REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Building Code/Cross-Laminated Timber - Chapter 2, 602.4, 2302.1, 2303.1.4, Chapter 35

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

***NOTE WELL:* This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.**

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

> *In* [BS] CROSS-LAMINATED TIMBER, *the term "solid-sawn" is hyphenated. The term is not hyphenated in the last two of three sentences in* 602.4 Type IV. *Please be consistent with terms used.*
>
> *In* 602.4.8.1*, please reflect the change in capitalization by the complete deletion of "Partitions" and addition of "partitions"*
>
> *In* 2303.1.4, *the phrase used is "manufactured and identified in accordance with…" In later amendments set forth in R502.1.6, R602.1.3, and R802.1.5, the phrase is "manufactured and identified as required by…" The language is inconsistent. Was the inconsistency intentional? If not, please use consistent terms.*

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Building Code
Chapter 2, 602.4, 2302.1, 2303.1.4, Chapter 35 Cross-Laminated Timber. (141209 Item B-1)

(Add a definition in Chapter 2)
[BS] CROSS-LAMINATED TIMBER. A prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or *structural composite lumber* where the adjacent layers are cross oriented and bonded with structural adhesive to form a solid wood element.

(Revise as follows)
602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section and Section 2304.10. ~~*Fire-retardant-treated wood* framing~~ Exterior walls complying with Section ~~2303.2~~ 602.4.1 or 602.4.2 shall be ~~permitted within exterior wall assemblies with a 2-hour rating or less~~ permitted. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued-laminated members, the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4. *Cross-laminated timber* (CLT) dimensions used in this section are actual dimensions.

602.4.1 Fire-retardant-treated wood in exterior wall. Fire-retardant wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less.

602.4.2 Cross-laminated timber in exterior walls. Cross-laminated timber complying with Section 2303.1.4 shall be permitted within exterior wall assemblies with a 2-hour rating or less, provided the exterior surface of the cross-laminated timber is protected by one of the following:
1. Fire-retardant-treated wood sheathing complying with Section 2303.2 and not less than 15/32 inch (12 mm) thick;
2. Gypsum board not less than ½ inch (12.7 mm) thick; or
3. A noncombustible material

~~**602.4.1**~~ **602.4.3 Columns.** *(no change, only renumbering)*

~~**602.4.2**~~ **602.4.4 Floor framing.** *(no change, only renumbering)*

~~**602.4.3**~~ **602.4.5 Roof framing.** *(no change, only renumbering)*

~~**602.4.4**~~ **602.4.6 Floors.** *(no change, only renumbering)*

602.4.6.1 Cross-laminated timber floors. Cross-laminated timber shall be not less than 4 inches (102 mm) in thickness. Cross-laminated timber shall be continuous from support to support and mechanically fastened to one another. Cross-laminated timber shall be permitted to be connected to walls without a shrinkage gap providing swelling or shrinking is considered in the design. Corbelling of masonry walls under the floor shall be permitted to be used.

~~**602.4.5**~~ **602.4.7 Roofs.** Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued-laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness~~,~~; 11/8-inch-thick (32 mm) wood structural panel (exterior glue)~~,~~; ~~or of~~ planks not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors~~,~~; or cross-laminated timber. Other types of decking shall be permitted to be used if providing equivalent *fire resistance* and structural properties.

Cross-laminated timber roofs shall be not less than 3 inches (76 mm) nominal in thickness and shall be continuous from support to support and mechanically fastened to one another.

~~**602.4.6**~~ **602.4.8 Partitions and walls.** Partitions and walls shall comply with Section 602.4.8.1 or 602.4.8.2.

602.4.8.1 Interior walls and partitions. Interior walls and p~~P~~artitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction 4 inches (102 mm) thick, or of 1-hour fire-resistance-rated construction.

602.4.8.2 Exterior walls. Exterior walls shall be one of the following:
1. Noncombustible materials
2. Not less than 6 inches (152 mm) in thickness and constructed of one of the following:
2.1 Fire-retardant-treated wood in accordance with Section 2303.2 and complying with Section 602.4.1.
2.2 Cross-laminated timber complying with Section 602.4.2.

~~**602.4.7**~~ **602.4.9 Exterior structural members.** *(no change, only renumbering)*

2302.1 Definitions.

(Insert as follows)
CROSS-LAMINATED TIMBER. A prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or *structural composite lumber* where the adjacent layers are cross oriented and bonded with structural adhesive to form a solid wood element.

(Revise as follows)
2303.1.4 Structural glued cross-laminated timber. Cross-laminated timbers shall be manufactured and identified in accordance with ANSI/APA PRG 320.

