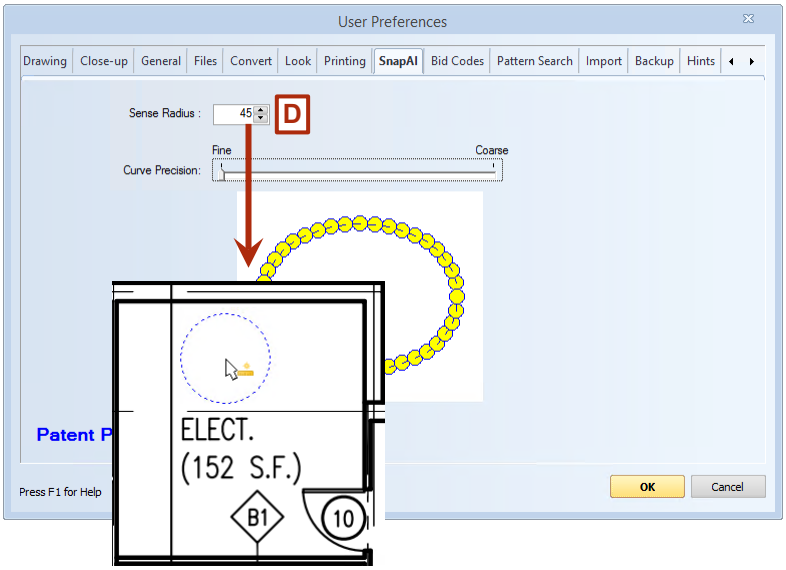


elements—and you can easily switch between modes by pressing Tab, Shift + Tab, or the right and left arrow keys while performing takeoff.

When any of the modes are selected, you see a dotted circle [**A**], called the *sense indicator*, around the cursor. Any time a defined point falls within the circle, the circle changes to a thicker solid line [**B**] and the point is indicated with a smaller circle. In **Snap Point** mode, if SnapAI detects a line, the sense indicator changes to a dashed line [**C**]. You can click any point on the line when the sense indicator is dashed, but the true starting or ending point of the line is represented by the bolder, solid circle [**B**].

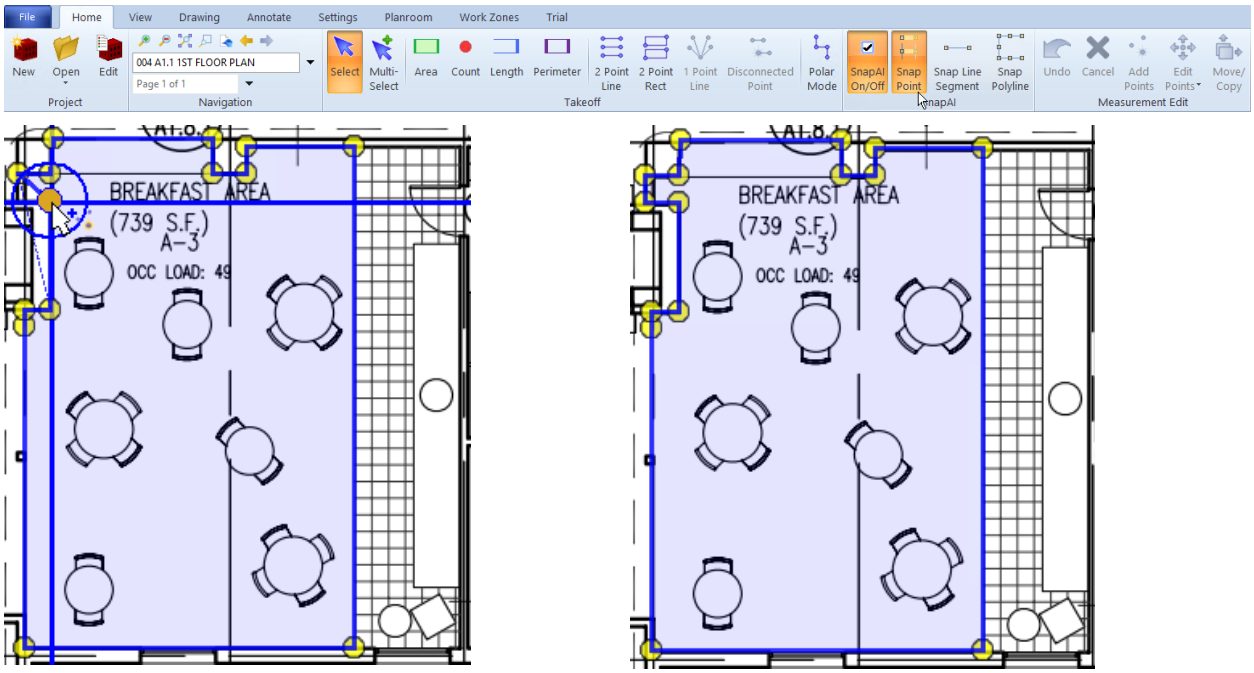


Note that the default size of the sense indicator is 24 pixels; you can change this in **Settings > User°Preferences > SnapAI** tab > **Snap sensitivity** [**D**]. The maximum size is 45. Experiment with the setting to see what works best for you. If the circle is too large, you might find that it identifies too many points to be useful.



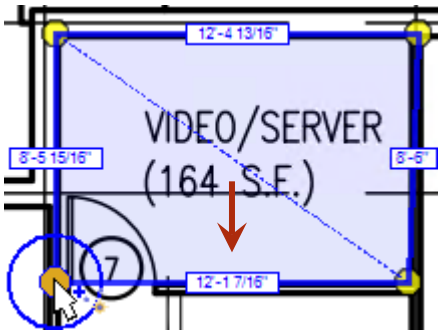
Snap Point mode

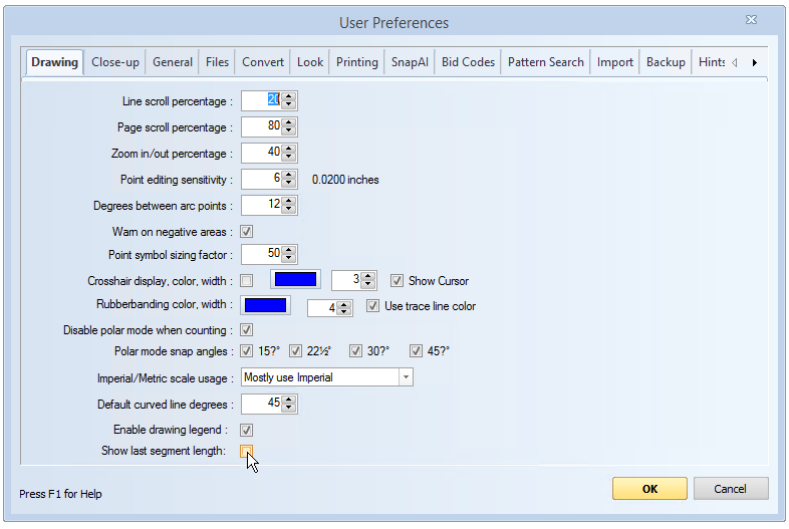
In **Snap Point** mode, you click each point as SnapAI finds them. In this example, tracing the area of the breakfast room in **Snap Point** mode requires 15 clicks.



As you take off measurements with **Snap Point**, you might see the line lengths displayed as you measure. You can remove these by going to **Settings > User Preferences** and clicking the **Drawing** tab. Clear the **Show°last segment length** check box. Note that the data is displayed only when you use **Snap Point**—not **Snap Line Segment** or **Snap Polyline**.

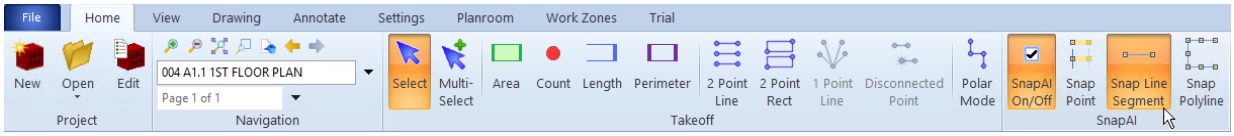
NOTE: You can control the size and appearance of the text in the length display when you edit individual traces. See “Defining data types on traces” on page 39.

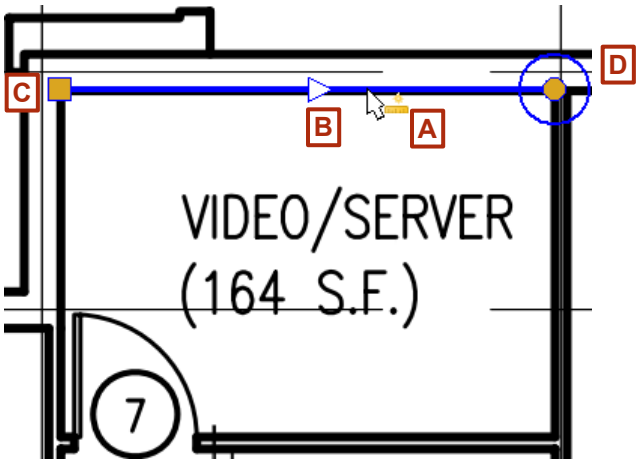




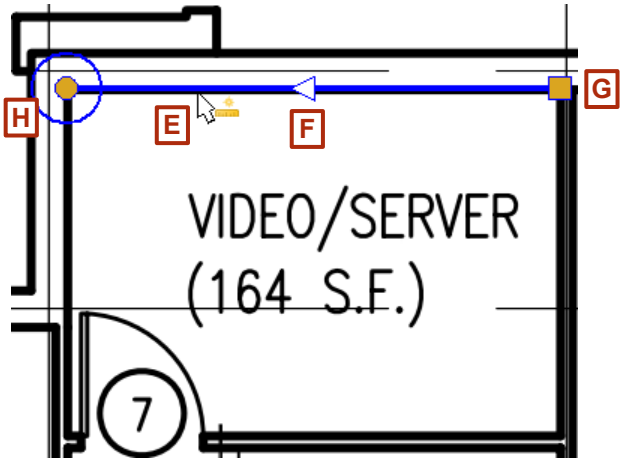
Snap Line Segment mode

In **Snap Line Segment** mode, SnapAI finds line segments instead of points. Recall that if you complete an area trace in counter-clockwise direction, the quantity generated is negative—this is a way of subtracting, or cutting out, an area inside an area. When you move your cursor towards a line, SnapAI identifies the line as well as the *direction* in which it will be measured. If your cursor moves over the line in the right- or upper-half of the line [**A**], SnapAI assumes you are moving in a clockwise direction, as indicated by the arrow in the center of the line [**B**]. The start of the line is indicated by a square [**C**], and the end point is shown by the circle [**D**].





On the other hand, if your cursor moves over the line in the left- or lower-half of the line [**E**], SnapAI assumes you are moving in a counter-clockwise direction, as indicated by the center arrow [**F**]. The position of the square (starting point [**G**]) and circle (ending point [**H**]) are reversed to indicate the change in direction.

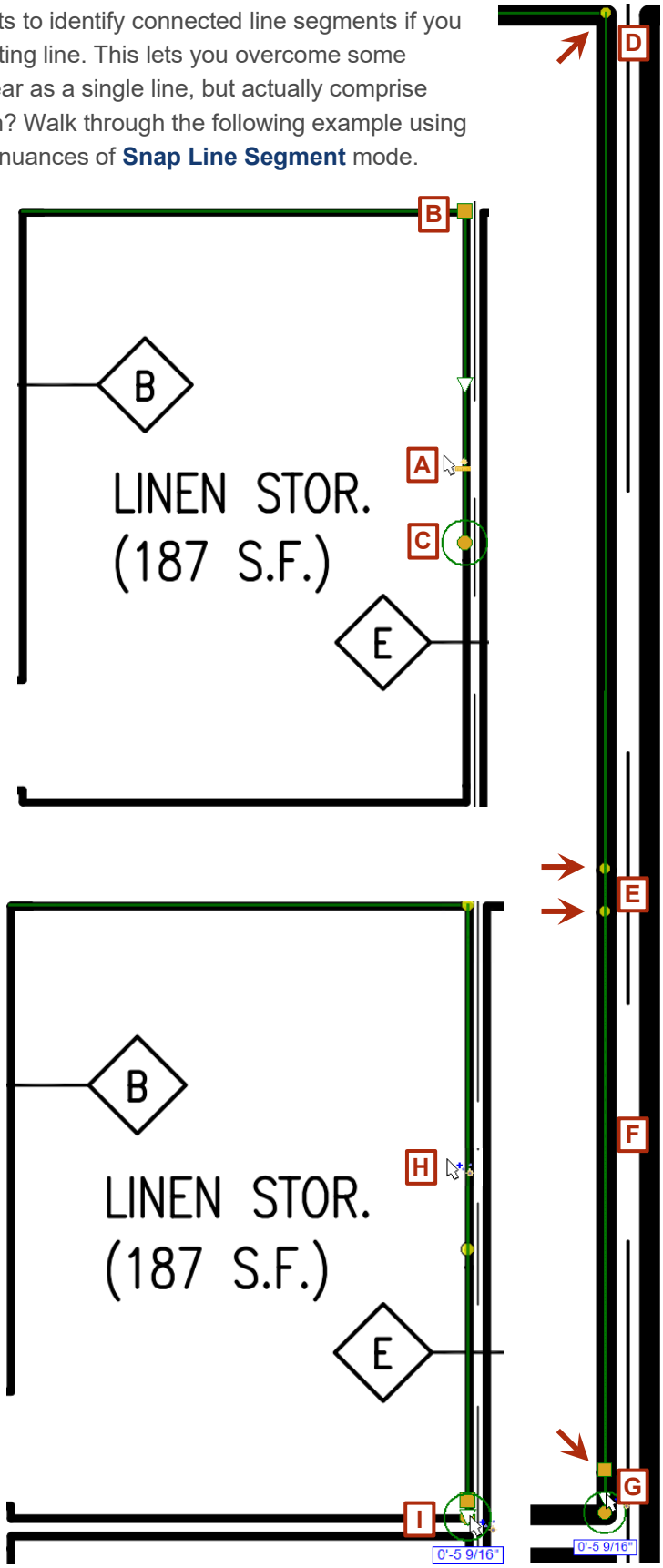


In **Snap Line Segment** mode, SnapAI attempts to identify connected line segments if you click a third line with a second existing connecting line. This lets you overcome some vector artifacts such as lines that visually appear as a single line, but actually comprise multiple connected lines. What does this mean? Walk through the following example using the linen storage room so you understand the nuances of **Snap Line Segment** mode.

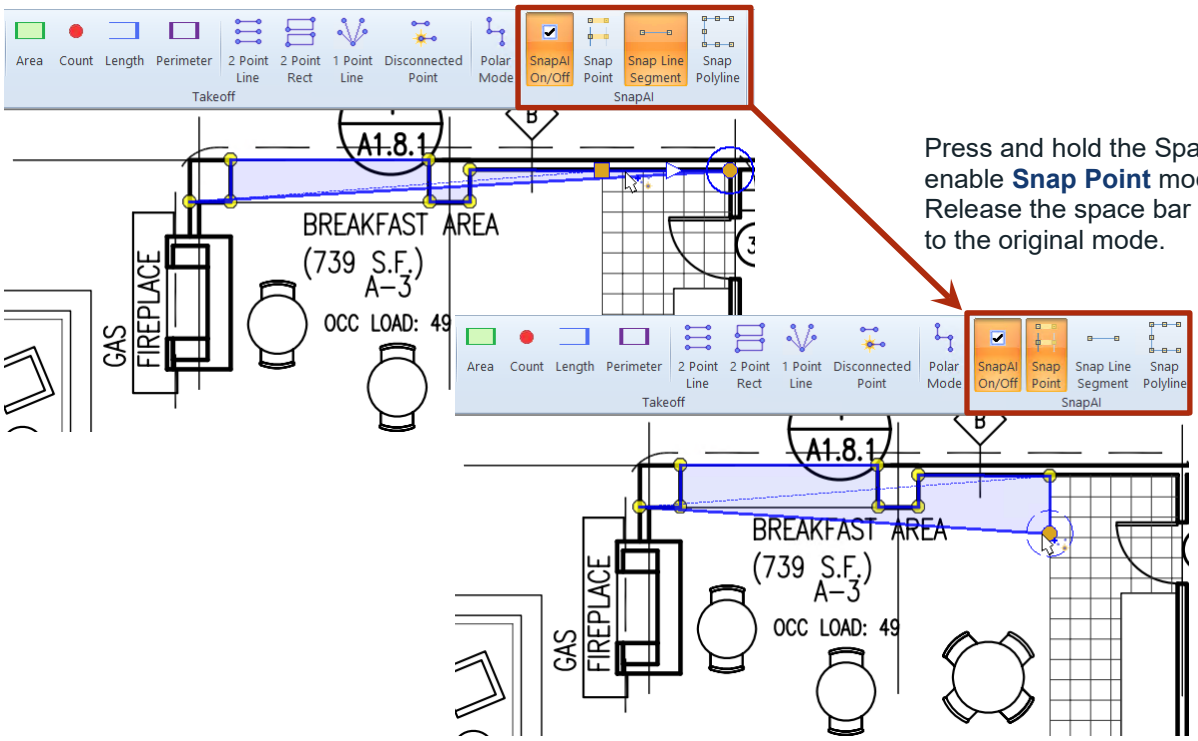
If you move your cursor towards the right wall of the linen storage room [**A**], SnapAI correctly finds the upper-right corner of the room as the starting point [**B**], but the end-point it identifies is only partially down the wall [**C**]. The right wall of the linen storage room is actually four separate segments, which you can see when you zoom in considerably [**D**, **E**, **F**, **G**] (the arrows indicate the starting point of each line segment).

Having four segments make up a single wall does not affect the plans in any way—quantities will still be calculated correctly—but these artifacts become apparent when you use **Snap Line Segment** mode. However, you don't need to select each individual line. If you skip over some of the segments, SnapAI finds them and assumes you want to connect them. You can therefore take off the right wall of the linen storage room with two clicks: one near the middle of the wall [**H**] to find the first segment, and one near the lower right-hand corner [**I**] to find the last segment.

Practice working in **Snap Line Segment** mode until you can move your cursor towards a line and understand at a glance how SnapAI identifies the start point, end point, and direction of your measurement. Then, practice clicking non-consecutive line segments so you see how SnapAI connects them.



In some cases, artifacts in the drawing might make it challenging to identify the line you need. In such cases, don't spend time fighting the vector! You can easily switch between **Snap Point**, **Snap Line Segment**, and **Snap Polyline** modes (explained next) as you do takeoff. This is useful because you might be in the middle of a measurement, and not be able to find the next segment. While performing a measurement, press and hold the Space bar to change back to **Snap Point** mode. This lets you quickly add points as needed to stay on course. Release the Space bar to revert to **Snap Line Segment** or **Snap Polyline** and keep working.

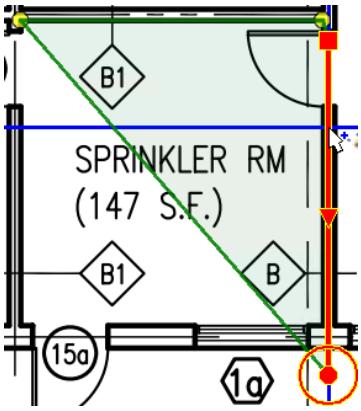


Press and hold the Space bar to enable **Snap Point** mode. Release the space bar to revert to the original mode.

You can also use the Tab, Shift + Tab, and left or right arrow keys to toggle between the three modes. When **Snap Line Segment** does not find the correct line, pressing the left arrow quickly switches to **Snap Point** so you can continue the measurement.

TIP: If you find that **Snap Line Segment** or **Snap Polyline** give you unexpected results, simply revert to a different mode to keep working. Don't spend time trying to force the correct result in a given mode if SnapAI isn't picking it up. Remember that architects have different methods and drawing styles, and they might have introduced extraneous data that affects how SnapAI interprets line segments.

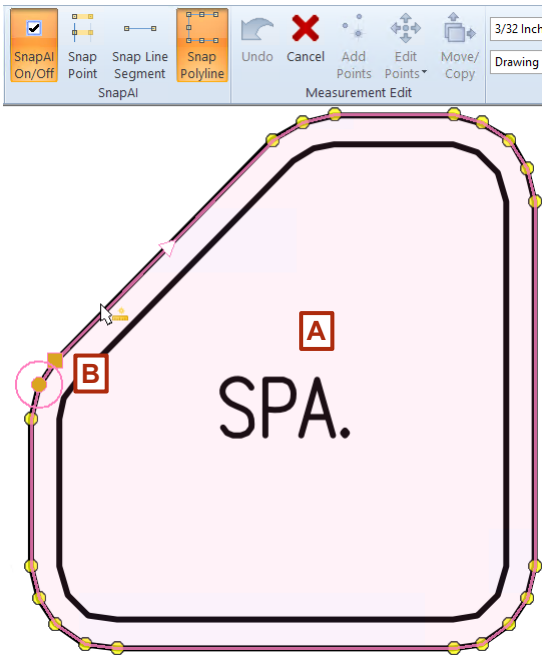
As you select line segments, you might sometimes see a line and their endpoints turn red. This means that you've already traced that line segment within that same measurement, so you cannot select it again. Move your cursor to the next line segment and continue.

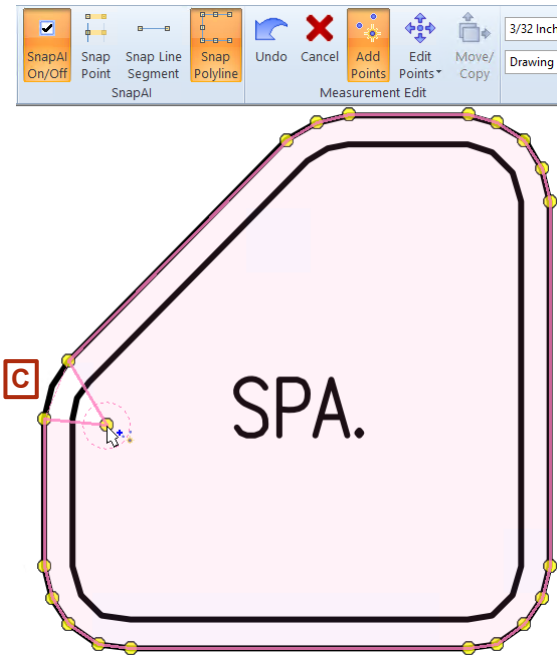


Snap Polyline mode

In **Snap Polyline** mode, SnapAI finds any set of connected line segments, including corners and arcs. This mode is ideal for closed shapes such as the spa [**A**]. Notice that while taking off any measurement, you can press Backspace (or Ctrl + Z) to undo the last point. When you do this in **Snap Polyline** mode, you undo the last point in the sequence SnapAI identified. In this example, the square [**B**] represents the starting point. Pressing Backspace removes the last point immediately prior to the starting point [**C**]. You can continue undoing points to eliminate more of the shape from takeoff.

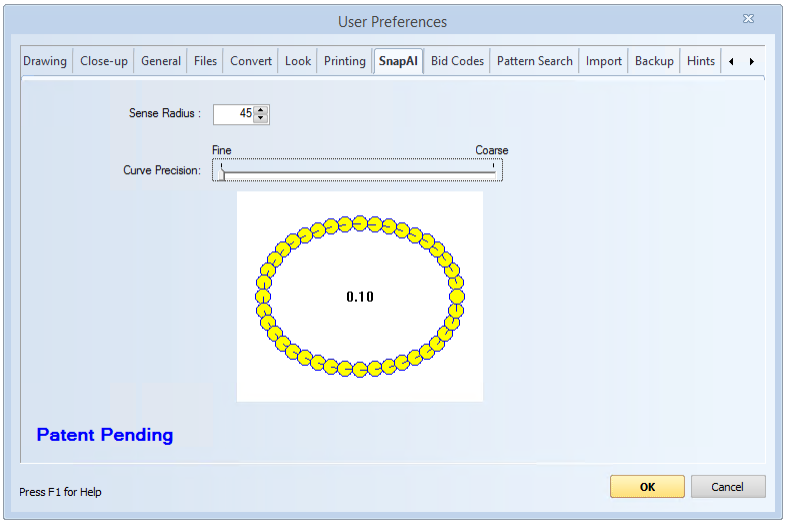
Snap Polyline mode is great for closed areas such as the spa shown below. With rooms such as the sprinkler or breakfast rooms shown on the previous page, you'll find that one of the other modes is most efficient. As with **Snap Line Segment** mode, artifacts in the drawing might make takeoff challenging in **Snap Polyline** mode. Again, instead of fighting the vectors, press and hold the Space bar to revert to **Snap Point** mode. Click the points you need (SnapAI connects them), and release the Space bar to continue in **Snap Polyline** mode.



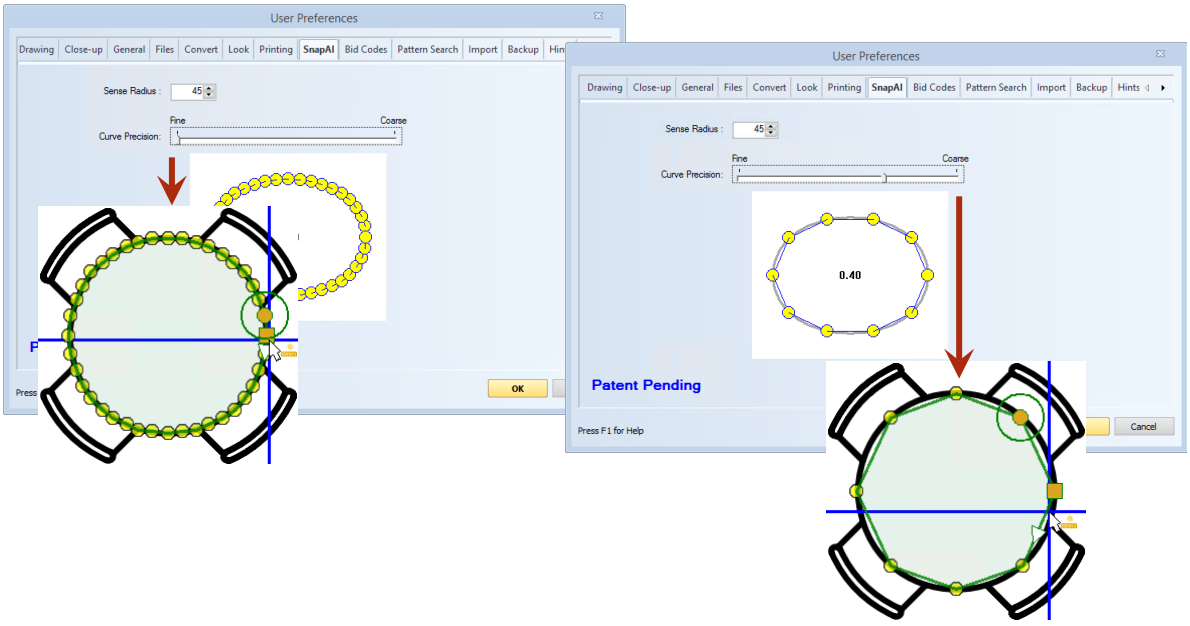


User Preferences related to SnapAI

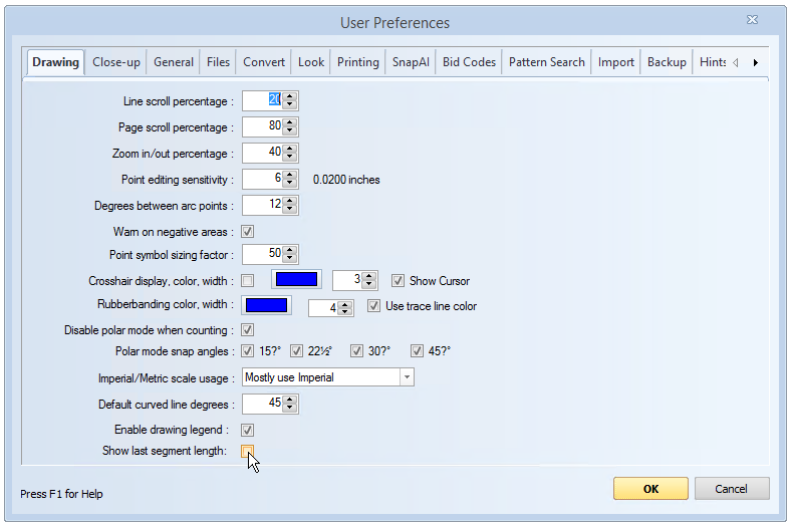
In **Settings > User Preferences > SnapAI** tab, you can configure how SnapAI performs.



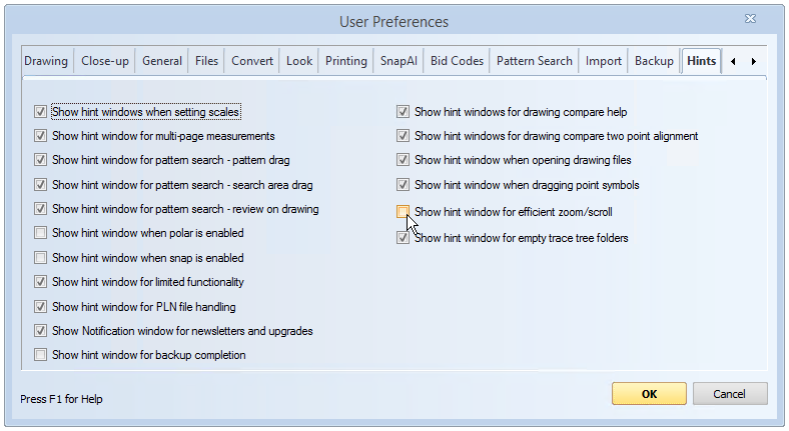
- **Sense Radius** controls the size of the snap sensor circle (the circle surrounding the cursor) when SnapAI is enabled (shown on page 17).
- **Curve Precision** controls how many points are used for arc line segments. The finer the setting, the greater the number of points.



On the Drawing tab, the **Show°Segment Data while measuring** check box controls whether quantities are displayed when you take off measurements.



On the **Hints** tab, the option **Show hint window when snap is enabled** displays hints while you perform takeoff using SnapAI.



Practice steps:

1. In drawing **004 A1.1 1st Floor Plan**, zoom in to grid B15, where you see the Exercise room.
2. Click **SnapAI On/Off**, and make sure that **Snap Point** is enabled (orange).
3. In the **Traces** control panel, click **Area**.
4. Starting at the top left of the Exercise room, click the four corners of the room as SnapAI recognizes them.
5. Press S (or double-click the fourth point) when you are finished.
6. Delete the measurement, and click **Snap Line Segment**.
7. Trace the Exercise room again, identifying the line segments represented by the walls.
8. Press S when you are finished.

Working with Polar mode

Help topic: Polar mode

While completing a trace, the cursor can be in **Freehand mode** (default) or **Polar mode**. In **Freehand mode**, the cursor allows unrestricted positioning to find the next measurement point on the drawing. In **Polar mode**, the measurement line is forced into a vertical or horizontal line.

