

**Oregon-Specific COMcheck
Pacific Northwest Division
27169774
United States Department of Energy
August 19, 2010
10:00 am Pacific Time**

Rosemarie Bartlett: Welcome, ladies and gentlemen. I'm Rosemarie Bartlett with the Pacific Northwest National Laboratory, and I'd like to welcome you to today's webcast - COMcheck for Oregon, brought to you by the U.S. Department of Energy's Building Energy Codes Program.

Our presenter today is Pam Cole of the Pacific Northwest National Laboratory. Pam, take it away.

Pam Cole: Thanks, Rose. Today is the first time, historically, that we're going to go through the software COMcheck based on Oregon-specific commercial code. We have never had Oregon's code in COMcheck before. We have other state-specific codes in this tool and the national code, so this has been exciting times for the BECP Team to be able to develop this and offer it to Oregon designers, builders, and code officials; and the intent of it was to make it easier for all of you Oregon that's having to show compliance to your commercial buildings, a tool that you can easily access and that would be simple to use and that plan reviewers and code officials will also be able to understand and hopefully the permitting process of plan review will go faster and easier for all of you. So we're happy to present this to you today.

I'm going to through the basics of COMcheck. I won't get into all the code-specifics of all your amendments that you have, a brief overview, probably most

of you know more about your Oregon code than I do at this point because I'm still going through a lot of the amendments and trying to get up to speed as far as memorization. I actually manage the technical support for the Building Energy Codes Program and I answer questions throughout the entire U.S. on all the energy codes for residential and commercial buildings and states that can use our tools, not just COMcheck but REScheck. I answer those compliance questions as well, so I'm now getting up to speed on your state as far as being able to handle questions specifically related to your code and to the software. We also have support from the State Energy Office. So if you do have any questions or you want an interpretation of your code, you should direct those to the State Energy Office; however, you can always submit those questions to us. We still might send them back to them. But anyway, you do have some mechanisms to get some technical support in different avenues.

The page that I'm showing now is the download page for COMcheck. This isn't the Home page of energycodes.gov. So at the very top, it shows the URL and then COMcheck and then download. I wanted to provide this so this is your first avenue if you didn't want to go right to the Home page to get quickly to this tool. If not, you could just save as a Favorites on your desktop, energycodes.gov, and you could get to the software through another mechanism so... But anyway, this is the download page.

And when I say download page, there's a couple tools out there. Not to confuse anyone, but we do have other tools that are available. But right now, the only tool that will work for you is the downloadable desktop one. We are working on the COMcheck Web tool. That is the Web-based tool. The State Office wants that tool available, does recommend that all users go to that tool and use that one

because that tool will remain always up to date. So any time that there's an enhancement or we make a change to these tools, it's automatic with the Web tool. However, the Desktop one, it would be that you'd have to download a more recent version.

And I'm going to show you something in the Desktop tool that'll make that also easy for you because it'll give you a reminder if there is a new version out there or a new version build that you need to be aware of. But again, the important thing to remember today is that the COMcheck Web tool does not have Oregon in it, and that's not expected to get done until probably the end of the September, and then there are some other things that are not going to be available with the Oregon version in the Web tool yet either, and that's default values. And I'll show what I mean by the default values so if you're a user that likes to use defaults, then you need to stick with the Desktop tool. However, these tools are interchangeable. You can save your data files and they can go from one tool to another, so don't think that just because you're using the Desktop tool now, what are you going to do with all those projects that you saved once you move over to the Web tool. That won't be the case because you can open those same projects right into the Web tool the same way, so they are interchangeable.

So let's go a little bit about commercial compliance and how COMcheck works. As far as building systems, it's broken down by the building Envelope, Lighting, and Mechanical, which is your HVAC systems and service water heating. They're all separate as far as compliance when it comes to using COMcheck. It's not a total building performance tool. However, what's unique about Oregon's code and COMcheck is you have two compliance options in that tool. You have a Prescriptive option and you have a simplified Tradeoff option, and I will show

what I mean by those, and one might work better for you, the other one might work better, and it all depends on your building because you will see different compliance results depending on which compliance method you choose.

So what do you need before you get started in using the software, and this is very basic. Of course, you want your plans in front of you, not your only your plans, but you want your schedules as far as your insulation values, your fenestration, U-factor, solar heat gain. If you're going to do lighting, then you want all the lighting fixture details. You want the lighting schedule. And if it's floor-by-floor, great. If it's the entire building or space-by-space, you want to make sure you have it in front of you before you get started. Heating and cooling system details, if you're doing the Mechanical section. And again, the Mechanical section, it's optional; Lighting's optional, interior/external lighting. You don't have to do everything all at once for the building. You could be starting with just the building Envelope shell and then it could be the lighting designer that's going to take over the piece that's going to do the lighting portion. With Mechanical, there is no pass or fail. Lighting and building Envelope will give you a compliance result, but Mechanical will not. But what it does provide you is everything that is in Oregon's code that is based on their mechanical provisions, it will embed that in the Compliance Report. So it makes it easier for you as the mechanical designer that you don't have to go to that code book and figure out if you have a simple to even complex system what all the requirements are because it's going to actually embed what they are based upon the systems that you install or that you input into the software, and then of course then your service water heating details can be entered in plant details as well.

So the main steps before I go into the demo of the software would be: There are several code options in this tool and so the first time you download it, it won't default so much to Oregon, and I will show you where you need to change that and choose Oregon as your code. You have Project Information, basic stuff about the building; Building Components that you're going to be entering if you're doing the building thermal envelope, Interior/Exterior Lighting, if you're doing that, and then the Mechanical. And once all is good, you can then have a mechanism to print these reports. There's also an option in the tool that you can electronically submit them. State Office also recommends that this is a nice way to get them down to the plan reviewer quickly. You don't have to drive down there anymore. If they know you are and you're a registered designer with that building department, then send them to them electronically and then deal with it that way. Makes it time... As far as saving time, this is a great way to do it. And then of course you definitely want to save that data file if you have to go back and make changes and then also save the report. There's two different ways that you'll save these files, and I'll show you.

Here's a screenshot of what I meant by the appropriate code, which is very important because in the Project tab, you could still choose Oregon as your state. It will have a popup that'll come up and say, "Hey, this is a state-specific. There's a state-specific code in here. You've got to change the code option from the code menu to Oregon." And then there are - - let's say you're a designer and you're not just dealing with projects in Oregon, you can go out to your website. There's a link right from the tool to find out what code is applicable and if you can use COMcheck and go out to the status of State Code's Web Site, which is on energycodes.gov, and look at what's happening in the other states if you're an architect or whatever that's working in Nevada or Utah, whatever it might be.

You could still be able to use this tool, but you're going to be doing it to a different code, not Oregon's code.

There are defaults that we'll talk about and preferences, you can set preferences in this software, which can be nice for you if you're doing lots of projects. With Preferences, there are options within there that you can change that every time you open this software, it's customized to you. You can have a Beyond Code Advisor that sits on and what that is, it actually takes you out to the website, if you are connected with your browser, and it will give you information on beyond code components such as advanced framing or metal buildings. And so that's more or less, it's just a little help - - helpful tool that if you want to learn more about a certain building assembly, it will take you out to that Beyond Code Advisor and get you more information. It has nothing to do with compliance of the tool though. There's also a version update that I discussed a little bit, and I'm going to show that you works that it'll actually automatically check for you as many times you want - monthly, weekly, every six months. It'll go out when you're in that tool and if you're connected to the Internet, it's going to tell you: Hey, there's a new update. You want to go install the new update. And then project information can also be customized. The applicant and the reports and signatures can be customized and then you have that mechanism about emailing those reports.

So Project Information. Project location, we know it's going to be the in State of Oregon, but what we have done with Oregon is that it only will default to cities. You will not be using the county option; and it's not so easy to even change it to county option in the Desktop tool, so I'm not going to really be discussing that. But it's city-specific, so you will choose the city applicable to your project. If that

city is not in the dropdown list, then you choose one with the closest weather data. If there's an issue with not having a certain city in there, then that's something that we'd want to bring up to the State Energy Office and that would come back to us to see if we can implement that city into the tool. But we've already reviewed all this information and all the cities that are available within the tool. So again, if you have any questions on that, then you submit them into me or you can send them to the State Office.

As far as Project Type, let's talk a little bit about this. This is where the confusion comes in with commercial buildings no matter if you're using COMcheck or not. When is it considered new construction, when is it considered an addition or an alteration. Well if it's new construction, that's pretty straightforward, that's pretty straightforward. But what if this is a shell building that's an unconditioned building that now you're going to occupy, what would you consider it? It actually would fall under new construction. If it's a change in occupancy, then you are looking at: Are you increasing the energy usage of that building based upon the new occupancy. Would that be considered new construction, addition, or alteration? This one's up a little bit for interpretation as far as changing the occupancy because typically when you do, you're changing out something else in that building, most likely lighting. And if that's the case, it's determined on: Well is this an alternation or you going to have to show the entire building as new construction? It wouldn't be an addition. The only time you're going to be using addition is if it is exactly what it is: You have an existing occupied building and you're adding on conditioned space, then that is an addition, and the addition for compliance in COMcheck is only that portion of the addition. So the common wall, roof, or floor that you're adding that addition on would become an interior wall, ceiling, or floor, and those components would not be part of that addition.

It's only those new exterior building thermal envelope components that would comply. The same is true for the lighting. Lighting would then be done on a space-by-space for the addition, and you wouldn't be looking at the existing part of the building.

So let's take another example before I move on. What if you have an addition that you're doing to an existing building, but you are doing an alternation to the existing part of the building. Those are two separate reports. You would have to show the addition separately and then any alternation that you're doing to the existing part of the building would be done on a different report because there's different requirements that come into play when you're looking at alternations. And there are specific provisions in Oregon that Oregon has that are under Envelope, depending on what you're doing, and I'm going to show you in the software, and lighting. Lighting is... There's some amendments that are way different than the national codes for lighting, and it's space-by-space that you're looking at if you're doing alternations for an existing building done on a space-by-space basis.

So anyway, let's move on. So project details, pretty straightforward. All this information is optional to enter into your projects, and you can also define it again and save it as a preference in the tool.

