

**Fiscal Note for
Amendment to 2024 NC Administrative Code Section 107 to add Sheathing Inspections**

Agency: NC Building Code Council

Statute: G.S. 143-136; 143-138

Contact: David Rittlinger
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Impact:	Federal Government	No
	State Government	No
	Local Government	No
	Small Businesses:	No (minimal)
	Substantial Impact:	Yes [§ 150B-21.4(b1)]
	Dwelling \$80.00 Increase	Yes [§ 143-138(a1)(1)]

Purpose:

The 2024 edition of NC Administrative Code and Policies is to direct building inspection departments, builders, and the general public regarding standard procedures and NC statutory requirements for safe construction in the state. “Sheathing inspections” is then included as a requirement to safely construct structures where the sheathing is an integral part of the lateral live load resistance system. Lateral resistance refers to a building’s ability to withstand wind and seismic forces without collapsing.

Impact:

Federal Government: Federal buildings are not regulated by the state; so, there is no impact to such buildings.

State Government: State buildings are inspected by the designer in principal charge of the construction and are not subject to the list of inspections listed in NC Administrative Code and Policies Section 107.

Local Government: Cost to local government associated with this amendment are recovered through permit fees.

Small Businesses: The impact to small businesses is tied to permit cost increases imposed by local code enforcement agencies.

Dwellings: The impact to dwelling is tied to permit cost increases imposed by local code enforcement agencies.

Impact Analysis:

The amendment only applies to structural sheathing resisting lateral live loads such as wind and seismic events in new construction. The amendment is limited to commercial buildings that use sheathing for lateral load resistance and for detached one- and two-family dwellings and townhouses constructed in 140

mph wind zones or higher. The inspection is verifying that the sheathing is installed as required either by the codes or to the engineered design drawings to resist the applicable lateral live loads. Typically sheathing is only used as a lateral load resistance system for wood structures. When sheathing is part of the lateral live load resistance system for commercial construction the sheathing inspection is typically performed in conjunction with the framing inspection; so, this amendment adds minimal cost to commercial construction. Currently sheathing inspections are not part of the inspections for detached one- and two-family dwellings and townhouses even though sheathing is an integral part of the lateral live load resistance system in those structures. This analysis, therefore, only addresses the impact to the construction of detached one- and two-family dwellings and townhouses.

According to the U.S. Census Bureau, the average size of a single-family unit built in the southern U.S. in 2022 was 2,536 sf.¹ Information from local NC code enforcement agencies indicates that a sheathing inspection for a dwelling of this size takes an average of 2 hours.

Based on \$75.00 per hour labor and two hours to provide a sheathing inspection, the cost of the inspection is \$150.00 per dwelling. The building inspector compensation information of \$75.00 per hour includes salary plus benefits and was derived from Mecklenburg County Code Enforcement Agency information. Actual compensation will vary by local jurisdiction, so this cost should be considered an approximation.

This cost only applies in counties that have a wind speed of 140mph or greater. Twenty-five of the 100 North Carolina counties have winds speeds of 140 mph or greater per 2024 NC Residential Code, Table R301.2(4). The majority of these counties are east of I-95. Some are in western NC but the amendment only applies where the mountain elevations are 3,500 feet above sea level or higher. It is expected that this added cost will be forwarded on to the building permit applicant and then on to the homebuyer.

Year	2024	2025	2026	2027	2028	5-year NPV
SF Housing Starts, Total (Thousands) ²	61.6	62.7	62.4	61.7	61.6	
25% of Total, Affected (Thousands)	15.4	15.7	15.6	15.4	15.4	
Sheathing Inspection Cost per SF Dwelling ³	\$150	\$150	\$150	\$150	\$150	
Total Estimated Cost (\$M)	\$2.3	\$2.4	\$2.3	\$2.3	\$2.3	\$9.54⁴

Table 1 shows the total estimated cost of the proposed amendment for years 2024-2028. This estimate was based on the projected number of single-family housing starts for North Carolina for those years. It was assumed that housing starts will be evenly distributed across the 25 affected counties.

Risk and Uncertainties:

There are several uncertainties related to this analysis due to assumptions made or lack of available data. First, the estimated labor costs use average house size data for the southern states in aggregate as a proxy

¹ [quarterly_starts_completions_cust.xls \(census.gov\), Table Q9](#)

² Housing start forecast data is from the IHS Connect Regional Database, accessed Nov. 30, 2023.