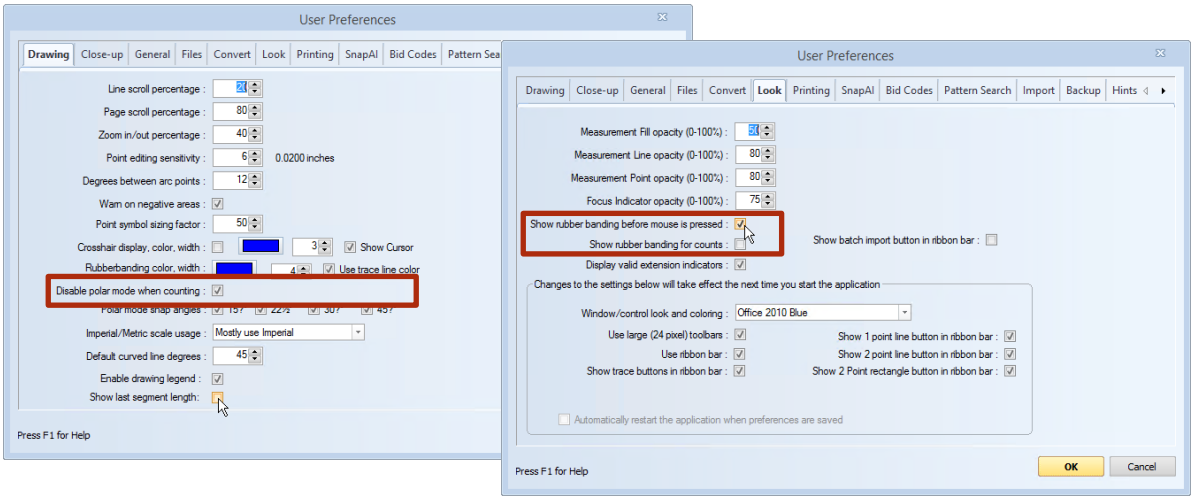
To force a measurement into a vertical or horizontal line, press the Ctrl key while moving the mouse. This temporarily engages **Polar mode** for as long as the Ctrl key is held. If you wish to stay in polar mode during measurements, click **Polar mode**. In this mode, pressing the Ctrl key while moving the mouse will temporarily engage **Freehand** mode.

NOTE: If you start a measurement with SnapAI on and then engage **Polar mode**, SnapAI is turned off.

User Preferences related to Polar Mode

Notice that additional angle options are available in the **User Settings** window.

- On the **Drawing** tab, select **Disable polar mode when counting** to allow free movement of the cursor when using the **Count** trace. Select or clear the **Polar mode snap angles** according to the angles you are likely to need. (Ninety-degree snap is always available.)



- On the **Look** tab, **Show rubber banding before mouse is pressed** lets you use rubber banding.

Practice steps:

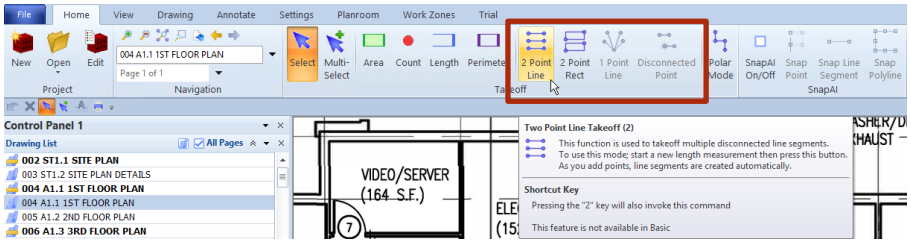
1. In drawing **004 A1.1 1st Floor Plan**, zoom in to grid B5, where you see the Laundry room.
2. In the **Traces** control panel, click **Area**.
3. Starting at the top left of the Laundry room, hold down the Ctrl key and click each corner in clockwise sequence to define its area excluding the bathroom and elevator. (There are 8 points total.)
4. Press S when you are finished.
5. Next, click **Perimeter**.
6. Directly to the left of the Laundry room, click to measure the perimeter of the Electrical room (4 points total).
7. Press S when you are finished.
8. Return to the area trace over the Laundry room. Click to select it, and then press D.
9. Enter “Laundry Room Area,” and press Enter. This names the trace so you can easily associate it with its location on the drawing. Notice that this description now appears in the **Quantity List** and **Measurement Summary** panes.
10. Assign the description “Electrical Room” to the perimeter trace you completed.

Point traces

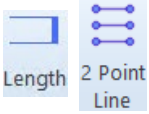
Videos and help topics:

- 2 Point Lines and 2 Point Rectangles
- Disconnected Points
- 2 Point Lines and 2 Point Rectangles **(Time: 2:46)**

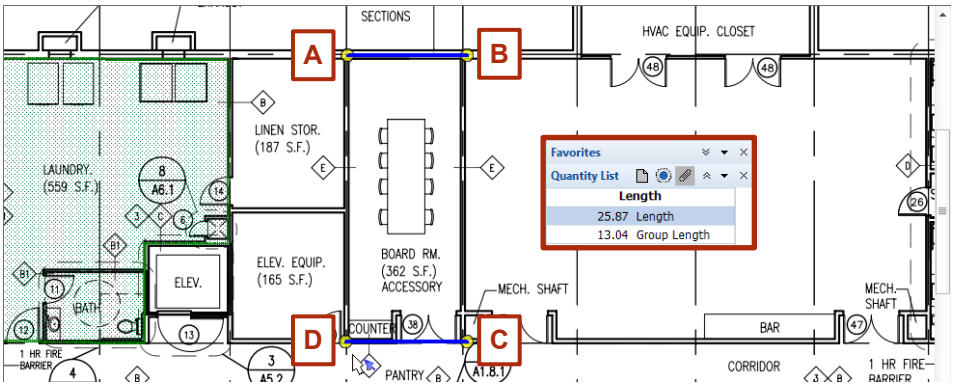
The remaining traces—including **2 Point Line**, **2 Point Rectangle**, **1 Point line**, and **Disconnected Point**—let you complete and refine length and area measurements. You first select one of the basic measurement types (such as area or length) and then click the point trace you want to use.



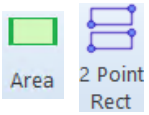
A **2 Point Line** trace creates disconnected lines. To complete a **2 Point Line** trace, first click **Length**, and then click **2 Point Line**.



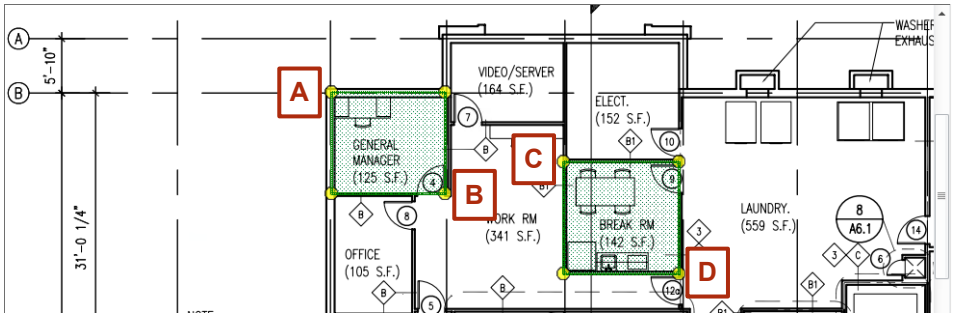
In this example, clicking [**A**], [**B**], [**C**], and [**D**] gives you the length of walls [**AB**] and [**CD**], excluding walls [**BC**] and [**DA**]. In the **Quantity List**, the **Length** is the total of all lengths. The **Group Length** is the horizontal length from point [**A**] to point [**C**].

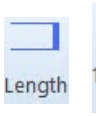


A **2 Point Rectangle** trace creates multiple disconnected rectangles. To complete a **2 Point Rectangle** trace, first click **Area**, and then click **2 Point Rect**.



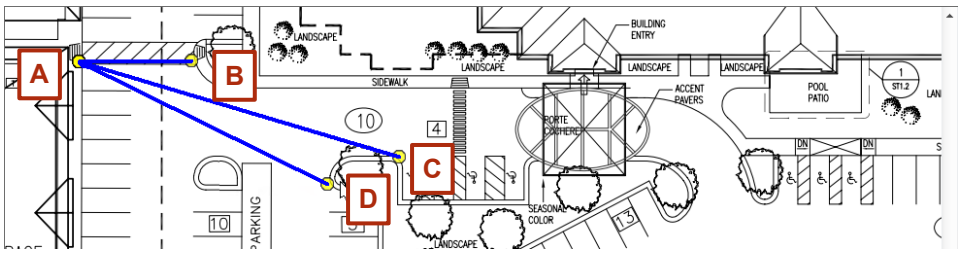
In this example, clicking points [**A**], [**B**], [**C**], and [**D**] gives you rectangle [**AB**] and rectangle [**CD**].

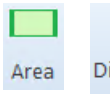




A **1 Point Line** trace creates a series of lines originating from a single point, like spokes on a wheel. To complete a **1 Point Line** measurement, click **Length**, click the starting point of the lines, and then click **1 Point Line**.

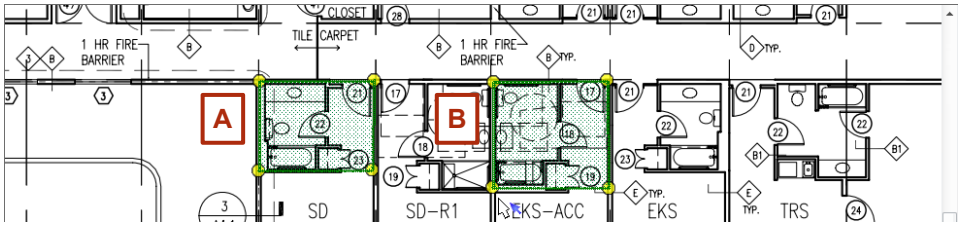
In this example, clicking points [**A**], [**B**], [**C**], and [**D**] gives you the lengths of lines [**AB**], [**AC**], and [**AD**].





A **Disconnected Point** trace lets you make multiple area measurements of the same type in a series. To complete this type of trace, click **Area**, click the points for the first area, then click **Disconnected Point**, and continue with the next area.

In this example, clicking the points for rectangle [**A**], then clicking **Disconnected Points** followed by the points for rectangle [**B**], gives you the area of the two disconnected rectangles [**A**] and [**B**].



Alternately you could click the points for rectangle **A** and then press G (the keyboard shortcut for **Group**) to start the next group of points.

Practice steps:

1. On sheet **017 A2.1 Exterior Elevations**, drawing **2 East Elevation**, use the .**Disconnected Point** tool to measure the total area covered by the windows.
2. On the same sheet, drawing **1 South Elevation**, use the **2 Point Line** tool to measure the lengths of each of the tan accent areas.

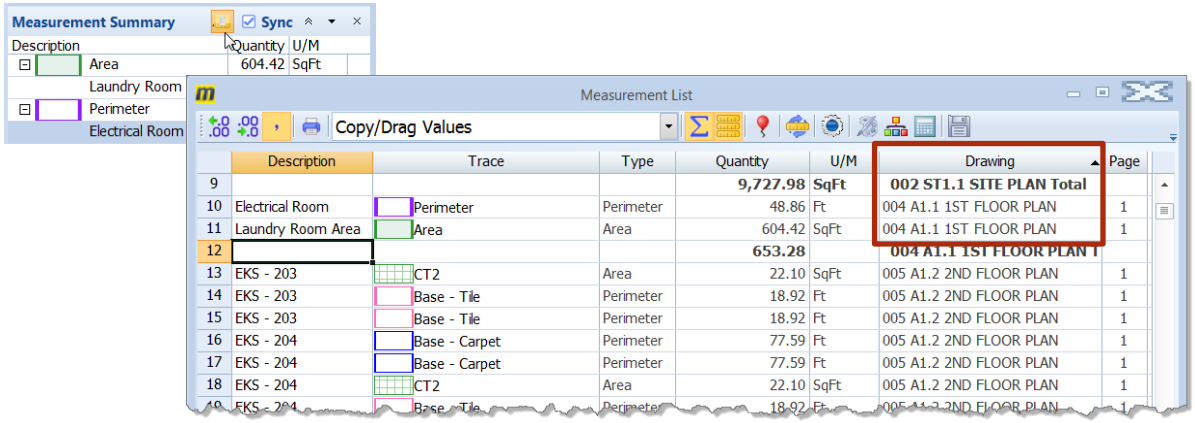
About the Measurement List window and Measurement Summary pane

Videos and help topics:

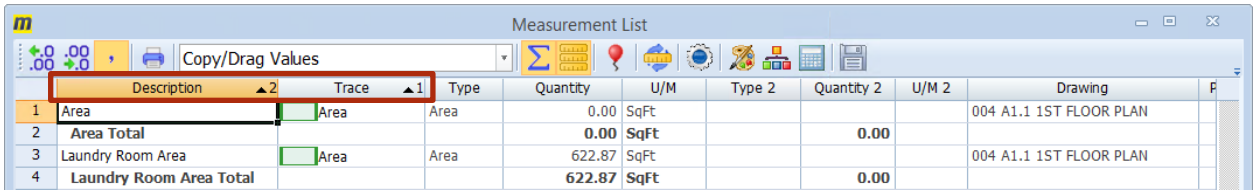
- Measurement List
- Trace Properties Window
- Measurement List (Time: 4:50)

The **Measurement Summary** pane in the **Control Panel** shows all measurements in the current drawing. It is used frequently for exporting takeoff data to Microsoft Excel or other applications.

With the **Measurement Summary** pane open, click the **Measurement List** button. This shows the **Measurement List**, which displays all measurements for the *project*.



An arrow to the right of a column heading indicates that the list is sorted by that column. Numbers in the row header, such as these Description ▲2 Trace ▲1, indicate that the list is sorted first by **Trace** and then by **Description**. This is the default sort order.



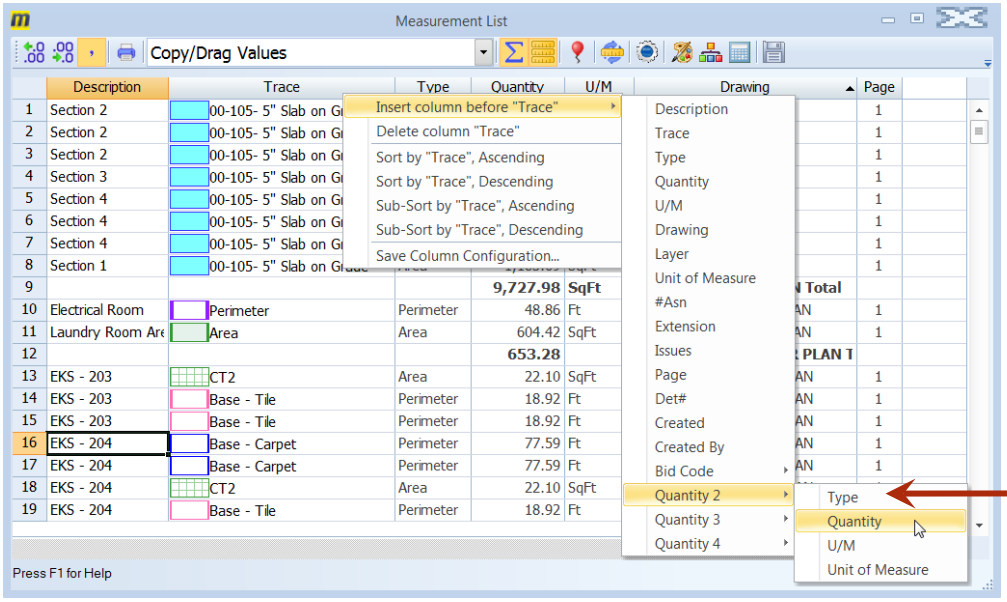
The red balloon button can be used to park or float the window.

The **Drawing** column indicates the drawing to which the measurement applies. Notice that the sample project already contains takeoff measurements for drawings **005 A1.2 2nd Floor Plan** and **007 A1.4 Roof Plan**.

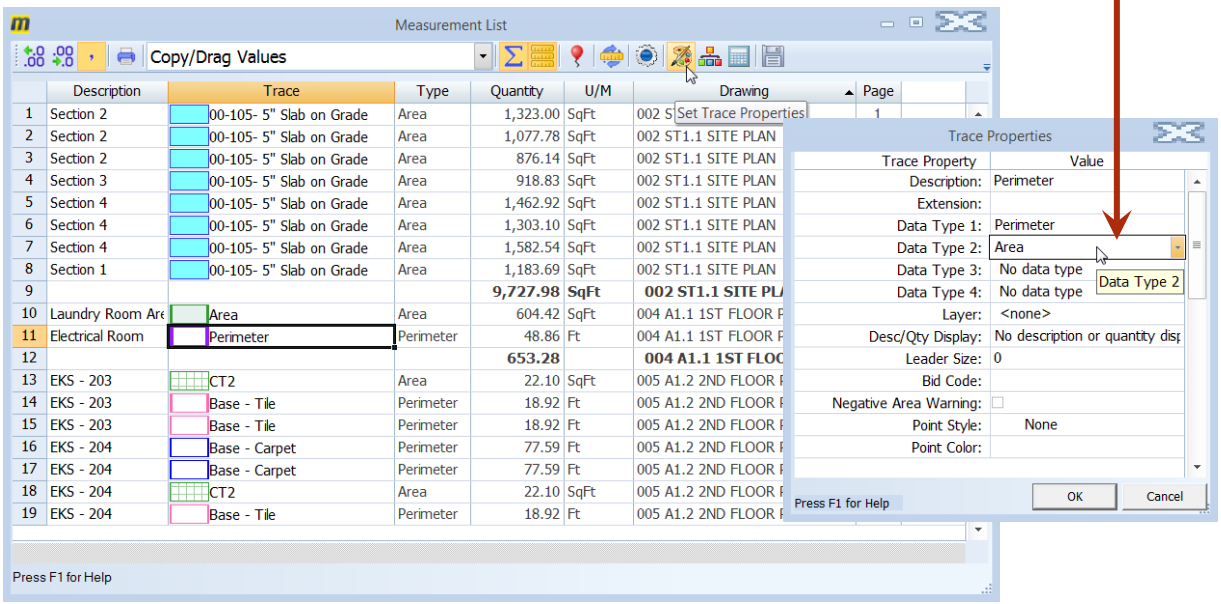
To sort the list by a column, right-click the column and select **Sort by**. By default, this list is sorted by trace and then by description.

You can click the **Summarize** button to show totals and subtotals.

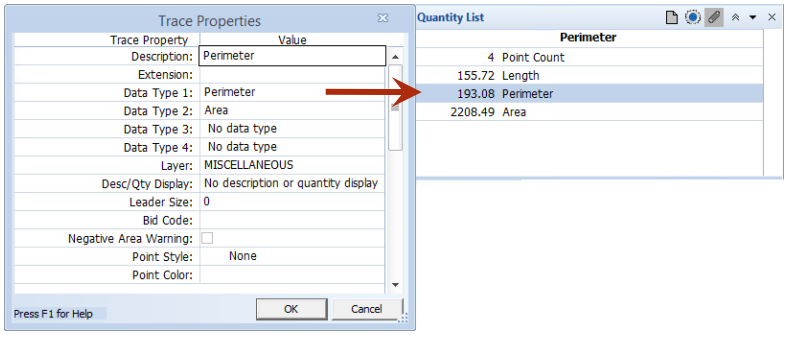
Notice that you can also delete or insert columns based on the information you need to see. For each measurement, the four data types assigned when creating the trace (such as area, length, or a variable) can be displayed. These four types are available as output types for each measurement.



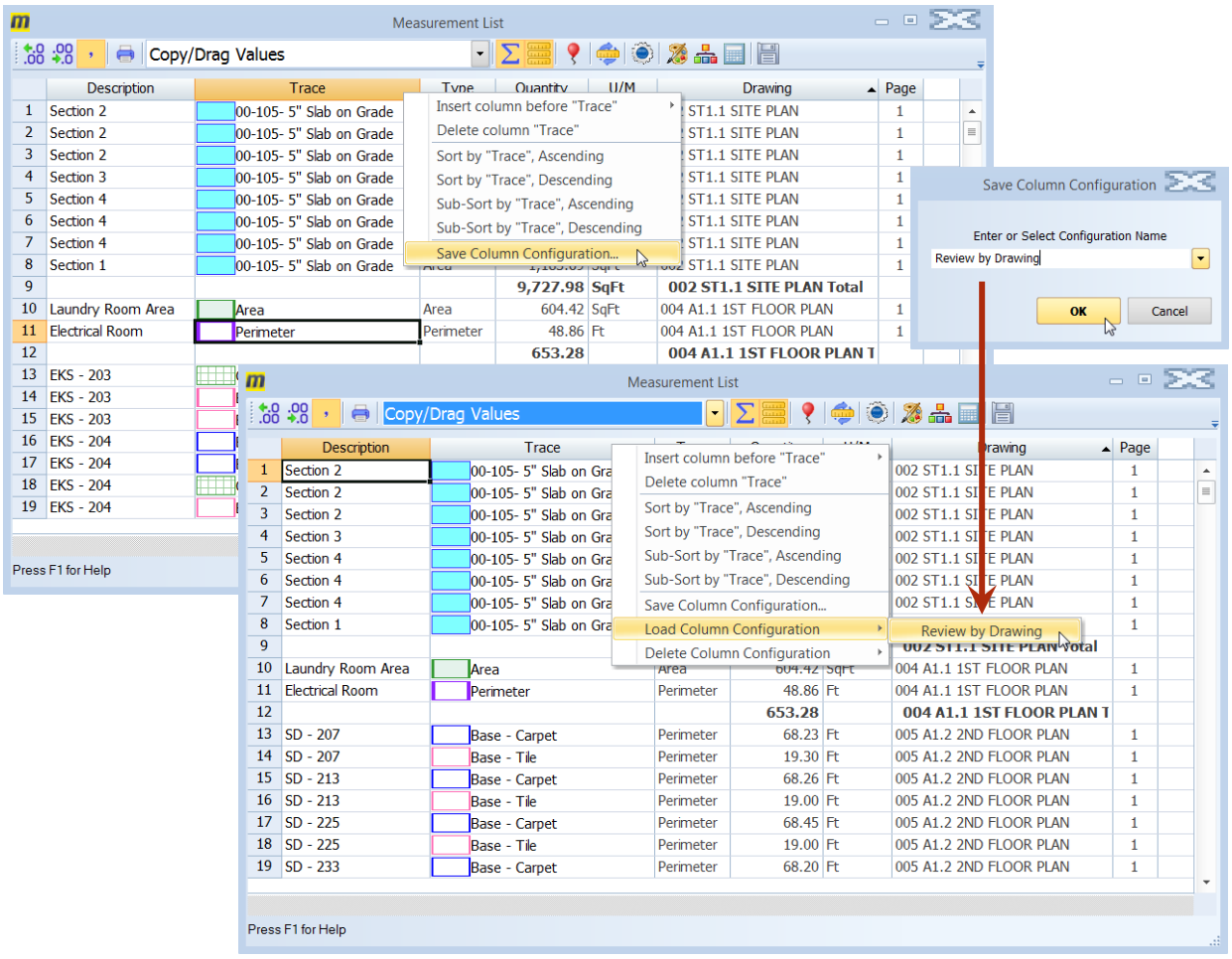
To see the quantity types used for each measurement, click a cell and then click **Edit Trace**. The data types listed correspond with the quantities in the **Measurement List**.



NOTE: The measurement selected for **Data Type 1** in the **Trace Properties** window determines the primary measurement type, which is the blue shaded measurement in the **Quantity List**.



Once you arrange the columns as needed, you can right-click a column heading and select **Save°Column Configuration**. The configuration is then saved and is available for future access.



Practice steps:

1. In drawing A1.1, First Floor Plan, zoom in to location B5, the Laundry room.
2. With the **Measurement Summary** pane open, click the **Measurement List** button.
3. Arrange the columns so that the **Drawing** column is first, followed by **Description**, **Trace**, and all columns for quantity types 1 and 2.
4. Right-click a column header and select **Save Column Configuration**.
5. Assign a name to the configuration and click **Save**.
6. Double-click any measurement in the list to go to that measurement in the drawing.

Modifying measurements

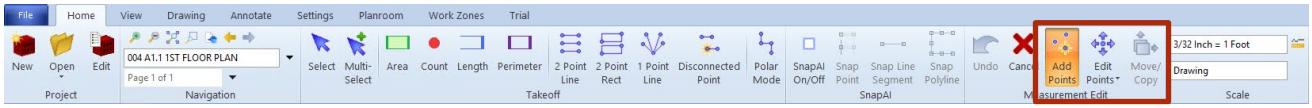
Videos and help topics:

- Measurement Summary
- User Preferences
- Settings tab
- Edit Measurements **(Time: 2:16)**

You have several options for refining and correcting your traces as you complete your measurements. Keep these tips and shortcuts in mind.

Editing existing measurements

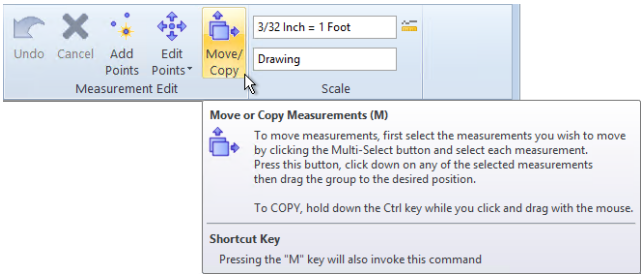
If you wish to edit an existing measurement, use the **Add Points**, **Edit Points** or **Move/Copy** buttons in the **Measurement Edit** section of the **Home** tab.



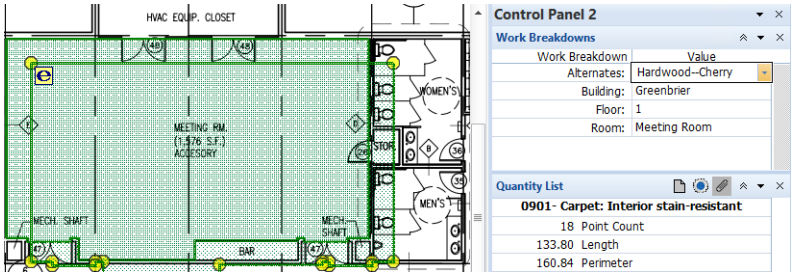
- To correct only the last segment (click), click **Undo**, or press Ctrl + Z or Backspace.
- If you make a mistake while measuring, you can cancel the entire measurement by clicking **Cancel** or pressing Esc.
- While clicking the corners of an area trace, you can hold down the left mouse button and pause to auto-zoom for more accurate placement.
- To delete a measurement, click to select it and press Delete.
- To delete several measurements at once, click **Multi-Select**, and then either select each measurement, or click and drag to form a rectangle around all measurements to select them simultaneously Press **Delete**.

Moving or copying measurements

To move a measurement, click the measurement to select it, click **Move/Copy**, and then click and drag the measurement to the new location. (Notice the extensive help information when you hover over the **Move/Copy** button.



To copy a measurement, click the measurement to select it, click **Move/Copy**, and then hold down the Ctrl key as you click and drag the measurement. This creates a copy, which you can then move as needed. This option is particularly useful if you are estimating alternate options for a client. Use a work breakdown category to define the alternates. (See “Work Breakdowns (WBS Codes)” on page 70.) Create the measurements and assign the alternate—then copy the measurements and simply assign new alternates.



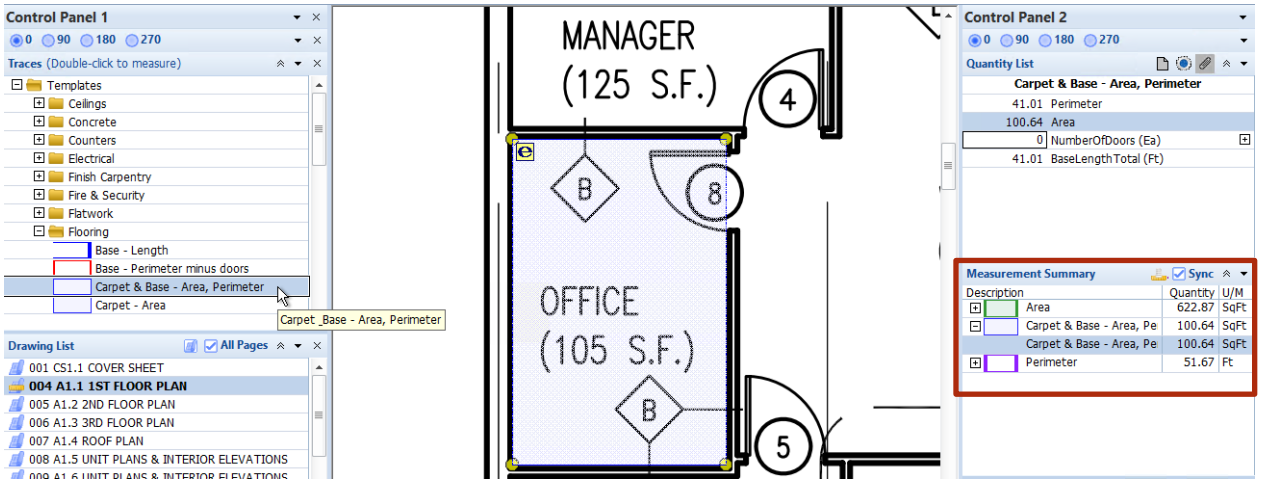
Working with pre-defined and custom traces

Videos and help topics:

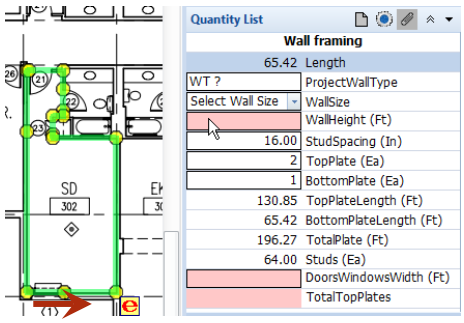
- Trace List/Tree Control
- Easy Trace Creation/Edit Window
- Trace Properties Window
- Trace Grid Window
- Edit Measurements **(Time: 2:16)**

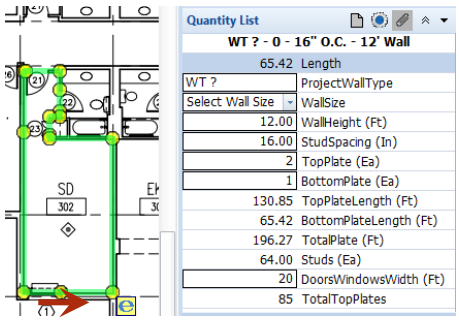
The standard takeoff traces are area, length, perimeter, and count. You can take advantage of numerous other pre-defined traces by expanding the **Templates** folder in the **Traces** list. For example, in the **Templates > Flooring** folder, the **Carpet & Base – Area, Perimeter** trace lets you delimit an area, such as a room, and calculate the square footage of carpet needed plus the linear feet of baseboard needed.

Double-click a trace in the **Templates** list to begin the measurement. This example shows a **Carpet & Base** measurement of the **Office**. The **Measurement Summary** list shows the perimeter as well as the carpet area.



Custom traces can be *extended* (using extensions) to include additional variables along with area, length, perimeter, and count values. This example shows a wall framing trace with extension variables for stud size, height of the wall, stud spacing, and many others. With a measurement selected, enter values for the additional variables in the **Quantity List**. Any values shaded pink are required variables. The red e on the extension indicates that some required values are missing. When all required variables are entered, you'll see a blue e.