~~**2303.1.4**~~ **2303.1.5 Wood structural panels.** *(no change, only renumbering)*

(Renumber subsequent sections accordingly)

(Add to Chapter 35 under APA)
ANSI/APA PRG 320-2012 Standard for Performance-rated Cross Laminated Timber……2303.1.4

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

RRC STAFF OPINION

PLEASE NOTE: THIS COMMUNICATION IS EITHER 1) ONLY THE RECOMMENDATION OF AN RRC STAFF ATTORNEY AS TO ACTION THAT THE ATTORNEY BELIEVES THE COMMISSION SHOULD TAKE ON THE CITED RULE AT ITS NEXT MEETING, OR 2) AN OPINION OF THAT ATTORNEY AS TO SOME MATTER CONCERNING THAT RULE. THE AGENCY AND MEMBERS OF THE PUBLIC ARE INVITED TO SUBMIT THEIR OWN COMMENTS AND RECOMMENDATIONS (ACCORDING TO RRC RULES) TO THE COMMISSION.

AGENCY: Building Code Council

RULE CITATION: 2011 NC Electrical Code/Raceways in Wet Locations Above - 300.8

RECOMMENDED ACTION:

Note staff's comment

X Object, based on:

Lack of statutory authority

Unclear or ambiguous

Unnecessary

X Failure to comply with the APA

Extend the period of review

COMMENT:

The following text was proposed for amendment and published in the Register by the Building Code Council:

> **300.9 Raceways in Wet Locations Above Grade.** Where raceways are installed in wet locations above grade, the interior of these raceways shall be considered a wet location~~. Insulated conductors and cables installed in raceways in wet locations above grade shall comply with 310.10(C)~~ unless all fittings and enclosures are approved for outdoors. Where condensation is known to be a problem the requirements of 300.7(A) shall apply.

The following text is what was adopted by the Building Code Council for amendment and submitted to the Rules Review Commission:

> **300.9 Raceways in Wet Locations Above Grade.** Where raceways are in wet locations above grade, the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceway in wet locations above grade shall comply with 310.10(C).
> Exception: The raceway shall not be considered a wet location if:
> (1) The section of raceway routed in a wet location above grade does not exceed 1500 mm (5 ft) in length;

Abigail M. Hammond
Commission Counsel
Issued July 28, 2015

(2) Any fittings or conduit bodies are watertight and listed for use in wet locations; and
(3) Raceway is open at its termination point in a dry location.

The following standard as set forth in G.S. 150B-21.2 applies to the procedure of adopting a permanent rule:

> (g) Adoption. - An agency shall not adopt a rule that differs substantially from the text of a proposed rule published in the North Carolina Register unless the agency publishes the text of the proposed different rule in the North Carolina Register and accepts comments on the proposed different rule for the time set in subsection (f) of this section.
>
> An adopted rule differs substantially from a proposed rule if it does one or more of the following:
>
> (1) Affects the interests of persons who, based on the proposed text of the rule published in the North Carolina Register, could not reasonably have determined that the rule would affect their interests.
>
> (2) Addresses a subject matter or an issue that is not addressed in the proposed text of the rule.
>
> (3) Produces an effect that could not reasonably have been expected based on the proposed text of the rule.

Upon review of G.S. 150B-21.2(g)(2), it is unclear how the three specific exceptions set forth in the Rule adopted by the Building Code Council and submitted to the Rules Review Commission were addressed or could have been reasonably expected based upon the proposed language set forth in the Rule published in the Register.

SUMMARY:

Staff recommends objecting to this Rule based upon failure to comply with the APA, finding that adopted language set forth in 2011 NC Electrical Code/Raceways in Wet Locations Above - 300.8 is a substantial change as set forth in G.S. 150B-21.2(g) from the language as published in the Register

Abigail M. Hammond
Commission Counsel
Issued July 28, 2015

2011 NC Electrical Code
300.8 Raceways in Wet Locations Above Grade. (141209 Item B-8)

300.9 Raceways in Wet Locations Above Grade. Where raceways are in wet locations above grade, the interior of these raceways shall be considered to be a wet location. Insulated conductors and cables installed in raceway in wet locations above grade shall comply with 310.10(C).
Exception: The raceway shall not be considered a wet location if:
(1) The section of raceway routed in a wet location above grade does not exceed 1500 mm (5 ft) in length;
(2) Any fittings or conduit bodies are watertight and listed for use in wet locations; and
(3) Raceway is open at its termination point in a dry location.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Energy Conservation Code/Fenestration - 402

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

***NOTE WELL:* This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.**

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

Paragraphs l and m were not underlined when published in the Register. Please clarify if this is new or old text in the Code.

In paragraph e, what is the purpose of the comma after "compliance method"? Is it necessary?

In paragraph e, consider the deleting the end clause of ", as applicable."

