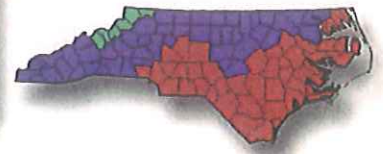


Energy Code Compliance Guide

North Carolina Residential Energy Code 2012



Zones 3 - 4 - 5

HVAC: Key Details

Duct Sealing

- ☒ Duct Sealing -- All ducts, air handlers, filter boxes and building cavities used as ducts must be sealed.
- ☒ Tapes & mastics used to seal ductwork must be:
 - _ Listed & labeled in accordance with UL 181A
 - _ Must be marked "181 A-P" for pressure sensitive tape, "181 A-M" for mastic or "181 A-H" for heat-sensitive tape
- ☒ Mandatory Duct Testing
 - _ Testing shall be performed and reported by the permit holder, a NC licensed general contractor, a NC licensed HVAC contractor, a NC licensed Home Inspector, a registered design professional, a certified BPI Envelope Professional or a certified HERS rater.
 - _ Total duct leakage must be less than or equal to 6 CFM (12 L/min) per 100 ft² (9.29 m²) of conditioned floor area served by that system when tested at a pressure differential of 25 Pa across the entire system, including the manufacturer's air handler enclosure.

Duct Insulation

- ☒ Exterior or attic supply and return ducts: R-8 minimum
- ☒ Ducts located in floor trusses: R-4 supply, R-0 return minimum
- ☒ Ducts inside the building thermal envelope: R-4 supply, R-0 return minimum

Thermostat

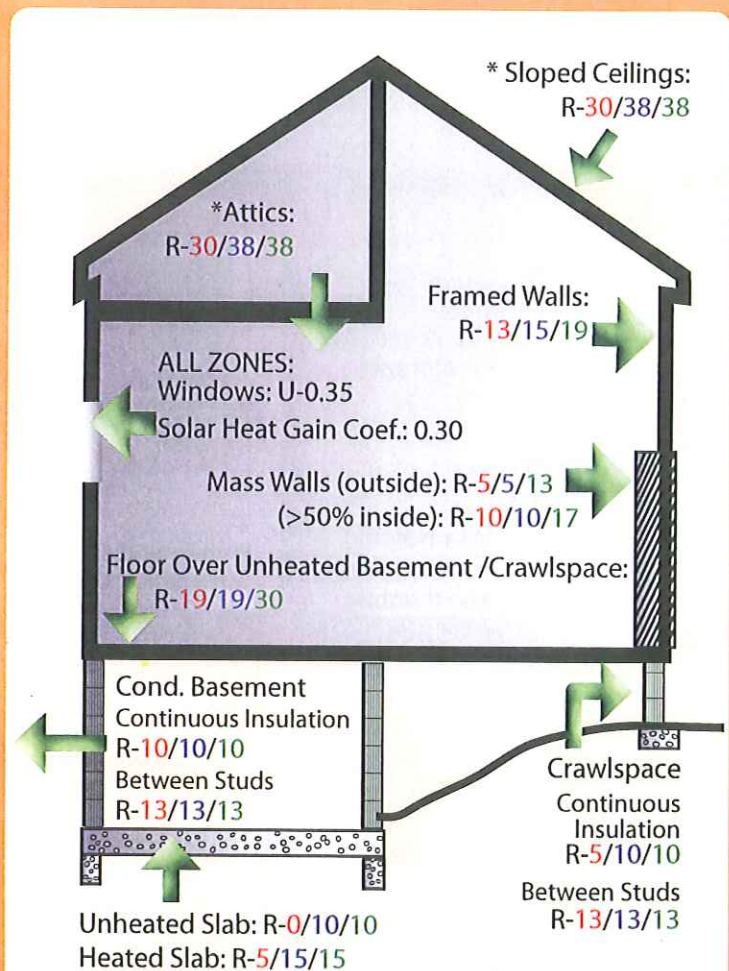
- ☒ Heat pumps having supplementary electric-resistance heat shall have controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.

Windows

- ☒ Solar Heat Gain Coefficient: **must be 0.30 for zones 3 & 4 and there is no limit for zone 5**
- ☒ U-factor: **must be 0.35 or less for all zones**
- ☒ Exemptions:
 - _ 15 ft.² of total glazed fenestration may be exempt from U-factor & SHGC requirements

Insulation & Window Requirements

The building thermal envelope must meet the requirements listed below. For slabs, insulation should be installed along the slab perimeter. Insulation should never be compressed or installed in a manner that creates gaps (insulation should be continuous and directly in contact with an air barrier material such as drywall).



