

**COMcheck Basics
Transcript
March 19, 2009
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 Basics, brought to you by the U.S. Department of Energy's Building Energy Codes Program. At this time, all participants are in a listen-only mode.

Before we begin the webcast, we will conduct a polling session. We have one polling question for you today. To answer the question, you will need to press the numbers on your touchtone phone. Please wait for the entire question to be read before responding. There will be a brief 10 to 15 second period of silence after the question has been asked so that the results can be compiled. Please remain on the line.

The question is: How many attendees are at your location viewing the webcast together? Please use the appropriate number on your phone to represent the number of viewers at your site. For example, press one for one viewer, two for two viewers, and so on. Please press nine to represent nine or more viewers. Once again, the question is: How many attendees are at your location viewing the webcast together? Please use the appropriate number on your phone to represent the number of viewers at your site. Please answer now by using your touchtone phone. Please remain on the line during the silence while the results are compiled. Thank you. This concludes the polling session.

A couple of logistical announcements before we begin. You may ask a question at any time during the webcast today by using the Question pane on your computer. Questions will not be answered via the computer, will be answered live by the presenters as time allows at the end of the presentation. For those of you wanting continuing education credit for the event today, a link will be provided at the end of the webcast. AIA members should write down the link and go to that link and provide us with their names and AIA membership numbers, and we will submit the information to AIA for their credit. In addition, anyone wanting a certificate of completion to self-report to a professional organization should write down the link to go and generate and print one.

Pam Cole and I will be presenting today. I'm going to begin with a short presentation on the basics of using *COMcheck*, then Pam will provide the software demonstration. At the end of the software demonstration, we'll address any questions that have come in. Since the webcast is *COMcheck Basics*, I thought we'd start at the beginning and show you where you can actually access *COMcheck*. That's from the Building Energy Codes Program website at energycodes.gov. The center section of the screen here has *COMcheck* products in the middle. There are three products that I'll talk about just briefly, *COMcheck*, *COMcheck-Web*, and *COMcheck Package Generator*. First, let's start with *COMcheck*. If you click on the *COMcheck* Link on energycodes.gov, it'll actually take you to what we refer as *COMcheck Desktop*. *COMcheck Desktop* is available either as a Windows version or a MAC version, and we refer it to as the Desktop version because you literally download it to your Desktop. Also available from energycodes.gov is our Web-based version of *COMcheck*, *COMcheck-Web*. Now it has the same basic functionality of our Desktop version with a few differences because it is an online tool. We also have *COMcheck*

Package Generator, which is a Web-based application that allows you to generate your own code compliant insulation and window packages rather than following the predefined prescriptive packages from the code. Not going to talk much about COMcheck Package Generator today. I'm going to focus actually on COMcheck Desktop, and that's what Pam will be demoing later.

First, let's talk about commercial building compliance. There are three basic building systems that you have to show compliance for a commercial building. The building envelope, lighting systems, and the mechanical system. Depending on what code or standard you have to show compliance to in your jurisdiction, there are various compliance options available to you. There's typically some kind of a prescriptive option where there's also predefined prescriptive levels; and if you meet those levels and can demonstrate that, then you can show compliance that way. There's usually tradeoff option, which is what COMcheck implements, and then there's some kind of total building performance. COMcheck, as I mentioned, implements the tradeoff option so it allows you to show compliance for the envelope, lighting, and mechanical systems. However, each major building system must comply on its own. You cannot do tradeoffs across building systems. If you wanted to do that, that actually is the total building performance and it would require a software package other than COMcheck.

This is COMcheck Basics today that we'll be presenting, so I wanted to list a couple other training opportunities for you if you want more information. On energycodes.gov, we have a couple self-paced training tools that might be of interest to you. COMcheck 101 follows a lot of the same information that we'll be covering today, but includes a simple case study that you can work through in

COMcheck to give you a little more practice. We also have COMcheck 201, which actually is derived from questions we've received from our more advanced COMcheck users over time, and we put answers to those questions in a self-paced training tool. You can go through it in a half hour to an hour. So if you have some interest in that, you can get to those from energycodes.gov. We also have available on the website some COMcheck case studies. If you wanted a little further practice with the software, you can use those case studies and get some practice; or if you're in a position perhaps of doing some COMcheck training for other folks, you can also make use of those case studies.

Now let's talk about some of the information you're going to need before you sit down and actually run COMcheck on your project. You're going to want to have some basic information about the builder and the project itself. You're going to need your area takeoffs for your building components, for your exterior walls areas, your floors, your roof ceiling areas, your window areas, door areas, and things like that, so you might as well have those all done and ready to go. You'll also need to provide the insulation R-values for your components, the Fenestration U-factors, solar heat coefficients, and things like that. So have all that information handy when you get started. For lighting compliance, you'll need to have lighting fixture details, including fixture counts, the types of lighting fixtures, et cetera. Heating and cooling system details and service water heating details if you're going to be showing compliance for mechanical systems.

There are some main steps that you'll go through as you're completing COMcheck for a project, and the first is one that I'll harp on a little bit this morning, selecting the appropriate code. That's very important. Once you've selected the appropriate code, you have some project information you'll enter.

You'll go then to the Envelope screen and enter information about your building components. If you're going on and showing compliance for lighting, you'll enter interior lighting information. Under some codes, you'll have the option to show compliance for exterior lighting as well. Then you'll enter mechanical equipment, and hopefully everything's happy and you're building complies so you can view and print the compliance reports. Then lastly, you're going to want to save your data file and your report file, so we're going to talk about each of these in a little bit of detail, and then Pam will go through these as well when she demos the software.

So let's start off talking about picking the appropriate code. You need to make sure that you've selected the appropriate code from the Code menu before you start entering information into the software; otherwise if you get partway down the road and you've entered some of your information and you suddenly realize you never selected the correct code, you're going to have to start over because the code selection dictates a lot of the entries in the software. Here's an example of what the Code menu looks like for COMcheck. You'll see that there are several versions of 90.1 and several versions of the IECC as well. We also have some states listed in the Code menu and those are states that have adopted either 90.1 or the IECC and made some state-specific amendments to those codes and requested from the Building Energy Codes Program to have those state-specific changes implemented into COMcheck. So if your project is going to occur in one of the states listed under the Code menu, you want to make sure to select that as your code. If you're not sure what code to use, then the bottom of the list there's an item called Info, Find Your Code; and if you have an active Internet connection, you can click that link. That'll take you out to the energycodes.gov website to our Status of State Codes and you can look up the appropriate code

for your jurisdiction. When you exit the software, I just wanted you to be aware that the software sets a couple defaults for you. The next time you launch the software, it's going to remember the last code that you'd selected and the last location that you had selected, and those will be defaults the next time you launch the software. You do have an option to set some preferences in the software as well, and you'll do that from the Edit menu. There are some general preferences that you can set such as if you want your file saved in a particular location each time, you can set that. You can also set the number of files to show up under the File menu for Open Recent Files. You have the option to enable or disable our Beyond Code Advisor, which is an advisor that can pop up and give you more information on energy efficient building options so you can have that enabled or not; your choice. We also have an option for you to go out and periodically do a version update check, and you set that in Preferences and what the software will do is when you have an Internet connection, it'll go out and check our website to see if we have a later version of *COMcheck* than what you are currently running on your Desktop. If we do, the software's just simply going to notify you of that fact. The software will not automatically install the latest version; it'll just notify that there's a later version available. There are also preferences related to project such as if you're always going to be using the same code and the same location for every project you enter in *COMcheck*, you can set that as a Project Preference. There are some Envelope columns that you can set to always appear on your Envelope screen, and you also can input some information about the applicant. This information actually populates the Project Details part of the Project screen; and if you're always going to have the same applicant information for every project that you enter, it's best to go ahead and set it as a preference, then you only have to type it in one time. There are also a couple preferences related to the reports, related specifically to signatures;

and if you email reports routinely to a particular building department, you can also set that email as a preference, and then you don't have to type that information every time you enter a new project.

So we've talked about selecting the appropriate code, setting your preferences, if you want to do that, now we're going to talk about Project Information. First off is Project Location, and this is important to the software because the project location ties to our weather data files that are available for COMcheck. If your location is not listed, then you want to consult your local building department as to what location they want you to use. They might suggest you use COMcheck-Web which actually always has available either a city list or a county list, or they may have you select an alternate location for which we have a weather file; and if you do that, you just want to make sure that that alternate location has weather similar to your project location. You're going to select the Project Type. Now this changes based on the code that's been selected. Under many codes, you have two options - New Construction or Addition. But under Standard 90.1 1999 and later versions, you actually have three options. - New Construction, Addition, or Alterations. Lastly on the Project screen on the left side, you have Project Details. This is optional information that relates to the title site permit, the owner/agent designer contractor, and there's always a place for notes if you want to make some notes either for yourself or for the code official, you can do that. This information is optional, but it will print out on your report, so it's a good way to keep track of your different reports that you may have. The other information that's on the Project screen relates to Building Use. There's a list of Building Use types, and again this is code dependent. We often get questions about: Why is my particular building use type not in the list? If that's a question you have, then my first recommendation is that you check what code you have selected in the

Code menu because these lists come directly from the code. If you have the proper code selected and you still don't see your type in the list, then you may need to be talking to your local code official about options you'll have. Under certain codes, you may also see on the Project screen, an area to enter your exterior lighting applications, and I'll talk about that a little more later. Building use types, as I said, they vary by code. Internal loads and lighting power allowances are based on the user's designation of the building use and, as I said, the options available to you on the Project screen for building use are based on the code that you've selected in the Code Menu.

