



BEST PRACTICES COURSE – WEEK 20 Managing Attributes, Project Preferences, Work Environment – Part 1-G – Element Attributes: Zone Categories

Welcome everyone to the ArchiCAD Best Practices Course training lesson. Today we'll be focusing again on Element Attributes under the Options menu. We've gone through most of the ones that are in this list that are Element Attributes. Again, the general principle is that Element Attributes are definitions that actual elements like walls or text use. Of course, we place them on layers unless there are things like windows and doors that are part of a wall. We use line types and fills to do graphics. We use composites to do more complex graphics and essentially define assemblies for walls, floors and roofs. [0:00:47]

We use pens and colors to define the appearance of things in terms of their color and pen weight. We use building materials to define the visual appearance of the things we're building with and in the cut through, their hatch or fill patterns as well as their surface appearance. And surfaces are the appearance in a 3D view or in a rendering; formerly called materials. There are a few other things we haven't looked at. Zone Categories we'll look at today as well as operations, profiles. We will not focus - I will bring up briefly the markup styles, profile manager, and the renovation override styles. But we won't focus on those. Let me just let those out of the way. [0:01:37]

The renovation override styles, if I bring that up, may look familiar to you. Perhaps you have used renovations a lot. The other way you can bring this up here is if you have the Window, Palettes Renovation palette up and you are working with renovations. You choose 'Renovation Filter Options', and you'll have the main renovation controls. And then here are the renovation override styles. This is how I usually get there. You can get there through that Options, Element Attributes. So this is the style when you're saying, for example, showing the elements to be demolished in a special way, not in their original, natural way. But say you want to override and make them dashed with red lines and things like that. [0:02:26]

So although these are technically part of the Element Attributes menu, they are really controlled under the renovation filters. And the renovation override styles I don't believe get controlled by the Attribute Manager. So they are a little odd ball part. But we've covered renovations in another section of the course, so I explained how to work with this. So I won't go any further today on it. [0:02:59]

Another one that is covered separately under the Options, Element Attributes is Profile Manager. So profile manager should look familiar because in an earlier section of the course I went to the Design menu, Complex Profiles. And you can see profile manager listed here. This is the exact same palette. It allows you to choose different profiles and edit them in this dialog box here to make various changes, etc. So these are attributes of walls. Of course you can assign a wall or column or a beam to use a



particular profile or essentially a section view of what you want to be extruded or moved along in a straight line or curve. But these profiles here, let's say since we've already covered them, we're not going to spend time today. We just brought up the renovation override and the profile manager since we've already covered them. [0:04:00]

Now Markup Styles is something that I will be covering later on in the course. This is really a sub-menu or sub-part of the Document menu, Markup tools. It's right here at the beginning. We'll be spending some time on that later. This is a tool that allows you to put markups on your model, so you can put a cloud around things. You can put some text describing some change that was made or needs to be made. You can x out things, those sort of markups that you might do on paper can be done digitally and can be organized into groups. You can have several markups that are related to a particular revision or particular area of the building, like the kitchen or entry or something like that. [0:05:01]

And you can hide and show these markup entries as well. So it's a very powerful system, and we'll be looking at that in a later lesson. It does have some options in terms of the - I'm not sure if I can get to it from here - it does have some options for how things are drawn. When you put a markup, what color pen is it, will it change color if you say that this is already been approved or is a closed comment. Is it something that has already been handled versus something that needs to be worked on? So these are things that are controlled under Markup styles where you can say this is a revision that needs to be done and its' going to be in a certain color; this has been approved, it's another color, etc. [0:05:48]

So at least this gives you an idea of what this is about. It really needs to be explained in the context of how the markup system works. So that leaves, under the element attributes, the only other ones here are zone categories and operation profiles. Operation Profiles is again a sub-part of the energy analysis of the building. So if you have ArchiCAD 16 or 17, you have built-in Eco Designer as a tool. Eco Designer allows you to do basic energy calculations on your model. So you can say if we faced the building this way, it's going to use up a certain amount of energy. If we rotate it to face the sun in a different way, then it may be able to take less. Possibly if we add overhangs or more insulation, etc. Those things will affect the energy usage. [0:06:53]