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

TABLE 402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION U-FACTOR b,l	SKYLIGHTb U-FACTOR	GLAZED FENESTRATION SHGC b,e, m	CEILING R-VALUE k	WOOD FRAME WALL R-VALUE e	MASS WALL R-VALUE i	FLOOR R-VALUE	BASEMENT WALL R-VALUE c	SLAB R-VALUE & DEPTH d	CRAWL SPACE WALL R-VALUE c
3	0.35	0.65	0.30	30	13	5/10	19	10/13[f]	0	5/13
4	0.35	0.60	0.30	38 or 30 cont. [j]	15, 13+2.5[h]	5/10	19	10/13	10	10/13
5	0.35	0.60	NR	38 or 30 cont. [j]	19, 13+5, or 15+3[eh]	13/17	30 [g]	10/13	10	10/13

l. In addition to the exemption in Section 402.3.3, a maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

m. In addition to the exemption in Section 402.3.3, a maximum of two glazed fenestration product assemblies having a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

TABLE 402.1.3
EQUIVALENT U-FACTORS[a]

CLIMATE ZONE	FENESTRATION U-FACTOR e	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR d	CRAWL SPACE WALL U-FACTOR c
3	0.35	0.65	0.035	0.082	0.141	0.047	0.059	0.136
4	0.35	0.60	0.030	0.077	0.141	0.047	0.059	0.065
5	0.35	0.60	0.030	0.061	0.082	0.033	0.059	0.065

e. A maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 and a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty. When applying this note and using the REScheck "UA Trade-off" compliance method, to allow continued use of the software, the applicable fenestration products shall be modeled as meeting the U-factor of 0.35 and the SHGC of 0.30, as applicable, but the fenestration products actual U-factor and actual SHGC shall be noted in the comments section of the software for documentation of application of this note to the applicable products. Compliance for these substitute products shall be verified compared to the allowed substituted maximum U-value requirement and maximum SHGC requirement, as applicable.

402.3.5 Thermally isolated conditioned sunroom U-factor and SHGC. The maximum fenestration U-factor shall be 0.40 and the maximum skylight *U*-factor shall be 0.75. Sunrooms with cooling systems shall have a maximum fenestration SHGC of 0.40 for all glazing.

New windows and doors separating the sunroom from conditioned space shall meet the building thermal envelope requirements. Sunroom additions shall maintain thermal isolation; and shall be served by a separate heating or cooling system, or be thermostatically controlled as a separate zone of the existing system.

Exception: A maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 and, when cooling is provided, a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

402.5 Maximum fenestration *U*-factor and SHGC (Mandatory Requirements). The area-weighted average maximum fenestration *U*-factor permitted using trade-offs from Section 402.1.4 shall be 0.40. Maximum skylight *U*-factors shall be 0.65 in zones 4 and 5 and 0.60 in zone 3. The area-weighted average maximum fenestration SHGC permitted using trade-offs from Section 405 in Zones 3 and 4 shall be 0.40.
Exception: A maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 and a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Energy Conservation Code/Building Envelope - Table 502.1.2

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

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In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

In paragraph a., replace "must" with "shall"

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Energy Conservation Code
TABLE 502.1.2 Building Envelope. (141209 Item B-2)

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						
Insulation entirely above deck	U-0.039	U-0.039	U-0.032	U-0.032	U-0.032	U-0.032
Metal buildings (with R-5 thermal blocks[a])	U-0.041	U-0.041	U-0.035	U-0.035	U-0.035	U-0.035
Attic and other	U-0.027	U-0.041	U-0.021	U-0.021	U-0.021	U-0.021
Walls, Above Grade						
Mass	U-0.123	U-0.104	U-0.104	U-0.090	U-0.090	U-0.060
Metal Building	U-0.072	U-0.050	U-0.060	U-0.050	U-0.050	U-0.050
Metal framed	U-0.064	U-0.064	~~U-0.055~~ U-0.064	~~U-0.049~~ U-0.064	~~U-0.049~~ U-0.064	~~U-0.043~~ U-0.055
Wood framed and other	U-0.064	~~U-0.051~~ U-0.064	~~U-0.051~~ U-0.064	~~U-0.045~~ U-0.064	~~U-0.045~~ U-0.064	~~U-0.041~~ U-0.051
Walls, Below Grade						
Below-grade wall[a]	C-0.119	C-0.119	C-0.119	C-0.092	C-0.119	C-0.092
Floors						
Mass	U-0.064	U-0.064	U-0.057	U-0.051	U-0.057	U-0.051
Joist/Framing	U-0.033	U-0.033	U-0.027	U-0.027	U-0.027	U-0.027
Slab-on-Grade Floors						
Unheated slabs	F-0.730	F-0.540	F-0.520	F-0.520	F-0.520	F-0.510
Heated slabs	F-0.860	F-0.860	F-0.688	F-0.688	F-0.688	F-0.688

a. When heated slabs are placed below-grade, below grade walls must meet the *F*-factor requirements for perimeter insulation according to the heated slab-on-grade construction.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Existing Building Code/Smoke Alarms - 403.6.1, 404.6, 603.2, 703.3, 1203.3

