



## BEST PRACTICES COURSE – WEEK 18 – Complex Projects PART 4 - Hotlinked Modules

Welcome to the ArchiCAD training lesson on hotlinked modules. We are going to take a look at how you can use this very powerful feature of ArchiCAD in a variety of different ways. I will draw a simple building envelope here, and create a partition. Imagine we have a space, like an office space. I will make some little rooms and make this wall here and multiply it here by making three copies. I'll take this 10'. [0:00:55]

This last one is a little bit tight in there. So now we have four rooms with similar sizes. I am going to go and put in some furniture. This is one example of how we can apply hotlinked modules; when you have a repetitive situation. So let's go and pick out the simplest office setup we can. We have a desk here, we'll rotate this around. I will put it against this wall and get a chair. Let's get a simple office chair and pop that in. [0:02:00]

In this layout for this space, let's say we wanted to have a similar layout in each of the other rooms. We could go in and copy these by using the multiply command, Ctrl+U or Command+U, and do similar ones and snap them in here the same distance. This room is a different size, but we now have four separate copies. The limitation with any type of repetitive design like this, where you copy it, is that if we decided to switch out this chair to be a different chair or change anything else about it, none of these would update. [0:02:46]

One of the most obvious purposes of a hotlinked module is to link designs together. So let's undo the last couple of steps here. Let's turn this simple configuration into a hotlinked module. The way we do that is to go to the File menu, External Content, Save Selection as, Module. What this does is it takes what was selected - these two elements here - and saves them in a special file format with the ending .mod. [0:03:17]

I will go into my lesson folder for week 18 because this is week 18 part 4, and we'll say 'HotlinkDemo1.mod'. I will put it with a "1", so it will be variation 1. I have now created that, and when I did that, these elements changed to have square dots. These are now referenced to that external file. Actually that was a mistake, in the sense that I missed out on one thing because I just wasn't thinking about it. It doesn't let me undo that. That's an interesting issue here. What I am going to do instead, since I can't undo it, I am going to go to the hotlinked module settings. [0:04:21]

This group of elements here is a hotlinked module, and I am going to break the hotlink. This is what would have happened if I had done it right. In fact, I will start over. So these elements here, I have selected them. They are not a hotlink. Let's start over, and I will tell you what I missed. When I go to



External Content, Save Selection As, Module, what I want to do is turn off 'Replace Selection' with this hotlinked module file. [0:04:51]

We will talk about when you would want this checked, but in general, the simplest thing is to not have that checked. We will go ahead and overwrite this by clicking on this name here. It will allow me to put the same name here, and save it. It will overwrite this file. So now I am doing it the correct way. These elements here ended up being grouped. Let's suspend groups, so now I can select individual items. They are still in this project file, and still editable just like any other element. [0:05:29]

What I want to do is go and place a hotlinked module. So that's File menu, External Content, Place Hotlinked Module. Now a hotlinked module is basically a copy of an external file. The file can be a simple thing, like a few objects like this, or it can be an entire building that is being referenced from outside. Each element in the module can have its own layer. If you were doing an entire building, some things would be on the wall layer, some things would be on cabinets, and some potentially on slabs and structural layers. [0:06:08]

They all are going to be controlled by a master layer. So what is a master layer? It's one of the standard layers, any layer that you choose on your project, and it will control whether this entire module is seen or not. Right now, I will leave this alone. It's on an annotation reference layer, which maybe makes sense. There are some other options here that we will explore later, but basically what I need to do before I place this; I have to choose a hotlinked module. [0:06:43]

Because I created one, it has this available already. It says I could place this. But when I say 'Choose Hotlink', it says that it's referencing this file that I just created a minute ago. When I say 'Place Module', you see initially it shows up exactly in the same X and Y position that it was when I created it. I will drag it. Just like any time when you paste, you can move within this marquee to a new position and snap it or move it around. Once I am satisfied with this position, I can click outside, and now these elements are in position. [0:07:22]

I can select them. You will notice when I select this, it has square handles which means I cannot edit them. If I try to move it by pressing down on this and moving it, it will not let me do that. In fact, you can see that in the info it says 'Part of HLM' or hotlinked module. It says that it's an object in this case. If I have groups active by unchecking the 'Suspend Groups' icon here or using the equivalent keyboard shortcut, then when I select one element, it selects both of them. And I can move them around. So I can move this. [0:08:06]

What I am going to do is actually go and place a copy. By dragging it and pressing and releasing the Option key on the Mac or the Ctrl key on Windows, there is a little plus sign that gets added. I can then move this into a new position. This is now another copy of it. I will drag it into position touching the wall



here, which is how I want it to sit, and I will drag another copy. So I will use the option to drag a copy or the keyboard shortcut here, and place it over in this position. [0:08:39]

Now you may have noticed that these have different colors. If I select them, you can see these brown, blue, and greenish dots. Whereas this, these are round dots. These are elements that are grouped together. There is a subtle difference visually here. These are editable; these are referenced to the outside. That will become abundantly clear in a minute. I will go and suspend groups here so I can edit this chair individually, and I will go and select a different chair. [0:09:18]

