

May 2012

# ENGINEERING NEWSLETTER



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## New Web Interpretations Posted

The following interpretations have been posted since the last Engineering Newsletter edition. You can find interpretations on the Engineering Website located at [http://www.ncdoi.com/OSFM/Engineering/CodeServices/engineering\\_codeservices\\_interpretations.asp](http://www.ncdoi.com/OSFM/Engineering/CodeServices/engineering_codeservices_interpretations.asp)

### **2012 Building Code**

Chapter 3                      Occupancy Classification Examples

### **2009 Rehab Code**

Section 1                      References to the 2012 Building Codes

## From the Q-Board Staff:

The Q-Board Staff thanks you for your patience as we go through the "birth" of our new on-line services. We know there are and will be hic-ups, but as the old saying goes, "nothing good comes easy". We will keep you advised as needed as we update the system to address the hic-ups and we appreciate you letting us know when you experience difficulty. Please send your messages to [qboard.support@ncdoi.gov](mailto:qboard.support@ncdoi.gov) .

In that vein, the following letter went out to Directors on Friday, May 18:

*Dear Director of Inspections:*

*As you are aware, the staff of the Qualifications Board is implementing a new web-based certification program that will allow both jurisdictions and CEOs to receive real time records and directly manage their own information with the Board. We are excited about these changes and trust that once implementation is completed, you will be as well.*

*However, there have been some glitches in the system. And the timing of the problems is unfortunate. There are many individuals who have trained and planned to test to the 2009 Editions of the Code. These delays have seriously hampered their ability to do that. For that reason, staff is delaying the implementation of the exam updates to the 2012 Code Editions by two weeks.*

***Exams will be updated to the 2012 Code Editions on June 15<sup>th</sup>, 2012.***

*This change is our best effort to be fair to each individual CEO - to give them a chance to utilize the training that they have already completed for an exam.*

*Also, keep in mind that the 2012 Administrative Code and Policies book is significantly smaller than years past - the General Statutes are no longer printed at the end of the code book. For your convenience, the Department of Insurance has posted links to the appropriate Statutes so that you can visit that website and download a current copy. Test takers should print these Statutes out, bind them in some manner (staple, 3-ring binder, etc.), and bring them to the test with them as a reference. Here is a link to the list for your convenience:*

[http://www.ncdoi.com/OSFM/Engineering/COQB/engineering\\_coqb\\_certification\\_exams.asp](http://www.ncdoi.com/OSFM/Engineering/COQB/engineering_coqb_certification_exams.asp)

*Please make sure any inspector in your jurisdiction who is taking a test reads and understands the exam bulletin before they attempt to take a test. If they applied for an exam in the past but will take an exam after June 15<sup>th</sup>, it is especially important that they download an updated copy of the bulletin and review the changes. As a reminder, the test updates that will be put in place on June 15<sup>th</sup> include:*

- *Updates to 2012 Code Editions (all except Electrical)*
- *Inclusion of trade specific Energy Code questions (Fire does not have any)*

- *New reference materials - Energy Code and self-print copies of General Statutes*

*If you have any questions, please contact staff at 919-661-5880 or at [QBoard.Support@ncdoi.gov](mailto:QBoard.Support@ncdoi.gov).*

*Best regards,*



*Samantha Ewens, PE  
Director, Code Enforcement Services*

## **Heads Up!**

This series of articles is intended to address some of the more common issues that the Engineering Division has responded to since the last newsletter.

### **When Should the Building Official Verify Energy Ratings on Windows and Doors?**

With the adoption of the new NC Energy Code, we are reminded that energy efficient construction inspections are required. Included in that construction is the requirement for window and door (fenestration) ratings. The energy efficiency of windows and doors would be part of the "insulation inspection" that is required by Section 107.1 of the NC Administration Code and Policies. Although that inspection normally falls after the framing inspection and before the final inspection, it is best to verify the fenestration ratings stickers during the framing inspection so that corrections can be made prior to the installation of interior or exterior finishes.

