



## BEST PRACTICES COURSE – WEEK 17 – Complex Modeling PART 5- Curtain Walls Basic

Welcome everyone to the AC Best Practices course training lesson. This lesson will focus on curtain walls. In order to give it some context, I will draw a box of walls here as usual. I will remove the front wall. Then I will go to 3D and say, "What if we wanted to have a curtain wall in the front of this?" Curtain wall is a systems tool within AC. It was introduced in AC 12 and later refined in AC 13. I don't know whether it's changed much since 13. So the things that I am going to be teaching you probably apply from 13 on. In 12, most of this applies, but they did improve it a bit. [0:00:49]

So the basic idea of a curtain wall is it is something of a system that can have a basic geometry and then a grid that would create dividers and panels within that shape. In the simple case, we would activate the curtain wall tool and use the default settings, in terms of the geometry, to create a straight segment or a single segment. We can also do a chained segment, which would be like a polygon or a poly line here. So we will just do a simple one. We can also do cylindrical ones and create a boundary shape. [0:01:33]

We will see lots of different ways we can do this. Now in the basic settings of the curtain wall, there are a lot of controls for the way all of the elements are handled, including the basic scheme which would be the repetitions of a grid. Curtain walls can be used for rather tall buildings with huge expanses of glass, and can also be used for little bits of storefront. They can even be inserted or placed in what would otherwise be a normal building to give a little more control over any custom glazing that you might have. [0:02:12]

The tool actually can be adapted for use for other things. I have seen people use it for suspended ceilings. If you think about a suspended ceiling, it's often a grid that has a certain type of panel such as standard acoustical tile or something similar. And then some of the panels may be replaced with lights or vents in them. So if you think about that, it's actually a grid system. It can be varied; it doesn't have to be all rectangular. It can have parts that are different, but it does have a systematic approach. [0:02:58]

So as part of the curtain wall, we have options for the shapes of boundary elements in different orientations, mullions and transoms, vertical and horizontal ones. We have the idea of panels that would be potentially two different main types of panels, and then custom ones. And we have the idea of possible junctions. So these would be elements that would hold the glass in place. This is optional, but some types of complex curtain wall systems will use elements like this. Then we can have accessories, such as a sun shade; things that would be attached to the system. [0:03:41]

Let me just start with the basics of creating a simple curtain wall in front of this building by having this straight line segment here. I can go click on two points. You will see this cursor that is intended to represent the sun, and it's saying, "What side is the outside?" So there is always a reference line side,



the outside of the building, and then the other side, the inside. I clicked to indicate that. Once I do that, it asks me when placing a curtain wall, "What is the position?" We can specify the height based on the top and bottom height, or we can specify it by the height of it by its top height and the height of the base. [0:04:27]

You can talk about where it starts or finishes, along with its own height; or you can say start and stop, bottom and top. So we will do a 10' piece and say 90°. You can tilt these curtain walls and do a variety of placement options. You can even rotate them in 3D space after you have placed them. I will do the most basic thing, which is a vertical wall just 10' high. You can see on the plan that it's created a series of segments with dividers or frames. And when I go to 3D, it's created a basic structure very quickly. [0:05:08]

If I use the arrow tool and select this, you will see it selects the whole thing. So it is a unit, but each piece can be edited. So what do I mean by editing individual pieces? If I click on the Edit button, which in 3D it will just say "Edit", if you select it on the floor plan it will say "Edit in 3D". Then when I do that, you will see a new palette come up and a new section of the toolbox become available. So this palette allows me to make changes and confirm them with OK or cancel them if I realize I don't want to move forward with that. [0:05:51]

Now when I hover over with the mouse, you can see that it is now pre-selecting a panel. If I go to this edge here, you see it would select the frame. So let me select a panel here, and when I select it, you will see up on the top that it refers to this and says it is a generic panel. So what does that mean? It's just a piece of a simple element. In this case, it's based on the definition of the main panel. So the main panel is the glazing, and when I click on this one, you will see it is the distinct panel. So the settings, if I have nothing selected, I can go in here for the scheme. [0:06:37]

