BEST PRACTICES COURSE – WEEK 14 – PART 5
Managing the 3D Window: Showing What You Need, How You Want to See It

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Hello, this is Eric Bobrow, and in this lesson we'll take a look at some of the tools that we have available for managing the 3D window: choosing what you would like to see in 3D, different ways of viewing the elements in 3D, and navigating both in axonometric and perspective view options. [0:00:19]

Let's start with the basics here. We are looking at a plan view of the project. And if I click on the icon in the toolbar to bring up to 3D window or hit the shortcut F3, it will show me the model from the last viewpoint that I was in, in this case, an axonometric view. It will also only show the elements that were visible in the plan, the layers that were turned on. So for example we're not seeing the roofs. I'm going to switch our layer combination using the Quick Options here to show the building and the site. Of course I could also use the Layer Dialog box to do that as well. When I go back to the floor plan by clicking on the icon for the floor plan here in the toolbar or hitting the keyboard shortcut F2, we'll see a rather different view on the plan because different layers are now showing. [0:01:06]

Now continuing on with the basics, if I use the Marquee tool and I draw a box let's say for example around this corner of the building, which includes the kitchen, I can then right click in empty space and choose "Show selection marquee in 3D" or the keyboard shortcut F4 on the Mac or F5 on PC. And it will bring up a cutaway of just that information. Or if I would like to see a part of the building but all stories, I can see for example the upper story and the roof, I need to go back to the floor plan and then switch the Marquee to a heavy version. And then the same command or keyboard shortcut will bring up the building is the area with all stories. [0:01:50]

Now another variation is that I can select individual elements. So let me zoom in on this area, and let's say that I wanted to select a couple of walls. Now if I hold down the Shift key, I get the selection Arrow tool, and I can go and hover over something. And it might select the element that I want, for example, the wall. Or, it might be preferring something like the fill here. If I'd like to make it easy to select, switch to the tool that is for the element that I'm interested in. And then when I press the Shift key down, it will tend to prefer the walls over let's say fills or other types of elements. So I can easily select these two walls. [0:02:36]

I can still select other elements by holding down the Shift key still and clicking on node points. As long as I'm not on a similar node point or edge for the tool that I've got selected, it will work very nicely. Now having selected a couple of walls and a couple of objects, I can again use the same keyboard shortcut

and it will show only the elements that I have selected, which might make it easier to coordinate, let's say how the window relates to the cabinet or other specific details. Now this option of showing just what I've got selected actually extends into the 3D window in a way that not many people actually realize. [0:03:14]

Let me go back to the floor plan, hit the ESC key to deselect the cabinets and the wall, and then go back with the same keyboard shortcut, the F4 or F5, to bring up just the marquee area in 3D. Now suppose that I wanted to look at let's say the cabinets and the walls in 3D. Then I might want to zoom in, and I will just say select these two cabinets here, maybe this wall cabinet and this wall here. I will select these elements and then I will use the same keyboard shortcut or right click menu, say "Show selection or marquee in 3D." And what you'll see is now showing just those elements. So I can select them even in 3D, and just have them in the view, makes it easier to work on an isolated detail of the model. [0:04:07]

Now if I switch back or if I wanted to switch back to the view I was looking at, I can't do that from the 3D window. If I say "Show all in 3D", then it's going to bring up the whole building. And while that could be useful, really what I wanted is the same sort of view that I had a minute ago. So what I can do is go back to the floor plan and then from the floor plan, again hit the keyboard shortcut to go to 3D showing just the marqueed area. [0:04:34]

Now there is another way that we can isolate our view in addition to showing just what is selected, or just what's in a marquee, and that is to use the Window, Palettes, Quick Layers Palette. And the Quick Layers palette is one of my favorite ones. It allows us to manipulate the layers very quickly, turning them on or off and undoing and redoing the settings and changes that we are making. So for example, will was zoom in a little bit here and I will select this wall, this wall, and a cabinet, and then say that I'd like to hide other layers. What that means is that anything that is not on a layer that these elements are on is going to be hidden. [0:05:21]