Maybe I will drag it back. And I will move it off to the side a little bit so it's obvious that it's a different arrangement. I am making this as simple as possible for demonstration, but a module can have dozens or hundreds of elements all combined together in one design configuration. What I have done here is changed the elements that created that module, but I have not updated the module itself that these are referencing. [0:09:53]

In order to do that, what I am going to do is select those same elements and go to the File menu, External Content, and Save Selection as Module. That's what I did to start this out. I don't want to replace the selection with this hotlinked module file. I will explain that in a few minutes. I am going to go and overwrite this. So I am choosing to update or overwrite this version. I will say 'Save', and it says, 'Do you want to replace it', and I will say yes. [0:10:25]

Nothing has happened visually here because these hotlinked modules are not updated. While I changed the external file for that, these elements have not been updated. To update them, there is a separate step. Go to the File menu, External Content - now nothing is selected, so Save Selection As, Module is not available - but Hotlinked Manager is the one we want to look at. In the Hotlinked Manager, it will say that there is a hotlink in this file. And you could have many of these if you find them useful. [0:10:59]

And it says that this one has been modified. There is an option here to update. If something is modified, if you want it to be up to date, you click this Update button. It then queues up the update here. There is a note that it's going to clear the undo queue. This is something you have to be aware of. Some operations in ArchiCAD, when they take place, you won't be able to undo back. You can manually modify things, but you can't just do undo, undo, undo. [0:11:28]

Let's say OK, and you can see that all of those updated instantly. The idea here is that we have a source for the design that we are working on. This can be repeated dozens or hundreds of times. You might imagine a condo project that is ten stories. There are six units on each story. You might make one change, update the .mod file, and have forty or fifty copies update. Now you could have multiple different modules. For example, if there is a hotel, you could have the basic rooms and then you have the luxury rooms or the larger rooms. [0:12:08]



You could have different apartment layouts or office spaces. Maybe there are ones for clerical people and ones for management people, etc. So anything that you are going to be repeating can be managed in this format. Now let's take a look at the mechanics of this in terms of where this sits and some of the options that we have. I will bring up the folder where this is saved. I will go into here. I now have this folder, and you can see this module is a little file, 78 kb. It's two little objects, so you would expect it to be very small. What are some of the other variations that we can do with a module? Let's say that we had some walls going down this way. Now I am not worrying too much about the sizes of these. This is just for demonstration purposes. [0:13:27]

Let's say that we wanted to have two rooms going this way, but they are oriented 90°. If I select this module, if I don't have groups active then I can't do much with it here. But if I activate groups, then I can drag a copy. Just like I can drag this, I can also - actually, let me make sure to drag a copy. So I can drag and use the option shortcut or Ctrl key shortcut. Now I can rotate this. I can press down and use the rotate option. [0:14:05]

We will just drag this down into position. I can drag a copy down to here. All of these are still linked, even though these are in a different orientation. Let's go and prove that. We'll turn off suspend groups again. We'll select this and change this desk to a corner desk. Let's see. This desk is an L-shaped desk. We'll take this and orient it here. Now that is a different type of arrangement. Maybe the chair should face the corner rather than this way, but this is another option that we might try. [0:15:06]

Let me select these two, and we'll go to External Content, Save Selection As, Module. We'll again overwrite this. I am going to show you some other variations here, but let's overwrite it, replace this. And how would we update this? Go to the File menu, External Content, Hotlink Manager. It says it has been modified. Click on the Update button, and say OK. And now they all change. Of course, these ones were sitting in the same relationship to the corner, so they look fine. For these ones we might want to, with groups active, select these two and drag them into the corner if that was important to us. You can see that they will all update regardless of the orientation. [0:16:03]

Now what if we have some text as part of this? Let's go and put in some text here. Let's say "Office" and take this and drag it over there. I will select this and save the selection as a module. We will again overwrite it. Then we will go to hotlink manager, and update. Now you see that these look fine, but the word "Office" here looks funny. I may want to have it horizontal. Let's select this text and look at an option that is very powerful for this case. It says 'Always readable', and we could say 'Fixed Angle'. This is something that you have to use carefully. [0:17:11]

This basically says if the text rotates, or let's say if it's part of a group of elements that are rotated, the text will not rotate. It will stay at 0°. We can also lock it. Perhaps its center is the anchor point rather than the corner. That means that its center point would stay locked, which in this case will work well. I will say OK. And that doesn't look any different, but if I select these elements and again do save



selection as module and overwrite it, then go to hotlink manager and update these, you can see that now the text, even though the geometry of the elements is rotated, the text stayed fixed. [0:18:13]

There are different options that you might consider. Certainly the 'Always Readable' is nice. If it did flip over being upside down, it would actually rotate itself to being either facing down or facing to the right. You can experiment with that. That is, at minimum, what I would leave it at most of the time. But the fixed angle is one that you can consider. Remember that this anchor point determines what point is going to be constant. If it does rotate, what point is going to be used for the angle measurement? [0:18:51]