Separately, the energy usage is dependent upon how the space is used. For example, a classroom is going to be used certain days of the year, and you can of course set that up. And maybe you don't need to heat it or maintain the temperature outside of the class hours, or a certain buffering. People get in at 8:00 AM and you want at 6:00 AM for it to reach a certain threshold level of temperature. Then you can set that sort of thing. So if it's a classroom, it's going to be different than a garage or a hospital. Hospitals, obviously, every day all the time has to be within certain bounds there. So these operations profiles make tremendous sense and are essential to getting energy numbers out. And each one of these here can be created. We are not going to go into the details of creating them because again that will make much more sense when we are looking at Eco Designer in another separate lesson. [0:08:03]



But the basic thing is that you can put in a new profile by either duplicating an existing one or starting from scratch. And when you create that, it then allows you to set up certain criteria. And then you can assign that profile to zones in your building. So the idea is possibly that some zones require more tight climate control and other zones, like storage for example, maybe don't need as much. Or a garage. So you can assign different parts of your structure to different operation profiles. That is the basics of the operation here. We'll go into detail when we do the Eco Designer section of the course. [0:08:50]

Now under the Element Attributes the other one we will look at here before we get into the attribute manager itself is Zone Categories. Zones are a tool within ArchiCAD that not everyone uses. They certainly are not essential for creating a basic model and basic working drawings, but they are very useful for doing certain additional or extended documentation such as finished schedules. If you want to have room finishes tabulated in a table that goes on your sheets and you want to do it within ArchiCAD as opposed to a separate exercise using a spreadsheet, then you can use the Zone tool for that. Zones can also report area for each room or zone as well as for - they can be tabulated together. [0:09:49]

So all of the general area, things that are living space, can be tabulated separately from utility or garage or mechanical space, things like that. They can be used for graphic purposes, for bubble diagrams, to show different areas of the building. And in fact one type of workflow for designing complex buildings is to lay out a bunch of zones to indicate room usage. You need 28 offices of a certain size and 12 meeting rooms and a cafeteria and this or that. See you can lay these out and make sure that you're putting the building blocks together for massing, stacking and blocking purposes. So then after you've done some work to make sure your building meets the program requirements, that you are covering the right number of spaces and the adjacency issues and the areas and all of that, then in that particular workflow you might start to define the walls and the actual building envelope more closely. [0:11:00]

Zones can be used for documenting and putting graphic information on a plan. It can be used as part of the design process. And I have shown some of the preliminary concept design ideas of zones in a previous lesson, I think in section 11 if I'm not mistaken. Right now I just want to talk about the zone categories and how they work relative to this area of attributes. So in order to understand this better, I'm going to actually draw just a simple little building here, and I will put in some interior walls. So I'm creating a number of spaces. The zone tool's basic usage is that you activate the zone tool, choose your geometry which is either a manually traced shape or automatically having the zone seek out the inner edge of the walls. And you can also, in some cases, use other boundaries such as a line to define where an area finishes even if there was no wall there. [0:12:31]

Then there's a possibility of it seeking out the reference line for the walls, in which case the zone can extend to for example the center line of a wall if that's where the reference is. This can be useful for tabulating areas of occupancy in a commercial building where you are doing rental calculations and tenant improvements and things like that. If you're doing a manual placement, in versions of ArchiCAD up until recently, you had to click all of the points. In other words, you could click, even in a rectangular



space you'd have to put all four corners. But there is now an option in 17, and I can't remember, it might have started in 16 where you can do a rectangle directly or a rotated rectangle. These things just were omitted until recently. [0:13:22]

But let's just take the simplest case which is that the zone is going to go out to the wall face. And I click and click again, and you can see how it's put in this color. And I will click on another one and do it. Now they both look the same because the default is for the zones to be a particular category like 'living space'. And let's say that this area down here is not going to be living space, it's going to be storage - or let's see, we have the 'utility space'. No, that's the same color. Let's just call it 'mechanical space' or something like that. So I will click and put that in. So each one of these has a category here. It has a name for that category and possibly a number. In the U.S. template there are these numbers from 0 through 4 with different sub-numbering, and each one has a color. [0:14:20]

In addition to the name, the possible number, and color, there's also the concept of the zone stamp. If I zoom in on this, you can see that this zone stamp has something that refers to a name and a number and then it shows an area. If I select it, and I can select that here, the name is something that we can fill in before or after we place it. So I will call this "Room 1", and then we'll say the room number is 1. So we have a descriptive name and then we have potentially a number. And right now it's showing the area of the zone. Now if I open up the settings for it, you'll see that the zone stamp has some options for display. For example, if this #1 here is redundant, then I can choose, for example, to show the room number. Let's see, "show room number" is off here - show zone number. [0:15:33]