### **HVAC Equipment and Seismic Certification Requirements**

Staff has been asked to clarify if HVAC equipment is required to be tested to the applicable seismic certification requirements in NCBC Section 1708.4.

By reference to Section 13.2.2 of ASCE 7-05, Section 1708.4 of the 2012 North Carolina Building Code requires shake table testing or "qualification by experience" for mechanical and electrical equipment required to remain operational after an earthquake. Mechanical or electrical components assigned an importance factor of

1.5 are subject to this requirement when the building is classified as Seismic Design Category C, D, E, or F.

Equipment is assigned an importance factor of 1.5 when installed in Occupancy Category IV structures, including hospitals having surgery or emergency treatment facilities, as well as any structure required for emergency response in the aftermath of an earthquake. Critical equipment would include, but not be limited to, air handling units ventilating critical facilities, chillers, condensers, cooling towers, generators, switch gears, electrical panels, fire pumps, UPS systems, valves on sprinkler systems, sprinkler heads, critical chilled water valves, and critical steam valves, medical gas valves, i.e., virtually any piece of equipment with moving parts required to remain operational after a seismic event.

“Qualification by experience” is interpreted as showing that identical equipment has survived an actual earthquake with acceleration levels comparable to the code specified design accelerations and remained operational in the aftermath. While “qualification by analysis” may show that equipment will remain in place during a seismic event, it does not guarantee the equipment will be operational in the aftermath. Only shake table testing and actual in-service performance data are capable of confirming that the equipment will be operational.

## **2012 NC Codes Errata Posted**

No matter what your role in the construction industry, it is important to be sure that you are using the most up-to-date codes. That includes any published errata.

Errata identified so far in the 2012 edition of the NC codes and identified in its base document, the 2009 ICC, are located on the website at

[http://www.ncdoi.com/OSFM/Engineering/BCC/Documents/2012\\_NCBuildingCode\\_amendments/Errata%20Central%202012-2015.pdf](http://www.ncdoi.com/OSFM/Engineering/BCC/Documents/2012_NCBuildingCode_amendments/Errata%20Central%202012-2015.pdf)

As you use the new additions of the code, if you believe you have found additional errata, please email Barry Gupton at [barry.gupton@ncdoi.gov](mailto:barry.gupton@ncdoi.gov) .

# Application of the NC Energy Conservation Code to Commercial Reroofing Projects

The following provides clarification of application of the 2012 NC Energy Conservation Code to commercial reroofing projects. There have been a lot of questions regarding this subject. The following is provided for guidance in interpretation of the code requirements and for consistency in code enforcement.

First, the general code section that identifies requirements is code section 101.4.3 "Additions, alterations, renovations, or repairs." This section reads in part:

*101.4.3 Additions, alterations, renovations or repairs*

*Additions, alterations, renovations or repairs to an existing building, building system, or portion thereof shall conform to the provisions of this code as they relate to new construction **without requiring the unaltered portion(s)** of the existing building or building system **to comply** with this code. (Emphasis added)*

The general rule in applying section 101.4.3 is that existing construction that is unaltered can remain and new work performed must meet current energy conservation code requirements.

The following are examples of commercial reroofing project scenarios for existing buildings and interpretation of the energy conservation code for requirements:

Scenario 1: Remove existing roof membrane, install new roof membrane, existing insulation is not removed.

Solution 1: Existing insulation can remain in place; no upgrade to insulation is required for code compliance.

Scenario 2: Remove existing roof membrane, install new roof membrane, existing insulation not removed, and repair damaged insulation.

Solution 2: Existing insulation can remain in place; no upgrade to insulation is required for code compliance; repaired sections are allowed to be replaced as per the original design R-value requirements to match up to the existing roof.

Scenario 3: Remove existing roof membrane and roof insulation. Install new roof membrane and new roof insulation.

Solution 3: New insulation must meet current code requirements. Hardships will have to be addressed on a case by case basis. The requirement for adding new insulation is not intended to also cause extensive structural rework, i.e., having to raise windows in an adjoining wall or requiring extensive rework of through wall flashing drainage systems.