I'll click on this and you can see how it isolates my view. Now I'm seeing just walls. This is exterior walls, interior walls, and these cabinets. Now the upper cabinets and the stove are not shown because they were on different layers. Now if I wanted to include them while I was working, I could use the Undo in the Quick Layers, and then for example select the upper cabinet as well. So now I have the walls and three different types of objects that I've got selected, and I can hide the others. And you can see now I've got a little bit more complete fit out for the kitchen that I can work on. [0:06:03]

Now alternatively, I can choose to hide certain things. So instead of only showing certain elements, I can say I want to hide the floor layer. So I'll just say "Selection, Layer, Hide" with this button. And that now makes it a little easier. And there's also, in this case, there is a stair. So I can say hide the layer that the stair is on. So I can progressively simplify my view. Now If I select this wall and hide it, notice what happens to the upper wall when I do that. Because the lower wall and the upper wall were both on the interior wall layer. So we're not dealing with single elements, we're dealing with categories, layers of elements. And I can undo and fine tune this. Keep undoing back as many steps as I want, or redoing to get it to the way I need. [0:06:56]

And of course, this is a live view. I can zoom in and out; I can make modifications here. Perhaps I want to get rid of the framing elements that I've got here, so I will just hide that layer. So this makes it - really gives you a lot of fine tune control to just be able to look at the elements that you need. Now let's go back to the floor plan and just again go to - we will go and show what we need here. I'm going to go and change my layer combination. Actually, I can undo back all the way with the Quick Layers, or I could just choose the layer combination again that I want, either way would get me to the layers that I would need to see. [0:07:42]

Now let's say that we want to look at some of the viewing options in terms of styles of view. So let me get rid of the marquee, and we'll zoom out to fit in window here, and we'll say Show All in 3D. So now I'm going to see the entire modeled building and site in 3D. Now this is an axo view, and it does not have any foreshortening. If I wanted to switch, I would go to the button next to the 3D window button in the toolbar and switch for example to perspective, which will bring up the last particular view that I was looking at in a perspective. [0:08:22]

Now in perspective of course we have foreshortening, it's a more natural view. It's very good for meeting with clients and showing them, because they will understand it better. But I prefer working in axo many times because it's just a little easier to manage. Now if you want to switch back and forth, you can use the keyboard shortcuts, they are available, you can see them. This is Command+F3 for axo, or Option+F3 for perspective. And on Windows it would probably be CTRL+Alt with the F3 key. So I can just hit Command+F3 or Alt or Option F3, and switch back and forth instantly. [0:08:58]

Now let me switch back to the axo mode, and let's look at orbiting. So when I click on the Orbit tool, I can then go grab the model and spin around until I'm ready to be done, and click again on the Orbit tool, and now I can go edit. I can also use the "O" shortcut, which will bring this up, and then hit O again to cancel it. Or hit O to start the orbit. And then hit ESC to cancel the operation. Now what I find is that often I'm in the middle of doing some things and I just want to tweak this a little bit. And I would rather do it the fastest way possible, so I will press down the center mouse wheel button to get the Pan tool, the same one you do on the plan, and I can move this side to side or up or down. [0:09:42]

But if I Press the Shift key while that is held down, then I get the orbit instantly. And so I can tweak this and let go and I'm still in this mode. So I didn't have to hit the O key twice or other things, I can simply press down the center mouse button and the Shift key, move around a little bit, and let go and I'm still in that mode. So mouse wheel is the center mouse button, press down and the Shift key will give you the orbit instantly. One of my favorite shortcuts. [0:10:10]

Now, let's look at the Navigator Preview. This is available anytime you want by clicking on the icon. It's second from the left in the bottom area of the 3D window. Or actually, the navigator preview comes up in other windows as well. But here we are in 3D, and then we just zoom out to Fit in Window. And if I orbit like this, you can see how it's giving me feedback saying what part, where I'm looking at, from what angle of view I've got. I can also grab this and control it using the mouse in the Navigator Preview. So it updates as I move around or it can be used as a control for it. [0:10:53]

