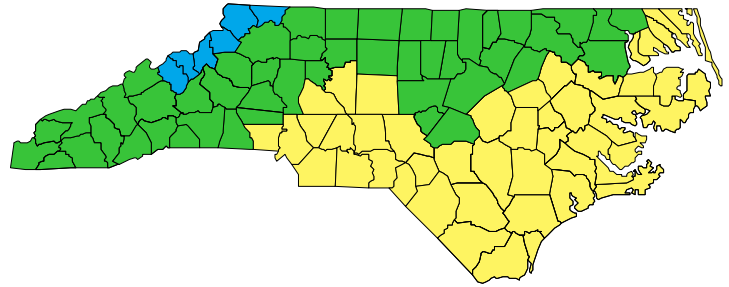


IECC Compliance Guide for Homes in North Carolina

Code: 2009 International Energy Conservation Code

Step-by-Step Instructions

- Using the climate zone map to the right, match the jurisdiction to the appropriate IECC climate zone. Use the simplified table of IECC building envelope requirements (below) to determine the basic thermal envelope requirements associated with the jurisdiction.
- Use the “Outline of 2009 IECC Requirements” printed on the back of this sheet as a reference or a categorized index to the IECC requirements. Construct the building according to the requirements of the IECC and other applicable code requirements.



The 2009 International Energy Conservation Code

The 2009 IECC was developed by the International Code Council (ICC) and is currently available to states for adoption. The IECC is the national model standard for energy-efficient residential construction recognized by federal law. The American Recovery and Reinvestment Act of 2009 makes funds available to jurisdictions, like North Carolina, that have committed to adopt and implement the 2009 IECC. Users of this guide are strongly recommended to obtain a copy of the IECC and refer to it for any questions and further details on compliance. IECC compliance training is also available from many sources. To obtain a copy of the 2009 IECC, contact the ICC or visit www.iccsafe.org.

Limitations

This guide is an energy code compliance aid for North Carolina based upon the simple prescriptive option of the 2009 IECC. It does not provide a guarantee for meeting the IECC. This guide is not designed to reflect the actual energy code, with amendments, if any, adopted in North Carolina and does not, therefore, provide a guarantee for meeting the state energy code. For details on the energy code adopted by North Carolina, including how it may differ from the IECC, please contact your local building code official.

CLIMATE ZONE 5			
Alleghany	Avery	Watauga	
Ashe	Mitchell	Yancey	
CLIMATE ZONE 4			
Alamance	Davie	Hertford	Polk
Alexander	Durham	Iredell	Rockingham
Bertie	Forsyth	Jackson	Rutherford
Buncombe	Franklin	Lee	Stokes
Burke	Gates	Lincoln	Surry
Caldwell	Graham	Macon	Swain
Caswell	Granville	Madison	Transylvania
Catawba	Guilford	McDowell	Vance
Chatham	Halifax	Nash	Wake
Cherokee	Harnett	Northampton	Warren
Clay	Haywood	Orange	Wilkes
Cleveland	Henderson	Person	Yadkin
CLIMATE ZONE 3			
Anson	Dare	Mecklenburg	Robeson
Beaufort	Davidson	Montgomery	Rowan
Bladen	Duplin	Moore	Sampson
Brunswick	Edgecombe	New Hanover	Scotland
Cabarrus	Gaston	Onslow	Stanly
Camden	Greene	Pamlico	Tyrrell
Carteret	Hoke	Pasquotank	Union
Chowan	Hyde	Pender	Washington
Columbus	Johnston	Perquimans	Wayne
Craven	Jones	Pitt	Wilson
Cumberland	Lenoir	Randolph	
Currituck	Martin	Richmond	

	Windows			Insulation				Foundation		
	Fenestration U-Factor	Skylight U-Factor	Glazed Fenestration SHGC	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value and Depth	Crawl Space Wall R-Value
Zone 5	0.35	0.60	NR	38	20 or 13 + 5	13/17	30	10/13	10, 2 ft	10/13
Zone 4	0.35	0.60	NR	38	13	5/10	19	10/13	10, 2 ft	10/13
Zone 3	0.50	0.65	0.30	30	13	5/8	19	5/13	0	5/13

NR indicates No Requirement

Outline of 2009 IECC Requirements for North Carolina Homes

The simplified table of building envelope requirements (on the previous page) applies to new residential buildings, as defined in the IECC, with wood framing and/or mass walls. For steel-framed buildings, the same window requirements apply; however, refer to IECC section 402.2.5 for specific ceiling, wall and floor insulation R-value requirements. The table also applies to all additions, alterations and replacement windows. The table is based upon the thermal envelope requirements in the 2009 IECC's prescriptive compliance option for the appropriate climate zones (Table 402.1.1) and does not reflect any state-specific amendments to the IECC.

