

NC State Building Codes Amendments - Effective 1/1/2015

(adopted through June 2014)

(Note: some amendments may indicate earlier effective dates)

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The following pages represent a summary of the Building Code Council adopted amendments that have been approved by the Rules Review Commission.

2011 NC Electrical Code (based on the 2011 NEC)

2012 NC Administrative, Building, Energy Conservation, Fire, Fuel Gas, Mechanical, Plumbing, Residential Codes (based on the 2009 International Codes)

2015 NC Existing Building Code (based on the 2012 IEBC)

These amendments revise, delete or add to the adopted NC Code.

106.2.1 Requirements: (NO CHANGE TO SECTION)

Exception: Projects using BIM-IPD process see 106.2.3.1.

106.2.2 Additional data: (NO CHANGE TO SECTION)

Exception: Projects using BIM-IPD process see 106.2.3.1.

106.2.3 Review and Approval: (NO CHANGE TO SECTION)

106.2.3.1 Building Information Modeling – Integrated Project Delivery Projects

When proposed by the permit applicant and when acceptable to the authority having jurisdiction, the BIM-IPD process may be utilized, replacing the requirements of 106.2.3, with the following permitting and inspection steps.

1. At the project start, the owner's project team (Architect, Engineer, Contractor, et al) shall meet with the Code Enforcement Official (CEO) to determine the prevailing code compliance strategy for the full scope of the project, to be documented in an electronic Appendix B format or an equivalent format, acceptable to the CEO.

2. The CEO may issue a single project master permit, based on the initial project description and code compliance strategy agreement.

Commentary: The CEO should work collaboratively to review building components or details as scheduled by the owner's project team

3. The CEO shall inspect built work, as described in Section 107 of this code.

3.1. Concurrence on compliance with the code, with respect to both the model and built product, shall be gained before inspections are approved.

4. The owner's project team shall submit a validation document, at project substantial completion, documenting the building as constructed and compliance with the NC State Building Code, for records retention by the **Authority Having Jurisdiction.**

Validation document: may be a three dimensional model, two dimensional electronic drawings and records, or a combination of both, accurately reflecting the completed building as approved by the code official in the field, and verified with respect to same.

- Where the validation document varies from the approved virtual model regarding building code compliance, the related Architect/Engineer must approve the change.
- Receipt of the validation document shall be a condition on issuance of Certificate of Occupancy.

106.2.3.2 Definitions

BIM: model based technology linked with a data base of project information, using three dimensional, real time dynamic modeling software, to plan all building construction. The model encompasses building geometry, spatial relationships, geographic information, and quantities and properties of building components.

IPD: a project delivery method that integrates key participants (owner, Architect, Engineer, contractor, code official, et al), systems, business structures and practices into a process that collaboratively plans and constructs facilities. The collaborative process begins in early design and continues through all phases of design, fabrication and construction.

Commentary: This applies to any project delivery method employing three dimensional modeling software, to virtually construct all building components, by a collaborative team based process from design start to construction completion.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

NC Administrative Code

107.3 Approval required. (090915 Item B-9)

107.3 Approval required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the code enforcement official. The code enforcement official, upon notification, shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or shall notify the permit holder or an agent of the permit holder that the work fails to comply with the technical codes. The code enforcement official shall identify code violations and when requested shall identify the specific sections of the technical codes. Any work that does not comply shall be corrected and shall not be covered or concealed until authorized by the code enforcement official.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2011 NC Electrical Code

210.52 Dwelling Unit Receptacle Outlets. (110822 Item B-6)

(I) Foyers. Foyers that are not part of a hallway in accordance with 210.52(H) and that have an area that is greater than 5.6m² (60 ft²) shall have **at least one receptacle** ~~located in each wall space 900 mm (3 ft) or more in width in a straight dimension and unbroken by corners, doorways, floor to ceiling windows and similar openings.~~

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2011 NC Electrical Code
404.2 Switch Connections. (110822 Item B-7)

(C) Switches Controlling Lighting Loads. For switches controlling lighting loads supplied by a grounded general purpose branch circuit, the grounded circuit conductor for the controlled lighting circuit shall be provided at the switch location.

Exception: The grounded circuit conductor shall be permitted to be omitted from the switch enclosure where either any of the following conditions in (1), ~~or~~ (2) or (3) apply:

1. Conductors for switches controlling lighting loads enter the box to a raceway. The raceway shall have sufficient cross sectional area to accommodate the extension of the grounded circuit conductor of the lighting circuit to the switch location whether or not the conductors in the raceway are required to be increased in size to comply with 310.15(B)(2)(a).

2. Cable assemblies for switches controlling lighting loads enter the box through a framing cavity that is open at the top or bottom on the same floor level, or through a wall, floor, or ceiling that is unfinished on one side.

3. Residential one- and two-family dwellings.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

TABLE 715.4 Fire Door and Fire Shutter Fire Protection Ratings. (101214 Item B-8)

TABLE 715.4 Fire Door and Fire Shutter Fire Protection Ratings

(add footnote "c" in Table, to "Type of Assembly, Fire partitions, corridor walls)

c. Fire-rated bathroom/restroom doors are not required when opening onto fire-rated halls, corridors, exit access provided:

(1) no other rooms open off the bathroom/restroom,

(2) no gas or electric appliances other than electric hand dryers are located in the bathroom/restroom,

(3) the walls, partitions, floor and ceiling of the bathroom/restroom have a fire rating at least equal to the rating of the hall, corridor or exit access, and

(4) the bathroom/restroom is not used for any other purpose than it is designed.

The delayed effective date of this Rule is September 1, 2011.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

901.6.1 Automatic sprinkler systems. (131210 Item B-1)

901.6.1 Automatic sprinkler systems. Automatic sprinkler systems shall be monitored by an *approved* supervising station.

Exceptions:

1. A supervising station is not required for *automatic sprinkler systems* protecting one- and two-family dwellings.
2. Limited area systems serving fewer than 20 sprinklers.
3. A group R-2 building sprinklered in accordance with NFPA 13R where sprinklers are provided for porches, balconies, corridors and stairs that are open and attached and installed in accordance with Section 903.4. At a minimum an approved audible alarm device shall be provided on every sprinklered R-2 building in accordance with Section 903.4.2 of the North Carolina Fire Code. No on-site supervision is required at a constantly attended location.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

903.2.8 Group R automatic sprinkler system. (130311 Item B-8)

[F] 903.2.8 Group R. An **automatic sprinkler system** shall be installed in accordance with Section 903.3 throughout all buildings with a Group R **fire area**, except as provided for in Section 903.2.8.1.

Exceptions:

1. An *automatic sprinkler system* is not required in new adult and child care facilities located in existing Group R-3 and R-4 occupancies.
2. An *automatic sprinkler system* is not required in ~~Group R-4 temporary overflow shelters~~.
3. Group R-2 buildings housing farm workers and their families located outside of a municipality's building rules jurisdiction that are not exempted by Section 903.2.8.1 may install a 13D multipurpose sprinkler system where all of the following conditions exist:
 - 3.1. The Group R building cannot exceed two stories in height.
 - 3.2. The Group R building cannot exceed 2500 square feet (232 m²) in area.
 - 3.3. The Group R building shall have two remote means of egress.
4. Group R-2 fire areas in fire stations may install a 13D sprinkler system in accordance with Section 903.3.5.1 when separated from other occupancies by a fire wall where all of the following conditions exist.
 - 4.1. The Group R building cannot exceed one story in height.
 - 4.2. The Group R fire area cannot exceed 2500 square feet (232 m²) in area.
 - 4.3. The Group R fire area has two remote means of egress.
5. An automatic sprinkler system is not required in camping units located within a campground where all of the following conditions exist.
 - 5.1. The camping unit is limited to one story in height.
 - 5.2. The camping unit is less than 400 square feet (37 m²) in area.
 - 5.3. The camping unit does not have a kitchen.

[F] 903.2.8.1 Group R Migrant Housing. Migrant housing as defined by GS 95-223 shall be exempt from the requirements of Section 903.2.8 when all of the following conditions exist:

1. The Group R building is not more than one story in height.
2. The Group R building meets all of the requirements of GS 95-222 through **GS 95-229.1** (Chapter 95, Article 19) and 29 CFR 1910.142, as amended.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Fire Code, Section 903.2.8]

2012 NC Building Code

908.7 Carbon monoxide alarms. (130910 Item B-8)

908.7 Carbon monoxide alarms. Group I-1, I-2, I-4 or R occupancies located in a building containing a fuel-burning heater, **appliance, fireplace, or has** an attached garage shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2 of the International Building Code, or an enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

Exception: *Sleeping units or dwelling units* **that** do not themselves contain a fuel-burning heater, appliance, fireplace or have an attached garage, **but are** located in a building with a fuel-burning heater, appliance, fireplace or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The *sleeping unit* or *dwelling unit* is located more than one story above or below any story which contains a fuel-burning heater, appliance, **fireplace,** or attached **garage;**
2. The *sleeping unit* or *dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning heater, appliance, fireplace **or attached** garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

908.7.1 Carbon monoxide detection systems. Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances installed and maintained in accordance with NFPA **720,** shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

Amend Chapter 47 as follows:

Add NFPA Standard:

720-09 Standard for the Installation of Carbon Monoxide(CO) Detection.....908.7, 908.7.1 and Warning Equipment, 2009 Edition

The effective date of this Rule is **June 1, 2014.**

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Fire Code, Section 908.7]

2012 NC Building Code

Table 1004.1.1 Maximum Floor Area Allowances per Occupant. (130910 Item B-1)

TABLE 1004.1.1
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

Assembly without fixed seats
Unconcentrated (tables and chairs) ^a

Business areas ^a

Add the following footnote to “Assembly – unconcentrated (tables and chairs)” and to “Business areas”:

a. An assembly occupancy conference room that is accessory to a Group B office occupancy and meeting the requirements of Section 303.1, exception 2, shall be calculated at 100 square feet per occupant for determining the overall occupant load of the associated floor. The assembly occupancy shall be calculated at 15 square feet per occupant for the purpose of determining egress from the room containing the assembly occupancy.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

1005.1 Minimum required egress width. (120312 Item B-2)

1005.1 Minimum required egress width. The *means of egress* width shall not be less than required by this section. The total width of *means of egress* in inches (mm) shall not be less than the total *occupant load* served by the *means of egress* multiplied by 0.3 inch (7.6 mm) per occupant for stairways and by 0.2 inch (5.1 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple *means of egress* shall be sized such that the loss of any one *means of egress* shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any *story* of a building shall be maintained to the termination of the *means of egress*.

Exceptions:

1. *Means of egress* complying with Section 1028.

2. For other than Group H and I-2 occupancies, the capacity, in inches (mm), of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by the *stairway* by a *means of egress capacity factor* of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communications system* in accordance with Section 907.5.2.2.

3. For other than Group H and I-2 occupancies, the capacity, in inches (mm), of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such components by a *means of egress capacity factor* of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communications system* in accordance with Section 907.5.2.2.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Fire Code, Section 1005.1.]

2012 NC Building Code
1018.6 Corridor continuity. (130311 Item B-12)

1018.6 Corridor continuity. Fire-resistant-rated **corridors** shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

Exceptions:

1. Foyers, lobbies or reception rooms constructed as corridors shall not be constructed as intervening rooms.
2. A toilet room as defined by the NC Plumbing Code that meets all of the following requirements may be included as part of the rated corridor enclosure:
 - 2.1. The toilet room shall be separated from the remainder of the building by fire-resistant-rated construction meeting the same requirements as the corridor construction;
 - 2.2. No other rooms open off of the toilet room;
 - 2.3. No gas or electric appliances other than electric hand dryers are located in the toilet room; and
 - 2.4. The toilet room is not used for any other purpose.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Fire Code, Section 1018.6]

2012 NC Building Code
1210.1 Floors. (110308 Item B-7)

1210.1 Floors. In other than dwelling units, toilet and bathing room floors shall have a smooth, hard, nonabsorbent surface that extends upward onto the walls at least ~~6 inches (152mm)~~ 3 inches (76mm).

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code
Chapter 23 Wood Tables SP. (130910 Item B-2)

Change the following tables in Chapter 23 as indicated in the attachment:

2308.8.8(1), 2308.8(2), 2308.9.5, 2308.9.6, 2308.10.2(1), 2308.10.2(2),
2308.10.3(1), 2308.10.3(2), 2308.10.3(3), 2308.10.3(4), 2308.10.3(5), 2308.10.3(6)

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/2012_NCBuildingCode_amendments/130910%20B2%20Building%20Ch23%20Wood%20Tables%20SP1.pdf

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

2902.1.1 Fixture calculations. (131210 Item B-2)

2902.1.1 Fixture calculations. To determine the *occupant load* of each sex, the total *occupant load* shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the *occupant load* of each sex in accordance with Table 2902.1. Fractional numbers resulting from applying the fixture ratios of Table 2902.1 shall be rounded up to the next whole number. For calculations involving multiple occupancies, such fractional numbers for each occupancy shall first be summed and then rounded up to the next whole number.