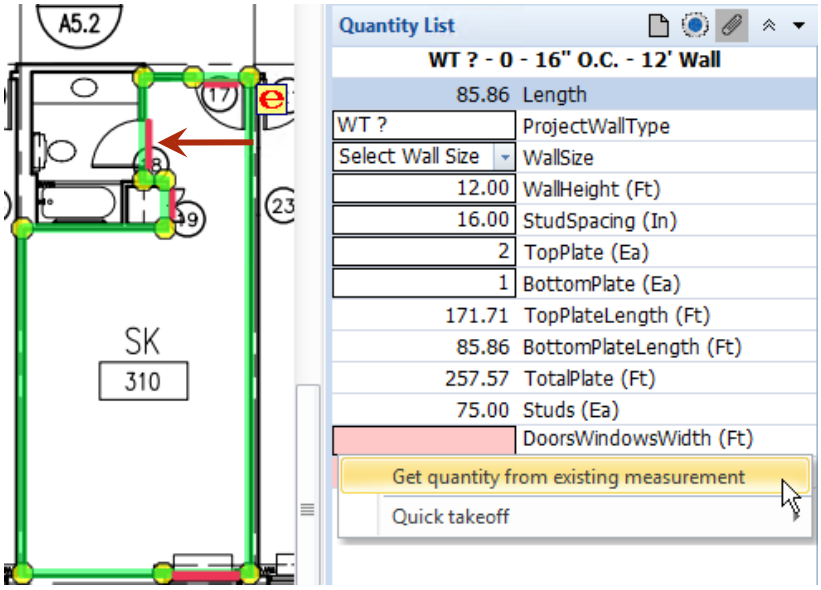


In some cases, the value for the variable might need to come from another measurement, because the quantity cannot be derived from the primary measurement or specifications.

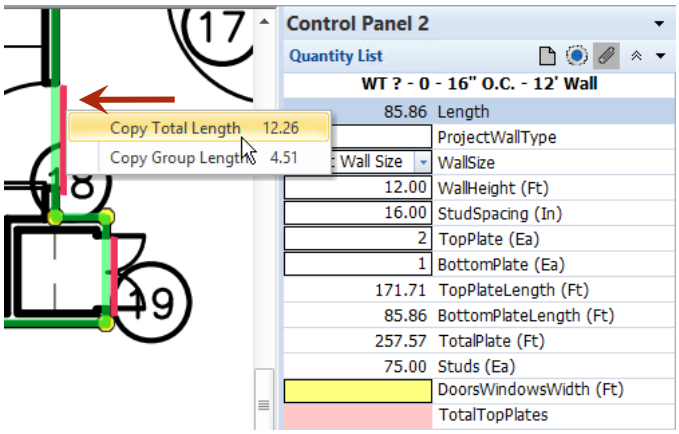
For example, a complete wall framing assembly includes additional headers for doors and windows, and these are not mathematically related to the length of the walls being framed.

To measure the doors and windows in a room separately:

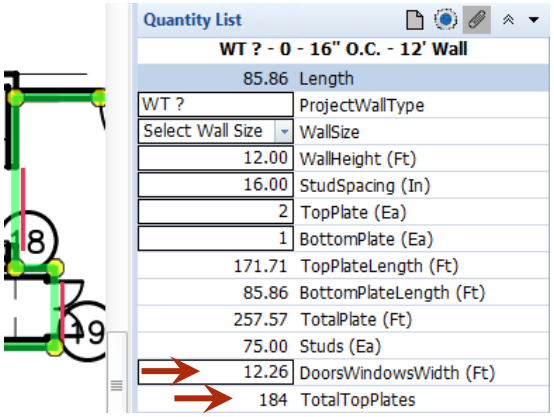
1. Complete a separate trace with the correct value. In this example, the doors and windows have been measured using a length trace broken into groups using the G key.
2. Click the primary trace to select it, right-click the variable box, and select **Get quantity from existing measurement**.



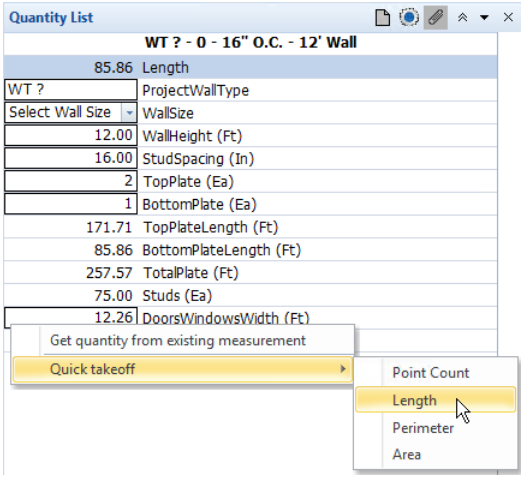
3. This turns the variable box yellow. Click the measurement you want to use and select the appropriate action—**Copy Total Length** or **Copy Group Length**. … Quick Takeoff doesn't give you a residual measurement on the drawing—it disappears.



4. This inserts the value you selected into the variable. In this example, a formula called TotalTopPlates adds DoorsWindowsWidth to TopPlateLength for the total required: **171.71’ + 12.26’ = 184’**



TIP: If you haven’t already completed the additional measurement, you can right-click the variable and select **Quick Takeoff**. Select the type of value needed (in this case **Length**) and complete the measurement.



WARNING: Values derived from additional traces are not updated automatically if you later change the measurement. For example, if you need to add another door or window to the length measurement, you would then need to return to the primary trace, right-click the variable, and retrieve the new value.

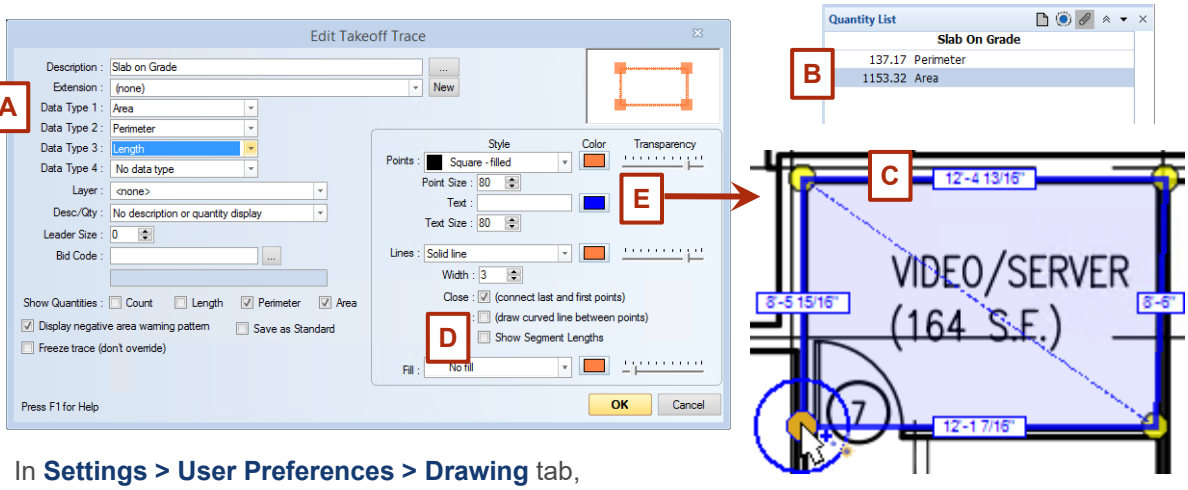
Defining data types on traces

For every trace, you can define additional data types, with one measurement quantity assigned to each (such as area, length, perimeter, and count). The measurements are then displayed in the appropriate data type column in the **Measurement List**.

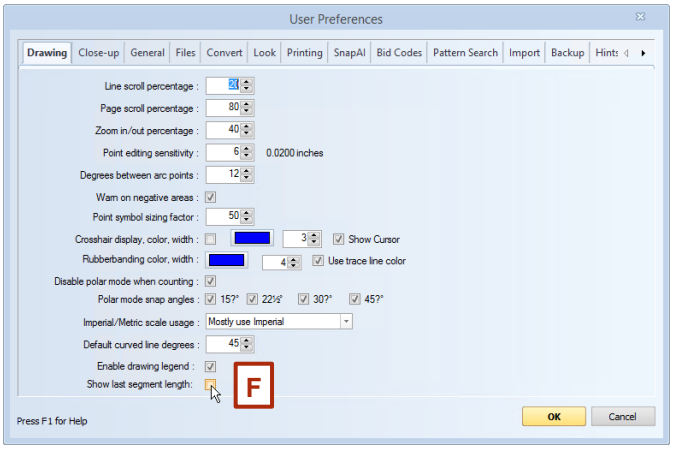
To assign data types to a trace, right-click the trace in the drawing area and select **Edit Trace**. The **Edit Takeoff Trace** window lets you specify the values to store for each data type. Remember that the **Data Type 1** assignment [**A**] is treated as the primary measurement type and is shaded blue in the **Quantity List** [**B**].

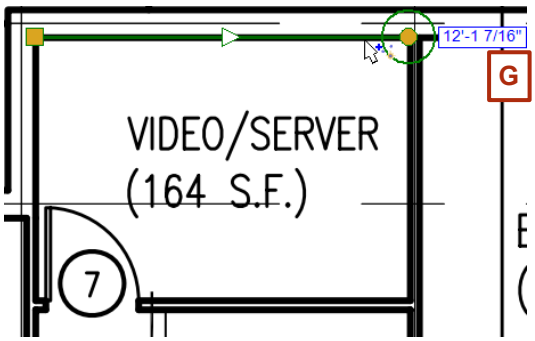
When you perform takeoff, you can see the line lengths displayed in boxes as you measure [**C**]. You can control the size and appearance of the display using one of two options.

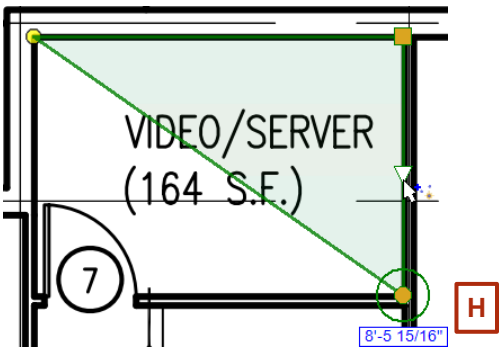
- Individual traces (**Settings > Traces**) have the settings **Show segment length** [**D**], which controls whether the display boxes appear [**C**] for each line segment on the finished measurement. You can use the **Text** and **Text Size** settings [**E**] to control the size and color of the segment length display boxes.



- In **Settings > User Preferences > Drawing** tab, the **Show°Segment Data while measuring** [**F**] check box controls whether quantities are displayed for line segments at the time you're taking off measurements using the standard measurement tools or in **Snap Point** mode. With this setting enabled, you see the length of the last line [**G**] during takeoff. With subsequent clicks the display changes to show each quantity [**H**] in succession with the prior one disappearing. Once you finish the measurement, the boxes no longer appear.

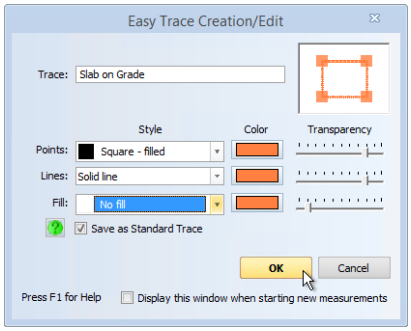


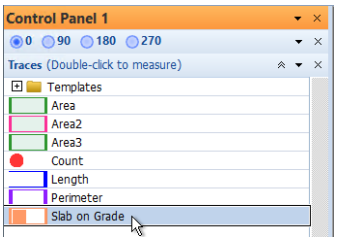




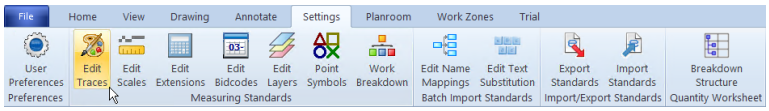
Creating custom traces

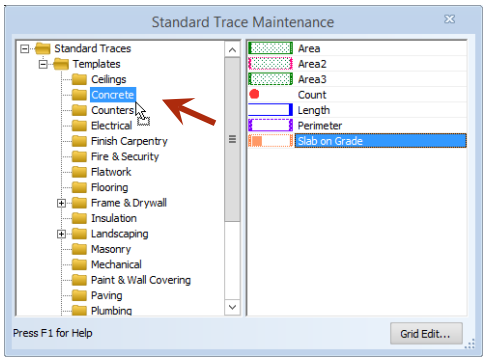
You can create your own library of traces and use them in any project. To do this, click one of the four basic measurement types on the **Home** tab, set the properties for the trace, and click **OK**. The new trace is added to your **Traces** list.

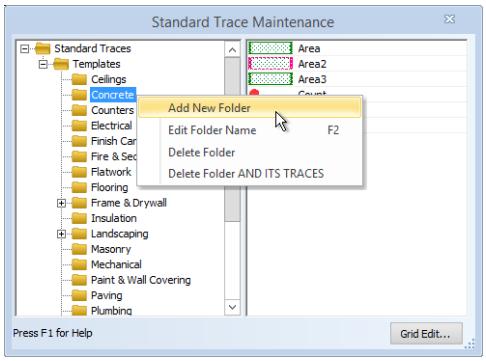




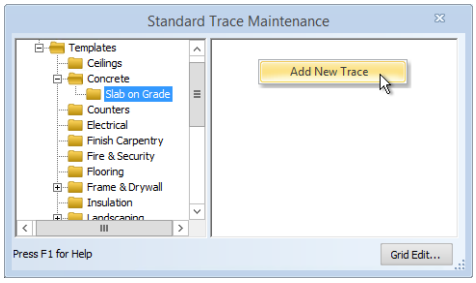
To organize your **Traces** list, on the **Settings** tab, click **Edit Traces**. Click and drag a trace on the right to a folder on the left to move it. Notice that you can right-click a folder and select **Add New Folder** to further organize your traces.







Once you create a new folder, create a new trace or move an existing trace to the folder to prevent the folder from being removed when you close the window. To create a new trace, right-click in the right-hand pane and select **Add New Trace**.



Practice steps:

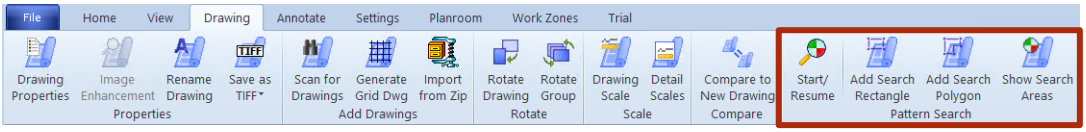
1. Click **Area**, and then press Z.
2. In the **Easy Trace Creation/Edit** window, enter “Slab with Finish” as the **Description**.
3. For **Points**, select **Square – Filled** and assign the color orange. Don’t change the **Transparency** setting.
4. For **Lines**, select **Solid line** and assign the color orange. Don’t change the **Transparency** setting.
5. For **Fill**, select **No fill**.
6. Make sure the **Save as Standard Trace** check box is selected and click **OK**.
7. Click **Settings > Edit Traces** and move your trace to the **Templates > Concrete** folder.
8. Close the **Standard Trace Maintenance** window.
9. Create a new measurement using the trace you just created. Remember to press S to finish.
10. Press D, and enter the name “New Slab with Finish.”
11. Verify that your new measurement appears in the **Measurement Summary** list.

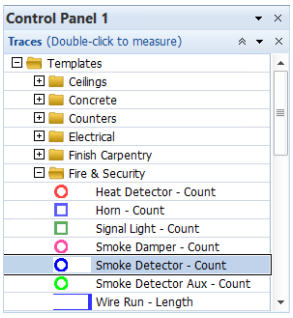
Pattern Search

Videos and help topics:

- Pattern Search Overview
- Pattern Search Part 1 **(Time: 6:13)**
- Pattern Search Video 2 Multiple Patterns and Drawings (covers background search) **(Time: 2:46)**

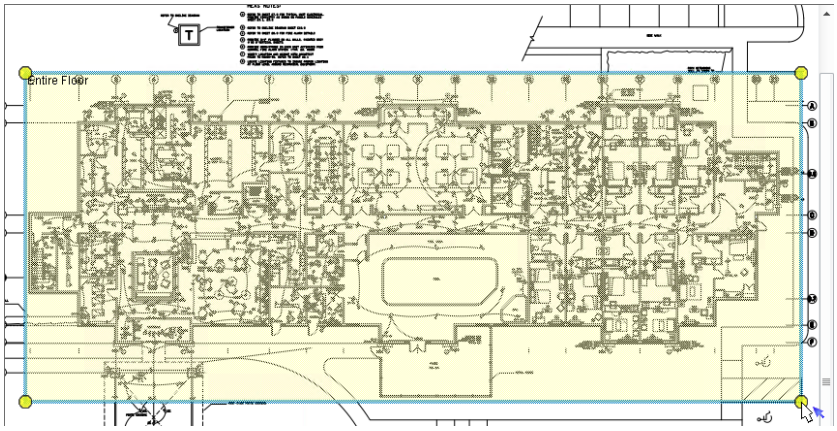
With the Premier version: Pattern search, also known as Autocount, lets you search for multiple symbols across a drawing. To do this, you first designate the area to be searched (using a rectangle or polygon) and then designate the pattern for which to search.



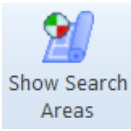


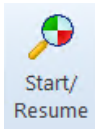
If you click a trace in the **Templates** list before starting pattern search, the search results are automatically assigned to that trace.

In this example, the pattern search results will be assigned to the **Fire and Security > Smoke Detector** trace.

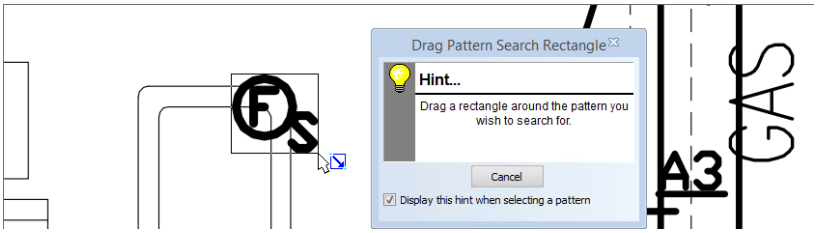


To specify the area to be searched, click **Add Search Rectangle** or **Add Search Polygon**. To create a rectangle, click in the top left corner of the area you want to search, and then click the bottom right corner. To create a polygon, click the points of the polygon and then press S. The selection is shaded yellow. (Press Delete to remove this search area.





You can show or hide the search area by clicking **Show Search Areas**. Click **Start/Resume** to begin.

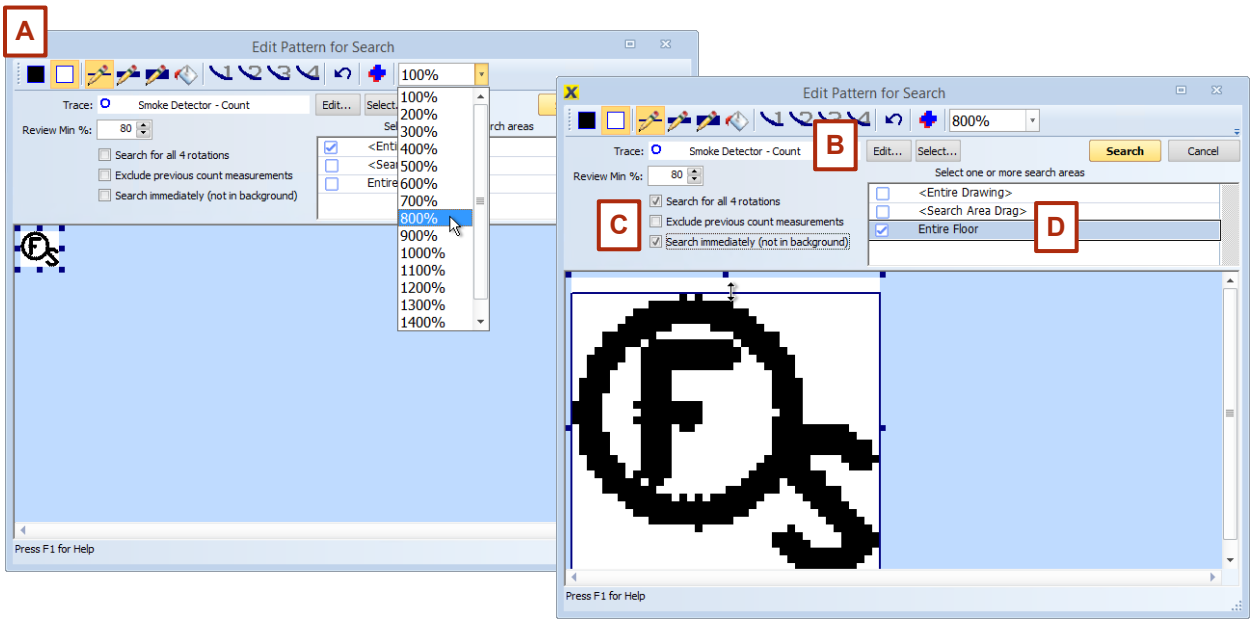


Click and drag to select the pattern to search for. In this example, the search is for fire detectors.

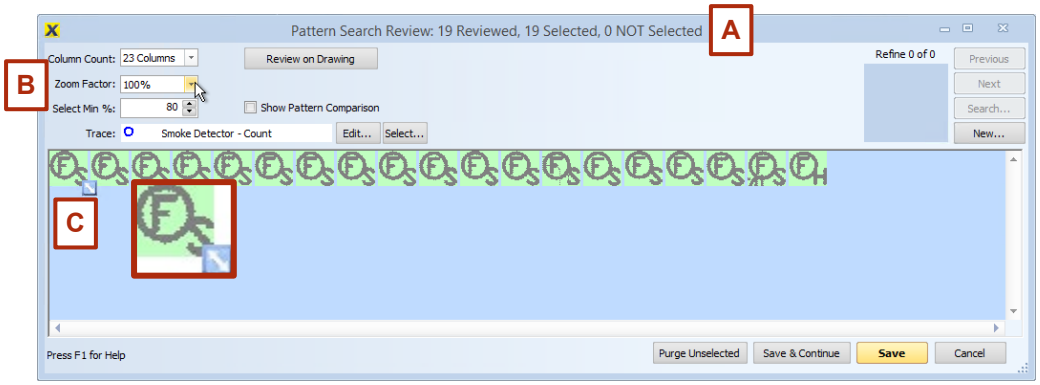
Once you release the mouse, the **Edit Pattern for Search** window opens. You can zoom in and use the editing tools [**A** below] to minimize white space and eliminate artifacts of other drawing elements.

Notice that **Smoke Detector – Count** is selected as the trace [**B**], because it was selected when the pattern search was initiated. If no trace is selected or you want to change it, you can click **Select**.

You can search for the pattern in any rotation [**C**] and select **Search immediately** to show the results immediately when you click **Search**. In the list of search areas [**D**], select the areas to search.



In the **Pattern Search Review** window, the title bar indicates the number of matches found and the number unselected [**A** below]. All matches are shaded green, which means they are selected as matches. (Results not selected are shaded white.) You can zoom in [**B**] to view the search results more closely.



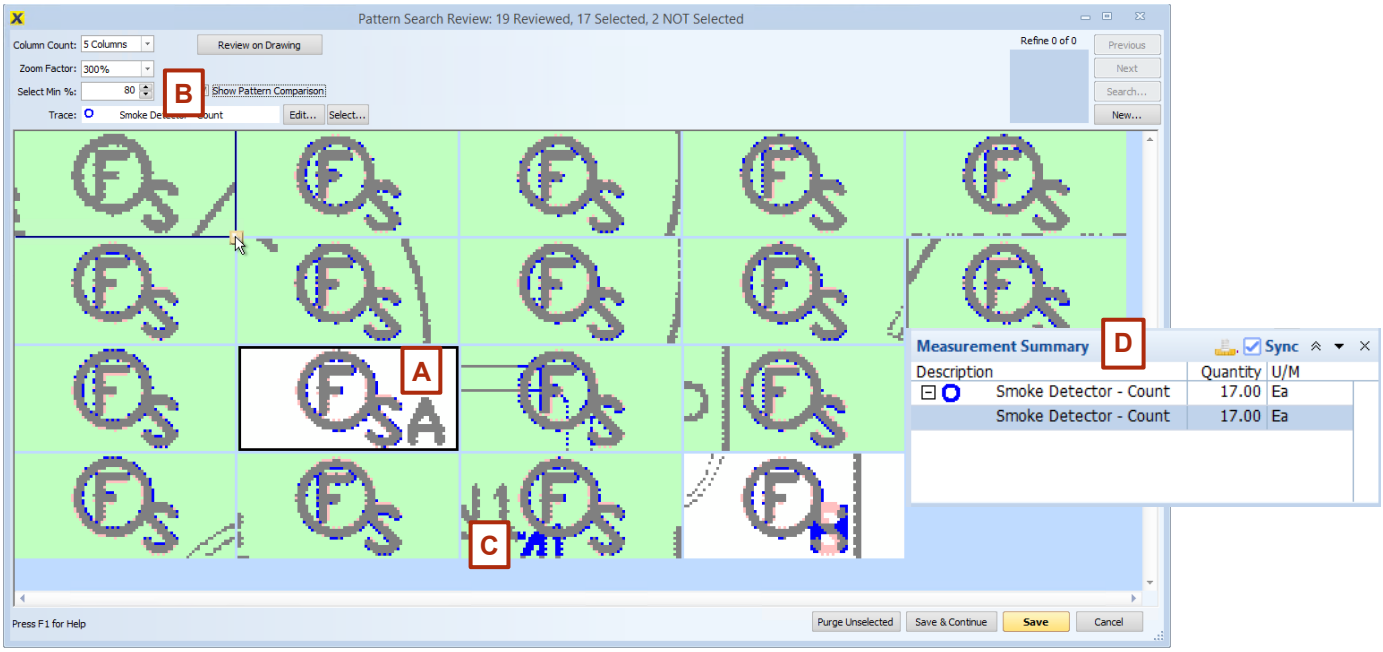
Notice the double-arrow symbol in the lower-right corner of the first match [**C**]. Use this to expand the area shown in the results. When you do this, the search results are not changed, but you can see each result with more context to help you decide whether to include it in the trace.

You can also change the minimum percentage of pixels to match [**A** below] (in this case, 80% is selected). If you think too few or too many matches were found, you can change this value.

NOTE: Recall that SnapAI (explained on page 17) finds points and lines based on vectors in the PDF. In contrast, pattern search looks for pixel patterns, so you can use it with raster or vector drawings.

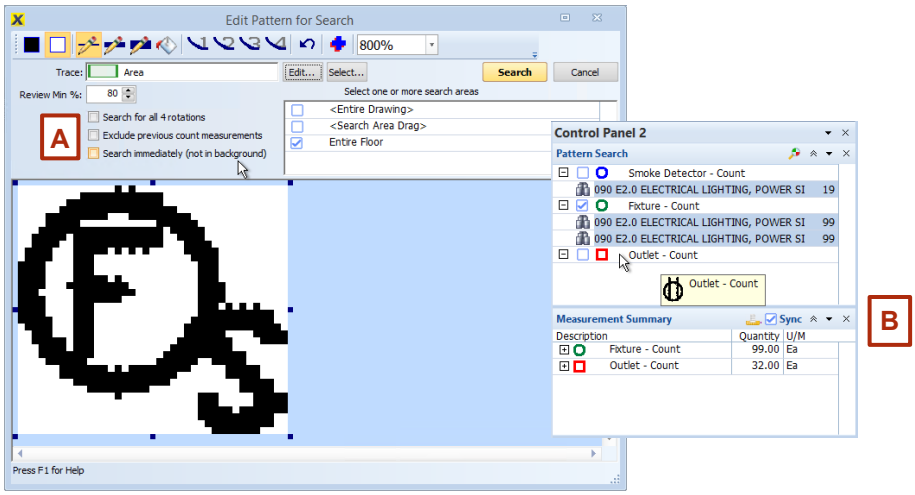
Expanding the area using the double-arrows reveals that a **Smoke Detector with Auxiliary** symbol [**A**] was returned as a match. Clicking a match toggles its selection (green is selected, white is not selected).]. When you click **Save**, the **Smoke Detector** trace resulting from the pattern search appears in the **Measurement Summary** [**D**].

Pattern search also lets you search across multiple drawings, and you can search for multiple symbols simultaneously. Searches can run in the background while you continue to do takeoff.



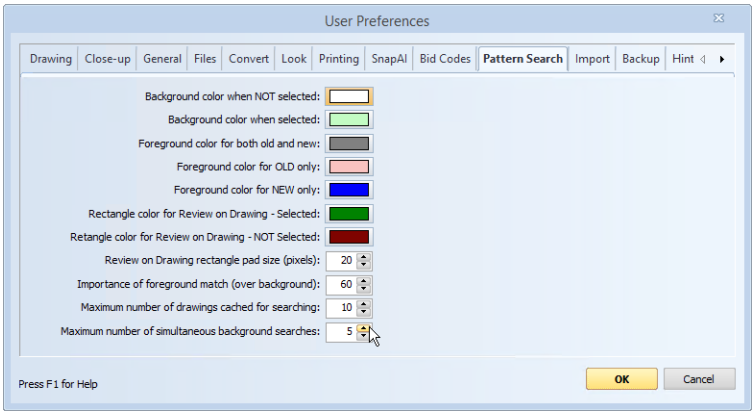
Background searches

If you leave the **Search immediately** check box cleared [**A**], the **Pattern Search** list in **Control Panel 2** lets you see the progress of multiple searches while you continue to work in the drawing. Hold your mouse over a search to see the image for which it is searching [**B**].



User preferences related to pattern searches

In **Settings > User Preferences > Pattern Search** tab, you can configure colors, cached drawings, and maximum number of background searches if you find that multiple searches slow the application.



Practice steps:

1. Open drawing **090 E2.0 Electrical Lighting, Power Site Plan First Floor**.
2. On the **Drawing** tab, click **Add Search Rectangle**, and designate the building area as the search area (excluding surrounding site elements, text, and other areas of the drawing.
3. Click **Show Search Areas** to hide the yellow shading.
4. Click **Start/Resume**.
5. Zoom in to smoke detector, such as the one in the **Video Server** room (grid line B between lines 3 and 4) and select a tight rectangle around it.
6. Select **Search immediately**, and then click **Search**.
7. When the search is complete, review the results and clear any false matches. (Click **Review on Drawing** to see the matches in context.)
8. Click Save to add the Smoke Detector trace to your measurements. Review the Measurement Summary to make sure the correct number was returned.

