



## BEST PRACTICES COURSE – WEEK 21 – Creating and Customizing Library Parts PART 6 - Custom Door Panels & Window Sashes

Hello, this is Eric Bobrow. In this lesson, we'll take a look at how you can create your own door and window panels and sashes. So I'm going to draw a simple wall and pop in a door using the default ArchiCAD settings. When I go to 3D, we'll see that the door is a flat panel. When I open up the door settings, we can explore some of the options here in terms of parameters for the door panel. And you'll see that we can easily switch it to many different styles just by clicking. [0:00:40]

When I say OK, you can see how that changes. Now there are a lot of different styles that you can do, and if you do pick for example this horizontal and vertical grid, you'll see quite a bit of control in terms of let's say making a different number of divisions like this. You can see how that updated. Or perhaps making the frame a different size; for example, on the bottom we might want to have it taller for a kick plate so that it is not glazing down at the very bottom; things like that. [0:01:14]

And there are some exotic ones like prairie style here. There are a few adjustments that you can make. And we can go through many different choices, and I advise you to try them out to see what's in the library. If you really need something custom, there is an option to actually put in a custom panel. And you can see how this is empty here because it's waiting to select a custom panel. But there are no custom panels to find right now. You can see there are some basic instructions here for how to do that, and I'm going to demonstrate it. [0:01:50]

By the way, if you ever just want a cased opening, pick the empty one here and this will be just the casing with just the controls that you would expect for the size and material of the casing. Let's leave it at the custom panel and click OK; and you'll see that it is now empty although it still has all the controls. Obviously it's showing where the door would open if there was such a panel. Let me go back to the floor plan and we'll create a door panel. I'm going to go to the Slab tool and set this to be 2 inches above zero and going down to zero. So it's 2 inches thick; that's about 5 cm. [0:02:32]

And I will draw a rectangle here, say 3x7. That would be about 900 mm by about 2 mm roughly. So sort of a common door size here. And I'm going to select that door, and then I'm going to cut a hole in it. So I'd like to make something a little unusual. As you know, when you select the slab, if you click inside it you can start to draw a hole without doing any special clicks here. I'm going to line this up with this point and take it down in a triangular shape like that. [0:03:10]

Perhaps I'll take this point here and adjust it up a little bit using the Shift key to keep it straight. So I have now an unusual shape for window. Now there isn't actually a window here. In order to create that, I will need to actually create a separate piece. Before I do that let's just make sure that this is



using the material that I want, because whatever material it is when I create it, that's what it will become in the custom panel. [0:03:37]

So I'm going to go with this selected and make sure that all sides are the same in this case. I will give it a tan paint color. Now I will go and change the settings perhaps to be midway here. So going from 1 inch to 1 inch, that's basically a zero thickness element. And this one I'm going to do with a tinted glass. We'll just create the shape here. I will snap it to the point here. And now if I were to go in 3D and we looked from above, you can see that it's lying down on the ground. There is the outer slab, and there's also the window piece is a separate element. [0:04:29]

So in order to save this as a custom panel, I basically will select it here on the plan. I think you can probably do it in 3D as well, but we're going to go from the plan and go to the File menu, Libraries and Objects, Save Selection As. Now depending on what version of ArchiCAD you're in, the controls may be slightly different. Here in ArchiCAD 16 we have many different choices of saving it. We are not going to save it as a door; this is actually a door panel. And I will show in a separate lesson how you could create a door with, for example, a frame around it. [0:05:05]

But right now we're going to be creating a door leaf. And again, if you're in another version of ArchiCAD you may see slightly different options here, perhaps fewer options before. And it actually used to be called Save Selection As, Custom Component; and then the custom component had a few choices. So let's just do door leaf. I'll just leave it the default name, "Door 1", or of course I could name it something, "Triangular Hole", or something like that. And I'm going to allow it to be saved in the embedded library. [0:05:38]

I could of course save it in a folder, and then it would allow me to store it out on the hard drive. Now I'm going to go and save this and it then tells me that this new custom door leaf will be available in the settings dialog boxes of relevant objects which recognize it. That's a long way of saying that when I go to a door like this and I open up the settings, we will see there it is, because it immediately put it into the list of custom panels. And since there are no other custom panels, it became instantly installed. [0:06:16]

Now you'll notice that the door in this case 3'x6'8". It's not quite as tall as what I created. What it did was it actually stretched it, or in this case, shortened it. If I take it to 3x7, we'll see the original shape is slightly different. If I were to take it up to 3x12 or something crazy like that, you'll see how it distorts. Basically, it just pulls everything up proportionally. Let me just leave it at the 3x7 so it's actually at the original size. That's one of the things to realize is that if you do create a custom door panel, you can make it any size and it will stretch to fit, but if it's important that it have certain proportions, then you may want to create one panel for each size that you need to install it, or at least for sizes that are significantly different. [0:07:06]



I will just say OK, and we'll take a look in 3D and we will see that there is the door. I can select it, and you can see that it actually has the usual handles. I can go here and change the opening angle. So this is part of standard door controls is that there's a hot spot here on the floor plan. There's also a hot spot here in 3D and then also on the floor plan; we can control these independently. [0:07:35]