Exceptions:

1. The total *occupant load* shall not be required to be divided in half where *approved* statistical data indicate a distribution of the sexes of other than 50 percent of each sex.

2. In buildings that contain dwellings or sleeping units that have a pool dedicated to the residents, a percentage reduction of the total required fixtures provided for a pool and pool deck without bleachers and grandstands may be taken equal to the percentage of total residential units whose entries fall within 500 feet of the pool deck.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

3404.6 Means of egress capacity factors. (130910 Item B-6)

3404.6 Means of egress capacity factors. Alterations to any existing building or structure shall not be affected by the egress width factors in Section 1005.1 for new construction in determining the minimum egress widths or the minimum number of exits in an existing building or structure. The minimum egress widths for the components of the *means of egress* shall be based on the *means of egress* width factors in the building code under which the building was constructed, and shall be considered as complying *means of egress* for any *alteration* if, ~~in the opinion of the building official,~~ they do not constitute a distinct hazard to life.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Building Code

3411.8.3.1 Inclined stairway chairlifts. (110308 Item B-2)

3411.8.3 Platform lifts. Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route.

3411.8.3.1 Inclined stairway chairlifts. Inclined stairway chairlifts that do not reduce the required means of egress and installed in accordance with ASME A18.1 shall be permitted as a component of an accessible route in alterations of existing occupancies in:

1. Religious organizations or entities controlled by religious organizations, including places of worship; or
2. Private clubs or establishments exempted under Title II of the Civil Rights Act of 1964.

Such inclined stairway chairlifts shall be approved for commercial use by the manufacturer and installed by factory trained and approved installers.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2015 NC Existing Building Code
New Code Adoption. (130611 Item B-6)

This Rule was adopted to update to the 2015 NC Existing Building Code based on the 2012 International Code edition. The NC amendments can be downloaded at the link below.

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/2015%20NC%20EXISTING%20BLDG%20CODE%20Changes%20Only%20to%202012%20IEBC%20140401%20RRC%20140522%20ICC.pdf

The delayed effective date of this Rule is **March 1, 2015**.
The 1995 NC Existing Building Code will expire on March 1, 2015.
The NC Rehabilitation Code will expire on March 1, 2018.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Energy Conservation Code, Chapter 4
2012 NC Residential Code, Chapter 11
Duct leakage to the outside. (120910 Item B-3)

Amend the 2012 NC Energy Conservation Code, Chapter 4 and 2012 NC Residential Code, Chapter 11 with the attached revisions. The current energy provisions require duct testing to be verified and identify one method of doing so. The proposed language provides an alternative testing method for leakage to the outside.

The amended “2012 NCECC, 2012 NCRC, Duct Leakage to the Outside” is published separately at the following link.

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/2012_NCBuildingCode_amendments/2012%20NCECC,%202012%20NCRC,%20Duct%20Leakage%20to%20the%20Outside%20120910%20B3.pdf

The effective date of this Rule is June 1, 2013.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Energy Conservation Code

403.1.2 Heat pump supplementary heat. (120611 Item B-10)

403.1.2 Heat pump supplementary heat (Mandatory Requirements). Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

A heat strip outdoor temperature lockout shall be provided to prevent supplemental heat operation in response to the thermostat being changed to a warmer setting. The lockout shall be set no lower than 35 degrees F and no higher than 40 degrees F.

Exception: In lieu of a heat strip outdoor temperature lockout, the following time and temperature electric-resistance control may be used. After six minutes of compressor run time in heat mode, supplemental electric heat shall energize only if the leaving air temperature from the indoor coil is below 90 degrees F. If the indoor coil leaving air temperature exceeds 100 degrees F, supplemental heat shall automatically de-energize, but allow the compressor to continue to operate until the call is satisfied. No thermostat shall initiate supplemental electric heat at any time. Thermostat controlled emergency heat shall not be limited by outdoor temperature. Electric resistance supplemental heat during defrost shall operate normally without limitation.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Residential Code, Section N1103.1.2.]

2012 NC Energy Conservation Code
501.1 Scope. (120611 Item B-11)

501.1 Scope. The requirements contained in this chapter are applicable to commercial buildings, or portions of commercial buildings. These commercial buildings shall either:

1. Meet the requirements contained in this chapter, or
2. ~~Comply with the mandatory provisions of 2007 ASHRAE/IESNA Standard 90.1, *Energy Standard for Buildings Except for Low-Rise Residential Buildings* and exceed the minimum level of energy efficiency it prescribes by 20% following the procedure in ASHRAE/IESNA Standard 90.1, Appendix G. Meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1 - 2010.~~

Chapter 6 REFERENCED STANDARDS

ASHRAE

**90.1 — ~~2007~~ 2010 Energy Standard for Buildings Except Low-rise Residential Buildings
(ANSI/ASHRAE/IESNA 90.1 - ~~2007~~ 2010) 501.1, ~~501.2, 502.1.1, Table 502.2(2)~~**

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Energy Conservation Code

Tables 502.1.2, 502.2(1) and 502.2(2) Building envelope requirements. (120910 Item B-2)

Tables 502.1.2, 502.2(1) Building Envelope Requirements. (130311 Item B-10)

**TABLE 502.1.2
BUILDING ENVELOPE REQUIREMENTS OPAQUE ELEMENT, MAXIMUM U-FACTORS**

CLIMATE ZONE	3		4		5	
	All Other	Group R	All Other	Group R	All Other	Group R
Roofs						
Metal Buildings (with R-5 thermal blocks ^a)	U-0.041	U-0.041	<u>U-0.035</u> <u>U-0.037</u>	<u>U-0.035</u> <u>U-0.037</u>	<u>U-0.035</u> <u>U-0.037</u>	<u>U-0.035</u> <u>U-0.037</u>
Walls, Above Grade						
Metal building	<u>U-0.072</u> <u>U-0.094</u>	<u>U-0.050</u> <u>U-0.072</u>	U-0.060	U-0.050	U-0.050	U-0.050

(Portions of table not shown remain unchanged.)

**TABLE 502.2(1)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES**

CLIMATE ZONE	3		4		5	
	ALL OTHER	GROUP R	ALL OTHER	GROUP R	ALL OTHER	GROUP R
Roofs						
Metal buildings (with R-5 thermal blocks) ^{a, b}	R-10 + R-19 FC	R-10 + R-19 FC	R-19 + R-11 <u>LS, or</u> <u>R-25 + R-8</u> <u>LS</u>	R-19 + R-11 <u>LS, or</u> <u>R-25 + R-8</u> <u>LS</u>	R-19 + R-11 <u>LS, or</u> <u>R-25 + R-8</u> <u>LS</u>	R-19 + R-11 <u>LS, or</u> <u>R-25 + R-8</u> <u>LS</u>
Walls, Above Grade						
Metal building ^b	<u>R-0 + R-13 ci</u> <u>R-0 + R-9.8 ci</u>	<u>R-0 + R-19 ci</u> <u>R-0 + R-13 ci</u>	R-0 + R-15.8 ci	R-0 + R-19 ci	R-0 + R-19 ci	R-0 + R-19 ci

(Portions of table not shown remain unchanged.)

LS = Liner System – Liner systems shall have a minimum R-3.5 thermal spacer block between the purlins and the metal roof panels as required, unless compliance is shown by the overall assembly U-factor

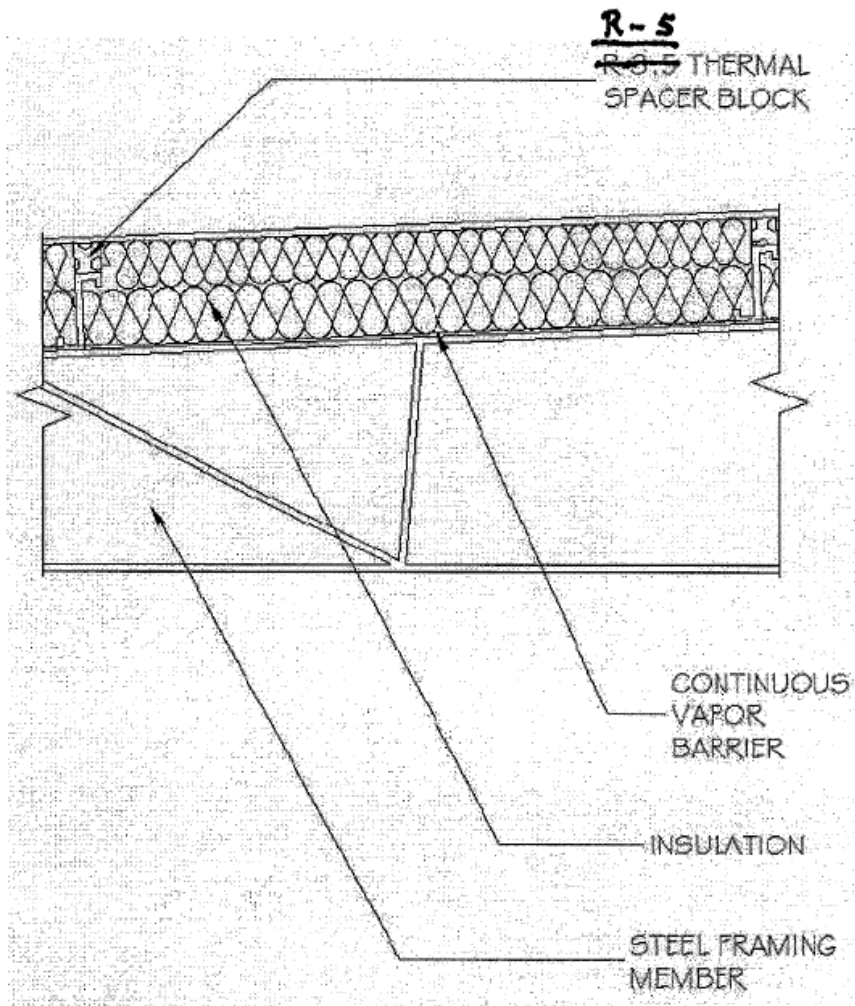
FC = Filled Cavity – Filled Cavity assemblies shall have a minimum R-5 thermal spacer block between the purlins and the metal roof panels as required, unless compliance is shown by the overall assembly U-factor

**TABLE 502.2(2)
BUILDING ENVELOPE REQUIREMENTS – OPAQUE ASSEMBLIES**

ROOFS	DESCRIPTION
R-44 <u>10</u> + R-19 FC	Filled cavity fiberglass insulation. A continuous vapor barrier is installed below the purlins and uninterrupted by framing members. Both layers of uncompressed, unfaced fiberglass insulation rest on top of the vapor barrier and are installed parallel, between the purlins. A minimum R-3.5 thermal spacer block is placed above the purlin/batt, and the roof deck is secured to the purlins. Drawings of typical details are shown in Appendix 2.2.

(Portions of table not shown remain unchanged.)

Revise Appendix 2.2 as follows:



**SECTION VIEW OF METAL FRAME ROOF:
FILLED CAVITY FIBERGLASS INSULATION**

The effective date of this Rule is June 1, 2013.

The effective date of this Rule is December 1, 2013.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fire Code

101.2.1 Appendices. (101214 Item B-30)

101.2.1 Appendices. Provisions in the appendices shall not be enforceable unless specifically adopted by the local governing authority having jurisdiction and subsequently approved for use by the Building Code Council.

The delayed effective date of this Rule is September 1, 2011.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fire Code

105.7.7 Flammable and combustible liquids. (130611 Item B-4)

105.7.7 Flammable and combustible liquids. A construction permit is required:

1. To install, repair or modify a pipeline for the transportation of flammable or *combustible liquids*.
2. To install, construct or alter tank vehicles, equipment, tanks, plants, terminals, wells, fuel-dispensing stations, refineries, distilleries and similar facilities where flammable and *combustible liquids* are produced, processed, transported, stored, dispensed or used. Maintenance performed in accordance with this code is not considered an installation, construction or alteration and does not require a permit.
3. To install, alter, remove, abandon or otherwise dispose of a flammable or *combustible liquid* tank.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fire Code

316.5 Structures and outdoor storage underneath high-voltage transmission lines. (130311 Item B-7)

316.5.3 Parking. Transient parking of passenger vehicles is allowed as follows:

1. The utility provider grants permission to park within their easement or right of way;
2. Each vehicle shall be 10,000lb GVW or less;
3. The lowest conductor of the transmission line shall be 25ft. above parking lot surface;
4. The transmission line voltage shall be 230kv or less; and
5. Transient parking is a time period of no more than twelve consecutive hours.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fire Code

503.2.1 Dimensions. Fire apparatus access. (121210 Item B-5)

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6 and an unobstructed vertical clearance of 13 feet 6 inches (4115 mm).