Using Extensions

Videos and help topics:

- Extensions Overview
- Standard Extension Maintenance
- Grid
- Riser
- Joist
- Roll
- Extensions Part 1 (Time: 3:14)
- Extensions Part 2 (Time: 8:32)

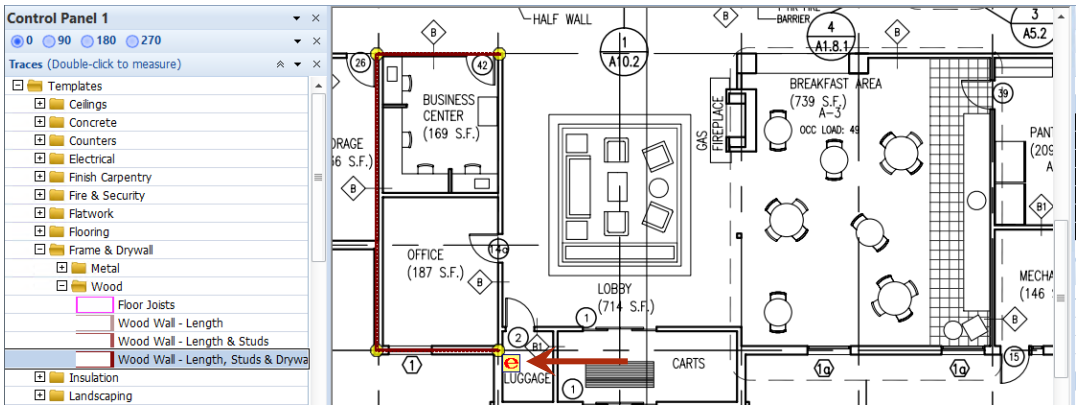
Extensions let you add variables for additional input and output parameters to any trace. In addition to the four standard quantity types shared by all traces—**Length**, **Area**, **Perimeter**, and **Count**—extensions can collect additional input and calculate new quantities based on the additional information.

With an **Advanced** license, you cannot create or modify extensions; however, a variety of pre-built extensions are included with the **Advanced** version. You can also use extensions created by the Premier edition.

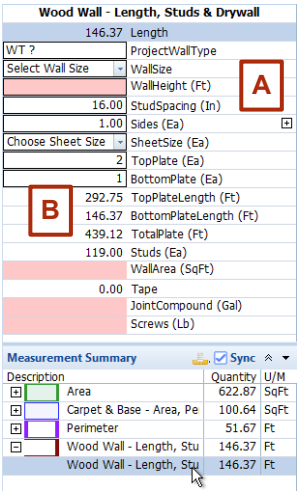
With the Premier edition: You can create and modify extensions, and export them for use by colleagues using the Advanced edition. When you configure the extension, you designate variables as additional output in the **Measurement Summary**. For example, you might record part numbers or other spec information during takeoff. There is no limit to the number of columns you can generate in this manner. See “Configuring extensions ” on page 66.

Taking off traces with extensions

In this example, the **Wood Wall – Length, Studs, & Drywall** trace has been used to measure interior walls. This trace is under **Templates > Frame & Drywall > Wood**. Notice the special icon indicating the trace has an extension:  . The **e** in the icon is red because the extension is incomplete.



In the **Measurement Summary**, double-click the trace to see its details.

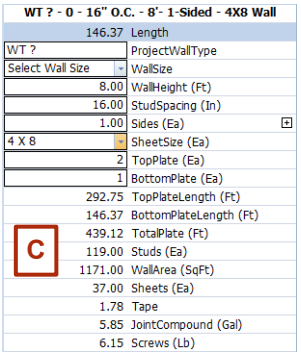


In addition to the length of the walls, the **WallHeight**, **StudSpacing**, **Sides** of sheetrock, and **Sheetsize** variables [**A**] are associated with the trace because of its extension.

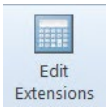
From these additional values, the extension calculates quantities for **TotalPlate**, **Studs**, number of drywall sheets, and so on [**B**].

Red shaded areas indicate values that still need to be entered, or that will be calculated when the remaining variables are entered.

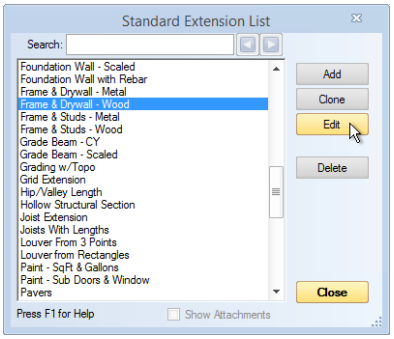
Once all variable values are entered [**C**], the extension icon changes to blue.

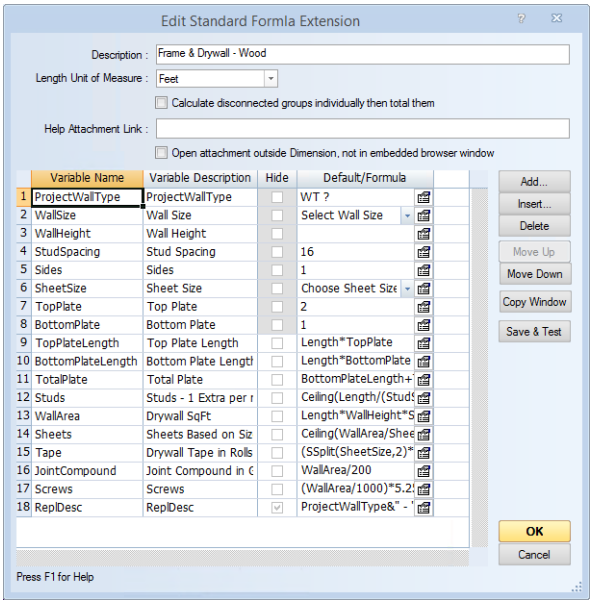


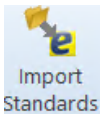
TIP: During project takeoff, you'll find that you use certain trace-extension combinations quite often. If you start your trace by clicking it in the **Traces** list, you'll need to fill in the variables each time. However, once you enter variables the first time, you can save the trace as a **Project Favorite** to preserve any variable values. Later, double-click the extension in **Project Favorites** to use it on other drawings. Variable values are preserved in the new location.



To create or modify extensions using the Premier edition, on the **Settings** tab, click **Edit Extensions**. Find the extension you want to inspect and click **Edit**. This example shows the **Frame & Drywall – Wood** extension used with the **Wood Wall** trace.







With the Advanced edition: To import extensions created in the Premier edition, go to **Settings > Import Standards**.

Practice steps:

1. Double-click drawing **004 A1.1 First Floor Plan** to open it.
2. In the **Traces** list, go to **Templates > Flooring** and click **Carpet & Base – Area, Perimeter**.
3. You need to measure for carpet and baseboards to be installed in the General Manager's office, Gift Shop, and Board Room. Trace these three locations using any of the takeoff tools.
4. Press S when you are finished.
5. In the **Quantity List**, for **NumberOfDoors**, enter 4. Notice that the BaseLengthTotal is calculated to reflect the change.
6. Press D, and enter "Carpet & Base, GM, Gift Shop, Board Room."

Beyond the Basics

Now that you've been introduced to Dimension's basic workflow, you can refine your skills using the information in this section. You can approach these topics in any sequence. Each topic references the skills you've already learned, so if you need to brush up on something, just go to that topic in the "Dimension Basics" section, and then return here when you're finished.

More measuring tools

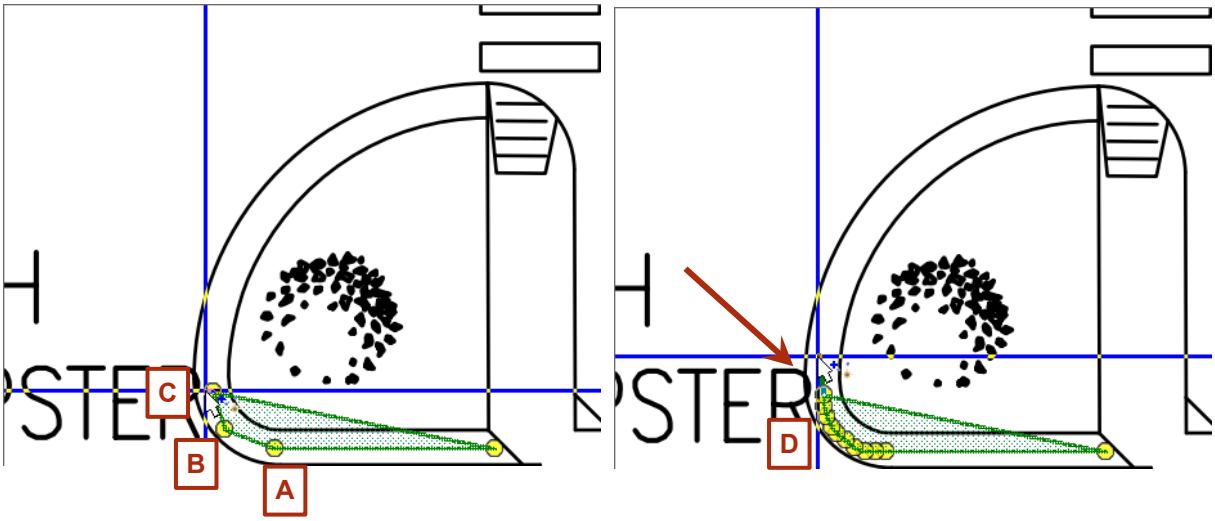
Arcs and Circles

Help topic: Arcs and Circles

If you use the **Premier** edition and you have enabled SnapAI on a vector PDF, you can use **Snap°Line°Segment** or **Snap Polyline** to automatically detect arcs and circles. See page 21 for information about SnapAI.

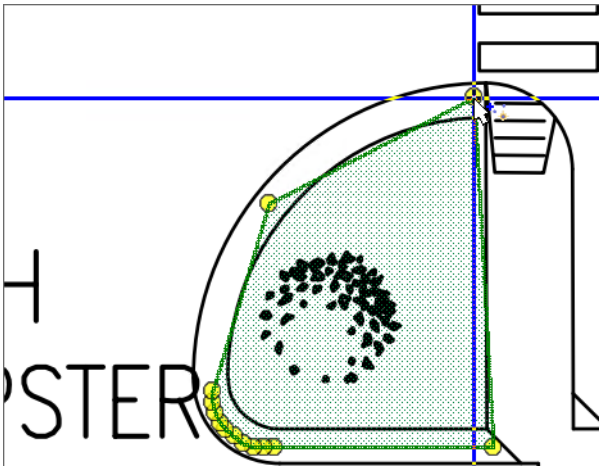
If you do not have the **Premier** edition or you're working with a raster drawing, you can measure an arc by indicating its start, middle, and end points.

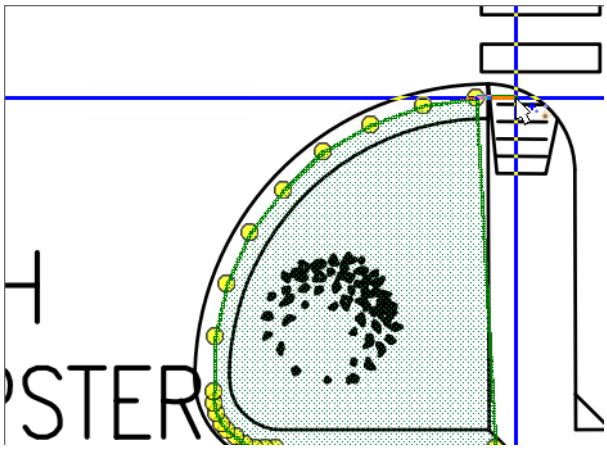
Start an **Area** measurement such as the one shown here. When you get to the arc, click the beginning [**A**], middle [**B**], and end [**C**] of the arc. Press C on the keyboard, and notice that Dimension fills in the points needed to make the arc [**D**].



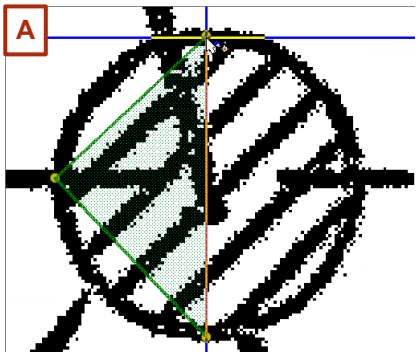
In **Settings > User Preferences**, on the **Drawing** tab, you can set the number of degrees between arc points to control the number of points filled in by Dimension [**D**]. The default setting is 12 degrees, which resulted in ten points for the arc in the example above.

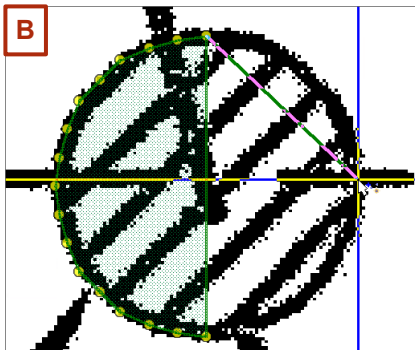
The last point you clicked before pressing C can be the starting point of the next arc. Click twice more to mark the middle and end, and press C again. Continue in this manner and press S to end the trace.

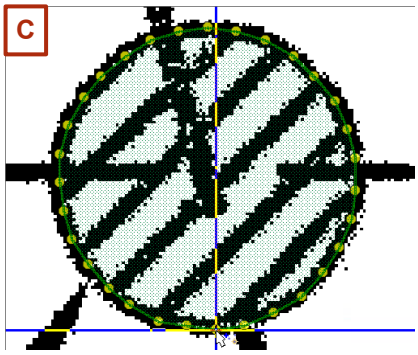




To create a circle, you simply create two semi-circles. Click **Area**, and then click on points at 0°, 90°, and 180° to mark the first half of the circle [**A**]. Press C to generate the first arc. Then click at 270° and back at 0° [**B**]. Press C again to finish the circle [**C**].







About Arcs and Polar Mode

Clicking **Polar Mode** while measuring forces your clicks to conform to vertical or horizontal lines (or other snap angles if you configure them in **Settings > User Preferences > Drawing** tab). However, for arcs and circles or other non-perpendicular points, this isn't helpful. You can press the Ctrl key while measuring to temporarily disable Polar Mode.

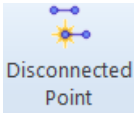
Practice steps:

1. Even if you have SnapAI, practice tracing arcs and circles without it so you understand how it works. Make sure **SnapAI On/Off** is cleared as you practice these steps.
2. Double-click drawing **002 ST1.1 Site Plan** to open it.
3. Zoom in to one of the curved, landscaping areas in the parking lot and use arcs to measure its area.
4. Next, open drawing **047 ST3 Underground Detention Details** and zoom in to the **Inspection Manhole** on the **24" HDPE Manifold Detail** section.
5. Measure the area of the manhole using a circle.

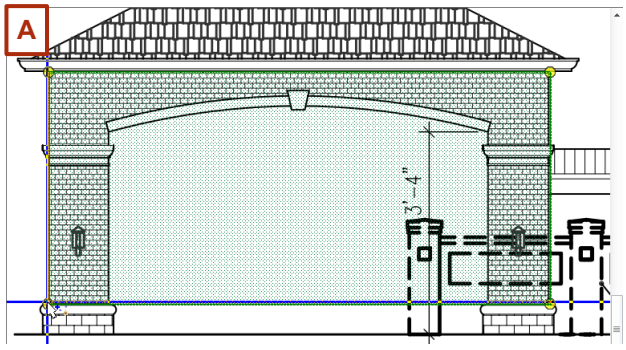
Cutouts

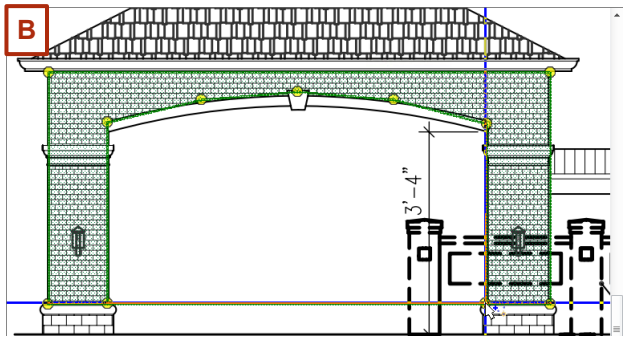
Video: Measurement Cut Outs **(Time 1:36)**

Cutouts let you subtract one area from another, such as when you need to deduct the size of openings from exterior finish area measurements.



Areas are measured clockwise. Measuring counter-clockwise creates negative areas. We use this concept to create area cutouts. To create a cutout, start by measuring the area in a clockwise direction [**A**]. Then, press G (or click **Disconnected Point**) to start a subordinate measurement, then begin the cutout measurement, moving in a counter-clockwise direction [**B**].





If the area has multiple cutouts, you can continue adding them using disconnected points until you are finished. Press S to stop the measurement.

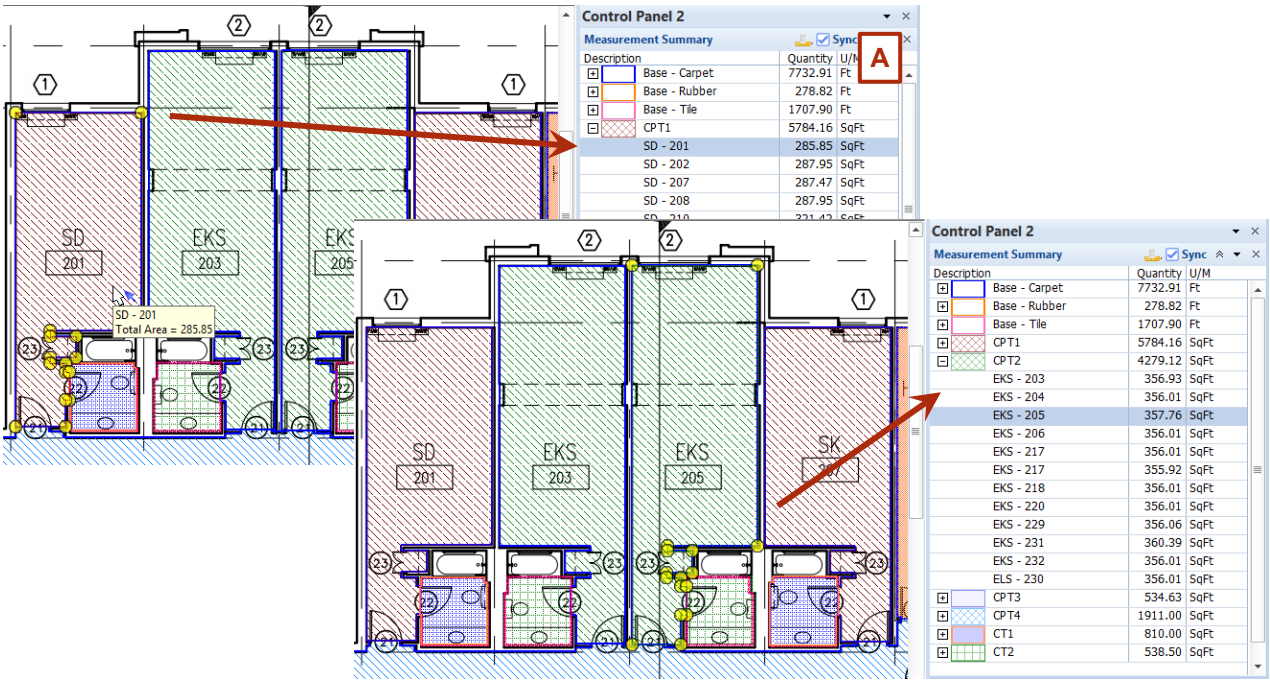
Practice steps:

1. Double-click drawing **017 A2.1 Exterior Elevations** to open it.
2. Zoom in to the small storage structure to the left of the hotel in the **East Elevation**.
3. Measure the area to be finished with reddish brown clay brick by first measuring the total area and then using a cutout to remove the opening.

   TIP: The top of the opening is curved. Use an **Arc** to measure this portion of the opening. (See **Arcs and Circles** starting on page 49.)

Synchronize measurements

In the **Measurement Summary** list (in **Control Panel 2**), you can double-click a measurement to make the drawing view jump to that measurement. This works as long as the **Sync** check box [**A**] is selected in the **Measurement Summary** list.



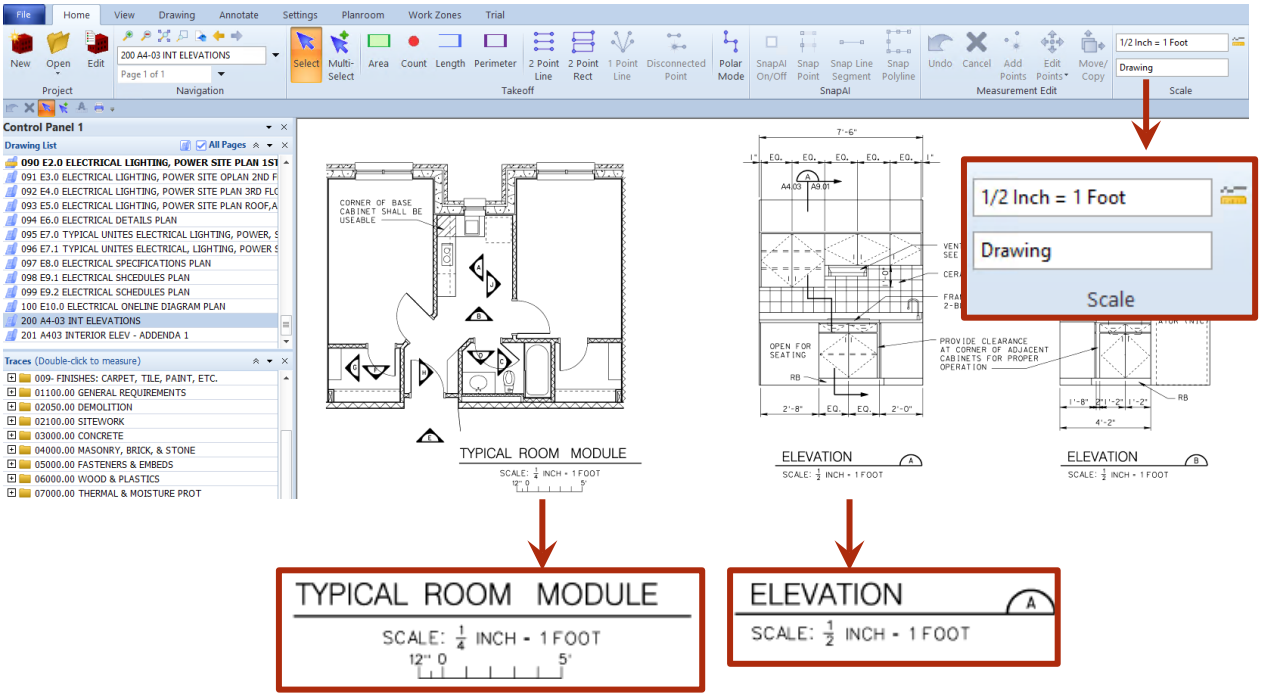
Setting multiple scales on a drawing sheet

Videos and help topics:

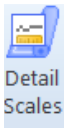
- Detail Scale Edit Window
- Setting Scales (Time: 1:28)

When a drawing sheet contains multiple section or detail drawings, they might not all use the same scale. Dimension lets you set multiple scales per drawing sheet so your measurements on each drawing are accurate.

Each drawing sheet has a scale. In this example, the scale is **½ Inch = 1 Foot**, which matches the **Elevation** drawing on the right. However, notice that the **Typical Room Module** section uses the scale **¼ Inch = 1 Foot**.

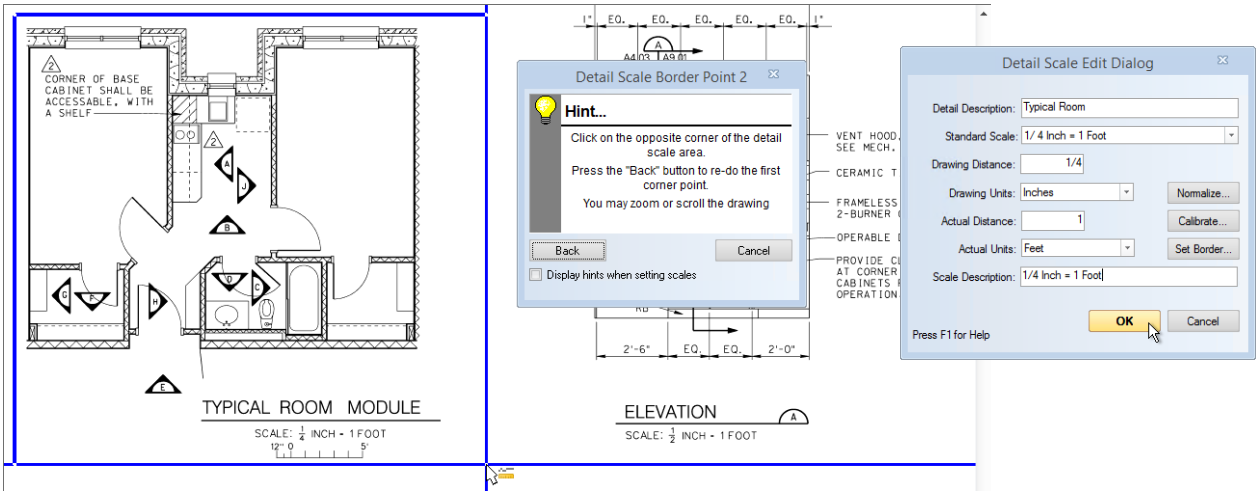


To add scales, you denote the area of the drawing that uses a different scale.

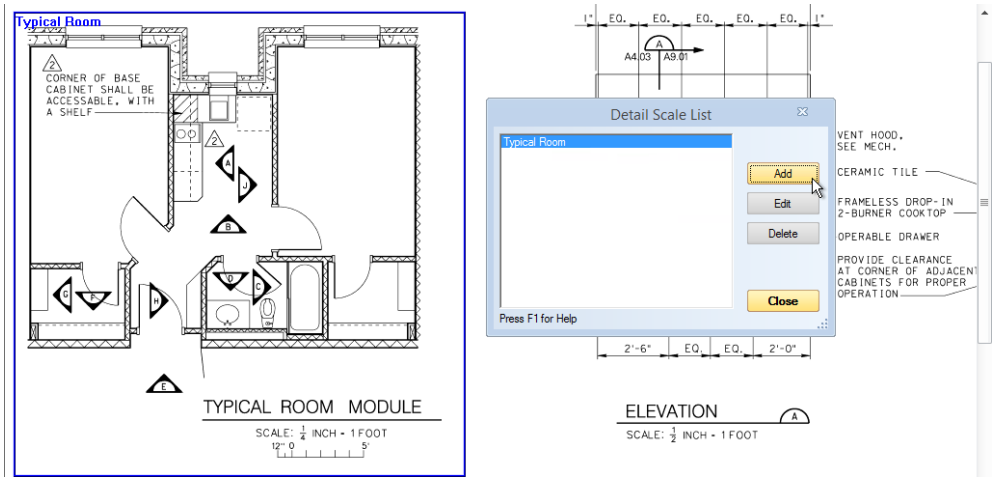


On the **Drawing** tab, click **Detail Scales**. In this window, you add a description and select a **Standard Scale**—or, you can enter the **Drawing Distance** and **Actual Distance** if a standard option does not apply.

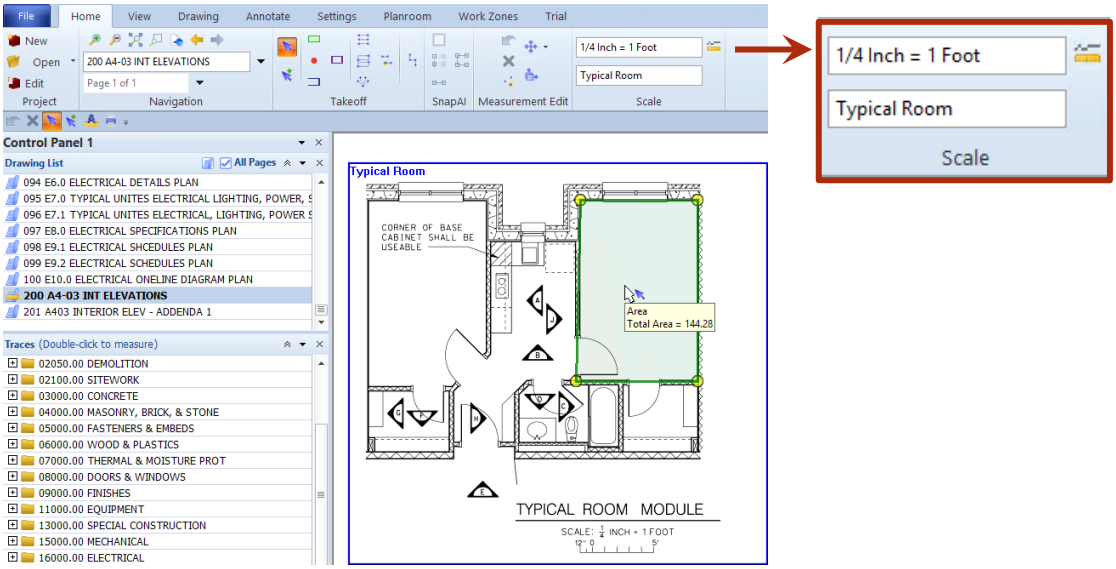
Click **Set Border**, and indicate the area by clicking in the top left and lower right corners of the area covered by the detail scale. (Notice the **Hint** window, which tells you exactly how to specify the border.) When you finish, click **OK** to close the window.



The **Detail Scale List** window lets you add or modify the scales that apply to the active drawing. Once you have added a scale, this is the window that opens when you click **Detail Scales** from the **Settings** tab. You can have as many scales on a drawing as needed.

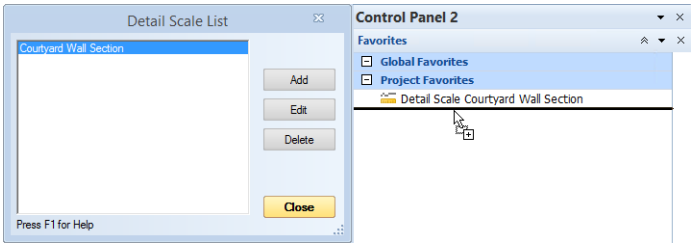


When you complete measurements inside the area denoted for the detail scale (or click an existing measurement), the **Scale** setting on the **Home** tab shows you the scale that applies to the section—not the scale that applies to the entire drawing.



Add detail scales to Favorites

From the **Detail Scale List** (**Drawing > Detail Scales**), you can drag a detail scale to **Project Favorites** or **Global Favorites** if it is one you use often.



Practice steps:

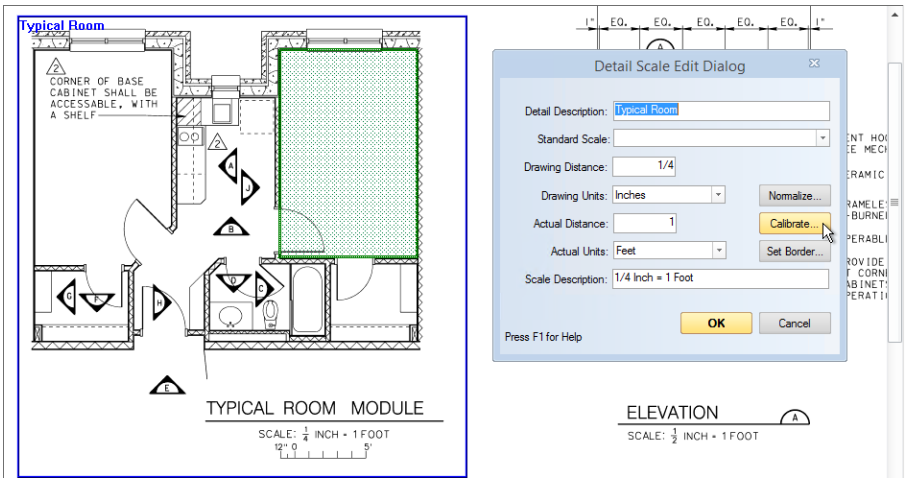
1. Double-click drawing **034 A10.1 Front Desk Details** to open it. No scale has been set yet. Notice that details **8**, **8A**, **9**, **10**, and **11** use a different scale than the other drawings.
2. Set the **Drawing Scale** to **1-½ Inches = 1 Foot**, since most of the details use that scale. (See **Setting the scale** on page 11.)
3. On the **Drawing** tab, click **Detail Scales** and set the scale for the detail drawings in the upper left area to **3 Inches = 1 Foot**.
4. Zoom in to the **9 Edge Detail** drawing and do an area measurement of the **CT6** tiles to make sure the correct scale is applied to it.
5. On the **Drawing** tab, click **Detail Scales** and drag the new scale to **Project Favorites**.