So this is a door that would show up like any other door here on the plan and in 3D; and it would show up in door schedules just like every other one. The reason why I mention that is that if you create a custom door rather than a door leaf, then you have to do some extra work to make sure that the door shows up properly. [0:07:59]

Now what if you have an irregular shape? Let's say a common thing might be an arched-top door. Well let's go to the Door tool and we'll type in here "arch" and tell it to look for it. Now by the way, I'm in ArchiCAD 16, so it's locating doors that have the word "arch" in them as well as other ones that somehow refer to the word arch somewhere in there. I'm not exactly sure why it's highlighting all of these in here. It will also potentially if you choose, in ArchiCAD 16, look in the BIM components portal. [0:08:37]

Right now everything is in the local library, so it's not actually affecting things. But let's go pick a door. I am going to scroll up and pick the standard arched door. Which is "D1 segmented". So that door here will be whatever shape I choose. I can make it a certain width, let's say 3'x7' or something like that. And there are some controls in terms of the size. If we go to the shape here, there's an option for where the shoulder is. If I press down on this little triangle, it will give me a tip. It will say it has to be at least 5'6". [0:09:22]

Why is that? Because if we were to do it as half circle, then that would be the lowest that it could get. So let me just take this down to the 5'6", which would make it exactly a half circle up at the top as opposed to a different amount of curvature. So I'm just going to select that. And now let's look at the door panel. If I go to the door panel control, we have the same control that we did before. And we could put in some grid work here. We could also choose empty to just get a cased opening. [0:09:58]

And here's the custom panel. And notice that it actually, because there's only one custom panel in the library, it chose this one. It did a decent enough job of putting it in, in the sense that it's just truncated it. It actually cut off the top there, so this could be very usable. If you do want to create a custom panel specifically for an arched top, you may want to draw one that is exactly the right shape. So draft it out to be the exact proportions and then you will have full control. [0:10:31]

I'll just say OK and pop this in here. And then we'll go to 3D and we'll see there is the second one. We'll just close this door here. I will use the control to close it and we'll see how similar they are. So they are looking much the same. Now the opening lines here are being drawn from the spring point of the arch, so those opening lines look a little different. But the actual door panel is identical. [0:11:00]



Now let's look at what happens with windows. So we're going to go to the Window tool. And if I open up the Window tool and look at just the standard window - I'm picking the one that is the default in the ArchiCAD U.S. library, double hung - we do have options for the sash, much like we have options for the door leaf. If I choose a horizontal and vertical grid, we have controls and you may experiment here. Let's say for example if I type in "2" for this, what does that mean? [0:11:35]

Well first of all, sash 1 in this case is the lower one and sash 2 is the upper. And "2" refers to two horizontal rows of glass and one divider, because that's the only one that I've changed here. If I were to change this one here, then we will see the upper one change. So we can make some changes there. There are some prairie windows here, or diamond grid, things like that. And then there's one called "Custom Panel". But guess what? Custom panel does allow you to put in your own panel. [0:12:13]

And again, it gives a little instruction and you can actually put in a different panel for each one. It's not going to use the door panel, it has to be something that saves specifically for the windows. Now if I say OK and we pop it in, we will see that it looks like there's actually already glazing there. But if you look very closely, we are seeing around it. So in fact because there is no custom panel, there is a gap. So let's see how we create a custom panel for a window. [0:12:45]

So instead of using the Slab tool - I could use the slab tool and cut a hole in it to make a frame - I'm going to use the Wall tool, because it's actually quite nice for this purpose. I'll take it up to 2 inches or 5 cm high and make it only 2 inches thick. So this will be a 2x2 frame around this. I will make sure that the materials are set to be all linked together. We'll pick maybe that same paint color. And then in this case I want to draw a box of this frame. And let's say that I will make it 3x2. [0:13:29]

So I now have a little frame for this. Now I would like to actually go ahead and make some dividers, some glazing bars. I'm going to make them only 1 inch thick and maybe up to 1 1/2. So they're going to be divided in the center here. And I'll do this arbitrarily. Let me draw a box here. Of course I could measure this, but I will do it by eye, because it's certainly more than clean enough for our purposes. So I've now got a shape here for a custom window that probably isn't in the library. In fact let's maybe do something a little exotic here by curving this piece. [0:14:23]

If I go to the Slab tool, I can make sure that I'm picking up the settings of this glazing piece. And then use the magic wand - remember that's holding down the space bar to get the magic wand- and click. And click in each one of these areas. If I select this, you can see that there is a slab in each one of these that I've just done. So I've now created a shape. Let me just look at it in 3D. We'll zoom out and look at it here. And see how it's lying down on the ground. [0:14:59]

Again I follow the same process to create a custom component, in this case, a window sash. So I will select these elements, go to the File menu, Libraries and Objects, Save Selection As, in this case, a window sash. And it says, "What you want to name it?" I will call it Window Sash 1" here. And it again



says that it's going to be available for windows or elements that can recognize it, which would be most of the windows. And let me go into the Window tool. And we will see that there, it's already put it in.