Here's a screen shot of the Project page, and I have circled the Building Use and Exterior Lighting areas. What is critical is for - - first is the code. You need to have Oregon's code before you can even begin this. But regardless of whether you're doing Envelope, Interior Lighting, Exterior Lighting, or Mechanical, you to have define the Building Use Type. You do not have to define Exterior Lighting

areas, which is down in the right-hand corner, unless you're doing exterior lighting. But for the software to actually start calculating a compliance index for the building envelope and/or lighting, you have to define Building Use Type. It could be whole building or it can be area category, which is space-by-space. That's optional. It's up to you. If you're doing lighting more than likely and you have a complex building with several floors, you're going to be choosing area category. But just keep that in mind, you can't start running a project, you'll see some things that will appear. It won't start calculating because it doesn't know what the loads are in the building unless it knows what type of building it is.

Building Components. Before I get into the actual Envelope and we start doing some takeoffs, what are some things that I want you to understand before you start doing a project? And a big one is: The components separate conditioned space from unconditioned space. What are you defining in the project when you're looking at the building thermal envelope. You're actually just taking the exterior portion of that building that defines the conditioned space. If you have a three-story building, even if it's mixed use and you're going to show compliance to it, then you're taking the exterior, not those interior floors, not those interior walls, those are components that separate conditioned from unconditioned space. Those are not part of your compliance. Other things would apply would be if you have a warehouse that's unconditioned that has office space. Then you're only running takeoffs for the portion of the office. So if there's only two exterior walls of the office and then you have an interior wall that separates the warehouse from the office, you're having to show that interior wall as part of the office for the compliance part. You're not showing the warehouse. But again, you do have issues when you're dealing with office warehouse space because if you have that interior wall, it needs to go all the way up to the roof deck or you're going to have

thermally isolate the office from unconditioned space. These are questions that we can answer offline and you can submit them, questions that get into details about doing takeoffs to buildings can of course depend on how complex that building is. And again, we have ways that you can send those in to me, or I'm going to answer as many as I can at the end of this presentation.

So what else about Building Components? There are lots of options in the software that might not be applicable. What if you're not doing any skylights? Well then you don't show skylights. It's pretty straightforward. But there's several buttons that you can choose from, but not all of them will probably apply to your building. And then an important piece of information would be group your like components. I've seen projects that have come in. I let designers send me their data files if they're truly stuck and they just don't get why they're not passing. I can quickly look at those reports and pretty much easily tell where they might have some discrepancies in their building projects and their inputs. But one thing that does happen, especially for a new user is they think they have to enter every component. You don't have to do that. If you have all of your fenestration is the same, then you can total up all your fenestration. If you're showing one wall assembly, you can total up all that fenestration and put it as one line item, total amount rough opening of the fenestration and the U-factor and solar heat gain of that - - of those components. Of course, if they're different, then you go to itemize them out. Same applies for walls. If all your walls are the same construction, you don't need to enter every well. One line item, 16-inch on center, 20 over inch on center, total square footage, and total square footage of your components, four walls, is the opaque wall, meaning you do not subtract out any windows or doors. This software does it for you, so you're just taking the

height times the length of the walls, and we'll go through some of these components in the software.

Gross Area is another thing I just want to mention here is that you need to pay attention. For a lot of these entries, things can change as far as how you're doing takeoffs. Not only in the building envelope, but for lighting. Your inputs for not just square footage, but it could be quantity when you're dealing with lighting and not just square footage for Envelope, but it could be linear feet. So there are some things that you need to look at when you're doing your inputs because this can be a significant change in your compliance index if you enter those areas incorrectly.

Some things that are not in Oregon's code that are offered in COMcheck that you can use is Projection Factor, and this actually is allowed. Oregon will allow you to use it. So what is projection factor? This is actually just the overhang of the building and it is an input and it does help you with your solar heat gain coefficient and your solar gains on that building and it will affect your compliance. So if you do have some nice overhangs and you want to input the values for your projection factor, then you're allowed to do so. Orientation could also help you because orientation will look at your, again, your overhangs of your building, how you are facing your fenestration, and it might help you with your fenestration levels as far as where they are. So this is not a mandatory that you use these, but they're optional in the tool.

Couple more things before we get to the software is Prescriptive Tradeoff and Above 40%. And when I'm talking about percentages here, this is your percentage of window to wall ratios, so this is your fenestration. And the

Prescriptive and the Tradeoff, these are two compliance options in the tool. You might just want to use Prescriptive. But if you know your building has more than 30% window to wall ratio, then you're probably wanting to go to the tradeoff tool, but you can't go above 40. If your building has more than 40% glazing, then you're going to have to use 90.1 2007 ECB, and that's the Energy Cost Budget Method approach, and it also is with Oregon amendments. So if you have a building that does have greater than 40, my recommendation is to work with the State Office and determine how you're going to show compliance for it because COMcheck cannot be used for that one.

What about Mandatory Requirements and Lighting? There are mandatory requirements in Lighting that you won't be entering. There's not an option to enter your lighting controls right now. That's a question that comes up: Where do I enter my controls? Controls are a big part of lighting, I need to be able to show whether I'm using an occupancy sensor in this space versus a different time set on - - in a different space. That's not something you can enter into the tool, but what the tool does do is it actually will calculate your proposed overall wattage against the allowed wattage. Whether it's whole building or it's space-by-space, that's what the tool is intended to do is look at your overall fixture wattage for the entire space or building. And the LPDs and what it's based on is based on your project from the Project screen that you've chosen from, and we'll go through this.

So when you're adding fixtures, and I just did a screenshot that you'll see is whatever building use type that you've entered in the Project tab, whether it's one or three, it will move those over into the Lighting tab and then you can start defining your lighting schedule for each one of those building space types or

building - - whole building types, and it will calculate your allowed wattage against the proposed wattage for those sections. There's also an option to show your exemptions and allowances, but I want you to be careful with that because there is no - - there's no ding or anything that tells you you've entered something wrong in the software, so you might be showing an allowance or an exemption for one of your lighting fixtures that truly was not intended for that purpose, such as a retail display cabinet, however that retail display cabinet was for a whole different space type, so you got to be careful about where you're going to show those, and I'm going to show you how the allowance and exemptions calculate in the software as we move along.

On the Options Menu, as I've already talked about, this is the exemptions and allowances and the big warning to you is to choose them carefully. Again, all the way to plan review is that they're going to be looking at what you have for your exemptions and allowances and how it's calculated in the software, so pay attention to those when you're using them.

Again, the Mandatory Requirements apply the same for exterior lighting. There are tradable and non-tradable spaces in exterior lighting. I call them spaces, but they're outside spaces. But what the overall is is that you're looking at the total connected power against your exterior power allowance. But we'll play around with that a little bit because there's non-tradable areas and if you're not familiar with the exterior lighting requirements, they're pretty much similar to the national code. There are some different amendments Oregon has, but it is straightforward as far as what can be traded and what can't, and we've tried to make this as simple as possible within the tool to do your exterior lighting design.

Here is a little quick screenshot, as I mentioned earlier, about paying attention to quantities and square footage and linear feet that this is where quantity and units come into play is on your exterior lighting, and I see this happen quite a bit is that they just quickly move forward, a user will start inputting the information, but depending on the exterior lighting area can change things drastically as far as the quantity and the units of that area that you need to show. A drive-up window is way different than the main entry of a building. You're doing square footage versus how many windows, so you need to be careful about how you're entering these types, these exterior lighting types into the software.

I've already mentioned what works differently, Envelope and the Lighting, that you will get a compliance result. Mechanical equipment is not a pass or fail and basically it's a customized way to enter your HVAC system or systems, your plant water heating. And as I said before, it will generate that customized report. It is very specific to Oregon's requirements. Even Oregon's sections of their codes are on these report, and I'm going to show you a actual case file and we're going to go through and you'll get to see an example of a project and how these - - what these reports look like.

The mandatory requirements will also show up on the reports. My suggestion to anyone that's using the tool, I get asked a lot is: Well do I submit the actual parts of the inspection checklist and that part of the report to the plan reviewer? And yeah, you do, but you need to keep a copy for yourself because all those mandatory requirements, not those things that you input into the software, but the mandatory requirements will be embedded in those reports, so you need to be aware of what else is applicable in that building that you're going to have to make sure you're meeting before that inspection takes place.

And then we will go through: There is help within the software. You can go to - - there's a Help Menu that shows you all the inputs, how to enter each building component or lighting, and we also have a Technical Support document that right now we don't have the Oregon Appendix in there. We are working on that, but it is out on our website. And that has, if you want to really spend a lot of time on the methodologies of how COMcheck was developed, the Technical Support document is out on the website on that same screenshot that I showed you to download the software is that document and it goes through the basis of how that tool was developed and the underlying assumptions on how we calculate the building assemblies, as far as air films, framing members and so forth, all of that's already done for you. But the methodology of it's in that report. But keep in mind again, we do not have available for public is that Oregon Appendix to that document. We probably won't have that out there till I'm thinking the end of this fiscal year. But if you're needing some information from it, feel free to submit a question in or submit an email and we'll get what you need.

Here's the screenshot of the Help and you can go through, and the mandatory requirements for Oregon are in there and also the default values for your fenestration are in there as well.

One more thing before we go - - move over to the tool, some screen operations. Down at the bottom of the software, you will see a Compliance Bar that tells you whether you're passing or whether you need to enter information and a Status Bar that actually will help you when you're entering your data into the tool, so watch those two things down at the bottom when you're entering your data. But the one thing I always recommend is: Don't pay attention to the compliance

results as you're entering Envelope or lighting because it will start calculating as you're entering your components, but it really means nothing to you yet until you've entered that entire project, so you're going to see major differences. It could be failing at one point and passing by another as you're entering your data, so be careful about watching that until you're done entering everything that you need to enter for your project.

So some color things that I want to mention. If you see anything in red, red means bad. Red means that it's missing some information, whether it's square footage, whether it's a U-factor on a window. If you see something on the screen and it's in red, it cannot finish calculating a compliance result for you. So pay attention, if you're at a standstill and you're like: I don't know why I can't get a result. I don't see what's wrong, look for anything that's in red, and it doesn't have to be in the Envelope section or the Lighting. It could be that you missed something in the Project tab that's critical, such as your building use type. That happens too. You just start entering all your envelope information, but you forgot to put what type of building it was. It won't calculate compliance.

Green is what you'll see when it does calculate. Green is good because if it shows up in green, then you're passing. And regardless of whether it's Envelope and/or Interior Lighting, if you're seeing something in green, you'll see that plus sign in front of it and you'll get that compliance result.