Exception: Fire apparatus access roads constructed and maintained in accordance with NC DOT Minimum Construction Standards for Subdivision Roads, when approved by the fire code official.

Add reference to Chapter 47:

NC DOT North Carolina Department of Transportation

Std 1/2010 Subdivision Roads Minimum Construction Standards 503.2.1

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[F] 903.2.8 Group R. An **automatic sprinkler system** shall be installed in accordance with Section 903.3 throughout all buildings with a Group R **fire area**, except as provided for in Section 903.2.8.1.

Exceptions:

1. An *automatic sprinkler system* is not required in new adult and child care facilities located in existing Group R-3 and R-4 occupancies.
2. An *automatic sprinkler system* is not required in ~~Group R-4~~ *temporary overflow shelters*.
3. Group R-2 buildings housing farm workers and their families located outside of a municipality's building rules jurisdiction that are not exempted by Section 903.2.8.1 may install a 13D multipurpose sprinkler system where all of the following conditions exist:
 - 3.1. The Group R building cannot exceed two stories in height.
 - 3.2. The Group R building cannot exceed 2500 square feet (232 m²) in area.
 - 3.3. The Group R building shall have two remote means of egress.
4. Group R-2 fire areas in fire stations may install a 13D sprinkler system in accordance with Section 903.3.5.1 when separated from other occupancies by a fire wall where all of the following conditions exist.
 - 4.1. The Group R building cannot exceed one story in height.
 - 4.2. The Group R fire area cannot exceed 2500 square feet (232 m²) in area.
 - 4.3. The Group R fire area has two remote means of egress.
5. An automatic sprinkler system is not required in camping units located within a campground where all of the following conditions exist.
 - 5.1. The camping unit is limited to one story in height.
 - 5.2. The camping unit is less than 400 square feet (37 m²) in area.
 - 5.3. The camping unit does not have a kitchen.

[F] 903.2.8.1 Group R Migrant Housing. Migrant housing as defined by GS 95-223 shall be exempt from the requirements of Section 903.2.8 when all of the following conditions exist:

1. The Group R building is not more than one story in height.
2. The Group R building meets all of the requirements of GS 95-222 through **GS 95-229.1** (Chapter 95, Article 19) and 29 CFR 1910.142, as amended.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Building Code, Section 903.2.8]

2012 NC Fire Code

908.7 Carbon monoxide alarms. (130910 Item B-8)

908.7 Carbon monoxide alarms. Group I-1, I-2, I-4 or R occupancies located in a building containing a fuel-burning heater, **appliance, fireplace, or has** an attached garage shall be equipped with single-station carbon monoxide alarms. The carbon monoxide alarms shall be listed as complying with UL 2034 and be installed and maintained in accordance with NFPA 720 and the manufacturer's instructions. An open parking garage, as defined in Chapter 2 of the International Building Code, or an enclosed parking garage ventilated in accordance with Section 404 of the International Mechanical Code shall not be considered an attached garage.

Exception: *Sleeping units or dwelling units* **that** do not themselves contain a fuel-burning heater, appliance, fireplace or have an attached garage, **but are** located in a building with a fuel-burning heater, appliance, fireplace or an attached garage, need not be equipped with single-station carbon monoxide alarms provided that:

1. The *sleeping unit* or *dwelling unit* is located more than one story above or below any story which contains a fuel-burning heater, appliance, **fireplace,** or attached **garage;**
2. The *sleeping unit* or *dwelling unit* is not connected by duct work or ventilation shafts to any room containing a fuel-burning heater, appliance, fireplace **or attached** garage; and
3. The building is equipped with a common area carbon monoxide alarm system.

908.7.1 Carbon monoxide detection systems. Carbon monoxide detection systems, which include carbon monoxide detectors and audible notification appliances installed and maintained in accordance with NFPA **720,** shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075.

Amend Chapter 47 as follows:

Add NFPA Standard:

720-09 Standard for the Installation of Carbon Monoxide(CO) Detection.....908.7, 908.7.1 and Warning Equipment, 2009 Edition

The effective date of this Rule is **June 1, 2014.**

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Building Code, Section 908.7]

2012 NC Fire Code

909.20.6 Manual smoke removal. (130311 Item B-6)

909.20.6 Manual smoke removal. Where manually operated panels or windows are required by **Section 403.4.6** of the Building Code, they shall be maintained in an operable condition and identified in an *approved manner*.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fire Code

1005.1 Minimum required egress width. (120312 Item B-2)

1005.1 Minimum required egress width. The *means of egress* width shall not be less than required by this section. The total width of *means of egress* in inches (mm) shall not be less than the total *occupant load* served by the *means of egress* multiplied by 0.3 inch (7.6 mm) per occupant for stairways and by 0.2 inch (5.1 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple *means of egress* shall be sized such that the loss of any one *means of egress* shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any *story* of a building shall be maintained to the termination of the *means of egress*.

Exceptions:

1. *Means of egress* complying with Section 1028.

2. For other than Group H and I-2 occupancies, the capacity, in inches (mm), of *means of egress stairways* shall be calculated by multiplying the *occupant load* served by the *stairway* by a *means of egress capacity factor* of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communications system* in accordance with Section 907.5.2.2.

3. For other than Group H and I-2 occupancies, the capacity, in inches (mm), of *means of egress* components other than *stairways* shall be calculated by multiplying the *occupant load* served by such components by a *means of egress capacity factor* of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an *emergency voice/alarm communications system* in accordance with Section 907.5.2.2.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Building Code, Section 1005.1.]

2012 NC Fire Code
1018.6 Corridor continuity. (130311 Item B-12)

1018.6 Corridor continuity. Fire-resistant-rated **corridors** shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

Exceptions:

1. Foyers, lobbies or reception rooms constructed as corridors shall not be constructed as intervening rooms.
2. A toilet room as defined by the NC Plumbing Code that meets all of the following requirements may be included as part of the rated corridor enclosure:
 - 2.1. The toilet room shall be separated from the remainder of the building by fire-resistant-rated construction meeting the same requirements as the corridor construction;
 - 2.2. No other rooms open off of the toilet room;
 - 2.3. No gas or electric appliances other than electric hand dryers are located in the toilet room; and
 - 2.4. The toilet room is not used for any other purpose.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Building Code, Section 1018.6]

2012 NC Fire Code

2206.2.3 Above-ground tanks located outside, above grade. (130910 Item B-9)

Add Exception # 5 to 2206.2.3:

2206.2.3 Above-ground tanks located outside, above grade. Above-ground tanks shall not be used for the storage of Class I, II, or IIIA liquid motor fuels except as provided by this section.

No change to Exceptions 1-4

1. Above-ground tanks used for outside, above-grade storage of Class I liquids shall be *listed and labeled* as protected above-ground tanks and be in accordance with Chapter 34. Such tanks shall be located in accordance with Table 2206.2.3.

2. Above-ground tanks used for above-grade storage of Class II or IIIA liquids are allowed to be protected above-ground tanks or, when *approved by the fire code official*, other above-ground tanks that comply with Chapter 34. Tank locations shall be in accordance with Table 2206.2.3.

3. Tanks containing fuels shall not exceed 12,000 gallons (45 420 L) in individual capacity or 48,000 gallons (181 680 L) in aggregate capacity. Installations with the maximum allowable aggregate capacity shall be separated from other such installations by not less than 100 feet (30 480 mm).

4. Tanks located at farms, construction projects, or rural areas shall comply with Section 3406.2.

5. Fleet service stations. Listed UL 142 above ground storage tanks with spill control, 1,100 gallons (4164L) or less in capacity, shall be permitted to be used to store Class I liquids at fleet service stations.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fire Code

3405.5 Alcohol-based hand rubs classified as Class I or II liquids. (120312 Item B-1)

3405.5 Alcohol-based hand rubs classified as Class I or II liquids. The use of wall-mounted dispensers containing alcohol-based hand rubs classified as Class I or II liquids shall be in accordance with all of the following:

(no changes to items 1-4 and 6-7)

5. Dispensers shall not release their contents except when the dispenser is manually activated.

Exception: Facilities shall be permitted to install and use automatically activated “touch free” alcohol-based hand rub dispensing devices with the following requirements:

1. The facility or persons responsible for the dispensers shall test the dispensers each time a new refill is installed in accordance with the manufacturer’s care and use instructions.

2. Dispensers shall be designed and must operate in a manner that ensures accidental or malicious activations of the dispensing device are minimized. At a minimum, all devices subject to or used in accordance with this section shall have the following safety features:

2.1 Any activations of the dispenser shall occur when an object is placed within 4 inches of the sensing device.

2.2 The dispenser shall not dispense more than the amount required for hand hygiene consistent with the label instructions as regulated by the United States Food and Drug Administration (US FDA).

2.3 An object placed within the activation zone and left in place shall cause only one activation.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fuel Gas Code

310.1.1 Corrugated stainless steel tubing (CSST). (120312 Item B-3)

310.1.1 CSST. Corrugated stainless steel tubing (CSST) gas *pipng* systems shall be bonded to the electrical service grounding electrode system ~~at the point where the gas service enters the building~~. The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

SECTION 311 CARBON MONOXIDE ALARMS

311.1 Carbon monoxide alarms. In new construction, one-and two-family dwellings and townhouses within which fuel-fired appliances or fireplaces are installed or that have attached garages shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) as directed by the alarm manufacturer.

311.2 Where required-existing dwellings. In existing dwellings, where interior alterations, repairs, or additions requiring a building permit occur, or where one or more sleeping rooms are added or created, or where fuel-fired appliances or fireplaces are added or replaced, carbon monoxide alarms shall be provided in accordance with Section 311.1.

Exception: Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or the installation of a fuel-fire appliance that cannot introduce carbon monoxide to the interior of the dwelling, are exempt from the requirements of this section.

311.3 Alarm requirements. The required carbon monoxide alarms shall be audible in all bedrooms over background noise levels with all intervening doors closed. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions. Battery powered, plug-in, or hard-wired alarms are acceptable for use.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Fuel Gas Code
403.10.1 Pipe joints. (131210 Item B-4)

403.10.1 Pipe joints. Pipe joints shall be threaded, flanged, brazed, ~~or~~ welded, or made with press-connect fittings complying with ANSI LC-4. Where nonferrous pipe is brazed, the brazing materials shall have a melting point in excess of 1,000°F (538°C). Brazing alloys shall not contain more than 0.05-percent phosphorous.

Amend Chapter 8 ANSI Standard reference as follows:

ANSI LC-4- ~~07~~ 2012/CSA-6.32-2012 Press-connect ~~Copper and Copper Alloy~~ Metallic Fittings for Use In Fuel Gas Distribution Systems.....403.10.1, 403.10.2

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

SECTION 313 CARBON MONOXIDE ALARMS

313.1 Carbon monoxide alarms. In new construction, one-and two-family dwellings and townhouses within which fuel-fired appliances or fireplaces are installed or that have attached garages shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) as directed by the alarm manufacturer.

313.2 Where required-existing dwellings. In existing dwellings, where interior alterations, repairs, or additions requiring a building permit occur, or where one or more sleeping rooms are added or created, or where fuel-fired appliances or fireplaces are added or replaced, carbon monoxide alarms shall be provided in accordance with Section 313.1.

Exception: Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or the installation of a fuel-fire appliance that cannot introduce carbon monoxide to the interior of the dwelling, are exempt from the requirements of this section.

313.3 Alarm requirements. The required carbon monoxide alarms shall be audible in all bedrooms over background noise levels with all intervening doors closed. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions. Battery powered, plug-in, or hard-wired alarms are acceptable for use.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code

TABLE 403.3 MINIMUM VENTILATION RATES. (101214 Item B-2)

TABLE 403.3

MINIMUM VENTILATION RATES

(Under Education, delete footnote "g" from Art Classroom and Science Laboratories.)

The delayed effective date of this Rule is September 1, 2011.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code
403.3.1.3 Zone outdoor airflow. (101214 Item B-3)

(Add the following to paragraph 403.3.1.3)

Exception: K-12 schools shall be exempt from use of this effectiveness factor ($V_{oz}=V_{bz}$)

The delayed effective date of this Rule is September 1, 2011.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code
403.3.2.3.4 Outdoor air intake flow rate. (101214 Item B-4)

(Add the following to paragraph 403.3.2.3.4)

Exception: K-12 schools shall be exempt from use of this efficiency factor ($V_{ot}=V_{ou}$)

The delayed effective date of this Rule is September 1, 2011.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code

505.2 Makeup air required. (131210 Item B-6)

505.2 Makeup air required. Exhaust hood systems capable of exhausting in excess of 400 cubic feet per minute ($0.19 \text{ m}^3/\text{s}$) shall be provided with makeup air at a rate approximately equal to the exhaust air rate that is in excess of 400 cubic feet per minute ($0.19 \text{ m}^3/\text{s}$). Such makeup air systems shall be equipped with a means of closure and shall be automatically controlled to start and operate simultaneously with the exhaust system.

