



BEST PRACTICES COURSE – WEEK 22 Managing and Optimizing Live Sections and Elevations – Part 4 - Update Strategies and Model Display Options

Welcome everyone to the ArchiCAD Best Practices training lesson. Today we'll be focusing on the last part of week 22 in the course curriculum. So in the course outline here we've been focusing in the last few lessons on clean modeling to create clean drawings and how to add detail in 3D and 2D. So we had a great session with guest Tim Ball, a real master of ArchiCAD from the UK the last time. And we'll take a little bit of a look again at his project as I start to look at update strategies. [0:00:43]

So this week we'll be finishing up week 22. I'm not quite sure how far we will get today in terms of the update strategies. We might actually take care of all of the things that I think are important to know. And if so, then our second session this week, which will be Friday instead of Thursday, well maybe have some open Q&A. It's sort of different from a coaching call and more focused on this topic. Then I'm going to be taking a two week break from creating lessons as next week I will be at the AIA National Conference in Chicago and the week after extending that a little bit as we go into our July 4th holiday weekend here in the U.S. [0:01:32]

This week we'll be focusing here on live sections and elevations and the update strategies. And I guess the other thing that really belongs in here, as I look at this, is some of the options for your views for the sections and elevations. So in fact, that's something that definitely I need to include. So we'll have update strategies and we'll have the viewing options and will combine those two. [0:02:06]

Here we have - if I switch over to ArchiCAD - here we have Tim Ball's project that we took a look at last week. I'm not familiar with his structure here. We have a 3D section there through that door and here is a BimX start point. So he has a view that is specifically for sharing the model in BimX I assume. If I double click it that will take me to a 3D view. That will show the model in reasonably nice position to view the model. [0:02:51]

Now it's interesting, we actually have what looks like a skylight sort of floating, but I guess it's not actually floating. It looked like it was hovering above that, but I'm not sure what this piece is. It's a "Solar collector flat plate". So I'm not quite sure whether in his model or file that that's actually got this material. Maybe he has a material mapped onto it that I'm not seeing at the surface there. So we spent a lot of time in the last call to see how he created additional detail. When you create additional detail it may mean that sections and elevations take a little longer to come up. [0:03:35]

If I bring up "North elevation proposed" well it's casting shadows, and it did it in just a few seconds. Now there is a report here saying that there's some type of issue. Obviously he sent me the file. I don't necessarily have everything in my file there. Let's see if I can turn off the report here. Under the



Options menu, Work Environment, there is a set for - let's see, it's under Imaging and Calculation. And under Imaging and Calculation that progress window is that little window typically in the upper right that shows the progress. I don't mind seeing that. [0:04:15]

The "Write report", maybe I can turn that off and then if there is an error it will only bring up a tiny message saying there were errors. And if there was a report I can make it brief here. So these are things that we went over in the Work Environment settings, but let's just see. So here we have our elevation. We can switch to other elevations here. And they are coming up pretty quickly within on my machine a second or two seconds maybe, something like that. [0:04:49]

Obviously once I've brought up the 3D model with the layer combination and everything for the other elevations, ArchiCAD doesn't have to do any work with layers. It basically flips to a new view point and within a few seconds gets it up to date. Now sometimes on slower machines or more complex models this may take longer than you'd like. It may take five or ten seconds or it may take longer. Therefore you may want to, in some cases, change the update strategy. [0:05:24]

If I right click in any elevation or section in empty space you'll see "Elevation settings". Elevation settings allow us to change the way the model is displayed. We will look at that a little bit later. But also under the "General" group it will say, "Do we want to automatically rebuild the model every time this window is brought to the front?" Or, "Do we want to manually rebuild it?" And then the third option would be drawings. So let's see what happens when I say "Manually rebuild model." Now it says "You are changing this viewpoint to a manual update drawing type." [0:06:01]

So this is giving me a little warning about how the renovation filters will interact with it. I actually don't routinely change the update settings, so I haven't seen this message before. I'm not sure when this exactly was added. And just to be clear for future reference, right now I'm in ArchiCAD 17. We are expecting ArchiCAD 18 to come out soon, perhaps within the next couple of weeks, but I'm still in 17. So activating any saved views of this viewpoint when we're in the manual update will show renovation filters as it was set when last rebuilt. [0:06:44]

So renovation filters, probably as all of you know are almost all of you starting in ArchiCAD 15, you can have a filter that says *I want to show the existing building with the demo elements just normal as it was built or as it stands. Or I want to show the new design where I remove the demo elements and I want to see the new elements combined with existing to remain* or variations such as having overrides where things are put into maybe different colors or styles based on their status. [0:07:16]

Now different saved views may contain various renovation filters but they will be ineffective unless you change your viewpoint to "Auto rebuild" type again. So basically each view has settings; what layers are turned on and all sorts of things. One of the settings is the renovation filter, saying that when we choose to make this a manual update, then whatever type of renovation view I'm in it will keep that. So if I did



maybe have an elevation that was set up for existing and another one that was for new, while it's set up this way, it will not actually change between them. So I'm going to go ahead and say *change* anyway.