And blue, the TBD also means that it can't determine compliance. You need to go back and look at your inputs and probably more than likely you'll see something in red and really that's what the blue actual sign will mean down at the

bottom is that there's probably some missing data somewhere that you're not, that you haven't entered and it won't calculate, so just keep that in mind as well.

And then to the defaults, and I will show you how this works as far as the Context Menu and how you can of course do the same things you can with other Window applications - cut, copy, paste, but there are defaults that are allowed to be able to use in this tool. And again, those default values are not in the COMcheck Web tool. But as I've mentioned before, when the Web tool does get Oregon's code in it, all those data files that you've saved in the Desktop version can automatically be opened in this Web tool. In the Web tool, you'll need to give yourself a user name and password and also in the Web tool, you have the option to whether you want to save those data files to your desktop or you can save those data files to our server. It's all up to you. And what I would recommend when you move over to the Web tool is: What's the fastest way that you want to get the information. If you work in multiple areas and you have access to the Internet, then I'd advise you save the projects to our server because also if you want - - you're doing envelope and you have a lighting designer that wants to get into the same project to do the lighting so that you're all working on the same report, then you're going to want to save that project to the server where they can actually get in there as well. But just keep in mind, when you're asking multiple people, as far as if you're doing integrated design or whatever it might be, that you have other people that are entering that project one at a time so you're not having someone mess with any data that you've already entered or you have some responsibility or you can work that out. But that's what makes this tool nice is that you can work with either entities and be on the same project doing what you need to do for that project and work together on it.

All right, so let's move into the actual tool itself, and I'm opening up the software, and this is an empty project in COMcheck, so let's go over some of the basics of how this tool works. Up at the top is the actual on the blue bar, it says, "Untitled.cck." And what that means - - and it also shows you a version number, and I've already changed the code to Oregon's code here. But when you open a project, it won't say "Untitled" there, it's actually going to show the name of your data file, and that's what that untitled.cck. The .cck is the extension of the data file. So when it saves your data file, it'll be joe.cck, but that's what it is. And when it saves it as a report, then it'll have the .pdf extension to it.

The next thing down is the actual Tool Bar or the Menu Bar and under File is where you open a recent project. You can save your data file. You can view print report and you can save your report and email your report directly from this tool. The Saving Report and the Save function here are different. If you hit Save, it's saving the data file. If you want to save the report as a PDF or an RTF, an RTF gives you the functionality of embedding that into a CAD drawing, then you got to go Save Report and do it.

The Edit Menu is the functionality of your Windows such as your Cut, Copy, Paste. The reason why those are grayed out is because I'm not anywhere in the project right now where I can use that functionality. If I was in the lighting schedule somewhere, then those would appear and I could use them. But what is hear that I want to discuss briefly is Preferences, and the preferences is where let's say I want to make sure that my designer name shows up on the report. I want to have... Well let's just start general. I want to be able to save all my projects in a certain file location and I want to default to it. So if I put in the file location, then it will automatically open that file location every time to where

you're saving your projects. If I want that Beyond Code Advisor off or on down below, I can enable it or whatever it might be. So you might not want to have that on all the time, and I can click off of it, enable it if I want to. The version update check that I'd mentioned, if you want it to automatically go out and check for version updates, you can do that every month, every week, every six months, as I mentioned, or never. That's an option for you as well. Over in the Project tab, if you want to have the same city location, you're - - of course it's going to be Oregon. Unless you're doing multiple projects, you definitely don't want to change any of these preferences because they automatically will upload every time you open the software. You can put the city location. As far as Envelope, you can enable the orientation or comments. And on Interior Lighting, you can enable the exemptions and allowances. If you don't use these preferences here, you have to go in each time and enable these from the Tool Bar, and I will show you after we go through the preferences here.

Under Applicant, if you want, again, your owner agent designer contractor to show up every time you open COMcheck, you can do it here and it'll save it. However if you're doing different things, different designers, then you want to do it in the Project tab, you definitely don't want to do it in preferences because you'd have to go in and change these inputs. And under Reports, if you want to customize the name and title, the signature and so forth, envelope, lighting, or mechanical, you can do so. And if you want to enter... If you are only dealing with one building department every time, then you can enter that code official's name and their email address so you don't have to do it every time that you're submitting these reports electronically.

Okay, let's move over from there, let's go up to the View Menu. On the View Menu, you have the Tool Bar and Status Bar. I advise you don't check those boxes off because then you won't see those options, but you have mandatory requirements that will come into play. And on the mandatory requirements, this is where it actually went out to the Help, the COMcheck Help that's in there. But here's where we've embedded Oregon-specific requirements. If you want to go and click on the Envelope requirements, you can go through them and these are the ones that also will show up on your report, but they're also here for you to view as you're entering your data, and you can go to Lighting and look at the lighting. And this is where I discussed earlier those lighting controls where you have mandatory requirements on your controls depending on your space types and so forth.

Now let's go back up to the Menu Bar again and let's go to Options. This is where you... Of course you see the stuff that's grayed out down below here, I'm not in the project, any project where I can choose those, and these are the ones where you can choose the orientation or your exemptions and allowances and comments and so forth, but you can't choose that unless you're in an area where you can - - it'll activate it. That means I'd have to be in the Envelope if I wanted to choose any of those options from there. But you have this new feature, and I say "new" because we don't have this for anyone else. This is not a feature for the national codes and this is not a feature that we offer for any of our state-specific codes in this tool. It's specific to Oregon, and you have two options. You can show compliance by Tradeoff or Prescriptive. So what's the difference of these two? I'm going to give a very generic difference of what I think will be helpful because these two are dependent, really dependent especially on the envelope of the components that you're entering and so it's really hard for me to give you a

lot of examples at this point, but we can do this on a case-by-case basis later. But the big one is: If you're choosing Prescriptive, what the software will provide you and what you have to show compliance to is that every component that you're entering is a pass or fail by component. You can't trade off your insulation for your ceiling to your wall area, so there's no tradeoffs allowed, and it will say pass or fail. But what it also provide you that's pretty nice is that if I'm on the perspective path, it's going to show me the maximum U-factor that I have to meet, and that's a pretty nice feature because in the Tradeoff option, you don't have that. It's just starting to calculate your energy performance factor or your budget factor and your overall UA, so you're not seeing that yet. So it might be if you're a new user to the tool that you start out prescriptively. But the big thing here is: What about that fenestration limit? So there are some things to keep in mind. But if you're over 30%, it's going to ding you. It's going to tell you that you can't meet it with the prescriptive path. So... But these are just some things that you want to keep in mind when you're going through the tool. I'm going to leave it on the Prescriptive method for right now.

On the Code Menu, here's all the other codes that are in this tool. So first time you download it, definitely go to the Code Menu and change it to Oregon. If you're dealing in other parts of the other states, then of course you have to come back up to this Code Menu and change the code applicable to that state. And when you do that, if you close the tool and you open up this tool again, it will default to the last code that you chose, so just pay attention to that because up in the blue bar at the top, which is up here by the version number, the *COMcheck* 3.80, it will show you what code you've chosen, what it's defaulted on to.

And then the Help, the Help is the Help topics that I just showed you. You can also check for updates automatically if you want to. The Solutions and Help Center, what that is is if you're connected with your browser, you can go out and you can submit a question to our Help Desk, and that's a quick way to do that. There are some FAQs and then About COMcheck, this is where the - - it will tell you what the version build is. This is important. We have put this out on our website and today on this webcast, I do have the software developer that has worked pretty hard on getting Oregon's code into COMcheck, and he's on our webcast today that might be able to help us answer some questions on the specifics that he's embedded in for Oregon. So he has this version build that he might go into some more detail that will be helpful to Oregon users.

Okay, then down below the Menu is the Tool Bar. This is pretty straightforward - Cut, Paste, Save, Print. But what it does show you is your compliance method, which one that you're on currently when you're going through your project, and I have chosen Prescriptive. Down in the Project tab, we actually have Project tab, Envelope, Interior/Exterior Lighting, and Mechanical. These are the tabs that you're going to be working in. You always have to enter your information into project no matter what. But the other ones, you might not be doing exterior lighting or interior lighting, so these ones are applicable to what you're doing with your building. Under project, again, if you've - - in your preferences have chosen a certain city, it will appear here under the city. If not, then you need to go in from the dropdown menu and choose the city, the location of your project.

Project Type, I went into a little bit of detail about the Project Type, whether it's New Construction, Addition, or Alteration. The calculations for these change a little bit. So if you're doing an alteration, then it's a component-by-component

basis that your building components that you're touching must meet code, and there are exemptions that also apply to your alteration so that the calculates - - the calculations are different as far as what the software's doing, and you can't go back and forth. If you've entered data under alterations and you go to switch to new construction, you're going to mess some stuff up, so be careful about initially starting a project as far as what type it is before you move down the path of starting to enter data. We'll leave it on New Construction, then we'll get to showing you how the alteration's feature works. Down in the Project Details, again if you didn't save preferences, then you have to go in every time and click on the Edit Project Details' button and enter your information for this project. I won't do it today. You can also enter notes. What's good about notes? Well it's really great if you have an alteration or a change in occupancy. Depending on what you're doing to that building, this is the perfect place to enter as much information as you need to to make it easier and more understandable for that plan reviewer to go through your project so he knows what's going on.

