



MIKE CAUSEY
INSURANCE COMMISSIONER

BRIAN TAYLOR
STATE FIRE MARSHAL

July 15, 2024

Ms. Emily Boyd
Mountain Sun Building & Design, LLC
5 Lackey Lane
Asheville, NC 28804

RE: 2018 NCRC Section R317.1 Location required.

Ms. Boyd:

This letter is in response to your request for a formal interpretation from the Office of State Fire Marshal ("OSFM"). Requests are addressed below in the order in which they are posed.

Stated in relevant parts:

"We are requesting interpretation of the requirement in R317.1 that porches be made entirely of "naturally durable wood" or pressure treated pine. R202 Definitions includes a very narrow list of naturally durable woods. For decay resistance, it only includes redwood, cedar, black locust and black walnut. We have lumber that we milled from old growth white oak that we were planning to use as decking on a deep covered porch. It will be coated on all sides with a sealer and held off the joists with clips in grooves so that there are no holes in the oak itself and air flow completely around all sides of each board. We did a lot of research on this prior to deciding to use our white oak for decking and found that white oak is widely considered to be extremely rot resistant. Some sources have it listed as more resistant than cedar and black walnut. It seems there should be some more data driven approach to approving wood as "naturally durable". I also don't understand how so many decks and porches are built with tropical hardwoods (ipe, cumaru, teak, etc) that are not on this list if we can't use a local hardwood that is naturally durable but just happens not to have been included on the list."

Background and commentary:

Attachment A is comprised of the request for formal interpretation as well as all supporting information submitted with the request.

Code Analysis: Section R101.2.2 #1 and Section R507 of the 2018 NC Residential Code (NCRC) notes that the code provisions applicable to decks are in Appendix M. Section AM107.1 notes the minimum code requirements for floor decking used on decks. No. 2 treated Southern Pine or equivalent is required for the structural strength and appearance of floor decking used on decks. Table AM107.1 notes the minimum floor decking thickness required based on structural floor member girder and joist spacing beneath the floor decking. Section R317.1 #8 notes the minimum code requirements for decay protection of floor decking used on decks. The use of "naturally durable wood" or wood that is preservative-treated in accordance with AWPA U1 for the species, product, preservative and end use shall be used for floor decking used on decks. "Naturally Durable Wood" is defined in Chapter 2. Within the definition of "Naturally Durable Wood", the minimum code requirements for the species of heartwood that are decay resistant and termite resistant is listed. Section 105

OFFICE OF STATE FIRE MARSHAL

of the 2018 NC Administrative Code and Policies describes the process by which alternate materials, design or methods of construction may be approved by the code enforcement official for a specific project.

R101.2.2 Accessory structures. Only the following *accessory structures* shall meet the provisions of this code.

1. Decks, see Appendix M,
2. Gazebos,
3. Retaining walls, see Section R404.4,
4. Detached masonry chimneys located less than 10 feet (3048 mm) from other buildings or lot lines,
5. Swimming pools and spas, see Appendix V,
6. Detached carports,
Exception: Portable lightweight carports not exceeding 400 square feet (37 m²) or 12 foot (3658 mm) mean roof height.
7. *Docks, piers, bulkheads,* and waterway structures, see Section R327.

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**Section R507
Exterior Decks**

Deleted. See Appendix M.

....

**Section AM107
Floor Decking**

AM107.1 Floor decking. Floor decking shall be No. 2 grade treated Southern Pine or equivalent. The minimum floor decking thickness shall be in accordance with Table AM107.1.

**TABLE AM107.1
FLOOR DECKING THICKNESS**

SPACING	DECKING (nominal)
12" o.c.	1" S4S
16" o.c.	1" T&G
19.2" o.c.	1 ¹ / ₄ " S4S
24"-36" o.c.	2" S4S

For SI: 1 inch = 25.4, 1 foot = 304.8 mm.

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R317.1 Location required. Protection of wood and wood-based products from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative-treated in accordance with AWPA U1 for the species, product, preservative and end use. Preservatives shall be listed in Section 4 of AWPA U1.

1. Wood joists or the bottom of a wood structural floor when closer than 18 inches (457 mm) or wood girders when closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated area located within the periphery of the building foundation.
2. Wood framing members that rest on concrete or masonry exterior foundation walls.
3. Sills and sleepers on a concrete or masonry unless the slab that is in direct contact with the ground is separated from the ground by an impervious moisture barrier.
4. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 1/2 inch (12.7 mm) on tops, sides and ends.
5. Wood siding and sheathing on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground.
6. Wood structural members supporting moisture-permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
7. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below *grade* except where an *approved* vapor retarder is applied between the wall and the furring strips or framing members.
8. All portions of a porch, screen porch or deck from the bottom of the header down, including posts, guardrails, pickets, steps, and floor structure. Coverings that would prevent moisture or water accumulation on the surface or at joints between members are allowed.