There are also a number of exceptions listed to section 101.4.3. Exceptions are generally intended to identify lesser alternatives or exclusions to having to meet the main paragraph requirements. Exceptions generally are not intended to identify new code requirements. In particular to reroofing projects, we have exception "e" which currently is poorly written. The following is provided as guidance for application of note "e":

*Exceptions to section 101.4.3: The following need not comply provided the energy use of the building is not increased:*

*e. Reroofing for roofs where neither the sheathing nor insulation is exposed. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.*

Interpretation of application of note "e": Within the context of exception "e", "exposed" means the removal of the roof structural sheathing and exposing the roof cavity below between structural framing members. If the structural sheathing is removed and the cavity contains no insulation, then insulation shall be added to meet minimum code requirements or to the extent feasible.

An example of this roof type would be a wood-rafter roof with a cavity between the shingle sheathing and sheathing or plaster ceiling/lathe on the bottom of the rafters that form a cavity. This roof, if the cavity were exposed, would be required to have insulation fill the cavity, or, at the owner's option, insulate above or below the cavity to provide at least equivalent insulating value.

## **Free REScheck and COMcheck Energy Code Compliance Software & Recent Updates**

The US Department of Energy (USDOE) provides free software for demonstrating compliance with the 2012 North Carolina Energy Conservation Code. The use of this software is referenced in our code and is allowed for demonstrating compliance with our energy code. Please check often for newer releases of these programs on the USDOE web site and use the most current versions available.

The most recent version of COMcheck was enhanced to implement the Section 506 "Additional Prescriptive Compliance Requirements" for new commercial buildings within the program.

After installing and upon launch of these programs, please first go to the "Code" menu and select "North Carolina" for the compliance code.

The link to the free REScheck and COMcheck software on the USDOE website is [www.energycodes.gov](http://www.energycodes.gov)

## **Evaluation and White Paper Documents Updated to 2012 Code**

The Evaluation Services Section is in the process of updating all of the documents posted to date to comply with changes in the 2012 Codes. You will find the Evaluation documents that have been updated so far on the web at

[http://www.ncdoi.com/OSFM/Engineering/engineering\\_evaluations.asp](http://www.ncdoi.com/OSFM/Engineering/engineering_evaluations.asp)

and the White Paper documents at

[http://www.ncdoi.com/OSFM/Engineering/engineering\\_wpt.asp](http://www.ncdoi.com/OSFM/Engineering/engineering_wpt.asp) .

## **Accessibility Updates Posted**

The US Department of Justice announced on Friday, May 18<sup>th</sup>, that the compliance deadline for retrofitting existing swimming pools to comply with the 2010 ADA Standards has been extended. All existing swimming pools required to comply must be retrofit by January 31, 2013.

Since the last issue of the Engineering Newsletter was posted, new accessibility updates have been posted. To read them and to sign up to be notified when future updates are available, please go to:

[http://www.ncdoi.com/OSFM/Engineering/CodeServices/engineering\\_codeservices\\_interpretations\\_accessibility.asp](http://www.ncdoi.com/OSFM/Engineering/CodeServices/engineering_codeservices_interpretations_accessibility.asp)

If you prefer, you can also sign up for the AccessUpdate Newsletter by directing your smart phone to scan this symbol which will take you to the page where the sign up link is located.



## Building Code Council Meeting

The next NC Building Code Council Meeting/Public Hearing will be held Monday, June 11 at 9:00AM at the McKimmon Center, 1101 Gorman Street, Raleigh, NC 276063.

The agenda for the meeting will be posted on this page:

[http://www.ncdoi.com/OSFM/Engineering/BCC/engineering\\_bcc\\_agenda.asp](http://www.ncdoi.com/OSFM/Engineering/BCC/engineering_bcc_agenda.asp)

An Appeal Hearing will follow immediately after the public hearing at the same location if necessary and will continue starting at 9:00am on June 12, also, if necessary.

