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ENGINEERING NEWSLETTER



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Code Based Design Tools: New and Updated

The Engineering Division has developed and posted the design tool; "Seismic Design Category Workbook", on the website to assist designers and code officials.

The previously posted design tools; "Plumbing Fixture Count Workbook" and the "NC Building Code Chapter 34 Evaluation" tools have been updated to comply with the 2012 code.

You can find all design tools, past and current, available on our website at http://www.ncdoi.com/OSFM/Engineering/engineering_home.asp

Just scroll down the left hand side menu options to the "Design Tools" category for a dropdown menu of the tools. Please check back on the website in the future as the other design tools will be updated in the near future.

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

2012 Building Code

Section 305.2 Maximum Occupant Load for a Day Care Facility
Section 305.2 Quantity of Allowed Shifts for a 24-Hour Day Care

2012 Residential Code

Section R502 Engineered Wood Structural Products
Section R303.8 Heating Requirements for Sunrooms
Section R313.1 Sprinklers in Townhouses Separated by Two 1-hour Walls
Section R302.6 Garage Separation from Habitable Rooms Above

2012 Energy Code:

Article 101.5.2 Thermal Envelope Requirements for School Stadium Concession Stands

New and Updated Evaluation Services Documents to Comply with the 2012 Code Posted

The Evaluation Services Section has posted a new document, "Recommended Standards for Engineering Reports", written to provide guidelines to the code enforcement officials to use when evaluating letters from registered design professionals concerning alternate methods and materials or unexpected field conditions.

Additionally, the section has posted a new document, "Residential Wall Bracing", containing guidelines for the construction community's use in applying the current code requirements for wall bracing.

The Section is in the process of updating the documents previously developed and posted that were based on the 2009 code to comply with changes in the 2012 Codes.

You will find the Evaluation documents on the web at http://www.ncdoi.com/OSFM/Engineering/engineering_evaluations.asp and the White Paper documents at http://www.ncdoi.com/OSFM/Engineering/engineering_wpt.asp

Update on Residential Wall Bracing

At the June meeting of the North Carolina Building Code Council the council voted to consider a temporary measure as an alternative to Sections R602.10-R602.12, the wall bracing requirements in the 2012 North Carolina Residential Code (NCRC). This measure provides a prescriptive method for wall bracing based on the wording of Section R4506.2 from the high wind chapter of the Residential Code. In essence, houses would be allowed to be continuously sheathed with wood structural panels with certain limitations imposed on the percentage of openings in the wall at any given story level. As a temporary measure, there would be a time limit imposed on the measure while a sub-committee considers permanent alternatives to the current language in R602.10. Adoption of the measure will be on the agenda for a Public Hearing in August and on the September meeting of the council. In the meantime, below are some guiding comments on application of the 2012 North Carolina Residential Code braced wall provisions:

1. Enforcement of the wall bracing provisions by field inspection alone will be difficult at best. Jurisdictions are encouraged to review residential plans for compliance with the wall bracing provisions.
2. Plan reviewers and inspectors should not have to design the wall bracing system or guess at the designers' logic. Residential plans should show braced wall lines, method of bracing on each line, location and lengths of braced wall panels, and all details associated with the transfer of loads from roof and floor diaphragms through the braced wall panels to the foundation. Several jurisdictions have already created checklists for plan review. A checklist created by the City of Cary that jurisdictions can use as a model to create a checklist is posted on the Evaluation Services website in an evaluation paper on wall bracing.
3. When retained by the owner or contractor, registered design professionals will be expected to provide all information requested by the AHJ on their drawings. Registered design professionals may provide alternate designs to the braced wall provisions under the Alternate Material, Design or Methods section in the Administrative Code, provided the designs are based on accepted engineering principles and described in detail on the plans. Sealed calculations may be requested by the AHJ, and acceptance is at the discretion of the Code Enforcement Official (CEO).
4. Sections 602.10-602.12 of the 2012 IRC or the 2009 Virginia Construction Code may be used as acceptable alternate methods to the 2012 NCRC under Alternate Material, Design or Methods. These codes present essentially the same methodology in a more simplistic form. In addition, both codes incorporate a simplified method applicable in the 90 mph wind zone that may appeal to some jurisdictions in this wind zone. As long as the design is within the prescriptive parameters of these codes and the design is adequately described on the drawings,

a design professional need not be retained. Once again, acceptance is at the discretion of the Code Enforcement Official, and the CEO may impose any limitations on the

5. use of these methods he chooses.
6. Footnote b to Table R602.10.4.2 in the 2012 NCRC is underlined as North Carolina language. Minimum lengths required by the table are allowed to be reduced by 50% if wood structural panels are provided on both sides of a braced wall panel. After approval by the committee and board, staff noted that there is no experimental or theoretical basis for this footnote, and use of the footnote may lead to underestimation of the amount of bracing required. Consequently, use of this footnote is discouraged.

From the Q-Board

New Q-Board Investigator

Cliff Isaac will join the staff as our second investigator in mid-August. Cliff previously worked at his family's construction company, Isaac Construction, where he held the position of Director of Engineering. He currently holds both a NC Professional Engineering license as well as a NC General Contractor license.