Exception: Columns complying with Section R317.1.4, Exception 3.

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[RB] NATURALLY DURABLE WOOD. The heartwood of the following species with the exception that an occasional piece with corner sapwood is permitted if 90 percent or more of the width of each side on which it occurs is heartwood.

Decay resistant. Redwood, cedar, black locust and black walnut.

Termite resistant. Alaska yellow cedar, redwood, Eastern red cedar and Western red cedar including all sapwood of Western red cedar.

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**SECTION 105
ALTERNATE MATERIAL, DESIGN OR METHODS**

105.1 Approval. The provisions of this code are intended to allow the use of any alternate material, design or method of construction, provided that the alternate has been approved by the code enforcement official. An alternative material, design or method of construction shall be approved where the code enforcement official finds that the proposed alternative material, design or method of construction complies with the intent and provisions of the technical codes.

Commentary: The technical codes are not intended to inhibit innovative ideas or technological advances. A comprehensive regulatory document, such as the North Carolina Building Codes, cannot envision and then address all future innovations in the industry. As a result, a performance code must be applicable to and provide a basis for the approval of an increasing number of newly developed, innovative materials, systems and methods for which no code text or referenced standards yet exist. The fact that a material, product or method of construction is not addressed in the technical codes is not an indication that such material, product or method is intended to be prohibited. The code enforcement official is expected to apply sound technical judgment in accepting materials, systems or methods that, while not anticipated by the drafters of the current code text, can be demonstrated to offer equivalent performance. By virtue of its text, the code regulates new and innovative construction practices while addressing the relative safety of building occupants. The code enforcement official is responsible for determining if a requested alternative provides the equivalent level of protection of public health, safety and welfare as required by the code.

105.2 Tests or analysis. Whenever there is insufficient evidence of compliance with the provisions of the technical codes, or evidence that a material, design or method does not conform to the requirements of the technical codes, or in order to substantiate claims for an alternative material, design or method, the code enforcement official shall have the authority to require tests as evidence of compliance to be made at no expense to the authority having jurisdiction. Test methods shall be as specified in the technical codes or by other recognized test standards. In the absence of recognized and accepted test methods, the code enforcement official shall approve the testing procedures.

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Conclusions: The proposed use of milled and sealed old growth white oak for the decking of a deep covered porch does not meet the prescriptive requirements of the 2018 NC Residential Code (NCRC) for structural strength and appearance and decay protection. The NC Office of State Fire Marshal has interpreted previously to the public via a web interpretation that ungraded lumber may be used as an alternate material if the timber is cut from the owner's land, the structure is occupied by the owner or a member of the owner's immediate family for a period of at least one year after the Certificate of Occupancy is issued, the lumber moisture content is 19 percent or less at the time of construction, the lumber is air-dried for 90 days or is kiln dried, and the owner contacts the code enforcement official before the timber is cut to verify the source and use of the timber. This web interpretation may be applied in the proposed use of milled and sealed old growth white oak for the decking of a deep covered porch if the criteria outlined in the web interpretation is followed and the structural strength and appearance and decay protection qualities of the material meet or exceed the intent of the 2018 NCRC code sections referenced in this letter. A copy of the web interpretation is included in Attachment A. For instances in which the ungraded lumber is already cut from the owner's land or is provided from another source, the approval of the proposed use of ungraded lumber requires the owner or permit holder to demonstrate to the code enforcement official using the alternate materials approval procedures outlined in Section 105 of the 2018 NC Administrative Code and Policies that the intent of the code is met or

exceeded. Since the proposed ungraded lumber (old growth white oak) has already been milled, the web interpretation is not applicable thus approval of the proposed use of milled and sealed old growth white oak for the decking of a deep covered porch requires the owner or permit holder to demonstrate to the code enforcement official using the alternate materials approval procedures outlined in Section 105 of the 2018 NC Administrative Code and Policies that the intent of the code is met or exceeded. As part of this alternative material procedure, a stamp from an accredited lumber grading bureau and material information from the American Wood Council may be used to demonstrate that the proposed use of milled and sealed old growth white oak for the decking of a deep covered porch meets or exceeds the intent of the 2018 NCRC code sections referenced in this letter concerning structural strength and appearance and decay protection qualities. Only a sealant approved using the alternate materials approval procedures outlined in Section 105 of the 2018 NC Administrative Code and Policies may be used to substitute for the prescriptive decay code requirements.

