

CURTAIN WALL & STOREFRONT

A TUTORIAL



Written for Vectorworks Architect 2017

INTRODUCTION

The Curtain Wall Tool in Vectorworks is based on the concept of a Wall Style where, once a “pattern” intended for repetition is completed, it can be saved as a Resource. The pattern controlled by the grid that’s defined in the curtain wall style will then be repeated both vertically and horizontally. Additionally, since the Curtain Wall tool is based on the Wall tool, it takes advantage of the benefits of a Vectorworks wall, i.e. joining, bounding by story, inserting plug-in objects such as doors & windows, etc.

Furthermore, a somewhat unique feature of this tool is the support for direct editing letting the designer make changes “on the fly.”

CURTAIN WALL

CREATE A CURTAIN WALL STYLE

The actual creation of a curtain wall style *from scratch* can be accomplished simply by right-clicking in white space in the Resource Browser, then selecting “Wall Style” from the contextual menu then choosing “Curtain Wall” as the type of wall. If, however, you’re fortunate enough to have a style that’s been created for you for a particular project, USE IT!

CONTAINER CLASS

The first step is to go to the Insertions Options tab and place the new curtain wall style in the container class. Using the “Class” drop-down, you can either create a new class here or place the curtain wall in a class that’s been pre-defined.

This is also where binding conditions regarding height are set. You can set the elevation of both the top and the bottom of the curtain wall style by binding them to levels or by using the Layer Elevation/Layer Wall Height option. This height can be overridden on a “per wall” basis from the OIP when using either option.

A horizontal “Cut Plane” height can be chosen here. Keep in mind, depending on where the heights of the horizontal frames have been set, the cut plane height might need to be adjust slightly to yield proper plan-view graphics. The cut plane height

can also be overridden on a “per wall” basis in the design layer if it’s necessary.

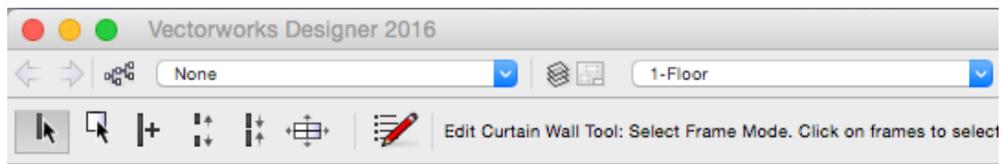
CREATE GRID (under the Definition tab)

The second step, as mentioned above, is to determine the “pattern” that will be repeated which is expressed as a grid. Additional gridlines can be added to or existing gridlines can be subtracted from the starting grid. The spacing can be changed to suite the designer’s need.

CREATE FRAMES

Step three involves sizing both the vertical and horizontal frame members as well as choosing their type (Full-Depth, Capped, etc.) from the “Type” drop-down.

It is advisable to class frames “by type.” In other words, all vertical frames should be placed in a class separate from all horizontal frames. This is so that line weights for sectional and plan views can be controlled in viewports resulting in a proper depiction. If the design involves a differentiation in color of the cap from the frame, an additional level of classing may be required to get the degree of granularity desired for a rendering. The creation of frames different from the ones defined by the curtain wall style is described in the “Editing” section below.



Quick Tip: When in the Frame editor, multiple frames can be selected for editing by holding down the Command key (Mac) or Control key (PC)

CREATE PANELS

Step Three includes the creation of panel types (glazed, spandrel, open, etc.) from the “type” drop-down. Each panel type should be set in its own class. For example, all spandrel panels are placed in a class and all glazing panels are placed in another. The creation of panels different from the ones defined by the curtain wall style is described in the “Editing” section below.

EDITING

As mentioned in the introduction, one of the most valuable features of the curtain wall tool is its support for direct editing.

There are two ways to enter the editing feature:

- Right-click on the curtain wall and from the contextual menu, choose “Edit Using Edit Curtain Wall Tool”
- From the Building Shell toolset, choose “Edit Curtain Wall”
-

The Mode bar displays six editing options (see Fig. 1)

- Edit Frame – directly move, delete, shorten, reposition an end on a “per

- frame” basis, right-click to change frame attributes on a “per frame” basis
- Edit Panel – right-click to change panel attributes on a “per panel” basis, insert window or door
- Add Frame – lets you add a frame – frames must extend to other frames
- Split Frame – splits a frame at an intersection, mouse over frame intersection to get smart-cursor cue
- Join Frame – opposite from Split Frame
- Move Grid - use in FRONT view to realign the entire grid to a specific point

Once an edit is completed, depending on the nature of the edit, IF the curtain wall style is edited, your changes MAY be lost. This is because the curtain wall STYLE is being reset to the original configuration.