Now what a lot of people don't realize is that - and we can sort of move to different sorts of angles - is that we can actually choose, with a little left hand option here, different styles of view. So for example, a top model view would be straight down, much like an actual plan representation. If I rotate this around here until I get it straight up and down, then it will actually give me a view exactly similar to the plan. Or perhaps rotated 90°. Now if I use the Shift key - no it's not. It's jumping actually every 5° anyway. So it's relatively easy to see when you've gotten it straight there. So that's one option there is the top view. [0:11:41]

We can also go to an isometric. Now an isometric is mathematically defined as a very specific type of projection, which I imagine you are familiar with. You can rotate around and get different isometrics from different angles. Of course, if the camera is on one of the quadrants at the south, east, north or west or 0, 90, 180 or 270, then you will get a traditional isometric for a building that is drawn on the X and Y axis. [0:12:11]

Now we can also look at other styles like a frontal axonometric, which I believe will have the proportions of the walls or the elements that are facing this front, facing the angle of orientation here. These will actually be in proportion. You could measure horizontally and vertically. Of course, going along the side of the building, that can't be measured on this view. But this can be an interesting variation here. And manometric has some other mathematical properties that you may find useful from time to time. And diametric as well. [0:12:50]

But now the one that is particularly interesting for architectural drawings is the side model view, which as you can guess, is a pure elevation. If rotate this around, I'm going to get a pure elevation but some other angles here. I can zoom in or out on it, and you can see that there is no foreshortening, and it really is a pure elevation view if I get the right angle. Now I can orbit around here, and I can jump to any elevation that I wish by using a separate command. It's under the View menu, 3D Navigation Extras. There is a command that says "Look to perpendicular of clicked surface". So if I click say on one of these walls that is facing front, now I've got an elevation view in that orientation. [0:13:40]

Let me just go back to the previous view and use the same command here, look to perpendicular of clicked surface, and click say on one of these side faces. now I'm on this particular orientation. This can be used just to print something out; it can be used while you're in a meeting with a client. It can be even saved for placing on a layout. It's a very similar to a true construction drawing elevation. But since it's a 3D window, it allows certain differences. We have colors and texture and shading on the surfaces, etc. [0:14:23]

So it can be good for creating a rendered elevation, because we can actually render it from the 3D window from this straight-on view. Now let's look at how the orbiting works if we go here. Right now it's orbiting, and without even thinking about it, it's orbiting around the center of the model. And the center of the model is calculated by the extense in each direction, the X, Y and Z directions. And it's finding the geometric center. Now the building happens to be centered on this property, but of course the building might be off to the side from the property, and the orbiting might be actually different. So let's just see how that works and how you can control this. [0:15:04]

So if I go back to the floor plan, let's say that I had a marquee of this back part of the building again. And then I bring it up in 3D with the keyboard shortcut. Now as I orbit around, you can see that there's a point that is staying fixed that is in this back corner here. Now that might be okay, but let's say that I had the marquee over in this area, and then I go to that. Now as I'm rotating around, it's rotating around a different center. Now if I do Fit in Window, then this automatically changes the center. So now it's rotating around the center of this particular model that we're looking at. [0:15:48]

So let me go back to the floor plan and again do something for this side of the building. Bring it up and use the Fit in Window, and now it's going to orbit directly around the center of that particular view. So if you're working with whole property and it's orbiting somehow off to the side, you might want to do a marquee view of just the building or the area that you are looking at, and then Fit in Window with the axo view, and then it will orbit precisely around that. [0:16:19]

Now let's take a look, we're going to close up the Navigator Preview, and let's look at what happens in perspective. So if I switch perspective here, we are looking at a particular view. Let me just say Show everything in 3D. So this is the last view that I was in. Now I'm still in the orbit mode. I actually had this turned on for the last couple of minutes while I've been demonstrating. You can see I'm rotating around, and the point that's staying centered on screen is somewhere in this area. You can actually see a little X there. I think the feedback, in terms of the X, is something that Graphisoft added in recent versions, maybe just ArchiCAD 15. [0:16:59]