Sincerely,

A handwritten signature in black ink that reads "D.B. Rittlinger". The signature is written in a cursive, flowing style.

David B. Rittlinger, PE, LEED AP
Division Chief – Codes & Interpretations
North Carolina Office of State Fire Marshal

cc: Bridget Herring, Chair – BCC
 Mark Matheny, Vice-Chair – BCC
 Rob Howard, Chair, Residential Super Committee - BCC
 Nathan Childs, Esq., NCDOJ, counsel for NC Building Code Council, nchilds@ncdoj.gov

ATTACHMENT A



APPENDIX E
APPEALS
NORTH CAROLINA
BUILDING CODE COUNCIL
325 North Salisbury Street, Room 5_44
Raleigh, North Carolina 27603
(919) 647-0095

APPEAL TO NCDOI/NCBCC Hearing Date ___/___/___
GS 153A-374, GS 160A-434 GS 143-140, GS 143-141
Formal Interpretation by NCDOI Appeal of Local Decision to NCBCC
Appeal of Local Decision to NCDOI Appeal of NCDOI Decision to NCBCC

APPELLANT Emily Boyd PHONE (828) 713 - 0549 x
REPRESENTING Mountain Sun Building & Design, LLC
ADDRESS 5 Lackey Lane
CITY Asheville STATE NC ZIP 28804
E-MAIL emily@mountainsunbuilding.com FAX () -

North Carolina State Building Code, Volume 2018 Residential - Section R317.1 and R202

REQUEST ONE: [X] Formal Interpretation by NCDOI [] Appeal of Local Decision to NCBCC
[] Appeal of Local Decision to NCDOI [] Appeal of NCDOI Decision to NCBCC

Type or print. Include all background information as required by the referenced General Statutes and the attached policies. Attach additional supporting information.

We are requesting interpretation of the requirement in R317.1 that porches be made entirely of "naturally durable wood" or pressure treated pine. R202 Definitions includes a very narrow list of naturally durable woods. For decay resistance, it only includes redwood, cedar, black locust and black walnut. We have lumber that we milled from old growth white oak that we were planning to use as decking on a deep covered porch. It will be coated on all sides with a sealer and held off the joists with clips in grooves so that there are no holes in the oak itself and air flow completely around all sides of each board. We did a lot of research on this prior to deciding to use our white oak for decking and found that white oak is widely considered to be extremely rot resistant. Some sources have it listed as more resistant than cedar and black walnut. It seems there should be some more data driven approach to approving wood as "naturally durable". I also don't understand how so many decks and porches are built with tropical hardwoods (ipe, cumaru, teak, etc) that are not on this list if we can't use a local hardwood that is naturally durable but just happens not to have been included on the list.

REASON:

Signature Emily Boyd

APPEAL TO NCDOI/NCBCC
DATE: 6/28/2023 FORM 3/14/17

202.9 Appeals

202.9.1 Engineering Division. A written technical interpretation shall be provided as specified in Section 203.2.1.2. Any person may appeal in writing an order, decision, or determination pertaining to the code or any state building law by filing written notice with the Commissioner of Insurance or his designee within ten (10) days after the order, decision, or determination. A copy of the appeal shall be furnished to each party.
(General Statutes 143-140, 153A-374 and 160A-434)

203.2.1 Interpretations

203.2.1.1 Informal Interpretations. The Engineering Division shall provide informal interpretations on code related matters either by e-mail, letter or telephone. These informal interpretations may be accepted by the local code enforcement official or party requesting the interpretation. Either party may request a formal interpretation of the code.

203.2.1.2 Formal Interpretations. Any person may request in writing a formal interpretation of the code. The request shall be addressed to the Chief Code Consultant for the Department of Insurance. The request shall be specific and shall reference the code sections in question. All formal interpretations shall be in writing. A formal interpretation shall be binding on all parties unless appealed to the Building Code Council as specified in Section 201.9.2. Formal interpretations determined to be of a general nature may be posted on the Department website. (General Statute 143-140)

203.2.2 Appeals. Any person may appeal in writing an order, decision, or determination of a code enforcement official pertaining to the code or any state building law. The appeal shall be addressed to the Chief Engineer for the Department of Insurance by filing written notice within ten (10) days after the order, decision, or determination. The appeal shall contain the type and size of the building in question, the location of the building, and shall reference the code sections in question. The decision shall be in writing and shall set forth the facts found. The decision rendered shall be based on the technical provisions of the code, public health and safety and shall be construed liberally to those ends. A decision shall be binding on all parties unless appealed to the Building Code Council as specified in Section 201.9.2. A copy of the appeal and written decision shall be furnished to each party. (General Statutes 153A-374 and 160A-434)

