



APPENDIX C
CODE CHANGE PROPOSAL
NORTH CAROLINA
BUILDING CODE COUNCIL

B-5

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Petition for Rule Making

Item Number _____

Granted by BCC _____
Denied by BCC _____

Adopted by BCC _____
Disapproved by BCC _____

Approved by RRC _____
Objection by RRC _____

PROPONENT: Dan Dittman _____ PHONE: (919) 647-0012
REPRESENTING: NCOSFM – Building Code Council Staff _____
ADDRESS: 1202 Mail Service Center _____
CITY: Raleigh _____ STATE: NC _____ ZIP: 27699 _____
E-MAIL: dan.dittman@ncdoi.gov _____ FAX: () - _____

North Carolina State Building Code, Volume 2018 NC Energy Conservation Code – Section
R402.2.2.1, R402.2.2.2, Table R402.1.2 and R402.1.4.

CHECK ONE: [X] Revise section to read as follows: [] Delete section and substitute the following:
[] Add new section to read as follows: [] Delete section without substitution:

LINE THROUGH MATERIAL TO BE DELETED UNDERLINE MATERIAL TO BE ADDED

Please type. Continue proposal or reason on plain paper attached to this form. See reverse side for instructions.

See attached for code amendment proposal.

Will this proposal change the cost of construction? Decrease [] Increase [] No [X]
Will this proposal increase to the cost of a dwelling by \$80 or more? Yes [] No [X]
Will this proposal affect the Local or State funds? Local [] State [] No [X]
Will this proposal cause a substantial economic impact (>=\$1,000,000)? Yes [] No [X]

- Non-Substantial – Provide an economic analysis including benefit/cost estimates.
• Substantial – The economic analysis must also include 2-alternatives, time value of money and risk analysis.
• Pursuant to §143-138(a1)(2) a cost-benefit analysis is required for all proposed amendments to the NC Energy Conservation Code. The Building Code Council shall also require same for the NC Residential Code, Chapter 11.

REASON: This amendment is being filed to comply with the requirements of N.C. Sess. L. 2023-108, § 6 (eff. Aug. 16, 2023). As such, the proposal was not vetted for cost of construction, increasing the cost of a dwelling by \$80 or more, affecting Local or State funds, or if it will cause a substantial impact. Likewise, a cost-benefit analysis was not performed because the code change was a directive by the North Carolina General Assembly to codify the language.

BCC CODE CHANGES

Signature: Dan Dittman

Date: 4/24/24 FORM 11/26/19

R402.2.2 Ceilings without attic spaces.

R402.2.2.1 Roof Ceiling Assemblies. Where Section R402.1.2 would require R-38 insulation and the design of the roof/ceiling assembly, including cathedral ceilings, bay windows and other similar areas, does not allow sufficient space for the required insulation, the minimum required insulation for such roof/ceiling assemblies shall be R-30. This reduction of insulation from the requirements of Section R402.1.2 shall be limited to 500 square feet (46 m²) of the total insulated ceiling area. This reduction shall not apply to the U-factor alternative approach in Section R402.1.4 and the total UA alternative in Section R402.1.5.

R402.2.2.2 Unvented attic and unvented enclosed rafter assembly alternate.

Where Table R402.1.2 requires R-38 insulation in the ceiling, or Table R402.1.4 requires a ceiling U-factor of 0.030, installing air-impermeable insulation, as follows, to the underside or directly above the roof deck shall be deemed to satisfy the R-38 requirements: (i) R-20 (equivalent U-factor 0.05) for climate zone 3; (ii) R-25 (equivalent U-factor 0.037) for climate zone 4; and (iii) R-25 (equivalent U-factor 0.037) for climate zone 5. These air-impermeable insulation alternative R-value minimums apply in residences meeting the following criteria:

- (1) The unvented attic or unvented enclosed rafter assemblies are constructed under Section R806.5 of the North Carolina Residential Code.
- (2) The residence contains a mechanical ventilation system that operates on a positive, balanced, or hybrid pressure strategy in accordance with North Carolina Mechanical Code Section 403.3.
- (3) For residences with air-impermeable insulation installed below the roof deck, exposed portions of the roof rafters are wrapped by a minimum of R-3 insulation unless directly covered by drywall or finished ceiling material. For residences with air-impermeable insulation installed above the roof deck, roof rafters do not require insulation wrapping if air-impermeable insulation installed above the roof deck is continuous.
- (4) The residence obtains an ACH50 blower door test result of less than 3.0.
- (5) The residence contains heating, cooling, and ventilation equipment and ductwork within thermal envelope.

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**TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a**

CLIMATE ZONE	FENESTRATION U-FACTOR ^{b,i}	SKYLIGHT ^p U-FACTOR	GLAZED FENESTRATION SHGC ^{b,k}	CEILING R-VALUE ^{m,n}	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^{c,o} WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE
3	0.35	0.55	0.30	38 or 30ci ^l	15 or 13+2.5 ^h	5/13 or 5/10ci	19	5/13 ^f	0	5/13
4	0.35	0.55	0.30	38 or 30ci ^l	15 or 13+2.5 ^h	5/13 or 5/10ci	19	10/15	10	10/15
5	0.35	0.55	NR	38 or 30ci ^l	19 ⁿ or 13+5 ^h or 15+3 ^h	13/17 or 13/12.5ci	30 ^g	10/15	10	10/19

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p. Alternately, per North Carolina General Assembly Session Law 2023-108, Section 6 (effective 8/16/23), unvented attic and unvented enclosed rafter assemblies can utilize R402.2.2.2 where the assembly can comply with the criteria listed under R402.2.2.2.

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**TABLE R402.1.4
EQUIVALENT U-FACTORS^a**

CLIMATE ZONE	FENESTRATION U-FACTOR ^d	SKYLIGHT U-FACTOR	CEILING U-FACTOR ^e	FRAME WALL U-FACTOR	MASS WALL U-FACTOR ^b	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL U-FACTOR
3	0.35	0.55	0.030	0.077	0.141	0.047	0.091 ^c	0.136
4	0.35	0.55	0.030	0.077	0.141	0.047	0.059	0.065
5	0.35	0.55	0.030	0.061	0.082	0.033	0.059	0.065

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e. Alternately, per North Carolina General Assembly Session Law 2023-108, Section 6 (effective 8/16/23), unvented attic and unvented enclosed rafter assemblies can utilize R402.2.2.2 where the assembly can comply with the criteria listed under R402.2.2.2.