So I want to maybe say turn off the zone numbering. So now it hides that there, and you can see the change. There are controls you can do for any particular zone stamp that will customize it to some extent; what it shows. maybe you don't want to show the area or you want possibly the area to be a different size. In other words, we can say that the area here is - font type, text style, text pen, that's the color. And let me see if they have some controls for the details. In this particular case, it's hard to understand the first time you look at it. There is a main size for text for this upper text. And then details, which would be the things below it, I can adjust the size and possibly the font. So I will make it five points so it's going to be a little bigger. And you can see it there. [0:16:25]

So all of those controls that I just accessed were based on that particular zone stamp that I'm using for this particular category, which is the living space. If I go back to the Options, Element Attributes, Zone Categories, and we look at 'Living Space', for example, there is a color. So I could say that I want the living space in a different color. Let me make this a blue green, sort of a turquoise color perhaps. Something in there. I will say OK, and when I've done that, it will show up here and show up in the popup menu. If I say OK, you can see how it changes. And anything else that was done with the same category will also change. [0:17:20]



Now in addition, when I go to the Options, Element Attributes, Zone Categories and I go back to his 'Living Space' here, I can choose which zone stamp to use. The zone stamps have different styles and abilities. So if I say I'd like to use the basic zone stamp, you can see that it's very simple. It will show the zone name number and area, but it will not have any graphic formatting. It doesn't have any choices. So if I say OK, you can see how it looks very simple there. So that's the basic zone stamp. And it probably doesn't allow you to turn off parts of it; it will only allow you to show the name, number and the area. [0:18:06]

If I go back to this here and we take a different zone stamp like the 'Room Identifier NCS' - so this is the National CAD Standard in the U.S., then this is a variation that has some more options. It's a little hard to see in this small version, but if I choose that, you'll see that it actually puts some line work around here. Again it's a little bit hard to see. Let me try 'True Line Weight' and see if that's a little bit easier to see. You can see that now there's this outline here. And what is it showing below? It's not showing the area. In this case, it's showing some codes that are intended to be for finishes. So if again I select this, now that it's a different zone stamp, I can go in and 'Show Finish Code' is on. And let's make sure 'Show the Frame' is on. And let's make the frame pen black just so it stands out at least for training, to be able to see that. [0:19:16]

Here is the 'Show Finish Code', that's on. And here's the 'Finish Information'. So this particular stamp allows us to put in finish information, which we probably did not have the option in the previous zone stamp or the one that we were using before which was the "Zone Identifier 2". So now that I've shown you the basics of how you have controls of the zone categories, you can pick color, you can pick the zone stamp, and possibly you can rename this or create a new one similarly like that. Then there's the question of how do you use this? What is this for, what are the attributes, how does it relate to the whole concept of attributes? [0:20:13]

So let's step out a little bit to this tiny project and say, the zone categories are defining how you break up your building into usage or at least tabulation of usage and the graphic appearance of each style. In other words, you might say that if it's rooms that are either living space or other certain types of interior spaces, you'd want certain information. But you might use the zone tool to sort of do calculations of outside areas. So hardscape, the patio or irrigated area, something that's going to have landscaping. You want to say you have so much that's going to be irrigated. So in those cases, maybe there is not the finish information or there are some other types of display that we want. So we are able to control by category the color and which type of zone stamp is going to be used. And with certain types of usage you may want to use a different zone stamp to make it simpler or more complex. [0:21:30]

So as you think about what you want to get out of ArchiCAD in terms of graphics - the appearance of certain drawings - and tabulations such as a finished schedule or other things, you'll want to go into your zone categories and make sure that, first of all, you have a number of categories that you need. In other words, this may be way more than you need in most cases, but it covers most of the common things in



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the U.S. for building types. That's what Graphisoft put in there, but you may have specialized ones particularly if you are doing things like hospitals where there may be some very special requirements for operating rooms vs. patient rooms vs. hallways or things like that. [0:22:23]

So you will want to customize the zone categories to use of course colors just to make it easy to see in an overview diagram as well as particular zone stamps. Now to finish out the section here, I will say that there are some basic stamps that are loaded into the ArchiCAD library. In the U.S., these are the ones that we see. In international use, it's probably a little bit different, but generally you have a few choices. There are some options to customize zone stamps that, as the user, you can take advantage of. And you can potentially buy commercial resources. So in terms of a user, I've gone in on behalf of clients and made a zone stamp that was a variation of one of the existing Graphisoft ones that had more information in it, more parameters to work with. [0:23:25]