³ Costs have not been adjusted for future changes in labor costs.

⁴ Calculated in 2023 dollars using a 7% discount rate.

for average housing size in North Carolina. It is possible that the average house size in the affected NC counties is either larger or smaller. This could increase or decrease the time required to perform the sheathing inspection, thereby increasing or decreasing the total labor cost.

Second, the compensation rate for inspectors who will perform the work will vary by local jurisdiction. We used the rate for Mecklenburg County as a reasonable approximation for all NC jurisdictions; however, the actual costs could be higher or lower.

Third, the estimates in Table 1 use forecasted housing starts. Forecasts are inherently uncertain, so the actual number of housing starts could be higher or lower. In addition, the forecast data was for the whole of North Carolina and was not broken down by county. For purposes of this analysis, we assumed the number of housing starts was distributed evenly across all 100 counties. This is likely an overestimate because some of the most populous counties in the state with a large portion of the building activity (e.g., Wake, Mecklenburg, Guilford, Forsyth) are not included in the 25 subject counties and will not be impacted by the proposed amendment.

Finally, given the lack of data, benefits are hard to estimate and are not included in this analysis. Ensuring that sheathing is installed in accordance with building code will provide an additional layer of safety just as other inspections provide. As a component of the lateral live load resistance system, sheathing helps to transfer lateral loads to the foundation, thereby preventing damage and building collapse. This is especially critical in high wind conditions. Based on prior phone calls to the DOI Engineering Division the proposed amendment will result in a higher number of homes being constructed in compliance with the building code. As a result, these homes will be less susceptible to damage due to high winds. In turn, this should provide an additional element of protection to the people who reside in those homes. The avoidance of potential damage to property and risk to human life due to the proposed amendment could not be quantified, but these benefits are expected to exceed the sheathing inspection costs.

Alternatives:

The options are to:

- (1) remain at the current level of protection provided by 2024 NC Administrative Code Section 107 which does not require a sheathing inspection. Sheathing is an integral part of the lateral live load resistance system, and requiring inspections helps to ensure that structures are safely built. For this reason, the alternative to not adopt the proposed amendment was rejected.
- (2) adopt the 2024 NC Administrative Code and Policies Section 107 amendment for 17 counties of the state in regions with ultimate wind speeds of 150 miles per hour or greater. Using the same forecasted housing start data as in Table 1, the estimated cost of limiting the proposed amendment to 17 counties is \$6.49M (5-yr NPV)⁵. Recognizing the need to balance the potential risks with the costs and in receiving feedback from the public in high wind regions, the NC Building Code Council rejected the alternative to adopt this limited amendment.

Appendix A:

2024 NC Administrative Code Section 107 amendment.

Appendix B:

Administrative Code Standing Committee Members

⁵ 5-year NPV calculated in \$2023 using 7% discount rate.

ATTACHMENT A

107.1 General. The inspection department shall perform the following inspections:

1. Footing – 107.1.1;
2. Under slab, as appropriate – 107.1.2;
3. Foundation – 107.1.3;
4. Building framing – 107.1.4;
5. Sheathing – 107.1.5;
- ~~6~~ 6. Rough-in ~~107.1.5~~ 107.1.6;
- ~~6~~ 7. Insulation ~~107.1.6~~ 107.1.7;
- ~~7~~ 8. Fire protection ~~107.1.7~~ 107.1.8; and
- ~~8~~ 9. Final ~~107.1.8~~ 107.1.9.

....

107.1.5 Sheathing inspection. Required for structures constructed under the NC Building Code where the exterior sheathing is part of the lateral force resistance system. Required for dwellings constructed under the NC Residential Code in 140 mph wind zones or higher where the exterior sheathing is part of the wall bracing system. Sheathing inspection shall be made during or after the framing inspection, but before the water-resistant barrier and exterior finish is installed.

Commentary: This inspection verifies that sheathing and sheathing fasteners are installed as required by the code or the design professional. Sheathing fasteners connect sheathing to the framing to prevent framing from racking during wind or seismic loads. At the discretion of the building inspector, this inspection can be performed concurrently with the framing inspection.

~~107.1.5~~ **107.1.6 Rough-in inspection.** Rough-in inspections shall be made when all building framing and parts of the electrical, plumbing, fire protection, or heating-ventilation or cooling system that will be hidden from view in the finished building have been placed, but before any wall, ceiling finish, or building insulation is installed.