Now there are some options here for relative and absolute coordinate system. These are things that I don't want to cover right now, but these can affect the way that this works. Let's look at some other options. In terms of the hotlinked module, if I select this module here and we right click on it, there is an option for 'Hotlinked Module Settings'. It allows me to set up some preferences for this particular module. You can see it already knows that this module was rotated 270° or 90° going clockwise. [0:19:34]

So that was handled, but notice there is this other thing here, which is elevation. Suppose that we had a split level construction, or we were placing elements; perhaps even an entire building repeated multiple times on a site. You can say I would like to move this up or down. In this case, zero on the story is fine. That is exactly what we want. But there will be times we will want to move it up or down. We can rotate it, and also potentially move it up or down relative to the story. If we put it on another story, it would make sense that it would have a height relative to that story as a reference. [0:20:20]

Now there are some things about the heights of elements. In this case, these are objects, so the heights are relatively independent of the story structure. A chair or a desk has a certain height. But if you were to do things like walls, just imagine, in ArchiCAD 17 you can say that an interior wall goes from the floor level to the ceiling level. And the ceiling space for typical construction is 1' or 300mm or something like that. So you can say that you want the walls to be locked in at 1' below the next story. [0:21:04]

Then by doing that in ArchiCAD 17, if you did change the story structure by making it taller or shorter, then the walls, being linked to the story above would get taller or shorter. It's a powerful feature added into 17. This is something that only exists in ArchiCAD 17. It does allow you put the elements into another story or project; the top linked elements will stretch. That would be very powerful. But sometimes that's not what you want. You might want to have it simple and say whatever height they are they will stay that same height. [0:21:48]

You will notice that this module is linked to a particular location here. If we had multiple hotlinks in the file, we could change that. I am not sure why this is grey here. Let's defer that for a moment. I am going to look at some other options here in a moment. Let's look at the master layer for it. You will notice that



if I suspend groups here that this chair is on the A-EQUIPMENT layer. It probably should be on furniture, but for now it's on the equipment. [0:22:30]

This text is on a text layer, A-ANNO-TEXT. What that means is that all of these elements, when they are displayed around, are controlled by those layers. I will open up my palettes for quick layers here, then say that I want to hide the text. I will hide the layer that the text is on. You can see they all go away. Just like you would expect, if I undo this and do the reverse, I will hide this layer, and all of the other ones go away. So it is just like standard elements, however there is one extra feature. [0:23:18]

If we go into the Layer Dialog, remember that there was a layer, A-ANNO-REFER, reference annotation. This is the master layer for this module, for these copies. If I turn off just that single layer, you will notice that all of these elements disappear. The original elements are there because the text layer is on, the equipment or furniture layer is on. But the master layer has been turned off for these elements. This is a powerful feature here to control the hotlinks as a whole. [0:24:01]

Let's take a look at some of the ways that may be used. If you were doing some large scale planning, you may want to have some plans where the common design elements are hidden and you are just showing the partitions or the overall plan of a complex story. So by turning off that master layer, you can hide those things. In MasterTemplate, I will show you how that's used. I am going to go and open up a copy of MT. let's say New File, and use MT here and launch a new instance. [0:24:57]

MT will show how that is used. In MT, we have these components that are used for eyedropping. These are a set of frequently used elements that I call the "Interactive Legends of Visual Favorites". Legends are something that we are all familiar with. You put a bunch of elements down with some description saying "outlet", "receptacle", "switch", "ceiling light". These are symbols and have a little explanation. But in terms of them being interactive, you can eyedrop them. So these elements that you want to use repeatedly you can eyedrop into your project very quickly. [0:25:46]

One of the things that we set up in MT, and hopefully this will come up soon, is to have this Kit of Parts, the Interactive Legends off to the side of the main project. But we didn't want them to show up when we weren't focused on it. So what we did was we put the Interactive Legends master layer on a special layer we didn't use for anything else. I will describe this, because it also allows us to look at some other uses of the master layers here. [0:26:29]

We have our MT file here. Now if I zoom out to fit in window, you can see this is all we have in this basic starting point for using the template. Let me go and turn off the trace and reference so you can see this is all we have. We have a slab that the building would sit on. Here are a few walls and a roof. If I go to 3D this is the basic starting point. It's expected that you are going to delete those and start fresh, but by having a few elements on there, it allow us to set up the template in a convenient way. [0:27:14]



Now if I go to the Layer Dialog here, you will see that there are some layers up at the top that in our organizational structure are called 'Master'. They have the word 'Master' as part of them. These are master layers for hotlinked modules. The legend that I was just describing, it's turned off. That is why when I said 'Fit in Window' we weren't seeing anything. If I turn this on temporarily, you will see some stuff show up. There is a warning dialog that says that when that layer is turned on, we are seeing the Interactive Legend elements. So this is just a little warning. [0:27:54]

I will say 'Fit in Window', and you will see there is this whole kit of parts, a lot of elements off to the side. By having these elements, which with groups active if I select one element or select all of these, all of these elements in this area are part of the hotlinked module for the interactive legends. There are actually three modules here. There is a second one in this area and a third one here. These allow you to have in MT your own office favorites in one section that are easy to add to. In some projects you might want to have some special components that you put in for just that project. [0:28:39]