Owner/Agent same thing. This is where you would enter it specific to this project and designer and contractor, again, each one of these has an option to put some notes in there. That will show up on your report. Over on the right-hand side is your Building Use Type. You can do Whole Building, and there is a dropdown list. This is pretty much follows the path of the 2009 IECC. However what also is in here is Oregon-specific building types and space types. There are a couple modifications. I won't get into the details of the actual Oregon's code, but the space-by-space type is what is different when it's taken from - - a lot of this is from 90.1 with some modifications. So you do have the option to go in and start defining your space types depending on what it is. So let's just put some information in here. I'm going to put Lobby. And as I do that, there's a little bar, a

Scroll Bar down below. You'll want to use that because especially if you're doing exterior lighting, you're going to see there's a lot more information that you need to be looking at, and right now I have the software expanded as big as I can on my screen, which I also recommend, which is up in the right-hand corner, to minimize and expand the software application as big as you can to your screen. Under that, let's get back to Building Use. I have Area Description. What does that mean? This is optional for you, but again make it as fast as you can for when it's going through the plan review process, where's the lobby? If this is a multiple-story building, then maybe the lobby's on the first floor and I want to make sure I identify it as such. What's really nice about this feature is that Area Description is also under the Exterior Lighting area and basically this also doesn't just apply to the building envelope components, but it's a biggie when it comes to the lighting schedule. It makes it easier to go through those plans and determine: Okay, I need to look for specifically the lobby area on the first floor of my lighting - - of his lighting schedule or her lighting schedule. So this is optional, but it makes it as a nice feature to hopefully move along the process and it's also a nice feature because when you're entering your lighting information in Envelope, it helps you to identify those spaces or building types. Now the area is the area of the lobby. What does it mean by area? That's the condition floor area. So I'm looking at the lobby, if I have just the lobby space, then I have to define - if it's 500 square feet of lobby area, then I'm putting 500 square feet. And then the ceiling height. So this is also important to put in there as well. So if I have a 9-foot ceiling, I put nine. And then what it does automatically show you for that space type is the watts per square foot. This is your factor for what you're dealing with. So you got 500 square feet at 1.28 watts per square foot that you're working with, that's lighting. However, even though it's showing you the watts per square foot here, this space type is applicable if you were doing your

building envelope. I wouldn't be doing it just for a lobby unless this was an addition, but I would be entering probably more space-by-space types, which I can click on the Add button and I can add in another area, so I could put my guest rooms in there. I could say there on the second floor at 500 square feet; we'll just give it a number. Okay, that's pretty much simple as far as the - - how you enter your Building Use Types.

Let's move down to Exterior Lighting. I've been asked the question, not just for Oregon: I don't what I'm supposed to do? I... It says for me to enter my exterior lighting areas, but I don't have any exterior lighting. Then don't enter any exterior lighting down below. It's optional. If you're not doing the exterior lighting portion, you don't have to enter any information. But if you are, the first thing you have to identify is the Lighting Zone, and this will be applicable to the allowed wattage that you get based upon your zone and then of course you also have your watts per unit and whether it's tradable or untradeable depending on what you're doing below. So identifying your Exterior Lighting Zones: You can go through, if none of these are applicable, you can choose Other; and Other is a catchall for the ones that if they're not identified from the ones above, then of course let's choose Other and you can go with that one, and then down below is where I'm going to start entering my lighting areas. And this is where it gets a little bit different than the Building Use Type where it's just square footage, it's area of conditioned floor area under Building Use, but exterior lighting areas, your units change depending on what the area is. So if I have a parking area, and again I can enter area description. I can say it's on the north side. Quantity, well I don't want to put quantity until I know what my units are and it's square footage, so maybe I have 25,000 square feet of parking area that I'm dealing with. So again, the next thing that's important here is whether it's a tradable or a non-tradable. Let's put in a

non-tradable so you'll know what I'm talking about that if I have a non-tradable area, and I've clicked on the Add button, and I'm going to put in an ATM. I can put the location of that ATM and again quantity has changed. Now it's looking at how many machines do I have. And depending on the amount of machines, actually change the watts per unit and how much you get allowed, but this is a non-tradable area. It's a use or lose. So if you're over on the non-tradable for your lighting, then it's failing no matter what. You can't trade it off with another lighting area in your project, so keep that in mind. But what will happen with these it's going to automatically put these lighting areas into the Exterior Lighting tab so you can't start defining those fixtures that are applicable to those areas. So let's just say I have two machines and then we will move on. So I'm again, before I move on and start entering the data, I would take a look at all the information I've entered under my project. I would make sure I know: Okay, for sure this is new construction. If not, define that first because, again, you don't want to switch in between alterations and new construction. Addition, pretty much works the same as new construction because again, as I had mentioned, you're defining just that addition - - under building Envelope. You're only defining that new portion of the addition that's added on to the conditioned space. If that addition fails, then you can look at other things, meaning bring the entire building up to code with the addition. That's a little harder to do if you have an old building because you might not know the U-factor and solar heat gain on those existing windows. You can use defaults, but they're not favorable. You don't... Might not know what the insulation value is of that existing building. So as far as the calculations between the addition and new construction, they work the same and you can use prescriptive or tradeoff, but alterations is completely differently.

So let's move over to Envelope, and we are still on New Construction, and this is where I talked about all the components. So the blue and white buttons at the top, they all have a dropdown list of assembly types you can choose from, but it doesn't mean each one of these buttons apply to your building project, so you have to first in front of you define your building thermal envelope that defines that conditioned space, and then you move on from there to start entering you takeoff.

So let's take a look at Roof. Roof is where is the insulation placement going to be? Is it at the ceiling level? Is it at the roof deck, and then what is that construction component? That's how you're defining this. So let's say that this is an attic roof with wood joists, and I'm going to kind of scroll this bar right here, right where you see assembly because these start getting a little bit bigger and you might not see everything, so you can move these things around as bigger as your components or your assembly descriptions get. So I've entered attic wood roof joist.

The next thing on how this software works for all the components you can choose from is it's already calculated a U-factor for you, and that U-factor is the air films, the framing members. It could be the siding if it was an exterior wall, whatever it might be. These are calculations that are those assumptions that are made in the software that are in our Technical Support document, but where do they come from? These are calculations from ASHRAE fundamentals that we use. They are also from 90.1 appendices that have been embedded in here, and we make this as - - what makes this software so unique and easy to use is that you don't have to calculate that entire assembly. The only time you'd have to calculate an entire assembly is if you have a unique assembly, and I'll show you

how you can do that as well. But what this one, the only other thing that you need in here is the square footage of that area, so let's put it at 20,000 square feet. And what are you insulating that area to? And once you enter your insulation value, that U-factor will change. The other thing that I had mentioned is with Oregon-specific, my compliance method right now is prescriptive. And with prescriptive was that difference between tradeoff and prescriptive that you will see under prescriptive is over on the right-hand side is that maximum U-factor. There's your target. That's what you have to meet for and it'll show you that maximum U-factor for every component that you're entering when you're on the prescriptive method, which makes it pretty nice. But if I change my compliance method to Tradeoff, and you can switch between the two. I don't recommend it because you are going to see some differences. You could be passing by prescriptive and failing by tradeoff and that can be totally based upon your components. And if you're having issues with that, again it's a case-by-case and we can go into detail later or I can help you or again you have a lot help from the state as well. But with this one, I'm looking at my target as a 0.27 for that ceiling area. Now the difference between cavity and continuous, and this is for all the components that you would be dealing with entering your insulation values, is cavity between structural members. Continuous is no thermal breaks. I might not be doing continuous. A lot of time new users will enter that same R-value twice because they think that they have to enter something because it's showing zero. That's not the case because if I entered 38 under cavity and 38 in continuous, then I have a R-76 wall. I don't think so, because it'll calculate both values together and recalculate that U-factor, so pay attention to how you're insulating that component. If you're doing - - if you do have...

One thing that is - - that comes into question a lot is roof and ceiling components as far as let's say if I have a typical roof where there's decreased insulation towards the eaves of that roof area and I know I'm blowing in way more insulation above the trusses and I know I have a continuous layer, but I also have insulation between my trusses. How do I enter that? If you're blowing in or you're doing spray foam, whatever it might be, you enter that entire application as cavity. The software already makes some assumptions based upon the R-value that you enter for your cavity, it's running more than one calculation for that component, so keep that in mind with roof. If you want more detail into the backend of these calculations, you can go to our Technical Support document. Even though this is Oregon-specific, our same assumptions on how we calculate these assemblies still apply. So let's just go ahead and put 38 here and let's move over. I'm going to say I don't have any skylights, so I'm not going to choose skylight, but let's go to exterior wall. This is where I'd mention, let's say I just have a single-story building or even a two-story, but all of my walls are the same type of component, then add them all together. You don't have to define each wall. However, if you do start defining out your walls, then you need to put the appropriate windows and doors that are applicable for that wall under that wall because it does - - you can't have higher fenestration than you do square footage of the wall because it's trying to calculate out your windows and doors, as I'd mentioned before. So for your walls, we'll just say they're wood framed 24-inch on center. Again, I'm going over to the right and I can look at my maximum U-factor that I'm trying to meet here. I have a U-factor that's already calculated. That's framing members, air film, siding, but it doesn't know what I'm insulating it to, so we can put in a value of 30,000 square feet. I'm saying that all my walls are the same, and I'm going to put in my cavity insulation value and let's say I have some insulated sheathing on this wall. If you have insulated sheathing or you're putting a foam board on the

exterior, then you show that continuous R-value. However, if it's just typically gyp board or it's part of the typical assembly, you don't add in the R-value there. It's only additional, insulated sheathing, foam board, additional insulation that you're adding to that typical component is the only time you're going to enter it if you're doing that. So let's say I'm doing that and I'm going to put a value of five and my U-factor is a 0.047, way better than a maximum.

Let's take a look down below. As I'm entering these, I get the Envelope passes. Now as I mentioned before to you, that plus five that we saw in the one screen shot that I showed, why am I seeing passing and not a percentage? This is because I'm on the Prescriptive method for Oregon, and prescriptive means each component has to pass singly. So if I put in a component here that doesn't pass, all I'll see down below on Envelope is fails, and I have to come up and look and see which component in here is failing. And it's not going to ding you or tell you which one it is, so you need to be looking at that value over there, the maximum U-factor and your U-factor each time you enter component when you're doing the prescriptive path. If I move over to Tradeoff, I'm going to get a compliance result. It's going to start calculating, and I can do that. I'll quickly show you what I'm talking about. I'm going to up to the Options Menu and I'm going to go to the Tradeoff method. And now as I look down below on the bottom of my screen, my index says plus five. Well that really doesn't tell me much because I don't even have an entire building envelope in here. All it's telling me is that the two components that I'm showing here: Hey, I'm doing good. They meet code. But the next one I enter, I could be failing by 50% if I don't do it correctly or it's a bad component that I'm not insulating or the fenestration values are not very good, so don't pay attention to that bottom bar if you're in the Tradeoff method until you're

done. But Prescriptive, it's important you're looking at each component individually.