So we've talked about applicable code, making sure you have the right one selected, set your preferences if you want to, enter your project information, and now we're moving on to the Envelope screen where you're going to enter your building components. The key thing when you're entering your building components is to only enter those components that separate conditioned space from unconditioned space or outside air. Those are the only components that the Energy Code is concerned about. You only need to use those component buttons that are applicable to your project. Some people feel the need to use every component button, but you don't need to. Only use the ones that apply to your project and only those that separate conditioned space from unconditioned space or outside air. The software is actually setup to try to make it as simple for you as possible, and one way you can do that is you can group like-components. So if you have components of one type, let's say all your exterior walls have the same construction characteristics, let's say they're all wood framed, 16-inch on center with R-13 cavity insulation, you could add the square footage of all those components together and insert only one row into the table. Now you don't have to do it that way, it's your choice, but the software will allow you to do that. The

assembly types that come up in the software for each building component are based on the code you've selected. If the assembly types that are listed do not describe the assembly type you'll be installing in your building, there is the option to use the Other type in that list. A couple caveats associated with that. If you choose one of the assembly types that's listed, the software is already accounting for other pieces of the assembly such as air films, so you only enter the R-value of the insulation to be installed. If you use Other, that is not the case and you'll need to enter the overall U-factor for the entire assembly including air films. If you do that, just be aware you're going to have to have some backup documentation for the code official, maybe manufacturer's literature or some kind of documentation of the calculation you used to figure out that U-factor. When you're entering the components on the Envelope screen, with one exception, all the rest are going to be entered as gross area. The one exception is slab on grade components. Those are entered as perimeter length and feet. All other components are entered as gross area. So for example, with exterior walls, you're going to include the area of the entire wall, including the windows and doors because we're talking gross area.

Now with foundations, just a quick note: If you have a condition basement and the basement walls are insulated, the floor above that space is not insulated, you'll use the Basement button. You'll use the Floor button if the floor component separates condition space from unconditioned space or outside air. I just wanted to add a note about slabs. In *COMcheck*, you also have to note whether the slab is heated or unheated. A heated slab, an example of that would be a radiant slab, is one that designed as part of the space conditioning system for the building. The reason you have to denote whether it's heated or not is because heated slabs have higher insulation requirements than unheated slabs. You'll

also have to give some information about the slab insulation that's used, it's position and it's depth.

When you're on the Envelope screen, the entries can change based on the code and/or the location that you've selected. I already mentioned the assembly types. Under some codes, you may also have a component button that's called Interior Wall, so I just wanted to mention that that is available under some codes, and you can use that button to enter interior above grade walls that separate conditioned space from unconditioned space. One example of that might be a conditioned office space within an unconditioned warehouse. But again, that's only available under certain codes; and if you have any questions about the use of that button, I would direct you first to the software Help. There's some more information in there.

You'll also have entries for projection factor, so I just wanted to talk about that briefly and show you this graphic that's in the software. The projection factors, the ratio of the distance to overhang projects from the window surface, that's A in this diagram, to its height above the windowsill, and that's B in this diagram. So the projection factor is A over B. Again, there's more information in the software Help system. Lastly, I just wanted to mention that the software will allow you to enter your building components with or without considering orientation. It's your choice; but initially, the orientation option is going to be turned off. So if you want to enter them by orientation, you're going to have to turn that option on.

A quick look at the Envelope Report: Pam will go into this in more detail, but I just wanted to show that at the top of the report, you have basic project information; Section 2 gives you a little more information about the project.

There is some information in here related to the location that you didn't enter. The user just enters the location and the report will spit out the climate zone, the heating degree days, and the cooling degree days for that location as well. Section 3 is where we start to get into the requirements, so it's some information that you've provided about the components and then gives you more information about the requirements.

So we've talked about selecting the applicable code, entering your project information, entering your building components, and now we're going to talk about Interior Lighting. There are mandatory requirements related to all the building systems, and those mandatory requirements are included in the reports in the Requirements' Checklist section of each of the reports. The thing to note about interior lighting is what we're trying to do is calculate your total connected power and see if that proposed wattage is going to be less than or equal to what you were allowed based on the code you've selected and the building use types you've selected under the Project screen; and if the proposed wattage is less than or equal to that allowed wattage, then your interior lighting passes. When you're entering your interior lighting, you're going to be entering things such as the fixture types, including the ballasts, if that's applicable; the number of lamps per fixture; the quantity that you have of that type, and the fixture input wattage. The fixture input wattage is the electrical power input to the lamp and the ballast combination. So I wanted to show you a partial screen capture of the Interior Lighting screen. The LPDs, the Lighting Power Densities, your allowed wattage, again, is based on the building use types you selected on the Project Screen, and I wanted to show that when you're on the Interior Lighting screen, you'll see your individual building uses that you had selected and the software will tell you what you're allowed wattage is based on the LPDs for that building use. As you

enter your fixtures under each building use type, the proposed wattage figure will calculate for you.

Exemptions and allowances may also apply to your project, so how you'll get to those is under the Options menu. You'll select exemptions and allowances which will put in a new column on your Lighting screen for you. These again are based on the code that you've selected. If you have exempt fixtures, put them into the software to make sure that you have accounted for all the fixtures that will be installed in your building for the code official, but mark them in the software as Exempt. Exempted fixtures in the software are the power for those are omitted from the proposed wattage, so that's how the software handles those. So, yes, the power is exempt, but you want to make sure to include them in *COMcheck* just so you have a complete picture of your lighting system for the code official.

Similarly if you have a lighting allowance that applies for particular fixtures in your building, you'll want to make sure to denote those allowances, and the software will then increase the allowed wattage for the building by that allowable amount. So exempt fixtures, their wattage is omitted from the proposed wattage, not included, and allowed wattage for building is increased by the allowances, and Pam will show you that as well when she gets into the software demo.

A quick look at the Interior Lighting reports: You have mandatory requirements that are listed over here in Section 3 and it's very important that whomever is signing the report make sure that you've gone through and looked at those requirements to note which ones are applicable for this project and make sure that the building is going to comply with those because whomever signs the

report is signing that the lighting does comply and that means that all those mandatory requirements have also been met.

Moving on to Exterior Lighting: As I said, this is available in the codes, in certain codes, depending on the code you selected, and the codes where it will show up are Standard 90.1 2004 and 2007 and the 2006 IECC. Similarly to interior lighting, there are some mandatory requirements related to your exterior lighting, and those typically are related to controls and lamp efficacy, and they will also print on the exterior lighting report. As with most things in the code, there are some exemptions so you'll want to be aware of those; and if you have any questions, the software Help relates what all of those are. Very similar to Interior Lighting, the process is to figure out your proposed connected lighting power and calculate your exterior lighting power allowance based on the exterior applications you entered on the Project screen; and if your total connected power is less than that power allowance, then your exterior lighting will pass.

I wanted to caution folks, when you're entering exterior lighting applications to just be aware to pay particular attention to the Units column because the units do change based on the application type that you've entered. So for example, in the first row here, we have a Drive-Up Window; and under Units, it says Windows and the quantity is two. So that means we have two drive-up windows. If you look at Item 3 here, the Parking Area, you'll see the Units says Square Footage and the quantity is 15,000, so we have 15,000 square feet for the parking area. So just be aware, it's just a caution as you're entering your quantities to make sure that you're entering them properly.

Exterior applications are either tradable or non-tradable, so let's talk tradable first. Those are common applications where you can use any unused power somewhere else in another tradable application. So for example, parking lot lighting, if you don't use all of your allowance for that, you could trade it and use some of it for canopy lighting. On the other hand, the non-tradable applications are those that are less common and they usually have some kind of a security or a safety relationship to them. So for example, a drive-up window is non-tradable and if you don't use all of your allowance for that drive-up window, you can't use the extra allowance somewhere else. It's not tradable.

Quick look at the Exterior Lighting Report. Again, we have project information up at the top. We actually have our Calculation section; and you can't see all of it here on this example, but Section 4 begins the Requirements' Checklist for these exterior lighting fixtures.

So we've kind of worked our way through COMcheck now, we've talked about the appropriate code being selected, project information being entered, talked about entering our building components on the Envelope screen, worked through interior and exterior lighting. Now let's talk about Mechanical. Mechanical works a little bit differently than Envelope and Lighting. When you're looking at the screens in the software in the bottom right corner, you'll see the Compliance Field. There's a Compliance Field for Envelope; there's one for Interior Lighting; and depending on the code, there may be one for Exterior Lighting as well, but you don't see Compliance Field for Mechanical. So Mechanical just works differently; and the way COMcheck is setup is that it's going to have you enter some details about your HVAC system, your plant, and your water heating system; and based on the code that you've selected and your location it's going

to go through this huge list of requirements and basically filter through that huge list from the code and filter out only the ones that are applicable for your location for the systems that you've entered, so you'll end up with a different report than what you see for Envelope and Lighting. You'll just have a long list of requirements for which you'll need to make sure that you're complying to demonstrate compliance, but you don't get plus or minus percentage like you do for Envelope and Lighting.

When you're entering HVAC system information, that actually HVAC system term actually refers to your secondary HVAC systems, so it's things like your controls, your fans, radiators, coils, packaged HVAC equipment, not the primary system components. Those are entered under Plant, and that would be things like your boilers, chillers, your cooling towers, your pumps and things like that. Water heating is actually handled as a series of checkboxes and you either select the ones that actually apply. So by you selecting or deselecting certain checkboxes, that dictates what requirements will end up printing out on your Requirements' List for Mechanical. So as I said, the Mechanical Report looks different than the Envelope and Lighting Reports; although, you do have project information at the top, you get a regurgitation of the mechanical systems that you've entered in Section 3 and then you start your list of requirements in Section 4. So again, whomever is signing off on the Mechanical Compliance Report is signing that all of those requirements have been met.

I've talked a little bit already about mandatory requirements and they must be met by all buildings regardless of the compliance option that you're using to show compliance. They are included in the compliance reports like I've talked about in the Requirements' Checklist section. You also can view them from the software

Help as well so - - and that software Help does vary by the code you've selected.

Just to give you an idea of what some of the mandatory requirements are like, for example an Envelope, they relate to things such as air leakage, insulation installation, building component certification, and things like that. Your lighting mandatory requirements focus mostly on controls, like your interior lighting controls, light reduction controls, and so forth. On the Mechanical side, most of all the requirements are mandatory requirements, that's why the compliance is handled differently for Mechanical, but they include things such as the system controls, outdoor air ventilation, the deck construction and insulation requirements, pipe insulation requirements, et cetera.