But if I go back to that layer and turn off the module legend layer here, you can see how these disappear. Just to make it obvious, when I turn it back on and zoom in on them, these elements are all on different layers. For example - let's suspend groups here so I can select elements individually - this bathtub is on the P-PLUMBING layer. This car is on a landscape layer. They are all on individual layers, but if I go and hide that legend, it will disappear. [0:29:21]

You will notice that in MT we have a master layer for buildings and one for other. Certainly a very powerful way to use hotlinked modules is to have buildings on a site plan. Imagine that you have a project with three buildings. They are all on one site. While you could work on all three buildings within the same .pln or project file, sometimes it's convenient to separate them out, particularly if the buildings really are not closely related in terms of story structure or are not tied into the same underground infrastructure such as parking or things like that. [0:30:03]

Having them separate can simplify matters for one thing, without having to use any teamwork or collaboration technology, you can have two different people working on two different buildings. Another is that your whole layout books and everything are just focused on one particular building. But perhaps you want to see all three of these buildings on the same site for visualization. Maybe you are doing walk-throughs, animations, or some overall site plans or elevations of the entire project. You could then hotlink in an entire building. [0:30:44]

Maybe you want to turn off that information sometimes, because you just want to see the site without these buildings. So by having a layer especially for that, it means that in MT there is something already ready for you to put in a building. It could also be used if you have existing and you have new stuff. In ArchiCAD 15, Graphisoft introduced the whole renovation system, with the renovation palette and filters and things like that. It's not necessary to do a renovation project this way, but sometimes it's nice to say we have existing stuff that is context. [0:31:27]



Maybe it isn't in the same building, but is nearby or it's part of the site, and you just want to turn that off. So you could use that and hotlink it in that way. We also have one module for other, and it could be used for different things, perhaps for phasing. In other words, we could have another chunk of work that is going to be done later on, and that could be a module that you turn off or on. All of those elements could be on the wrong layers like walls, furniture, equipment, slabs, or roofs, but you could turn the entire building or the entire phase off. [0:32:11]

Obviously, you could have more layers than this controlling it. We aren't going to go overboard and create five of these, since most people aren't going to use them. But this gives you some ideas and you could always more for this purpose. Let's take a look at what happens when you do have buildings or multiple story structures that you want to hotlink in. we'll talk about how that works. I will go back to this simple untitled project, and let's give it a name here. We'll call it "Hotlink Module 1". That is now a simple file here. [0:33:00]

Let's then maybe just go in and select everything here, copy it and go up to the second floor and paste. Now I have a two story building, but I will eliminate some stuff over here. That's interesting; I just noticed that when these elements were copied and pasted, they did not stay as modules. I didn't expect that. I expected them to stay as modules. That is something that - let me undo this here and go back to the first floor. What happens if I select these with groups active? We'll select a few of these elements here. [0:34:02]

You can see these have square handles, and these have the normal round handles. I will copy this and go to the upper story. We'll paste it in and select this, and okay. If groups were active, then I was selecting the module as a whole. If groups were suspended, then I was selecting the elements individually. While I couldn't move those elements because they were locked in, in terms of the module, they could be copied and pasted individually. So that is an interesting way to break the link if you want. [0:34:37]

Let's undo that and go back down to this story here. Now I am going to go and repeat this operation. We will select this with groups active. You can see the groups are not suspended, so you can see the square handles and the different colors of them. We will go to the upper story and paste here. Now if I select this, it's a module, so it's linked in. let's say that this upper part was not the same layout. In fact, let's take this marquee and go with a single marquee or a thin marquee, I will stretch this back to there. [0:35:26]

Now this upper story is a different layout. If we go to 3D, we are going to see that we have two stories that are not quite the same, they have different configuration there. I am not going to worry about completing this as a building. Putting in doors and windows is not too relevant or important right now. Let's just say that this design is somewhat interesting. I will go and save this hotlinked module file. I am in this file and I am going to start another file here and start it with the same standard Graphisoft template, because I don't want to complicate this. [0:36:11]





I think I accidentally did not leave that one open. So I closed the file that I was working on. Let's go and say that I want to bring in a hotlinked module. Now you can see there are no hotlinked modules available, because I haven't put anything into this new file. But let me choose a hotlink, and if there were ones listed, I could pick from them. Just imagine if you were doing a hotel, you could put in one of those queen sized modules or a king-sized room module. [0:36:45]

You can pick which one. Here I am going to say 'New Hotlink from File'. This button here, 'New Hotlink'. Now I have a choice. This is sometimes confusing and I have received emails saying, "Why can't I select my hotlinked file? It doesn't show up in the list." Notice that this .mod file cannot be selected. Why not? Because it says I am only looking for solo projects. If I switch this to module file, that becomes available. Actually in this case, I want to select the project file as a whole. This is the entire building. This is the scenario of bringing in an entire building into a larger site plan. [0:37:26]