When I double click on this tool here, you can see "system scheme". So if we turn on scheme and select that, and go into the system scheme - okay, I am missing something here that I wanted to show you. Let me cancel out of this. When I have this selected as a whole and I go into the curtain wall, there is the idea of the panels having main options and distinct. So what is the difference here? You can see that the main panels were told to be generic panels with a certain material; in this case, a glazed or tinted glass. The distinct panels are alternating panels and are set up to use a particular type of panel. [0:07:46]

And you can see that there are some variations here. We wouldn't want to put doors in every panel, but we could pick individual ones and put doors in, open up windows, things like that. This is the way that the panel would be set up, and there are all sorts of controls. We will look at a few of them. So in the original scheme, it's saying that the main panels are going to be just glass, and the distinct ones are going to be a piece of something that has a certain look. In this case, "Stainless Reflective" is the surface appearance of it. If you were in AC 16 or earlier, this would say "Materials" rather than "Surfaces". [0:08:32]



So that is the basic thing about the scheme. If we look at the scheme here, you can see that it's showing A, B, C, D. And you can have as many different divisions as you want. So I could say that I want the A one to be 6' long. You will see that it extends a little further. And I will make B 2'. So now I can say it's 6' and 2', and then 4' and 4'. If I wanted to, I could make as many of these as I want. I can add another one here. I will put that as 4', and this is 1'. So I am going to now do 6', 2', 4', 4', 1'. This allows me to control that. [0:09:16]

And you will notice that each one of these, I can click on it. When I do, it will highlight it in a color or take the color away if I keep clicking it. So I might just make these alternate panels by clicking on them to make them gray. Now I have just changed the overall settings of the grid. When I say OK, you can see what it has done. So what I'm doing is very visual, you start out with a 6', then I have a 2', then two 4' panels, and then the 1'. So the scheme as a whole can be edited when we select the entire thing. [0:10:01]

If I click on the Edit button here, now I can actually go into editing individual pieces. So let's take a look at one of the most basic things that we can do in terms of manipulation. We can combine the pieces together when we want to put in a door. So if we want to put in a door over here, we may want to get rid of this frame by selecting it and then simply hitting the Delete key. When I hit the Delete key, you'll notice that the frame disappeared and the two panels now are combined. There's a little bit of a handle here or a hot spot there, so it still remembers that, but it does treat this as a single unit. [0:10:45]

This is a generic panel, and it was set being a main panel of the scheme, so it has that glazing. But I'm going to switch it to be a door. So when I say door, it changes it to be a door and you can see how it instantly changes. When I deselect it you can see a little better that it's a door with a doorknob. Now of course, like all doors in the library, it does have some flexibility. You can make it opaque or have subdivisions. There are different choices for it. But the first and main choice is, is it a regular panel or is it a door? And we could also make it a revolving door. [0:11:26]

This might be a little tight here. Maybe we will want to undo that. Let's perhaps put in a revolving door for both of them. So what I would do is select the frame and delete it. And because these were combined, they both ended up as doors. Let me let me see if I can delete the frame in between them by selecting this frame and this lower one and delete them. Now you can see that it's a single piece and this is actually set up as a door. That would be a huge door, so I may want to change it to a sliding door or perhaps that revolving door might fit very nicely in here. [0:12:22]

So the basic idea is that I can select and delete individual separators or frames, and then I can select individual pieces and make them different if I want. Now if I'm happy with what I've done I can say OK. If I don't want to I can click cancel. So if I say OK, and we'll see that now we're back to where we selected the whole thing. The edit button is available, and if I were to rotate you would see this in the context of the building. [0:12:57]



So what happens if we were to take this and we made it taller? I can go here, and just like the wall tool, I can ask for it to tilt or get taller. We can see these options here. So I can literally grab this up and take it to 12', and we'll see what has happened. So this lower panel gets repeated and then when it runs out or hits the next one, it starts the next thing here. So if I were to take this up here and say make it 20', we are going to see multiple repetitions. I will just zoom out. So it does have this whole concept of a repeating scheme, both horizontally and vertically. [0:13:49]

