Code Corner

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North Carolina Building Code Council update

The North Carolina Building Code Council will meet Dec. 8-9, 2008 at Wake County Commons Building, 4011 Carya Drive, Raleigh, N.C. 27610. The council will hold a work session at 9 a.m., Monday, Dec. 8, followed by a public hearing at 1 p.m. The council meeting will be at 9 a.m., Tuesday, Dec. 9. The agenda for the council meeting can be found at http://www.ncdoi.com/OSFM/Engineering/BCC/engineering_bcc_agenda.asp.

Code changes to the 2009 North Carolina Residential Code will be the focus for the next several issues of Code Corner.

North Carolina 2009 Residential Code changes

(continued from October issue)

Highlights on changes between the 2006 and 2009 N.C. Residential Code

CHAPTER 3: Building Planning

R301.1 Application. Buildings and structures, and all parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures ***in accordance with the provisions of this code*** shall result in a system that provides a complete load path that ***meets all requirements*** for the transfer of all loads from their point of origin through the load-resisting elements to the foundation. ***Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.***

IRC change. Changed Section title from Design to Application and added some new wording.

R301.1.1 Alternative provisions. As an alternative to the requirements in Section R301.1 the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards the design shall comply with the International Building Code.

1. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual (WFCM).
2. American Iron and Steel Institute (AISI) Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-Family Dwellings (COFS/PM) *with Supplement to Standard for Cold-Formed Steel Framing- Prescriptive Method for One- and Two-Family Dwellings.*

IRC Change- added Supplement reference to Note 2.

R301.2.1 Wind limitations. Buildings and portions thereof …..

… *"Where loads for curtain walls, exterior windows, skylights, garage doors and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3) shall be used to determine design load performance requirements for curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors.*

IRC change with N.C. amendments – 2006 N.C. Code referenced "windows, skylights and doors" only. Change added "curtain walls," "exterior" reference for windows and doors and "garage doors."

Table R301.2(1) Climatic and Geographic Design Criteria

Roof Load	Wind Speed (mph)	Seismic Design Category	Subject to Damage From: Weathering[a]	Frost Line Depth	Termite[c]	Decay	Winter Design Temp	Ice Barrier Underlayment Required	Flood Hazard[b]	Air Freezing Index	Mean Annual Temp
20	Figure 301.2(4)	301.2(2)	Moderate	12"	Moderate - Heavy	Moderate	Local	Local	Local	Local	Local

For SI: 1 pound per square foot = 0.0479 kN/m², 1 mile per hour = 1.609 km/h.

a. Weathering may require a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code. The grade of masonry units shall be determined from ASTM C 34, C 55, C 62, C 73, C 90, C 129, C 145, C 216 or C 652.

d.

b. The Jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoptions of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the currently effective FIRM and FBFM, or other flood hazard map adopted by the community, as may be amended.

c. Protection is required in all of NC per section R320.

IRC change - Added footnote C to Termite column indicating treatment required for all of North Carolina. "Decay" column deleted. Section 319 no longer refers to decay map; "Ice Shield Underlayment" column changed to "Ice Barrier Underlayment;"

R301.2.1.1 Design criteria …

4. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing—Prescriptive Method for One- and Two-family Dwellings *(COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing—Prescriptive Method For One- and Two-Family Dwellings.*

IRC Change - added Supplement reference in Note 4 (same note as in Note 2 of Section 301.1.1 Alternative provisions)

R301.2.1.2 Protection of openings. Windows in buildings located in windborne debris regions shall have glazed openings protected from windborne debris. Glazed opening protection for windborne debris shall meet the requirements of the Large Missile Test of an approved impact resisting standard or ASTM E 1996 and ASTM E 1886 referenced therein.

Section from IRC renamed – used to be "Internal Pressure". Removed the allowance for design as a partially enclosed structure that was in the '06 code.

Exception: Wood structural panels with a minimum of 7/16 inch (11 mm) and a maximum span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be secured with the attachment hardware provided. Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2(2) or Section 1609.6.5 of the International Building Code. Attachment in accordance with Table R301.2.1.2 is permitted for buildings with a mean roof height of 33 feet

(10 058 mm) or less where wind speeds do not exceed 130 miles per hour (58 m/s).

IRC change - hardware sentence added and 33 foot max sentence added.

TABLE R301.2.1.2 – WINDBORNE DEBRIS PROTECTION FASTENING SCHEDULE FOR WOOD STRUCTURAL PANEL (see facing page)

c. Fasteners shall be long enough to penetrate through the exterior wall covering and a minimum of 11/4 inches into wood wall framing and a minimum of 11/4 inches into concrete block or concrete, and into steel framing a mini mum of 3 exposed threads. Fasteners shall be located a minimum of 2 1/2 inches from the edge of concrete block or concrete.

d. Where screws are attached to masonry or masonry/stucco, they shall be attached using vibration-resistant anchors having a minimum ultimate withdrawal capacity of 490 pounds.