I never miss an opportunity to give a shameless plug for the software Help system accessible from the Help menu in the software. If you have a question when you're using the software, then I would recommend that your first stop should be the Help system. There's a lot of information in there. It's basically the complete users guide online available to you. One of the things I think has been helpful for people in particular is when you're reading through on the Envelope screen and trying to select the appropriate assembly type, if you don't understand the differences among the assembly types, those are all described in the Help system; and as I mentioned, it is code dependent. So depending what code you've selected in the software, you'll get the correct Help version popup for that code, so all of the information will be code-specific at that point. So please look at the Help if you have any questions.

As you're working through the software, I wanted to just talk about some of the screen operations and what you'll see going on in the screens. At the bottom of

the screen, we have a couple of bars that are there to provide you information. The first bar is the Compliance Bar, and this is obviously where you're going to be looking to determine whether or not your envelope and your lighting are actually complying or passing or not. We also have at the bottom of the screen what we call the Status Bar; and if you click in any active cell on the screen, the Status Bar will change and provide you information about what's supposed to be entered in that cell. So it can be kind of helpful to look at as you're going through entering your information if you're unclear about what needs to go in that cell, look down at the Status Bar.

The software also makes use of colors and to put it simply: Red is bad. We don't like to see red. Red usually indicates that there's information that's missing. There's an error somewhere or worse case, you're failing compliance, so we don't like to see red. If you think you should be seeing a compliance result and you're not seeing a compliance result or perhaps you're seeing a message in the status bar you don't understand, often times the best thing to do is to look at your active screen and look for red text, that's usually what it's trying to tell you. Green on the other hand is good. We like green. We hope to see green. That indicates a passing condition. There are occasions where you actually may see blue text on the screen, and that usually indicates that you haven't provided the software enough information for it to actually render a compliance result for you, so you need to go back and look at the screen and make sure that you've entered everything that needs to be entered.

Lastly on the screen operations, we actually have a little menu that we call the Context Menu. What this is if you right click in a particular cell on the screen, you'll get this little menu that pops up, and this is for the Windows application.

Depending on the row you're in, you'll get different options available to you in this Context menu - Cut, Copy, Paste, Duplicate Row, Delete Row, Use Default. Now the Use Default will actually allow you access to default values from the code, however want to make sure that you use this with caution. For example, if you're on a Window row and you do not know the U-factor for the window to be installed and you want to use a default, you can select Use Default but beware that these are very conservative values and chances are they're not going to help you demonstrate compliance, more likely they're going to hurt you. So the best bet is to actually enter the true values for the products that are going to be installed. This Use Default option is actually available also on the Lighting screen. If you don't know the fixture wattage, Use Default may be available for your fixture. It's not available for all fixture types. But again, just be aware, it is a default conservative value so you're better off if you can actually use the true value.

We've gone through now, we've talked about selecting the appropriate code; entering our projection information; our building components on the Envelope screen; our lighting information, interior and maybe even exterior depending on the code we've selected; and if life is happy and all is well and your building complies, the next step is to deal with your files. There are two different files that you actually want to save. You have a Data file, and that's your actual CCK file. You'll do that under the File menu and select Save. It's always a good idea to save your data file because you never know if you'll have to go back and make changes to that file, perhaps resubmit later, so it's better to save your file rather than have to recreate it. You also are going to want to save your Report file, which is in PDF format. You do that by going to the File menu and choosing Save Report. COMcheck has also been setup to allow you to actually exchange

files between COMcheck Desktop and COMcheck-Web. So for example, if you've saved a project on your hard drive and you want to open that file in COMcheck-Web. You can log into the Web version of the software and click on the Load Project link. Conversely if you've saved a project in COMcheck-Web and now you want to have it available to you on your Desktop, you can sign into COMcheck-Web and click on Download and download it to your Desktop. One of the advantages to that obviously is if it's on our servers and saved in COMcheck-Web, then you actually have access to that file wherever you are if you have Internet access, so a lot of people find that of value.

I wanted to end this part of the presentation by just covering a few of the most common questions we've received over time about COMcheck. The first being whether or not you could trade over compliance in Envelope for under compliance in Lighting, vice versa. Basically the question relates to whether you can do trade-offs among the building systems; and as I mentioned earlier, you cannot do that. If you want to be able to trade off compliance from one building system to another, you're going to have to use a total building performance tool, not COMcheck. COMcheck requires that each building system comply on its own so Envelope on its own, Lighting on its own, etcetera.

Another common question that we get is the difference between cavity insulation and continuous insulation. Cavity insulation is that that's installed in the cavities between framing members and all our values should be for the insulation only. As I mentioned, the assembly types listed in the software already account for things like air films, et cetera. So if you're using one of the assembly types from the component list, then you just want to enter your cavity or continuous insulation R-value. Continuous insulation is insulation that runs continuously

over structural members and it's free of significant thermal bridging, so an example of that would be rigid foam insulation. Now there are occasions where you may have both so enter it as appropriate.

Lastly, we sometimes get tech support questions related to the version that people have, and usually what'll happen is someone will send in an email and say, "I've... I just downloaded the software and I have the 2001 IECC version and I need the 2006 IECC version," and really all that user needs to do is go up under that ever popular Code menu and select the 2006. There's a default code that will pop in the first time you launch it. So if you have that question, just again refer back to that Code menu and make sure that you have the appropriate code menu selected.

So with that, that ends my part of the presentation on COMcheck Basics, and I'm going to turn it over to Pam for a COMcheck software demo.

Pam Cole:

Thanks, Rose. The software demo, we'll be demonstrating the actual Desktop version, and I'm going to go ahead and open up that. The first thing that you should see is the first time you open the software is a popup screen that actually will ask you your Energy Code setting. You can turn this off if you don't want to see it every time, but it's just a little teaser to make sure that you're on the right code when you open up the program. I'm just going to go ahead and read this little popup and then I'm going to hit Okay to remove that popup.

So let's talk a little bit about some of the shell of COMcheck and then we'll get into playing around with some of the actual components and entering some. At the very top is the Title Bar. This is where you'll see the Version number that

Rose talked about. If you had an open file, it would have a file name and then dot-cck. The dot-cck is the extension of all data files that are saved, and I don't have a data file open so it'll always say Untitled for the first time that you open up the program. Next on that Title Bar is the code. The code defaulted when I opened up COMcheck is at 90.1 2004. This might not be the code when you open up your software; and again if you've opened it up and you've chosen a code and closed the software, then the next time you open that same code that you chose the last time will be the defaulted code and will show up in that blue Title Bar. The next down below the Title Bar is the Menu Bar and then there are several drop down options in these Menu Bars. We'll go over those. The bar below that is the Tool Bar. This is your Windows' functionality for your Cut, Paste, Copy, and Print. Below the actual Tool Bar is your Project tabs. You might not see all these Project tabs because this is code-driven. One of the ones you probably might not see if you're on an older code would be the Exterior Lighting tab.

So let's go back up to the File menu or the Menu Bar and let's go over some of these menus. So if I click on File, in this dropdown list, I can open up a data file; I can open up a recent one. I can save my data file, my project. I can view and print, and I can save it as a report. Saving it as a report saves it as a PDF, not as a dot-cck, and then that can be opened up in Adobe Reader; and then again, you can actually email the report directly to the building department if you have that option. The screen that will come up, it's going to ask you: Well what reports do you want to email to that building department so you have the options to click off. If you're not doing interior/exterior lighting for the project, you can click those off. You can click off Mechanical and so forth. Then again, you do have the option as it does create reports as a PDF. There is an option to create it as an RTF.

We have more information on why we have this option out in our Resource Center in the website under Resource Center at energycodes.gov. But this functionality is for designers that want to create it as an RTF, that want to import it into their CAD drawings and submit their CAD drawings electronically, so it's a nice option for them that they can show their projects right on their drawings.

In the Edit menu, the dropdown, you will see that's grayed out is the Cut, Copy, Paste, Delete, and Duplicate Rows. The reason why those are grayed out right now, I'm not in an active cell anywhere entering information, so I don't have those options available to me. I'll show them when we start entering some data.

But the Preferences, Preference option is kind of a nice feature. This is in our newest or in our newer versions, and this allows designers that are doing multiple projects every time that they can set preferences so they don't have to enter their information every time they're starting a new project, so let's go over some of these. You have four tabs, General, Project, Applicant, and Reports. In General, you can dictate your file options or your path name of where you want to find your files. You can turn off that Beyond Code Advisor, or you can leave it on. That takes you out to additional information on energy efficiency opportunities and buildings that you might want to look at, and then that Version Update. I can actually change when I want to be notified or if I don't want to be notified at all when there's a version update if I'm connected to the Internet. Over in the Project tab, I can default for the code and location, the state and city to come up every time I open up COMcheck, if I want to. If I'm dealing in multiple states, I probably don't want to have a default here, and I would unclick. I don't want to use the code location to show every time. The code will show up every time, but you're going to have to change the city and state applicable to your project within

the Project tab of *COMcheck*. On the Envelope portion, there are some other features that are optional that I can enable that I want to show up in my columns in my Envelope tab so I don't have to choose them to show up every time and that would be orientation or comments. Maybe I have some specific information on a wall assembly that I want to add more information to to show that on my report for that plan reviewer so he doesn't question what I'm doing, and I can enable that column. I'm not going to enable any of these right now, but let's go down to Interior Lighting. On Interior Lighting, I can select to show on the Interior Lighting folder my exemptions and allowances; and with that, I'll get an extra column that will appear where if I'm doing some maybe some retail display, I've got some decorative lighting, then I want to make sure I'm showing those exemption allowances; and if I have a lot of that going on, I don't want to have repeatedly in the software continually go up and click on that option and have it come down into my grid. In here, it's going to do it every time I open up *COMcheck*, so I'll just click on that one and say that I want that as a feature. Let's go over to Applicant. Another nice feature with this is I don't want to type in my owner and my designer every time I open *COMcheck*, so I'm just going to enter my name here so that way every time I open *COMcheck*, this is one less piece of information that I need to be entering and I can go right ahead and start entering my Envelope and/or Lighting data. I can also come over to Reports and I can customize the signature lines. I can customize for Envelope, Lighting, and Mechanical or either/or. This is optional, but I could have the name title for who that person is, customize on those reports, which makes it pretty nice; and then if you into emailing reports, and you're dealing with the same building location, I could enter their name, email, and my email address and then this will be as a default preference that I don't have to enter again every time I'm going to go email that report. So I've actually set a few preferences in here. I set a

preference for the enabling the exemption and allowances; and in the applicant, I set a preference for my first and last name to show up under the owner/agent, and I'm going to go ahead and click Okay.