## NCMIA 2012 Workshop

There is 1 remaining NC Mechanical Inspectors Association winter workshop.

Burlington – June 27, 2012

**REGISTRATION: 7:30 – 8:00 AM**

**WORKSHOP: 8:00 AM TO 3:00 PM (ONE HOUR LUNCH BREAK)**

The NCMIA workshops have been approved by the North Carolina State Board of Examiners of Plumbing, Heating & Fire Sprinkler Contractors for continuing education credit toward license renewal in the amount of six (6) hours.

A registration application can be printed from the COCO newsletter at:

[http://www.ncdoi.com/OSFM/Engineering/Documents/COCO\\_Newsletters/COCO\\_NEWSLETTER\(January-2012\).pdf](http://www.ncdoi.com/OSFM/Engineering/Documents/COCO_Newsletters/COCO_NEWSLETTER(January-2012).pdf)

## 2012 Plumbing Code Workshops

The remaining 2012 NCPIA Plumbing Code workshops are scheduled for:

June 12, 2012 at the annual meeting in Kitty Hawk, NC

October 18, 2012 in Burlington

For more information and to print a registration form, go to the COC newsletter at:

[http://www.ncdoi.com/OSFM/Engineering/Documents/COCO\\_Newsletters/COCO\\_NEWSLETTER\(January-2012\).pdf](http://www.ncdoi.com/OSFM/Engineering/Documents/COCO_Newsletters/COCO_NEWSLETTER(January-2012).pdf)

## **Law and Admin Code Class For CE**

### **Paramount Theater – Burlington, NC June 19, 2012**

The COCO Board of Directors would like to invite you to participate in the Law and Administration Training Seminar to be held June 19, 2012 at the Paramount Theater in Burlington.

The registration fee for this seminar is \$60. Registration will begin at 8:30am and the class will be from 9:00am to 4:00pm.

This class is approved to provide 6 hours of continuing education. You will select one trade to receive your CE in (Building or Mechanical or Plumbing or Electrical or Fire).

The registration page is located on page 4 of the COCO Newsletter at

[http://www.ncdoi.com/OSFM/Engineering/Documents/COCO\\_Newsletters/COCO\\_NEWSLETTER\(April%20-%202012\).pdf](http://www.ncdoi.com/OSFM/Engineering/Documents/COCO_Newsletters/COCO_NEWSLETTER(April%20-%202012).pdf)

The Paramount Theater is located at ( 128 E. Front Street ) Exit 145 off I-85/40 turn north on Maple Avenue and go approx. 3 miles, turn right on Spring Street. Go 3 blocks to East Front Street (128 E. Front Street). Parking is behind the building.

## **Contrary to What You May Have Heard...**

The Engineering staff has been receiving a number of questions regarding the reason for the late printing of the 2012 NC Residential Code including the question whether we forgot to place the order. Regardless of what you may have heard or been told, the delay of the Residential Code was not caused by a Staff oversight.

It is important to note that the NC Building Codes are adopted and amended by the NC Building Code Council (BCC). The North Carolina code books are based on the International Code Council's (ICC) code. For example, the 2012 NC Residential Code is actually the 2009 International Residential Code with the 2012 NC amendments. Since ICC holds the copyright to the main document, the publisher is also ICC.

At the beginning of each 3-year code development cycle, staff proposes a schedule to the BCC for the development process that will enable the NC codes to be completed and printed before the effective dates. If the council agrees to the schedule, staff signs a contract with the publisher establishing the cost and schedules of the code books that are to be printed. This also provides ICC a timeframe to schedule the North Carolina Codes to be printed since other jurisdictions across the country also have ICC print their codes. If the NC schedule changes, as it did in this cycle, staff revises the schedule to make the

council aware of the time ramification of the changes they are making. In this latest code development cycle, the BCC adopted the Building, Fire, Fuel Gas, Mechanical and Plumbing codes within the revised scheduled dates and those codes were subsequently printed before the September 1, 2011 target date.