[0:07:58]

There is an option to not show this warning if you don't want to be bothered with it and if you understand this you can turn that off. Or of course you can say, "Oops, I didn't mean that." and you can go back to "keep auto rebuild" type. Now here I have the "East elevation proposed" and I'm just looking here. Let me go down to - so I suppose if this is the east on the right hand side here, and I go to just put in a wall. So let's eyedrop this and let's put in some walls here. [0:08:38]

That is coping, I didn't want that. Let's just get a normal wall. I guess these walls are all set for - here's an existing wall so I'm just going to do that. Now I've just drawn some walls here. They should I think show up in the east elevation, but this comes up instantly. There was no rebuild because I had turned off the rebuild so we're not seeing the new stuff. And I am not sure which side that would be on frankly.

But let's see, if I go to the elevation settings here, it says "Manual rebuild", can I trigger the rebuild?

[0:09:20]

So I will go to the View menu, Refresh, Rebuild from model. So rebuild here, this one that says "Rebuild" which has a keyboard shortcut built in, won't do anything. It will just clean up in case we were drawing something on top and deleted it in and it didn't quite clean up the view. But the "Rebuild from model" will do what an automatic rebuild normally would. So when I say "Rebuild from model" you can see. Okay, so we're looking at the other side. So I guessed wrong in terms of east, but there are the walls that I just did. [0:09:52]

So obviously the danger of making something a manual update is that it won't necessarily show the latest changes. I drew a few elements. Of course if I had moved a few windows around or changed anything in the model, we wouldn't see that. So why would you ever want to do a manual update?

Well, if you have a very complex project and it does take longer than you'd like to go into the views, elevations or sections, then turning into a manual update would be legitimate option because you can go in and notate it. You can go in and put in text and dimensions and other things and you won't have any delay. And if you just wanted to quickly flip between view to view to view to check things, maybe to copy some notes from one view and paste it into another, then it reduces your waiting time. [0:10:48]

With small to medium projects and with a pretty good modern computer really the time that you're waiting in most cases is going to be minimal. There are some strategies here in terms of reducing the time for update that I'd like to talk about as well. So one strategy is to just make it manual update. Another strategy here, if I go to the elevation settings and I put this back to auto rebuild here - it didn't take any time here because it had already rebuilt it. [0:11:27]



But one strategy that you definitely should pay attention to is what are the settings for that particular view? There is a layer combination. That layer combination should be common to all of your elevations. So most elevations should have similar layers. There may be some exceptions for some special conditions, but I would just say that is a good rule of thumb. That layer combination for the elevations would probably be very similar to sections because you want to see all the structural components of the building to turn off things like furniture and landscape elements or at least in terms of a structural section or elevation. [0:12:14]

Obviously when you do a presentation elevation you might have some entourage people or cars or things like that. Now these would be similar but maybe in a section you are going to be putting in some of your interior cabinetry or interior equipment, things like that that perhaps you want to show in the section. But in the elevations you might want to actually turn off in that layer combination all the interior fit out. Now it is sort of optional because sometimes it is nice to see through the windows and see something in the elevation, but that is one option. [0:12:55]

And particularly if you have a very complex building, let's say a hospital...so the hospital has a ton of interior detail, maybe a lot of equipment and other things that may have quite a bit of weight in terms of polygons. Generally want to make sure that when you're setting up your layer combination or whatever you use for the elevations that you turn off things. So here obviously furniture is turned off in this case. Tim has fixtures turned off. He does have plumbing and heating showing so that would show if you're showing through the windows. [0:13:32]

So he does in terms of partitions it looks like I'm assuming that partitions would have to do with the interior walls. So if I am correct about that, then he's basically not showing the interior walls in the elevations. If I go to the section we will see that partitions are showing as well as ceiling and stairs. If we go back to elevations will see these are turned off. [0:14:06]

So probably the ideal thing is to have all the layers that you want to show and turn off the layers that you either don't need to show, take it or leave it, or you definitely don't want to show. Simplify ArchiCAD's work saying *I'll make sure that I don't have it calculating these elevations and taking more time than it needs to.* And obviously the same thing would be true for sections. Which things does it need to calculate? Intelligent use of layer combinations in conjunction with the view settings will give you the best results there. [0:14:51]

I see a question here from Dave Norman. "Can you explain how to automatically show shadows on elevation drawings as per Tim Ball's drawing?" So let's actually combine the discussion with update strategies with different ways of showing the drawings. So right now we're seeing some shadows on this elevation. And while I can't say for sure, it's under the detail drawings here; this is perhaps how Tim outputs his construction documents. Obviously there is going to be a range between very simple, clean



black lines on white for construction documents up to a color rendered elevation that you could use for presentations. [0:15:42]

And this is somewhere in between because it has the shadows. So how did Tim do that, and also what controls say all of the bricks, tile and shingle that we're seeing here. So these are settings under elevation settings. We also have that for the section under what is called "Model Display". So this section here is a panel that you can open up. It's for a particular elevation marker. So each marker on the plan can have different settings, and some could show things with shadows and some could show things without. [0:16:16]