Now you may not see that in earlier versions of ArchiCAD, but it still will have a center point as we rotate it. We can actually look at this in the Navigator Preview, and you can see that as I move around, there is a point in space that is staying fixed. Right now, if you look closely, you'll see that the target point, the little bubble that we're looking at, is moving. But there is a points right here near what we're seeing on screen that is fixed. Now that's a little bit odd there, but what I'm going to do is actually show you how you can set that center point. [0:17:35]

Under the View menu, 3D Navigation Extras, just like we had the Look to Perpendicular for the axo, we can just say "Look To". And let's say that I wanted to look to this front door. Now what I did was I clicked on it and it put that in the center of this whole viewing window. And you notice how the little target - if I make this a little bigger - the target is precisely there. And now if I orbit around, you can see how the area that I clicked on, the front door, is staying fixed. And it's actually orbiting around this. And I can also, just like I did with the axo, I can go grab this and move this around in the Navigator Preview. [0:18:17]

Now, if I wanted to get a little bit closer, I can zoom in. And when I zoom in, you will see that it's actually moving the position, the standing position, where if I zoom out, it's moving that away. Now, if I wanted to be able to change it in the Navigator Preview, I can literally grab this target point here, and you saw how I could grab the edge of this angle. How would I get where I'm standing to be onscreen? I can hold down the Shift key and click here, and you can see how it brings that, what I can then go grab and I can move it forward or closer or further way. [0:19:03]

Now you'll notice that in the perspective I happen to - in the last view I was looking at from rotated up above - with the orbit mode, I can actually go lower or higher here, because it's fixing on a particular point in space at a certain height. But I can move around in any angle to adjust that. Now if you wanted to be able to control that a little bit more precisely, you can go and say Show me this view from the side. When we say show from the side, you can see, "Oh, I'm looking down here." I can move this until it's looking straight or not, or I can move the camera position, grab this, and you can now see how it's bringing me down to a level perhaps like that that's more at a standard eye level. And then I can move this in any orientation. [0:19:57]

Now, you'll notice that I've got this horizontal, as close as I can get it. I think it's exactly horizontal. At this point, the walls have corners that go purely vertically, whereas if I'm looking down - and I'll just sort of bring ourselves up here - you can see that there's foreshortening. These walls are going to have a vanishing point down below the screen some distance. Or if I was bringing it the other way like this, then they're going to have a vanishing point up above. So sometimes it's useful to just find the right horizon level, where you're going to be standing here, and then set this to be horizontal, so that you get a nice clean representation. In other words, people are used to seeing the walls vertically. [0:20:48]

And so that actually can give a very satisfying look. Of course sometimes you do want to look up at the eve or down at a detail, but looking horizontally is often a very satisfying option here. Now I'm going to take it out of the Orbit mode, and let's look at the option here - let me switch this back to showing from the top - let's look at the option for exploring the model. So if I click on the little explorer icon here, right next to the orbit, it brings up an information dialogue that tells me how I can move around. I invite you to check this out if you haven't spent much time with it, because it can be a very useful way to move through the model much like a video game. [0:21:37]

If you have cursor keys on the keyboard which you will in almost all cases, you can use the arrows to move up, down; or say the arrow up will move you forward, down will move you backward. You can move left to right. If you don't have cursor keys, then you can use these W, S, A and D which form a little shape on the keyboard, they actually are four keys very close to each other that one hand can easily switch between. Now going up and down in space, if you have a page up and page down on and extended keyboard, you can use that. On my laptop I don't have those keys. So I would use the Space bar, the one that you would use to put a space character between words, or the C, which is just above it, to go up or down in space. [0:22:27]

Now we'll take a look at that and then I'll come back and just show you some of what these commands do. So I say "3D Explore". If I move the mouse, it changes my views. So I'm basically shifting my focus. If I press the up arrow, I'm moving towards it, press the back arrow, I'm moving away. And notice the position in space in the preview as well. If I press the left arrow I'm moving left, right arrow I'm moving right. And you'll notice how it's moving both the standing point and the target at the same time. So with a combination of moving left, moving forward, moving left, moving forward, and then changing what I'm focusing on, I could approach this door. And it can certainly bring you wherever you need to with some practice. [0:23:21]