So let's move on and let's put in some windows. I'll just go with wood frame, double-pane low-e, and it'll also ask you under construction details whether it's clear, tinted, or reflective. Let's just say they're clear. I'm going to expand that column so I can start seeing that information. I don't want to miss what I'm doing in my project, so I expended it over that column. Gross area is still in square footage. You'll see the square footage column right here. That... What does that mean? Well if all my windows are the same and I've entered one wall, I'm taking the rough opening. If all the U-factors and solar heat gain for every window I'm putting in this building are equal, then I only need one line item. But if they are different for individual components, assemblies, then you need to start defining them out and so you'd have more or actual components within your project. So let's just go ahead put in - - I'm just arbitrarily putting in some numbers. We're going to look at a project that I actually put together for you and look at a report here in a minute. So now I'm going to put in my U-factor. But before I do that, let's talk about defaults for a minute. Let's say I'm just initially starting the first stage of a design and I really want to see - - I just want to get an idea of this COMcheck software. I want to know what I'm up against and I want to start entering my shell building just to see where I'm at, which is great. Big thing is: Well what if I haven't picked out the schedule of my fenestration yet? And you can use the defaults as again they're not - - they're not very favorable, but they are here and they are not in the COMcheck Web, and I can't emphasize that much more than this that that's later down the road for the Web tool, and those default values, it's not just Oregon, it's the default values aren't in the COMcheck Web tool at all for any of the codes. They are only in the Desktop version. It's a

little more complicated backend Web development to get those in there, but they will be. But as far as that's concerned, if you're using defaults, you need to stick with the Desktop tool. But what I can do here, if my cursor is in the U-factor column, I can right click with my mouse and that was that screen shot that I showed you that now these are not grayed out. I can cut, copy, paste, and so forth, but I can use defaults. So let's click on... Oh, it's not supposed to say that to me. But let's click on that. So you should be seeing the actual defaults that are in the Help section still, but it's going to take you right to them. And again, these come from ASHRAE Handbook of Fundamentals, but you have many values to choose from here, and you can go find your defaults. One thing that I will mention is if you're going to start using defaults, I would add in a comments and description and put in there that these are defaults and they are subject to change. I don't know if I would submit a report with default values and a final report until I knew the schedule of my fenestration because if they're worse, then you're out of compliance. If they're better, great, but you still want these reports to reflect what the building - - how you're doing the building. So just be careful when you're using those. I mean they're great for the time being. Definitely need to use them for alterations, and I'll show you why you need to do that because you have to show your preexisting windows if you're doing window replacement. So right now I'm just going to put a U-factor of 0.32. Again, you can do the same thing with solar heat gain co-efficient. I can right click and I can use the defaults. We'll just go ahead and put in a value of 0.40 and then my projection factor. If I have an overhang, then I need to calculate it. And I showed you a diagram on how you do it as far as taking the distance out from the window pane to the edge of the eave of the roof area. And if you need to go to that diagram again, it's in the Help section.

All right, let's move over and put in a Basement. Now, oh, it all depends if I have a basement, right. So what is a basement or, as I say, below grade wall. You got to look at the project. If that wall component is more than 85% below grade, then it is a basement wall or it's a below grade wall. Well is it part of my project, meaning is this part of the building condition? If it's not, then you don't show it, but you got to show the ceiling above it, so you got to show the basement ceiling and then you're building portion's done. What if it's a parking garage that's unconditioned, but that parking garage is more than 85% below grade, but I'm not conditioning it. Then you don't show it and you - - but you've got to show the ceiling of the parking garage as part of this entire building envelope. You got to have a floor somewhere.

However, let's go ahead and enter this basement, a basement component. If there all the same construction again, you can have one line item, and let's just do a solid concrete 8-inch thick medium weight, and we'll say that we're going to do no framing. We're not going to furr it in to the cavity, to the interior. But what does appear is it will now ask you for the wall height and the depth below grade. If you don't enter these values here, then they will show up in your schedule and you're going to have to enter them no matter what. So let's say I don't enter them here and I hit Okay, this is where I'd mention to you that things will show up in red. My gross area of course is in red, but scroll over with the bottom bar, the more information you get because you might not see it. And over on wall height, it's showing it up in zero. It can't calculate unless it knows what the wall height is for this building component. So I will arbitrarily enter a number here and let's say that since I wasn't furring it, you don't even get to enter a value for cavity because it knows you're not furring the wall out, but maybe you're doing some exterior insulation on that basement wall. So you still have the option to say,

"Yeah, I'm doing some exterior insulation," and you enter that value there. Then go and enter your wall height, if you didn't enter it from the pop-up that came up, and then your depth below grade.

Okay, let's move over to Floor Components. Now with Floor Components, let's say you have a fully below grade basement with the project, would you still enter a floor? No. If that slab is part of a conditioned basement and that basement's more than 85% below grade, there are no insulation requirements for a slab that sits below that grade. The only time you'd show slab on grade is if it's greater than 12 inches above grade. So let's look at slab. If I have slab on grade and I have that as part of my building component, it will want to know from you whether it's heated or unheated. And what does that mean? Heated is when you have a the hydronic system in the actual slab. So if you're not doing a hydronic type system or you're doing a radiant heating within the slab, you don't choose heated, and heated will require that you have to enter more insulation by code. If it's unheated, then you choose it and what will appear is actual diagrams on: Well how are you going to insulate that slab edge? Is it going to be horizontal, horizontal plus vertical, whatever it might be? What do you do when you see this screen? You got to click on Construction Details at the top. And by doing so, then you will define how you're insulating the slab. So let's just choose Horizontal With Vertical Slab Insulation. Then the depth of insulation, whether it's fully insulated, 4-feet, whatever it might be, I'm going to choose 4-feet. From there, you'd hit Okay. Let me expand this Construction Details' column a little bit so you can see all the information, and then down below I'm going to scroll with the little Scroll bar so I can move over make sure I'm getting everything I need to enter for this component. The factor here is slab on grade is the one component where the actual area changes. So instead of square footage that you'll see for

the other ones, this one's in feet. This is the only component where you got to enter linear feet. The rest of them are all square footage. But pay attention to that because I've seen lots of reports: I'm failing by 65%. Really that's a real huge outlier and should be a big sign more than likely that you've entered something wrong in the software. A lot of times it would be that they enter the total square footage of the slab when all they needed to really show was the linear edge of the exposed slab edge. So with that one, it would not be 20,000 square feet if that's the footprint of my roof area and it was just a single story building, it's going to be the linear edge, so it might be 400 around the perimeter, and it will come up with a little screen saying, "Be sure to enter the running length of the assembly in linear feet." And again with that, I've already defined that I'm insulating it to 4-feet. If I've done that, I definitely don't want to miss putting in what I'm insulating it to. This does happen a lot as well. If I show no insulation, then I would leave that at zero. But in Oregon, you're in a colder climate, you do have some insulation requirements on that slab edge, so I enter 10.

Now if this was a true building, which it's not because we were just entering some components, and let's say I was done, then I would then want to: Okay, I want to see what my compliance result is. That's when I would truly then go down and look at my Envelope Index. I would save that for last. If I was failing and I could not determine where I was failing, then there is another point that you could go to, which is: I would look at the report. The report does tell you things that this actual - - and when you're entering your assembly component does not and it tells you what the budget U-factor is against the energy performance factor or your proposed U-factor, and that might be helpful for you if you're really looking at where you might be failing and where things are. Again, I'm here to help you

on your projects; and if you're having issues, then we can look at them. That's not a problem.

There's also one other thing to mention here is another thing that gets deceiving that you don't visually see is: If I'm failing but everything looks good, it could be your solar gains on the building. And what's your option here? As the options that Oregon will allow is: I can do orientation if I want to, so I can come up to options and I can click on orientation and this gives me another column in my envelope project. What do I need to do is start defining where my walls are, so it's front faces. So my exterior wall to the north, to the south, but I don't have four walls in here. This really doesn't help me unless I then break all my walls apart, so keep that in mind if you want to use the orientation's feature to help you with your solar gains on a building, and it will be helpful. But in some cases, it might not even be needed because you know your windows are going to meet code no matter what. You don't need to go to that extra step. You don't need to provide all that additional information and the time it would take for you to go that route unless that's something that you need to do. So just some different options that you can take a look at.

So let's move over. I'm going to click back over on the Project Tab real quickly, and I'm going to then move over to Interior Lighting. I just didn't want you to forget that I've entered some Building Types here. I've entered a lobby and I've entered some guest rooms and I forgot, so I saw something in red, forgot to enter the height of those, the ceiling height of those guest rooms, so I want to make sure to enter that, so I put nine there. So let's click over to the Interior Lighting tab. What it did was populate those building types into the lighting schedule. And with that, how do I start putting my fixtures in there? Well I got to click on the

building type that I first want to start working on. Let's scroll this over, this column over a little bit so I can see the actual entire component and now it's highlighted and now I can go ahead and start entering the fixtures in that area. And again, this is - - lighting's really straightforward. Where it does get tedious is those exemptions and allowances that you want to be careful with. So if I go ahead and enter in some T-8s and I put them as electronic, I put up at the ballast how many lamps per fixture that I have, I put in the number of fixtures and I go to fixture wattage. I just right clicked with my mouse. What if I want to quickly just get a lighting schedule in here and I want to use defaults. You're allowed to do that. But if you have your information in front of you, I highly advise you to use the fixture wattage that is applicable to the fixtures you're entering, but you have that option to use defaults, and it'll put the fixture wattage in there for you. As far as calculations go that if you're doing it and you're doing your own fixture wattage, you go to include the lamp, the ballast to include that total fixture wattage. But what it's doing for you then is every time that you're entering each one of those components, you'll see right where it shows the first floor, common space type, the allowed wattage and your proposed wattage, so it's starting to calculate against your allowed wattage there.

Let's go up to Options and let's put on the interior lighting and exemptions allowance. Well you don't really see it here. You got to scroll over with your Scroll bar because now we're getting a lot more information in our lighting schedule here, and you have the option to now define if you have an exemption allowance: How does the exemption allowance work when it's calculating your lighting? If you have an exemption, it doesn't add that wattage to your proposed wattage. If you have an allowance, it will take the allowance that's allowed based on wattage and add it to your allowed wattage, so the allowed wattage that's

showing hear shows 640. If I had an allowance for these fixtures, that value's going to change. If it was an exemption, it would - - the allowed wattage would stay the same, but my proposed wattage would not change because it's not going to add anything to the fixtures, meaning if I had - - if this was an exemption, you wouldn't see 260 to actually take it away. But if it was another component in here, it's not going to add to your proposed wattage. That's kind of how it works.