In MasterTemplate we actually have two sets of elevations. In the basic template we have four elevations that are setup for working drawings. They have no shadows and no color. And we have four similar elevations basically just right behind, in terms of where the marker is, that are set up to have colors, shading and shadows. Unfortunately, you can't switch that by switching the view. In other words the view allows you to change many things, but it's the marker that determines the model display. [0:16:51]

You can always switch a marker from one style to another, but that's different than just having a view or multiple views with different options. So in the model display there are some options here. This is interesting. I hadn't noticed that they had this in elevation settings; I knew it was in interior elevations, and that is "Hide cut elements". So you could say that anything that I cut through I don't want to see. This is an elevation here. So elevations typically are showing the whole face of things and you could say, "I don't want to show stuff that I'm cutting through." [0:17:29]

So if we did do that, it would probably eliminate the mesh here. now if you don't have that turned on then it says, "What do you want it to look like?" and so it's going to be showing a choice of something based on the element itself, the cut fills; as in the settings for that element. In other words, the mesh or slab, whatever you are cutting through, will potentially show with concrete, earth or a solid fill. You can also override that and make them all have a uniform surface or colors here. [0:18:11]

So let's take a look at some of these options in a minute. I just want to quickly go through Model Display. We also have choices for the uncut elements which would be the main body of what we are seeing in the elevation. In a section we might be focusing more on the cut elements and the uncut elements are beyond the cutting plane. But the uncut elements here "fill uncut surfaces with nothing". That's what makes this white as opposed to something else. We could choose to give it a color, shaded or not. Here is the "Vectorial Hatching". That is what is giving the linework. [0:18:46]

Right now, transparency is turned off, so in fact, we are actually not seeing through these windows. I am not quite sure what the pink is that we are seeing here. I am going to have to check on that, because for some reason I thought we were seeing through it. But we'll take a look at that. Now here is the "Sun and



shadows". So do we cast shadows? If I turn this off, you can see a bunch of things disappear. If I turn it back on, it remembers the last thing I had set or that was set here. So when this is turned on, for this particular elevation marker - and of course you could select multiple markers on the plan and change their settings together. But here it's saying the shadows are going to be drawn as polygons. [0:19:33]

So basically what are the polygon shapes of the cast shadows. Now the shadows are going to be calculated based on a sun position. In this case, the sun altitude and azimuth. So the default for ArchiCAD is to put the sun at a 45° angle over your right shoulder and 45° up in the sky. And you can see that puts shadows going down and to the left of anything that sticks out in the building. You can make this anything that you like, including the fact that you could have the sun shadows be based on the actual 3D window. [0:20:14]

In the 3D window - something that we haven't spent much time on but I have probably mentioned here and there - you can set a heliodon calculation. You can say, "Where is the sun on a particular day, date and time for this particular location on the earth?" And this orientation for the project relative to north. So if you do that, you can get renderings and sun studies based on fairly accurate calculations. If you want your elevations can match that, but typically these elevations are for let's say in this case just for clarity. [0:20:57]

We want to have some shadows just to show that certain elements are in front of other elements. So that is why the custom settings give you a default. Now you can adjust this as you wish. Here is the way you can choose what it's going to look like. So 25%, as the name implies, is a light covering over the surface. It's transparent in that you can see through it; it's only a quarter of the way solid. And you can see through it because the background of it is set to be transparent. [0:21:33]

If we set it to be opaque or a color, then we would have something with a bit of a color or a bit of gray and we wouldn't see the linework. It would look a little odd because we would obscure the linework. So having a transparent background is good in many cases here. I will be looking at some of the other things in terms of settings; marked distant area, boundary contours, etc. a little bit later. Let's just focus now on some of the settings that we have here. If I turn off sun shadow and I turn off vectorial 3D hatching and say OK, we'll see it's a much simpler view. It's still very clean of course but it doesn't read nearly as well. [0:22:21]

It may be actually ideal for early stage drawings. You might, when you are doing some early concept work, just focus on basic shapes and not try to use the vectorial hatching. Of course, we could do something in between. I will go to Elevation settings. Let's just give the sun shadow on here. And now we have this look. Depending on your output device, the shading, the 25%, may be something that could be an issue. This maybe has gone away in recent printers, but years ago I remember occasionally having issues where any type of solid like this, even if it was 25%, would print as a solid black. [0:23:15]



So it just couldn't take the 25%. In that case, you do have an option here that you might want to consider - and it also can be a little artistic if you say that you want to have the sun shadows instead of being a shade, you want to have it maybe a little hatch pattern. So if I do some type of concrete block - this is maybe a little bit - here's protection membrane. let's see what that's like. That's actually looks solid black, although you can see that it's actually just a hatch pattern there. [0:23:52]

Let's change this again and change that maybe to just a simple hatch in one direction. So you can see how this is now has a different style. these are options that you may want to consider for certain types of presentation drawings. Now if I undo - by the way, when I undo, you know how ArchiCAD will try to show you what you've undone? Well this was the elevation marker that I changed. So I am undoing it back multiple steps. And it took me back to the plan where that elevation marker would be seen. I guess that layer is turned off. [0:24:39]