Rosemarie Bartlett: Pam.

Pam Cole: Yes.

Rosemarie Bartlett: I'm going to interrupt you for a moment because I just wanted to let everybody know that when Pam's demoing the software, on your own computer screens, you should see some scroll bars. So if Pam is describing something on the screen and you don't see it, then you can take control of your own screen and scroll over or up and down as you need to to see what she's describing.

Pam Cole: Okay. Thanks, Rose. I have now clicked Okay off the Preferences and it took me back to the main screen. I'm in the Project screen of *COMcheck*. But when I selected those preferences, I actually entered my name Owner/Agent. You don't see it here. When you're dealing with preferences and you've actually modified and enabled some or put some information in there, you need to refresh *COMcheck* for that to show up. So I'll come up to my Too Bar and I'm going to hit New with the little piece of paper that's right there. Hit New. I don't have a project. I don't want to save anything to this. I'm going to say Save Changes - No; and then again, now it's refreshed to a new project and down under Owner/Agent you see my name. Now up... Now that we're down into the Project tab, let's go back to the Menu Bar and let's go under View. Under View, you have the options to click off your Tool Bar or Status Bar. I highly advise you don't do that because you will be wanting to see those within your projects, and you

have mandatory requirements. The mandatory requirements actually takes you to the software help and that is based on the code that you've chosen and the information that you've entered that it'll actually throw up to you what those mandatory requirements are. With that, those mandatory requirements will also show up on the Compliance reports. Under the Options dropdown, now all these are grayed out because you can't click on these unless you're in the actual tab where these would be applicable. The Comments, Description, which would be in the Envelope, so if I was in the Envelope Tab, I could click on that, Orientation. But you'll see the Interior Lighting one is checked because I checked it in Preferences, so now every time I'm in the software, that will automatically be checked; and then you have an Exterior Lighting. I have to be in the Exterior Lighting tab to be able to make that an option.

Rose talked about Code Menu. There's several codes in this software. The one that I'm on is the 90.1 2004. I highly suggest that when you start entering information, you don't switch between codes because that can change a lot of things as far as assembly components are not the same between these codes. So if you've entered a whole bunch of information in your Envelope and you go to switch the code, you're going to have to readjust a lot of the information more than likely before it's going to calculate a compliance result for you.

The Help section is the Software Users Guide and you can search in the Software Users Guide. There's definitions and so forth in there and then a little information down below about COMcheck, what talks about the actual software itself.

Tool Bar is straightforward, and we'll play around with that when we're entering information.

Now let's take a look at the Project tab. This is where you will enter your state and city. Down under Project Type, you have the option for New Construction, Addition, and Alterations. Alterations will not appear unless you're in the 90.1 Code Options. In the Other codes, that is not an option. So if you're dealing with alterations, you need to confirm that you can choose 90.1 and show your compliance with the applicable 90.1 Version. Semi-heated, I'm not going to get into Semi-heated too much, but this is also code-driven and the requirements for semi-heated buildings are different and can be shown when you're on 90.1 depending on the code. Then Project Details, I can click on the Edit Project Details and then I have three more tabs that will appear. This is not preferences; this is for the project I'm working on right now. So under Title Site and Permit, I can start entering some information in here and it's going to appear on this report. I can go over to Owner/Agent and the same thing again. It's already showing that my name and last name is in here because I did that as a preference. But if I wanted to again, I could actually change that to a different name and it'll appear just on this one. But if I open up COMcheck again, you're going to see the first and last name that I've entered as a preference. Designer Contractor, same thing, your applicable information that you want to show on your report - - Address, Location, Permit Number, and any notes that you might have down below that you want to be a part of your Compliance Report as well you can enter.

Over on the right-hand side is your building use type and again depending on what code, you might not see space-by-space and you'd only have the choice to

use Whole Building. But with the code that I'm now, I'm on - - I can click Off Area Category and go over to Whole Building, but let's click on Area Category and let's enter a couple spaces here. Again, this is very dependent upon the code that you're on, so I'm just going to quickly enter Retail Space and give it a square footage for my retail cells area. I can click on Add which will give me another column and I can add another space to my area, and let's just say that it's Parking Garage and I'll enter some more square footage for my parking garage. Down below the Exterior Lighting area, if I'm not doing Exterior Lighting, optional, then I'm not going to enter any information under the Exterior Lighting or any of my applications for exterior. Again, this is code-driven. You might not see the Exterior Lighting option on the Project tab at all depending on what code you're on. Down at the very bottom of this screen that will appear on every tab that you're in has your Compliance Index. So with this one, you'll see Envelope, Interior Lighting, and you got the Exterior Lighting. TBD means really I haven't done anything with this project. I don't have any information, so there's nothing really to calculate, so they'll show up in blue. It's looking for information; it can't start calculating to show me even a result for any of that. So when I start entering, you'll see that it's going to start calculating if I have something that it can calculate on if nothing's in red and so forth. Down at the very bottom is that Status Bar that every time I'm doing something, it's going to give me a little note to actually help me as far as what I'm doing that might here do this, do that, or don't do this type of thing, so you want to look down there if you're stuck on something to see if that will help you.

Lets' go over to the Envelope. On the Envelope tab, you will see some blue and white buttons. These are your Assembly Components where you can start building the Exterior Building Envelope of your conditioned space. You have

Roof, Skylight, Exterior Wall, Interior, (This is code dependent.) Window, Door, Basement, and Floor. Doesn't mean you're going to use all those components, but each one of them has a dropdown list of Assembly Types. So as you're looking at your building plans and you're starting to run your takeoffs, typically you're going to have a roof area. You would click on that button, and if one of those matches your Assembly Types, then you would choose it. So let's just go ahead and say it's an Attic Roof with Still Joists. Once you've entered your Assembly Type, you will come over to the Gross Area column and now you're going to calculate from your takeoffs the square footage of that area. This is not... As far as the square footage for a roof, it depends on where the insulation is placed. If it's placed at the ceiling area and not the roof deck, then you're calculating the square footage of the ceiling area, so this insulation is being placed at the ceiling area and I'm going to total up the square footage and I'm putting in 4,500 square feet.

Next information that you would enter is your Cavity and Continuous; and before I do that, what you're seeing over in the column after Continuous is a U-factor column, and there's already calculation there. Every time that you choose one of the assemblies from any of these calculations that has a choice for you to choose, it has an assumption already for the typical construction of that assembly - Framing; Air Films; Gyp Board, if applicable, and it will calculate that U-factor. But what it doesn't know is the square footage and what your insulating that component to; and it will recalculate this U-factor based on those inputs.

Roof is a little bit tricky, and we get a lot of questions on it. If I have an added roof with still joists and I'm going to blow in insulation into the cavity and let's say I'm blowing in R-38 well there's going to be so many inches above the tresses

where you're going to have a complete layer that's not going to have a thermal break, but this is one application of insulation that is going to be installed in the cavity, the software looks at that R-value that you're entering and you'd only enter that as cavity. You would not separate out your insulation values and assume: Yep, I know that the depth of my trusses is this depth and I'm going to put my insulation as cavity here. I'm separating out my insulation application and I'm going to put so much under continuous. Do not do that because you're getting credit where credit is not due. If you have continuous insulation on this type of assembly, the software assumes that you're doing continuous insulation under their component, so this would go continuous foam board, so to speak, under the filling. If you have filling insulation at the rood deck, then you have an option to choose that from the dropdown list - Insulation Entirely Above the Deck, and so that might be your option there. But with this one, you wouldn't break it out, only unless that that would be the case. So if you're doing cavity and it's an completely application, that entire R-value goes there. There's a series of calculations on the backend of this software that are run for roofs and roofs are pretty technical as far as it just doesn't want to run one calculation. If you want to see what those calculations are, you can go out to our Technical Support Document which is on energycodes.gov and it's on the Download page of COMcheck. You can scroll the very bottom of that page and that Technical Support Document is a link out to a PDF and it tells you every calculation that we use in the backend of all our assumptions based - - mostly based on ASHRAE Fundamentals and all the algorithms that are being used for everyone of these components and how we calculate these components within the software and it also has a appendices for every code. So if you wanted to go to a particular code in that document, you could do that as well.

So let's go ahead now that we've entered our roof area, let's enter an exterior wall. So I'll go ahead and enter - - I'm going to enter a Concrete Block or let's go Solid Concrete. Let's say it's seven inches thick. Now depending upon the Assembly Type, it's going to ask you some more things, and one is: What is the density of this concrete? Hopefully on your plans, you're going to know what the density of this solid concrete and you'll choose which is applicable. These densities come from the Appendices of 90.1. If you need more information on the densities and what those assumptions are, you can always go to our Technical Support and ask that question; or if you have the Code Book, you can to the Appendices and/or the Technical Support Document also lists these out. So there's a lot more detail depending on the components that you're entering that if you might want to go say, "I'm not sure what lightweight means, what the pounds per cubic feet is on that," so you might want to go out to the Technical Support Document. There's a lot of references to some of these things in here that you just don't see right off the top. So let's just choose lightweight and now it's going to ask me: Well since this is a concrete exterior wall, am I don't to fur this wall out, and am I going to install insulation. Let's say that, yes, I'm not going to - - I am going to fur it out; I'm going to do metal framing. I'm going to calculate up my total exterior wall area, and this is the exterior wall area that is defining the Thermal Building Envelope, and then I'm going to put in: What am I doing? I'm furring out the wall, so I'm definitely going to have cavity insulation. If I was to show no furring and I'm insulating, that would go under Continuous Insulation because there would be no thermal breaks. So I'll just enter 22 for my Cavity Insulation and hit Okay. When I get Okay with this one, watch the U-factor change. Now I'm at 0.120.