Now this scheme can be adjusted in a variety of ways. In addition to selecting and replacing individual panels, I can adjust the spacing of the grid or the placement of grid items. So let's say edit. When I click on edit it has now highlighted this and actually I can no longer select other elements. I'm actually editing the curtain wall. So it's a little bit odd. They do make the other elements sort of fade a tiny bit to the background, but it can be a little frustrating because you may want to be editing the building as well. You have to focus on the curtain wall and then potentially say OK, and go back to editing the rest of the context of the building. [0:14:43]

You'll notice that in this OK and cancel area, there's also some eyeball icons next to certain things. So if I turn off the environment, you can see that's the rest of the building. I'll turn it back on. If I turn on the scheme, you can see that there is this little extension of a plane. So it's intended to be translucent you can see that it's not a real thing, it's a virtual surface. You can hide or show it if you wish. Now if I turn off the frame, you can see now we are seeing just the panels. If I turn off the panels, and of course now there is nothing to be seen, because we don't have any junctions, those are the things that hold the panels in place. We don't have any accessories, because we haven't done that. Now if I turn on the scheme, we'll see here is the virtual placement of these grid lines. [0:15:39]

Obviously, we talked about the horizontal placement of these. And we also have a sequence for vertical; a lower height and a middle height that was set in the original scheme. I go to the system settings, this is our horizontal arrangement and these are the primary grid lines. This is the vertical arrangement two and seven. I wanted to have another one here, let me just cancel this and go back into the system settings. I will click on this and say I want to add a point, and it will go below that or extend to the next one. And let's say I wanted to have it at 4' here and another one here at 6' or something like that. [0:16:41]

You can see the total height of the scheme. Perhaps I just click on these to indicate that these are all going to be that color, and then click here. So I just click on these to change their color. So I have now defined a different arrangement for the second floor. Maybe we have more of a mechanical space that we want to hide between the lower floor and the upper floor; a dropped ceiling and mechanical stuff. So we can obviously change that. I say OK, and you can see now this has updated. [0:17:15]

Do you see this heavy line here? That is the current height of this element. Remember, I just changed the height up to 20'. Well now that has stopped in the middle of a panel. If I say show me the frames,



we'll see how the frame follows that boundary. If I say show me the panel, we'll see this is what we've ended up with. And if you look carefully, you'll see that there still is the blue line. I am going to hide the panel and the frame, and you can see that blue line still remains. If we turn off the scheme, the blue line goes away. Whenever you have a scheme you have that blue line, although it may be hidden by seeing the panels. [0:18:24]

So obviously, we turn on and off these categories of elements to be able to control different things. So for example, this boundary here is straight, but we could curve it. So if I press down on the edge here, we have the standard polygon editing tools. So for example, I can take this and curve it. Now you can see that it has extended the theoretical panels up here, although it has only taken this boundary up as high as I made it go. When I turn on the frame, you can see how it is approximating that curve with a series of straight segments. [0:18:05]

So it will not actually curve the segments, but it will follow each one of these points that will be on the theoretical curve of the boundary. If I turn on the panel, you can see how it approximates that as well. If I turn off the scheme, as soon as I deselect it, you can see that we are adjusting the shape of the curtain wall there. I see a question from Tom Downer saying, "Are the panel dims center to center or just the panel?" So I'm not exactly sure how to answer that, but I will point out that if I select a panel there are some options for all sorts of controls here, including the dimensions of things and how it's drawn. In this particular case we've got a particular panel. [0:20:20]

For some reason it's calling a custom panel, perhaps because I clicked on some things here. The settings of this curtain wall panel are one type of an option here. If I go to the panel box, you'll see this will draw a box out, or we can put in a window, and we have various controls for opening and closing. So there is a thickness here that is the actual thickness of that panel, and in this case it looks like this is centered around whatever the frame center is. So that would be center to center reference. There are other things that perhaps you are referring to. We go to the system settings, which have to do with how the frame boundary is set, you can see various dimensions that you can control. There are the various types of frames that would have some other options. If we go to this frame here, there are going to be some controls for their placement. [0:21:38]