So let's just go back to the elevation here. And I need to go back one more step. And now we have it the way that Tim had it. Now let's just see about this pink stuff. What is that? There's the window. There is a fill. So it says renovation status is "New". The window is not set to be new. So I'm not quite sure why Tim has that pink in there. It looks like he's trying to highlight something. I imagine this window being single and becoming double, but obviously this is in the middle of that. So I'm not quite sure what that is supposed to indicate. Perhaps it's to try and represent that this is a new element or that they have been changed. [0:25:38]

I see a comment from Don Schlining, "Egress windows in pink." That is quite possible. Ian Booker says, "I use a specific hatch for sun shadows called "Sun Poché". It allows me to adjust the graphic style without having to change all the elevation section control panels." Very good point. So let's explore that. That's a really nice option here. I will go to the Element Attributes, Fill Types. And let's say that I take this simple hatch - maybe this brick section here which has lines that are uneven here. I am going to duplicate it. I am going to make a new one that is a copy of it. [0:26:33]

We will call this "Sun Poché" here. So now I have a new one in the list, you can see how it's been added. And it's independent. Now I will say OK since I have defined it. Now we will go and change our elevation settings to use that. So I have this sun shadow and we are going to use the Sun Poché. Now you can see what it's got. It's not the greatest choice, but it's there. Now if we did want to change that, we put that in all of the elevations, and later we say "I'd like to have a different style." I can go to the Fill Types, pick that sun poché, and perhaps say that I want to make the spacing a little bigger. [0:27:25]

You can see how it's now further apart, say OK, and you can see how that changes. So obviously what I did there is ugly, but you can play around with it for possibly different times or purposes. And all of the elevations that use that setting will use that particular setting. So I assume that is probably what Ian meant. [0:27:57]



"In the U.K. we have to demonstrate size of the fire escape windows." Okay, so I guess Dave Norman says, "Pink indicates fire escape windows. There is a keynote above." Okay, thank you for clarifying that. I guess there are a couple of notes here relative to that. Here it is, "Fire Escape Window". Okay, thank you very much. Now Ken Andrews writes, "The fill was for glazing." So perhaps one might use fills for energy calc glazing, but in this case it was indicating the fire escape. [0:28:35]

Bob George says, "Those are probably Egress windows." Thank you for teaching me. I appreciate it. Now I know something more than I did before today's session. So let me just undo this, and I will undo back to the beginning and we'll go back to our elevation. [0:28:59]

Interesting, I thought I undid it back to the beginning, and here is the 25%, so it's saying that, but maybe I have to rebuild this from the model. There we go. Now we have what Tim had. Alright, so let's take a look at some other settings that relate to model things. Dave Norman says, "Very helpful, thanks." Okay. So let's see. If this is east, then I am going to guess that this would be south is what I would want to look at. So in the south elevation, we have different planes. Obviously, we have the sliding doors here, and this plane is in front of this plane here. [0:29:54]

And it looks like there are three planes relative to that, or three main masses. Let me go back to the floor plan. This is ground floor. Let's go back, and here we can now see the three planes. So we have this one in front coming from the top of the screen. Now the reason why I want to mention that is that we can make this so that this front area has a different look than the ones behind it. In a small project like this, it's not as necessary but certainly it's nice to know that you could make distant parts of the model look differently. [0:30:48]

So how would we do that? I am going to go and select this elevation. It's important to know how to do it, because in addition to changing the elevation settings, I also want to change the marker on the plan. So if I right-click on this and say "Select elevation marker on the home story", and zoom to it, it says that layer is hidden. I will show the layer. [0:31:16]

Now we can see this line here, and if I zoom out, you will see it's basically just outside the building. This particular one is set to have an infinite view meaning that it's looking from this direction down. You can see the cut off line or directional view is here. Let's open up its settings and see if Tim has set up something for marked distant area. So we will see marked distant area is turned on, however, Tim has this line here not in a position where it will show anything relative to the building. [0:32:03]

So to explain that, let me turn off the marked distant area temporarily. You will notice that all of the controls just disappear. And you can see the line disappeared. Let me undo that, and you will see there is the line again. So what is that line? The line determines what is considered foreground and what is considered background. If I grab the line and move it - so here is the pet palette - I can either move this line or the whole elevation, which would move the original point as well. I will move it here. [0:32:34]



What I am doing now is saying that I would like the area between this original jogged line and this straight line - by the way, you can't jog this. But the area between here is going to be considered foreground. And this area here is going to be considered in the distance. So let's take a look now at that elevation. You can see now that we have the foreground elements, the ones closer to the viewing position, with patch lines and the background without. [0:33:07]

It's a little clumsy, because I cut it right through the roof line here. And this is a little bit of a clumsy instrument in terms of what we can do. If I go back and show that marker, I am going to show the layer here, you can see that this is a straight line. So what do I want to do? Well, where is the top of the roof? I am not quite sure. Basically I would want to make sure that the whole roof, not that it has to be but it would be clearer if the entire roof plane looks one way. [0:33:44]