So let's go ahead and enter our actual fenestration that's in this exterior wall, and I'm just going to quickly define my Window Type, whether its tinted or not, whether it's fixed or operable; and when you're entering your windows, if you have in this exterior wall all your windows are the same type of construction with the same U-factor solar heat gain, you can add them all up, and you're going to take the rough opening. The software will calculate the window-to-wall ratio as you're entering this information. So my exterior wall calculation up here at the top, that's everything. I take the opaque gross square footage of my wall, that would include any windows and doors, then you start entering your windows and doors underneath that applicable wall, so I'll just enter 300-square feet, and I'm going to come over and tab over to U-factor. Now if I don't the manufacturer data in front of me, as Rose mentioned, if I'm in this cell, I can right click with my mouse and I can go down and select default, and it has brought in the defaults that come from 90.1 Appendices based on the assembly description I have entered for this window. These aren't favorable, so I highly advise that when you're entering your fenestration that you have your manufacture data in front of you and enter that information then using defaults. But if you need to for the time being, you can enter defaults, the same with the solar heat gain. I've clicked in that cell and I'm active in there, so I can right click with my mouse and I can use the default.

Projection Factor is where you're going to calculate out that overhang if you have an overhang. If not, leave it at zero. It's not going to show up in red because this is optional. Down under Window, let's go ahead and I'm going to enter another exterior wall. Well, I'm looking at my dropdown list of assembly types and they don't match my assembly; and in every one of the blue and white buttons at the top, you're assembly components, you have the option to choose Other. If I

choose Other, some other information goes away. I won't have the option to enter Cavity or Continuous because now the software wants you to enter the entire U-factor for that product. So when I enter Other here, I will total up my square footage of that area and I have to enter the U-factor of that component. This is something that you're going to want to back up to the code official on how you come up with that U-factor. You want to provide your manufacturing ratings and how you derived at that because it most likely will be questioned on how you came up with it. Another thing that will happen is that it's going to ask you the heat capacity. There's more information on the Heat Capacity ranges that's in the Software Help.

Let's go ahead and go over to Basement. Now what defines a basement? A basement, which is typically a below grade wall, when do you know it's a below grade wall? If the wall is more than 85% below grade, then you should show it as a basement wall if it's part of your thermal building envelope of the condition space you're building. So with this one, I'm clicking on Basement Wall, I'm going to define it out, let's just say it's 8-inches Solid Concrete. You're going to have the density that's going to ask you again whether you're furring it and then you'll see a screen that's going to come up. More information is needed when you're dealing with below grade walls. It wants to know the wall height. I'm going to enter 12.5-feet. It wants to the depth below grade, I'll just say it's 9.5, and I'm going to click Okay. It also has a nice little graphic here to say, "All right, now that you have that, how are you insulating it?" So let's hit Okay, let's go back up, you're going to need enter your square footage. If you have different wall heights, then you're going to have more than one basement wall component in your project. Keep that in mind. You're going to then go over Cavity and Continuous. If you're furring out the basement wall, which I have said I have, then I hope that

you're entering Cavity Insulation for - - you have specified that you do have furring. But I also might have some rigid foam board on the exterior of this basement wall and so I'm going to identify the continuous R-value of that rigid foam board that I'm installing as well. Then you'll see over in your Envelope that you have two more columns that have appeared. You have the Wall Height and Depth Below Grade. It's always advisable that when in you're in the software, you expand that Desktop software as big as you can because the more information you start adding into your projects, the more columns that you might start seeing here.

Let's go over to Floor; and with Floor, as Rose touched on, Slab on Grade is one feature that's a little bit different because all the other features you're typically adding up the total square footage of that component, sub on grade you're not. But when do you enter a slab on grade? If you have an exposed edge of slab that's part of that building envelope, your Condition Building Envelope, you're going to show it and it goes - - and you would enter it in linear feet. What defines the depth of when it's not required to show a slab on grade that's part of that building envelope? If your slab is greater than 24 inches below grade and you're showing your basement walls as part of that condition to building, you would now show a floor component and the software will assume you have a below grade basement with a slab that would not be applicable to any insulation levels that is more than 24 inches below grade. If that slab is less than 24 inches below grade, part of that building envelope, then you would need to enter it and show it. Regardless of whether you're insulating it or not, it's part of the building envelope and you should define it as part of your project. You have the option of unheated and heated here. Heated means you've got some sort of hydronic heating system within the floor, insulation requirements will be increased for heated

slabs. Let's just show Unheated. You will get a screen that will come up regardless of whether you show Heated or Unheated, and it's going to give you some graphics to say, "How are you insulating the slab, and what's the insulation depth?" To define the insulation depth and how you are going to insulate it, your Construction Details button at the top here needs to be clicked. I can show Specify No Insulation, Horizontal With Vertical and you'll get a dropdown list of depth of insulation, Horizontal without Vertical or Vertical. I'll just click on Vertical and I'll move my mouse over and I'm going to say 2-feet. Then down at the bottom of this graphic here, I'm going to click Okay. Then I go back over to my grid and I'm highlighted on the Floor, the Slab-on-Grade Unheated, look over in the Gross Area column and beside that you don't see square feet anymore, you'll see feet. Now you would enter the slab-on-grade in linear feet. This is the exposed edge that defines that condition part of the building. I specified when I was in the other screen that I'm showing 2-feet of insulation. Don't forget, and it gives you a little popup to not forget, linear feet and to add and enter your continuous insulation R-value that you're proposing to install on that slab, so I'll just go ahead and enter ten.

Now with that, these are just some of the main assembly components that we know that's brought confusion, but you would go and enter your entire building envelope within the Envelope, and I'm going to open a data file and we'll play around with a little bit more, but these are just some of the ones that actually have a little more features and some more pop ups that you want to make sure you're getting all your inputs in there appropriately.

So let's go ahead and let's jump over to the Interior Lighting; and with this one, you're seeing that I have some Building Occupancy Types in here. I have Retail

Sales and Parking. These are the two things that I entered over in the Project tab for my Building Use Applications space-by-space; and I can take right after the Component column, my little Arrow button here and expand this if I want to see that Component Description a little bit more, so I can expand my columns. Now how do I start entering this information into my lighting? I have to highlight the space that I want to start defining all my lighting fixtures in, and let's go ahead and let's enter a lighting fixture. I'm just going to choose Incandescent, 75-watt. Each one of these Lighting Fixture Component Assemblies up here has a dropdown list. I will show (inaudible) one, I'll enter four. I'm going to enter, let's say maybe I don't know my fixture wattage. Now this is dependent upon the actual lighting fixture that you have chosen, but some of them do have default wattages. So if I'm in there, I can right click and use Default. This one's pretty straightforward because it is an incandescent so it's going to come in at 75 watts.

With that, maybe I have some sort of an exemption or allowance. Now when I went into the Lighting tab, this column, the Exemption Allowance column, automatically appeared for me. I did not have to go up to Options and click, Yes, I want to see the Interior Lighting Exemption Allowance column to appear in my grid. It already did that because I chose that in my Preference to come every time. So if I was looking at this retail sales area and I have an allowance that I need to show, I'm going to click on the dropdown Arrow button, I will go to Allowances. Exemptions has a list of exemptions that you could define as well, you can come over to Allowance. I'm going to say it's Retail Fine Merchandising; and with that, another screen will appear, and this is dependent on what allowance that you're actually going to show, I need to define where that retail display lighting is based on the area of that retail display (It could be a Retail Display Cabinet. It could be a Wall area) and enter what the area is of that

allowance. When I do this, if you look up where it says Allowed Wattage and Proposed Wattage, it's going to add that allowance to my calculation. If this was an exemption up where you see Allowed versus Proposed, it's not going to add it to my Proposed. It would not show it because it wouldn't be going against my proposed wattage for what I'm entering here. So you want to pay attention to when you're going to through and entering your lighting fixtures the calculations that are happening here.

Let's go ahead and go over to Exterior Lighting. Now I can go ahead and start entering my exterior lighting and I could click on the Linear Fluorescent and so forth, but I'm clicking on it and here's something that sometimes happens to users, nothing's happening. If you look down below in the Component Description and it's giving you a little note here to say Invalid Exterior Use Type. And why is that? Well over in the Project tab, I didn't define any exterior lighting areas; and until I define exterior lighting areas that can be automatically brought over to my Exterior Lighting tab, I can't start defining the fixtures that would go under that exterior lighting. So you want to make sure that you are defining it over in your Project tab first, or you're just going to have to go back over there and do so. I'll just quickly enter one and then we'll go back over to Exterior Lighting and you'll see that now that I do have that application and I can go ahead and start entering my actual lighting fixtures that would go under that application.

Another thing to note here is the last column is Fixture Wattage. Where's that Allowance and Exemption option? Well you don't see it here. You got to go over to Options and you have to click on Exterior Lighting Exemptions. Now I have that extra column, so if I do have some exemptions that might apply to some of

my lighting applications as I'm defining out my lighting applications, I can show them based on the exemption list based on the code that you're on.