Exception: Where all appliances in the house are direct-vent, power-vent, unvented, or electric, makeup air shall be provided where exhaust fans are capable of exhausting more than 600 cubic feet per minute ($0.28 \text{ m}^3/\text{s}$). Exhaust hood systems capable of exhausting more than 600 cubic feet per minute shall be provided with makeup air at a rate approximately equal to the exhaust air rate that is in excess of 600 cubic feet per minute.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

**TABLE 603.4
 DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESS FOR
 SINGLE DWELLING UNITS**

DUCT SIZE	GALVANIZED		ALUMINUM
	Minimum thickness (in.)	Equivalent galvanized gage no.	<u>Brown & Sharpe gage</u> ALUMINUM MINIMUM THICKNESS (in.)
Round ducts and Enclosed rectangular ducts			
14 inches or less	<u>0.013</u> 0.0157	<u>30</u> 28	<u>26</u> 0.0175
Over 14" 16 and 18 inches	<u>0.016</u> 0.0187	<u>28</u> 26	<u>24</u> 0.018
20 inches and over	0.0236	24	0.023
Exposed rectangular ducts			
14 inches or less	<u>0.016</u> 0.0157	28	<u>24</u> 0.0175
Over 14 inches ^a	<u>0.019</u> 0.0187	26	<u>22</u> 0.018

For SI: 1 inch = 25.4 mm, 1 inch water gage = 249 Pa.

~~a. For duct gages and reinforcement requirements at static pressure of ½ inch, 1 inch and 2 inch w.g., SMACNA HVAC Duct Construction Standards, Tables 2-1, 2-2, and 2-3, shall apply.~~

The effective date of this Temporary Rule is October 1, 2012.

The effective date of this Permanent Rule is **September 1, 2013**.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code
1202.5 Pipe Fittings. (120611 Item B-3)

Table 1202.5 Hydronic Pipe Fittings

Material	Standard
Copper & Copper Alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29; <u>ASME B16.51</u>

Chapter 15 REFERENCED STANDARDS

ASME

B16.51 – 2011 Copper and Copper Alloy Press-Connect Pressure Fittings Table 1202.5

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code

1203.8 Copper and copper alloy tubing. (120611 Item B-4)

1203.8 Copper and copper alloy tubing. Joints between copper or copper-alloy tubing or fittings shall be brazed, mechanical, press connect or soldered joints conforming to Section 1203.3, flared joints conforming to Section 1203.8.1 or push-fit joints conforming to Section 1203.8.2.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Mechanical Code

1203.3.9 Press connect joints. (120611 Item B-5)

1203.3.9 Press connect joints. Press connect joints shall be installed in accordance with the **manufacturer's instructions**. Press-connect joints shall conform to one of the standards listed in Table **1202.5**.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

SECTION 202 GENERAL DEFINITIONS

LEAD-FREE PIPE AND FITTINGS. Containing not more than a weighted average of 8.0 0.25-percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

WEIGHTED AVERAGE LEAD CONTENT. The weighted average lead content of a pipe, pipe fitting, plumbing fitting, or fixture shall be calculated by using the following formula: For each wetted component, the percentage of lead in the component shall be multiplied by the ratio of the wetted surface area of that component to the total wetted surface area of the entire product to arrive at the weighted percentage of lead of the component. The weighted percentage of lead of each wetted component shall be added together, and the sum of these wetted percentages shall constitute the weighted average lead content of the product. For lead content of materials that are provided as a range, the maximum content of the range shall be used.

605.2 Lead content of water supply pipe and fittings. Pipe and pipe fittings, including valves and faucets, utilized in the water supply system shall have a maximum weighted average of 8 0.25-percent lead content when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

Exceptions:

1. Pipes, pipe fittings, plumbing fittings, or fixtures, including backflow preventers, that are used exclusively for non-potable services such as manufacturing, industrial processing, irrigation, outdoor watering, or any other uses where the water is not anticipated to be used for human consumption; or
2. Toilets, bidets, urinals, fill valves, flushometer valves, tub fillers, shower valves, service saddles, or water distribution main gate valves that are 2-inches in diameter or larger.

The effective date of this Rule is **June 1, 2014**.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

SECTION 315 CARBON MONOXIDE ALARMS

315.1 Carbon monoxide alarms. In new construction, one-and two-family dwellings and townhouses within which fuel-fired appliances or fireplaces are installed or that have attached garages shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) as directed by the alarm manufacturer.

315.2 Where required-existing dwellings. In existing dwellings, where interior alterations, repairs, or additions requiring a building permit occur, or where one or more sleeping rooms are added or created, or where fuel-fired appliances or fireplaces are added or replaced, carbon monoxide alarms shall be provided in accordance with Section 315.1.

Exception: Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or the installation of a fuel-fire appliance that cannot introduce carbon monoxide to the interior of the dwelling, are exempt from the requirements of this section.

315.3 Alarm requirements. The required carbon monoxide alarms shall be audible in all bedrooms over background noise levels with all intervening doors closed. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions. Battery powered, plug-in, or hard-wired alarms are acceptable for use.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code

403.1.1 Fixture calculations. (131210 Item B-3)

403.1.1 Fixture calculations. To determine the occupant load of each sex, the total occupant load shall be divided in half. To determine the required number of fixtures, the fixture ratio or ratios for each fixture type shall be applied to the occupant load of each sex in accordance with Table 403.1. Fractional numbers resulting from applying the fixture ratios of Table 403.1 shall be rounded up to the next whole number. For calculations involving multiple *occupancies*, such fractional numbers for each *occupancy* shall first be summed and then rounded up to the next whole number.

Exceptions:

1. The total occupant load shall not be required to be divided in half where *approved* statistical data indicates a distribution of the sexes of other than 50 percent of each sex.

2. In buildings that contain dwellings or sleeping units that have a pool dedicated to the residents, a percentage reduction of the total required fixtures provided for a pool and pool deck without bleachers and grandstands may be taken equal to the percentage of total residential units whose entries fall within 500 feet of the pool deck.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code
403.2 Separate facilities. (110308 Item B-4)

403.2 Separate facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.
2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 25 or less.
3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is 100 or less.

4. Except as provided in Section 405.3.2.

5. Where the code requires only one toilet facility for each sex, two unisex facilities may be substituted for separate sex facilities.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code

403.6.3 Picnic shelters. (130311 Item B-14)

403.6.3 Picnic shelters. Where picnic shelters that are less than 750-square feet (70-square meters) in aggregate area are installed in a community recreation area, and parking is neither provided nor required, public toilet facilities are not required. The travel distance to the dwellings served shall not be limited.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code

405.3.1 Water closets, urinals, lavatories and bidets. (121210 Item B-4)

405.3.1 Water closets, urinals, lavatories and bidets. A water closet, urinal, lavatory or bidet shall not be set closer than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center-to-center between adjacent fixtures. There shall be at least a 21-inch (533 mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall not be less than 30 inches (762 mm) wide and 60 inches (152 mm) deep.

Exception: For one- and two-family dwellings and townhouses, see the *North Carolina Residential Code*, Figure R307.1 for minimum fixture clearances.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Residential Code, Part VII Abridged.]

2012 NC Plumbing Code

417.1 Prefabricated showers and shower compartments. (130611 Item B-1)

417.1 Approval. Prefabricated showers and shower compartments shall conform to ~~ANSI Z124.2~~ ANSI Z124.1.2, ASME A112.19.9M or CSA B45.5. Shower valves for individual showers shall conform to the requirements of Section 424.3.

[STAFF NOTE: Correlation changes to Table 417.4 and Chapter 13 listed below.]

TABLE 417.4

PREFABRICATED SHOWER

RECEPTOR STANDARDS MATERIALS STANDARDS

Plastic shower receptors and shower stalls ~~ANSI Z124.2~~ ANSI Z124.1.2

Chapter 13

ANSI

American National Standards Institute

25 West 43rd Street, Fourth Floor

New York, NY 10036

Standard

Reference

Number

Title

~~Z124.2~~ Z124.1.2—95

Plastic Shower Receptors and Shower Stalls

Referenced

in Code

Section Number

417.1

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

504.6 Requirements for discharge piping. The discharge piping serving a pressure relief valve, temperature relief valve or combination thereof shall:

1. Not be directly connected to the drainage system.
- 2.1. Discharge ~~through an air gap located~~ in the same room as the water heater, either on the floor, into an indirect waste receptor or ~~outdoors~~ into a water heater pan.
- 2.2. Discharge through an air gap or air gap fitting to a remote termination point that is observable by the building occupants.
3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the *air gap*.
4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
6. Discharge in a manner that does not cause personal injury or structural damage.
7. ~~Discharge to a termination point that is readily observable by the building occupants Deleted.~~
8. Not be trapped.
9. Be installed so as to flow by gravity.
10. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.
11. Not have a threaded connection at the end of such piping.
12. Not have valves or tee fittings.
13. Be constructed of those materials listed in Section 605.4 or materials tested, rated and *approved* for such use in accordance with ASME A112.4.1.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code
605.5 Pipe Fittings. (120611 Item B-6)

Table 605.5 Pipe Fittings

Materials

Copper and Copper Alloys

Standards

ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME
B16.26; ASME B16.29; ASME B16.51

Chapter 13 REFERENCED STANDARDS

ASME

B16.51 – 2011 Copper and Copper Alloy Press-Connect Pressure Fittings Table 605.5

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code
605.15.5 Press Connect Joints. (120611 Item B-7)

605.15.5 Press Connect Joints. Press connect joints shall be installed in accordance with the manufacturer's instructions. Press-connect joints shall conform to one of the standards listed in Table 605.5.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code
Appendix C-1, Rainwater Collection and Distribution Systems. (101214 Item B-10)

See attached document.

This Rule will be an option to the 2012 NC Plumbing Code, Appendix C-1 and will be incorporated into the next Edition.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

APPENDIX C-1

RAINWATER COLLECTION AND DISTRIBUTION SYSTEMS

The provisions contained in this appendix are reproduced from the International Green Construction Code, Section 707 and are adopted as part of this code.

C1-101.1 Scope. The provisions of this section shall govern the construction, installation, alteration, and repair of rainwater collection and conveyance systems.

C1-101.2 Permits. Deleted.

C1-101.3 Potable water connections. Where a *potable* system is connected to a *rainwater collection and conveyance system*, the *potable* water supply shall be protected against backflow in accordance with Section 608 of the *International Plumbing Code*.

C1-101.4 Non-Potable water connections. Where *non-potable* water from two or more different sources is combined in a single system, the system shall comply with the most stringent of the requirements of this code that are applicable to such sources.

C1-101.5 Installation. Except as provided for in this section, all systems shall be installed in compliance with the provisions of the *International Plumbing Code* and manufacturer's instructions.

C1-101.6 Applications. Untreated *rainwater* shall be utilized in accordance with Section C1-101.6.1. Treated *rainwater* shall be utilized in accordance with Section C1-101.6.2.

C1-101.6.1 Examples of Acceptable Uses without Treatment.

1. Outdoor Irrigation
2. Decorative Fountains
3. Yard Hydrants
4. Industrial Processes (eg. Dust Control, Indoor Hose Bibs Spray)
5. Vehicle Washing
6. Outdoor Hose Bibs (not routed through building wall)

C1-101.6.2 Examples of Acceptable Uses with Disinfection and Filtration.

1. Toilet Flushing
2. Urinal Flushing
3. Evaporative Cooling Tower Make-up
4. Trap Primers
5. Fire Suppression Systems
6. Clothes Washers
7. Outdoor Pools and Spas
8. Hose Bibs – Residential

C1-101.7 Approved components and materials. Piping, plumbing components, and materials used in the collection and conveyance systems shall be manufactured of material *approved* for the

intended application and compatible with any disinfection and treatment systems used and shall be in compliance with the provisions of the *International Plumbing Code*.

C1-101.8 Insect and vermin control. Inlets and vents to the system shall be protected to prevent the entrance of insects and vermin into *storage tanks* and piping systems. Screens installed on vent pipes, inlets, and overflow pipes shall have an aperture of not greater than 1/16 inch and shall be close-fitting or other *approved methods*. Screen materials shall be compatible with contacting system components and shall not accelerate corrosion of system components.

C1-101.9 Drainage. Water drained from first flush diverters or debris excluders shall not be drained to the sanitary sewer. Such water shall be diverted from the *storage tank* and **discharged** in a location that will not cause erosion or damage to property. *Roof washers* and debris excluders shall be provided with an automatic means of self draining between rain events, and shall not drain onto roof surfaces.

C1-101.10 Freeze protection. Where sustained freezing temperatures occur, provisions shall be made to keep *storage tanks* and the related piping from freezing.