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

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> *Should there be additional spacing between* 403.6.1 *and* 404.6*? Please correct if necessary.*
>
> *Please verify cross citations, as* 703.2 *appears changed since publication and* 1203.13 *was not published.*

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Existing Building Code
403.6.1, 404.6, 603.2, 703.3, 1203.3 Smoke Alarms. (141209 Item B-10)

(Add Section to Chapter 4)
403.6.1 Smoke alarms in one- and two-family dwellings and townhouses. Detached one- and two-family dwellings and townhouses shall be provided with smoke alarms installed in accordance with Section 804.4.1.
404.6 Smoke alarms. Smoke alarms shall be provided and installed in accordance with Section 804.4.

(Add Section to Chapter 6)
603.2 Smoke alarms. Smoke alarms shall be provided and installed in accordance with Section 804.4.

(Add Section to Chapter 7)
703.2 Smoke alarms. Smoke alarms shall be provided and installed in accordance with Section 804.4.

(Add Section to Chapter 12)
1203.13 Smoke alarms. Smoke alarms shall be provided and installed in accordance with Section 804.4.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Existing Building Code/Carbon Monoxide Detection - Ch. 2, Section 403.7, 703.2, 1203.13, 1401.2.6, Ch. 47

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

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In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

In 403.7.1*, correct the spacing between "carbon monoxide alarms"*

Throughout this rule, consider using the oxford comma to separate "sleeping units and classrooms"

The term "approved location" is referenced several times throughout the rule. Please clarify the term or cross-reference another portion of the Code that outlines what qualifies as an "approved location."

In 403.7.1.4*, add an "or" between the clauses of* 2.1 and 2.2.

In 403.7.4.3 *and* 403.7.5.3*, the Code allows a combination alarm, but there is no reference to a different sound, as required by G.S. 143-138(b2)(1). Please clarify.*

In 403.7.7 *the term used is "fuel fired appliances or fireplaces." This is different from the prior terms used, "fuel-burning appliances" or "fuel-burning fireplaces." Is this change intentional? Please clarify.*

In 403.7.7.2*, consider adding an oxford comma after "plug-in"*

In 1401.2.6*, what is the purpose of included "classrooms in Group E"? Is that already covered in the prior amendments? Please clarify.*

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Existing Building Code
Ch. 2, Section 403.7, 703.2, 1203.13, 1401.2.6, Ch. 47 Carbon Monoxide Detection. (141209 Item B-9)

(Add the following definition to Section 202)
[B] PRIVATE GARAGE. A building or portion of a building in which motor vehicles used by the tenants of the building or buildings on the premises are stored or kept, without provisions for repairing or servicing such vehicles for profit.

(Add Section to Chapter 4)
403.7 Carbon monoxide detection.

403.7.1 General. Carbon monoxide detection shall be installed in accordance with Sections 403.7.1 through 403.7.6. For one- and two-family dwellings and townhouses, carbon monoxide alarms shall be installed in accordance with Section 403.7.7.

403.7.1.1 Where required. Carbon monoxide detection shall be provided in Group I-1, I-2, I-4 and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 403.7.2 where any of the conditions in Sections 403.7.1.2 through 403.7.1.6 exist.
403.7.1.2 Fuel-burning appliances and fuel-burning fireplaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms that contain a fuel-burning appliance or a fuel-burning fireplace.
403.7.1.3 Forced air furnaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms served by a fuel-burning, forced air furnace.
Exception: Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.
403.7.1.4 Fuel-burning appliances outside of dwelling units, sleeping units and classrooms. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms located in buildings that contain fuel-burning appliances or fuel-burning fireplaces.
Exceptions:
1. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms if there are no communicating openings between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms if carbon monoxide detection is provided in one of the following locations:
2.1. In an approved location between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2.2. On the ceiling of the room containing the fuel-burning appliance or fuel-burning fireplace.
403.7.1.5 Private garages. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms in buildings with attached private garages.
Exceptions:
1. Carbon monoxide detection shall not be required where there are no communicating openings between the private garage and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms located more than one story above or below a private garage.
3. Carbon monoxide detection shall not be required where the private garage connects to the building through an open-ended corridor.
4. Where carbon monoxide detection is provided in an approved location between openings to a private garage and dwelling units, sleeping units or classrooms, carbon monoxide detection shall not be required in the dwelling units, sleeping units or classrooms.
403.7.1.6 Exempt garages. For determining compliance with Section 403.7.1.5, an open parking garage complying with Section 406.5 of the International Building Code or an enclosed parking garage complying with Section 406.6 of the International Building Code shall not be considered a private garage.