But what are they? So let's take a look at some of these exemptions. These come right from the code. A lot of these are the baseline of the 2009 or actually 90.1, but there are some amendments that are Oregon-specific in here for your exemptions and allowances, but I can't stress enough that as you go down the path of doing exemptions and allowances, make sure you're doing them for the application and the space or building use that they're meant to be for, this does happen quite a bit that as you get going real quickly and you're starting to run your lighting schedule in COMcheck, you can easily define something that wasn't really truly allowed for one of your lighting fixtures.

All right, let's quickly move on and let's go... I'm not going to enter any more lighting here. It is really straightforward. Let's go over to Exterior Lighting. The same thing applies, except you have the tradable and non-tradable. Non-tradable meaning use it or lose it. I have to click and highlight on that lighting area before I can start putting in components, and let's take a look at these components up here. I don't see one for LEDs. This is one of the most popular questions we get. We do not have an option to click on a button for LEDs because products are changing pretty much all the time. This is not that easy to implement into this tool. But what if I want to show LEDs? Well here is your option to show LEDs. I would choose incandescent and I would... It doesn't matter which one you chose

from here, you put in your lamp description, your number of fixtures, which if it's an LED is probably going to be one. What do I want to choose incandescent? Because incandescent you're not choosing a ballast type and LEDs you wouldn't choose the ballast type, so that's the one I would choose if you want to define this. Well as you're looking at it, you're going: Well that doesn't show me LED. Well go back over on that column where it says Incandescent One and double click with your mouse and now I can edit - - excuse me, I can edit that and I can put in my LED. I can tab over to my fixture ID and put the information of my fixture ID, and my fixture description. I can't change the lamp description here, but I could make a note if I wanted to do that this an LED and show that this really isn't a incandescent 25-watt. And then again, your fixture wattage, your number of fixtures and so forth you could enter. But that's how you would enter LEDs at this point in time. All the rest of them, it's straightforward. It's a dropdown list that you can choose from. You would enter of course depending on what it is: lamp description, ballast type, number of fixtures, lamps per fixture, and then your fixture wattage. And again, it will start calculating what your compliance is based upon whether it's tradable or non-tradable area.

Let's move over to Mechanical. Again, on mechanical, down at the bottom on the Compliance bar, you do not see Mechanical because there is no pass or fail. This is where you will just define in your systems and again get a nice report that's Oregon-specific to what you've entered into the software. So how do you enter your mechanical systems, your plant or your water heating is? I've clicked on the HVAC System button and your choices will appear. Let's just say I have a duct furnace and for cooling a rooftop package unit. I can do it by single zone, perimeter, or multiple. I'll leave it single. And as I do so, then there's more information that's needed for your system type. So for my heating equipment, I

can enter how many I have, the quantity. I need to know the capacity, and this is in K BTUs, so keep that in mind when you're entering your capacity, and so let's just put in 65 and then your fuel source type, so it's pretty straightforward. When you get to efficiencies, the efficiencies are driven by Oregon's code, and I won't go into a lot detail on mechanical requirements. Oregon does have a lot of their own mechanical amendments to their code and it can get pretty tedious, especially when you get into complex systems. So let's just use electric and move down the road. So with the heating system of course, I have no more information to enter. Under cooling, I'm going to have some more information to enter, and I just tabbed over, so I put 65. I need to put my condenser type. I need to put the system details. This is where an economizer will kick in if it's required in the area or in the zone that you're in Oregon, which is economizers are required in most areas, but it'll ask you what your economizer type is or if you have known. So I'm going to leave it at air and hit Okay, and then my proposed efficiency. But what it will provide you is the minimum efficiency and your efficiency units of what it's in. Again, if you have questions on these, they are driven by Oregon's code, and this is something that would be discussed case-by-case basis offline.

So let's move over to Plant. Plant's pretty simple. I just clicked on the Plant blue button at the top there and I can define my heating type and my cooling type if I want to, and again more information will appear. I'm going to put the condenser type for my cooling unit and the capacity. If I choose water heating, storage or instantaneous, and I'm going to leave it storage, then again more information is the fuel source type, your system details, the gallons per the storage water heater need to be entered. And let's just take a look at the system details and it's pretty straightforward what type of water system it is, whether it's a circulation

pump. You got heat traced tape installed on that system, again, or if this is for a heated pool or spa and that will also embed more requirements into the Mechanical section of the report depending on what I choose. I'm just going to hit cancel.

All right, so we've gone through new construction, real briefly basic entering information into Envelope, Interior Lighting and Exterior Lighting, and Mechanical. I've switched that path up there to Tradeoff, but let's say this is not new construction or an addition. And again, those two are comparable on how you'd run your takeoff, especially for envelopment and lighting. And for lighting of course, it would just be the addition, the floor area of the addition, or you could show an addition and maybe you have a new exterior lighting that's on that side of the building of the addition. You could show that as well. But let's say now I'm moving into alterations, and this comes up and what this is telling you because you know everyone likes to read pop-ups. I don't really read a lot of pop-ups, which is very bad, but this one is really important is that if I change over to alteration, I'm going to lose data, and this is why you can't switch in between these two. And so I'm going to click Okay and say, "Yes." Before I do that though, so you don't see a lot of this - - anything that appears to be weird, I'm going to come up and click on the Tool Bar that says New and I'm not changing any of the data that I had just shown you today, and I'm going to hit: No, I don't want to save it. So now we've got a fresh new screen, and my Project Type now is Alteration. This is where it's going to ask you for your occupancy type. The only time when you choose alteration, this is a new thing that will appear and it needs to know whether it's non-residential or residential. We'll leave it on Non-residential. I don't need to really explain much more about how to edit your project details, but let's go over to Building Use Type. What's interesting here is

that I can start entering my envelope alteration components without having that building use type there because it's very prescriptive. It's pass or fail. If I'm doing roof replacement, I'm having some exemptions that might apply. If I'm not, then I'm insulating it to the prescriptive required amount depending on the zone that I'm in. So let's go ahead though and enter an actual building use type. I will just make one up here and let's just say library, and I won't put an area description. I kind of explained how that one works, and I'll just put a 12-foot ceiling. Let's go over to the Envelope and look at how these alterations work. So if I click on roof, I'm going to choose my post alteration assembly. Now with alterations, if it's the building envelope, I'm only defining those building components that I'm altering and some exemptions might apply. And even though you might think: Well I know I'm exempt from having to meet code for this alteration, you still should show it and show that it's exempt. If you're pulling a permit, for sure, you want to show everything you're doing on that building regardless whether it's exempt or not. It's only for your benefit and for the plan reviewer as well. So let's go ahead and click on that it's a Metal Building Screw Down, and what will appear for each one of these dropdown lists, depending on what you're doing, you will get a popup that's going to have a list of exemptions that might apply. And if you have an exemption, then you would choose it. And with this one, let's say I don't. I am insulting. I'm exposing the framing members. I'm going to re-insulate the cavity of this. I'm doing a full roof replacement. None of these exemptions apply for me, so I click on No Exemptions. What it will also appear for you is what your maximum U-factor is to meet that, and it provides it for you that this is it. You have to meet this. There's no tradeoff. It's a yes or no, pass or fail, and then I hit Okay. What will then happen, I'm going to scroll this Construction Detail over just a little bit, is under Alteration's Details, it tells me compliance is required. It will show the proposed U-factor in red; and that U-factor, again, takes into account the

assembly that you've chosen, but not the insulation level of that assembly. What you don't see here is the square footage and that's what you would see if you were doing new construction because you have to put the square footage in there, right. Especially if you're doing the tradeoff method, it needs to know the total UA of your - - every one of your components, but it doesn't need to know the square footage for alterations because it's a pass or fail and it's all based upon that maximum U-factor. So again you would then again enter what your insulating the roof area to and if you're not passing, then it's going to show failed down at the bottom. I made this purposely show you that it's still showing up in red and I have fails. If my next component that I enter in here passes, it will still show failed down at the bottom because you have one component in here that's failing, and of course you don't want to have just one component failing before you submit a report.

Let's go over to Exterior Wall. I'm just going to leave that one as such, and let's put in wood frame. Again, my exemptions will be different for an exterior wall, not too much. I can say that I am completely filling it with a minimum of R3 per inch, and I can choose that one and hit Okay. And what's different here is on your Alteration Details is it says "An Exemption Applies." This will show up on your report too and that - - and it'll tell you exactly what you - - what the exemption is that you've chosen is that you're going to fill it with a minimum of R3 per inch, so you're entirely filling that cavity as much as you can to the value of the R3 and you're done.

Let's take a look at Windows because this is where it gets a little bit different is window replacement and how much fenestration you are replacing. So again, my post alteration, I'm defining what I'm going to be putting in, so let's say that it's

vinyl double... I don't even know what I clicked, Double-Pane Low-E, and I'll put Clear, and the alterations that come up for this, some of these are Oregon-specific is: Let's just say the alteration replaces 25% or less of the existing building fenestration. Let's choose that one. What then is needed as far as inputs is pre alteration. Well what if this building is 50-years-old? That's going to be a little hard to do. This is where it makes it nice is that I can put my cursor there and I can right click again and I can select those defaults and those are allowed. If you don't have the manufacturing label for the windows, then you can use defaults, and this would be a perfect place where this makes it pretty easy for you. With that, you then would need to put in your post alteration. So I could put defaults here. I could put solar heat gain here, and then over my post alteration, I definitely would want to have from my manufacturer labeled products - really what I do, what I'm putting into the building, and then your percentage of fenestration that you're replacing. So what if I put 30 there? Well it will ding you because you're saying that you have an exemption that you're placing 25% or less, so keep that in mind. So let's just say I'm doing 20 and then I hit Okay. What it does tell me then, it populates the window component and it tells you that exemption applies and it tells you what it is. And that information that I put in there, it'll show up on the report.

So let's move over to - - let's put windows in one more time and let's say I don't have any exemptions that apply with my windows. Now your information that you have to enter is a little different. It wants to know your post alteration, window to wall ratio, your percentage. Now why is this important? For Oregon, you're limit for alterations is the percentage is 30. So if you're over 30% for an alteration, you're going performance and this is where you will need to look at: You can't use COMcheck to do it. So if you're replacing more than that, that's your

stopping point for alterations for you. If not, then you would put the percentage, so let's just put 25, and then what it provides you is that maximum U-factor and solar heat gain that you must meet. And then if you click Okay, you see that now you have to enter your proposed U-factor and solar heat gain for that item. Again, each one of these has different exemptions that might apply, different input data that you might have to enter for your project.