Welcome to Cliff.

Electrical Exam Updates

The Standard Electrical Exams (Levels I, II, and III) will be updated on March 1, 2013. Exams taken prior to this date will continue to use the 2008 NEC with NC Amendments as reference material. The exam development committee, made up of highly respected Level III inspectors from across the state, has worked diligently to update the exam materials; however, the standard courses have not been updated yet. In an effort to be fair, the exam will be delayed until the coursework can be completed.

As always, please make sure that you refer to the most current Exam Bulletin as you prepare for your exam. Exam approvals are good for several years - if you are approved for an exam and delay a significant time between approval and scheduling your exam the reference materials may change. You can download a current Exam Bulletin here:

<http://www.iccsafe.org/Accreditation/Bulletins/NorthCarolinaBulletin.pdf>

Heads Up!

This series of articles is intended to give a “Heads Up!” or reminder to building officials of code requirements or NC laws that the Engineering Division believes may be being overlooked by local building department personnel based on a number of calls and emails to staff.

Assembly Occupancy Sprinkler Requirements: Change to NC Fire Prevention Code and Building Code Sections 903.2.1.1 through 903.2.1.4 for A-1, A-2, A-3, and A-4

A subtle change was made in the International Fire and Building Codes to item #3 of Sections 903.2.1.1 through 903.2.1.4. This change clarifies that the intent of the requirement is to provide sprinklers in these assembly occupancies only when the assembly use is on a floor level other than the level of exit discharge. The requirement does not apply when there is another use other than the assembly use in the same fire area and that other use is on a floor other than the level of exit discharge. An example where sprinklers would not be required for an assembly occupancy is:

- A-3 on the level of exit discharge with a calculated occupant load less than 300 and 12,000sf or less.
- Group B on the second level mezzanine in the same fire area as the A-3.

This fire area would not require sprinklers.

Sprinklers are provided in assembly occupancies that are not on the level of exit discharge to allow additional time for the large quantity of persons that are usually unfamiliar with the space to egress down stairs. It logically is not required for another occupancy type such as Group B to egress to the level of exit discharge when such persons do not require that additional time to egress down stairs.

2011 NC Electrical Code Amendments

If you have or will purchase your 2011 Electrical Codes from any outlet other than DOI or ICC, please be aware that it may not include the NC amendments.

The NC amendments are available in printable format on line at http://www.ncdoi.com/OSFM/Engineering/BCC/engineering_bcc_electrical_codes.asp.

Fire Code Requirements and On-Line Training for Crowd Managers

The 2012 North Carolina State Fire Prevention Code has a new section requiring trained crowd managers at any event where more than 1,000 people are in attendance. The North Carolina Office of the State Fire Marshal, in conjunction with several local fire marshals, has created a self-paced learning program to those individuals who are employed at a business or venue that meets the new threshold requiring crowd managers.

This program provides the user with a historical background of why the new Crowd Manager requirements are included in the code. The program also outlines the basic requirements of the fire code and the duties of the crowd manager. At the conclusion of the program there is a short quiz to test the newly trained crowd manager's knowledge of their responsibilities. Upon successful completion of the quiz the Crowd Manager will be able to print a certificate showing that they have completed the course.

The link to the training:

<http://www.ncdoi.com/osfm/FireSafetyPrograms/CrowdManagerTraining.asp>

Building Code Council Meetings

Temporary Rule Hearing

The NC Building Code Council will hold a public hearing for Temporary Rules on Wall Bracing and Duct Construction on Tuesday, August 28 at 10:00AM at the NC Department of Insurance, 322 Chapanoke Road, Raleigh, NC 27603.

The agenda items for this hearing will be posted at:

http://www.ncdoi.com/OSFM/Engineering/BCC/engineering_bcc_minutes.asp

(June 11, 2012 – Items B-21 and B-22) and

<http://www.ncoah.com/rules/register/>

(Volume 27, Issue 3 – 08/01/2012) the public comment period expires on August 31 and adoption is anticipated on September 10.

Meeting

The next NC Building Code Council Meeting/Public Hearing will be held Monday, September 10 at 9:00AM at the McKimmon Center, 1101 Gorman Street, Raleigh, NC 27603.

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

http://www.ncdoi.com/OSFM/Engineering/BCC/engineering_bcc_agenda.asp

An Appeal Hearing will follow immediately after the public hearing if necessary and will continue starting at 9:00am on September 11, also, if necessary.

Job Opportunities

The following links are for job opportunities the Engineering Division is aware of:

Building Code enforcement Director – Rowan County

<http://www.ncbia.org/Job%20postings/BUILDING%20CODE%20ENFORCEMENT%20DIRECTOR.doc>

Senior Building Inspector – Lincoln County

<http://www.lincolncounty.org/jobs.aspx?isEmployer=False&jobID=343>

Plans Examiner – City of Fayetteville

<http://www.ncbia.org/Job%20postings/Plans%20Examiner.doc>

Building Code Inspector – Henderson County

<http://www.ncbia.org/Job%20postings/buildinginspector0612.pdf>

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. If the position is still open for applications at the time the newsletter is posted, we will include it in the newsletter.