I might be able to answer a more specific question, because I'm not really familiar with the ins and outs of curtain walls in the real world. In other words, I'm not a builder and don't understand that. I'm not going to pull up instantly the best example of that, but if you give me a specific thing that you want to control, then I will be happy to deal with that. So I apologize for deferring that question. You definitely have controls over where everything is placed; you can get very precise. [0:22:22]

If we turn off the frames and panels here and turn on scheme, you can see that I can actually select a grid line here or a grid line along here. So you can see we can select individual ones. If I wanted to, I could adjust the placement of these. So maybe if I don't want any divisions up here. I can go and press



down on and say I want to move this one grid line by itself or I can move the whole system. I can move this one grid line I can move it up beyond it. So now I have customized the placement of it, and when I say show me the panels and frames here, you can see now we don't have that division. So even though there is a system in place, I can move things. [0:23:21]

If I turn off frames and panels and select this, it selects the entire grid line and I can move this around and perhaps make it a different pattern. So we have that flexibility to rework things as needed to fit the context. In addition, in terms of starting it, right now it is starting at this end here. And this end has a thin piece. So let's say we didn't want this divider here. So if I go and select this one here, if I hit the Delete key I can't actually delete this line. I can move it, but I can't remove the dividers. So I can go to one of these. And you'll notice when I select this, there's a popup that comes nearby. This allows me to select all of the ones horizontally or parallel to it, and this one allows me to select all the ones in a row. [0:24:31]

When you do that, you can actually change their settings by making them thicker or changing the material, things like that. You can also say in this case I just want to delete them. And that now has combined these, even though there is a grid line, I've just quickly deleted those elements. What if I wanted all of these to be a different color? I can select this panel and use the option to select all of the ones parallel to them. You can see they are all selected. I can go into the settings and maybe make the panel surfaces a different color. So I'll make them a yellow color here and say OK. Now you can see I'm able to very quickly adjust all of the ones that are similar. [0:25:25]

There are a lot of controls for individual panels, whole systems, individual frames or a whole row of frames if you want. Ken Brooks says, "Dimension center to center of the frame elements." I believe that would be generally the case there. Now let's look at some controls that we have for placing this into the context of a building. I just sketched something with a few walls, but let's say we had a building where we wanted to fit the curtain wall into part of it. So I'll go back to the floor plan here, and we'll do another box of walls here. Then I'll go up to the second floor and show the first floor as a trace reference. I will do another set of walls here and get rid of the upper piece. [0:26:35]

Go down to the first floor, and will actually just open up this wall. I'll go and split it here and split this here and get rid of the middle piece. So now if I go to 3D we'll see that I have a space and it could be nice for having a curtain wall that would fit this. This is based on an example they have in the manual and it's a very simple one. Nothing too fancy. But certainly, if you did want to fit this into any part of a wall, it's important to be able to place this easily into position. So when we are going into the curtain wall tool, you can actually place it in 3D. We can create new ones in 3D or in a section or an elevation. [0:27:36]

I'm going to go to the floor plan and I will create a section just for the purposes of placing a curtain wall. So I will go to the section tool and create a section just across the face here. So this section defines a



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line in space obviously. And when I open it up, we'll see the shape that we've got. Now because I've put it at the back end of that building there, I'm not seeing the actual wall. Let me just drag this down to here and then open it up. And you can see the shape. It's interesting that it's not showing the wall here. So I'm not quite sure. We'll just go here and move this into the center. Let me take this out to the boundary here and we'll open that up. [0:28:59]