IRC change - New footnotes c and d were added.

R301.2.4 Floodplain construction. Buildings and structures constructed in ***whole or in part*** in flood hazard areas (including A or V Zones) as established in Table R301.2(1) shall be designed and constructed in accordance with Section R324.

New language added from IRC.

TABLE R301.2(5) GROUND SNOW LOAD TABLE DELETED

Table R301.5
Minimum Uniformly Distributed Live Loads
(in pounds per square foot)

USE	Live Load
Attics with storage[h]	20
Attics without storage[b]	10
Decks[g]	40
Exterior balconies	60
Fire escapes	40
Guardrails and handrails[g]	200
Guardrails in-fill components[f]	50
Passenger vehicle garages[a]	50[a]
Rooms other tham sleeping rooms	40
Sleeping rooms	30
Stairs	40[c]

Added several different footnotes to the table to better explain the condition or application such as:

- Note g - What makes attic area useable for storage;
- Note h - Unfinished attics accessible by fixed stairs need to be designed with sleeping area floor loads
- Note i - A special requirement for glazing used in guards and handrail assemblies to be designed with a higher safety factor.

R302.2 Zero Lot Line Separation. *Where perpetual, plated, and recorded easements create a non-buildable minimum fire separation distance of at least 10 feet between structures on adjacent properties, the one-hour fire resistive ratings of Table R302.1 shall not apply.*

N.C. change- NEW Section for Zero Lot Line Separation

R303.6.1 Light activation. *Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. The illumination of the exterior stairways shall be controlled from inside the dwelling unit.*

Exception: Lights that are continuously illuminated or automatically controlled.

IRC change - Added section to address where lighting outlets are installed in interior stairways there shall be a wall switch at each level if stairway has six or more risers.

305.1 Minimum height. Habitable rooms, hallways, corridors, bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 7 feet (2134 mm). The required height shall be measured from the

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finish floor to the lowest projection from the ceiling.

Exceptions:

1. (same N.C. language as '06)

2. (same N.C. language as '06)

3. For rooms with sloped ceilings, at least *50 percent of the required floor area of the room must have a ceiling height of at least 7 feet and no portion of the required floor area may have a ceiling height of less than 5 feet.*

4. (same N.C. language as '06)

IRC change - changed wording in Note #3 – to indicate that at least 50 percent of the required floor area must have a 7 foot height and no portion of the required floor area may be less than 5 feet.

R308.1 Identification. Except as indicated in Section R308. 1.1 each pane of glazing installed in hazardous locations as defined in Section R308.4 shall be provided with a manufacturer's designation specifying who applied the designation, designating the type of glass and the safety glazing standard with which it com plies, which is visible in the final installation. The designation shall be acid etched, sandblasted, ceramic-fired, laser etched, embossed, or be of a type which once applied cannot be removed without being destroyed. ~~A label shall be permitted in lieu of the manufacturer's designation.~~

N.C. change - labels not permitted. Must be etched etc. so cannot be removed.

R309.1.2 Other penetrations. *Penetrations through the separation required in Section R309.2 shall be protected by filling the opening around the penetrating item with approved material.*

IRC Change - added new section "Other Penetrations" to Section 309 Garages and Carports that will require penetrations through separation to be filled around with an approved material.

R310.1 Emergency escape and rescue required. Basements with habitable space and every sleeping room shall have at least one operable emergency and rescue opening…

The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2. *Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.*

IRC Change - added last sentence openings SHALL open directly into a public way, or to a yard or court that opens to a public way.

R311.4.3 Landings at doors. There shall be a floor or landing on each side of each exterior door. The floor or landing at the exterior door shall not be more than 1.5 inches (38 mm) lower than the top of the threshold. The landing shall be permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent).

Exceptions:

1. Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door provided the door, other than an exterior storm or screen door does not swing over the stairway.

2. The exterior landing at an exterior doorway shall not be more than ~~7 3/4~~ **8 1/4** inches (**210** mm) below the top of the threshold, provided the door, other than an exterior storm or screen door does not swing over the landing.

3. The height of floors at exterior doors other than the exit door required by Section R311.4.1 shall not be more than ~~7 3/4~~ **8 1/4** inches (**210** mm) lower than the top of the threshold. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.

IRC Change - Exception #3 has been modified to allow floors at exterior doors other than the exit door to be no more than 8 ¼ inches from top of threshold regardless of door swing.

311.4.4 Type of lock or latch. All interior and exterior egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort.

IRC change - All interior and exterior egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort. All double cylinder keyed locks (deadbolts) no longer allowed in NC on egress doors both interior and exterior. NOTE:All usable doors from habitable spaces are egress doors.