

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

SUMMARY OF KEY RESIDENTIAL ENERGY CODE REQUIREMENTS

The 2015 IECC with North Carolina specific amendments went into effect on **January 1, 2019**. This document summarizes changes to the building envelope-related requirements in the updated code for North Carolina.



CODE CHANGE HIGHLIGHTS

- Construction documents for energy code compliance are not required for one- and two-family dwellings.
- R-19 fiberglass batts compressed and installed in a 2x6 framing cavity will comply. However, R-19 compressed in a 2x4 wall is not deemed to comply.
- Duct insulation requirements were amended as follows: Ducts in unconditioned space must be insulated to R-8, and ducts in semi-conditioned space must be insulated to R-4. Ducts inside conditioned space are not required to be insulated unless to prevent the formation of condensation. Return ducts in conditioned and semi-conditioned space are not required to be insulated.

BUILDING ENVELOPE AND DUCT REQUIREMENTS

PRESCRIPTIVE	CLIMATE ZONE 3	CLIMATE ZONE 4	CLIMATE ZONE 5
Wood Frame Wall	R-15 or R-13+2.5ci / U-0.077		R-19 or R-15+3ci or R-13+5ci / U-0.061
Basement Walls ^a	R-13 or R-5ci / U-0.091	R-15 or R-10ci / U-0.59	
Mass Wall ^b	R-5/13 or R-5/10ci / U-0.141/0.07		R-13/17 or R13/12.5ci / U-0.082/.054
Crawl Space Walls ^a	R-13 or R-5ci / U-0.136	R-15 or R-10ci / U-0.065	
Ceilings	R-38 or R-30ci / U-0.030		
Floor	R-19 / U-0.047		R-30 / U-0.033
Slab R-value	N/A	R-10	
Fenestration	U-0.35 / SHGC-0.30		U-0.35

DUCT LEAKAGE

MEASUREMENT	CLIMATE ZONE		
	3	4	5
Total Duct Leakage	5 CFM / 100 SQ. FT.		
Duct Leakage to the Outside	4 CFM / 100 SQ. FT.		

AIR LEAKAGE (if tested)

ALL CLIMATE ZONES	CFM 50 / SQ. FT. OF SURFACE AREA
5 ACH50	0.30

MAXIMUM ENERGY RATING INDEX (ERI)

CLIMATE ZONE 3	CLIMATE ZONE 4	CLIMATE ZONE 5
61	63	63

a. The continuous insulation can be on the interior or exterior.

b. The second R-value/U-factor applies where >50% of the insulation is on the interior.

ACCESS THE NORTH CAROLINA ENERGY CONSERVATION CODE HERE:

<https://codes.iccsafe.org/content/NCECC2018>

Insulation Institute

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This summary is offered for informational purposes only. It does not purport to be an exhaustive analysis of code changes or provide advice that will ensure guaranteed compliance with any energy code provision. Please consult with local authorities before finalizing your installation plans.



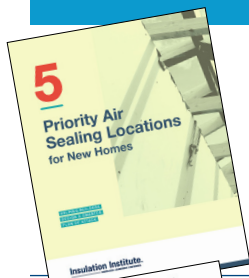
ENERGY-EFFICIENT, COST-EFFECTIVE CONSTRUCTION WITH FIBERGLASS AND MINERAL WOOL INSULATION



As code levels advance, **keep informed about innovative practices** to meet or exceed code requirements using cost-effective fiberglass and mineral wool insulation.

The following resources in the table below are just a subset of the many guides available from the **Insulation Institute** to help you achieve new performance requirements with proven approaches.

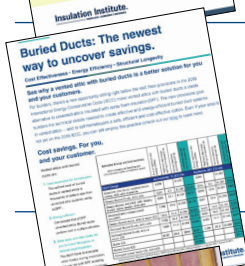
INSULATION INSTITUTE RESOURCES



Air Leakage

As states adopt more stringent energy codes, some builders may experience challenges meeting new mandatory air leakage requirements. Fiberglass and mineral wool insulation is the low-cost solution for homebuilders to meet or surpass code air leakage rate requirements of 3 or 5 air changes per hour depending on climate zone. For homeowners, an airtight building envelope results in energy savings and increased thermal comfort.

<https://insulationinstitute.org/wp-content/uploads/2018/05/N090-5-Air-Sealing-Locations-for-New-Homes.pdf>



Ducts Buried Within Ceiling Insulation

Deeply buried ducts in attics is an easy way to lower energy code compliance costs for builders using the simulated energy performance path. Homeowners can benefit from energy savings realized from lower-capacity, lower-cost HVAC systems.

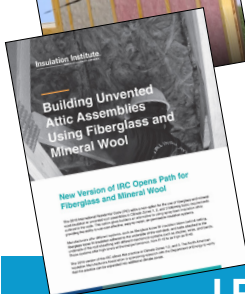
<https://insulationinstitute.org/wp-content/uploads/2019/03/N087-Buried-Ducts-The-newest-way-to-uncover-savings.pdf>



Proper Installation of Insulation

Grade I installation delivers superior energy efficiency and is increasingly required by state energy codes. Insulation installation jobs that fail to meet Grade I criteria can mean construction delays due to callbacks, HERS rating penalties, and failed code inspections. Grade I installation is readily achievable by following basic guidelines as recommended by manufacturers. NAIMA offers free online training for installers.

www.grade1insulation.org



Unvented Attics Using Fiberglass and Mineral Wool Insulation

Unvented attics can be constructed by installing fiberglass or mineral wool insulation below the roof deck instead of using more costly materials like spray foam. In addition, fiberglass and mineral wool insulation products are green certified and do not carry recommended occupancy restrictions due to product off-gassing after installation. Starting with the 2018 IRC, this practice is outlined in detail within the code. Homeowners benefit from lower construction costs and the use of a safe product.

<https://insulationinstitute.org/wp-content/uploads/2018/05/BuildingUnventedAtticAssemblies-N089.pdf>

LEARN MORE TO SEE HOW THE ENERGY CODE SAVES YOU MONEY:

<https://insulationinstitute.org/wp-content/uploads/2024/10/Modern-Energy-Codes-Save-Money-Infographic.pdf>

Get the Facts for a Stronger Business

Learn more about fiberglass and mineral wool insulation at InsulationInstitute.org

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