So there may be an issue wherever I put it. For example, if I put it right in front of this wall here, this wall is going to be considered distant, and that may still cut off a part of that roof. It probably will. Let's just take a look at this. So in fact, did it change anything here? I hate that this is an awkward thing that I would recommend to Tim to change and that is when you have a view for an elevation like this; it would be good to have the layer for that elevation marker turned on. If you do return to the floor plan, you can see that layer. [0:34:28]

So I am going to do that in my copy of the file. Here in, in the elevation layer combination, I am going to turn on this layer for the marker for the elevation. That means that if I just flip back to the floor plan, I will be able to see it. And I need to update the layer combination. When we use this layer combination, we are in the elevation view itself. So whether the marker shown on the floor plan is less important, except that it makes it convenient for editing the marker. That's why I like doing that. [0:35:06]

So now I have changed that. If I turn this on and go back to the floor plan - why are we not seeing the markers? Where is the elevation marker? Oh, it is there. I just wasn't noticing it there. If I were to move this marked one back further here, and then we go to the elevation - now that is odd. It's not changing this view. Let me go and rebuild from model. That is odd there. Let me go to the elevation settings. I am going to turn off marked distant area. [0:35:58]

Then I will go back in and turn it on. This is a little puzzling here. We are in auto-rebuild. I have the marked distant area, and when I adjust the position of that distant area, it should - you can see how not it's a little bit more natural. I almost have it right to the top of that roof. So I am not quite sure why, when I adjusted the marker, it didn't update this view. That is a bit of a glitch here. But you can see how this makes it very clear that this area is in front and this area back there is behind. [0:36:38]

Now we could perhaps have colors or other variation, even turn off shadows. So there are some options here in the elevation settings for the marked distant area. You might say that the foreground or uncut elements perhaps we want to make them a color. Whereas the distant areas we may want to leave



them as nothing. We might want to turn on or off sun shadows so we can leave the sun shadows on here and possibly have a different style of sun shadow in the background in the distant area. [0:37:15]

So now I have just made the foreground elements a color. The distant area elements do not have color. And we also do not have the hatching. You can see now we have color and hatching and in the background we have no color, no hatching, but we still have the sun shadows. So you can experiment with that. Again, these are the settings for the elevation marker, the elevation that you have selected implicitly by this view. And you could select or even eyedrop and syringe from one elevation marker to another. When you have it working the way you want, you can transfer that information from one marker to another have you have tweaked it. [0:38:06]

Ken Filarski writes, "It seems the jog line was created to avoid showing the walls bordering the pool which would block the elevation of the main structure." Absolutely. So a jog for a section or elevation is very convenient and one might say necessary for showing what you need and not being blocked by certain elements that would impair the legibility of your drawing. Unfortunately, the distant area, the line that is beyond this, cannot be jogged. [0:38:46]

That is why I say it's a little bit of a crude or instrument that just doesn't have the fine controls that might be useful. So I would like to see that changed at some point, but basically it provides some nice options. I would say just in general that if you have an elevation with multiple buildings, that this is great for showing. This is closer and that building back there is behind it. Also you can do it for just different planes or masses of the same building. [0:39:25]

Ian Booker writes, "Thank you Eric. I wish I'd known that four projects ago." Okay, well, I am glad you are learning it now. Hopefully you have plenty more projects that you are going to be doing as you continue in your design practice.

Okay, let's continue on looking with the model display. Let's switch gears and go back to the update style here. One of the things that Tim absolutely hates is the idea that you might redo line work to clean up a model or to add more detail. He much prefers to model it in great detail. We had a great example of how he does that. But sometimes, for various reasons, you may need or want to turn this into a drawing. So what does that mean? [0:40:29]

If I turn it into a drawing, then at least temporarily, this will become linework. Let's see what happens. When I say OK, it will tell me a similar message about the renovation filters. In other words, if I am in "Proposed", it's going to stay that way, even if I have views that might show this particular viewpoint in a different style. I will go ahead and say "Change". Now, you can see a few little differences onscreen, but not much. I am not quite sure why these little line things come up. They are roof planes it says here. [0:41:11]



You can see there is a little bit of an attachment there. What else was that selecting? You can see there is a line there. So that is a control for the fill. If you think about a fill here - ah, there is the control for that fill. This is an interesting thing. When we were rendering this in a normal elevation, we might not have thought about it too much, but the plane here is on an angle to our orthographic projection. So it's at a 45° or some angle. [0:42:00]

That means that the shingles or whatever materials are on there are essentially put into not perspective, but they are distorted. They are made, if you were to put them straight up and down they would look differently. They would be taller. Now when we turn it into a 2D drawing, we actually can control that. This control here is for this particular fill. And it is set up for being a distorted fill. Let me demonstrate this briefly. If I were to eyedrop this fill here and say it's not distorted - the piece that I am drawing - you can see here is what it is. [0:42:47]