Let's go over to Interior Lighting. This one is a little bit different as far as alterations are concerned. So here it's asking you, it embedded the building type that I put, which was library, and alterations detail and it's telling me click here, so I clicked the button Decided. And now it wants to know, and this Oregon-specific some of this information here, not national code, which is unique putting this in here, is what type of lighting are you doing? And each one of these of course will move you to a different screen that has different inputs that you need to do, so let's take a look at one of these real quick. Let's say that my alteration is less than 10 fixtures in the area that I'm doing, so I'll use that and information that's required is that I need to know the total number of fixtures that are being replaced and added. I need to know the total wattage for the pre and post and straightforward is that your post alteration, your total wattage cannot be more than your pre. That's a biggie there. But this is again information that would be needed to finish off the calculation. So what if though it's no exemptions apply, and I hit okay? Then what I'm doing? I'm entering all those fixtures in that area, and this is where let's say if I'm doing a complete lighting retrofit and I have no exemptions for each one of my spaces or just one space, just consider it as new lighting and start putting in your fixture schedule into the grid, that's pretty straightforward. Same as though as what I showed you on is for new construction if you're doing that entire space.

Exterior Lighting, same thing. I haven't put anything over in the Project Tab for Exterior Lighting, but it's - - again it's very self-explanatory on how you would enter those. But if you do have questions, then again go ahead and submit them and we'll go over them later, or even at the end of this webcast, which we're just about finishing up here that I want to start taking questions.

One thing that I do want to show you that I forgot to mention, which is very important, I mentioned it was that what if you have unique components on the building envelope that are not one of the components that you can choose from the dropdown list. So let's just take an exterior wall. Now if I have a unique feature that I want to show, I can choose Other and with choosing Other, I can define that, and let's just say it's another wall, and I want to show you what will happen when you do that. When I choose Other to specify my unique assembly, I still enter my square footage of that wall, but you will not have the option to enter cavity or continuous any more. And with this one, it's going to ask you - - it defaults to heat capacity of one and if that heat capacity is greater, then you need to change that because that's a biggie, especially if it's a mass wall. You need to provide the U-factor. It gives you the maximum U-factor because I'm on the prescriptive approach, which is nice. If I was on the tradeoff approach, I'd never even see that, which is helpful for you, gives you that target. But your U-factor, you need to back up to the plan reviewer on how he calculated that wall. And to all plan reviewers that might be on this webcast today, how do you know on a report if they've chosen Other, especially if I can come click here and I can change my description a little bit to meet my defined assembly type, those would be defaulted out on the report. So they'd have a little lines through them that would say, "Well, no, this is another wall. They would even enter those values

there," so... And I don't have an other on this case study that I'm going to show you, but let's just go ahead, I'm going to click New here. I'm going to quickly open up this project so I can show you the reports and start answering some questions. So I'm going to go to Open Recent and I have my project saved and I just picked a hotel motel on the coast, so this is a complete project that has been entered into COMcheck. It has everything. I've entered all my project information, my title site, designer. I didn't enter owner agent, don't know who it is yet. Location, I considered it new construction. I have all my building use types, my area descriptions, which floor my building type areas are. Under Exterior Lighting, I have defined where my exterior lighting is and the quantity, and it shows you the units. All of these are tradable. I had no non-tradable lighting areas. Under envelope, it was a very simple building because all my components were the same, so I got to match them together. So I'm only showing one exterior wall. I've entered my cavity and continuous insulation values and so forth. This is insulation entirely above the roof deck, so it's continuous. I have a slab on grade unheated and, as you'll see, I did in linear feet and what I'm insulating it to. And down below, my envelope passes by 6%. I'm looking good. Under Interior Lighting, I have to find out all of my area space-by-space and what my lighting schedule is and on this one I've actually put my unique specific IDs. Why is this important? Sure makes it nice for when I'm doing - - looking at my plans. If I'm the plan reviewer or myself that if I want to go back to this report, I can go to that schedule and find it pretty quickly. So this makes it nice that it's something to save time by entering those fixture IDs in there that they can actually go back and look to compare to make sure that you've entered everything properly. Because again, COMcheck's not going to say, "You entered that wrong" or "You're missing something" or "You're missing a door" or "You're missing a lighting fixture." No, it won't do that. I mean it doesn't know. It doesn't

know what your building is or your lighting, so keep that in mind. The more it make it easier for you before you submit it to double check all your work. So anyway, I have that all defined for all of my types here. Under Exterior Lighting, same thing applies. Unique about this one is my fixture IDs and my fixture descriptions I've entered, unique to what I'm doing for those compact fluorescents. I have an exterior pendant that I'm showing here. Anyway, this is where you can see a lot of different uniqueness in project types. And under Mechanical, I've entered all my systems and my water heating system and how many quantities I had. Since this is a hotel motel, I had packaged terminal units and I put a quantity of 50 because I have one for each one of the hotel rooms. Information like that.

So again, this is a full data set and what I really wanted to show you was what these reports look like. So let's take a look. I'm going to come up to file, and again this is where I'd save my data file, save my report. I can email my report if I wanted to. But let's take a look at the reports before we went ahead and did that anyway. You get the option of: What do you want to view and what do you want to save? I have all these clicked on, so I'm going to leave them on so we kind of scroll through some of these reports that are unique to Oregon. I'm going to give it a minute to bring it up on the screen. Okay. So with this report, first thing that is different is if you were using COMcheck Web, and this is a couple months out, the COMcheck Web report would not have a version number. Don't get stuck on a version number. We've had states that have had issues with it. They've put a version number into their legislative language or a code official or a jurisdiction says, "No, it's not Version 3.8. We won't take it." Well, no, don't look at that version number for that purpose, especially if - I mean if you submitted the Web one, you won't see it, so don't stick with that version number. It's helpful for us,

it's helpful to know what you've shown it to. This is true, but it doesn't tie to much more than making that a yes or no to a compliance report to pass or fail.

Anyway, let's scroll through some of this. On the Envelope side, what it's done is actually populated all the information that I've entered for this project. My construction type, what compliance method I've used, address, so forth, general information. What you didn't see in doing your inputs was your wall area percentage. It's calculated what I have for window to wall ratio, and this is where when I said, "When you're looking at your project, if you don't see certain things, go take a look at the report because more information gets embedded into the reports than you actually see when you're doing your takeoffs." So you got your percentage of glazing there that you're working with. Now if this was over 40 for your tradeoff, you would be failing. As I mentioned before, 40s your limit for tradeoff, 30% is for prescriptive. This is Oregon-driven. So I wouldn't get a passing report if I had over 40 here. Down below under your Requirements Checklist, of course, it says "Envelope passing" and it inputs the compliance result. If it was not passing, you wouldn't see a signature line on this report because we actually embed that as part of the software application that you don't have a signature line if it's failing, so it's a real true sign. No signature line, go back and look, you're probably - - that project's probably failing.

So under the Envelope information, this is all the components that you've entered under the Envelope tab and it shows them. But what I'd mentioned before, if I had other or something that wouldn't be of value entered, it will put some hyphens through it, such as the insulation and entirely above the roof deck. Well I wouldn't have cavities, so it puts a hyphen automatically. These are things to look for if you're a plan reviewer.

And here's where it gets unique is we have taken the time to put in the code sections and the language from Oregon's code. This is what makes everything nice for you guys, and hopefully really simplifies the process of showing compliance, is that for your building envelope we've entered all of the code-driven information. Air leakage, mandatory requirements that would apply are all entered and embedded in these reports. The ratings, if there's ratings that you need to - - that's referenced, they're in here as well, like ASTM E 283. And then of course, your compliance statement that you would sign. If you're doing electronic, of course, then that would need to be worked out with you and who you're sending it to.

On Interior Lighting, I'm just scrolling through these really quickly and if any of you want to take a look at this saved report that I have, go ahead and send in an email. It's just a made up hotel motel that I did myself, but I really wanted to just show you what an example of a project would look like. On the Interior Lighting side, this is where more information will come in. It actually shows your - - all your areas, your allowed watts, your total allowed watts, and shows all your calculations, number of fixtures, lamps, fixture wattage, so forth. Again, it will put in the section 505.1 for your lighting wattage and whether it complies or not. But what it also brings in is the rest of that information, daylight zone control, you're lighting controls, any exemptions or allowances that you've chosen. All those things that make this nice that you don't have to go back and forth to Oregon's code book and determine: Do I have everything right and am I'm going to meet all these mandatory requirements? So pretty nice feature that we've added here.

Again, I'm just quickly scrolling through them so you could just briefly see this and get down to - - here's Exterior Lighting, same thing. You get down to the Requirements' Checklist, which we get asked a lot - Do I keep this checklist or do I give it in when I submit my reports? Submit the entire report, but keep a copy because this is where it's more important to you is that you now have every section and when all those mandatory requirements are, plus the embedded information on all the takeoffs that you did.

And when you get to Mechanical, let's scroll down to their Mechanical, no pass or fail, but this provides a nice mechanism for you to go through based upon the systems that you've entered what else is all applicable and the section if you need to go to reference it and go to that section; however, we provided the language of these sections in this report, so this makes it hopefully so much easier for all of you that are doing designs in Oregon.

And with that said, I want to open it up for questions. But before I do, since this is historic for the Building Energy Codes Program and thankfully to DOE that we were allowed to do this for you for the State of Oregon is this is new. This code is new and this tool and if you are seeing any weird things going on while entering your data or that you need an interpretation of something specific to your code, we had one the other day that we went back and looked at it and we did an upgrade build version, which Bob Schultz who's on the call today could talk about, but these are things that if you don't tell us, we don't know and we can't work with the state to figure it out to determine whether this is something that needs to be enhanced or whatever it might be changed in the tool. That's how we know is feedback from you. So play around with these tools, provide us all the feedback, any features that you think would be nice. We love to hear from

new people and this is great for us to actually have Oregon onboard using this national tool, which is free to use, to get how what you think would be applicable and helpful in anything that might apply. We get a lot of requests on: We want controls in there. We want add those adding lighting controls. We're working on that. In the newer codes that are coming out, there'll be controlled credits we got to determine on how we're going to put controlled credits in there because now that's going to be part of a calculation. So these are things that will come down the road, but it'd be nice to get all that feedback we can from all of you, and I really appreciate everyone that's been on today, and I'm going to try to start taking some questions.