C1-101.11 Trenching requirements. All water service piping, including piping containing *rainwater*, shall be separated from the *building sewer* by 5 feet (1524 mm) of undisturbed or compacted earth. Water service pipes, *potable* and *non-potable*, shall not be located in, under or above cesspools, septic tanks, septic tank drainage fields or seepage pits. Buried *rainwater* collection and *distribution piping* shall comply with the requirements of Section 306 of the *International Plumbing Code* for support, trenching, bedding, backfilling, and tunneling.

Exceptions:

1. The required separation distance shall not apply where the bottom of the water service pipe within 5 feet (1524 mm) of the sewer is a minimum of 12 inches (305 mm) above the top of the highest point of the sewer and the pipe materials shall comply with the *International Plumbing Code* for such applications.
2. Water service pipe is permitted to be located in the same trench with a *building sewer*, provided such sewer is constructed of materials that comply with the *International Plumbing Code* for such installations.
3. The required separation distance shall not apply where a *potable* or *non-potable* water service pipe crosses a sewer pipe provided the water service pipe is sleeved to at least 5 feet (1524 mm) horizontally from the sewer pipe centerline on both sides of such crossing with pipe materials that comply with the *International Plumbing Code* for such applications.
4. Deleted.

C1-101.12 Rainwater catchment and collection systems. The design of *rainwater collection and conveyance systems* shall conform to accepted engineering practice.

707.12.1 Collection surface. *Rainwater* shall be collected only from above-ground impervious roofing surfaces. Collection of water from other surfaces shall be prohibited except where the water is used exclusively for acceptable uses without treatment listed in Section C1-101.6.1, or where additional appropriate treatment is designed by a **registered design professional**.

707.12.1.1 Potable water applications. Deleted.

C1-101.12.2 Debris excluders. Downspouts and leaders shall be equipped with a debris excluder or equivalent device to prevent the contamination of collected *rainwater* with leaves, sticks, pine needles and other undesirable material.

C1-101.12.3 Roof gutters and downspouts. Gutters and downspouts shall be constructed of materials compatible in accordance with Chapter 11 of the *International Plumbing Code*. Joints shall be sealed against leakage.

C1-101.12.3.1 Slope. Roof gutters, leaders, and *rainwater* collection piping shall slope continuously toward collection inlets and shall be free of leaks. Gutters and downspouts shall have a slope of not less than 1/8 inch per foot along their entire length, and shall not permit the collection or pooling of water at any point.

Exception. Deleted.

C1-101.12.3.2 Size. Gutters and downspouts shall be installed and sized in accordance with Section 1106.6 of the *International Plumbing Code* and local rainfall rates.

C1-101.12.3.3 Cleanouts. Cleanouts shall be provided in the water conveyance system so as to allow access to all filters, flushes, pipes and downspouts.

C1-101.12.4 Collection pipe materials. In *buildings* where *rainwater collection and conveyance systems* are installed, drainage piping *approved* for use within plumbing drainage systems shall be utilized to collect *rainwater* and convey it to the *storage tank*. Vent piping *approved* for use within plumbing venting systems shall be utilized for all vents within the *rainwater* system. Drains to a storm water discharge shall use *approved* waste piping.

C1-101.12.4.1 Joints. Collection piping conveying *rainwater* shall utilize joints *approved* for use with the *distribution piping* and appropriate for the intended applications as specified in the *International Plumbing Code*.

C1-101.12.4.2 Size. Collection piping conveying *rainwater* from collection surfaces shall be sized in accordance with local Chapter 11 of the *International Plumbing Code* and local rainfall rates.

C1-101.12.4.3 Labeling and marking. Additional marking of *rainwater* collection piping shall not be required beyond that required for sanitary drainage, waste, and vent piping by the *International Plumbing Code*.

C1-101.12.5 Filtration. Collected *rainwater* shall be filtered to the level required for the intended end use. Filters shall be accessible for inspection and maintenance.

C1-101.12.6 Disinfection. Where the intended application and initial quality of the collected *rainwater* requires disinfection or other treatment or both, as determined by a *registered design professional*, the collected *rainwater* shall be treated as needed to ensure that the required water quality is delivered at the point of use.

C1-101.12.7 Storage tank. The design of the *storage tank* shall be in accordance with Sections C1-101.12.7.1 through C1-101.12.7.11.

C1-101.12.7.1 Location. *Storage tanks* shall be permitted to be installed either above or below grade. Above grade *storage tanks* shall be constructed using opaque, UV resistant materials to prevent algae growth. *Storage tanks* and their manholes shall not be located directly under any soil or waste piping or any source of contamination. *Rainwater storage tanks* shall be located with a minimum horizontal distance between various elements as indicated in Table C1-101.12.7.1.

**TABLE C1-101.12.7.1
LOCATION OF RAINWATER STORAGE TANKS**

Element	Minimum Horizontal Distance from Storage Tank (feet)
Lot line adjoining private lots	5
Seepage pits	5
Septic tanks	5

C1-101.12.7.2 Materials. Where water is collected onsite, it shall be collected in an *approved* tank constructed of durable, nonabsorbent and corrosion-resistant materials. *Storage tanks* shall be constructed of materials compatible with the type of disinfection system used to treat water upstream of the tank and used to maintain water quality within the tank.

C1-101.12.7.2.1 Wooden tanks. Wooden *storage tanks* shall be provided with a flexible tank liner.

C1-101.12.7.3 Foundation and supports. *Storage tanks* shall be supported on a firm base capable of withstanding the storage tank's weight when filled to capacity. Where earthquake loads are applicable, above-ground collection tank supports shall be designed and installed for the seismic forces in accordance with the *International Building Code*.

C1-101.12.7.3.1 Ballast. Where the soil can become saturated, an underground *storage tank* shall be ballasted, or otherwise secured, to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold down ballast shall meet or exceed the buoyancy force of the tank. Where the installation requires a foundation, the foundation shall be flat and shall be designed to support the *storage tank* weight when full, consistent with bearing capability of adjacent soil.

C1-101.12.7.3.2 Structural support. When installed below grade, *storage tank* installations shall be designed to withstand earth and surface structural loads without damage and with minimal deformation when filled with water or empty.

C1-101.12.7.4 Makeup water. Where an uninterrupted supply is required for the intended application, *potable* or municipally supplied reclaimed or recycled water shall be provided as a source of makeup water for the *storage tank*. The

potable or reclaimed or recycled water supply shall be protected against backflow by means of an air gap not less than 4 inches (102 mm) above the overflow or an *approved* backflow device in accordance with the *International Plumbing Code*. There shall be a full-open valve located on the makeup water supply line.

C1-101.12.7.5 Overflow. The *storage tank* shall be equipped with an overflow pipe having the same or larger area as the sum of the areas of all tank inlet pipes. The overflow pipe shall be protected from insects and vermin and shall be discharged in a manner consistent with storm water runoff requirements of the *jurisdiction* and at a sufficient distance from the tank to avoid damaging the tank-foundation. The overflow drain shall not be equipped with a shutoff valve.

C1-101.12.7.6 Access. A minimum of one access opening shall be provided to allow inspection and cleaning of the tank interior. All access openings to *storage tanks* and other vessels shall have an *approved* locking device or shall otherwise be protected from unauthorized access. Below grade *storage tanks*, located outside of the *building*, shall be provided with either an access extending above grade, a manhole not less than 24 inches (610 mm) square or a manhole with an inside diameter of not less than 24 inches (610 mm). Finish grade shall be sloped away from the manhole to divert surface water from the manhole.

Exception: *Storage tanks* having a volume of less than 800 gallons and installed below grade shall not be required to be equipped with a manhole where provided with a service port that is not less than 8 inches (203 mm) in diameter.

C1-101.12.7.7 Venting. Tanks shall be provided with a vent sized in accordance with the *International Plumbing Code* and based on the diameter of the tank influent pipe. Tank vents shall not be connected to sanitary drainage system vents.

C1-101.12.7.8 Inlets. *Storage tank* inlets shall be designed to introduce water into the tank so as to avoid agitating the contents.

C1-101.12.7.9 Outlets. Deleted.

C1-101.12.7.10 Drain. A maintenance outlet shall be located at the lowest point of aboveground storage tanks for maintenance purposes and shall discharge in a manner consistent with the storm water runoff requirements of the *jurisdiction* and at a sufficient distance from the tank to avoid damaging the tank foundation.

C1-101.12.7.11 Labeling and signage. *Storage tanks* shall bear signage that reads as follows: “CAUTION: NON-POTABLE WATER – DO NOT DRINK.” Where an opening is provided that could allow the entry of personnel, the opening shall bear signage that reads as follows: “DANGER – CONFINED SPACE.” Markings shall be indelibly printed on a tag or sign constructed of corrosion-resistant waterproof material mounted on the tank or shall be indelibly printed on the tank. The letters of words shall be not less than 0.5 inches in height and shall be of a color that contrasts with the background on which they are applied.

C1-101.12.8 Valves. Valves shall be supplied in accordance with Sections C1-101.12.8.1 and C1-101.12.8.2.

C1-101.12.8.1 Influent diversion. Deleted.

C1-101.12.8.2 Backwater valve. A *backwater valve* shall be installed on each overflow that is directly connected to a storm sewer.

C1-101.12.9 Roof washer. Deleted.

C1-101.12.10 Vent piping. *Storage tanks* shall be provided with a vent in accordance with the requirements of Section C1-101.12.7.7. Vents shall be sized in accordance with the *International Plumbing Code*, based on the aggregate diameter of *storage tank* influent pipe(s). Vents shall be protected from contamination by means of a U-bend installed with the opening directed downward or an *approved cap*. Vent outlets shall extend a minimum of 4" above grade, or as necessary to prevent surface water from entering the *storage tank*. Vent openings shall be protected against the entrance of vermin and insects in accordance with the requirements of Section C1-101.8.

C1-101.12.11 Pumping and control system. Mechanical equipment including pumps, valves and filters shall be easily accessible and removable in order to perform *repair*, maintenance and cleaning. Pressurized water shall be supplied at a pressure appropriate for the application.

C1-101.12.11.1 Standby power. Deleted.

C1-101.12.11.2 Inlet control valve alarm. Deleted.

C1-101.12.11.3 Water-pressure reducing valve or regulator. Where the *rainwater* pressure supplied by the pumping system exceeds 80 psi (552 kPa) static, a pressure-reducing valve shall be installed to reduce the pressure in the *rainwater* distribution system piping to 80 psi (552 kPa) static or less. Pressure-reducing valves shall be specified and installed in accordance with Section 604.8 of the *International Plumbing Code*.

C1-101.12.12 Distribution pipe. *Distribution piping* shall comply with Sections C1-101.12.12.1 through C1-101.12.12.4.

C1-101.12.12.1 Materials. *Distribution piping* conveying *rainwater* shall conform to the standards and requirements specified by the *International Plumbing Code* for *non-potable* or *potable* water, as applicable.

C1-101.12.12.2 Joints. *Distribution piping* conveying *rainwater* shall utilize joints *approved* for use with the *distribution piping* and appropriate for the intended applications as specified in the *International Plumbing Code*.

C1-101.12.12.3 Size. *Distribution piping* conveying *rainwater* water shall be sized in accordance with the *International Plumbing Code* for the intended application.

C1-101.12.12.4 Labeling and marking. *Non-potable rainwater distribution piping* shall be of the color purple and shall be embossed or integrally stamped or

marked with the words: “CAUTION: NONPOTABLE WATER – DO NOT DRINK” or shall be installed with a purple identification tape or wrap. Identification tape shall be at least 3 inches wide and have white or black lettering on purple field stating “CAUTION: NON-POTABLE WATER – DO NOT DRINK”. Identification tape shall be installed on top of *non-potable rainwater distribution pipes*, fastened at least every 10 feet to each pipe length and run continuously the entire length of the pipe. Lettering shall be readily observable within the room or space where the piping is located.

Exception: Deleted.

C1-101.13 Tests and inspections. Tests and inspection of components installed within a building shall be performed in accordance with Sections C1-101.13.1 through C1-101.13.10.

C1-101.13.1 Drainage and vent tests. The testing of *rainwater* collection piping, overflow piping, vent piping and *storage tank* drains shall be conducted in accordance with Section 312 of the *International Plumbing Code*.

C1-101.13.2 Drainage and vent final test. A final test shall be applied to the *rainwater* collection piping, overflow piping, *storage tank*, and tank vent piping in accordance with Section 312.4 of the *International Plumbing Code*.

C1-101.13.3 Water supply system test. The testing of makeup water supply piping and *rainwater distribution piping* shall be conducted in accordance with Section 312.5 of the *International Plumbing Code*.

C1-101.13.4 Inspection and testing of backflow prevention assemblies. The testing of backflow preventers and *backwater valves* shall be conducted in accordance with Section 312.10 of the *International Plumbing Code*.

C1-101.13.5 Inspection vermin and insect protection. All inlets and vents to the system shall be inspected to ensure that each is protected to prevent the entrance of insects or vermin into *storage tank* and piping systems in accordance with Section C1-101.8.