So now we can see the shape of the building as we cut through that front wall. So when we go to the curtain wall tool, one of the things that we can do is actually draw this as a new element right here in section. And when we do that, while we can use the same option for drawing a single line or a chain of walls - I haven't demonstrated that yet - in the section we want to do is actually draw the boundary right away. So you saw how I curved the boundary in the earlier example. We can do any type of polygon shape that we want for the boundary. In this case I'll say I want to do draw the boundary, and I will click on this series of points. [0:29:46]

So I'm literally just tracing this area. It can be edited afterward, but I'm setting the initial shape of it. You'll notice when I got back to the first point, it changed the cursor to the sun. If I click the sun inside the area, then it's going to put the reference of the curtain wall facing back towards me. If I click outside, it will take it in the way the section is looking which would be towards the back of the building. So I'd like to take it out towards me, so I'm going to click in the middle. And you can see how it has created this curtain wall system directly in the section view. The actual curtain wall system in the scheme was the default; I didn't pay attention to it. So that is why we have this very regular grid here. [0:30:42]

And we're not seeing the contrast in colors, because right now we're just looking at the section in simple line work, how sections and elevations for construction documents are often done with just line work. If we go to 3D we are going to see the contrasting colors. If we wanted to adjust this, I could potentially take these grid points and move them. So let's just go and select this curtain wall here and edit it. And when I say edit it, now I have the option to work on this. You'll notice how everything else becomes a little bit gray. So I can go here and say show the scheme and hide frame and panels. And now I can go and move and select this line and snap it to here. Perhaps take this one and snap it in line with that. [0:31:39]

So I've now got a nice even thing there. So obviously in general, to keep regularity, you would want to have the openings match the original grid. But if you for some reason wanted to subtly adjust it you could do that. And I might take this one and move it up here. So I can use this as a free form sketching tool to make the shape that I want. If I go back to the frame and panel, you can see that at least starts to fit in with this. Now these lines will not show, this is part of the scheme. If I turn off the scheme you can see it's just a basic wall. So if you did want to put in some type of a storefront into what would otherwise be a normal wall, you can create an opening either by stopping and starting the wall or by creating an empty opening. And then you can just draw your curtain wall in it. [0:32:40]



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We can do it literally on the floor plan, just sitting in the empty opening, or we can look in a section or an elevation. Now if I rotate this around, we'll see that the outside frame is sticking into this wall. You can see what's going on here. I am a little unclear in terms of the visual representation here. It's probably because I'm editing mode. When I say OK, there we go. So now we are seeing how this is done here. [0:33:25]

Let me see if there are any questions. John Gilchrist writes, "I am trying to follow along, and I don't see scheme displayed." Tom B. asks, "Can you stagger or stilt a curtain wall form?" I'm not sure what you mean by stagger or stilt. Maybe you can explain that a little bit more. In terms of having these divisions, let's take a look at how we can actually put in some more custom glazing rather than just using those points. In terms of trying to follow along and get the scheme, basically if I select this curtain wall here in 3D, there's the edit button. And when I go to the edit button, then you can see that there are these little controls here. When I'm not in this, if I click OK or cancel, then we don't see that whole editing thing. [0:34:32]

And by the way, if I am on the floor plan and I select that curtain wall here, then you see there is a button that says "Edit in 3D". It will just jump to the 3D window with this now setup for editing. We don't see handles saying that it's selected, but it is slightly more colorful than the background which is sort of grayed out. And it's the only thing that we can edit. If I click on any other elements, it won't allow me to edit it. So this is where we have the scheme and you can turn the scheme on or off using this button. Let's say that we wanted to - we mentioned step. So suppose we wanted to have a bit more creative arrangement here. [0:35:20]

I can go and turn on the scheme. I am trying to remember - if I go to the frame I know I can snap two points. I am going to do one thing. I know that is not what you want, but just to show you that I'm snapping to these points, and it now has created a frame here. And I can actually snap to these points. So I can do some creative drawing on here. Let me just undo back those couple of steps. And each one of them is a distinct panel that I can control. I can make a mosaic pattern. If I go along here, I can draw this straight across. You can see here is a snap point. Is that horizontal? Yes, it actually was horizontal because I'm snapping to the center. And here you can see the black pencil. If I go somewhere along here, and let's see if there's a perpendicular snap. [0:36:28]