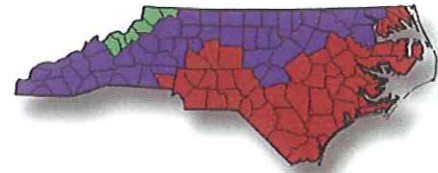
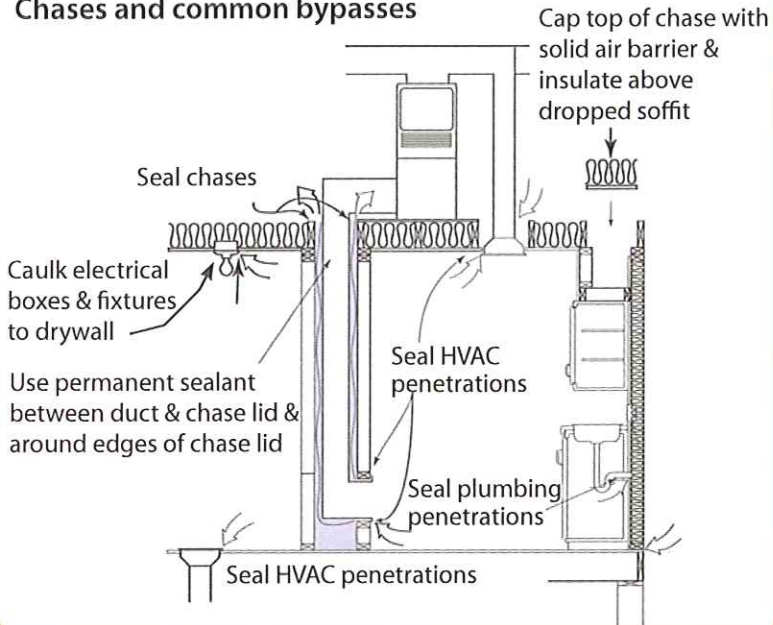
Zone 3/Zone 4/Zone 5

* Zones 4 & 5: R-30 can be used in attics w/full insulation over exterior wall. In ceilings without attic spaces, 500 ft.² can be R-30.

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Chases and common bypasses



Zones 3 - 4 - 5

Air Sealing & Backing Materials

Backing of insulation required for knee walls, tubs, showers, fireplace inserts, and stairs on exterior walls.

Air Sealing required under knee walls, balloon-framed walls, shafts, chases, dropped soffits, and HVAC boots.

Two Options for Advanced Air Sealing:

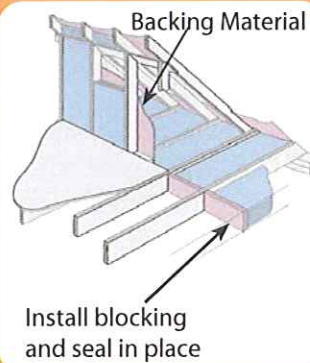
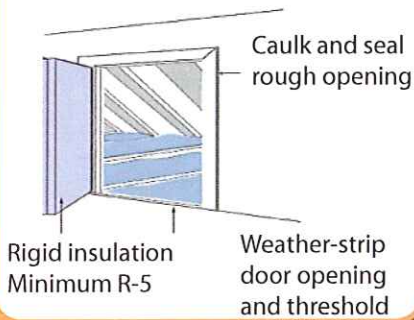
Air Sealing: Testing Option 1

Visual inspection for: top plates, sill plates, window and exterior door jambs, utility penetrations, floor edges, between garage and ceiling spaces, duct boots and return boxes, and recessed lighting.

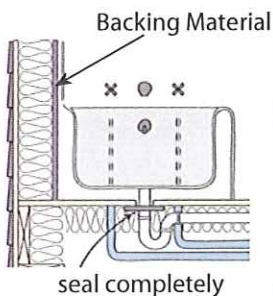
Air Sealing: Testing Option 2

Blower Door Test -0.30 CFM50/Square Foot of Surface Area (SFSA) or Five (5) air changes per hour (ACH50) or less.

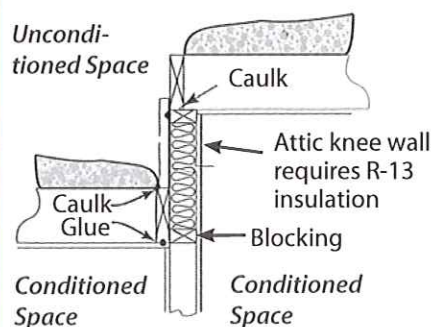
Attic knee-walls



Shower/tub drain opening



Two-level attic



Attic pull-down stairs and accesses