So that is possible to create a variation of that. I've covered some of the things that you would do related to this in the section on object creation; I think that's currently Week 21. You would basically select one of the zone stamps and duplicate it and then add some more parameters; this list of parameters here could be extended. Now if you want to get something more sophisticated and it's beyond what you can do in-house, then you might want to consider purchasing. The best one I know on the market is called "Total Zone". It's from Masterscript, which is a GDL developer in the Netherlands. And we actually have licensed Masterscript, their Total Zone for MasterTemplate, and it gives some more options there. [0:24:26]

So if you have purchased it or gotten MasterTemplate 17 then you have this. And you would then say, for certain cases, I want to use the 'Total Zone'. And just to give you a sense of what options it provides that aren't in the standard ones, if your room name or a zone name would be better broken up into multiple lines, it can do that automatically. The standard ones, everything fits on one line, which can get awkward for small spaces like closets in certain contexts. Another thing is that you can have the zone - right now it either shows or doesn't show. But with Total Zone you can say when I'm doing a floor plan I only want to show the room name. But when I'm doing a room finished plan, I want to show the finished codes. [0:25:15]

When I'm doing a different type of plan like the ceiling plan or the area calculation plan, I want to have some other variations. So with Total Zone, you can place a single zone in each area and specify the style of how it will look on different plan drawings, which is very powerful. So that's just a few of the things it can do. It will also calculate automatically the size of the room. Right now we can get the area but none of the standard zones will say that this room is 12x19'6" or 4x6.2 m, things like that. So Total Zone will give you some additional options. And if you do buy it or get it in MasterTemplate it just gets added to your library and becomes available in the Zone Categories. [0:26:05]



The other thing I want to point out is, I haven't tested this thoroughly, but I believe that what you're controlling here is the names and colors of the categories and which stamp they are using. But the default values here may not actually be used when you place a zone. To test that out, let's just say that we want to say that the living space here is going to use 'Zone Identifier 17', which you can see this is a very simple one here. And let's just see if we have some options. Text pen, this is red. Let's just say I wanted to make it blue. So now you can see it is blue here. And let's just see, if I do that, does it make it blue? No, you can see these are still red. So even though I set up the default - and we'll just put this into the living space here and we click - you can see it's not blue. [0:27:12]

So I could switch this to whatever parameters. Here we have the text pen. It was red. I could make it to be blue, but that's an instance. so that is just a little bit misleading, because when we are looking at the zone categories here, it shows it as blue, but it's not going to go in his blue. it's going to go in as the default. This allows you to see some other variations that are possible. And you can say, well I don't want to show the room name in general. You can see some of the options here. The controls you do here do not affect the default values. So that is an odd limitation. I would call it a bug. If they're going to show you these things, it really should allow you to say whenever I place in a zone, I want it to have a certain style. So that's a limitation that I've heard of. [0:28:18]

Now I see a couple of comments from earlier in the session. Iain wrote, "Carbonate is a problem." I'm not quite sure what you mean by that. Maybe you can explain that in further comment.

Bob George writes from just a few minutes ago, "If a partition is moved, does the zone color and zones stamp data adjust to the new location?" So in terms of zones, I believe I covered this in section 11, but I will certainly help you out here. If I go and let's just say take this wall and drag it over to the right. And take this wall here select it and we intersect; now this room has gotten bigger. The zone did not automatically change. Even though when I placed the zone, it was told to go seek out the boundaries of the walls. So the zone will not update by itself. However, you can ask for it to update by going to the Design menu. There is 'Update Zones' is a command. So with 'Update Zones', it will allow you to see - after it updates, it will show you a list of zones and information about it. [0:29:41]

If I say 'Update All Zones', then you can see how this moved over or let's say it filled in the area and moved the stamp and kept it centered. By the way, you can move the stamp manually, but if you don't move it, it will just remember and I think set it to be centered. I'm not quite sure about that. But obviously it moved a little bit. If we look here at the square feet, you can see here is a report of the areas, here is the 144. And here is the option of added square feet, which says after the last zone update, this one had some more area. So one of the reasons why Graphisoft does not have the zones automatically update when you move walls around is that you can do a bunch of changes for the building and then update the zones and see the results in terms of some of the changes. [0:30:35]