Yes, there is a perpendicular snap. This is along the plane. I am not seeing the snap. If I use the Shift key it allowed me to snap it. So the Shift key clearly made that horizontal. So holding down the Shift key will lock it horizontally. And if I wanted it to be a specific height, you can see that I'm at a certain location. If I type in "Z", you can see "Z" is a certain height. It just happens to be whatever it is in space. If I wanted to be 2 feet higher I can add two and a + you can see how it repositions cursor into a new location. That was - it did the mathematics. When you hit a coordinate, it brings up the tracker, and when you hit some numbers it will allow you to either put in a final value or by hitting the plus or the minus, it will allow you to move it up or down or greater or lower value of that coordinate. [0:37:37]



Then hitting the Enter key will give me that value. And if I hit the Shift key here this locks me. So I'm getting a horizontal thing. This is going to be exactly 2 feet from center to center here. So let's say that I wanted to go across and press the Shift key to lock it. And maybe I want to take this piece out. So now I have something. This bottom one was not set precisely, but this one is 2 feet above that. So if I wanted to perhaps remove this piece and remove that piece, I can select them and perhaps select this. And maybe instead of making it a different type of panel like a door or whatever, I can change it to the distinct panel which would put it into the category that I have. [0:38:27]

So that shows you the flexibility that we have. We can create dividers anywhere we want, and then we can modify these panels to be either other types of elements or possibly change their color. We were changing the color here. We were changing their dedication from the main type to the distinct type; however those are set up in your scheme. Dave Norman writes, "I've assume 2" wide framing needs to be adjusted by 1" at the wall so that the frames are not buried into the wall." Good point. There are some options here. I will say OK, and we'll to the floor plan and go up to the second floor so we can see the curtain wall. [0:39:17]

And I select this curtain wall and you can see how the end of the curtain wall was set here, but the frame is visible sticking into the wall. So if we didn't want that, if we wanted it to stop dead there, we can go into the settings for the curtain wall. The boundary frame here right now is set to generic. So generic will just have a certain thickness and a certain width, 2" horizontally in this case. It will have a certain depth, 6" here. And then there's a certain depth for where the panel is in terms of how deep the panel is set in. But there are some options as well for switching it from generic. Where are the controls for inside or outside? I know that there are options there. I haven't looked at this for a while. If I choose this as frame, and cut outline - those are more detailed things. Cutting planes - okay, that's not where it's at. Let me just go back in and go into the scheme. [0:40:49]

Here you can see this says, "Start with a segment". This is the option for where I started in terms of this. But there is an option - where is it? We can set it to be inside - so that this line here becomes the inside of that. You can change individual frames, but I'm looking at the whole system of this here. And I'm not seeing what I was looking for here. But there are some different variations and invisible. This is an interesting one. If I say OK, you can see it has disappeared. Let's take a look at what that does in 3D. You can see that the glass is sort of stopping dead. So of course this is one possibility here is that we actually have the frame made manually with other pieces of things, rather than defined in the element. [0:42:32]

You can see that that the boundary here now allows some space for it. Let me undo that change here and go back to 3D. You can see now that boundary is there. I am trying to remember where this is set at. 6", that's the depth of this whole thing. If I go to scheme and start with frame not panel, if we select this and go to the scheme, and say start from center, align to center, end with segment. So you can actually align the whole thing centered in your wall. You can also say the endpoint of what you set is going to be the segment. Or whatever point you clicked on becomes the center. And here is custom origin which



allows you to place the origin where you want. Then actually we can move the origin around for this, but that's not what we are controlling here. [0:43:46]

So here's where it is. It's not under schemes; it's under curtain wall systems. And we can control place boundary frames. Okay, so I apologize, it's under the entire system rather than the frames. And instead of placing them at the center boundary, I am going to say that I want the boundary frames to be inside that. So you can see this slightly heavier line, it's going to put the frames inside that. Say OK, and now we are getting that clean result. So there are a whole lot of controls here for the system as a whole as well as for individual pieces. [0:44:39]