And since I've been talking this entire time, I would also like to let Bob Schultz just chime in real quick since he's been listening on to make sure if there's something that he wants to say before I maybe send some questions on. And also before that, I keep talking about the Energy Office, and I do that because I work in so many states and I'm probably saying that slang to all of you, Energy Office, and that word is just a common term I use really, but they're called the Oregon Building Codes Division, and they are on today hopefully listening and I want to make sure that they're aware of that. Each state has a different term or a different what they call their department or division and really - - and you got thank them. They've put a lot of time and effort coordinating with us to get this code into the tool. And again, that's called the Oregon Codes Build Division and they are going to be helpful for all of you and we thank them for giving us this opportunity too to put this in tool.

So with that said, Bob, did you have anything that you want to add before we start answering some questions?

Bob Schulz: Yeah. Hi, everybody. This is Bob Schultz. A couple clarifications to Pam's delivery. We... Oregon code does not actually have a hard coded limit of 40% on the Tradeoff approach. You can go as high as you want. But from a practical standpoint, you probably won't achieve compliance at very high levels above 40. Under... That's under the Tradeoff approach. Under the Prescriptive approach, you are constrained to the 30%, so you use those two different compliance methods based on the fenestration percentage that you're building exhibits.

Speaking to some of the report checklist items, you'll maybe had noted that there's a placeholder in many of them for specifying where on your plans the requirement can be found to be verified. Some code officials may choose to mandate or require that these be populated and we encourage that to make the compliance determination go smoother from both ends of the effort here. It'll make it easier for you to verify that you have them both in your planned documents and in the Compliance Report and it'll make it easier for the code official to go through your plans in a more speedy fashion.

The other thing about the reports that I want to point out too: There's a second Mechanical Report that basically is more descriptive and verbose than the first one. It gives you effectively the full blown code language for each requirement that is presented in the first report. As you deal with more and more projects, you learn what each of these requirements are through time and you most likely won't need that description report any more as a reference, but we provide it at least for your initiation into the mechanical reports as an aid.

One other thing to point out, in the Lighting, or any, in the Envelope, both Lighting and Mechanical tabs also is that if you have an nonstandard assembly type or lighting fixture, there's usually almost always an Other dropdown list choice that you can use to identify that assembly. And again, as Pam said, you have to present documentation as to the efficiency levels and operating parameters of those other assemblies, lights or mechanical systems. But they give you a mechanism to put nonstandard components into the project.

I think I'll leave it at that and let questions roll forward if we have any.

Pam Cole: Now, Bob, you want to just give a brief description on that version build that I mentioned that they want to be aware of?

Bob Schultz: Yeah, that's a good point. Because this is a relatively new code in COMcheck, we typically do have some elements that get left out, forgotten, overlooked, and we like to roll those out as quickly as we can; but if we do it so often that the standard updates are available, message pops up too many times, that becomes quite annoying to people. So if you haven't turned off your updates are available preferences, then you get too frequent message of this sort. And so what we do for enhancements or fixes that are not bug-related, bug fixes, or are not very consequential to the greater community of users, we will typically just increment the build version number and roll that out silently. So one thing you can do to see if there might be some minor changes to correct an issue you think you have is to go to the About COMcheck Window in that top right pane is a build version number and just make sure yours is in synch with what the Web page exhibits for on the Download page. Again, these kinds of build version increments are typically non-calculation kind of enhancements. They're usually a little minor

issue that needs to be fixed or clarification in the wording, so we don't want to annoy everybody with these updates are available messages, and that's how we tend to or want to deal with them so...

Pat Cole:

And in that build version, I'm showing it up on the screen is if you're wanting the contact information for the Oregon Building Codes Division, those phone numbers are there as well. And also to the left is the email through our Help Desk Tech Support or you can go out to Energy Codes and there's a Help Desk form, you could submit questions in that way, so you have two avenues to go get some assistance when dealing with this tool or any specific energy code questions.

So let me go ahead and take a couple of questions that have come in real quick. I know we're almost out of time here. One was: **What is the difference between REScheck and COMcheck?** REScheck is for residential, so three stories or less in height, one and two-family, multifamily. But again, it wouldn't be high-rise multifamily, and REScheck is not available for Oregon's code, and we do not have at this time a statement of work to implement Oregon's code or future Oregon residential code at this time into the REScheck tool. So the only tool available right now for Oregon is on the commercial side or high-rise multifamily and it's using COMcheck.

Can lighting be added later? Of course, that's when I talked about that you don't have to do everything all at once and in some instances you won't know what your lighting is. Maybe you're just doing a phase one and doing a build out and all you're doing is a building envelope. Maybe it's a strip mall, and one thing I highly advise with a strip mall is that you get that entire shell of that strip mall to meet compliance to the building envelope provisions and then move forward if

you're lacing it out because you deal with so many different issues when you're doing ten at build outs and whether it's an alteration is considered new construction and you're dealing with maybe only one or two walls at the time, so really be careful about when you're doing strip malls or those type of buildings. But no, you don't have to do your lighting; you can do it later. And this again is what I'm saying, but work with that plan reviewer who's doing your project as far as what they would require as well.

Does that make the Code Comp obsolete? And I'll have to tell you, I've never even played with the Code Comp software because I've been using these tools for over ten years and training on them, but I believe it does, and I hope I'm telling that correctly. I'm pretty sure that it does make it obsolete because they... If I'm corrected that this new Oregon code was not implemented into that tool, so it would be obsolete because the old Oregon code is in Code Comp, so you're pretty much moved over into COMcheck if you want to show compliance using this tool.

Do plan's examiners need to download and install COMcheck in order to perform reviews? I've worked with a lot of code officials and plan examiners that just get the report, and it's advised to electronically send in the reports; however, it's really nice and I review these reports too to help designers and I work with code officials throughout the U.S. that I want the data file. I want the data file where I can maybe help that designer if I want to go down that road, which I do, typically, and see where I can help them get them into compliance or where their issues are and get the changes done and go on your merry way. So I would advise, yeah, download the software. Again, you won't have to do that once we get into the Web tool where you could just go to Internet and you could

take that data file, but you would need the data file if you want to actually look at the project and do any manipulation to it or look at the calculations. It's up to you. It's strictly up to what the planner wants to do, not required.

LED. I talked about LEDs and Bob emphasized on that and I showed how you could choose incandescent. I actually choose a wattage of incandescent, but there is that Other option, so we want to emphasize that. There is other options to choose other for everything. There is for lighting and there is for envelope and of course you want to define that Other more carefully. Click on the Other and change it to what your component is and then back it up with your documents when you're submitting your reports.

Does the tool or Web version have any way to read in BIM? No, but we're working on it. We're looking at it. We want to hopefully way down the road look at it, but currently no. The answer is no.

Does the Envelope info need to be inserted before the Mechanical? You could do just Mechanical if you wanted to. Typically, hopefully, that someone is doing the build out and doing the building envelope. Regardless before you got occupancy, all of you systems need to comply or need to be submitted. But, no, you could do the mechanical system. It's just all about how your process is with your planning department and what's going to work best for you, but these are all optional. You don't to do them all the same time. You can do one, the other. You could do exterior lighting first if you wanted to. If you're just doing the parking area, you could do that. But that again, work that out with your building department.

And then I believe I'm going to make this one of my last questions or, no, actually I'm going to take... I have quite a few more, and the ones I don't get answered, if you have a need, you can submit them through our Tech Support or, again, you can call the Oregon Building Codes Division.

So this one was: How do email reports... **How do you email reports without signatures?** This again, you need to do that communication with the building department that they know who you are, that you're a registered professional within that jurisdiction and registered with the state, whatever those provisions are, specific provisions for Oregon, but it... Oregon would like to see electronic. It's faster for you. It's faster to get the plan review process started. However that building department might want you to bring in a hardcopy. That's just what you need to work out. We've added that feature as a feature that's been requested from users to say, "This would be nice. It's an hour and a half drive for me to get down to the building department. If I have to make a change on my report, I got to drive back and forth that long. If it's downtown Portland, with traffic and all that, this is..." What it was intended for was time saving, and hopefully you can work that out and communicate with your building department to do that.

Bob Schultz: I might add that we do continue to look at adding digital signaturing to the report system and will continue to look at that next fiscal year and hopefully that can get rolled out soon.

Pam Cole: Good point. One of the other questions is: **If two different buildings on one site, do we fill out forms for each building, and how do you fill out the exterior lighting when the two buildings share the same exterior lighting space?** If it's two buildings, then, yeah, you have two different reports for the

actual building. This is where this is up for interpretation if the lighting applies to the entire project, then it could be that work that out with the building department that you are submitting the lighting for the entire project or development altogether. But even if it was a residential development, I get asked that question: There all the same house. Yeah, but that house does not sit in the same position and orientation as the other house across the street and if you're barely scraping by on compliance, one house might be great based on orientation, the other one could be failing. I mean so it... And doesn't always mean that the one building even though they're built the same that one wall didn't get insulated properly when they go out to inspect, and where's the paperwork for building one versus building two, so you definitely need to have reports for each building separately.

Last question I'm going to take was that I mentioned adding notes and is the project page the only place for this or are there other areas that tie into note-specific data? And let me just show you real quick that on the Project screen, you have where you can add notes under Edit Project Details. On Envelope, and I'm glad this question came up, is I can come up to Options and I can click on Comments and Descriptions for the Envelope, and I do get another column that will appear that I can add in notes to my roof component, any one of those components I can add optional notes. Especially if I've chosen other as my assembly type, then I might want to go: See attached Table D or whatever it might be. And under Interior Lighting, the same thing can apply. You can be adding in specifics there as well.

Okay, again, if I haven't answered your question and you need to get an answer, go ahead and submit them into either our Help Desk or the Codes Building

Division. And again, thank you for all of you attending today, and we hope that this makes a great tool and easy to use for you to do your compliance for your commercial projects.

Rosemarie Bartlett: Well thanks very much, Pam, and thanks to Bob as well. There were several questions that came in, probably three or four, that are Oregon-code-specific questions and some - - in some cases question-specific to jurisdictions, so we will be forwarding those questions to the Building Codes Division to get back to you about those.

Also a question about the availability of this webcast in the future. We are videotaping the webcast and it will be made available on www.buildenergycodes.gov and also on the Building Codes Division website I believe will be supplying the video to them as well.

So thanks again to everybody for attending. The U.S. Department of Energy appreciates your attendance today. You may all disconnect.

Please Note: * Proper names/organizations spelling not verified.
[sic] Verbatim, might need confirmation.
- - Indicates hesitation, faltering speech, or stammering.