Fenestration (IECC sections 303.1.3, 402.3, 402.5)

- Fenestration (including all windows and doors) and Skylight U-factor and Glazed Fenestration SHGC values are maximum acceptable levels. The Glazed Fenestration maximum applies to all windows, skylights and glazed doors. An area-weighted average of fenestration products is permitted to satisfy these requirements.
- Window, door and skylight U-factors and SHGCs must be determined from a National Fenestration Rating Council (NFRC) rating that is independently certified and set forth on a label on the product or from a limited table of product default values in the IECC. See www.nfrc.org for more details on the NFRC rating system.
- Windows must also be labeled in a manner to show that they meet the IECC's air infiltration requirements.
- Up to 15 square feet of glazed fenestration is permitted to be exempt from the U-factor and SHGC requirements. One side-hinged opaque door assembly up to 24 square feet is exempted from the Fenestration U-factor requirement. These exceptions apply in the prescriptive path only. Certain impact rated fenestration may be permitted to have a higher U-factor in Climate Zone 3. (see note j to IECC Table 402.1.1) Special exceptions may apply for fenestration U-factor requirements in thermally isolated sunrooms. (see IECC section 402.3.5)

Insulation (IECC sections 303.1.4 and 402)

- Insulation R-values are minimum acceptable levels and must be determined according to FTC rule.
- R-values for walls represent the sum of cavity insulation plus insulated sheathing, if any. The second R-value for mass walls applies when more than half the insulation is on the interior of the mass wall.
- The insulation for basement walls must be from the top of the wall down 10 feet below grade or to the basement floor, whichever is less. Basement wall insulation is not required in warm-humid locations as defined in IECC Figure 301.1 and Table 301.1. Insulation requirements for crawl space walls are further specified in IECC section 402.2.9.
- Floor insulation must be installed to maintain contact with the underside of the subfloor decking.
- Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated to a level equivalent to the insulation on the surrounding surfaces.

- Insulation requirements for slab on grade floors is further specified in IECC section 402.2.8. R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in Climate Zone 3 for heated slabs.
- Special Insulation exceptions related to ceilings with attic spaces, ceilings without attic spaces, masonry veneer and thermally isolated sunrooms are set forth in IECC section 402.

Ducts (IECC section 403.2)

- Ducts must be tested for tightness, as specified in IECC section 403.2.2, except where the air handler and all ducts are located within conditioned space.
- Supply ducts in attics shall be sealed and insulated to a minimum of R-8. All other ducts shall be sealed and insulated to a minimum of R-6. Ducts or portions thereof located completely inside the building thermal envelope are exempted from the insulation requirement. Air handlers, filter boxes and building cavities used as ducts must also be properly sealed.

Air Sealing (IECC section 402.4)

- The building envelope is required to be properly sealed to limit air infiltration. Air tightness and insulation installation must be demonstrated either by testing or visual inspection. Recessed lighting must also be sealed to limit air leakage.

Documentation (IECC sections 103, 303.3, 401.3)

- The appropriate construction documents and preventative maintenance information must be provided, along with a permanent certificate listing certain insulation, window and HVAC performance information.

Systems (IECC Section 403 and IRC section M1401.3)

- HVAC system must be properly sized using a procedure like ACCA Manual J.
- Temperature controls must be installed, including a programmable thermostat where required.
- Mechanical system piping must be insulated to a minimum of R-3.
- Specific requirements apply to circulating hot water systems, mechanical ventilation, snow melt systems, and pools.

Lighting (IECC Sections 202 and 404.1.1)

- A minimum of 50% of lamps in permanently installed fixtures must be high-efficacy as defined in the IECC.