403.7.2 Locations. Where required by Section 403.7.1.1, carbon monoxide detection shall be installed in the locations specified in Sections 403.7.2.1 through 403.7.2.3.

403.7.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.
403.7.2.2 Sleeping units. Carbon monoxide detection shall be installed in sleeping units.
Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance and is not served by a forced air furnace.
403.7.2.3 Group E occupancies. Carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.
Exception: Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that is staffed by school personnel in Group E occupancies with an occupant load of 30 or less.

403.7.3 Detection equipment. Carbon monoxide detection required by Sections 403.7.1 through 403.7.2.3 shall be provided by carbon monoxide alarms complying with Section 403.7.4 or with carbon monoxide detection systems complying with Section 403.7.5.

403.7.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 403.7.4.1 through 403.7.4.3.

403.7.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.
Exception: Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.
403.7.4.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034.
403.7.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 2034 and UL 217.

403.7.5 Carbon monoxide detection systems. Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 403.7.5.1 through 403.7.5.3.

403.7.5.1 General. Carbon monoxide detection systems shall comply with NFPA 720. Carbon monoxide detectors shall be listed in accordance with UL 2075.
403.7.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 403.7.2. These locations supersede the locations specified in NFPA 720.
403.7.5.3 Combination detectors. Combination carbon monoxide/smoke detectors installed in carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide detectors, provided they are listed in accordance with UL 2075 and UL 268.

403.7.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

403.7.7 Carbon monoxide alarms for one- and two-family dwellings and townhouses. Where interior work requiring a 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 403.7.7.1
Exception: Work involving the exterior surfaces of dwellings, such as 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.

403.7.7.1 Where required. 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 each separate sleeping area in the immediate vicinity of the bedrooms(s) as directed by the alarm manufacturer.
403.7.7.2 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.

(Add Section to Chapter 4)
404.7. Carbon monoxide detection. Carbon monoxide detection shall be installed in accordance with Section 403.7.

(Add Section to Chapter 6
603.3. Carbon monoxide detection. Carbon monoxide detection shall be installed in accordance with Section 403.7.

(Add Section to Chapter 7)
703.3. Carbon monoxide detection. Carbon monoxide detection shall be installed in accordance with Section 403.7.

(Delete/Add Section to Chapter 8)
~~**804.4.2 Carbon monoxide alarms for detached one- and two-family dwellings and townhouses.**~~
~~Detached one-and two- family dwellings and townhouses requiring a permit for interior work or the replacement or addition of a fuel-fired appliance shall be provided with an approved carbon monoxide alarm installed outside of each separate sleeping area in the immediate vicinity of the bedroom(s).~~
~~**804.4.2.1 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.~~
804.4.2. Carbon monoxide detection. Carbon monoxide detection shall be installed in accordance with Section 403.7.

(Add Section to Chapter 12)
1203.14. Carbon monoxide detection. Carbon monoxide detection shall be installed in accordance with Section 403.7.

(Add Section to Chapter 14)
1401.2.6 Carbon monoxide detection. Group R occupancies and classrooms in Group E occupancies shall be provided with carbon monoxide detection in accordance with Section 403.7.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Fire Code/Inspections - 106

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

***NOTE WELL:* This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.**

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

The citation to the General Statutes for "bed and breakfast" is incorrect. Please correct.

Please include the entirety of the text as published in the 29 NCR 16.

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Fire Code
106 Inspections. (141209 Item B-3)

SECTION 106
INSPECTIONS

In order to preserve and protect public health and safety and to satisfy the requirements of General Statute 153A-364 and General Statute 160A-424, political subdivisions assuming inspection duties, as set out in General Statute 153A-351 and General Statute 160A-411, shall have a periodic inspection schedule for the purpose of identifying activities and conditions in buildings, structures and premises that pose dangers of fire, explosion or related hazards. Such inspection schedule shall be approved by the local governing body and shall be submitted to the Office of State Fire Marshal of the Department of Insurance. In no case shall inspections be conducted less frequently than described in the schedule below:

Once every year
Hazardous, institutional, high-rise assembly except those noted below, and Residential except one- and two family dwellings and only interior common areas of dwelling units of multi-family occupancies.
New and existing lodging establishments, including hotels, motels, and tourist homes that provide accommodations for seven or more continuous days (extended-stay establishments), bed and breakfast inns and bed and breakfast homes as defined in G.S. 30A-247 for the installation and maintenance of carbon monoxide alarms and detectors in accordance with G.S. 143-138(b2).