To prevent your **custom modifications** to a curtain wall style from being lost (or actually reverting to the saved curtain wall style as described above), “Replace” that segment of wall with an Unstyled style. From the OIP > Style > Convert to Unstyled Wall.

Things to Consider

- Verticals run continuous, horizontals are “broken”
- Differentiation can be accomplished on a “per frame member” basis

- Adjust cut plane height as required

STOREFRONT

In this segment we'll explore using the Curtain Wall Tool as a Storefront Tool. Currently the Curtain Wall Tool provides a "top to bottom" solution, small wonder as it IS a wall style resulting in expected behavior.

However, in many cases what's required is a "storefront system" that fits **within** a wall. There are two main variations, one fits within a rectangular shape. Let's call it the "standard" configuration. See Fig. 2

The second involves a knee wall. See Fig. 3

Create a "storefront system" using the curtain wall tool

"Unhook" it from any curtain wall style by going to the OIP > Style > Convert to Unstyled Wall

Use the Split Frame mode, then delete frames. This sometimes takes a bit of finesse at the end frames. Use the Panel mode, select the appropriate panes and make them "Open". (Right-click, Edit Panel)

Create a symbol

Insert the "storefront system" into the "hosting wall." Since the storefront you



Fig. 2



Fig. 3

created is a symbol, the insertion point will be located at "center mass". Therefore, you'll need to edit the symbol and in Top/Plan view, move the storefront "up the page" or "down the page" until it is properly located in the wall.

Quick Tip: Before editing as instructed above, measure how far the storefront needs to be moved

If your storefront design includes a kneewall, you will need to use the "Edit 3D Wall Hole" to get the "cut" to look correct.

As you can see in Fig. 4, the wall has not been formed properly around the lower portion of the storefront system. To complete the operation you must Edit the symbol that the storefront is contained in, go to the 3D Wall Hole Component, set the view to front view, carefully draw a polyline around the storefront system, extrude the polyline a little more than the overall thickness of the hosting wall, go to a top/plan view, make sure the extrude "covers" the hosting wall, then exit the symbol editor. The result should be similar to Fig. 5.

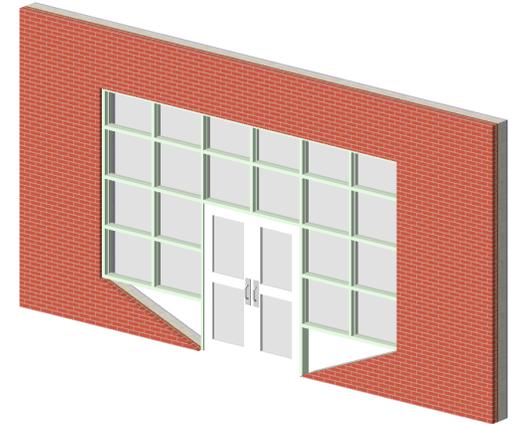


Fig. 4

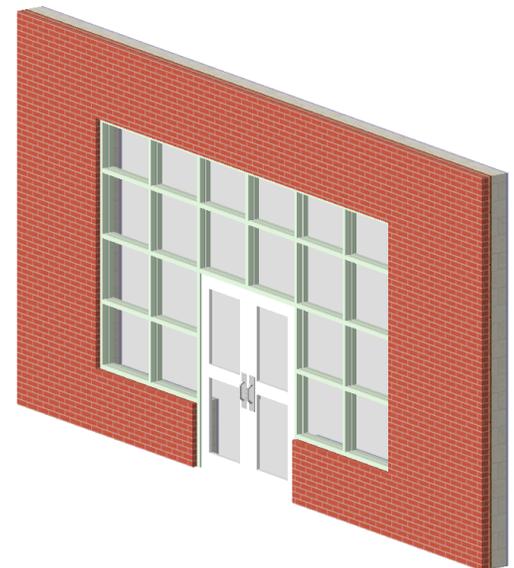


Fig. 5