You can see how this fill - and I will drag this down near it - is taller than that. On the other hand, I can change this to have an angle or control so that I can rotate it if I use the pet palette. This is now a fill that has the ability to be rotated, and the starting point of it can be moved around. If I change it to a distorted fill, you can see the two lines. Now I can change this and make it shorter. So you can see as I pull this down it looks like it's getting flatter. If I pull it up higher it will go up to some maximum. [0:43:37]

Actually, I guess technically it's a distortion, but it can be used to simulate an angled view of a surface. So you can see how this tends to look like that. In fact, we can actually rotate it on an angle, and then it starts to look like not quite in perspective, but certainly its angle is not quite perpendicular to the viewing plane. So that is what these things here are. They are attached to little pieces of the fills. [0:44:08]

So clearly what I have just been showing is the fact that this is 2D work. If I take anything that I have selected here, you can see this is just a line. Each of these are little bitty lines. Why would you ever want to do that? As far as Tim is concerned, you don't. There are two reasons why people like to do this. One is a visual reason. Sometimes people say, "When I have the true line weight here, and I look at this, I am not seeing a heavy line around the building." So this line, if I go to the Line tool and select the line there, we have this on true line weight, we are not seeing a real weight around the building. [0:44:57]

There is certainly a style that I have seen many times where the outside of the building is made heavier. So if I take this line here, and say I want to make it heavy - I have to see which pen would be heaviest for Tim's use. Here's a 0.4 outline. Now if I go zoom in, we can see that is certainly a heavier line. So we could go and select lines like this and change it to that heavier line and it now stands out here in terms of the printing. [0:45:56]



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So that would be one reason why you might want to do it. Perhaps the linework controls that ArchiCAD offers, or at least that you have mastered in terms of the way things look in an elevation, don't give you the visual clarity or punch. And so if you turn it into linework you have that option. The issue here is that as a drawing, this is not going to stay up to date if that window were moved or something like that. If the design changed, this is a drawing that is not going to update. [0:46:33]

Now let's see if I go and mess up his model here. We will go to the upper story, and here is a window. Let's say that I move this window over to there. Now I go back to that elevation. Of course, that elevation doesn't show the update because it's manual. If you want to turn it into a manual update, and you want to coordinate this with the changes, we do have an option starting with version 11 to use Virtual trace. [0:47:08]

So we can go and bring up the Trace and Reference palette, turn on Trace and Reference, and choose - instead of the drawing, we can say we'd like to choose the actual elevation that this drawing is based on. The original one that we are looking at a live view of. Now when I do that, we are going to see there is the new position of the window. And the reference is in blue. Of course, I could make this red or whatever I want and possibly make it fainter so we could see what is going on. [0:47:45]

So we could in theory go and turn off our quick select. If I click here and try to draw something, I am going to be grabbing this shadow. So I don't want to do that. I am going to go with the Marquee tool and use it to click and move this over. So what I am doing is grabbing the geometry that was originally in one position and moving it to match the design change. Now if the window had changed its appearance or change the size, I wouldn't be able to do that directly. I would either have to draw the lines manually to match or edit it in a more complex manner. [0:48:42]

But you can see this is one way that you can have a drawing view and double check or possibly correct this. So I will undo this here. Sometimes the changes may be more subtle. So it's important to know that with trace and reference you can turn on the splitter option here with this icon, and then drag this down. And you can see then as we drag this from either side to side or top or bottom, we can see whether something is matching. And you can see at the bottom this is perfectly matching, but in the area of the window it is not. [0:49:23]

In this window here on the far right, let me drag this over, it does match nicely. So as I drag this around, you can see that it's matching the model here. We can also flip which one is in front. So if I flip this, I am revealing the other side. The top is the trace and below is the active drawing. Normally it would be the reverse. And with the splitter, I can turn it off or on. [0:50:03]

So in terms of an update strategy, as this lesson's primary focus, in rare cases you may want to turn your elevation or section into a drawing in order to edit linework for the weights or to do some other editing of the details. I am going to go in here and make an arbitrary change. Let's say that I were to fillet this



here. Let's turn off the trace. There may be some details that are hard to model or simply at a conceptual point in your process, you want to do some 2D drawings. [0:51:05]

So you get some basic 3D elevation up, and turn it into a drawing, and then do some 2D ornament or 2D changes that are quick, knowing that maybe you will come back later once they are approved or worked out and model them in 3D. So what happens if you do this and the design changes? I showed you how you could double check and possibly move things around and draw the new elements to match the design. But there will be sometimes in the workflow where you might say, "I just want to give up on the 2D stuff that I was doing and start over with a clean version of the drawing." [0:51:56]

In other words, you don't want to have to coordinate it, you just want ArchiCAD to make it correct. So in that case, if I go to the View menu, Refresh, Rebuild from Model, what is going to happen? It's basically going to take all of the elements that it created as a model and update them. Now you will notice two things categorically. One is that the model elements move around, and you can see that this line comes across. Anything that was drawn extra, like in this case, this was a curve to make the filleted corner, stayed. [0:52:38]