Commentary: Plumbing, mechanical, and electrical components installed underground should be considered as rough-in inspections and may be inspected at any point during construction prior to covering.

~~107.1.6~~ **107.1.7 Insulation inspection.** Insulation inspections shall be made after an approved building framing and rough-in inspection and after the permanent roof covering is installed, with all insulation and vapor retarders in place, but before any wall or ceiling covering is applied.

Commentary: Insulation baffles that cannot be seen at this inspection, such as vaulted ceilings with concealed rafter cavities, should have baffles installed at framing inspection for verification.

It is acceptable that wall cavity insulation enclosed by an air barrier material behind tubs, showers, and fireplace units installed on exterior walls may not be observable by the code official.

~~107.1.7~~ **107.1.8 Fire protection inspection.** Fire protection inspections shall be made in all buildings where any material is used for fire protection purposes. The permit holder or his agent shall notify the inspection department after all fire protection materials are in place. Fire protection materials shall not be concealed until inspected and approved by the code enforcement official.

Commentary: Fire protection inspection is typically performed in commercial building structures and is required in addition to any special inspection as listed in Chapter 17 of the North Carolina Building Code.

~~107.1.8~~ **107.1.9 Final inspection.** Final inspections shall be made for each trade after completion of the work authorized under the technical codes.

Commentary: Each trade shall complete a final inspection giving approval to permitted work. Work required by the technical codes shall be complete before being requested. Temporary power and temporary certificate of occupancy (TCO) requests are allowed prior to final inspection.

ATTACHMENT B

Building Code Council Administrative Code Standing Committee Members

Bridget Herring	BCC Chair/ Committee Chair	828-259-5558	herring@ncbcc@gmail.com
Mark Matheny	BCC Vice-Chair/ Committee Vice-Chair	828-778-0754	mmatheny@ashevillenc.gov
Kim Wooten	Electrical Engineer	980-312-5301	khumiston@devitainc.com
Jason Shepherd	Fire Code Standing Committee Chair / Fire Service	919-201-6638	jshepherd@dconc.gov
Natalie MacDonald	Mechanical Standing Committee / Mechanical Engineer	984-255-7062	nmacdonald@dewberry.com
Andrew Cole	Architect	919-941-9000	acole@obrienatkins.com
Rob Zapple	County Government Representative	910-798-7145	rzapple@nhcgov.com
Chris Berg	Structural Standing Committee / Structural Engineer	919-322-0115	chris.berg@summitde.com

From: [Rittlinger, David B](#)
To: [Ventalaro, Julie W](#)
Cc: [McLenaghan, Ed](#); [Snyder, Ashley B](#); [McGhee, Dana](#)
Subject: RE: Approval - 2024 NC Administrative Code Section 107
Date: Saturday, December 2, 2023 8:19:00 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)

Julie,

Good morning.

The notice of text and the permanent rule making petition under consideration by the NCBCC will be coordinated to reflect the fiscal determinations noted by OSBM.

Thank you for your work on this.

Have a great weekend.

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Chief Code Consultant
Engineering Division



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Link to free view of 2018 NC Codes

<https://codes.iccsafe.org/codes/north-carolina>

From: Ventalaro, Julie W <julie.ventalaro@osbm.nc.gov>
Sent: Friday, December 1, 2023 9:06 AM
To: Rittlinger, David B <david.rittlinger@ncdoi.gov>
Cc: McLenaghan, Ed <ed.mclenaghan@osbm.nc.gov>; Snyder, Ashley B <ashley.snyder@oah.nc.gov>; McGhee, Dana <dana.McGhee@oah.nc.gov>
Subject: Approval - 2024 NC Administrative Code Section 107

OSBM has reviewed the Building Code Council's proposed changes to the North Carolina State Building Code (Administrative Code Section 107 Inspections) in accordance with G.S. 150B-21.4. OSBM has determined the amendments have little to no impact on state or local governments. The fiscal note is approved for publication. Please ensure that the substantial economic impacts are included in the Notice of Text.

The .pdf file of the fiscal note (attached) will be posted on our website at the following URL (please allow for some time):

<https://www.osbm.nc.gov/documents/files/BCC-2023-12-01>

Please let me know if you have any questions.

Julie Ventaloro

Economic Analyst

NC Office of State Budget and Management

[Chat with me in Teams](#) 

984-236-0694



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