Let's jump over to Mechanical. With Mechanical, this is not a pass or fail, I can customize all my Systems, my Plant, my Water Heating. Based on those inputs, it will provide a customized list of requirements and that list can grow and grow depending on how complex your system and your plant and your water heating systems are; and I highly advise not only would you want to submit that to your building department, print these out for yourself and go over them and make sure that you are meeting those. If those are ones that not applicable to your project, make sure you note that to your plan reviewer that it's not applicable. It's going to pull all of the requirements from the code that you're on into these reports, so you'll want to pay attention to these reports, and we'll take a look at those after we play around. So I can click on the HVAC system up here at the top, the Plant, the Water Heating, and it's going to provide screens. These screens will continue on and on based upon how detailed your system is. So if I was to put in a Central Furnace and I come over to my Cooling Equipment and I say it's a Filled Assembly DX system, I'll come down to Zoning. I can define my zoning, Single, Multiple, or Perimeter. I'll leave it at Single, and I'm going to hit Okay. It's going to bring that into my grid. It wants to ask me, and it's in red meaning I need this information before I can actually create anything that will show up on a report, I have to define out my Equipment Capacity. I need to enter my Fuel Type Heat Source. I came down to my Filled Assembly DX System and again Equipment Capacity needs to be defined and my Condenser Type needs to be defined, and you can go on and on down through the list with your Mechanical System and define the quantity. Maybe I have more than one of these. I can actually click on my HVAC system, I can double click in Column 1 and maybe I want to give this a

little bit more information to what this really is. I want this to show up on my report because as the plan reviewer's looking at this report, he's probably looking at my mechanical specs, and my mechanical specs shows this as an R-1/R-2, and it's just going to be easier for him if this shows up on the report to go find it on my specs, so I can double click in there and change that. Over in Plant, I can enter my Boiler Type, my Cooling Plant Type, and hit Okay. Again, you're going to see more information for Equipment Capacity, the Fuel Type, Condenser. It provides another piece of information, which is your System Detail, so I'll go ahead and enter some Fuel Type; and over in System Details, it's going to ask, since I've entered Hot Water for My Plant, what type is this? We'll put 2-pipe Changeover System in hit Okay. The Condensing Unit Type is the same thing. You need to enter the capacities of the condenser as well. So let's go over to Water Heating and let's just say it's a storage water heater. Now this is optional, if you don't want to show your water heating you don't have to. This all depends on what you want to show to that plan reviewer to make it easier for him when he's going through your plans to show up on the report. With me entering the Storage Water Heater, I can click where it said 60 gallons. I can change that. I can change it to 80. I can select the Fuel-Type Source, we'll say it's Gas and then my systems details for my storage water heater, let's say I have a heat trace (I can't talk hardly) a heat trace tape installed on the system and I'm going to hit that and click that as my option, and the input rating, check what you have for your water heating systems to make sure that you're changing that if the Btus are not 75k. If that's the case, click on that box and change it to what is applicable to your water heating storage system.

Now that we've just briefly touched on how you enter your components for your envelope, Interior and Exterior and Mechanical, let's go back over to the Project

tab before I open up an actual project, I want to show you a completely different feature which is called Alterations. Alterations is an option that's only available for the 90.1 Code Options. Alterations means that I have an existing building that I'm renovating, it's conditioned and maybe I'm replacing the roof, maybe I'm replacing windows, furring out some walls that's part of the exterior building envelope; I have some spaces that I'm going to replace lighting in, and I'm replacing some mechanical systems. That would be considered an alteration. With that, when you click on Alterations from the Project Tab, it's going to give you some descriptions of what an alteration is, what an addition is to make sure that when you go down this path you know that alterations is a separate calculation feature with in COMcheck. You can't switch in between Alterations and New Construction and think it's going to save your data. It's not. As I've entered information in the Envelope tab, watch what happens. So I will hit: Yes I'm fine, I read that information, I have Alterations clicked as far as my Project Type, more information will appear as far as Space Conditioning Type. It's going to ask you the non-residential, residential, and semi-heated. Project details, we've already discussed that.

Now Area Category, you don't see Whole Building Type because Area Category is for lighting only. You don't have to enter your area category spaces if you are not doing a lighting alteration. It wouldn't apply. That's only for lighting and lighting for an alteration is on a space-by-space basis. Lighting is applicable if you're replacing more than 50% of your luminaires within a space, or you've increased the wattage of that space regardless of if there's existing and or new. Under Exterior Lighting, you'll see that that's an option as well to show your exterior lighting.

So with the alterations, I go over to the envelope and all that information - - because I never went up to the Tool Bar and clicked New, but I went over to the Project and I clicked Alterations, all that component information that I was entering as a new construction disappeared. Reason being, alterations, every component is standalone. When you're doing an alteration, it's prescriptive. If I show a roof component and let's just define it the same description as I had for the other one, attic roof is still joist, it will give you a series of exemptions that might apply to my alteration; but if I have no exemptions, and you can read through these as you're doing your alterations because they do change depending on the component. But if you say, "no," each one of the components that you're dealing with as an alteration, the software will give you those compliance requirements to make this a little bit easier for you. It's pulling from the actual code that you're on, the 90.1, it'll pull that maximum U- factor; it will give you a possible what you need to insulate it to to meet that maximum U- factor if applicable, that will help you. So with this one for the roof, I have no exemptions; it's telling me what I need to meet to meet that maximum U-factor, and I'm going to hit Okay. You're seeing some different things with an alteration as far as your columns; you see a Post Alteration Assembly with a type after your component, you're going to see Alteration Details as a column within your grid. Each component that you're touching within that Exterior Building Envelope must pass on its own. If one of the components does not pass and you're identifying it within this grid, down at the very bottom it will just say Envelope Fails. It doesn't mean envelope fails for the entire alteration project, it means you have to come back up and find which component was failing when you were entering these and make sure you bring it up into compliance. You could have three other ones in here that pass, but you need to pay attention to that because it's not an overall every building component you put in here and it's calculating a total percentage

pass or fail, this is individual now. This is very prescriptive. So over - - if you go from the Alterations Details where it says Compliance Is Required, I haven't entered any cavity or continuous information and my proposed U-factor is showing up in red. As we know, red's bad. We have to meet that maximum U-factor of a 0.027 for this roof to even qualify to meet code as an alteration. So again, I'm going to have to enter what I'm proposing to install in this roof alteration. Again, this is dependent. So I've already entered cavity of 22, but that really doesn't get me there. It's recalculating my proposed U-factor, but I need to do a lot more to this roof structure to even get it into compliance. So if I even put 38 in there, I'm still not meeting it. This is something that you'll have to work through with your actual building plans when you're doing your alterations. I'm not going to go into a lot of detail of the actual calculations because this is COMcheck Basics; but if you're into alterations and you have detailed questions based on the code, you can always send a question in to Tech Support.

The other buttons in this alteration outside of roof, work about the same way. If you're replacing windows, it wants the pre and post information for that. If you have windows that you're replacing, it's going to ask you what the U-factor and solar heat gain is of the windows that were in that building. Well if this building's 20 years old, you probably don't know what those U-factor and solar heat gain coefficients are, but you have the option again to use those defaults so you can right click with your mouse and define the existing windows and doors within that building using the defaults. You don't want to use that for the windows that you're putting in, but you can show it up for the actual windows that were existing in that building.

The Interior Lighting, again this is where for an alteration typically works the same as if you were defining new construction, but alterations is space-by-space only. So if you wanted to show your lighting separately and you're going to redo all the lighting, then you don't have to show it as an alteration if you don't want to. You can show it as new construction. Calculations are the same and your exemptions and your allowances will come up based upon the code itself as well.

So now that we've gone over the alterations, we've gone a little bit over new construction and how you enter your project information as far as the envelope Interior, Exterior, and Mechanical; let's go ahead and open up a data file and let's play around with this a little bit. So I'm going to go to File and Open; I'm not saving anything to this document that I was playing around with, and it actually takes me to where I have a saved file in my actual data location and I'm going to click on it and I'm going to hit Open. Now this project, the code is again - - you can look at the Title Bar at the top, 90.1 2004 is the code that this project is showing compliance to, my Project Location. This is New Construction. Project Detail Information has been entered. Building Use, then space-by-space, and I have several different types of spaces in here that have been identified as my Project and down on Exterior Lighting, and look at the Exterior Lighting; look at the quantities and look at the units and the tradable versus non-tradable, and we're going to talk about this when I get over there to the - - because this is a populated project that we're working with, how the calculations are working for those areas. Let's go over to the envelope and take a look at what we have. Now this project's a completed project. Down at the bottom, this envelope project passes by plus 6%. If we're up here and we're looking under Roof, and I have my Cavity and No Continuous Insulation and I have one wall component, what this means is that this project here doesn't mean it has one wall, it means

that every one of those exterior walls have the same assembly construction and the designer totaled up all those exterior walls and entered it as one line item, which is kind of nice. It makes the compliance report smaller, don't have as many components that you have to review as a plan reviewer, and then all the windows and doors that are applicable within those walls have been entered underneath it.

But what if I want to define out my exterior walls and show orientation? This is where I would add another exterior wall, and we'll show this Solid Concrete, 8 inches; we'll show Lightweight, Furring Metal, same thing that I've done before, and I'm going to enter the square footage of this exterior wall, 22 cavity. I've entered this exterior wall; with that, I'd have to subtract that area from Line Item Number Three if I'm going to actually decide that I want to show orientation and separate out these walls for this project. So I'm going to have to subtract and show 5,000 square feet instead of 6,000. Now I've got all these windows and doors here. Well since I've added another exterior wall, I need to make sure that I have the applicable windows and doors that are in that wall underneath that wall. The software does a child-parent relationship and it's going to look at what you have for fenestration under these walls, especially when you're dealing with orientation. So let's just say this door here, that's part of that exterior wall. What I've done is I've highlighted it and I'm holding down with my mouse with the left-hand button and I can move that, highlight that exterior wall, and you'll see on line item ten I've highlighted it, and I let go with my mouse and it will drop that door underneath that exterior wall. So it's a nice little feature that you can move your components around. Some components can't be moved around based on what you're doing; but if I had these windows and doors that I know weren't part of that exterior one wall, I can push - - hold down the mouse button and move it

under that wall. Now I said I wanted to show orientation, but I don't see a column to even specify orientation. I need to go up to Options, and this is where you have the Comments and Description and the Orientation. Now if I were to specify this under Preferences, it would have automatically been showing in my grid down below, but I didn't specify it. If this is something that you want specified every time, then you would do that in the preferences. But here I can click on Orientation, and I did so. That brings another column into my grid and now I have an Orientation column right after Component. This is where I'm looking at exterior wall one and I'm going to specify my orientation on that wall, northeast, South, whatever it might be. Exterior wall, two same thing. Now you would probably have more than two walls here, this is just to briefly show you how the orientation does work and how you can get that option. Let's go back up to Options and let's click on Comments and Descriptions. This is again you need to scroll with your scroll bar if you can't see the comments and descriptions on your screen, but it brings another column to the very end; and if I have some unique type of system for a component that I want to show up on my report, then I can type that information in there. It's very optional, and it'll show up on that Compliance Report for the plan reviewer.