I will select this. It asks if I want to bring in all stories. There were two stories here. I could also pick a single story. I will bring in all stories. I have chosen this, and it says it's going to be multi-story. It's indicating a certain story that it's going to use as a reference. I will say OK. Again it has a master layer. I will leave that alone, but it could be any layer that you have. You can set up a special one for it. I will say 'Place Module'. It says it's going to paste in two stories, and asks, 'Which one corresponds?' [0:38:08]

Maybe I have a site where we have a different story structure, and I want to set it up on story three, because stories one and two are underground or something like that. Here I will say that it matches to the first story. I will say OK. It comes in, and let's put in another copy of it. I will again say 'Place Hotlinked Module'. It knows that this exists, so I can simply place it. I don't have to select it again, although I could go and choose a different one. [0:38:38]

Let's say we place it again, so there are two copies of it here. I will put it on the first floor again and say OK. It put it in exactly the same place, but I want to put it off to the side. I will move it straight over to the side for simplicity here. I'll select this elevation marker and put it off to the side there. If I go to 3D, we are going to see the same building twice. If I select any element on here, you can see it selects all of them, because groups are active, not suspended. [0:39:14]

Now of course, I can elevate or rotate this. Let me select this and rotate it here, and we'll just move it like that. Perhaps I will say that this is a different height on the site. I can do this through the standard elevate command, but we can also go into the hotlinked module settings and say that we want the elevation - here is where I rotated it 90°, but let's say the elevation is going to go up 8' above that story. Now we do have an issue here that when we move it on the story, the visual representation has changed, because these walls are now considered overhead. [0:40:04]

So there are going to be some considerations we would have to work on. Perhaps we might create a separate view for that. When you are bringing multiple buildings into a large project file, it may be



better to look at it in 3D. So if I go to 3D, you can see that it's rotated and higher in space. We can work with that. Notice that the word "Office" stayed horizontal. It actually looks pretty good. This one is a little tight because of the way it's centered, but for the most part, it has done an excellent job of keeping it all legible. [0:40:46]

What if we were to change the design on this project? One way that we can do this is select this hotlinked module, right click on it and say, 'Edit this module in a separate ArchiCAD'. Now this particular command has been around for several versions of ArchiCAD when you select a hotlinked module. When it first came out, maybe some older versions didn't have that, so you would have to go into the File, External Content, Hotlink Manager, and then you could select this one. This is interesting; I am glad this came up. [0:41:37]

Remember the demo module is the little office design. So that is the one that is just the table and chair and the word 'Office'. This one is the building as a whole. We could edit either of these. This is the alternate way, if I wanted to be very specific about which part I want to work on. Then I can do that. So let's say I wanted to work on just the little office layout. I can say 'Open in separate ArchiCAD', and now it will open up ArchiCAD again. Hopefully this will come up. By the way, it says, 'Is this muted on purpose?' That was at 1:38. Are you hearing me? You are. Okay, good. [0:42:37]

So we are opening up another ArchiCAD and we're going to do a very quick change in that ArchiCAD. We'll see how it all updates. So far, what we've looked at is how you can create a simple, single-story configuration with a few elements and have them repeated everywhere. How you can create a multiple-story and full building and have that be linked in. and of course, in this case, it's nested. Why are we not seeing anything? Okay, for some reason it was zoomed to a different location, so I had to say 'Fit in Window' here. [0:43:28]

Let's just drag this, select it and make it a different chair like this. I am going to say 'Save' by hitting Command+S or Ctrl+S. now this is a module file or .mod file. It actually has less information in it than a regular .pln. So when I open it up, you will see that there is only one layout, just the default single layout, single master, because as a .mod file, it's really intended to be used just as a design component as opposed to a full layout book. So when we saved it as a .mod, it didn't try to bring over all of the layouts. [0:44:18]

In fact, there are no views defined, because it's just essentially raw materials. Now let me go back to the ArchiCAD file I was just in. it doesn't show the change here, but I can say 'Refresh status'. Now it says that it's modified. So it checked the time and date that it was modified. The last time it looked at it was 1:22, it's now 1:49, so I am going to say 'Update' and OK. You can see all of these have now changed, except for this one which was not actually linked. So that does bring up the idea of do we want to have this linked to the external file. [0:44:58]



So remember what I did earlier, where I modified it in its original position. Then I overwrote the .mod file and everything updated. In this case, I opened the .mod file directly in a separate ArchiCAD and updated it. So it had the same effect here, but this one did not change. So these are two legitimate ways to do it. You don't want to mix them. But in one case, you are working in your natural design. So say you are working on this project, and you are working on the design and changing it and adding more detail to it as you go along. And it's in context. You know that if you just simply select all the stuff, and resave it on top of the original .mod file, these will update. [0:45:44]

In the other cases, you might say, let's take this, save it with the option - let's suspend groups here. We are on the first floor. This is odd. How did that become the hotlink? Oh, this is our file that has the two buildings. So it's part of that hotlinked one. Let's go to the other one. I guess we closed the original one. So we could select these elements here, and when we did the 'Save Selection as Module', there was the option to replace the selection with this hotlinked module file. This is gray right now because it is part of a hotlinked module already. But if we were for example to say that we wanted to break that link, we could do it. [0:47:06]