C1-101.13.6 Roof gutter inspection and test. Deleted.

C1-101.13.7 Roofwasher test. Deleted.

C1-101.13.8 Storage tank tests. *Storage tanks* shall be tested with either air or water in accordance with the following:

1. *Storage tanks* shall be filled with water to the overflow line prior to and during inspection. All seams and joints shall be left exposed and the tank shall remain water tight without leakage for a period of 24 hours.
2. After 24 hours, supplemental water shall be introduced for a period of 15 minutes to verify proper drainage of the overflow system and verify that there are no leaks.
3. Following a successful test of the overflow, the water level in the tank shall be reduced to a level that is at 2 inches below the makeup water trigger

point by using the tank drain. The tank drain shall be observed for proper operation. The makeup water system shall be observed for proper operation, and successful automatic shutoff of the system at the refill threshold shall be verified. Water shall not be drained from the overflow at any time during the refill test.

4. If air testing, system shall be pressurized with air equivalent to the depth of the tank in accordance with Section 312.5 of the *International Plumbing Code*.

C1-101.13.9 Supply pressure test. The static water pressure at the point of use furthest from the supply shall be verified to be within the range required for the application, in accordance with Section C1-101.12.11.

C1-101.13.10 Water quality test. Deleted.

C1-101.14 Operation and maintenance manuals. Operations and maintenance materials shall be supplied in accordance with C1-101.14.1 through C1-101.14.4.

C1-101.14.1 Manual. A detailed operations and maintenance manual shall be supplied ~~in hardcopy form~~ with all *rainwater* collection systems.

C1-101.14.2 Schematics. The manual shall include a detailed system schematic, the locations of all system components, and a list of all system components including manufacturer and model number.

C1-101.14.3 Maintenance procedures. The manual shall provide a maintenance schedule and procedures for all system components requiring periodic maintenance. Consumable parts including filters shall be noted along with part numbers.

C1-101.14.4 Operations procedures. The manual shall include system startup and shutdown procedures. The manual shall include detailed operating procedures for the system.

C1-101.15 System abandonment. If the owner of a *rainwater collection and conveyance system* elects to cease use of, or fails to properly maintain such system, the system shall be abandoned and shall comply with the following:

1. All system piping connecting to a utility-provided water system shall be removed or disabled.
2. The *rainwater distribution piping* system shall be replaced with an *approved potable* water supply piping system. Where an existing *potable* pipe system is already in place, the fixtures shall be connected to the existing system.
3. The storage tank shall be secured from accidental access by sealing or locking tank inlets and access points, or filling with sand or equivalent.

C1-101.16 Potable water applications. Deleted.

C1-101.16.1 Water quality testing. Deleted.

C1-101.16.1.1 Test methods. Deleted.

C1-101.16.1.1.1 Tests required. Deleted.

C1-101.16.1.2 Test frequency. Deleted.

C1-101.16.1.3 Test records. Deleted.

2012 NC Residential Code

R101.2 Scope. Accessory Buildings and Structures. (130910 Item B-10)

R101.2 Scope. The provisions of the *North Carolina Residential Code for One- and Two-family Dwellings* shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above *grade plane* in height with a separate means of egress and their *accessory buildings* and *structures*.

Exception: Live/work units complying with the requirements of Section 419 of the *North Carolina Building Code* shall be permitted to be built as one- and two-family *dwellings* or townhouses. Fire suppression required by Section 419.5 of the *North Carolina Building Code* when constructed under the *North Carolina Residential Code for One- and Two-family Dwellings* shall conform to Section 903.3.1.3 of the *International Building Code*.

R101.2.1 Accessory buildings. Accessory buildings with any dimension greater than 12 feet (3658mm) must meet the provisions of this code. Accessory buildings may be constructed without a masonry or concrete foundation, except in coastal high hazard or ocean hazard areas, provided all of the following conditions are met:

1. The accessory building shall not exceed 400 square feet (37m²) or one story in **height**;
2. The building is supported on a wood foundation of minimum 2x6 or 3x4 mudsill of approved wood in accordance with Section R317; and
3. The building is anchored to resist overturning and sliding by installing a minimum of one ground anchor at each corner of the building. The total resisting force of the anchors shall be equal to 20 psf (958 Pa) times the plan area of the building.

R101.2.2 Accessory structures. Accessory structures are not required to meet the provisions of this code except decks, gazebos, retaining walls as required by Section R404.4, detached masonry chimneys built less than 10' from other buildings, pools or spas per appendix G, or detached carports.

Exception: Portable lightweight aluminum or canvas type carports not exceeding 400 sq ft or 12' mean roof height and tree houses supported solely by a tree are exempt from the provisions of this code.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
R202 Definitions. (130910 Item B-11)

ACCESSORY BUILDING. In one- and two-family dwellings not more than three stories high with separate means of egress, a building, the use of which is incidental to that of the main building and which is detached and located on the same lot. An accessory building is a building that is roofed over and more than 50% of its exterior walls are enclosed. Examples of accessory buildings are garages, storage buildings, workshops, and boat houses.

ACCESSORY STRUCTURE. An accessory structure is any structure not roofed over and enclosed more than 50% of its perimeter walls, that is not considered an accessory building located on one- and two-family dwelling sites which is incidental to that of the main building. Examples of accessory structures are fencing, decks, gazebos, arbors, retaining walls, barbecue pits, detached chimneys, tree houses (supported by tree only), playground equipment, and yard art. Accessory structures are not required to meet the provisions of this code except decks, gazebos, retaining walls as required by Section R404.4, detached masonry chimneys built less than 10' from other buildings, pools or spas per appendix G, or detached carports. are not required to meet the provisions of this code.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

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 ASTM E 1996 and ASTM E 1886 referenced therein. Garage door glazed opening protection for windborne debris shall meet the requirements of an *approved* impact resisting standard or ANSI/DASMA 115.

Exception: Wood structural panels with a minimum thickness 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 can be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method, ~~and shall so that they can~~ 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 ASCE 7, with the permanent corrosion resistant attachment hardware provided, ~~and anchors permanently installed on the building.~~ 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).

**TABLE R301.2.1.2
WINDBORNE DEBRIS PROTECTION FASTENING SCHEDULE
FOR WOOD STRUCTURAL PANELS^{a,b,c,d}**

FASTENER TYPE	FASTENER SPACING (inches) ^{a,b}		
	Panel span ≤ 4 feet	4 feet < panel span ≤ 6 feet	6 feet < panel span ≤ 8 feet
No. 8 wood screw based anchor with 2 inch embedment length	16	10	8
No. 10 wood screw based anchor with 2 inch embedment length	16	12	9
¼-inch lag screw based anchor with 2 inch embedment length	16	16	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.448 N, 1 mile per hour = 0.447 m/s.

- a. This table is based on 130mph wind speeds and a 33-foot mean roof height.
- b. Fasteners shall be installed at opposing ends of the wood structural panel. Fasteners shall be located a minimum of 1 inch from the edge of the panel.
- c. ~~Anchors~~ Fasteners shall penetrate through the exterior wall covering with an embedment length of 2 inches minimum into the building frame. Fasteners shall be located a minimum of 2½ inches from the edge of concrete block or concrete.
- d. Where panels are attached to masonry or masonry/stucco, they shall be attached using vibration-resistant anchors having a minimum ultimate withdrawal capacity of 1500 pounds.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R302.1, 302.1.1, 302.1.2, 302.2.6 Eave Projections, Soffit Protection, Flame Spread. (121210 Item B-2)

R302.1 Exterior walls. Construction, projections, openings and penetrations of *exterior walls of dwellings* and accessory buildings shall comply with Table R302.1.

Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the fire separation distance. Townhouse eave projections shall comply with R302.2.5 and R302.2.6.

(no change to exceptions 2 through 5)

(Delete Section R703.11.3 Soffit and replace with new Section R302.1.1 Soffit protection)

R302.1.1 Soffit protection. In construction using vinyl or aluminum soffit material the following application shall apply. Soffit assemblies located on buildings with less than a 10 feet fire separation distance shall be securely attached to framing members and applied over fire retardant treated wood, 23/32 inch wood sheathing or 5/8 inch exterior grade or moisture resistant gypsum board. Venting requirements shall be provided in both soffit and underlayments. Vents shall be either nominal 2-inch (51mm) continuous or equivalent intermittent and shall not exceed the minimum net free air requirements established in Section R806.2 by more than 50%. Townhouse construction shall meet the additional requirements of R302.2.5 and R302.2.6.

Exceptions:

1. Any portion of soffits having 10 feet or more fire separation distance.

2. Roof rake lines where soffit does not communicate to attic are not required to be protected per this Section.

3. Soffits with less than 3 feet fire separation distance shall meet the projection fire rating requirements of Table R302.1.

4. Soffits between buildings located on the same lot.

(Delete Section R703.11.4 Flame spread and substitute with new Section R302.1.2 Flame Spread)

R302.1.2 Flame spread. Vinyl siding and vinyl soffit materials shall have a Flame Spread Index of 25 or less as tested in accordance with ASTM E-84.

R302.2.6 Townhouse eave projections. Overhang projections not exceeding 12 inches (305 mm) shall be allowed to extend beyond the property line in townhouse buildings provided all the following conditions are met:

1. Required fire resistant rated wall assembly is tight to roof deck;

2. Eaves shall be protected with roof decking and fascia of non-combustible materials or approved fire-retardant-treated wood; and

3. Eaves shall have not less than ~~4-hour~~ one layer of 5/8" type X gypsum or equivalent fire-resistive construction on the underside.

~~**R703.11.3 Soffit.** In one and two family dwelling construction using vinyl or aluminum as a soffit material, the soffit material shall be securely attached to framing members and use an underlayment material of either fire retardant treated wood, 23/32 inch wood sheathing or 5/8 inch gypsum board. Venting requirements apply to both soffit and underlayment and shall be per Section R806 of the North Carolina Residential Code. Where the property line is 10 feet or more from the building face, the provisions of this code section do not apply.~~ Repealed.

~~**R703.11.4 Flame Spread.** Vinyl siding and vinyl soffit materials when used in one and two family dwelling construction shall have a flame spread index of 25 or less as tested in accordance with ASTM E 84.~~ Repealed.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
 Table R302.1 Exterior walls. (120910 Item B-4) (130910 Item B-12)

Table R302.1 – Exterior Walls

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	(Fire-resistance rated)	1 hour-tested in accordance with ASTM E 119 or UL 263 with exposure to both sides	$<5 \leq 3$ feet
	(Not fire-resistance rated)	0-Hours	$\geq 5 \geq 3$ feet
Projections	(Fire-resistance rated)	1-Hour on the underside	≥ 2 feet to 5 feet < 3 feet
	(Not fire-resistance rated)	0-Hours	≥ 3 feet
Openings	Not Allowed	N/A	< 3 feet
	25% Maximum of Wall Area	0-Hours	3 feet
	Unlimited	0-Hours	≥ 3 feet
Penetrations	All	Comply with Section R302.4	$<5 \leq 3$ feet
		None Required	≥ 3 feet

For SI: 1 foot=304.8 mm.
 N/A = Not Applicable

The effective date of this Rule is June 1, 2013.
 The Statutory authority for Rule-making is G. S. 143-136; 143-138.

R302.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.1 for exterior walls.

Exception: If an automatic residential fire sprinkler is installed, a common 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119 or UL263 is permitted for townhouses if such walls **do** not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with Section R302.4.

R313.1 Townhouse Automatic Fire Sprinkler Systems. An automatic residential fire sprinkler system shall be installed in townhouses.

Exceptions:

1. Townhouses constructed with a common 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E119 or UL 263 provided such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with Chapters 34 through 43. Penetrations for electrical outlet boxes shall be in accordance with Section R302.4.

2. An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R302.5.1 Opening protection. (120611 Item B-8)

R302.5.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1³/₈ inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 1³/₈ inches (35 mm) thick, or 20-minute fire-rated doors.

Exception: A disappearing/pull-down stairway to uninhabited attic space with minimum 3/8-inch (9.53 mm) (nominal) fire retardant-treated structural panel is deemed to meet Table R302.6 Dwelling/Garage Separation of not less than 1/2-inch (12.7 mm) gypsum board or equivalent applied to garage side.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

R308.4 Hazardous locations. The following shall be considered specific hazardous locations for the purposes of glazing:

1. Glazing in all fixed and operable panels of swinging, sliding and bifold doors.

Exceptions:

1. Glazed openings of a size through which a 3-inch diameter (76 mm) sphere is unable to pass.
2. Decorative glazing.

2. Glazing in an individual fixed or operable panel ~~adjacent to a~~ in the same plane as the door where the nearest vertical edge is within 24-inches (610 mm) of the door in a closed position and whose bottom edge is less than 60 inches (1524 mm) above the floor or walking surface.