So you can get more information and more control by updating the zones separately. I think it would be a good idea if they provided an option or a setting to say 'Update this zone all the time' or 'update all zones automatically', just like auto update for drawings on a sheet. But they don't provide that. So you need to use the 'Update Zones' command to do it. If the zone was put in with a manual boundary here - that means that you are manually clicking a series of points to define the shape of it - then it will not update. Although you can of course readjust the zone. [0:31:15]

So if I just click to say I want to place this manually and draw a series of points, this is a boundary which has no relationship to the walls, even if I manually traced the interior of a room, it would not know to follow the outside. If you do have a zone that you drew manually and you decide that you made a mistake or a changed your mind and you want it to find the boundaries here, you can switch it to seek out the boundaries. It then gives me a warning, because you don't want to do that casually, you want to think about it. We can update this. And here you can see how it did automatically fill in that area. But that was the same as saying update an individual zone. And in fact you can - let's just undo this - I can select this. [0:32:11]

And you'll notice that this zone, when I have one selected, it shows up in the list. Or if I select this - one let's see here. Each one of these, this is the result of the last update. But I can go and say 'Update Selected Zones' here. and you can see that you can select individual zones. I can select something and then update selected is available. When nothing is selected, then it will get me to update all zones. And the reason this did not update is because remember I undid the change. It still says 'Manual'. If I make it this way, I can either 'Update Now' or do it later. If I say 'Later', then I can select it and 'Update Selected Zones' or have nothing selected and say 'Update All Zones'. And you can see how that works. [0:33:03]

So that's the basics of how the updates work. Manual updates using the update zones and the ability to draw a zone manually, which will ignore the walls if you wish.

So Buzz Brian asked, "How is this adjusted to give us net rentable area computed to center line of the interior wall and outside of the exterior wall?" Okay, good question. This zone is set to go to the face of the walls. I could set it to go to the reference line. And again it's going to say, "Do you want to update this now or later?" I'll say update now. And now if I select it, this still appears to be in this area here. The walls, this is the reference line here. I'm going to delete this and start from scratch and make sure it isn't an issue with updating. Let's say that these walls here, I'm going to change the reference line from the face to the center. [0:34:17]

I know that actually repositioned these walls. In this particular case, I may not have wanted that. but right now we are defining the wall. And let me just update this one here. so I will select this and update this. So this now is at the face here. But I haven't put in a zone in here. If I say I'd like it to find the boundary of this, and I then click on this here, this says that it's going to the reference line. Now the boundary is indicating this, but is it measuring that? I'm not quite sure. Frankly I'm a little surprised,



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because I was expecting that this would go to the measurement. It's not showing it here. Here is the thing: "Zone polygon is net or gross." Let's try the 'gross' option here. There we go. So now gross, you can see if I zoom in on this, that it's going out to the outside face of these two walls, because those walls have the reference line on the outside. Of course they could be to the face of framing; whatever the reference line is. [0:35:55]

Then it's going to the center line of this and the center line of that. So you need to set that to the option that says 'Find the reference lines and do the gross area.' That will fill that in. Visually it's only filling in the center; it's behind the walls in terms of the color. But it is measuring out to there. If I undo this and say 'Update Selected Zones', and let's put it back and go to the gross. It changed this but it didn't change the number. Let's update this. That didn't change the number. Let's look at the number though, because the area says that show area is on. So model - so that is a question right now that I'm a little unclear about. Obviously the boundary is showing the extent that we want, but the area is being calculated based on - it's not changing as we changed that. [0:37:14]

So I know there are some other preferences under the Options, Project Preferences, Calculation Units and Rules that may affect this. This has to do with working in square feet or square meters. There are also calculation rules here which have to do with areas. These are for calculations of physical elements. But let's see if we go to construction elements here. this is an area that I will need to study a little bit more. It's a good question and I know that ArchiCAD should be able to give a reliable report on areas of the building based on either the face of the walls or the reference line. And of course, if we wanted the reference line with this particular wall, we would probably want to have something that was an interior wall like that. And you can see now the wall is symmetrical. [0:38:18]

Let's switch our onscreen to 'Hairline' so now this is at the center line of that wall, etc. So I'm not quite sure why the area is not updating here. That's something that I will need to look into. My guess is that this particular zone stamp is hardwired to show usable area as opposed to the gross area. Another zone stamp might have more options. Let's switch as a quick check, if I go to the zone categories for living space, let's go to the "Zone Identifier 2" here. That rounds that to the 82. Let's go to the zone categories and change this to the NCS one. And then there should be an option to show - no, we're not even showing the area on this. So listing parameters - I apologize. I don't have a complete answer there, but I've shown the main thing that you need to focus on which is the settings for what the zone is bounded in a certain way and whether it's going to use the gross polygon or not there. [0:39:51]