There is this choice here- and I know I am not explaining it as well as I could - let me try it again. If you want to continue to work on these elements in context, then don't substitute them into a hotlinked module. You can then keep on working on them and resave them on top of the .mod file, and all of the instances will update. But if, on the other hand, you created them originally but you would prefer to work on them in that separate file - maybe you have someone else working on them or it's a separate phase of work - then certainly replacing the original work you did with a .mod file and opening that .mod file periodically to work on it becomes a very legitimate choice. [0:48:01]

There is one other more complicated situation that I want to bring up. So we don't have a site here. Let's go and say that we have a site. I am going to go in and take this here, and go add this, add a little more information. And let's take this up to 10' and this up to 6' and this up to 3'. Now if we go to 3D, we are going to see the site is actually coming up through the building. Of course, that wouldn't be a good design. But let's just say that we had something on here. I am going to go and take this and cut out a hole. I will press down here and say, instead of adding this, I am going to cut out a hole here. [0:49:20]

I am also going to cut out a space like this. Then I will put in another mesh here and make this other mesh something where the top is concrete. So now if I go to 3D, we are going to see a rather strange thing. Let's take these points down here. I will take it down there. We'll take the heights down, and maybe we'll take this one point down to there. So now I have something that is in context, where there is a pad out here and terrain. Now if we were designing this building and putting in the doorway and access on this side, then while we were working on the building design, we may want to actually see this. [0:50:41]



Right now this building here is being referenced from an external file. Let me make sure groups are active. That is where the design is going to be worked on. But when we are working on it, we need to be able to see how it fits into the terrain. So forget about the fact that this building here is a copy of it. Imagine these are separate buildings. How would we work on this and be able to see the terrain or the context in reference to it? Because right now we can't edit it, and if we open it up, we won't be able to see it. [0:51:17]

So let's see how this works. It's actually a simple trick to do. If I right click on this, there is an option to edit the module in a separate ArchiCAD. This hotlinked module is actually a .pln file. So in this case, it's two stories, and it's going to open that up. So we are going to be able to see the file that I worked on 20 minutes ago and it was closed. When I switched gears, I had ArchiCAD close the file. So we are going to open that again. When we have that open, we'll be seeing the building in isolation. But we want to be able to see the site. So how can we do it? [0:52:04]

We don't want to copy the terrain over, because then we would have duplicates of the terrain and if the terrain or landscaping changed, it wouldn't be kept up to date? So the way to do that is to hotlink in the site. You can see here in this building, it's in 3D, and there is no context. Let's say that I wanted to put in a door. I will pop in a door there. I will save this. By the way, when I save it, it says that there are some things that haven't been updated. You will notice that these chairs haven't been updated. It's saying that before you save it, you might want to get everything up to date. I will say 'Yes'. [0:52:49]

I could say no, but I will update and continue. You can see the chairs update. Let's go back to the other side here. In order to get this updated, we need to go to the hotlink manager. You have to be on the floor plan to do it rather than in the 3D view. So let me go back to the floor plan and go to hotlink manager. And it says it has been modified, we'll say 'Update'. Now you can see here is the door that has been put in. I would like to see how that door fits into the context, because right now I would have to go back and forth and make sure the door was in the right relationship to it. [0:53:40]

So here is what I will do. I will save the site plan. This is just a terrain model around these two buildings. Let me save it as 'site plan' here. Now the site plan includes elements like the terrain mesh, that is editable, and elements like the building that are linked, that you can't edit individually, because they are linked to the external file. I am going to go back to this hotlinked module here and let's bring in a hotlinked module that is the site. When I do that, I am going to say 'Choose Hotlink' and 'Create a New Hotlink'. Basically, I need to go find another file. In this case, it's going to be the site plan. [0:54:41]

I have to make sure I am in the right format. Is it a .mod or a .pln file that I want? I do want it in this case as a .pln. I will select that, and say maybe I only need one story here. We could do that. I will say OK. There is an option here that we haven't done which is 'Skip nested modules'. If you think about it, if I brought in the site plan, and it brought in the buildings, the other buildings, or all the buildings that were



placed, then we would have duplicates. We would have buildings on top of buildings, and it would get very confusing and perhaps impossible to really manage. [0:55:19]

But by skipping nested modules, it means that it will only get the native elements from this site plan file, skipping the buildings that have been placed in, so you don't get this circular relationship. So I will say 'Place it', and it says, 'Do you want it in the center of the current view or the original location?' it's very important here that we put it in its original location so it fits in exactly where it should. And I can zoom to the pasted elements, so it will zoom out a bit, and you can see how it fits in. Okay. [0:55:48]

Now this element here has square handles, because it's in the site plan file. It's part of the hotlinked module for the site plan. But here now I can see this, so I can move this door, and I'm going to be arbitrary. I will move it down to the corner here and move it up 2' or something like that. So I have now placed part of this building in relationship to its context just as a simple demonstration. The context is linked in from the other file, but I am able to see this when I am working on it. [0:56:22]