Let's go over to Interior Lighting, and let's take a look at this. We have several applications here. There's several Space Types that are already defined. I can click on Column One on that component and I can minimize all those lighting fixtures if I want to. If I have a lot in here I just - - I'm working in one space at the moment, I can minimize or I can click again and then I can see all the actual fixtures that are underneath that space type. So let's go ahead and let's look at this project and say, "You know what? I looked at my lighting specs and I'm missing some information here." Maybe I'm missing some LED Under Shelf Task

Lighting that would be in the Office, so I'm going to move this component description over to make sure I'm going to enter this LED lighting fixture in the right space category and so I'm going to enter this task lighting Under Shelf Task Lighting under my Office Enclosed. So I'm highlighted on my Common Space Type For Enclosed, and I'm going to go up and with LED, LED is not an option to choose from from any one of these; the Linear, Compact, HID. How you would go about entering an LED is I would advise chose HID, with again you're going to go to dropdown list of choices, chose Other. With Other, it automatically brings in the ballasts of standard because with an LED, of course you're not going to define out a ballast. LEDs are emerging technology. Lamp choices and applications, they're not uniform enough for us to actually incorporate in the COMcheck in the tool at this point; and as far as ballast, you don't want to define that because of the reason of the LED being driven by individual diodes. So with that said, then Lamps Per Fixture again with an LED, it would be one, and then you would be specifying out the actual fixtures for that number in which I'm going to show 14 and the Fixture Wattage of 18.

Again over here under the component, it's saying it's an HID. I can double click here and change that description. I can come over to the Fixture Description and I definitely want to put in what that is which is an LED Under Shelf Task Light. So I'm typing that in there; and with that, maybe there's some exemption or allowance. I don't think there would be with this type of application, so we won't put anything; we'll just leave that at none.

Let's go down to the bottom space type down here for Lobby, and I have the last line item here, which is Line Item 17, and the Chandelier is what this space type is. The Fixture Description has already been entered. Let's come over to the

last column where it says an Exemption and Allowance. This chandelier is decorative and so of course decorative has been shown as the Allowance, Decorative Appearance, and what it's going to ask you is the same thing as when I was talking to you before about retail display. It wants to know the square feet for where that chandelier is placed and so chandeliers are kind of tricky. You're going to be making your best judgment of the floor area of where those chandeliers are placed because those are not specific to an actual lighting task so you do get an allowance for those, and then you would define it what the square feet is of that area and here we have 600.

With that, let's say that our project is okay now. I've entered my LED Lighting that I didn't have before because I was looking at my lighting specs and I needed to make sure I entered that. My lighting still passes, my Interior Lighting down below says Plus One, and I've defined out any Allowances. Line item 17, I got the chandelier defined as my Allowance as Decorative, and I'm good. I've made sure all my information is correct, so let's move over to the Exterior Lighting.

Again, this is already pre populated. If I look at the Exterior Lighting, as I'd mentioned before, we have several applications under Parking. You'll see that beside that it says Tradable Wattage. It gives you the Allowed and Proposed. This one's actually under. I am at 4,793, so the additional or I would say the leftover could be used in another area or another application that would be tradable, such as the walkway. Because with the walkway, my proposed is 268 and I'm over what would be allowed, but it's tradable. So in between those two applications there, if those were the only two I'm showing for this project, they still might meet code because I'm trading in between them. Non-tradable, the next one down, that's a use or lose it. So whatever the case may be, the non-

tradable, you're using or losing it and there would be no trading in between other applications for it.

So let's take look at the ATM Lighting down here, and let's say I've looked at my lighting specifications and I missed that when they're installing this, these ATM machines, there's going to be the same lighting but it's temporary lighting. Regardless of whether it's temporary lighting, it still must be shown as part of your compliance. Let's just assume that it's the same amount of lighting fixture, same description as what's under this ATM. So I'm going to highlight Row 15 and I'm going to go up to my Tool Bar and I want to go Duplicate Row. So I clicked on the Dual Duplicate Tool Bar button and it brought down that same amount of fixtures from line - - the line below the ATM underneath it. It says Copy One; I might want to change that because I don't want Copy One to show up on my report, so I can double click in that cell and delete Copy One and leave it at the HID, maybe I'll change it to four.

Now let's go over and take a look at; hmmm, I said it was Temporary Lighting, this is temporary so is there an exemption for this lighting? So I'm going to click on the button over here and see if there's an exemption for temporary lighting and there is so I'm going to choose it. When I did that, because if I would have duplicated this, this project would have been failing, that this temporary lighting sets an exemption it did not add to my overall proposed calculation. So now that I've defined it, plan reviewers fine, he knows it's temporary, shows it as an exemption because I want it to show up on my report, my exterior lighting still passes. Not very great, I'm only passing by 0%, but I have defined out all my applications and the lighting that is within them.

So with that, let's just jump over to Mechanical really quick; this is populated. This is pretty easy because you can customize through your HVAC system, Plant, and Water Heating and as I was showing, you the mechanical when we were just going through and looking at entering the information, this R2/R3 that is defined by you by double clicking in there and putting that information in, which is optional, then it can match the actual mechanical specs on your report. You won't see the Pass or Fail down here at the bottom.

So with that let's go take a look at some of these reports. I'm going to go up to File and View Print Reports. I always advise before you go print your reports, save that data file first, so you would click Save. You can save your report as well and then go view them, that way you're for sure not to lose any data. So let's go Look At View Reports. Within that, you can select some of the reports that you want to see. I can unclick on these, but I want to see all these at this point, so I'm going to hit Okay and leave them all clicked. This is the Envelope Compliance Certificate. Rose went over some of the things that you'll see on here which is your Project Information, the general information that will provide the heating and cooling degree days that you would have not have seen when you were in the Project tab, so you want to pay attention to some of the information that shows up on these reports that you did not see when you were entering your data, and I'm going to go over some of that real quickly. So I'm scrolling down and all of the envelope components that were entered in this data file will show up on the report; Cavity Continuous Insulation. But with that there's another column that you didn't see on your report and it's the column over here called the U-factor. What I'm doing with people on Tech Support, designers that they've sent me their data file and I'm reviewing it with them and they don't understand why their project's not passing, they want to make sure it does, they

don't understand what component would get them there. Go to View Print Reports, pull up the report, even though it's still failing at this point, look at the Budget U-factor column. These provide you what you proposed and what the Budget U-factor is to give you a very quick idea of what components are your high hitters that are causing that building envelope to fail; and with that, you will go through and look at those Budget U-factors. We're not going to go through these since this is COMcheck Basics, but this gives you a really good idea when you're problems with passing. Go look at the reports first and be looking at the proposed U-factor Budget and U-factor columns on that report.

Let's scroll down a little bit more. With the Envelope Compliance Report, the other features that will be added to it are the Mandatory Requirements. You have insulation; you have fenestration on the doors. Let's move down a little bit more, you will see from the code that you are showing compliance to, Leakage Component Certification Requirements and then down at the very bottom, of course, your signature. Now if you're emailing your reports in electronically, maybe you have an electronic signature with the building department or you need to deal with the building department as far as how you're going to go about doing those signatures if you're sending them in electronically.

Let's scroll down a little bit more now. Let's go the Interior Lighting. There's two reports that come up. There's the Compliance Certificate and then a Worksheet. On the Compliance Certificate, you've got the basic information again. In Section 2, this is where you'll have all those activity types and their square footages. Section 3 is the Requirement Checklist. It's going to have the Allowed Watts, the Proposed and whether the project complies, and then it starts going in to the mandatory requirements, your Control, Switching and Wiring. These are things

that are going to be inspected when the inspector goes out in the field and make sure you're complying. Controls are big and you want to make sure you have on your lighting specifications what you're doing with your controls and switching. This just provides the mandatory requirements of what is required based upon what you're doing so there might be some exemptions if you're doing occupancy sensors and so forth, so pay attention to this area.

Scroll down a little bit more, let's do this real quickly. The Voltage Drop, if you have feeder conductors, the maximum voltage drop of 2%, those are code-driven again. And then down a little bit further is Actual Compliance Statement; and as you'll see on here, the name, title, and signature, name/title is blank. Now if I was to put in preferences under lighting, my name, it would show up on these reports every time, so it's just a nice feature to customize these reports a little bit more to the designer or to whoever he wants to have on that report. And then your Post Construction Compliance Statement providing those drawing, operating manuals, and so forth.

Down a little bit further is the actual Interior Lighting Worksheet that I'd mentioned. This gets into more detail, and I will mention just a few items here that we were playing around with in the software. I'm going through and I'm looking through my calculations. But as a reviewer, if there are any allowances, and I'm highlighting that last row which was the Lobby and it was 600-square feet for that decorative appearance, it doesn't say what that decorative appearance here in this calculation is, but it will down below. But you want to pay attention to anything that's defined out as an exemption or allowance and make sure that when they've defined it, they've calculated it correctly, and the floor area or the area of that allowance or exemption has been done correctly.

So if we scroll down a little bit more under the actual Lighting Calculations and I will just pull out where that decorative lighting is, you'll see under the Comment Space Types for that lobby that here's that chandelier that was defined as decorative. You have the Compliance Calculations down here on the right-hand side; the total watts, proposed watts, and whether it complies.