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Fire Code/Carbon Monoxide Detection - Chapter 2, Section 915, Chapter 47

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

***NOTE WELL:* This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.**

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

Throughout this rule, consider using the oxford comma to separate "sleeping units and classrooms"

The term "approved location" is referenced several times throughout the rule. Please clarify the term or cross-reference another portion of the Code that outlines what qualifies as an "approved location."

In 915.1.4*, add an "or" between the clauses of* 2.1 and 2.2.

In 915.4.3 and 915.5.3*, the Code allows a combination alarm, but there is no reference to a different sound, as required by G.S. 143-138(b2)(1). Please clarify.*

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Fire Code
Chapter 2, Section 915, Chapter 47 Carbon Monoxide Detection. (141209 Item B-4)

[Note: Section 908.7, Carbon Monoxide Alarms has been incorporated into this Rule.]

(Add the following definition to)
SECTION 202
GENERAL DEFINITIONS

[B] PRIVATE GARAGE. A building or portion of a building in which motor vehicles used by the tenants of the building or buildings on the premises are stored or kept, without provisions for repairing or servicing such vehicles for profit.

SECTION 915
CARBON MONOXIDE DETECTION

915.1 General. Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1.1 through 915.6.

915.1.1 Where required. Carbon monoxide detection shall be provided in Group I-1, I-2, I-4 and R occupancies and in classrooms in Group E occupancies in the locations specified in Section 915.2 where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

915.1.2 Fuel-burning appliances and fuel-burning fireplaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms that contain a fuel-burning appliance or a fuel-burning fireplace.

915.1.3 Forced air furnaces. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms served by a fuel-burning, forced air furnace.
Exception: Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms where carbon monoxide detection is provided in the first room or area served by each main duct leaving the furnace, and the carbon monoxide alarm signals are automatically transmitted to an approved location.

915.1.4 Fuel-burning appliances outside of dwelling units, sleeping units and classrooms. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms located in buildings that contain fuel-burning appliances or fuel-burning fireplaces.
Exceptions:
1. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms if there are no communicating openings between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms if carbon monoxide detection is provided in one of the following locations:
2.1 In an approved location between the fuel-burning appliance or fuel-burning fireplace and the dwelling unit, sleeping unit or classroom.
2.2 On the ceiling of the room containing the fuel-burning appliance or fuel-burning fireplace.

915.1.5 Private garages. Carbon monoxide detection shall be provided in dwelling units, sleeping units and classrooms in buildings with attached private garages.
Exceptions:
1. Carbon monoxide detection shall not be required where there are no communicating openings between the private garage and the dwelling unit, sleeping unit or classroom.
2. Carbon monoxide detection shall not be required in dwelling units, sleeping units and classrooms located more than one story above or below a private garage.
3. Carbon monoxide detection shall not be required where the private garage connects to the building through an open-ended corridor.

4. Where carbon monoxide detection is provided in an approved location between openings to a private garage and dwelling units, sleeping units or classrooms, carbon monoxide detection shall not be required in the dwelling units, sleeping units or classrooms.

915.1.6 Exempt garages. For determining compliance with Section 915.1.5, an open parking garage complying with Section 406.5 of the International Building Code or an enclosed parking garage complying with Section 406.6 of the International Building Code shall not be considered a private garage.

915.2 Locations. Where required by Section 915.1.1, carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.3.

915.2.1 Dwelling units. Carbon monoxide detection shall be installed in dwelling units outside of each separate sleeping area in the immediate vicinity of the bedrooms. Where a fuel-burning appliance is located within a bedroom or its attached bathroom, carbon monoxide detection shall be installed within the bedroom.

915.2.2 Sleeping units. Carbon monoxide detection shall be installed in sleeping units.
Exception: Carbon monoxide detection shall be allowed to be installed outside of each separate sleeping area in the immediate vicinity of the sleeping unit where the sleeping unit or its attached bathroom does not contain a fuel-burning appliance and is not served by a forced air furnace.

915.2.3 Group E occupancies. Carbon monoxide detection shall be installed in classrooms in Group E occupancies. Carbon monoxide alarm signals shall be automatically transmitted to an on-site location that is staffed by school personnel.
Exception: Carbon monoxide alarm signals shall not be required to be automatically transmitted to an on-site location that it staffed by school personnel in Group E occupancies with an occupant load of 30 or less.

915.3 Detection equipment. Carbon monoxide detection required by Sections 915.1 through 915.2.3 shall be provided by carbon monoxide alarms complying with Section 915.4 or with carbon monoxide detection systems complying with Section 915.5.

915.4 Carbon monoxide alarms. Carbon monoxide alarms shall comply with Sections 915.4.1 through 915.4.3.

915.4.1 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than that required for overcurrent protection.
Exception: Where installed in buildings without commercial power, battery-powered carbon monoxide alarms shall be an acceptable alternative.