Exceptions:

1. Decorative glazing.
2. When there is an intervening wall or other permanent barrier between the door and the glazing.
3. ~~Glazing in walls on the latch side of and perpendicular to the plane of the door in a closed position.~~
Deleted.
4. Glazing adjacent to a door where access through the door is to a closet or storage area 3 feet (914 mm) or less in depth.
5. Glazing that is adjacent to the fixed panel of patio doors.

3. Glazing in an individual fixed or operable panel that meets all of the following conditions:

- 3.1. The exposed area of an individual pane is larger than 9 square feet (0.836 m²); and
- 3.2. The bottom edge of the glazing is less than 18 inches (457 mm) above the floor; and
- 3.3. The top edge of the glazing is more than 36 inches (914 mm) above the floor; and
- 3.4. One or more walking surfaces are within 36 inches (914 mm), measured horizontally and in a straight line, of the glazing.

Exceptions:

1. Decorative glazing.
2. When a horizontal rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to 965) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of 1 1/2 inches (38 mm) in cross sectional height.
3. Outboard panes in insulating glass units and other multiple glazed panels when the bottom edge of the glass is 25 feet (7620 mm) or more above *grade*, a roof, walking surfaces or other horizontal [within 45 degrees (0.79 rad) of horizontal] surface adjacent to the glass exterior.

4. All glazing in railings regardless of area or height above a walking surface. Included are structural baluster panels and nonstructural infill panels.

5. Glazing in enclosures for or walls facing hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers, where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) measured vertically above any standing or walking surface.

Exception: Glazing that is more than 60 inches (1524 mm), measured horizontally and in a straight line, from the waters edge of a hot tub, whirlpool or bathtub.

6. Glazing in walls and fences adjacent to indoor and outdoor swimming pools, hot tubs and spas where the bottom edge of the glazing is less than 60 inches (1524 mm) above a walking surface and within 60 inches (1524 mm), measured horizontally and in a straight line, of the water's edge. This shall apply to single glazing and all panes in multiple glazing.

7. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface when the exposed surface of the glazing is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.

Exceptions:

1. When a rail is installed on the accessible side(s) of the glazing 34 to 38 inches (864 to 965 mm) above the walking surface. The rail shall be capable of withstanding a horizontal load of 50 pounds per linear foot (730 N/m) without contacting the glass and be a minimum of 1 1/2 inches (38 mm) in cross sectional height.
2. The side of the stairway has a guardrail or handrail, including balusters or in-fill panels, complying with Sections R311.7.7 and R312 and the plane of the glazing is more than 18 inches (457 mm) from the railing;
or
3. When a solid wall or panel extends from the plane of the adjacent walking surface to 34 inches (863 mm) to 36 inches (914 mm) above the walking surface and the construction at the top of that wall or panel is capable of withstanding the same horizontal load as a *guard*.

8. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in ~~any~~ the direction of travel when the exposed surface of the glazing is less than 60 inches (1524 mm) above the nose of the tread.

Exceptions: Deleted.

- ~~1. The side of the stairway has a guardrail or handrail, including balusters or in-fill panels, complying with Sections R311.7.7 and R312 and the plane of the glass is more than 18 inches (457 mm) from the railing; or~~
- ~~2. When a solid wall or panel extends from the plane of the adjacent walking surface to 34 inches (864mm) to 36 inches (914 mm) above the walking surface and the construction at the top of that wall or panel is capable of withstanding the same horizontal load as a *guard*.~~

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R311.2 Egress door. (101214 Item B-17)

R311.2 Egress door. At least one exterior egress door shall be provided for each *dwelling* unit. The egress door shall be side-hinged, and shall provide a minimum clear width of 32 inches (813mm) when measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The minimum clear height of the door opening shall not be less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other exterior doors shall not be required to comply with these minimum dimensions. All interior ~~and egress doors and a minimum of one~~ 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.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R310.1.1 Minimum opening area. (130910 Item B-14)

R310.1.1 Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear openable area of 4 square feet (0.372 m²). The minimum net clear opening height shall be 22 inches (558 mm). The minimum net clear opening width shall be 20 inches (508 mm). Emergency escape and rescue openings must have a minimum total glazing area of not less than 5 square feet (0.465 m²) in the case of a ground floor level window and not less than 5.7 square feet (0.530 m²) in the case of an upper story window.

~~**Exception:** Grade floor openings shall have a minimum net clear opening of 5 square feet (0.465 m²).~~

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R313.1 Townhouse automatic fire sprinkler systems. (120611 Item B-12)

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in *townhouses*.

Exceptions:

1. Townhouses constructed with a common 2-hour fire-resistance-rated wall assembly **or two 1-hour fire-resistance-rated wall assemblies that comply with Table R302.1** tested in accordance with ASTM E 119 or UL 263 provided such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall(s) shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations in the separation walls shall be installed in accordance with the North Carolina Electrical Code Chapters 34 through 43. Penetrations for electrical outlet boxes shall be in accordance with Section R302.4.
2. An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing townhouses that do not have an automatic residential fire sprinkler system installed.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R314.3 Smoke Alarm Location. (101214 Item B-5)

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics (finished) but not including crawl spaces, or uninhabitable (unfinished) attics, and uninhabitable (unfinished) attic-stories and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

When more than one smoke alarm is required to be installed within an individual dwelling unit the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R315 Carbon monoxide alarms. (110308 Item B-6b)

R315.1 Carbon monoxide alarms. In new construction, one-and two-family dwellings and townhouses within which fuel-fired appliances or fireplaces are installed or that have attached garages shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s) as directed by the alarm manufacturer.

R315.2 Where required-existing dwellings. ~~For~~ ~~in~~ existing dwellings, where interior alterations, repairs, ~~fuel-fired appliance replacements,~~ or additions requiring a building permit occurs, or where one or more sleeping rooms are added or created, or where fuel-fired appliances or fireplaces are added or replaced, carbon monoxide alarms shall be provided in accordance with Section 315.1.

Exception:

Work involving the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, or the installation of a fuel-fire appliance that cannot introduce carbon monoxide to the interior of the dwelling, are exempt from the requirements of this section.

R315.3 Alarm requirements. The required carbon monoxide alarms shall be audible in all bedrooms over background noise levels with all intervening doors closed. Single station carbon monoxide alarms shall be listed as complying with UL 2034 and shall be installed in accordance with this code and the manufacturer's installation instructions. Battery powered, plug-in, or hard-wired alarms are acceptable for use.

The delayed effective date of the highlighted portion of this Rule is January 1, 2011.

The delayed effective date of the underlined portion of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

R322.2.1 Elevation requirements.

1. Buildings and structures shall have the lowest floors elevated to or above the base flood elevation ~~plus one foot (305 mm)~~, or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet (mm) on the FIRM ~~plus one foot (305 mm)~~, or at least 3 feet (915 mm) if a depth number is not specified.
3. Basement floors that are below grade on all sides shall be elevated to or above the base flood elevation ~~plus one foot (305 mm)~~, or the design flood elevation, whichever is higher.

Exception: Enclosed areas below the design flood elevation, including basements whose floors are not below grade on all sides, shall meet the requirements of Section R322.2.2.

R322.3.2 Elevation requirements.

1. All buildings and structures erected within coastal high hazard areas shall be elevated so that the lowest portion of all structural members supporting the lowest floor, with the exception of mat or raft foundations, piling, pile caps, columns, grade beams and bracing, is:
 - 1.1 Located at or above the design flood elevation, if the lowest horizontal structural member is oriented parallel to the direction of wave approach, where parallel shall mean less than or equal to 20 degrees (0.35 rad) from the direction of approach; **or**
 - 1.2 Located at the base flood elevation ~~plus 1 foot (305 mm)~~, or the design flood elevation, whichever is higher, if the lowest horizontal structural member is oriented perpendicular to the direction of wave approach, where perpendicular shall mean greater than 20 degrees (0.35 rad) from the direction of approach.
2. Basement floors that are below **grade** on all sides are prohibited.
3. The use of fill for structural support is prohibited
4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

Exception: Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

**TABLE R403.1
MINIMUM WIDTH OF CONCRETE OR
MASONRY FOOTINGS (inches)^a**

	LOAD-BEARING VALUE OF SOIL (psf)			
	1,500	2,000	3,000	4,000
Conventional light-frame construction				
1-story	12 ^b	12 ^b	12	12
2-story	15 ^b	15 12 ^b	12	12
3-story	23	17	12	12
4-inch brick veneer over light frame or 8-inch hollow concrete masonry				
1-story	12 ^b	12 ^b	12	12
2-story	15 ^b	15 ^b	12	12
3-story	32	24	16	12
8-inch solid or fully grouted masonry				
1-story	16	16 12 ^b	12	12
2-story	29	21	14	12
3-story	42	32	21	16

For SI: 1-inch = 25.4 mm, 1 pound per square foot = 0.0479 kPa.

- a. Where minimum footing width is 12 inches, use of a single wythe of solid or fully grouted 12-inch nominal concrete masonry units is permitted.
- b. A minimum footing width of 12" is acceptable for monolithic slab foundations.

The effective date of this Rule is June 1, 2013.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

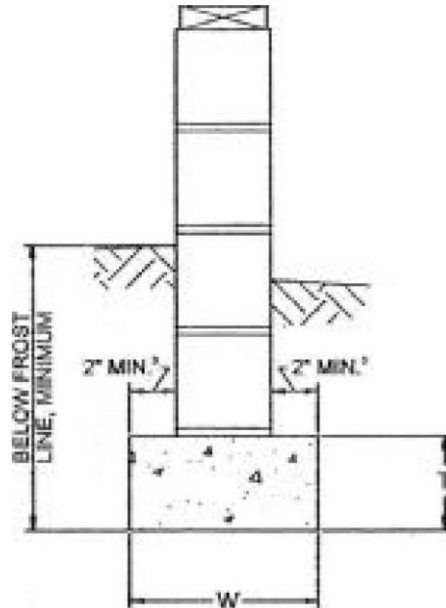
2012 NC Residential Code
R403.1.4 Minimum depth. (120611 Item B-15)

R403.1.4 Minimum depth. All exterior footings and foundation systems shall extend below the frost line specified in Table R301.2(1). In no case shall the bottom of the exterior footings be less than 12 inches below the ~~undisturbed ground surface or engineered fill~~ finished grade.

Exception: Frost protected footings constructed in accordance with Section R403.3 and footings and foundations erected on solid rock shall not be required to extend below the frost line.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

**FIGURE R403.3 (1)
CONCRETE AND MASONRY FOUNDATION DETAILS**



1. Foundations shall extend not less than 12 inches below ~~the natural grade or engineered fill~~ finished grade and in no case less than the frost line depth.
REMAINING NOTES TO REMAIN THE SAME

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R408.1.1 Foundation vent sizing. (101214 Item B-21)

R408.1.1 Foundation vent sizing. The minimum net area of ventilation openings shall be not less than 1 square foot (**0.0929** m²) for each 150 square feet (**13.9** m²) of crawl space ground area.

Exception: The total area of ventilation openings may be reduced to 1/1,500 of the of the ~~crawl space ground area~~ under-floor area where the ground surface is treated with an approved vapor retarder material in accordance with Section R408.2 and the required openings are placed so as to provide cross-ventilation of the space. The installation of operable louvers shall not be prohibited.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R408.2 Ground vapor retarder. (101214 Item B-22) (120910 Item B-5)

R408.2 Ground vapor retarder. When required by Section R408.1.1 Exception, a ~~A~~ minimum 6-mil (0.15 mm) polyethylene vapor retarder or equivalent shall be installed to nominally cover all exposed earth in the crawl space, with joints lapped not less than 12 inches (305 mm). Where there is no evidence that the ground water table can rise to within 6 inches (152 mm) of the floor of the crawl space, it is acceptable to puncture the ground vapor retarder at low spots to prevent water puddles from forming on top of the vapor retarder due to condensation. Install a drain to daylight or sump pump at each low spot. Crawl space drains shall be kept separate from roof gutter drain systems and foundation perimeter drains.

The effective date of this Rule is June 1, 2013.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
Chapter 5, Chapter 8 Wood Tables SP. (130910 Item B-3)

Change the following tables in Chapter 5 as indicated in the attachment:

R502.3.1(1), R502.3.1(2), R502.3.3(1), R502.3.3(2), R502.5(1), R502.5(2)

Change the following tables in Chapter 8 as indicated in the attachment:

R802.4(1), R802.4(2), R802.5.1(1), R802.5.1(2), R802.5.1(3), R802.5.1(4), R802.5.1(5), R802.5.1(6),
R802.5.1(7), R802.5.1(8)

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/2012_NCBuildingCode_amendments/130910%20B3%20RCh5.%20RCh8%20Wood%20Tables%20SPI.pdf

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
Table R502.3.3(2) Cantilever Spans. (120611 Item B-16)

Table R502.3.3(2) Footnotes:

- a. Spans are based on No. 2 Grade lumber of Douglas fir-larch, hem-fir, southern pine, and spruce-pine-fir for repetitive (3 or more) members.
- b. Ratio of backspan to cantilever span shall be at least 2:1.
- c. Connections capable of resisting the indicated uplift force shall be provided at the backspan support.
- d. Uplift force is for a backspan to cantilever span ratio of 2:1. Tabulated uplift values are permitted to be reduced by multiplying by a factor equal to 2 divided by the actual backspan **ratio** provided (2/backspan ratio).
- e. A full-depth rim joist shall be provided at the ~~unsupported end of the cantilever joists~~ cantilever end of the joists. Solid blocking shall be provided at the ~~supported end~~ cantilever support.
- f. Linear interpolation shall be permitted for ground snow loads other than shown.