Calibrating scales

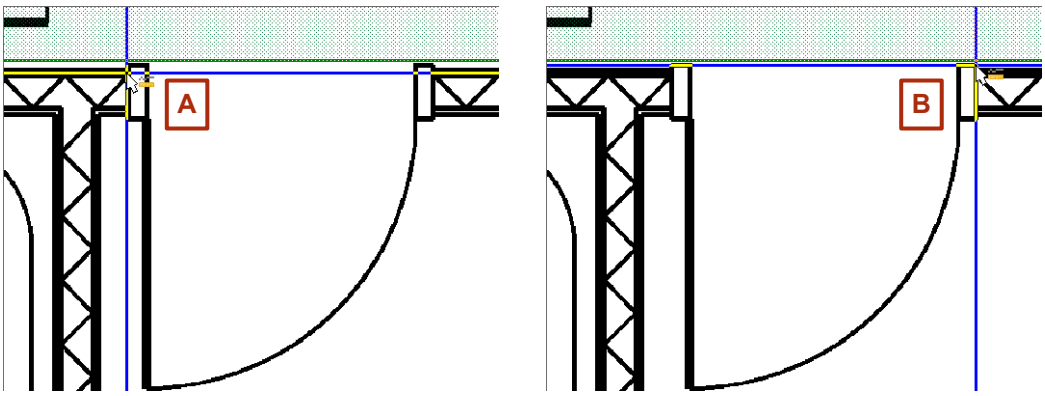
Videos and help topics:

- Drawing Scale Edit Window
- Calibrating Scales (Time: 3:02)

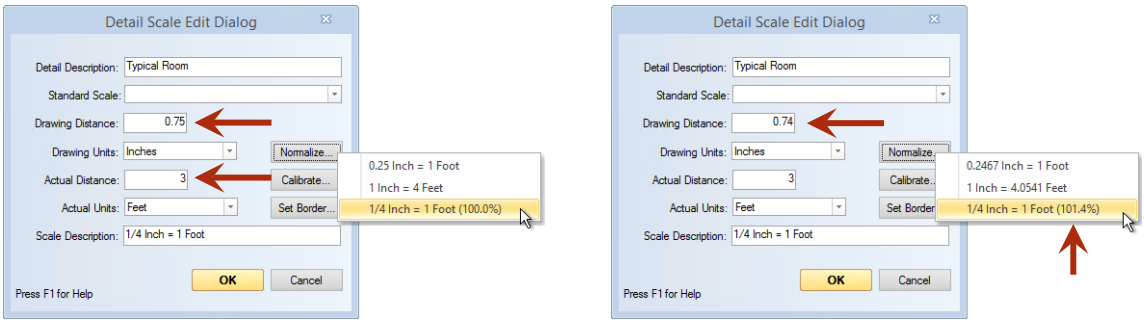
If you want to check the accuracy of the scale indicated in a drawing, you can calibrate the scale. You do this by opening the scale setup window and clicking **Calibrate**.



In this example, let's imagine that we know the width of a specific doorway to be precisely 3 feet. To calibrate the drawing, click points [**A**] and [**B**].



This returns you to the settings window, where you can enter the **Actual Distance**, **30 Inches**. Clicking **Normalize** lets you convert the drawing and actual distances to an option in which one of the values is 1. In some cases, you can choose between a decimal or fractional representation of the other



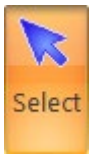
number. If the measured distance does not correspond to a perfect fraction, the percentage shows the degree to which a fractional equivalent is off.

Practice steps:

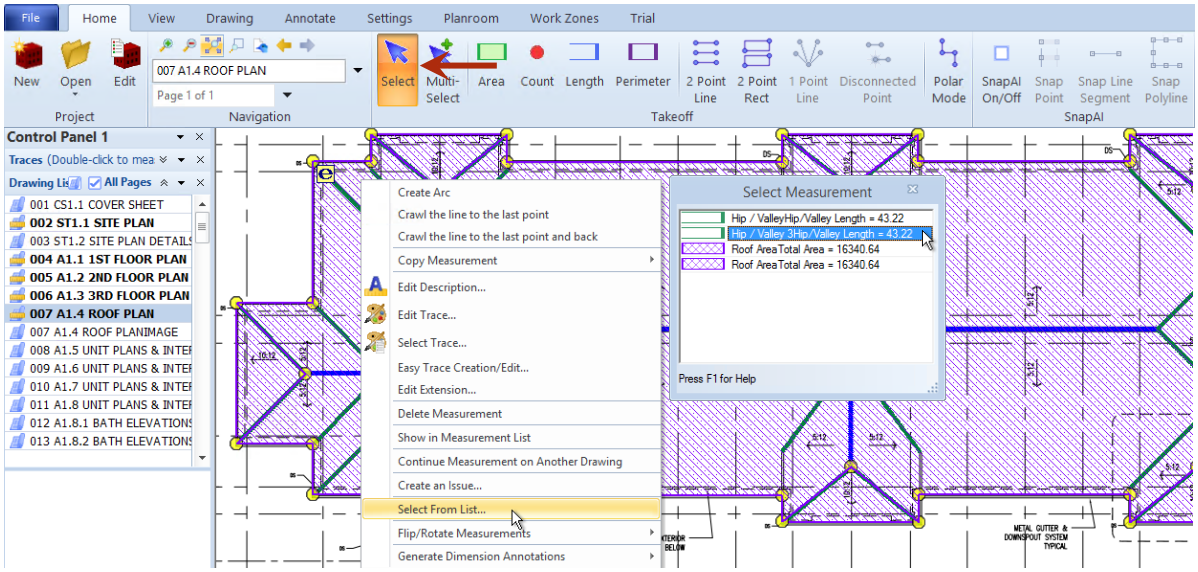
1. Double-click drawing **034 A10.1 Front Desk Details** to open it.
2. Set the **Drawing Scale** for the **E Elevation** detail by using **Calibrate**. (See **Setting multiple scales on a drawing sheet** starting on page 53.)
3. Click **Normalize** to convert the scale to a 1-based value.
4. Click **Set Border** to indicate the location of the scale..

Selecting from overlapping measurements

Once you've completed extensive takeoff measurements on a drawing, you'll find that the drawing can become quite busy! Some of your measurements might overlap, which can make it difficult to select specific items.



To select precisely the measurement you need, verify that you're in **Select** mode. Then right-click near the overlapping items and select **Select From List**. In the window that opens, double-click the measurement to select it.



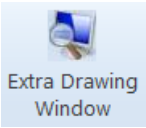
Practice steps:

1. Double-click drawing **005 A1.2 Second Floor Plan** to open it.
2. Zoom out so you can see the entire drawing in the window.
3. Right-click an area measurement in one of the bathrooms, and select **Select From List**.
4. Double-click a measurement in the list to select it.

Working with drawings

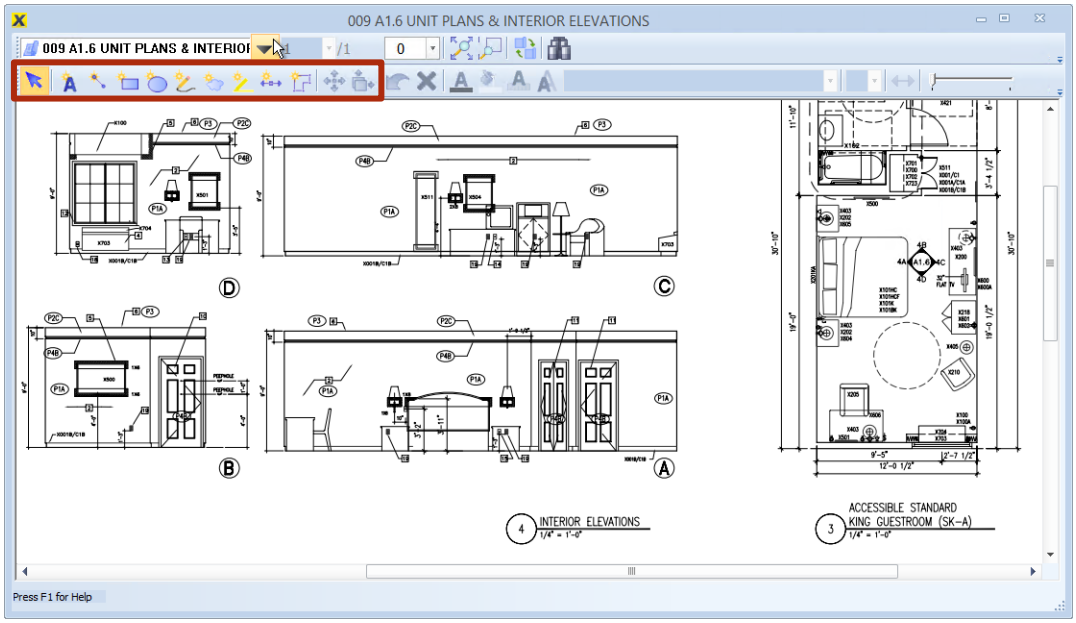
Multiple Drawing windows

Help topic: Extra Drawing Window



You can open an unlimited number of additional drawing windows (**View > Extra Drawing Window**) if you need to reference other project documents while you work. Click the drawings list dropdown to select the drawing to open.

Notice that you have access to all of the annotation tools here, but no takeoff tools. Use the **Swap Drawing** button to switch the drawing in this window with the one in the main window if you need to take or modify measurements. When you finish with those changes, return to the extra drawing window and click **Swap Drawing** again.



When you close Dimension, all extra drawing windows and their locations are preserved and will open automatically next time you open the application.

Drawing Comparisons and Overlays

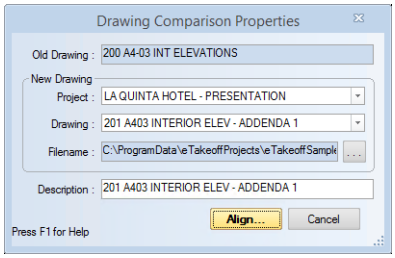
Help topics:

- Drawing Comparison
- Copying Measurements and Annotations

Dimension lets you overlay two different drawings to see the differences between them. This involves three basic steps:

1. Align the drawings and view the overlay.
2. Revise takeoff measurements with the overlay active. (Measurements remain on the original drawing.)
3. Move all measurements from the original drawing to the revised drawing.

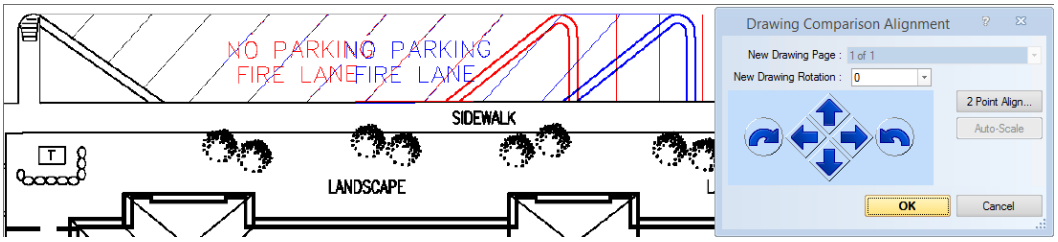
On the **Drawing** tab, click **Compare to New Drawing**. If you have not yet selected drawings to compare this one to, the **Drawing Comparison Properties** window opens. You can select drawings in this project or in a different one. Alternately, you can browse to a drawing if it is not already included in a Dimension project.



Aligning the drawings

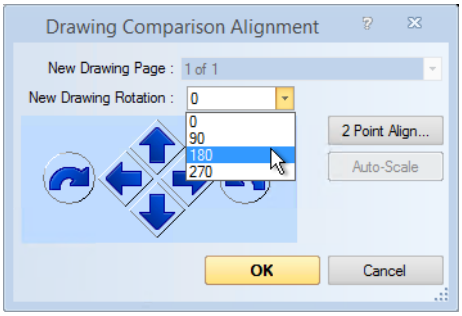
Once you click **Align**, the **Drawing Comparison Alignment** window opens. Often drawings that are generated using software do not need to be aligned. With both drawings open, elements that are exactly the same are shown in black. Where differences are found, the old drawing is shown with red text and lines, and the new one is shown in blue.

In this example, the fire lane of the parking lot has been expanded. All other elements of the two drawings are aligned (shown in black) and you can easily see areas of difference.



The **Drawing Comparison Alignment** window lets you adjust the alignment using several different methods.

- You can rotate the drawing by selecting an option for **New Drawing Rotation**.

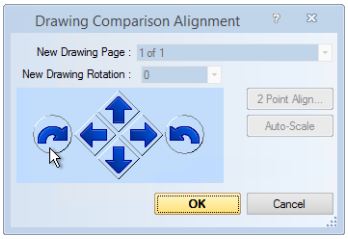


- Use **2 Point Align** to associate two points in the old drawing with two points in the new drawing. The Help window guides you through the process. Click on a point in the first drawing, and then click on the corresponding point in the second drawing. Green lines [**A**] indicate the matching points.

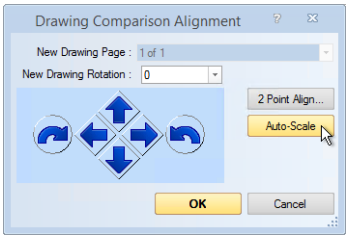
When you set the fourth point, messages ask you to verify the distance between the points in the first and second drawings. The two drawings are aligned and re-scaled based on the matching points. Black lines show elements that match exactly.

- Move or rotate the new drawing using the arrow buttons. (If the drawings need to be rotated, do this first, and then use the arrows to align them.)

  The Ctrl, Shift, and Alt keys work together to speed up or slow down the effect of clicking the arrows. Holding one of these three keys down while clicking the arrows makes the movements four times larger. Holding two of the keys down makes them sixteen times larger, and holding all three down makes them 64 times larger. You can also left-click and drag to move the new (blue) drawing into alignment line with the old (red) one.

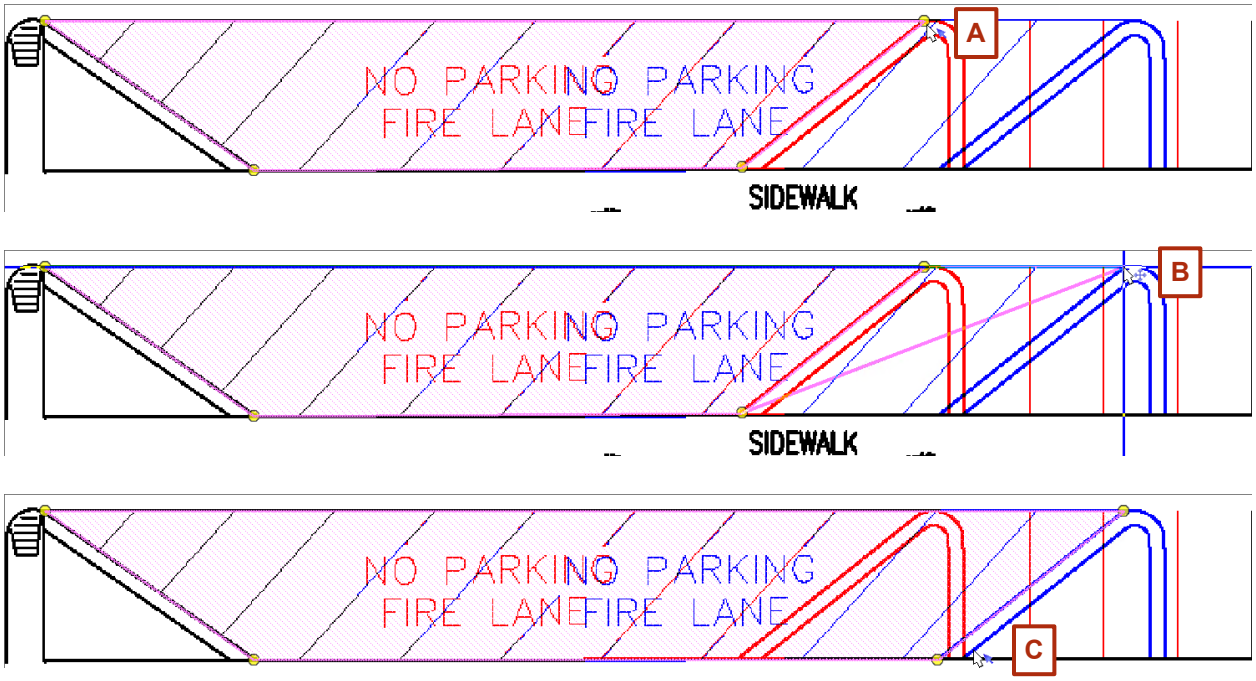


- The **Auto-Scale** button is available if the scales of the two drawings have been set differently. Clicking this button automatically resizes the new drawing to the old drawing. You might still need to use the arrows to align the drawings.



Adjusting measurements to reflect revisions

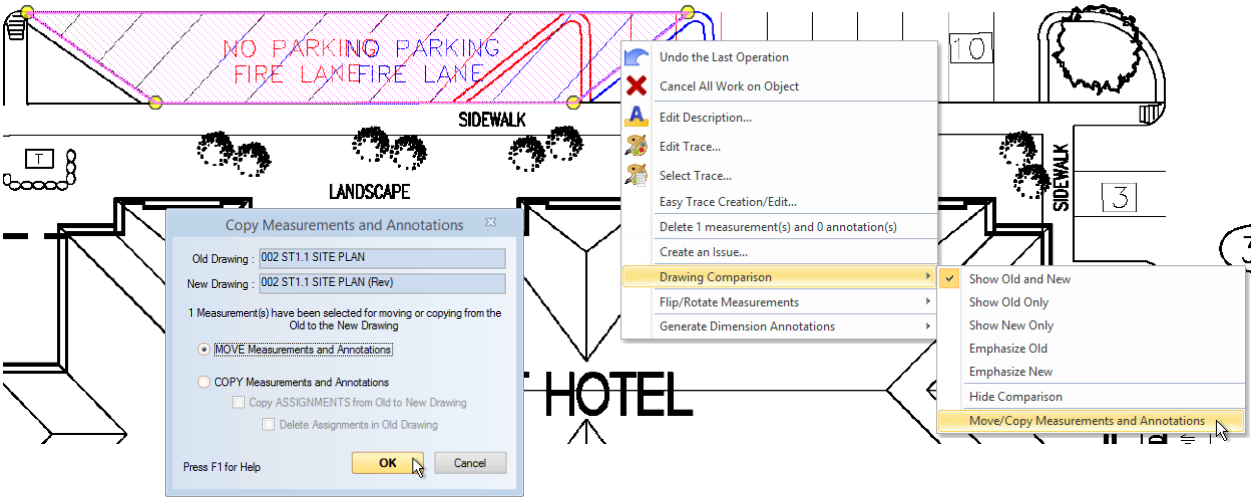
To modify a measurement, click to select it [**A**], and then click **Edit Points**. Drag the first point to the new border [**B**], and then drag the second point [**C**]. Press S when you are finished.



Moving measurements between drawings

When you modify your takeoff to reflect the drawing revisions, the measurements remain on the original drawing. Next you'll move them to the revised drawing.

With a drawing comparison active, on the Home tab click **Multi-Select**. Click and drag to select all takeoff in the first drawing, and then right-click on a measurement. Select **Drawing Comparison > Move/Copy Measurements and Annotations**.

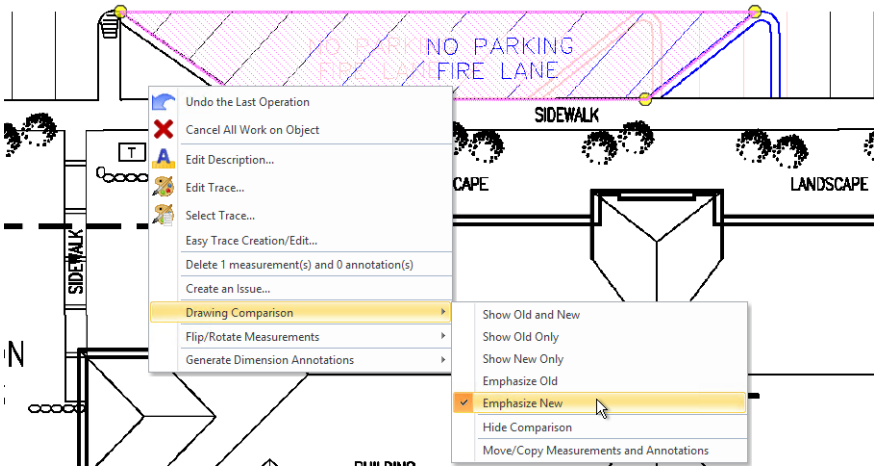


In the **Copy Measurements and Annotations** window, select **MOVE** to move the measurements to the new drawing . This deletes the measurements from the first drawing, so you can continue with takeoff in the new drawing. (Selecting **COPY** preserves the measurements in the original drawing, which means the takeoff quantities will be duplicated.)

In the **Drawing List**, the bold text and icon indicating which drawings have associated measurements are adjusted when you move measurements. If you move all measurements, the new drawing has the icon while the old one does not.

Comparing the drawings

To un-clutter the drawing while you work with the overlay, you can right-click in a clear area of the overlaid drawings and select one of the **Show** options. In this example, the new (blue) drawing is emphasized.



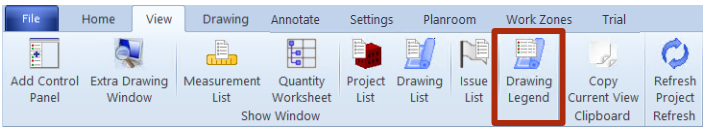
Practice steps:

1. Double-click drawing **200 A4-03 Interior Elevations** to open it.
2. On the **Drawing** tab, click **Compare to New Drawing**.
3. Select the drawing **201 A403 Interior Elev – Addenda 1**, and click **Align**.
4. Verify that the drawings are aligned, and click **OK**.
5. Zoom to the **Typical Room Module** drawing in the upper left.
6. Click **Multi-Select**, and then click and drag to select all measurements.
7. Right-click the selection and select **Drawing Comparison > Move/Copy Measurements and Annotations**.
8. Move the measurements to the addenda sheet.
9. Open drawing **201 A403 Interior Elev – Addenda 1** and modify the area of the kitchen tile to accommodate the new counter depth.

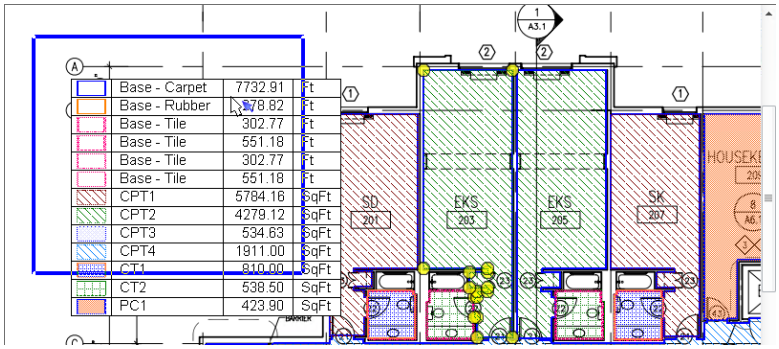
Drawing Legend

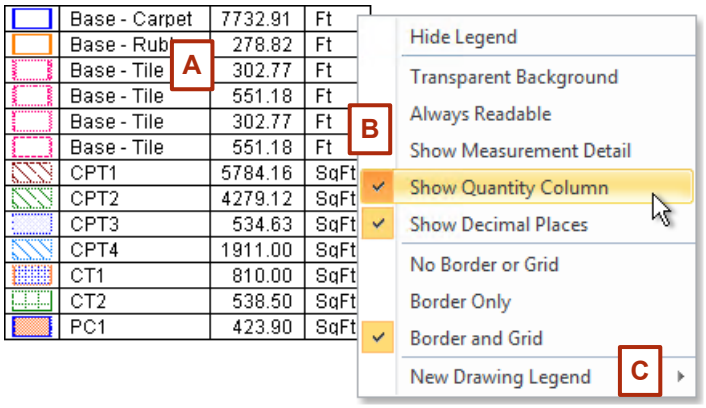
Help topic: Drawing Legend Overview

The **Drawing Legend** (on the **View** tab) shows a grid of all traces in the active drawing. It is available only if at least one measurement is present on the drawing.



Click **Drawing Legend** to show or hide the legend. Click and drag the legend in the window to move it (a blue outline appears as a guide).





The quantities in the drawing legend [**A**] reflect the totals for the primary measurement (**Data Type 1**) as set for each trace.

Right-click the drawing legend [**B**] to see display options. Notice that you can specify the number of decimal places, whether summary or detail quantities are shown, transparency and borders, and so on. Selecting **New Drawing Legend** [**C**] lets you establish the drawing legend appearance for new drawings.

Practice steps:

1. Open drawing **005 A1.2 Second Floor Plan**.
2. On the **View** tab, click **Drawing Legend**.

Layers

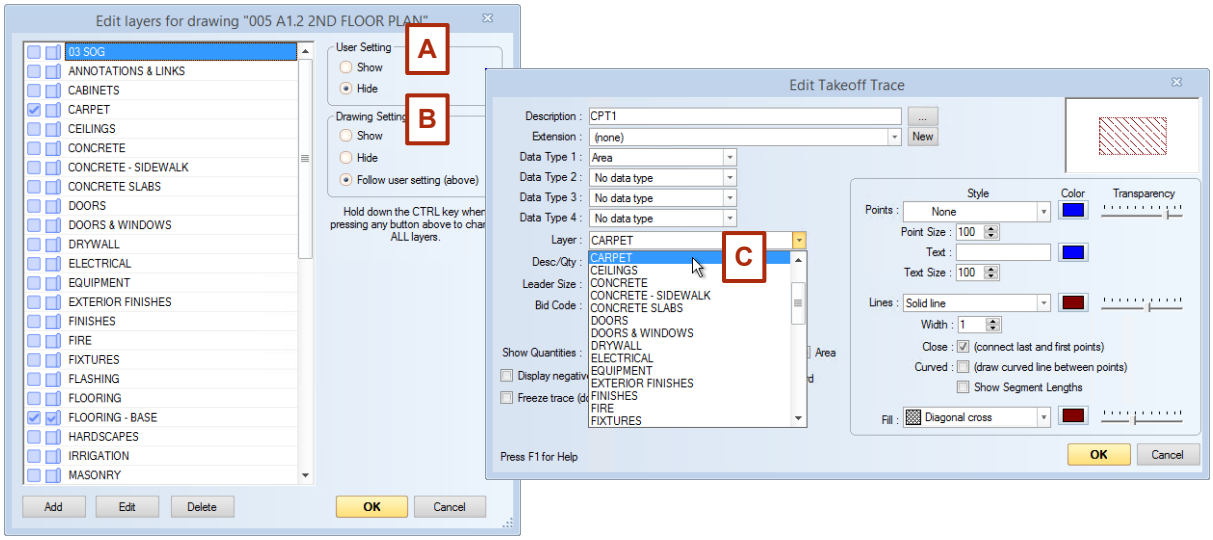
Help topics:

- Layer List Window
- Layer Selection Window

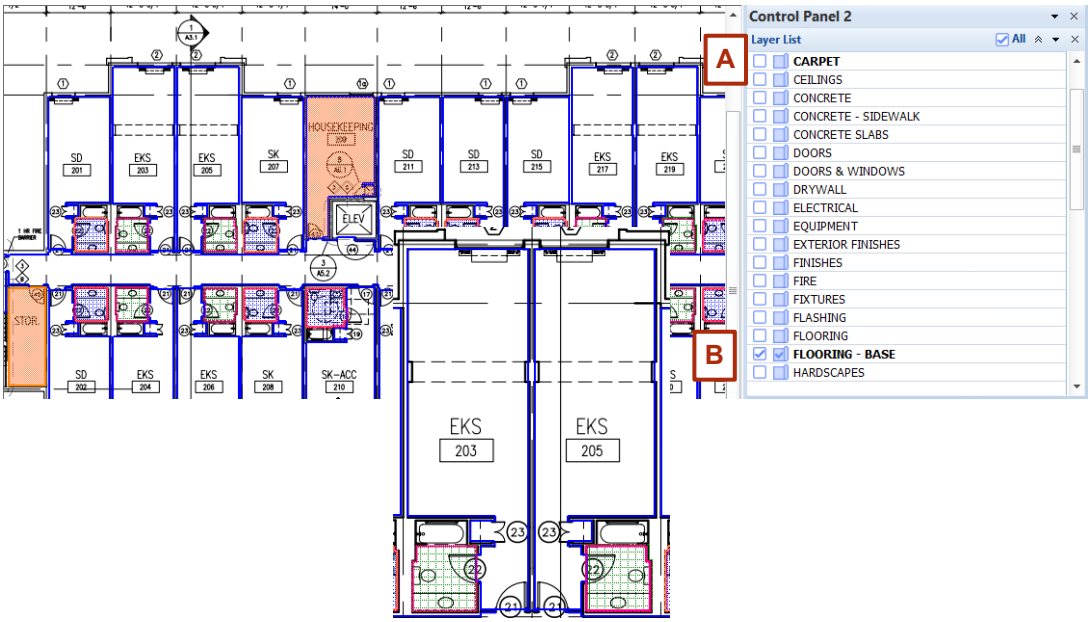
Traces, measurements, and annotations can be assigned to layers. In **Settings > Edit Layers**, you can show or hide layers based on what you need to see. You can set visibility for yourself [**A**] or for the drawing [**B**] which applies the setting to any user viewing that drawing. The two columns of icons in the **Edit Layers** window reflect the user and drawing settings, respectively.

In this example, the **FLOORING – BASE** layer is visible for this and all other users who open this drawing. The **CARPET** layer is visible to this user, and other users can display it as needed.