Now there are some other options. I'm just going to hit the ESC key to get out of this and just bring back up the options in the lower section. The fly mode will change you from being a constant level to possibly flying up or down in space like an airplane flying. Then there's options for moving slower or faster. If you press down the Shift key along with the other keys it will move you faster, or you can use the plus or dot, period to increase your speed or the minus or comma to decrease the speed. And that will just give you more control or move you along in what otherwise might be a slow navigation. And to get out of the explorer mode, you can hit the ESC or simply click the mouse. [0:24:13]

And then there is an option for getting some help on this by holding down the Command or CTRL key and typing a question mark. Now if you get really used to this, you can click the button "Do Not Show This Information Next Time". Otherwise, you can just hit the Enter or Return key as soon as this comes up and it will just disappear. But it will be available each time you go there. Now I'm in the explorer mode. If I hit the F key, you'll notice in the bottom left of the 3D window, there is a little notification area. When I hit the F key it highlights the fly, and when I hit it again it turns that off. At this point, if I'm moving forward, I'm staying at a certain height. Even if I'm looking down, I'm still staying at that same height. So I'm not changing height. [0:25:04]

Whereas if I have the F key active, and you can see how it becomes shaded, then as I move forward, I'm actually moving down or up. So I'm moving in the direction that I'm looking. So if I actually look up, if I shift my focus with the mouse and look up, I'm now floating upward. I'm now flying upward here when I have that active. So you may want to get an eye level, and that would be a common thing, turn off the fly. And now, even though I might be looking up, I'm still going to be staying at eye level, like I'm walking towards the building just with my head up there. So that's what the fly is about. [0:25:40]

Now controlling the speed using the plus key or the minus will allow me to switch the speed. So if I move forward, it's moving slowly. If I press the Shift key, it will move faster here. If I let go of the shift key it moves very slowly. So you can experiment with this. I don't want to try to demonstrate all of the things. In fact, frankly, I don't use the Explorer Mode very much because I find it is sort of cumbersome. So I'm going to hit the ESC. [0:26:16]

What I prefer is just grabbing this and moving around, it's very quick and easy to control for me. I also have found that using some other keyboard controls gives me all the controls that I need when I'm working. So let me show you how that works. Let me just demonstrate. I will move the navigator preview a little bit to the side. If I press down the center mouse wheel button, I have the Pan tool. And as I move it left or right, you can see how it's changing my position. Or up or down. So in other words, by pressing the mouse wheel I can easily move anywhere I want, and then I can press the Shift key while it's down and orbit around this. [0:27:00]

So you can see how I can move very quickly, press down the center mouse button and just pan over. And it turns out that to move into the building, I can just use the zoom, the rolling the mouse wheel, and by rolling the mouse wheel, it makes things bigger. But instead of just enlarging it, what it does is it moves me closer. If you look at the Navigator Preview on the right side of my screen currently, you will see I'm moving forward or back. Now another thing that you can do is actually change the cone of

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vision. So if I change the cone of vision here, we get more of a wide angle effect, or I get more of a telephoto. So although this makes the elements look bigger, I'm not moving closer. [0:27:41]

I'm changing the angle of what I am including in the view, so it can simulate different camera lenses to some extent and just gives us a different feeling. So these are all different options that you may want to consider in the controlling your views. So in general, I do find that even when I'm in just a normal mode and I'm editing some things, I may want to orbit around by pressing down the center mouse button and the shift key and just get myself into a different relationship to the building. Or I can zoom in a little bit, and it's bringing me closer or pan left or right or up or down to be able to get my view. [0:28:21]

So I don't use the Explorer Mode very much, I use the panning and orbiting as my primary means, even in a perspective view, to move around. So this concludes our lesson on some of the tools for managing your 3D window viewpoints, where you're looking from, how you're looking at it, and choosing what you want to see in 3D. In the next lesson, we'll take a look at how you can set and save specific 3D viewpoints and views, and just to return to them whenever you wish. So this has been Eric Bobrow. Please post your comments and questions on the page down below. Thanks for watching.

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