The delayed effective date of this Rule is January 1, 2015.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
R506.2.3 Vapor retarder. (120611 Item B-17)

R506.2.3 Vapor retarder. A 6 mil (0.006 inch; 152 μm) polyethylene or *approved* vapor retarder with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where no base course exists.

Exception: The vapor retarder may be omitted:

1. From detached garages, utility buildings and other unheated *accessory structures*.
2. For unheated storage rooms having an area of less than 70 square feet (6.5 m²) and carports.
3. From driveways, walks, patios and other exterior flatwork ~~not likely to be enclosed and heated at a later date.~~
4. Where *approved* by the *building official*, based on local site conditions.
5. From attached garages where floor space at parking level is unheated.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
R602.10 Wall Bracing. (120611 Item B-21)

R602.10 Wall bracing. Buildings shall be braced in accordance with this section. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1.

Exceptions:

1. Detached one- and two-family *dwelling*s located in Seismic Design Category C are exempt from the seismic bracing requirements of this section. Wind speed provisions for bracing shall be applicable to detached one- and two-family *dwelling*s.

2. In lieu of the wall bracing requirements of Section 602.10, all stories shall be sheathed with wood structural sheathing panels. Blocking shall be installed if less than 50 percent of the wall length is sheathed. Where blocking is required, all panels shall be fastened at 3 inches (76 mm) on center along the edges and 6 inches (152 mm) on center at intermediate framing. If a wall is sheathed less than 25 percent of its length, then that wall shall be designed in accordance with approved engineering practice. Portal openings designed and constructed in accordance with any of the following shall be acceptable:

a. Method CS-PF in accordance with Section R602.10.4.1.1, Figure R602.10.4.1.1 and the minimum panel widths in Table R602.10.4.2.

b. Method CS-G in accordance with Table R602.10.4.1 using the nailing pattern above and the minimum panel widths in Table R602.10.4.2.

c. Accepted Engineering Practice.

The effective date of this Temporary Rule is October 1, 2012.

This Temporary Rule expires on September 1, 2013.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
R602.10 Wall bracing. (120312 Item B-4)

Replace the 2012 NC Residential Code Sections R602.10 through R602.12 and Temporary Rule with the amended “R602.10 Code and Commentary for 2012 NC Residential Code – 03/06/13” at the following link.

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/2012_NCBuildingCode_amendments/R602.10%20Code%20and%20Commentary%20for%202012%20NC%20Residential%20Code%20-%20final%202003-06-13.pdf

The delayed effective date of this Rule is **September** 1, 2013.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R703.7.6 Weepholes. (120611 Item B-19)

R703.7.6 Weepholes. Weepholes shall be provided in the outside wythe of masonry walls at a maximum spacing of ~~33~~ 48 inches (~~838~~ 1219 mm) on center. Weepholes shall not be less than 3/16 inches (5 mm) in diameter. Weepholes shall be located immediately above the flashing.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R703.11.3, R703.11.4 Soffit, Flame Spread. (100914 Item B-3)

R703.11.3 Soffit. In One-and Two-Family Dwelling construction using vinyl or aluminum as a soffit material, the soffit material shall be securely attached to framing members and use an underlayment material of either fire retardant treated wood, 23/32 inch wood sheathing or 5/8 inch gypsum board. Venting requirements apply to both soffit and underlayment and shall be per section R806 of the North Carolina Residential Code. Where the property line is 10 feet or more from the building face, the provisions of this code section do not apply.

R703.11.4 Flame Spread. Vinyl siding and vinyl soffit materials when used in One-and Two-Family Dwelling construction shall have a Flame Spread Index of 25 or less as tested in accordance with ASTM E-84.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code
R802.3 Framing details. (101214 Item B-25)

R802.3 Framing details. Rafters shall be framed to ridge board or to each other with a gusset plate as a tie. Ridge board shall be at least 1-inch (25.4 mm) nominal thickness and not less in depth than the cut end of the rafter. Opposing rafters at the ridge must align within the thickness of the ridge member. Regularly spaced hip and valley rafters need not align. At all valleys and hips there shall be a valley or hip rafter not less than 2-inch (51 mm) nominal thickness and not less in depth than the cut end of the rafter. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition or be designed to carry and distribute the specific load at that point. Where the roof pitch is less than three units vertical in 12 units horizontal (25-percent slope), structural members that support rafters and ceiling joists, such as ridge beams, hips and valleys, shall be designed as beams.

The delayed effective date of this Rule is January 1, 2012.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

R807.1 Attic access. (101214 Items B-6, B-26)

R807.1 Attic access. An attic access opening shall be provided to attic areas that exceed ~~100~~ 400 square feet (~~9.29~~ 37.16 m²) and have a vertical height of 60 inches (1524 mm) or greater. The net clear opening shall not be less than 20 inches by 30 inches (508 mm by 762 mm) and shall be located in a hallway or other readily accessible location. A 30-inch (762 mm) minimum unobstructed headroom in the attic space shall be provided at some point above the access opening. See Section M1305.1.3 for access requirements where mechanical equipment is located in attics.

Exceptions:

1. Concealed areas not located over the main structure including porches, areas behind knee walls, dormers, bay windows, etc. are not required to have access.

2. Pull down stair treads, stringers, handrails, and hardware may protrude into the net clear opening.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

R905.2.6 Attachment. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer, but not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12, 175 percent slope), shingles shall be installed as required by the manufacturer.

Exception: Asphalt strip shingles shall have a minimum of six fasteners per shingle where the roof is in one of the following categories:

1. The basic wind speed in accordance with Figure R301.2(4) is 110 miles per hour (177 km/hr) or greater and the eave is 20 feet (6096 mm) or higher above grade.
2. The basic wind speed in accordance with Figure R301.2(4) is 120 miles per hour (193 km/hr) or greater.
3. Special mountain regions in accordance with Figure R301.2(4) that meet exceptions 1 or 2 above.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Energy Conservation Code, Chapter 4
2012 NC Residential Code, Chapter 11
Duct leakage to the outside. (120910 Item B-3)

Amend the 2012 NC Energy Conservation Code, Chapter 4 and 2012 NC Residential Code, Chapter 11 with the attached revisions. The current energy provisions require duct testing to be verified and identify one method of doing so. The proposed language provides an alternative testing method for leakage to the outside.

The amended “2012 NCECC, 2012 NCRC, Duct Leakage to the Outside” is published separately at the following link.

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Documents/2012_NCBuildingCode_amendments/2012%20NCECC,%202012%20NCRC,%20Duct%20Leakage%20to%20the%20Outside%20120910%20B3.pdf

The effective date of this Rule is June 1, 2013.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

N1102.2.3 Access hatches and doors. (101214 Item B-1)

N1102.2.3 Access hatches and doors.

Exceptions:

1. Pull down stair systems shall be weatherstripped and insulated ~~to~~ with a minimum of an R-5 insulation, ~~value such that~~ the insulation does ~~not~~ shall not interfere with proper operation of the stair. Non-rigid insulation materials are not allowed. Additional insulation systems that enclose the stair system from above are allowed. Exposed foam plastic must meet the provisions of the *North Carolina Residential Code*.

The delayed effective date of this Rule is January 1, 2012.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Residential Code

N1103.1.2 Heat pump supplementary heat. (120611 Item B-10)

N1103.1.2 Heat pump supplementary heat. Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

A heat strip outdoor temperature lockout shall be provided to prevent supplemental heat operation in response to the thermostat being changed to a warmer setting. The lockout shall be set no lower than 35 degrees F and no higher than 40 degrees F.

Exception: In lieu of a heat strip outdoor temperature lockout, the following time and temperature electric-resistance control may be used. After six minutes of compressor run time in heat mode, supplemental electric heat shall energize only if the leaving air temperature from the indoor coil is below 90 degrees F. If the indoor coil leaving air temperature exceeds 100 degrees F, supplemental heat shall automatically de-energize, but allow the compressor to continue to operate until the call is satisfied. No thermostat shall initiate supplemental electric heat at any time. Thermostat controlled emergency heat shall not be limited by outdoor temperature. Electric resistance supplemental heat during defrost shall operate normally without limitation.

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

[Note: This Rule will also be printed in the 2012 NC Energy Conservation Code, Section 403.1.2.]

R4605.5 In the coastal hazard area and the ocean hazard area, all metal connectors and fasteners outside conditioned spaces shall be hot-dip galvanized steel after fabrication and meet ASTM A 153. Exposed metal connectors, such as tie-down straps on porches, decks, and areas under the structure, shall be a minimum 3/16-inch (5mm) thick, and shall be hot-dip galvanized after fabrication and meet ASTM A 123 or ASTM A 153. Stainless steel light-gage metal connectors shall be permitted in exposed locations. Metal connectors of approved equivalent corrosion-resistant material may be accepted. See Table R4605.5.

TABLE R4605.5^a
CORROSION RESISTANCE

(Applies only to Structures Located in Coastal High-Hazard Areas and Ocean Hazard Areas)

	OPEN (exterior, porches, under house)	EXPOSURE LEVEL VENTED/ENCLOSED (attic, floor trusses, enclosed crawl spaces and stud cavity)	CONDITIONED (heated/cooled living areas)
Nails, staples, screws	Hot-dip galvanized	Hot-dip galvanized	—
Nuts, bolts, washers, tie rods	Hot-dipped galvanized	Hot-dip galvanized	—
Steel connection plates and straps (3/16" minimum thickness)	Hot-dip galvanized after fabrication	Hot-dip galvanized	—
Sheet metal connectors, wind anchors, joist hangers, steel joists and beams	Stainless steel or hot-dipped galvanized after fabrication	Hot-dip galvanized after plate fabrication or <u>triple galvanized^b</u>	Hot-dip galvanized or <u>triple galvanized^b</u>
Truss plates	Stainless steel or hot-dipped galvanized after fabrication	Hot-dip galvanized after fabrication, or stainless steel, <u>triple galvanized^b</u> or <u>in-</u> <u>accordance with TPI-1 of the Truss Plate</u> <u>Institute</u> within 6'-0" of a gable louver, <u>ridge</u> or soffit vent. Otherwise in <u>accordance with TPI-1 of the Truss Plate</u> <u>Institute</u> <u>Standard galvanized^b</u> .	Standard galvanized ^b

a. Applies only to structures located in Coastal High-Hazard Areas and Ocean High Hazard Areas

b. Triple galvanizing – G185, standard galvanizing – G60 both per ASTM A 653 / A 653M

The delayed effective date of this Rule is January 1, 2015.

The Statutory authority for Rule-making is G. S. 143-136; 143-138.

AM104.1 Deck attachment. When a deck is supported at the structure by attaching the deck to the structure, the following attachment schedules shall apply for attaching the deck band to the structure.

AM104.1.1 All structures except brick veneer structures

METHOD	FASTENERS	8' MAX JOIST SPAN	16' MAX JOIST SPAN
1	5/8" Hot dipped galv. bolts with nut and washer ^b and 12d Common hot dipped galv. nails ^c	1@3'-6" o.c. and 2@8" o.c.	1@1'-8" o.c. and 3@6" o.c.
OR			
2	<u>Self-Drilling Screw Fastener^d</u>	<u>12" o.c. staggered</u>	<u>6" o.c. staggered</u>

- a. Attachment interpolation between 8 foot and 16 foot joists span is allowed.
- b. Minimum edge distance for bolts is 2½ inches.
- c. Nails must penetrate the supporting structure band a minimum of 1½ inches.
- d. Self-drilling screw fastener shall be an approved screw having a minimum shank diameter of 0.195" and a length long enough to penetrate through the supporting structure band. The structure band shall have a minimum depth of 1-1/8". Screw shall have an evaluated allowable shear load for Southern Pine to Southern Pine lumber of 250 pounds and shall have a corrosion resistant finish equivalent to hot dipped galvanized. Minimum edge distance for screws is 1-7/16". A maximum of ½" thick wood structural panel is permitted to be located between the deck ledger and the structure band.

The delayed effective date of this Rule is January 1, 2015.
 The Statutory authority for Rule-making is G. S. 143-136; 143-138.