What that means is that we can at any time and even in this workflow put in notes or text, labels or possibly 2D fills. Anything that we draw will stay there and float on top of the model elements. It's up to us of course to coordinate if the design has changed. ArchiCAD won't know to move it around. If you dimension - normally dimensions are associated with building elements. But if we dimension here to these points arbitrarily, I am not quite sure if this is attached. In fact, it looks like it is attached, because when I hover over it you can see it's attached to that linework. [0:53:29]

Depending on the version of ArchiCAD, you may find that if you dimension in an elevation or section that is set for manual drawing that this may or may not be associated with the element. If that element changes and you refresh or rebuild it from model, this may not be connected. So that is something of course that you do want to be careful about. If you are putting in primary reference information like this, make sure that it's correct. [0:54:06]

I am going to show you one strategy that can be useful. Let's see if I can do it. I know sometimes I have been able to do it very easily. Sometimes it's been a little harder. But Tim doesn't have a heavy border around this model, right? So what if you wanted it to be a heavy border? I am going to delete this linework. Let's go to another elevation. We have the "South Elevation Proposed". I have this certain layer combination active here. I am going to go to another elevation. [0:54:54]

Let's go to the north elevation here. If I wanted to outline this with a heavy border, I could go in with the Line tool or probably better, the Poly Line tool, and pick a heavy weight line. Let me go to his pens and colors and let's pick - that's Printing, Drafting and 3D Window. I am going to go to the Printing here, and



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let's see - here is a 0.5mm. So this one is going to be thicker than the other ones and red so it will stand out and for our purposes in training, it will be easier to see. [0:55:42]

So I will switch to the line that I am about to draw to this thick one. I could go manually and draw this. I'm not sure if we do it along the drainpipe, but we can certainly imagine this. And I could go in here and just be quick and dirty. So you can see now that I have a heavy line. And of course this is really crude. [0:56:17]

If I wanted it to match all of the little bumps and I didn't want to take the time for doing that, is there a shortcut? Because there is no setting in ArchiCAD that says, "Make this building stand out against the horizon." Well, you know there is the idea of the magic wand. If I go with any tool and hold down the spacebar I get the magic wand. If I click in empty space, it won't do anything. If I click in the middle of something like here, in this case it won't do anything because it's a model, and there's no linework for it to trace. [0:56:52]

But if I go back to the south elevation that I was working on - remember this is a drawing now - if I hold down the spacebar and click, you can see how it traced that shape. So it actually found the boundary there. Now imagine that I were to trace the outside of this. It's only possible if you turn it into a drawing. So if I go in near the outside and click, it won't do anything. Sometimes it will give you a message saying *No region is found around this point.* [0:57:25]

But here is what I can do. I can temporarily create a poly line, like this. So I have now enclosed this area. And now if I hold down the spacebar and click on this - this didn't quite do it. I space-clicked and it traced along here. Let's see if I space-click this. No, let's go and try a little test where I am connecting it to the building instead of the site. So I have basically created a boundary. And now, if I go to the Fill tool and magic wand in here, it says *Region not found there.* If I magic wand here - okay. So that didn't quite work. [0:58:29]

This fill - if I take the 25%, didn't actually trace this boundary. But let's see if I delete that, and let's magic wand here with the fill. This is not working the way I remember doing it before. I am not quite sure if this is still a legitimate choice, and I apologize. But what my aim was - and I know in the past I had done something similar - was to draw a simple polygon boundary so that ArchiCAD could find a region around the area, and then use the Fill tool to trace it. [0:59:24]

It says *Region not found around this point.* So it's not finding a closed area. Let me take this up to here. Let's try one more time if I get it to that point there. Now I have the Fill tool and I magic wand in here. *Region not found.* So it's not quite able to take these lines and do that. So what would be another possibility? Let me think quickly on my feet here. This would be an interesting way to do it. I am going to select a bunch of these elements here. [1:00:15]



I have these, and instead of drawing all of this, I could select all of this and copy. So I did Command+C and paste. There's now a new set of lines here. I undo and redo. So now I have all those lines selected that I just pasted in. when you undo and redo, you will have whatever you have pasted in selected. I can then go and use the Reshape, Unify, which will take lines and turn them into a poly line. So now it's still five elements there. I could put this on a different layer that related to - this says "roof accessories". That's probably good, but I could put it on a different layer. And I could then say let's make this the red. [1:01:20]

I will go to the edit selection set and make that red here. I still have these selected. Oh, this is a fill that I have selected. Five fills. Interesting, they are fills. I apologize. I am not quite getting it right. Let me just explain conceptually and those of you who are maybe like the idea, you can try it on your own. If I were to go with the Line tool here and select a series of lines - I will do it one more time. I will select these lines here. Instead of drawing carefully, I will select them carefully. [1:02:21]

Now this is a drawing. I am going to drag this over with a copy over to the right and say "100" here. And I am going to group them. This is a little trick here. This copy I am going to then change to this pen. So now it's thicker. Now I have just created a copy of the linework. I am going to go and change my model settings back to an auto rebuild. Why am I doing this? Because I want to demonstrate that the stuff that I drew on top of it is still there. So if you think about if you want to have a heavy boundary around here, you could manually trace this whole thing. [1:03:18]