Here's "Area Calc". Let's see. So this is measured area is 102. The reduced area is this, so it's reduced to the net area. It's showing the net area but the measured area is this. So my guess is that it's going to show, in this case, the net area. But if you did a listing of it, it would show the larger area. So one more piece of the puzzle is this. We can force it to reduce some things. We can put in some extra criteria saying some of this is unusable or doesn't count, because it's structural columns beyond a certain size or there are just some other rules. And then it will actually calculate that. So if I said, can I change this to -



no, I can't. This is actually what its calculating here, how much it's reduced there. I could say reduce it by 20%, and then it will take effect after the zone is updated. If I say "Update this", then this one, you can see the calculated area was reduced by that 20%. So there are several areas that the zone is calculating, whether this is the overall one, gross or net, and here is the area reduced possibly by some things that are inside the room. And then you can actually force a reduction here if you want to.

[0:41:40]

So that covers most of the calculations. I will need to have a separate section on schedules including zone finished schedules and area calc schedules. And I will definitely have the full answer at that point.

So I have a comment from Steve Nichol, "Good stuff on zones. Need to think about it, but one initial thought is that on a site plan impervious surfaces could be shown calculated which is often needed by the planning departments." Yes, absolutely. You can do impervious surfaces or overall site area, all of those things.

Buzz Bryan says, "Impressive." So I guess seeing some of the options there at least show you the power, even if I didn't quite get the very last thing, which is the listing there. So backing up just a little bit under Element Attributes, Zone Categories, we've spent most of today's session looking at how you can choose different zone stamps or different uses. And these will then allow you, when we cover the section on schedules, to get reports of areas and finishes and things like that. But in the meantime, this allows you to choose what style the graphic is going to show up, in terms of color and type of stamp. In addition, whether you show the colors and stamps is controlled - just as a little side note - under the Document menu, Model Views, Set Model View. [0:43:18]

For example, on a site plan you might change the walls. Let's go try these model views. Reflected ceiling plan, you'll notice that we have the stamps showing but no colors. If we go to model view and presentation solid, that's a different style here. Let's go detailing no fill. So you can see there are some different options that we're looking at, construction documents. And in fact in construction documents here, it's not showing the zone stamp. So these controls for the model view options here are also available from the quick options, and they are built into the views. So for example, on a drafting view here, we are seeing the colors. But when we go to different styles of view, they control whether the colors are showing. [0:44:12]

The zones themselves are on a layer. This is on a layer called "Area Identifiers". You can turn that layer on and off in any layer combination. Therefore, certain drawings may not have this zone visible. or all zones may be turned off. But separately under the Model View Options, we can choose - for any particular style or just temporarily by manually overriding it - we can choose for example that under the fill display we can choose whether to override the zone fills or not. If we see don't override this then it will show up with its color and stamp. If we say override it, it says, "What you want to do?" Do you



want to hide the fill so it no longer has a color or do you want to hide the background, because some fills might have a hatch pattern? [0:45:09]

Or do we want to hide the pattern and just have a color? Various options for the fills. and then there's the possibility of hiding the stamp itself. So we could actually not override the fill but hide the stamp. that would be an odd one but it would allow you to get colors without having zone stamps there. So those are all variations that are controlled under the Model View Options. And these can be linked or associated with particular views, which means that you can create drawings with possibly different variations of color or zone stamp. [0:45:52]

So I think we've gone through the full hour here today. The next section we'll be looking at will be Attribute Manager, which is the overall tool that allows you to manage attributes and move them from one project to another and pare them down when necessary. So Attribute Manager is going to be our topic for the next lesson. I think this is a good place to finish up rather than trying to start into Attribute Manager. Let's see if there are any final questions on zones today and then we can finish our session. So please add your comments as well if you enjoyed the lesson. I always appreciate knowing that. And if you have any remaining questions other than the one of just how do you get an area calc schedule or finished schedule, because I will need to do that in a separate training lesson. [0:46:54]

Comment from Buzz Bryan, "Good lesson." Thanks.

Comment from Magdalena, "Very helpful."

Please add your comments and questions on the page down below this recording. This has been Eric Bobrow, thanks for watching.

[END OF AUDIO 0:47:11]