915.4.2 Listings. Carbon monoxide alarms shall be listed in accordance with UL 2034.

915.4.3 Combination alarms. Combination carbon monoxide/smoke alarms shall be an acceptable alternative to carbon monoxide alarms. Combination carbon monoxide/smoke alarms shall be listed in accordance with UL 2034 and UL 217.

915.5 Carbon monoxide detection systems. Carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide alarms and shall comply with Sections 915.5.1 through 915.5.3.

915.5.1 General. Carbon monoxide detection systems shall comply with NFPA 720. Carbon monoxide detectors shall be listed in accordance with UL 2075.

915.5.2 Locations. Carbon monoxide detectors shall be installed in the locations specified in Section 915.2. These locations supersede the locations specified in NFPA 720.

915.5.3 Combination detectors. Combination carbon monoxide/smoke detectors installed in carbon monoxide detection systems shall be an acceptable alternative to carbon monoxide detectors, provided they are listed in accordance with UL 2075 and UL 268.

915.6 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with NFPA 720. Carbon monoxide alarms and carbon monoxide detectors that become inoperable or begin producing end-of-life signals shall be replaced.

(Revise Chapter 47 as follows)
NFPA 720 – ~~09 –~~ 12

The delayed effective date of this Rule is January 1, 2016.
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 915, 2012 NC Fuel Gas Code, Section 311.4, and 2012 NC Mechanical Code, Section 313.4, Carbon Monoxide Detection.]

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Fuel Gas Code/CSST - 310.1.1, Chapter 8

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

***NOTE WELL:* This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.**

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

> *The term "piping" was italicized when published in the Register. Is that significant and should the term be italicized? Please clarify.*

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Fuel Gas Code
310.1.1, Chapter 8 CSST. (141209 Item B-11)

310.1.1 CSST. Corrugated stainless steel tubing (CSST) gas piping 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.
CSST with an arc-resistant jacket listed by an approved agency for installation without the direct bonding, as prescribed in this section, shall be installed in accordance with Section 310.1 and the manufacturer's installation instructions.

(Chapter 8, Revise the Standard Name and Date)
~~ANSI LC 1-97 Interior Gas Piping Systems Using Corrugated Stainless Steel Tubing with Addenda LC1a-1999 and LC1b-2001~~
ANSI LC 1-2014/CSA 6.26b Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing (CSST)

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

2012 NC Plumbing Code
715.1 Sewage Backflow. (141209 Item B-5)

715.1 Sewage backflow. ~~Where the flood level rims of plumbing fixtures are~~ Where plumbing fixtures are installed on a floor with a finished floor elevation below the elevation of the manhole cover of the next upstream manhole in the *public sewer*, such fixtures shall be protected by a backwater valve installed in the *building drain*, *branch* of the *building drain* or horizontal *branch* serving such fixtures. ~~Plumbing fixtures having flood level rims above the~~ Plumbing fixtures installed on a floor with a finished floor elevation above the elevation of the manhole cover of the next upstream manhole in the *public sewer* shall not discharge through a backwater valve.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Residential Code/Cross-Laminated Timber - Ch. 2, R502.1.6, R502.8.2, R506.1.3, R802.1.5, Ch. 44

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

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In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

> *In* R502.1.6, R602.1.3, and R802.1.5, *the phrase used is "manufactured and identified as required by…" In prior amendment* 2303.1.4, *the phrase is "manufactured and identified in accordance with …" The language is inconsistent. Was the inconsistency intentional? If not, please use consistent terms.*
>
> *In* R802.7.2*, consider adding an oxford comma after "timber members"*

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

2012 NC Residential Code
Ch. 2, R502.1.6, R502.8.2, R602.1.3, R802.1.5, Ch. 44 Cross-Laminated Timber. (141209 Item B-1)

(*Add a definition in Chapter 2)*
CROSS-LAMINATED TIMBER. A prefabricated engineered wood product consisting of not less than three layers of solid-sawn lumber or *structural composite lumber* where the adjacent layers are cross oriented and bonded with structural adhesive to form a solid wood element.

(*Revise as follows)*
R502.1.6 Cross-laminated timber. Cross-laminated timber shall be manufactured and identified as required by ANSI/APA PRG 320.

(*Revise as follows)*
R502.8.2 Engineered wood products. Cuts, notches and holes bored in trusses, structural glue-laminated members, cross-laminated timber members or I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

(Revise as follows)
R602.1.3 Cross-laminated timber. Cross-laminated timber shall be manufactured and identified as required by ANSI/APA PRG 320.

~~**R602.1.3**~~ **R602.1.4 Structural log members.** *(no change, only renumbering)*

(*Revise as follows)*
R802.1.5 Cross-laminated timber. Cross-laminated timber shall be manufactured and identified as required by ANSI/APA PRG 320.