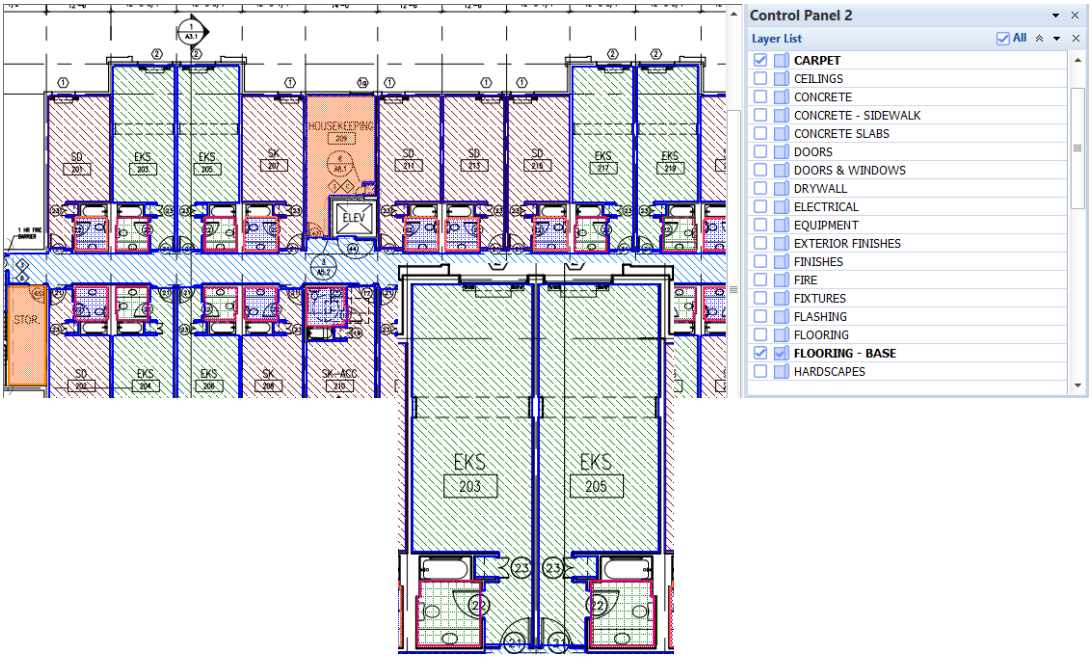
You can assign traces to layers [**C**], which automatically adds any measurements for that trace to the specified layer.



In this example, the **CARPET** layer [**A**] is hidden from view, so traces assigned to that layer are not visible. The **FLOORING – BASE** layer [**B**] is visible.



In this example, the **CARPET** layer is visible, so you see the shaded areas indicating traces assigned to this layer.



Practice steps:

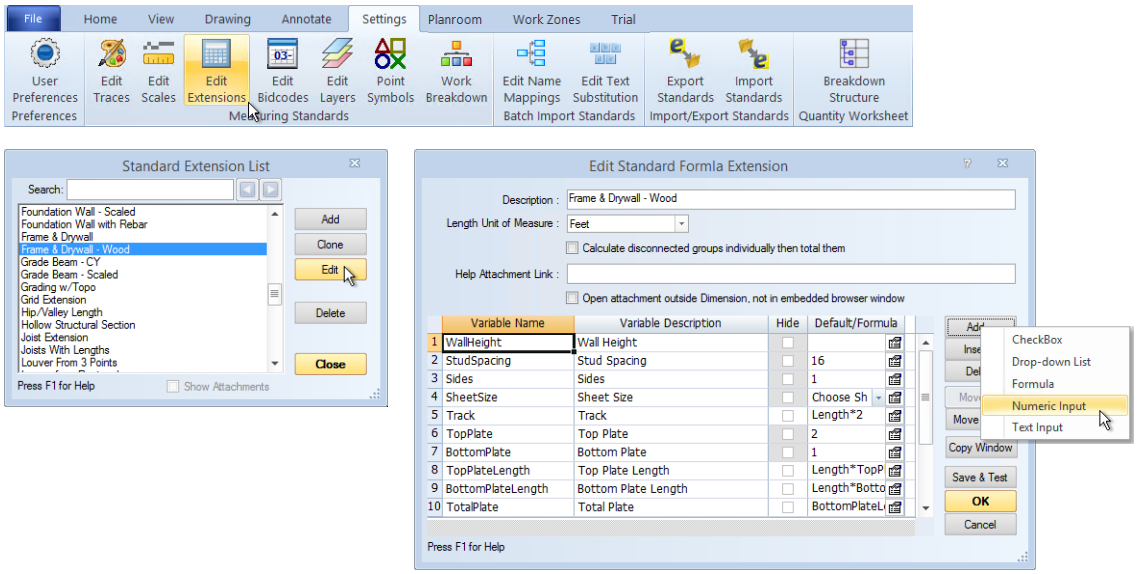
1. Open drawing **005 A1.2 Second Floor Plan**.
2. In Control Panel 2, click the down arrow and select **Layer List**.
3. Hide all layers except those that appear in bold in the list (indicating measurements are associated with those layers).
4. Right-click a measurement and select **Edit Trace**. Identify the layer with which the trace is associated.

Getting the most out of Dimension

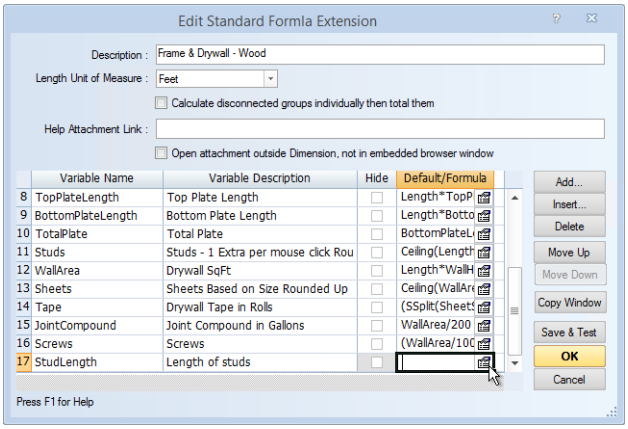
Configuring extensions

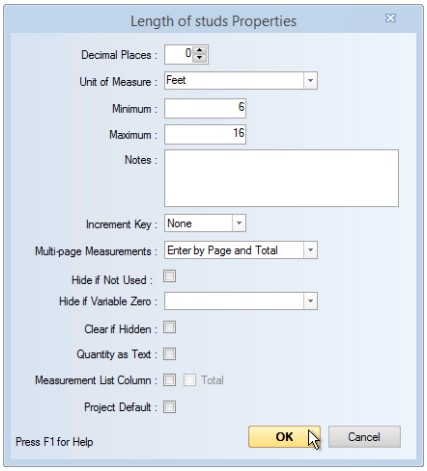
With the Premier edition: If you need to collect additional information or perform calculations on quantities, such as specs or measurements not indicated in the drawing, you can configure extensions with additional variables and formulas, and modify them as needed.

On the **Settings** tab, click **Edit Extensions**. Select the extension you want to configure, and click **Edit**. In this example, the **Frame & Drywall – Wood** extension measures the length of walls to frame. In order to estimate the studs needed, you also need to collect the height of the wall. A variable called **WallHeight** has been added.



To add a variable, click **Add** and then select the data type. This creates an empty row, in which you can enter the variable name, description, and a default value or formula. Click the **Properties** button to configure the variable in more detail.

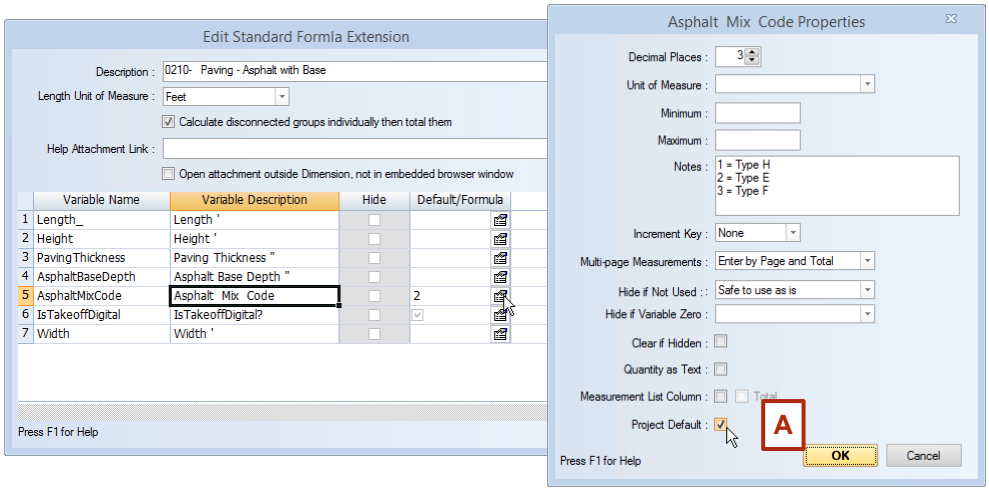




Configuring project defaults

Some specifications in your project have the same value for most or all areas in the drawings. For example, an office complex with multiple buildings and parking lots uses the same Asphalt Mix Code for all lots. You can configure default values for these types of variables. **Project°Default** (global) variables let you set initial default values for variables that are used in multiple assemblies (trace extensions) through the project. Later, you can make adjustments to these values by changing them in **Home > Edit > Edit Extension Defaults**.

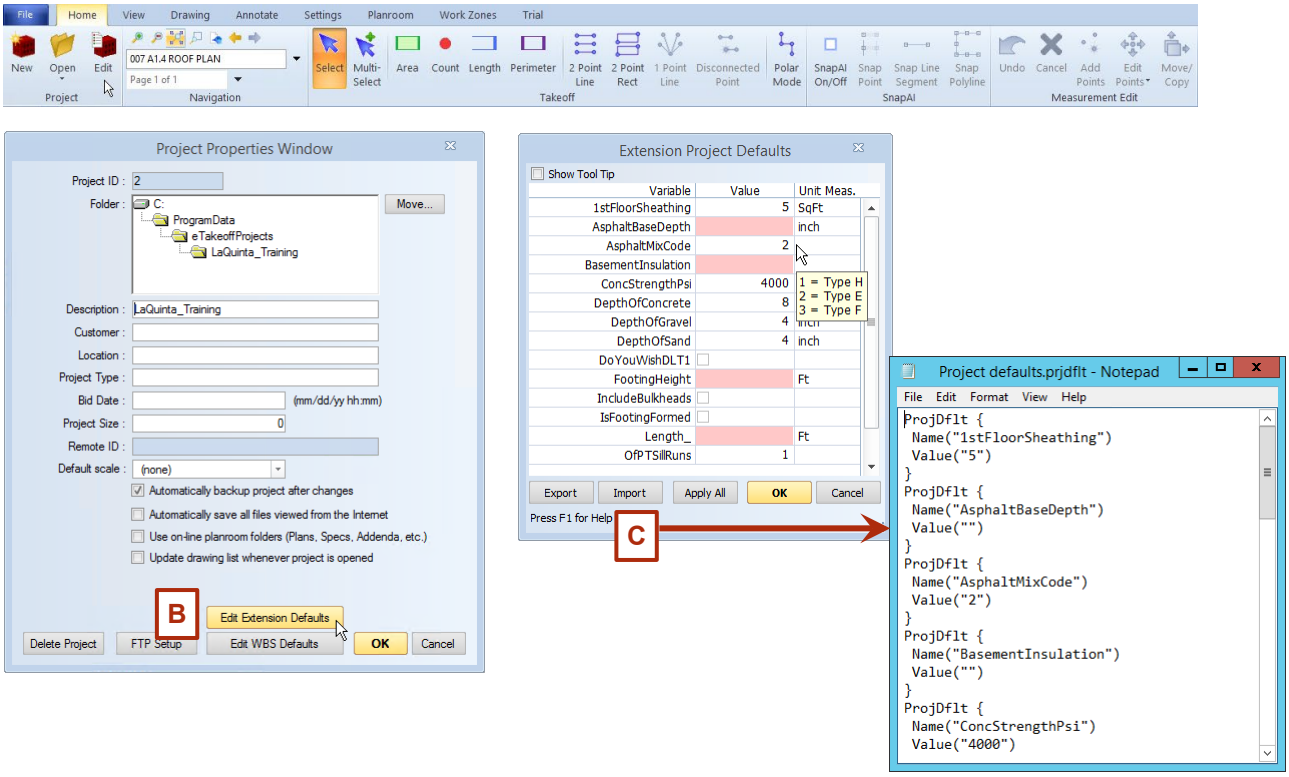
In order for a variable to appear in the list of project default variables, all variable attributes must match exactly, including the description and all settings in the window.



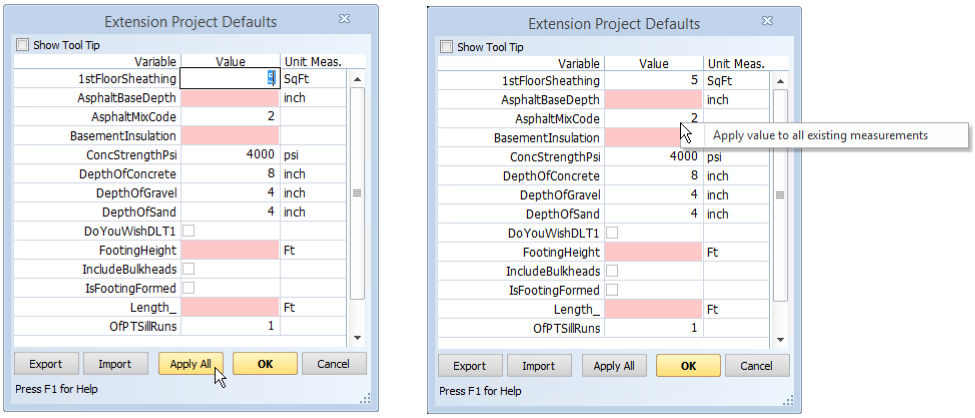
To set up defaults, first determine which variables will be global (or project defaults). For each qualifying variable, find an extension that contains the variable. You only need to specify the variable once, since Dimension will automatically locate all the other instances in all other extensions. Select the **Project Default** check box in the variable properties window [**A**].

Then, go to **Home > Edit** and click **Edit Extension Defaults** [**B**]. This is where you set the project default variable values. Any variables with **Project Default** selected in the variable's properties appear in the list. Entries in this window are used by default for any extension that uses that variable.

Notice that you can export and import project defaults for re-use [**C**]. The export generates a text file that you can save and edit for future projects. This lets you pre-set groups of global variables for different purposes. For example, you could load each set of global variables to represent different construction quality levels. Then, when you start a new project, you can import the specific file containing the default values that will represent that construction quality.



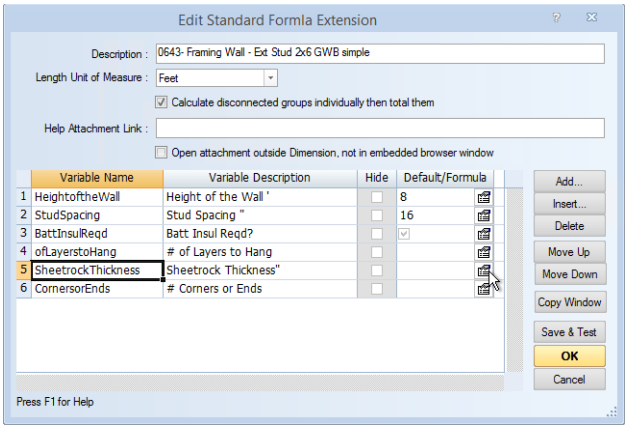
If project specifications change after you've performed takeoff measurements, you can make changes in this window and click **Apply All** to apply the changes to existing measurements as well as new ones. You can also right-click an individual variable and select **Apply value to all existing measurements** if you need to apply certain values and not others.

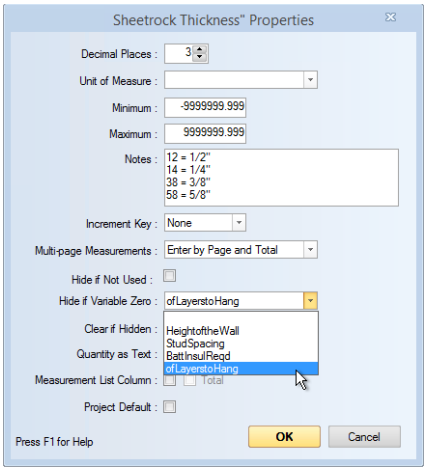


Configuring conditional logic with variables

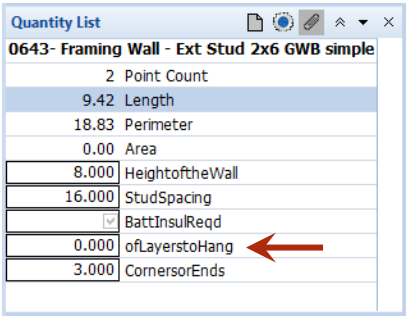
Sometimes you only need to collect information for a variable if certain conditions are true. For example, you're measuring walls for framing and sheetrock, but you might not always need to hang the sheetrock—this is determined by the project specs.

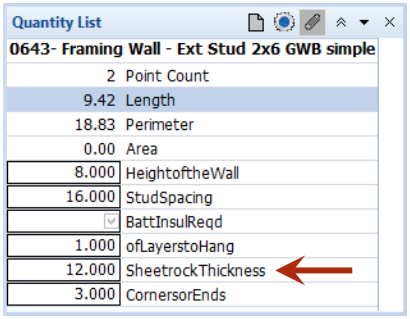
In this example, the **# of Layers to Hang** variable lets the user enter the quantity of sheetrock layers are needed for each wall, and then enter the **Sheetrock Thickness** for that wall. However, if the wall does not require sheetrock, the **Sheetrock Thickness** variable is not needed. To accommodate this, the **Sheetrock Thickness** variable is set to a **Hide if Variable Zero** value of **ofLayerstoHang**.





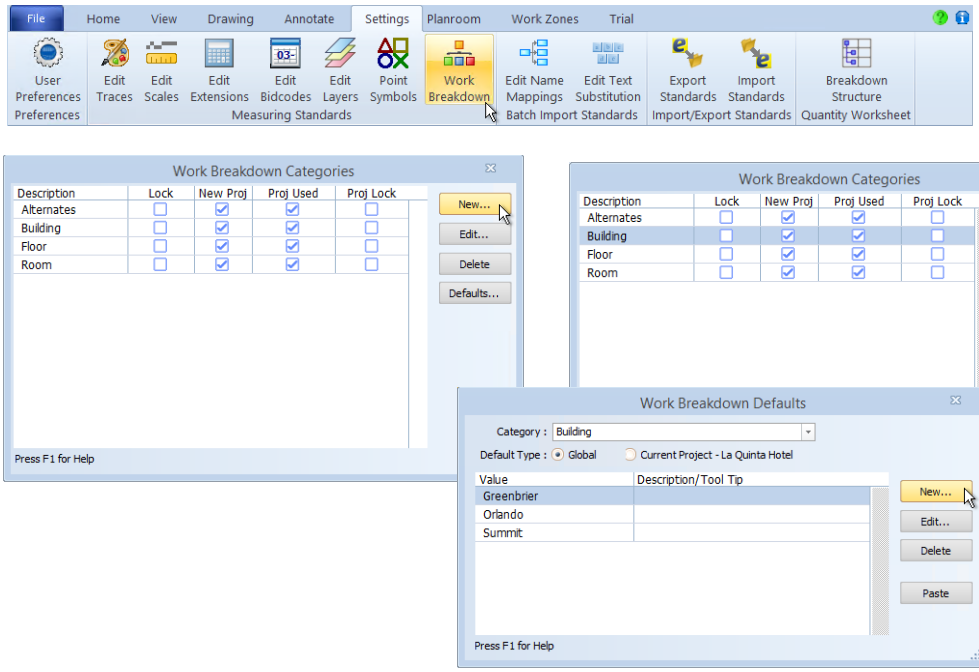
This means that when the number of layers of sheetrock is zero, the **Sheetrock Thickness** variable is hidden in the **Quantity List**. If the number is non-zero, the **Sheetrock Thickness** variable appears.



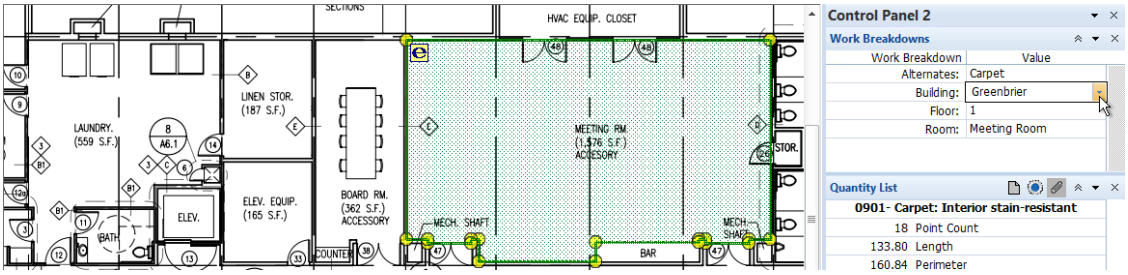


Work Breakdowns (WBS Codes)

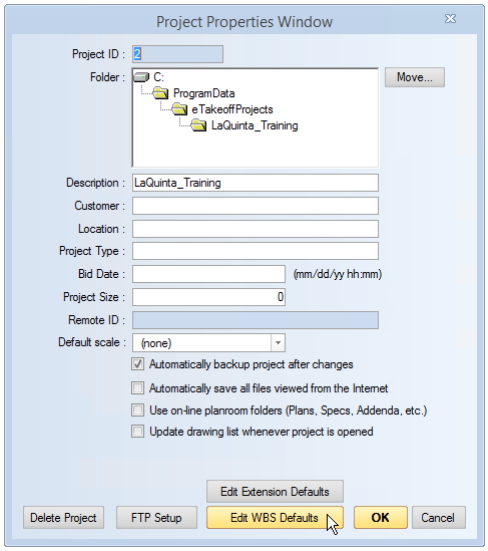
You can add work breakdown categories (also known as WBS codes) to your project by selecting **Settings > Work Breakdown**. Click **New** to add new categories, and then click to set up a list of values for the category.



Once the list is set up, use the **Control Panel Work Breakdown** pane to enter values for measurements as you work.



NOTE: Select **Home > Edit** and click **Edit WBS Defaults** to specify WBS values to be used for the entire project or takeoff session.



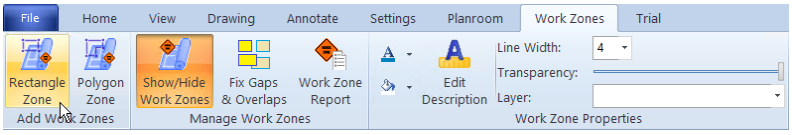
Help topics:

- Work Breakdowns Overview
- Work Breakdown Category Maintenance
- Work Breakdown Default Maintenance
- Project Restore Work Breakdown Window

Working with Zones

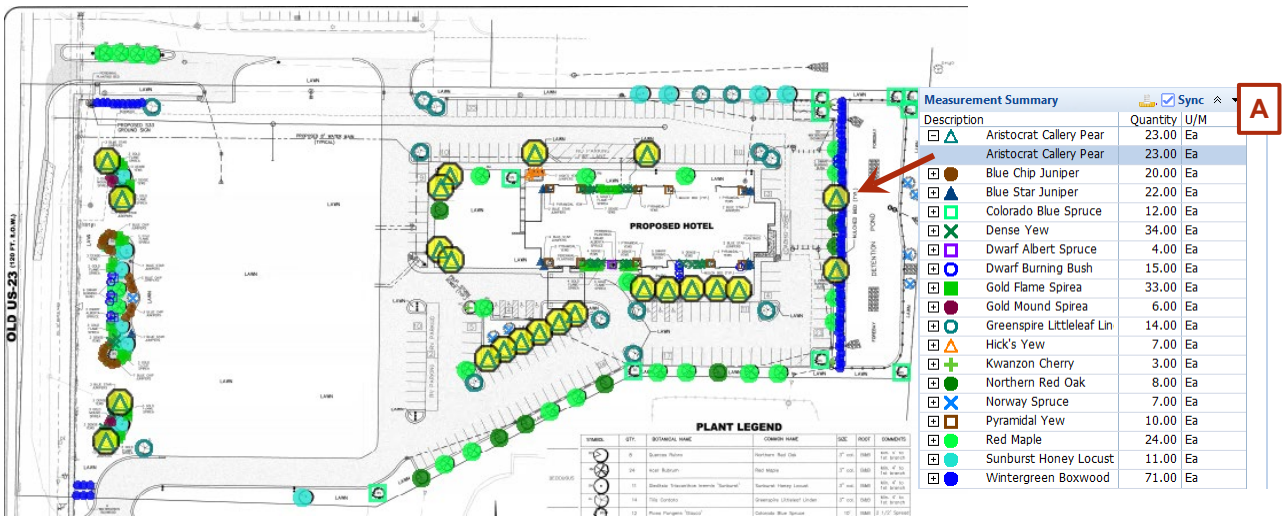
When you're working with a drawing that represents a large horizontal area, you might want to view measurement quantities broken down into sections. For example, on a landscape plan, you'll want trees to be delivered as close to the installation point as possible, so you need to know quantities for different areas of the drawing.

You can do this with Dimension *zones*, which are available on the **Work Zones** tab.This tab has options for adding zones, showing and hiding them, aligning them to each other, and formatting.

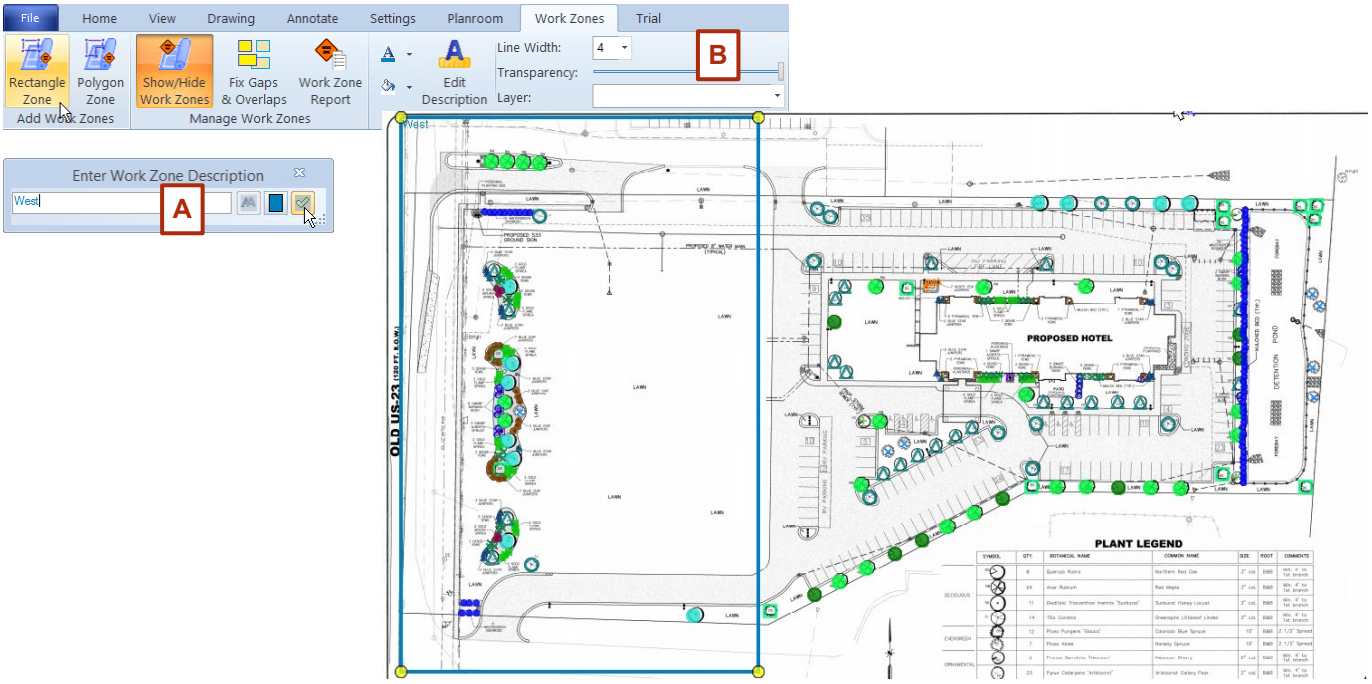


Zones let you break up measurements from individual traces into sections delineated by the zone boundaries, based on your quantification needs at different stages of the project.

In this example, all trees and shrubs have been counted, and the **Measurement Summary** shows the totals for the entire drawing. Notice that the total count for the **Aristocrat Callery Pear** is **23** [**A**].

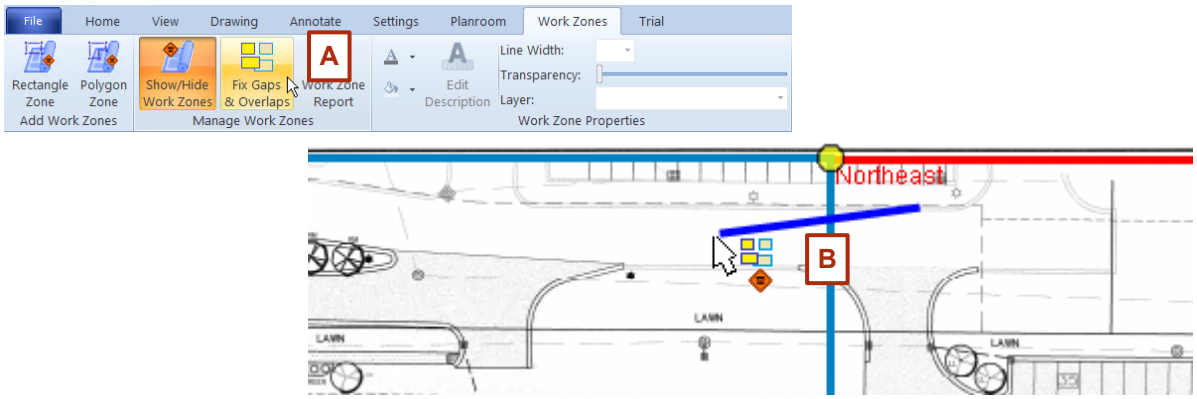


To set up zones, on the **Work Zones** tab, click **Rectangle Zone** or **Polygon Zone**. Enter a description for the zone [**A**], and then draw a rectangle around the area you want to include. Notice that you can modify the appearance of zones to easily distinguish them [**B**].