You can have files hotlinked into each other as long as you use the 'Skip nested modules' option for that. I will save it and we can go back to the other site plan. Notice that the door has not updated. That is because I need to go to the hotlink manager and update it. Now the reason why Graphisoft does it this way instead of automatically updating it is because sometimes things are being worked on and they are not ready to be shared. Someone may work on something and it's in process. You would want to have the last clean version in your file. [0:57:05]

So you want to be able to manage when you are going to update. It gives you that flexibility. Right now, because I am in training, it's annoying having to go and update it, but basically this is something that you have the option of updating it when you want. Whenever you open a file, it will tell you if hotlinks are out of date. When you save a file, it will also tell you. So you will get notification there. That is what we see. So I will say OK and you will see it update now. [0:57:37]

Now a final thing that I am going to do for these hotlinks is talk about how elements can join together. So far we have been doing things that are touching each other or in the context of each other. This furniture for example is next to the walls; this building is linked into a site plan and it's sitting next to the mesh. But we haven't had a wall that is part of a module tied into walls that are not part of a module. The short answer to that general question is that walls will clean up to each other like they would normally, even if one is part of a module and one is not. [0:58:24]

Now let me do a quick experiment here. I have too many files open here. This is the MasterTemplate one. I am going to skip that and open the - no let's not do that. So this is the original element. Remember that these two elements are grouped. These are the original source of what became that .mod file there. So I am going to close this one out so that we don't have that open. Now I will select this wall. Remember, this wall is part of the main file here. Instead, I am going to select it to be part of this



module. Sometimes, in addition to furniture, you will want to have partitions and doors and things like that. [0:59:46]

I will select these and save them as a module with a different name. I'll call it "#2" here. I will get rid of these two walls and select the module. If we go to the hotlinked module settings, can I choose a different hotlink? It does not allow me to choose a different hotlink. So I would have to go and delete this. Let's delete these guys, and place new hotlinks. Let's go to External Content, Place Hotlinked Module. I am going to go and choose a hotlink. This is not important, this nested one here. Instead of being the ones that I already have, I am going to go back to the module file here and pick the new one. [1:00:49]

I will select that, just a single story, this one here and say OK and place. Then if I move this over, how much was it? We'll try 9' there. Now this module has the wall. And you will notice that the wall cleans up the same as the other wall. So even though this is part of the module, it cleans up just fine. Of course I can select this and I can drag a copy of it over. So now I am talking about a layout that includes walls. And they clean up just fine, just the way you would expect. [1:01:37]

You can have walls in there. You can also have doors and windows. I don't have a really good example here, because we wouldn't have doors between these offices, we would only have doors leading into them. There are more options here for complex projects that I haven't covered. Let's see if I can do these in the next 10 minutes, because I don't want this lesson to get too long. I see a question from Ken A., "How do modules affect door schedules?" That is a very good question. So let's look at this. [1:02:23]

I am doing a couple of things here. I am going to go and pop in a door. Let's make this door a bit smaller, 2'6". We'll drag this to there. Okay, this door has a number based on that it was the second door that I placed into the project. I can go and multiply a couple of copies here and take it over to there. I am working quickly; these are not placed in exactly the same location. But if we look at the door schedule by going to our schedules here, we have what looks like just two doors. That is because the doors that are identical are going to be shown as a single entry. [1:03:36]

I can open that up, and you can see there are these three doors here. Now one of the things that we might want to see on a door schedule is the location of the door. So let's go into the Scheme Settings here and say that we would like to have, under Window and Door, there is an option for putting in the location. Now there is 'from zone' or 'to zone'. So if the door is opening or going into a zone, we might want to have that as the location. I will add that in and say OK. [1:04:13]

Right now, if I hide this, you can see its empty, because we don't have any zones on this project. So let's go to the floor plan and put in some zones here. For now, I am just going to put in a zone manually. So I will find the boundaries of this room here and this zone name will be 'Office 1' and 'Room 1' here. Let's drag a copy of it here. Let me undo that. Let's eyedrop this here and pop in another one here. This one



we are going to change to 'Office 2' and 'Room 2'. Let me move this down to there. If I go back to that door schedule, we are going to see that the information is available here for these doors. I can change this and say just location or room, and it's still going to show the same information, even though it originally said 'To Zone'. [1:05:41]

I can definitely have that there. And I can move this around if I go to the Scheme Settings. I can move this up to a different position. And you can see how that is showing up like that. So these doors are identical. They are showing the zone information. This does not relate to the hotlinked modules, but it does show up in terms of some options that you might consider. So the hotlink module, if I select this module here and right click on it, under 'Hotlinked Module Settings', there is the option of a Master ID. [1:06:31]

Basically, each one of these modules has the option for an ID that can be used for certain scheduling purposes. So I will call this 'Office 2' as an ID. And if I right click on this and say 'Hotlinked Module Settings', we can have this 'Office 3'. So now these are two hotlinked modules that are identical, except for their Master ID. So this feature of Master ID was added at some point, perhaps in ArchiCAD 14, but it does allow for some more sophistication in terms of the schedule. [1:07:31]