While the Residential and Energy Conservation codes were presented to the BCC at the same time as the other codes, the BCC delayed adoption of both codes. During the development cycle, the council's ad hoc code development committee members were charged by council (and the governor's office) with the goal of a 30% energy reduction to standards in effect under the 2009 codes. The committees developed code language that complied with that charge. However, when presented for adoption, the majority of the BCC voted that the measures contained in the proposed residential code resulted in an increase to the cost of a home that was too great. This delayed the process for the Residential code and the Energy code since the code drafts had to be further amended by the ad hoc committees.

At its March 2011 meeting, the BCC approved a revised Residential Code and Energy Conservation Code that resulted in a 15% energy savings instead of 30%. During this time, a series of cost trade-off code changes were presented to the BCC. A special BCC meeting was called in April 2011 to have the trade-offs voted on. Through the rules review process and the resulting legislative review, these trade-offs were mandated in Session Law 2011-269 as a condition for adoption of the residential and energy conservation codes. The legislature granted the approval for the codes in June 2011 and the final draft of both codes were sent to ICC in July 2011.

When the Residential Code and Energy Code were submitted to the publisher, ICC had two obstacles for providing a quick turn-around for the printing of both codes; (1) North Carolina was now behind previously scheduled code printing in process for other jurisdictions, and (2) There were complications caused by the increased size of the residential code. The increased size was due to the BCC voting to include residential portions of the mechanical and plumbing codes in the residential code book, changing the code from 400 pages to 1000 pages. Staff had to negotiate a new price for the residential code at the same time.

After asking ICC to expedite the printing of both codes, the Energy Conservation Code was printed within a short time. When the typesetting for the residential code had started to reach into December, staff informed the BCC that there was the possibility that the codes may not be printed by March 1<sup>st</sup>, 2012, the date mandated in SL2011-269. In January 2012, staff began a series of memos to the construction industry advising of potential work-around solutions, which included a code change summary prepared by staff for preparation of the March 1<sup>st</sup> deadline. In February 2012 a free electronic version of the residential code was placed on the website.

Near the end of February 2012, Insurance Commissioner Wayne Goodwin asked if there was anything he could do to expedite the printing of the Residential Code and subsequently started working with ICC and the jurisdictions across the state to make the impact of the missing printed code minimal. The printed Residential code was available soon after the first of March.

The purpose of this note is to spotlight the dedication staff has in assisting the construction community including Code Officials, Contractors and Designers. Despite a perception that there is an adversarial relationship or that staff acts as advocates to specific points within the code, staff's charge is exactly the opposite. Our primary responsibility is to provide assistance to the construction community when they have questions about the codes that the BCC has approved.

If you feel that staff has not lived up to the performance standards that the Department of Insurance has established, please drop Chris Noles a note at [chris.noles@ncdoi.gov](mailto:chris.noles@ncdoi.gov).

## **New Engineering Division Staff**

Melanie Butler, PE, began working for the Engineering Division in the Interpretations Section in April. She will be responsible for interpretations and guidance on the Rehab Code once her training period is over. At that time, calls concerning the Rehab Code will be forwarded to her. As she becomes code certified, she will also be back-up for the other consultants in the section.

We are also pleased to have Caleb Lowman as an intern with us this summer. Caleb is a senior at NCSU in Civil Engineering. He will primarily be working with the Evaluation Services Section doing initial research for the upcoming evaluations and white papers and providing graphics to accompany the documents.

## **Job Opportunities**

If you wish to publicize an NC Code Official position that is open for applications in your jurisdiction, please send it to [Samantha.Ewens@ncdoi.gov](mailto:Samantha.Ewens@ncdoi.gov). If the position is still open for applications at the time the newsletter is posted, we will include it in the newsletter.

## **Feedback and Suggestions**

We welcome your feedback on the newsletters. If you have comments or suggestions, just send it in a reply to the email that sent you the link to this newsletter.