202.9.2 Building Code Council. The Building Code Council shall hear appeals from the decisions of State enforcement agencies relating to any matter related to the code. Any person wishing to appeal a decision of a State enforcement agency to the Building Code Council shall give written notice of appeal as follows:

202.9.2.1 Twenty one (21) copies including an original of the Notice of Appeal shall be filed with the Building Code Council c/o NC Department of Insurance, Engineering Division, 325 North Salisbury Street, Room 5_44, Raleigh, NC 27603 and one (1) copy shall be filed with the State enforcement agency from which the appeal is taken.

202.9.2.2 The Notice of Appeal shall be received no later than thirty (30) days from the date of the decision of the State enforcement agency.

202.9.2.3 The Notice of Appeal shall be legibly printed, typewritten or copied and shall contain the following:

- (1) Name, address of the party or parties requesting the appeal.
- (2) The name of the State enforcement agency, the date of the decision from which the appeal is taken, and a copy of the written decision received from the enforcement agency.
- (3) The decision from which the appeal is taken shall be set forth in full in the Notice of Appeal or a copy of the decision shall be attached to all copies of the Notice of Appeal.
- (4) The contentions and allegations of fact must be set forth in full in a clear and concise manner with reference to the sections of the code in controversy.
- (5) The original Notice of Appeal shall be signed by the party or parties filing appeal.
- (6) The Notice of Appeal shall be received by the first day of the month prior to the Building Code Council's quarterly scheduled meeting in order to be placed on the agenda for that meeting. The Chairman may schedule a special meeting to hear an appeal.

202.9.2.4 Upon the proper filing of the Notice of Appeal, the Building Code Council Secretary shall forward one (1) copy of the Notice of Appeal to each member of the Building Code Council. The Chairman may appoint a Hearing Committee to hear appeals. The Secretary shall send notice in writing to the party or parties requesting an appeal and to the Building Code Council Hearing Committee members at least fifteen (15) days prior to the Hearing Committee meeting. A written decision of the Hearing Committee meeting shall be provided to all Building Code Council Members. The actions of the Hearing Committee shall be final, unless appealed to the full Building Code Council in writing within 30 days of the Hearing Committee's action. If a Hearing Committee consists of at least seven Council members, it will constitute a quorum of the full Council. Further appeals shall be as specified in Section 202.9.3.

202.9.2.5 The Building Code Council shall, upon a motion of the State enforcement agency or on its own motion, dismiss appeals for the following reasons:

- (1) Not pursued by the appellant or withdrawn;
- (2) Appeal not filed in accordance with these rules; or
- (3) Lack of jurisdiction.

202.9.2.6 When the Building Code Council finds that a State enforcement agency was in error in its interpretation of the code, the Building Code Council shall remand the case to the agency with instructions to take such actions as the Building Code Council directs. When the Building Code Council finds on appeal that materials or methods of construction proposed are equivalent to those required by the code, the Building Code Council shall remand the case to the State enforcement agency with instructions to permit the use of such materials or methods of construction. The Building Code Council shall immediately initiate procedures for amending the code to permit the use of such materials or methods of construction.

202.9.2.7 The Building Code Council shall provide a written decision setting forth the findings of fact and the Building Code Council's conclusions to each party or parties filing the appeal and to the State enforcement agency from which the appeal was taken.

202.9.3 Superior Court. Whenever any person desires to appeal a decision of the Building Code Council or a decision of a State or local enforcement agency, he may appeal either to the Wake County Superior Court or the Superior Court of the county in which the proposed building is to be situated in accordance with the provisions of Chapter 150B of the General Statutes.
(General Statute 143-141(d))

**NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
1202 Mail Service Center, Raleigh, NC 27699-1202
919-647-0000**

Ungraded Lumber

Code: 2018 Residential Code

Date: May 2, 2019

Section: R602.1.1

Question:

Can ungraded lumber be used if the lumber is cut from the homeowner's site?

Answer:

Yes, as an alternate material and method according to Section 105 of the 2018 Administrative Code. Ungraded, unstamped lumber may be used for the construction of a house or accessory building on the owner's land if:

1. The timber is cut from the owner's land.
2. The structure shall be occupied by the owner or a member of his immediate family for a period of at least one year after the Certificate of Occupancy is issued.
3. The lumber shall meet the 19 percent moisture content requirement at the time of construction. The lumber must be air dried for 90 days or kiln dried.
4. The homeowner contacts the local building inspection department before the timber is cut to verify the source and use of the timber.