We've been going 45 minutes, so I want to do a few more minutes here and then collect some questions and things that I will do in a second lesson on curtain walls. One thing that I know we can look at is on the floor plan, you can see that we're on the second floor, and we're seeing the first floor as a trace. Let me turn off the virtual trace, so that we are not seeing that. Remember on this side, I didn't even have any walls up on the second floor. If I go down to the first floor we are seeing the door symbol. Now the curtain wall as a whole is set to show in a certain way on the floor plan. So on all relevant stories it was showing. This basically extended up into the second floor so it was showing there. We could restrict it, if we didn't want to show any other stories. [0:45:50]

We can also choose the floor plan display. And this says "symbolic with overhead". We can also just say "symbolic" or "projected". So what does projected do? You can see now it's actually showing the fact that there is some information for that. If I go to the projected with overhead, we see some additional information in terms of the top of that. If we go to the symbolic here or symbolic with overhead, in this case there's no part of the curtain wall that sticks up further. And we can do the projection within the floor plan range or show the entire element. So if it goes up above the story, we can show the entire element if we want, things like that. [0:46:46]

I know what I was going to show you. We haven't done corners. So let's do something simple. I'm going to say I want to create a chain of curtain walls. So I'll just do this in empty space so we can see it by itself. I'll just draw a corner, and then I'm going to switch. And this little pet palette you can drag around and switch your mode of creating. So if I wanted to create a three point curve like this, I can create a curved segment of this curtain wall, and then just drag across it. I want to get this line so then I can take this over to here. So I have defined a free-form curve, but I said I want to take it straight to here. And then I can switch it back to a straight segment. [0:47:43]

When I'm done, I'm going to click on this last point again. And it will then say "Which is the outside?" So I'll say this is the outside here. And he gives me the option. Right now, because we've got a chained one with multiple pieces, it only allows me to do it at 90°. When I was doing a simple segment, I could have tilted it. And we'll be looking at how you can tilt things and place them. So I will say "Place", and you can see how it very quickly has created a complex system. Each part of the system has its own scheme. In



other words, perhaps I want to make this front part have a different setting than the rest. So I will take this piece and say "Edit it". Now I'm actually editing - if I go to the scheme here and turn off these panels, I can select this segment. [0:48:46]

Notice how this segment here is separate from this one. So if I wanted to go to the scheme for this, I could go into the system settings for this scheme. Let's say that I wanted to make this finer. So let's say "2", like that, and that's going to make these thinner. And actually that affected the whole thing. Let me cancel that I will discard the changes. Let me go here and edit. I think what I need to do is go in and select this here and go into the settings for this scheme. So I was going to system settings. I want to go into just the scheme that is selected. And we'll make this here. And what that did is it changed this one. [0:49:41]

Let me go back and say that in the scheme settings perhaps I want it to be all glazing like that, and say OK. And now if I turn back on the panels you can see what that has done. Or maybe I just want it to be all purely vertical, so I can go in again and just take these and go into to the scheme and say that vertically, we'll just get rid of this, and I'll take this one up to be 20'. So it will just be as high as it needs to go. Maybe 20 is too extreme, so let's say 12' or something like that. So I will say OK, and now you can see how the scheme goes up to 12' but the boundary is this. If I say OK, we're going to see what that has done. When we have a chain here, we can modify the scheme for each piece separately. [0:50:47]

We do have overall control if we wanted to change all of them to have a different colored glass or some other settings there. If we look at the corner here and say Edit This, you can see that this is a single piece, it's a single frame. It's not like there are two. So it is smart enough there. I can't actually delete it. I could go in and delete this and it would combine these. I can't delete this, but I can change this from a mullion frame to make it invisible. And you can see how it was removed. Now it left a gap there because of the size. If I put it back to generic and make that size - I'm not quite sure that we can make it zero. We can play around with some of these dimensions and then make it invisible. [0:52:05]