Now let's jump over the page where it's Exterior Lighting. Same thing, project information, you've got your lighting, exterior lighting applications and calculations; make sure you briefly go over your quantities and that you've defined out your quantities and units properly. We'll scroll down a little bit more; Exterior Lighting Fixtures and again this is everything that has come over from all the information that you've entered in your Exterior Lighting grid, and we'll come down to the Requirement Checklist for the Exterior Lighting and another one, just to mention, is those controls, switching, and wiring, and then the exterior lighting efficacy which is based on exterior lighting and code-driven (inaudible) as well itself, and then of course the compliance statement.

Now Mechanical, we could talk on mechanical for days depending on how complex the systems are, and this is just a project that was entered to provide the information based on the actual HVAC system, Plant, and Water Heating system that was entered in the project that I showed you. It will show you the general information, the Mechanical Systems List, and you'll get those briefly. Then down below, it will separate out all of those systems and provide the requirements that would be applicable to the system entered underneath each one of them. You'll want to look at these and make sure that either that's applicable to your project or not and note it on here. Doesn't mean every one of

them are because when you get into mechanical, there might be some things that are not applicable; but to make it easier for the plan reviewer, note it before you submit the paperwork.

Load Calculations, can't do those within COMcheck because it's not a load calculations type of software application, but here it sits to say It's Required and you need to submit separately and so on. There's several different other things that are in here, you've got your piping insulation, duct design, duct insulation, and so forth, and you read through your list and make sure everything's applicable. At the ending here is where your Compliance Statement is and your post-construction and compliance as far as signatures and so forth.

Well that's just a quick overview of the basics of COMcheck; and again if you have questions on that, you can send them into our Tech Support, and I'm going to move it back over to - - I'm going to move it back over on to Rose.

Rosemarie Bartlett: Alright. Thanks, Pam. The U.S. Department of Energy wants to thank all of you for your attendance today; and before we begin answering as many of the questions that have come in as possible, I want to put up the link where you can complete an evaluation and provide us with your AIA information or print a Certificate of Completion. You'll need to write down this link and type this link into your browser in order to do that.

Now for the questions, we each have several that have come in. I'll give Pam her stack. I do want to let you know that if we do not get a chance to answer your question live before we have to end the webcast you will be receiving an email answer from us within the next week or so, so you will get an answer if we

don't get to it here during the webcast. So I'll start off I think. I had one question that came in during my presentation related to whether *COMcheck* can handle semi-heated spaces, and I think Pam addressed that during the software demo that: Yes, there is a Semi-Heated checkbox on that Project screen under the Applicable 90.1 Standards. So if that's the standard you have to use, then you'll see that Semi-Heated checkbox and you'll want to mark that as appropriate; and if you have any questions, you can check the Help System.

Had a question come in about an example of an exempt interior lighting fixture, and again this is based on the code that's been selected, but a couple of examples would be: Museum Exhibit Lighting can be exempt under certain codes and Emergency Lighting is also exempt.

Had a question come in about the allowed wattage versus proposed wattage criteria for compliance and whether that's based on whole building or space-by-space. It's based on whatever you selected on the Project screen under that Building Use, whatever building use types you entered is what the allowed wattage is based on.

Is it possible to use just a portion of the software, for example, just lighting? Yes, each of the building systems comply on their own. As you saw, we have the different compliance indices on the screen for Envelope, Interior Lighting, and Exterior Lighting, so you can use the software for any one of those separately. Pam, you have several too, so I'll let you answer a few.

Pam Cole: Okay. One of the questions was: How can LED compliance be achieved with *COMcheck*? *COMcheck* cannot be used to show compliance to LED. LED has

their own specifications. LED is based on actually 90.1 Appendix G, which is performance based, and there are software applications that can show compliance for LED and there is an actual URL out to the building technology software directory that will take you to all those whole building performance applications do that such as Equest*, Energy Plus*, and those type of ones. If you are interested and you need that URL and you cannot find it, we have not displayed it here on the screen, but send me in an email through Tech Support and you can get to that through energycodes.gov and I'll send you that link.

Another question is: An office within a warehouse separated by an acoustical ceiling, is that allowed with insulation on top as separation of an air conditioned space? Dropdown ceilings that are not completely sealed but would separate an unconditioned area from such as an office space, would not be part of the building envelope; and regardless of whether you're putting - - you're throwing in batt insulation up in that dropdown ceiling, that would not be considered the ceiling that would define the conditioned office space. You'd have to look at the roof deck and you're going to have to make sure that that roof deck, you're going to have a thermal break that would separate that unconditioned warehouse from the office, so this has been a question that comes up quite a bit. We do have a FAQ out in the Resource Center. If you go out to energycodes.gov, there's a link right to the Resource Center which goes through a series of graphics and FAQs, code notes, and so forth. If you were just to search on acoustical or dropdown ceilings, you're going to find more detailed information on that.

Next question: Is the P.E. who signed the mechanical drawings responsible for signing the mechanical? Does the P.E. or registered architect need to sign the compliance forms for - - in COMcheck? The code has one stipulation and does

not provide a lot of specifics for commercial buildings, and that is that Compliance Reports that are submitted, whether Envelope, Lighting, Mechanical, it must be done by a registered design professional. That's it. What does that mean? That means that typically it's a registered design professional that is registered within the location or the state of which they are submitting the project.

Another question: Is compliance required in an existing building where a change in tenants or a change in occupancy is proposed or will occur? This is another question that comes up quite a bit. If you have an existing building that is conditioned and it was occupied, let's say it was an office and they're going in to renovate this and it's going to become a retail space, that's a change in occupancy. Does that mean that building has to comply if you're not touching the building envelope? More likely, you're doing lighting so more than likely you'd have to show lighting compliance for something of this nature. But the code - - and this is around... I mean all the baseline of all the codes for change of occupancy is if you're increasing the energy usage of that building based on the change of occupancy, then it must show compliance to the code applicable at that time. But if it doesn't, your plan reviewer still might request from you that you document and you show since you've changed the occupancy of this building that it does not increase the energy usage, so there's the exemption there. If this was an unconditioned building, such as a shell building that will now be rented out and now you're going to have tenant spaces and it will be occupied, then that shell building or spaces that are within that building would need to comply to the code that's applicable in that location.

Rose, did you have a couple?

Rosemarie Bartlett: I do. One that was a very good question that we didn't even refer to was: When will the 2009 IECC will be available in COMcheck? So thank you so much for reminding us to speak to that. We are working as hard as we can to get the 2009 implemented as fast as we can, but it absolutely will be in the software by the end of September. We're hoping for the summer, but our absolute deadline for it is September, so thanks for sending that one in.

Let me see, we have several that are coming in even as we're answering these questions so bear with us as we're sorting through. Another one I had was: When submitting the type of construction, addition, or alteration, is there a choice for a combination of addition and alteration? And there is not. As you saw in Pam's software demonstration you - - if you have both an addition project and an alteration, you'd have to have two COMcheck projects, one for the addition and one for the alteration.

Another question was : Is it possible to pass individual tab information to another individual, for example, one person is showing compliance for lighting and another for envelope, another for mechanical? Couple ways you could do that, one way I suppose is if you were doing it in sequential order, you could have someone start the project, complete their tab, their Envelope tab or what have you, save that project and send it along to the next person to do lighting, or another option for you would be to use COMcheck-Web; and if everyone has access to the same project saved on our servers, then you could do it that as well.

Another question was: Is it okay to write in the Note section, the design and the manufacturer of the thermal insulation system for the building? Certainly. That

Note section is for use and so whatever information that you feel would be valuable for you to have to differentiate this project from another; or if on the other hand you want to put some information in that are helpful to the code official, then that's great.

When would you use the Interior Wall category in the Envelope tab? The Interior Wall Component button is only available under certain codes, and you would use that one example I think I gave in my presentation was if you have an office space that's conditioned that's within a warehouse, you could use the interior wall to denote the interior walls of the office because it's not separating it from - - it's not an exterior wall, but it is separating conditioned space from unconditioned space. If you have further questions on that, you can go to the Software Help.

Okay, Pam.

Pam Cole:

Okay. Question on: How do you handle existing interior lighting fixtures for a remodel? These fixtures to remain as is. Do you need to input them into COMcheck? First, you'll need to look at: If this is going to be a remodel, is it space-by-space when you're looking at this as an alteration? Are you replacing more than 50% of the luminaires within the space; and/or if not, are you increasing the wattage? These are two things that would bring you, that would have to bring you into compliance if more than 50% or you're increasing the wattage. So with that, and you're going to leave some existing lighting within that space and you need to comply, you would show the existing and the new for that space in its entirety, and it might even be that the plan reviewer wants to see that that space meets compliance anyway. So if - - even if you have the criteria that you've decreased the wattage and it's not 50%, he still might want to see it, that's

up to his discretion, but you would show both. So you're going to define out the entire space, whether you have old and new.

Another one is: If we use choose the Orientation Option, are there benefits or disadvantages? Well there's both because if you don't choose Orientation and specify out all those walls and put the appropriate fenestration under those walls, of course there is. You're now doing it by orientation and so if you're having a lot of fenestration on some certain areas of the walls, that can actually hurt you if you're solar heat gains on those windows are not that good in a location where it might require that the solar heat gain very low and that that could actually hurt your project. If you don't define Orientation, then the software makes an assumption for all the walls based on like an eight quadrant orientation. There's more details on the calculations and logarithms of the orientation for the assumptions if you're not going to show them and define them out in that Technical Support Document; or if you more detailed questions, again send it in through Tech Support and we can discuss it further.

Rose, it's almost - - we're just about done with the webcast. Did you have a few to final up on?

Rosemarie Bartlett: No, I think I've handled all the ones that we probably have time for, Pam. We're just about out of time. So I think what'll do is we'll assembly all of the rest of the questions that we didn't get a chance to answer and those that have just been coming in as we've been answering questions and, as I said, we'll get responses out to all of you via email in the next week or so.



COMcheck Basics

So we'd like to thank you for participating in today's webcast brought to you by the U.S. Department of Energy's Building Energy Codes Program. You may all disconnect.

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