~~**R802.1.5**~~ **R802.1.6 Structural log members.** *(no change, only renumbering)*

(Revise as follows)
R802.7.2 Engineered wood products. Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-laminated, cross-laminated timber members or I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a *registered design professional*.

(Add to Chapter 44 under APA)
ANSI/APA PRG 320-2012 Standard for Performance-rated Cross Laminated Timber ……R502.1.6, R602.1.3, R802.1.5

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.

REQUEST FOR TECHNICAL CHANGE

AGENCY: Building Code Council

RULE CITATION: 2012 NC Residential Code/Fenestration - N1102

DEADLINE FOR RECEIPT: Wednesday, August 12, 2015

***NOTE WELL:* This request when viewed on computer extends several pages. Please be sure you have reached the end of the document.**

The Rules Review Commission staff has completed its review of this rule prior to the Commission's next meeting. The Commission has not yet reviewed this rule and therefore there has not been a determination as to whether the rule will be approved. You may call this office to inquire concerning the staff recommendation.

In reviewing these rules, the staff determined that the following technical changes need to be made. Approval of any rule is contingent upon making technical changes as set forth in G.S. 150B-21.10.

Paragraphs l and m were not underlined when published in the Register. Please clarify if this is new or old text in the Code.

In paragraph e, what is the purpose of the comma after "compliance method"? Is it necessary?

In paragraph e, consider the deleting the end clause of ", as applicable."

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

Abigail M. Hammond
Commission Counsel
Date submitted to agency: Tuesday, July 28, 2015

TABLE N1102.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENTa

CLIMATE ZONE	FENESTRATION U-FACTOR b,l	SKYLIGHTb U-FACTOR	GLAZED FENESTRATION SHGC b,e, m	CEILING R-VALUE k	WOOD FRAME WALL R-VALUE e	MASS WALL R-VALUE i	FLOOR R-VALUE	BASEMENTc WALL R-VALUE	SLABd R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE c
3	0.35	0.65	0.30	30	13	5/10	19	10/13f	0	5/13
4	0.35	0.60	0.30	38 or 30 cont. j	15, 13+2.5h	5/10	19	10/13	10	10/13
5	0.35	0.60	NR	38 or 30 cont. j	19, 13+5, or 15+3eh	13/17	30g	10/13	10	10/13

l. In addition to the exemption in Section N1102.3.3, a maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

m. In addition to the exemption in Section N1102.3.3, a maximum of two glazed fenestration product assemblies having a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

TABLE N1102.1.2
EQUIVALENT U-FACTORSa

CLIMATE ZONE	FENESTRATION U-FACTOR e	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR d	CRAWL SPACE WALL U-FACTOR c
3	0.35	0.65	0.035	0.082	0.141	0.047	0.059	0.136
4	0.35	0.60	0.030	0.077	0.141	0.047	0.059	0.065
5	0.35	0.60	0.030	0.061	0.082	0.033	0.059	0.065

e. A maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 and a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty. When applying this note and using the REScheck "UA Trade-off" compliance method, to allow continued use of the software, the applicable fenestration products shall be modeled as meeting the U-factor of 0.35 and the SHGC of 0.30, as applicable, but the fenestration products actual U-factor and actual SHGC shall be noted in the comments section of the software for documentation of application of this note to the applicable products. Compliance for these substitute products shall be verified compared to the allowed substituted maximum U-value requirement and maximum SHGC requirement, as applicable.

N1102.3.5 Thermally isolated conditioned sunroom *U*-factor and SHGC. The maximum fenestration *U*-factor shall be 0.40 and the maximum skylight *U*-factor shall be 0.75. Sunrooms with cooling systems shall have a maximum fenestration SHGC of 0.40 for all glazing.

New windows and doors separating the sunroom from conditioned space shall meet the building thermal envelope requirements. Sunroom additions shall maintain thermal isolation; and shall be served by a separate heating or cooling system, or be thermostatically controlled as a separate zone of the existing system.

Exception: A maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 and, when cooling is provided, a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

N1102.5 Maximum fenestration *U*-factor and SHGC. The area-weighted average maximum fenestration *U*-factor permitted using trade-offs from Section 1102.1.3 shall be 0.40. Maximum skylight *U*-factors shall be 0.65 in zones 4 and 5 and 0.60 in zone 3.
Exception: A maximum of two glazed fenestration product assemblies having a U-factor no greater than 0.55 and a SHGC no greater than 0.70 shall be permitted to be substituted for minimum code compliant fenestration product assemblies without penalty.

The delayed effective date of this Rule is January 1, 2016.
The Statutory authority for Rule-making is G. S. 143-136; 143-138.