One of the things that you can do for doors, in fact, you can see here that it's showing 2 and 1. So the door marker is actually showing the zone information. Just to prove it, if I select it and change it to '9', I have just changed the zone here. I will zoom in or out, and you can see that the door marker changes. So the door is able to pick up the dimension marker. So we can see the 'DD02' but it also has the option for the text. It says 'Room and Door ID'. It is showing the room as well as the door ID. The preview isn't showing it, but it's showing the room number in there. [1:08:24]

So some of the standard Graphisoft door markers have that option. Now imagine that the zone information is actually part of the module. Remember, this is our source for the module. We now have a room configuration that includes a zone. We can leave the text in there. You would not want to put both of them at the same time. We'll go to File, External Content, Save Selection as, Module. In this case, I will make it yet another one just to avoid confusion. We could overwrite something, but I will call it "#3". Let's get rid of this module and the zone and this module as well. [1:09:32]

Let's place in the hotlinked module. We are going to choose a hotlink. We'll go to the new one and pick #3 with just a single story and say OK. We're going to place it. And now it initially comes in right on top. But we can take this to 9' here. You will notice that the office here, or this configuration here, they both have the same number, because these are the same zone. Let's drag another copy of this 9'. Now we have three that look similar. Remember that in the hotlinked module settings, I can set up this Master ID. [1:11:11]



I want to go into hotlinked module settings and call this office 3. Now each one of these has a different name. This door information, I haven't experimented with it, so I am just going to have to describe what I understand would be possible. Instead of having each of these offices being a single hotlinked module, you could imagine that you have a hospital, where you have a very complex floor plate, but the third, fourth, and fifth floor are all quite similar. [1:11:54]

So you would have rooms, and you might have rooms 1-25 in this wing, but you are going call them rooms 201-225 or 301-325 or 401-425; you will have the story number as a prefix. So if we were to take the entire story floor plate as a module, and have the zones with the correct information that this is room 25, or 22 or 18 on this story, but prefix it with the story, you would be able to generate schedules for any of the floors by combining the story number with the zone number, which indicates the particular room. [1:12:57]

I haven't worked out the details of that. I think it would be something that any of you who have a complex project like that would understand the concept of it. You are going to have similar floor plates, but perhaps some differences even as simple as a different story number before the room. So there would be some combination of the doors and the zones being able to reference on the plan as well as in the schedule of the story or the module information, and combine it. Do some text combining with, for example, story 4 and room 21 and saying 'this is room 421'. [1:13:43]

There's not a quick way to demonstrate that, but at least giving you some ideas for how that type of thing could work. So we've been going about an hour and twenty minutes, and we are well over the hour that I had targeted for. Let's finish up my main lesson and open it up to some questions here. I see that there was a question from Ken A. about how modules affect door schedules. If you have doors in the module, if we actually had these doors as part of the module, and they were numbered 12, 13, 14, etc., they would show up in the door schedule. [1:14:30]

In the door schedule, you can do certain criteria to include the doors or not. I think there are ways that you can filter them in or out; and ways that you can combine them in the schedules, let's say room numbers or floor numbers with that. I am going to have to wave my hands and say, in the context of a complex project, this can be worked out through some combination of the data points. David N. says, "If the .mod file location has changed on your hard drive, will the .pln file still be able to find it, or will it need to be re-linked?" [1:15:14]

The answer is, if I were to go and let's go back out to where this is. Let me create a new folder here. Let's call this "Modules". I am going to create a folder and put all of them in there. So now they are in a different location, they are buried within this. If I go to this file here, and say 'External Content, Hotlink Manager', you will see it says these are missing, because they were moved. It doesn't disappear from the project. If you reopen the project, they will still be there. The information has been copied into the project file. But it can't update it until you relink it. [1:16:03]





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So the way to do this is very simple. I relink this from a file, I make sure I know which one this is, it's 'Demo 1'. I go in here and say, "There it is. Go get it." It says, "Ah, it's been relocated." I go in here and relink this one, and here is the one I want there. It would be nice if it would pick up the fact that these are in the same folder and automatically relink them, but you have to do it one by one. So now these are both handled. [1:16:29]

They don't actually need to be updated. It's just that we've made note that they are in a new location. And when I say OK it will remember that. It knows that it hasn't been changed; it's just in a new location. It's now happy, and if I go back in later to the hotlink manager you will see that they all are the latest version and don't need to be updated. That is the same thing that will happen with MasterTemplate. When you install MasterTemplate, it has some hotlinks like the Interactive Legends. They refer to the locations on my computer when I was working on the template before I saved it for distribution. [1:17:09]

When you install MasterTemplate, it will give you a warning that there are hotlink modules that are unavailable. It will give you some options, such as suggesting the files are on a BIM server that isn't running. Basically, it's just saying, "I don't know where to find them." You can ignore that, because it has all the data, it's still in the file. But if you want to avoid getting that warning message, then you will want to use that relocate option under the hotlink manager. [1:17:38]

Alright, so it looks like there are no further questions, so we will finish this up. If you do have any follow-up questions or those of you who listened to this or watched this in the Best Practices member area, please add your comments and questions to the page down below. This has been Eric Bobrow, thanks for watching.

[END OF AUDIO 1:18:03]