[0:15:34]

Now of course I could pick a different one for each one of these sashes. But I'll just leave it alone, that looks alright, at least demonstrates the point. And I'll say OK. And let's take a look in 3D now at what we've got. So you can see that this is a standard window, it has a frame and all of the other attributes that you could control just like any other one. And it even has the hot spots that allow you in this case to take the double hung and change whether it's open in 3D as well as there would be options in some cases for the plan. If you had a casement window that would swing open on the floor plan; or at least have that option here. [0:16:21]

Now let's take a look at another option for getting some custom glazing. We go to the Window tool and even staying with that same window but switching from the custom panel to the one that is called "Horizontal-Vertical Grid Custom" or "HV Grid Custom". And when I do that, it looks much the same as this HV grid. Remember the one that I just had, I can't get exactly like this, but I could get something with a straight line across. And I'm going to show you how that works. Basically we need to decide how many divisions there are. [0:17:02]

In fact this is just perfect the number of divisions that we've got here for this. If I were to make this three and three, we will have too many divisions down here. So let me just make this two and three. And this is an important point if you want to be able to create a custom window grid, then you need to decide ahead of time how many dividers there are, because if you change it after you've worked on it, it will actually reset itself. [0:17:34]

So let's just say OK. I'm going to pop this in. And let's take a look in 3D and see what options we have to control it. So if I select it, you'll see that there are some extra hotspots that are little bit hard to see, but they are little diamonds here. So I can, for example, take this diamond and use the pet palette and slide it over. I can actually type in a value. You can see how it goes to zero when it's butting up against the frame. So I can say how far away I want it to be. Right now I am going to do it by eye, and I'll take this one as well. [0:18:10]

Now the center one I could move up or down by grabbing that center point, but maybe I want to leave it centered. But there are endpoint hotspots. And so with an endpoint hotspot, I can drag this in until it snaps to the other one there. If you're not comfortable doing this in the 3D view, we can do it actually in an elevation. So for example in an elevation, I can select this window, and you can see these hotspots a little more clearly. Grab this diamond hotspot, just snap it on top of that, and you can see how it actually cleans this up. [0:18:45]



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Now if I did want both of these to have very similar glazing patterns, I could grab the center point here and snap it, line it up with that one. So once I've done one of them, it becomes simple to get the same type of effect. So with this one here, we can have as many glazing bars as we want essentially and create different styles. But we wouldn't be able to get something as irregular or totally custom as we can with the other one. [0:19:19]

The other thing to watch out for is that if we were to stretch this and make it wider, let's grab the hotspot where I can stretch it. So if I were to make this wider - I'll make it quite wide - you can see how it actually evened it out. It didn't do it proportionally, I will just undo that. If I were to even take it just a hair, it's evens it out. It sort of resets it. The same thing will happen if we are in here and we decide that we want a different number of divisions here. Change the number of divisions and everything resets to the original even spacing. [0:20:01]

So be careful if you're going to use this to figure out how many divisions you want, because it will save you time if you set it correctly to begin with. Some experimentation will help, but I think it's pretty straightforward. If you were to take this other window and stretch it the same way, you'll notice that it stretches proportionately. So if you were stretching it 10% or 20% bigger, it probably will look just fine. But if it was twice as big, then you might find that the glazing bars, and actually the side frame, starts to become noticeably wider as you get it to be double the width of the window. Then the frame would be double the width as well. [0:20:51]

So small differences probably work fine, but larger ones you might want to actually create a different version of the panel. And remember, to create the panel, all you have to do is draw this with the 3D tools. And if you did want to create another variation, it could be very simple. I'll select this, drag a copy by using the Drag command and holding down the Option or Ctrl key. And I will use the marquee. And with the marquee, hopefully you are aware that you can with the marquee tool outline one side of a building or one side of some group of elements and literally just pull them across. [0:21:31]

Let me just make this double the width just to show you. And you can see what that did was it actually kept the size of the two sides. Now the curvature of course has changed, and I would need to adjust that if I wanted it to look correct. I might need to go and take this wall and change its curvature down to something that would work, and then perhaps take the slab and pull its curvature down to match. And take the upper slab and adjust it here. So now I've got something, maybe there's some other little adjustments that we would need to do, but basically we can maintain a constant size on the sides by stretching it this way. [0:22:20]

And this element here, if I wanted to save this as another panel I would simply select it, go to the File menu, Libraries and Objects, Save Selection As, Window Sash. And here's Window Sash 2. And I would then have one that is that particular width. So that's how you create custom door panels and custom window sashes in ArchiCAD 16. In earlier versions of ArchiCAD, it's going to be quite similar, but maybe



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a few little differences in the dialog boxes. If you want to create a custom sash pattern, you can do that in Windows and I think there's one for doors as well where you are basically picking instead of one of the predefined ones, you are picking a custom grid. And that does allow you to pull the actual glazing bars into different arrangements. So this has been Eric Bobrow, please add your comments and questions to the page down below. Thanks for watching.

[END OF AUDIO 0:23:25]