You could turn it into a drawing and change the weights of the whole thing, but then as a drawing you would have a lot of disadvantages. And so a compromise would be to turn it into a drawing temporarily, select the lines going all the way around. It would be tedious, but you could do it in a few minutes. Make a copy of those lines and group them. The copy will stay when you go back to being a normal elevation. Then that copy you could have representing the heavy boundary. [1:03:53]

So this is now a live - here is a roof, here are the 3D elements. All of these elements are 3D. But this group of lines here, if I drag it back - I just moved it to demonstrate this here. So you can see how we could have a heavy line around it without having to trace it. We would just have to select all those lines. I was trying to do it with the magic wand, but for some reason with this particular model, and with the type of geometry that Tim has, it wasn't finding something to trace. [1:04:36]

So that is a little trick there. Perhaps you will find that useful. Ken Andrews pointed out that I am selecting fills. Dwayne Valencia, "It was a master to add linework to make elevations punch." Ken Brooks mentions that. I have actually been meaning to call Dwayne to get some input from him. Dave Norman writes, "In drawing view, when you perform a manual update, will all 2D linework be lost?" I think I have already answered that. [1:05:12]



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2D linework that you add on top of the model or that you copy and paste will remain. But anything that you modify that is 2D linework (changing weight, deleting, stretching), if you do a rebuild from model, then it will go away.

So I think those are all the questions there. Let's take a quick review of what I have covered. Today we covered how in an elevation you have elevation settings that are associated with the marker. And there are many choices for the model display. These can affect how you see the model as well as how frequently it's rebuilt. The simplest and most reliable thing is to have it auto rebuild, which is the default. [1:06:22]

For special purposes, you may want to use manual rebuild to save time in a very complex project. But I recommend that you instead work with your layers properly. Turn off interior things that you don't want to see so that it's only calculating the exterior skin of the building. Another thing that you can do related to that is make sure that in some cases that you are cutting off the back part of the building. So that marked distant setting is one option. [1:06:55]

But let's just go back to the floor plan here, and let's look at the elevation. This is another thing related to this. So a new little topic. If I take this as an elevation here, this is set to be infinite from this line going towards the right. And here is a line that is defining its direction. But if I choose, I can make it limited. In fact, this was the marked distant area and that is the extent here. So let's go and with this elevation, you can see what it's seeing here. If I go to the floor plan and change this to a limit, right now it's going beyond the building. [1:07:58]

So it will be exactly the same view. This is the east elevation. But if I change this line and pull it in here and then bring up that view - so this is still showing. Let's pull it back here. I will rebuild from model. Okay there you can see some parts of it disappeared. Obviously those parts are important. We wouldn't want to see them. But there are some times where you want to say the building has two halves. It comes up to a ridge line. Let's have ArchiCAD think about the front half, the part that we can see, because we know it shouldn't show anything on the other side of the ridge line. [1:08:53]

So therefore we are going to tell ArchiCAD not to look there. So I think this is a good point to finish up. We will take some more questions. One last question from Steve Nichol, "Can you put a simple background, such as a blue sky, behind this beautiful elevation?" Yes you can. If I were to draw a fill here like this, this fill is covering up the whole thing. If I select it and say Display Order, Send to Back you can see a slight change because it's behind these other fills. [1:09:38]

But why is the building not showing up the way we might expect? Because - this is under manual rebuild. Let's do this under one of the ones that is a normal rebuild here. If I do this and select it, put it to the back, now it's because in this particular elevation we have it set for the uncut elements to be filled with nothing. We might want to set them to be filled with a uniform color, perhaps the window



background or a white. Let's say window background. And now, we are going to see the building stands out in front of the background. [1:10:25]

Having done that, we can change this awful color here into another color. Let's put it into a blue here. Now that's at 25% blue. Let's go to 100% or foreground color here. That's a lot better. But we could switch, instead of foreground or these other ones, we could switch to - I want to get it so that it's a graduated fill. Right now it says that this fill is designated as a cut fill. [1:11:05]

I am going to make it a drafting fill. By making it a drafting fill I will have the option of gradient. So I can say "Linear gradient". And that is ugly here. Let's change the second color here and make it a lighter blue, something like that. And let's change the position. You can barely see that there's a line here. So you can see it has a starting and an ending point. And these can be dragged around. So I could take it and say more like this. So now you can see what this is doing. If I crop this in down here and take this over to there. [1:12:06]

So this would be a way that you can put in a graphic background. You just have to make sure that the model is filled with a color, the uncut elements so that you can't see through them. Then you can use a fill and make sure it's set to be a drafting fill here as opposed to the other options. That will give you the option to use gradients. And there are other effects that you can use. Radial gradient would probably not be appropriate here, but it would give you a sunburst effect. Let's put it back to the linear one. [1:12:41]

And let's undo back here. So now it's starting at the deeper blue and going up to the lighter blue. So let's finish up for now. I want to thank you all for attending today and for your input and suggestions and comments. Please add your comments and questions to the page down below this recorded video. This has been Eric Bobrow, thanks for watching.

[END OF AUDIO 1:13:06]