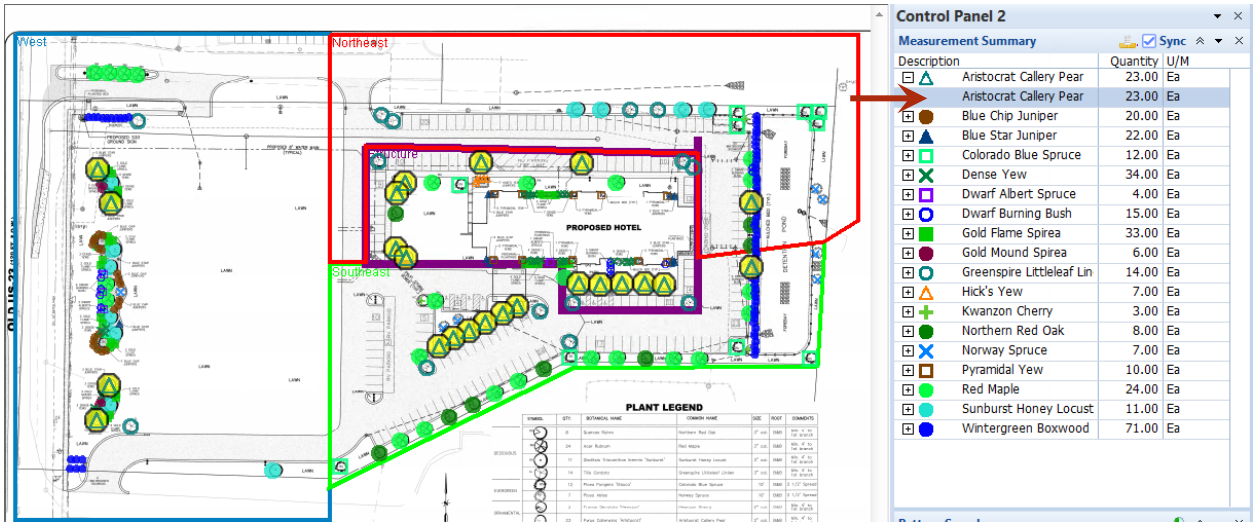


Continue creating zones as needed. To make sure your zones butt up against each other (so portions of measurements are not excluded):

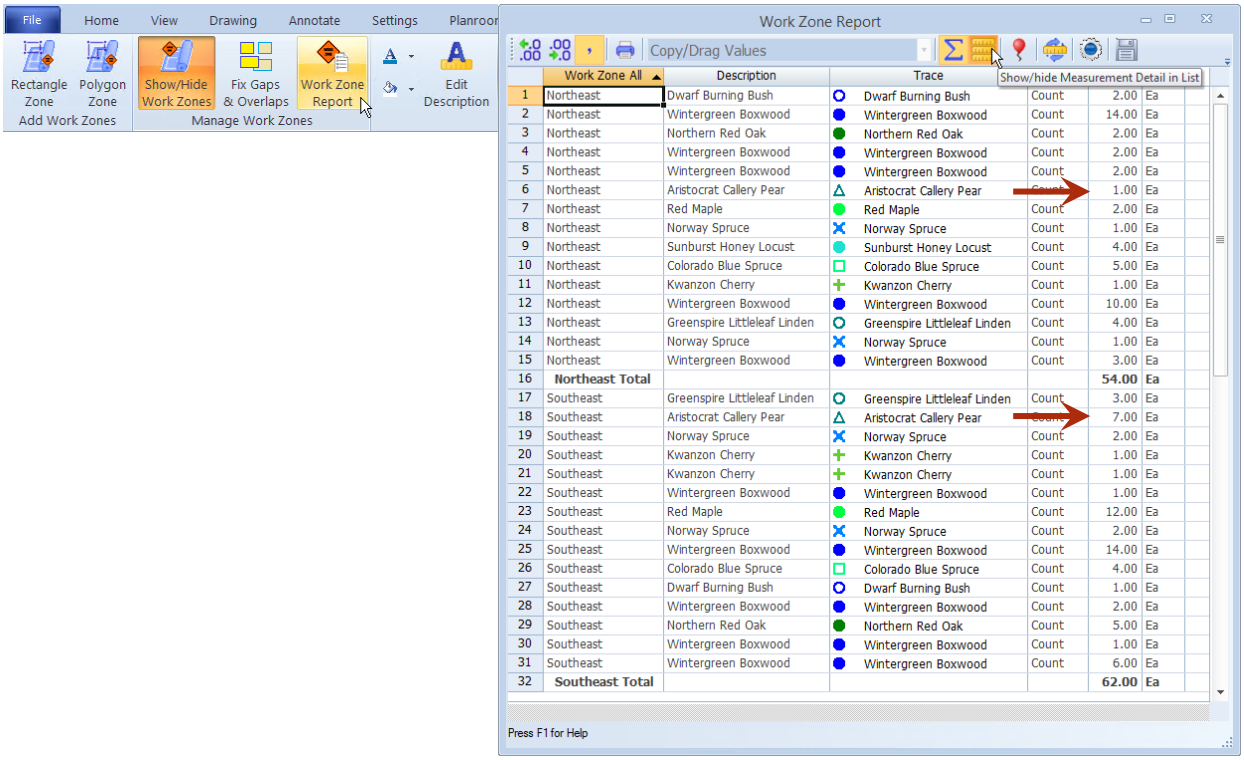
1. On the **Work Zones** tab, click **Fix Gaps & Overlaps** [**A**]. Notice that the cursor chang
2. Click inside the first zone and drag your mouse into an adjacent zone [**B**] to remove any space between them. You'll see the blue cursor trail indicating the direction. When you release the mouse, the first zone is adjusted to butt against the second one.



You can see that the 23 **Aristocrat Callery Pear** points are spread over all zones.

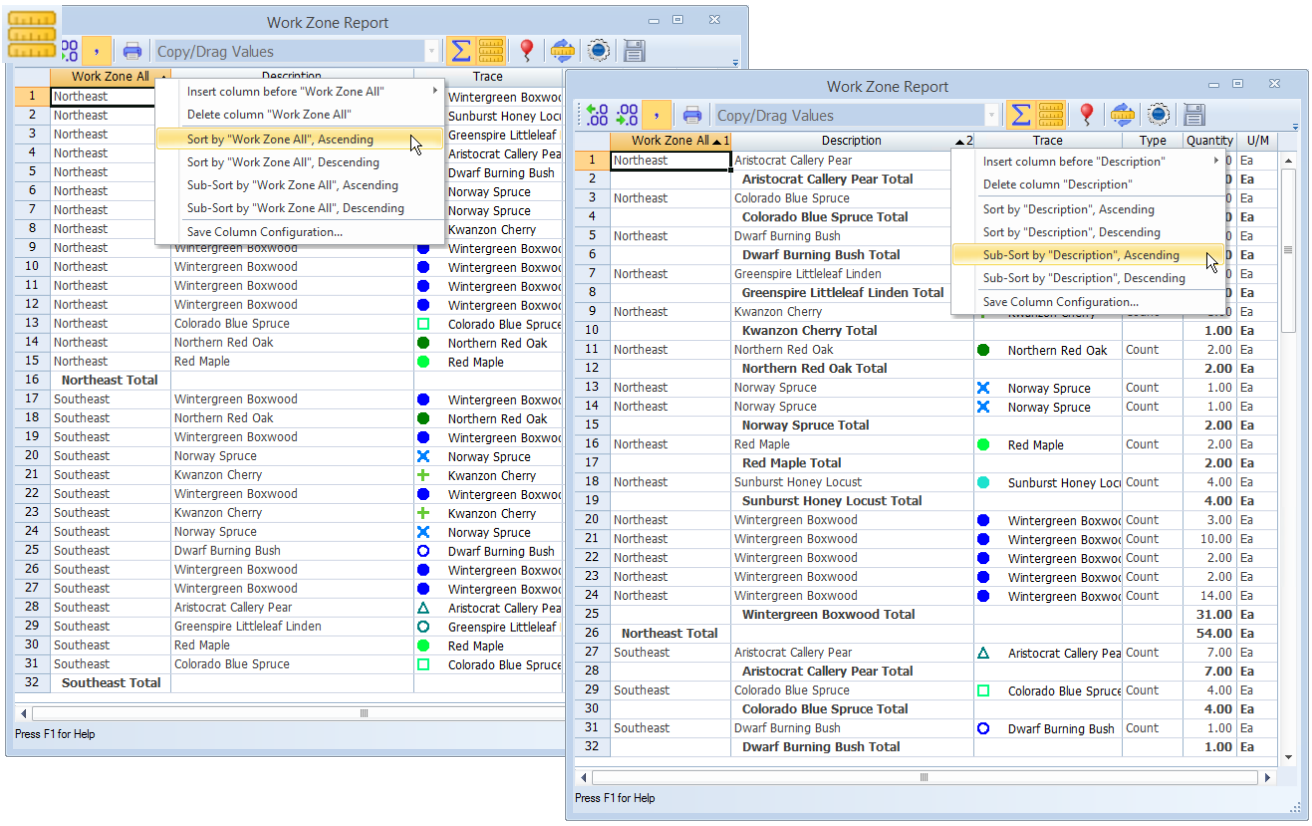


When you click **Work Zone Report**, you can see how many points fall into each zone. This window functions just like the **Measurement List** window (explained on page 31), except that it reflects zone information and won't include measurements that do not fall into a zone.

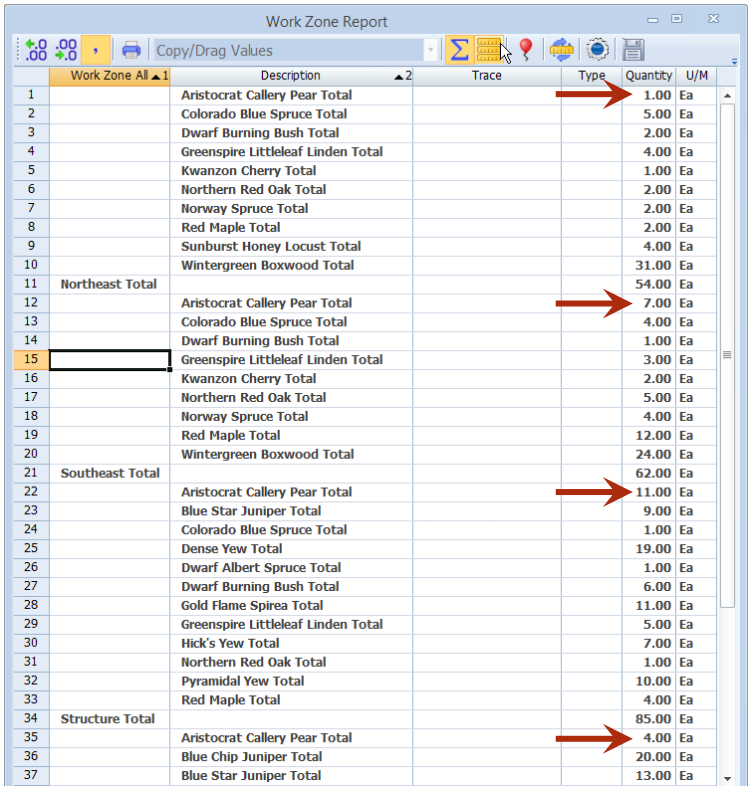


	Work Zone All	Description	Trace				
1	Northeast	Dwarf Burning Bush	Dwarf Burning Bush	Count	2.00	Ea	
2	Northeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	14.00	Ea	
3	Northeast	Northern Red Oak	Northern Red Oak	Count	2.00	Ea	
4	Northeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	2.00	Ea	
5	Northeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	2.00	Ea	
6	Northeast	Aristocrat Callery Pear	Aristocrat Callery Pear	Count	1.00	Ea	
7	Northeast	Red Maple	Red Maple	Count	2.00	Ea	
8	Northeast	Norway Spruce	Norway Spruce	Count	1.00	Ea	
9	Northeast	Sunburst Honey Locust	Sunburst Honey Locust	Count	4.00	Ea	
10	Northeast	Colorado Blue Spruce	Colorado Blue Spruce	Count	5.00	Ea	
11	Northeast	Kwanzon Cherry	Kwanzon Cherry	Count	1.00	Ea	
12	Northeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	10.00	Ea	
13	Northeast	Greenspire Littleleaf Linden	Greenspire Littleleaf Linden	Count	4.00	Ea	
14	Northeast	Norway Spruce	Norway Spruce	Count	1.00	Ea	
15	Northeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	3.00	Ea	
16	**Northeast Total**				**54.00**	**Ea**	
17	Southeast	Greenspire Littleleaf Linden	Greenspire Littleleaf Linden	Count	3.00	Ea	
18	Southeast	Aristocrat Callery Pear	Aristocrat Callery Pear	Count	7.00	Ea	
19	Southeast	Norway Spruce	Norway Spruce	Count	2.00	Ea	
20	Southeast	Kwanzon Cherry	Kwanzon Cherry	Count	1.00	Ea	
21	Southeast	Kwanzon Cherry	Kwanzon Cherry	Count	1.00	Ea	
22	Southeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	1.00	Ea	
23	Southeast	Red Maple	Red Maple	Count	12.00	Ea	
24	Southeast	Norway Spruce	Norway Spruce	Count	2.00	Ea	
25	Southeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	14.00	Ea	
26	Southeast	Colorado Blue Spruce	Colorado Blue Spruce	Count	4.00	Ea	
27	Southeast	Dwarf Burning Bush	Dwarf Burning Bush	Count	1.00	Ea	
28	Southeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	2.00	Ea	
29	Southeast	Northern Red Oak	Northern Red Oak	Count	5.00	Ea	
30	Southeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	1.00	Ea	
31	Southeast	Wintergreen Boxwood	Wintergreen Boxwood	Count	6.00	Ea	
32	**Southeast Total**				**62.00**	**Ea**	

Right-click the **Work Zone All** column header and select **Sort by "Work Zone All", Ascending**. Then right-click the **Description** column header and select **Sub-Sort by "Description", Ascending**. This shows the summary for each work zone and each trace.



Click the **Show/hide Measurement Detail** button to see only the total quantities for each trace in each zone. You can see that the quantities for the Aristocrat Callery Pear in all four zones add up to 23 (**1**, **7**, **11**, and **4** respectively).

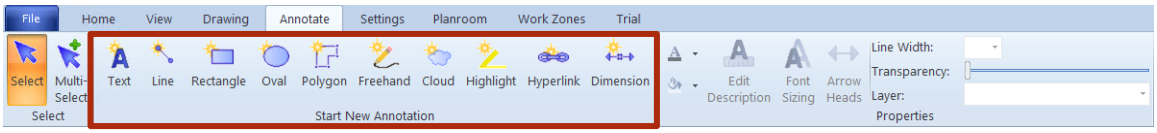


Practice steps:

3. Double-click drawing **004 A1.1 First Floor Plan** to open it.
4. Zoom out so you can see the entire drawing in the window.
5. On the **Work Zones** tab, click **Rectangle Zone**.
6. For the **Description**, enter **Zone 1** and press Enter.
7. Draw a rectangle that covers the west end of the building up to the laundry and breakfast area.
8. Draw two or three other zones.
9. Click **Work Zone Report** to see how the quantities are listed.

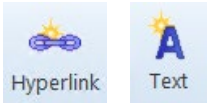
Annotations

Use the **Annotate** tab to add the typical markups to your drawings where needed: text, lines and shapes, links, dimension callouts, and highlights.

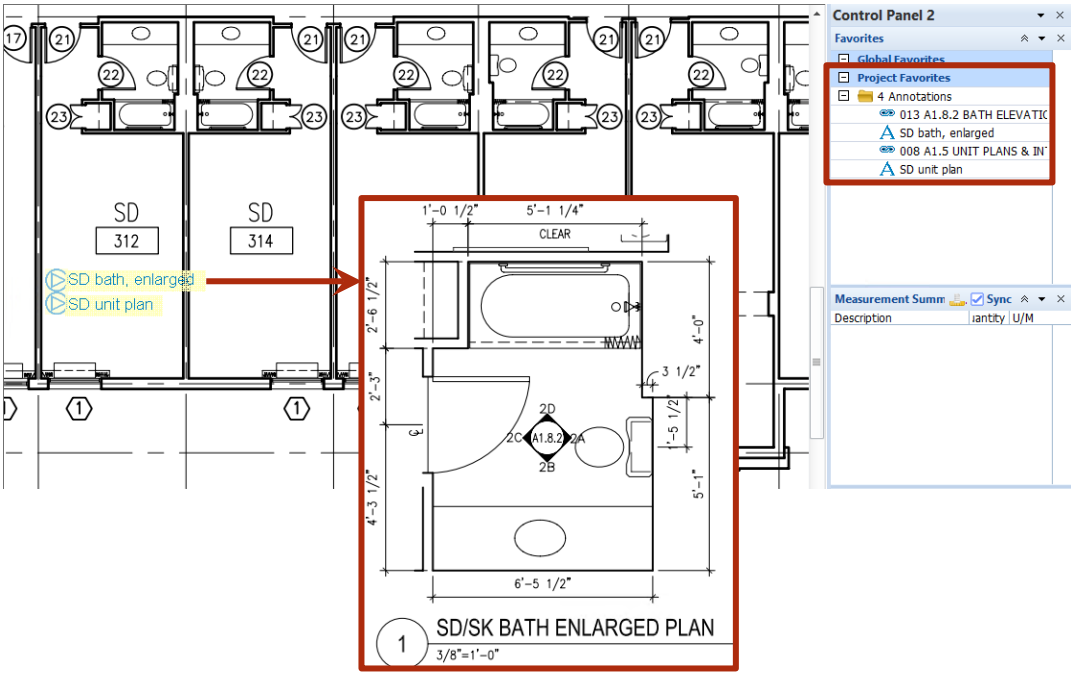


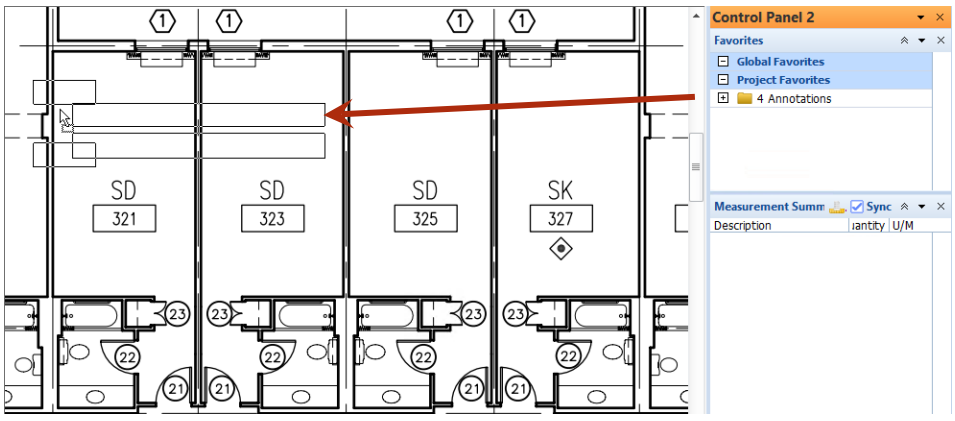
With the Advanced edition: Hyperlinks let you add buttons to jump from the current view to another view of the active drawing or a different drawing.

In the example below, hyperlinks and text annotations have been added to a unit on a floor plan drawing. Double-clicking the top hyperlink opens the enlarged bathroom plan for standard double and king rooms. The annotations were then stored as **Project Favorites**.

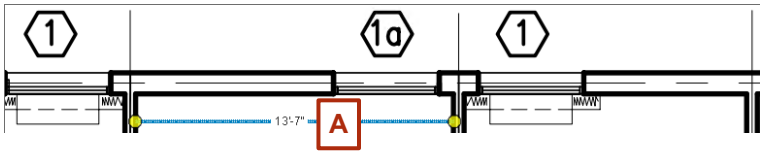


The annotations can quickly be dragged to other drawings (or other areas of the same drawing) so you can quickly reference the enlarged plans as you complete measurements.



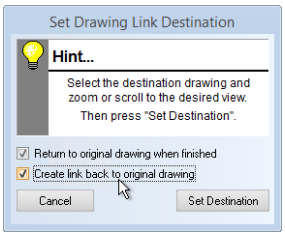


A **Dimension** annotation shows length [**A**], using the scaled measurements.



Two-way hyperlinks

When you create a **Hyperlink**, you can set it to include a link on the target drawing to return to the original location. You do this in the **Hint** window that opens when you create a link. The hyperlink retains the zoom and window position of each drawing at the time you set it up.



Practice steps:

1. Open drawing **006 A1.3 Third Floor Plan**.
2. Zoom in to one of the **SD** rooms.
3. On the **Annotate** tab, click **Hyperlink**.
4. Click in one of the rooms.
5. Select the **Create link back to original drawing** check box.
6. Open drawing **008 A1.5 Unit Plans & Interior Elevations**.
7. Zoom to detail **1 Standard Double Guest Room**.
8. Click **Set Destination**. Test both links to make sure they work as expected.

Bid Codes

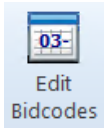
Help topics and videos:

- Standard Bid Code List Window
- Trace Properties Window
- Measurement List Window
- Bid Codes (Time 5:44)
- Excel Integration (Time 5:36)

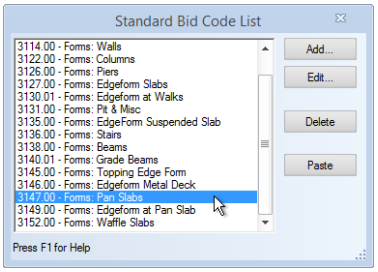
Bid codes give you another way to organize and summarize your measurements by combining takeoff quantities from multiple different traces. Bid codes are also used when you export data to a spreadsheet or other application.

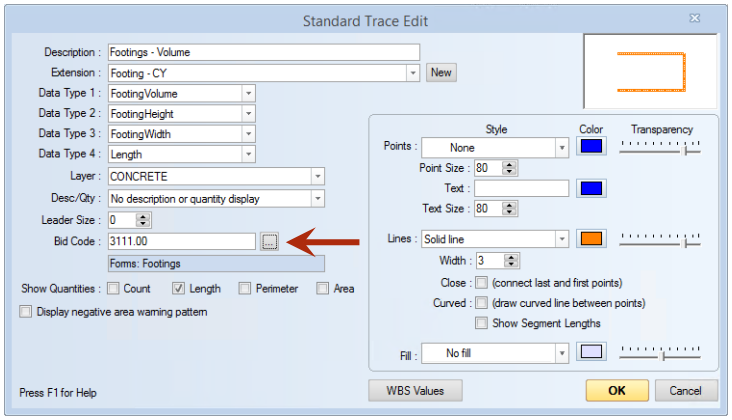
NOTE: Bid code links are one of three data types that you can transfer from the **Measurement List** window to an Excel spreadsheet. (For a detailed explanation, see “Excel Integration” on page 81.)

Bid codes are assigned to traces. (You can assign them to the trace for an individual measurement, or you can assign them to the standard trace type.) All traces using the same bid code are combined when you summarize by bid code.

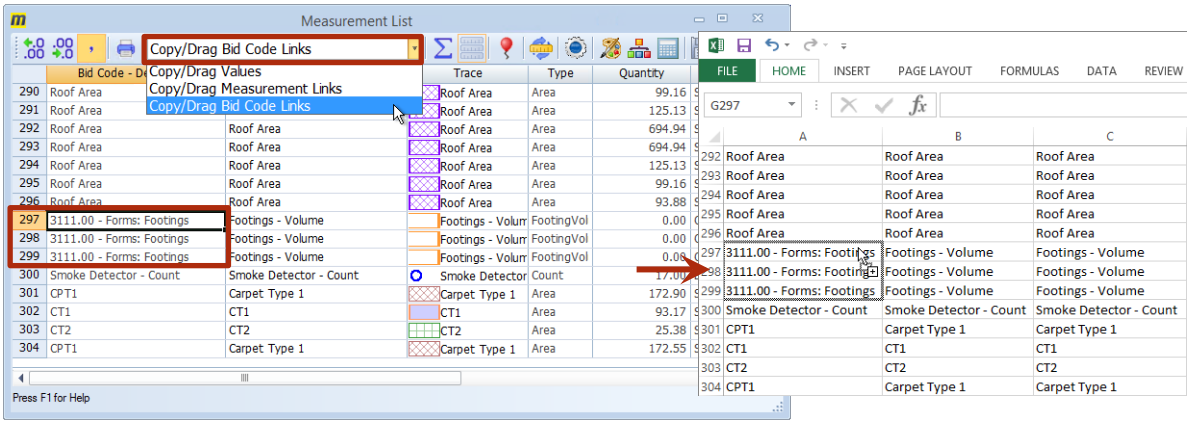


You can create your own list of standard bid codes (**Settings > Edit Bidcodes**), and then assign a bid code to each trace (**Settings > Edit Traces**).





When you perform takeoff using a trace that has an associated bid code, you can display the bid code in the **Measurement List** window. If you have Microsoft Excel integration set up, you can select

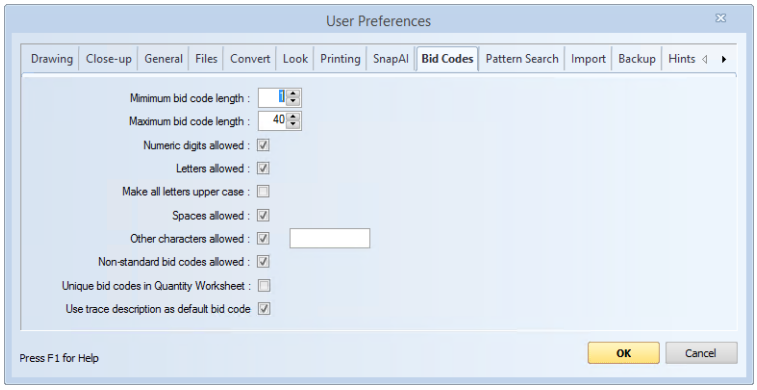


Copy/Drag Bid Code Links from the dropdown, and drag the bid codes to your spreadsheet.

With the Advanced edition: You can display bid codes in the **Measurement List**. You can also transfer bid code information to Microsoft Excel or another estimating application.

Settings related to bid codes

In **Settings > User Preferences > Bid Codes** tab, you can establish your bid code format, type of characters, and defaults when setting up bid codes.



Practice steps:

1. On the Settings tab, click **Edit Bidcodes**. Add the following bid codes to the list:
   13150 Swimming Pool
   13152 Pool Pumps
   13157 Pool Sealants
2. Double-click drawing **063 S1.1 Foundation Plan** to open it.
3. Take an **Area** measurement of the swimming pool and spa.
4. Right-click one of the measurements and select **Edit Trace**.
5. Click the browse button next to **Bid Code**, and select **13150 Swimming Pool**.

Excel Integration

Help topics and videos:

- Excel Add-on
- Setting up the Excel Add-on for eTakeoff Dimension
- Excel Integration **(Time: 5:36)**

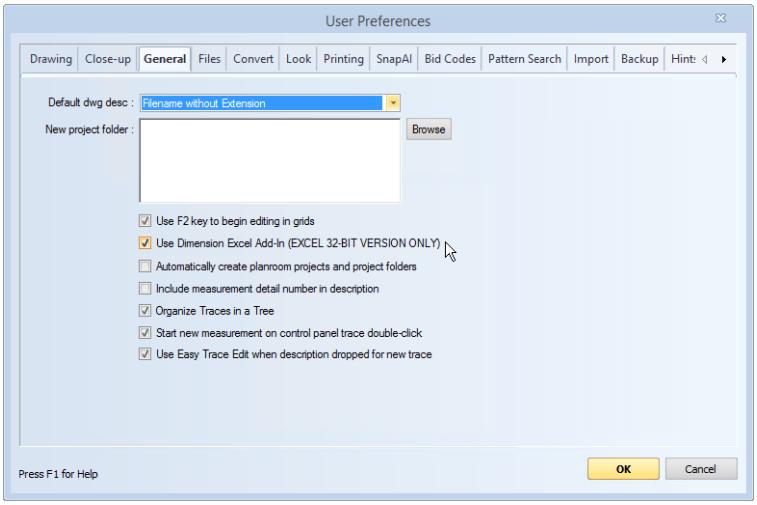
If you use Dimension's Excel Integration add-on, you can copy measurements, formulas, or bid code links into an Excel spreadsheet and retain the link to your Dimension takeoff. As you add measurements, the quantities are summarized in Excel based on how you configure the integration.

You can transfer data between Dimension and Excel from either the **Measurement List** or the **Quantity List**.

NOTE: Dimension is not compatible with 64-bit Excel. You must use the 32-bit version.

Preparing to use the Add-on

In Dimension, go to **Settings** and click **User Preferences**. On the **General** tab, select **Use Dimension Excel Add-on**, and click **OK**.



In Excel, follow the instructions in the document Setting up the Excel Add-on for eTakeoff Dimension to enable the add-on.

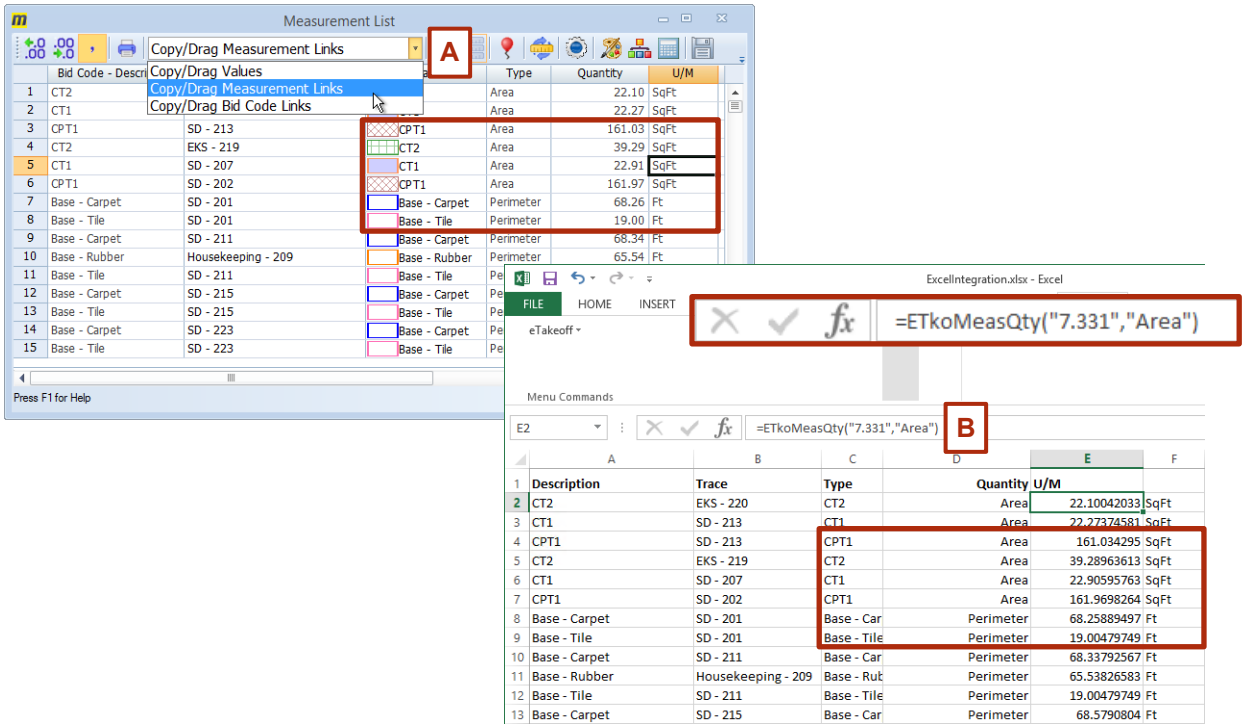
TIP: Build a set of Excel templates with headers and formatting, and use these templates with the Excel add-on to produce professional, customized documents on the fly.

Using the Measurement List with Excel

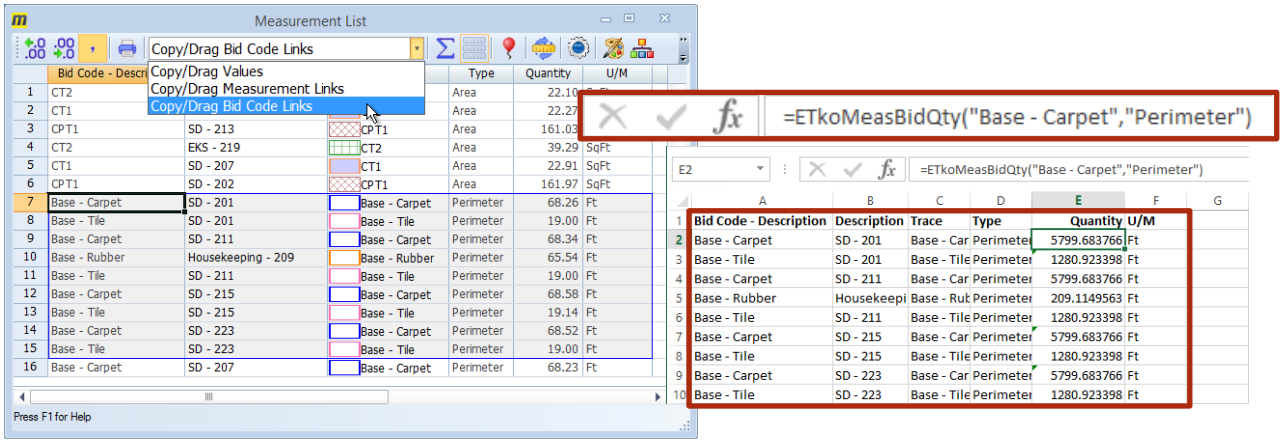
You can copy and paste—or drag and drop—quantities from the **Measurement List** to Excel. This results in formulas in the Excel spreadsheet which are updated automatically from the project data.