I know there's a way that you can do it, you can do a butt glaze. I'm not quite getting this working here but let me show you something else here. So here we have a case where this piece - if we were going to get rid of that - we would want this to come down. And obviously it's stopping at the midpoint. If I highlight this you'll see that there is a priority level. So all of these elements have priorities for intersection or connection. And when I make it bigger, you see now is sticks up more here? If I make it lower it will change its relationship. And I think maybe what I need to do is make these two higher. So I just made them higher, so now they are connected in the corner here. [0:53:02]

And this is facing the corner, it's a custom frame and I think it can probably be adjusted in terms of shape. There was actually a boundary frame. Let me undo that. If we go into corner frame here, there we go. You'll notice what that did. It actually put it in so that it fits that corner in a different way. So there are different options to change the shape of that. I'm not quite sure what exactly to adjust to get



this butt glazing to work, but that's certainly something that you can adjust. But I wanted to show you another example where we need to adjust the priorities, because I want these to pass through each other. [0:53:53]

So if I take this one and reduce its priority here, there we go. I just reduced it down to the minimum and now it stops dead underneath here. In the same way, when we have a door, I've also seen that in the same way for when you have doors, and you want to have the frames on the side of the doors. So let me go and put in a door. I will take this piece out take this and make it a door here. And now if I take this piece, I don't think I can delete it, but I can make this invisible. So I can't delete this bottom frame, but I can make it invisible. And then you can see we have two problems. The door is raised up a little bit, and also these two frames are not meeting properly. [0:54:57]

So what I can do is make this frame a higher priority here. I guess that's not going to work. I can make this one a higher priority. No. If I take this one down and this one up, okay - I'm not quite sure here. Maybe I have to take this one down. I know that if I take this one up - now that extended down. So I've basically made this one stronger so they could pass through. It wasn't being stopped by the invisible one here. So we're at 2:00 mark. As you can tell, there's a ton of stuff in curtain walls. We haven't started to look at how you can do tilted ones or vaulted ones and other intersections like curtain walls meeting up with walls. So we'll deal with some of those next time. [0:56:13]

Let's see if we have some questions. Louis B. writes, "Wall finish at the end of the second story [inaudible] storefront". Also he says, "So happy you are doing this topic and had the same issue with the door to floor alignment." So I will look at that and have an answer for the next time. Dave N. says, "If you show the second floor plan, will the door be shown as a projection or not shown? Can the floor plan display be adjusted?" So let's take a look at the second floor. So we now on the first floor. If I go to the second floor you can see that this is not showing. So let's show as trace reference again. And let me draw basic walls here. [0:57:08]

Now if I turn off the trace reference, we are not seeing the lower information. When we go down to the first floor, we are seeing that. The floor plan display can always be adjusted. Individual elements here. So there's an option for how this is going to be seen. And show the projection to floor plan range. Let's do the entire element here. And now if we go up to the second floor, it's still not showing that. I think because the settings for our current view - if we go to the second floor plan - are set for the floor plan cut plane to show only on the current story. We could go down one story below here, and now we're seeing some stuff down there. [0:58:14]

We're still not seeing the door there. Let's go back in here and see if you did want to do that, show down to one story below here. And cut plane height here. Then we put in a negative distance and see if that does anything. No. If we go here, this is actually set to be symbolic, that's the issue. If we made it projected, then we would see at least where that door opening is. In other words, now it's projecting



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down there. If I go down to the lower story, you can see how it is showing. So I'm not quite sure what you're wanting to see there Dave, but certainly there are options you can do in either the overall floor plan cut plane settings or in the curtain wall settings that would affect that. [0:59:20]

So let me see, "Projected works," Dave writes. Okay, that will solve that particular question. I think we've been going an hour, and I do need to do a little more research for the next one so that I'm able to show you some of the things that would be good. I look forward to getting your comments and follow-up questions. This has been Eric Bobrow, thanks for watching.

[END OF AUDIO 0:59:49]