In the **Measurement List**, select the type of entries to copy.

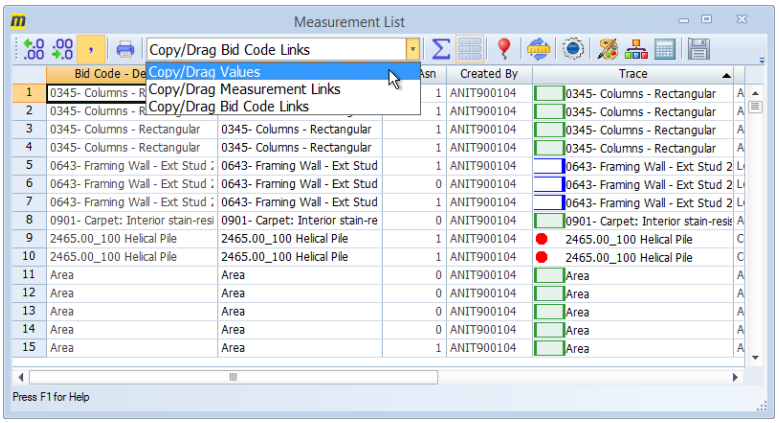
- In this example, **Copy/Drag Measurement Links** is selected [**A**]. To transfer quantities, select the values in the Measurement List and copy or drag them to Excel. Notice that the function added to each cell is **EtkoMeasQty**. This is because **Copy/Drag Measurement Links** was selected. Each measurement you selected is linked to a specific cell in Excel. As you continue to work in the project, the quantities are updated in Excel automatically.



- In this example, **Copy/Drag Bid Code Links** is selected. This results in a different formula—**EtkoMeasBidQty**.

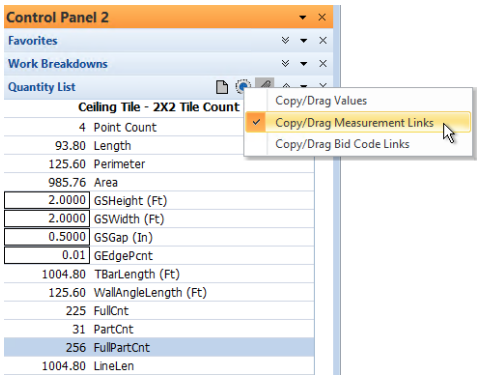


- If you select **Copy/Drag Values**, only the quantities are copied to Excel. Links to the project. Are not retained, and the values are not updated as you work in Dimension.

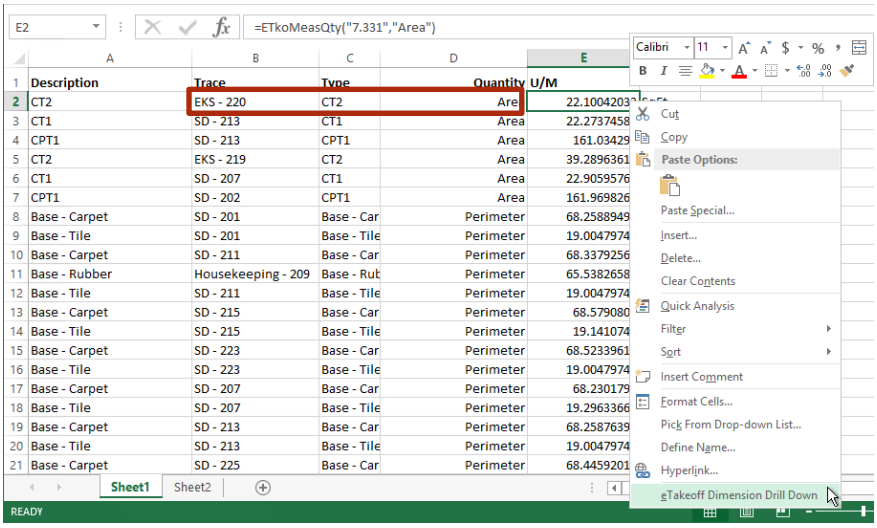


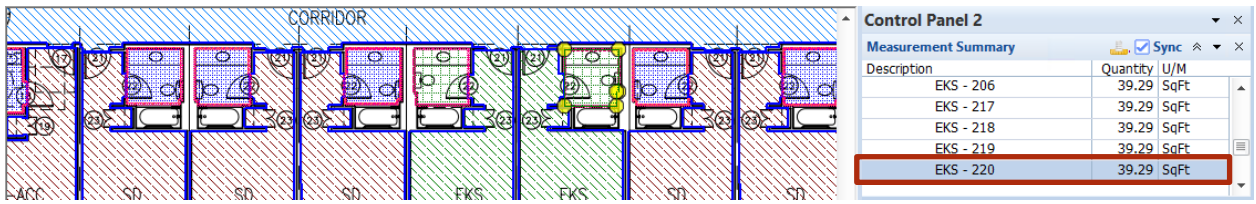
Using the Quantity List with Excel

You can also copy and paste or drag and drop cells from the **Quantity List** to Excel. You have the same three options for the transfer method in this control panel: values, measurement links, or bid code links. Each method has the same result as when copying from the **Measurement List**.



Once you have linked values in Excel, you can right-click a quantity cell and select **eTakeoff Dimension Drill Down** to jump to the specific measurement





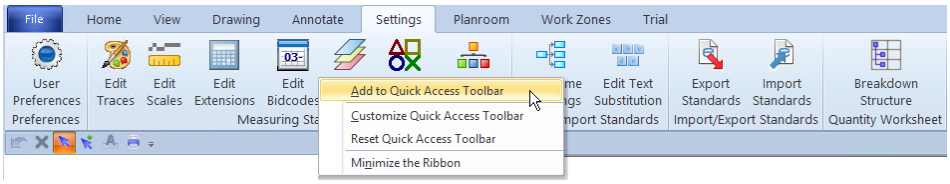
Practice steps:

1. On the **Settings** tab, click **User Preferences**.
2. On the **General** tab, click **Use Dimension Excel Add-on**, and then click **OK**.
3. Open Microsoft Excel to a blank workbook. These steps are for Excel 2013 or 2016.
4. Right-click in the ribbon area and select **Customize the Ribbon**.
5. Click **Add-ins**, and then click **Go**.
6. Click **Browse**, and browse to C:\Program Files (x86)\eTakeoff\Rview. Double-click the file **eTkoExcel.xll**. Click **OK**.
7. In Dimension, double-click drawing **005 A1.2 Second Floor Plan** to open it.
8. In the **Measurement Summary**, click the **Measurement List** icon.
9. Click the dropdown and select **Copy/Drag Measurement Links**.
10. Select several cells including quantities, and drag them to your Excel spreadsheet.
11. Examine the formulas. In Dimension, perform new measurements and verify the results.

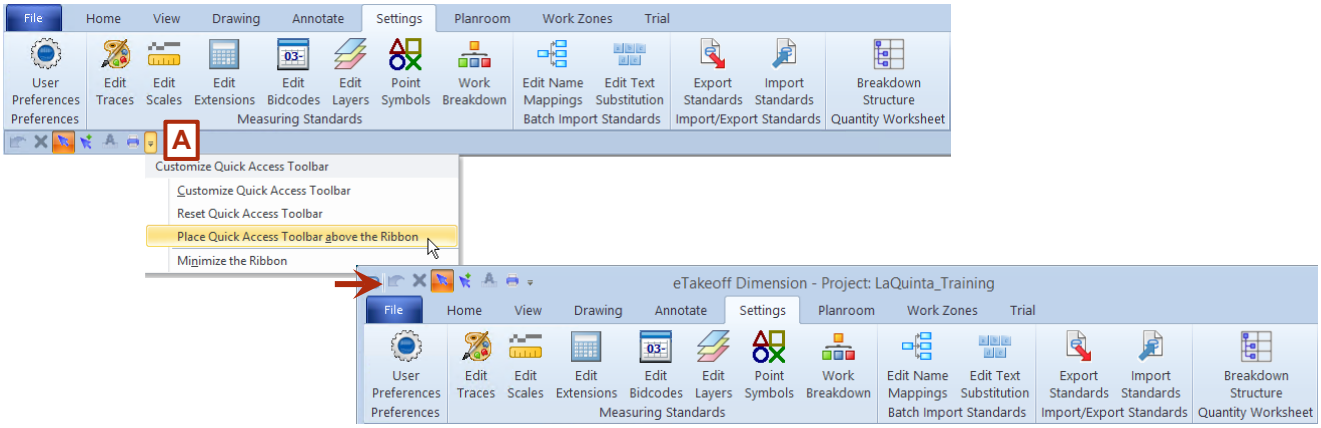
Customizing the Quick Access toolbar and keyboard shortcuts

The **Quick Access** toolbar lets you customize your workspace so you can access frequently-used commands quickly, no matter which tab is selected. You can add any Dimension command or toolbar button to the **Quick Access** toolbar by right-clicking it and selecting **Add to Quick Access Toolbar**.

Quick Access toolbar

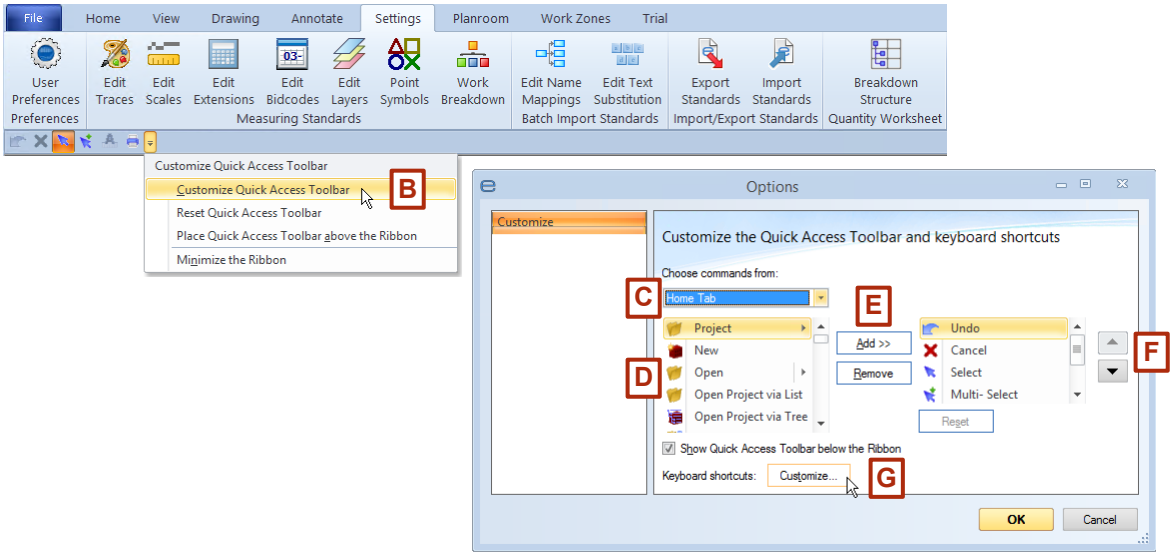


You can choose whether to display the **Quick Access** toolbar above or below the ribbon by clicking the down arrow to the right of it [**A**] and selecting the **Place** option (above or below the ribbon).

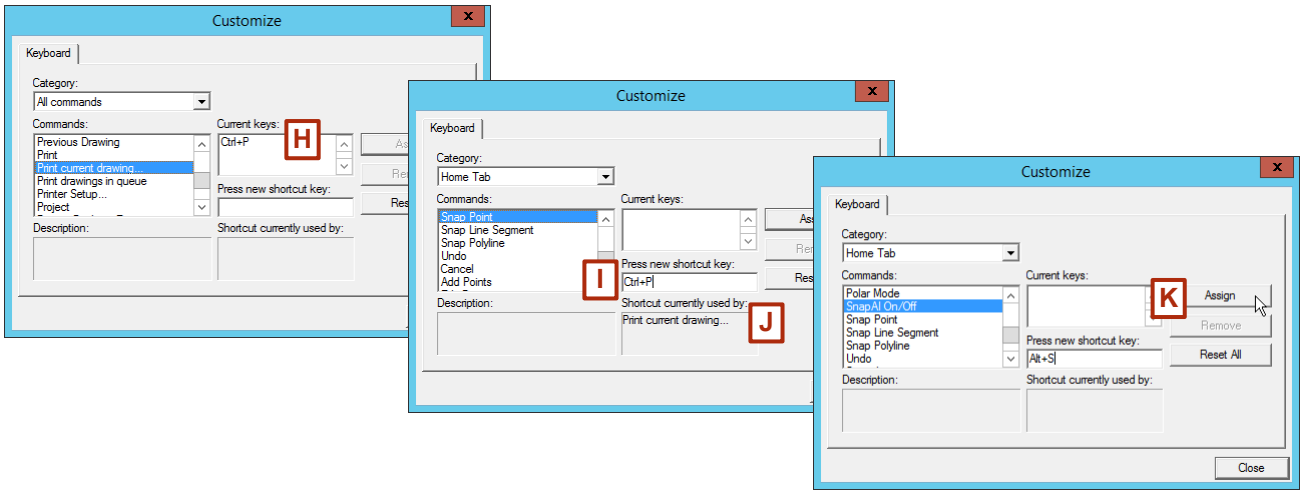


To further modify the toolbar, click the down arrow and select **Customize Quick Access Toolbar** [**B**]. To add items, select the tab [**C**] on which the item appears and find the item in the list [**D**]. Click **Add**°[**E**] to add it to the toolbar, and then use the up or down arrows [**F**] to arrange its position.

Click **Customize** [**G**] to set keyboard shortcuts for any command.



In the **Customize** window, find the command. If a shortcut is already assigned to that command, it appears in the **Current keys** list [**H**]. Click in the **Press new shortcut key** box [**I**]. Press the shortcut key you want to use. If that key combination is already in use, the **Shortcut currently used by** box [**J**] indicates which command currently uses it. Click **Assign** [**K**] to assign the key and over-write the existing assignment, or use a different key.



System Information and Licensing

This section provides an overview of the system architecture, data files, and licensing options for Dimension. It is not intended as a substitute for reading the full technical documentation. See the **Installation & Licensing** section of eTakeoff's Support site for complete information.

System Architecture

Dimension is typically installed in one of three ways: 1) stand-alone on a single computer; 2) on multiple computers on a network, or 3) in a Citrix or Terminal Services environment. Each type of installation involves a specific arrangement of system components.

Dimension components

The installation configuration you select determines how Dimension components are organized on your network. These components include:

The *Standards database* (**Dimension50StdsData.ctr** includes the standard traces, scales, layers, extensions, and so on that are used for all projects.

The *Project database* (**Dimension50ProjData.ctr**) includes project-specific data such as takeoff measurements, annotations, scales, and so on.

NOTE: The standards and project databases must be located together, whether on a local drive or shared network drive.

The *Dimension* application must be installed on workstations and any server or peer host from which you access the software. Dimension is not required on the database server or peer host if that computer will not be used for work in the application.

The *Project Folder* is the Windows Explorer folder that holds the drawing files for each project. Dimension does not alter the drawing files themselves.

A *License* to use Dimension must be available. Licenses are concurrent, and are explained in the next section.

(Optional) The *c-Tree Server* application and service are required when some or all of your servers or workstations will access the Standards and Project databases across a network. This component optimizes performance and data integrity, and is licensed separately from Dimension. It is not required for stand-alone installations.

NOTE: If users share only the project folder containing the drawings, but do not share Dimension databases, the c-Tree Server application and service are not required.

Licensing

Help topics:

- Dimension License Installation Window
- Concurrent Licensing Overview
- Concurrent License Window
- Dimension Add-on License Installation Window

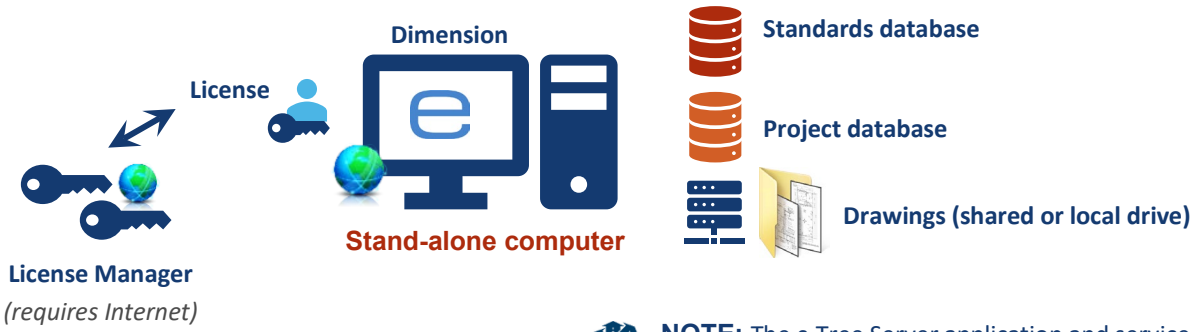
Dimension licenses are purchased based on the number of concurrent users working in the software. Each Dimension license is associated with either the Advanced or Premier edition.

A *license* lets you share a specified number of *uses* across an organization. The license use count determines how many users can use Dimension at the same time. If you have a mix of Advanced and Premier users, one concurrent license is issued for each edition, with the appropriate number of use counts associated with each.

The *License Manager* is eTakeoff's Cloud-based licensing system, which determines whether a use is available when you share a concurrent license. Each time the software opens with a shared license, Dimension communicates with this service over the Internet (although you can check out a license for disconnected (extended) use later. Your computer must be connected to the Internet when you launch Dimension to verify the number of available uses, but you can check out a license if you expect to be disconnected.

Stand-alone installation

In a stand-alone installation, the Dimension application and databases are installed on the same physical machine. The drawings folder can be on a local or a network drive accessible to the machine.



NOTE: The c-Tree Server application and service are not required for stand-alone installations.

Network Installation

In a typical network environment, Dimension is installed on clients, and all data is shared on a common server or peer host. Dimension can be installed on the server or peer host if users will work in the software from that computer, but this is not required. In network installations, the databases are separated from workstations, so c-Tree Server must be installed on the server or peer host.

Step-by-step installation instructions are provided in the "Helpful links" below. The information that follows is intended to provide an overview of possible configurations, not complete instructions.

System recommendations for eTakeoff Dimension can be found at the link below. In particular, see the section "Minimum Hardware Requirements for c-treeACE V10." These apply to any workstation or server on which Dimension is installed.

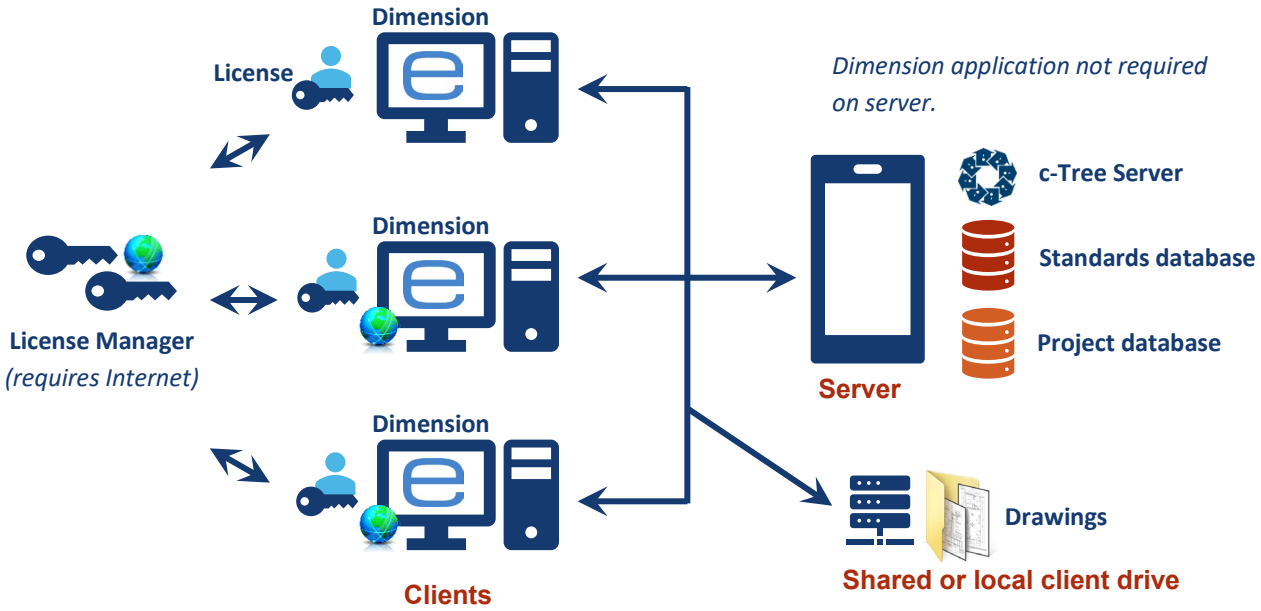
Helpful links:

- Dimension Client/Server Installation and Configuration
- Using Dimension with Terminal Services
- Hardware and Software Recommendations
- eTakeoff Bridge – Overview **(Time 13:24)**

Standard network configuration

In a standard network configuration:

- The databases are stored on the network server, and each client accesses data over the network.
- Dimension is installed on client desktops. It is not required on the server or peer host.
- The c-Tree Server application and service must be installed on the server or peer host.
- The project drawings can be stored on the same server, or a different shared network drive--but all client workstations must be able to access the drawings. Drawings can also be stored on local drives for each client if they are not shared by multiple users.
- Workstations sharing a concurrent license must connect to the Internet to access eTakeoff's cloud-based Concurrent License Manager.



Terminal Services (Citrix) environments

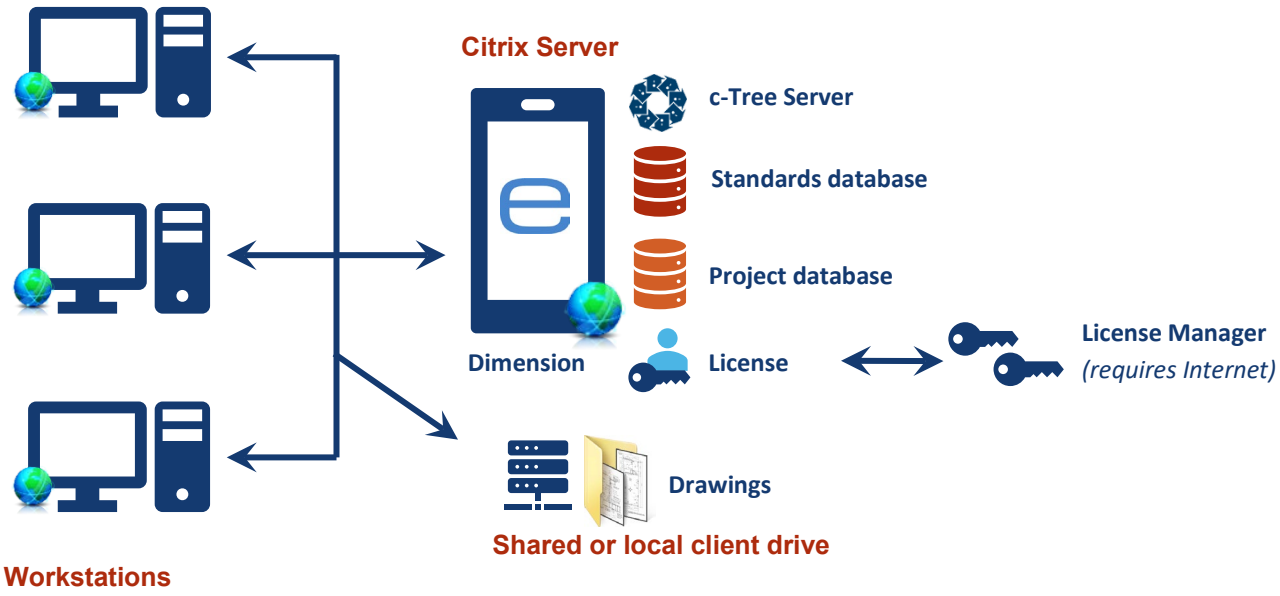
Terminal Services can be used in a stand-alone or networked configuration. The c-Tree Server application and service must be installed on the server in all Citrix environments.

IMPORTANT: Be sure to read the guide Using Dimension with Terminal Services before installing Dimension in a Terminal Services environment.

Stand-alone Terminal Services (Citrix) installation

In a stand-alone Terminal Services installation:

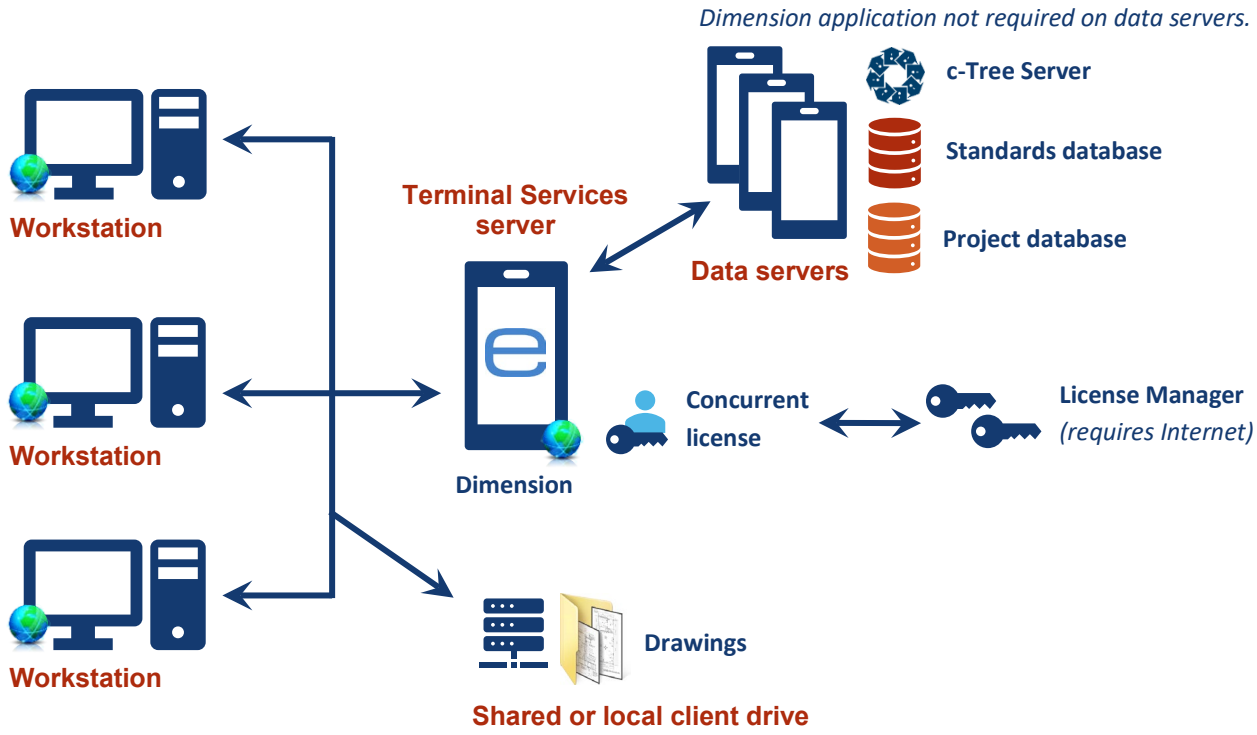
- Dimension, as well as the Standards and Project databases, are installed on the Citrix server.
- The c-Tree Server application and service are required in this scenario.
- A license with multiple uses is required in this scenario. If both Advanced and Premier users will access this server, a license of each type is required. Terminal Services servers must be connected to the Internet for license verification.
- Citrix must be configured to run each application instance in a separate session.



Terminal Services (Citrix) installation with multiple servers

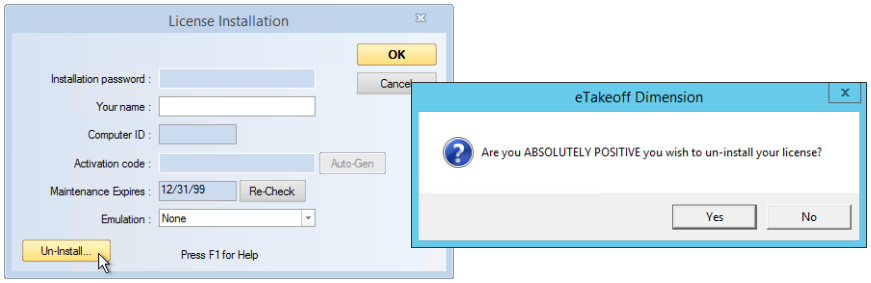
If you implement Terminal Services with multiple servers to accommodate load balancing, high availability, or another objective:

- Dimension is installed on the Terminal Services server.
- All servers on which the Standards and Project databases are installed must also have the c-Tree Server application and service installed. These are not required on the Terminal Services server.
- A shared concurrent license is required in this scenario, as multiple users will access the software simultaneously. If both Advanced and Premier users will access this server, a license of each type is required. Terminal Services servers must be connected to the Internet for license verification.
- Citrix must be configured to run each application instance in a separate session.



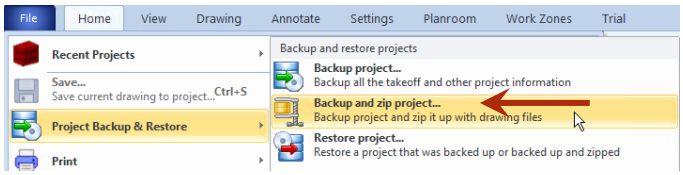
Removing a license from a computer

If you need to remove a Dimension license from a computer, select **File > Administration > Install Software License**, and then click **Un-Install**. Click **Yes** to the confirmation message, and wait for the process to finish.



Backing up and Restoring Dimension Data

If you do not use eTakeoff Bridge to send Dimension data to Sage Estimating, you can back up and restore Dimension data using the links under **File > Project Backup & Restore**.



- Use **Backup project** to create a backup that you can restore later. This process creates a file with the extension .tpx, which you can restore to the same or a different computer. The .tpx file does not include the project drawings, so you might need to copy the drawings to a new location if you store them locally.
- Use **Backup and zip project** to transfer the project to a different computer or to another user. The zip file has the extension .tpxzip, and contains all project information from the Dimension database, plus all drawing files.

To restore a project from a backup when not using Bridge, select **File > Project Backup & Restore > Restore project**. Browse to the .tpx file and follow the prompts.

IMPORTANT: If you use eTakeoff Bridge and you want to create an archival backup of the entire project (including the estimate), use the project backup feature in Bridge to back up and restore your Dimension projects. This ensures that the backup retains the links between the Dimension project, the Bridge assignment history, and Sage Estimating.

