

Knox County Code Administration & Inspection

Energy Conservation Code Requirements – IRC Residential



REV. 022019

Inspectors will verify energy conservation code requirements based upon 2018 IRC regulations as amended by Knox County. The owner/contractor will sign the certificate verifying the type of insulation and the equivalent R-values of the house's different insulation requirements as shown below.

AREA	INSULATION VALUE
Attic*	R-38*
Wood Frame Wall	R-13
Mass Wall	R-5 (R-10 if more than ½ on interior)
Floor	R-19
Basement Wall	R-10 / R-13**
Slab	R-10 (2 ft deep or wide)
Crawl Space Wall (Unvented)	R-10 / R-13**
HVAC Duct	R-8 in Attic(All other R-6)***
HVAC Refrigerant Line	R-2
Plumbing	R-2
Window U-factor	U-0.32

***Exception:** When R-38 is required in the ceiling, R-30 shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves (Energy Truss). Insulation markers required every 300 sq.ft.

**** Exception:** R-10 applies to continuous insulation, R-13 to framing cavity insulation; either insulation meets the requirement.

***** Exception:** Ducts or portions thereof located completely inside the building thermal envelope.

A permanent certificate shall be posted on or in the electrical distribution panel per Section N1101.16 of the 2018 IRC.

The building thermal envelope shall be durably sealed to limit infiltration and tested or inspected in accordance with Section N1101.12.1 of the 2018 IRC.

AIR BARRIER AND INSULATION INSPECTION

COMPONENT	CRITERIA
Air barrier and thermal barrier	Exterior thermal envelope insulation for framed walls is installed in substantial contact and continuous alignment with building envelope air barrier. Breaks or joints in the air barrier are filled or repaired. Air-permeable insulation is not used as a sealing material.
Ceiling/attic R-38 minimum R-30 (Energy Truss)	Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed. Attic access (except unvented attic), knee wall door, or drop down stair is sealed.
Walls R-13 minimum	Corners and headers are insulated. Junction of foundation and sill plate is sealed.
Windows and doors	Space between window/door jambs and framing is sealed.
Rim joists	Rim joists are insulated and include an air barrier.
Floors (including above garage and cantilevered floors) R-19 minimum	Insulation is installed to maintain permanent contact with underside of subfloor decking. Air barrier is installed at any exposed edge of floor.
Crawlspace walls / Basement walls R-10 if continuous R-13 if in wall cavities	Insulation is permanently attached to walls. Exposed earth in unvented crawlspaces is covered with Class I vapor retarder with overlapping joints sealed / taped. Unvented crawl space insulation extends 24" vertically or horizontally at grade.
Shafts, penetrations	Duct shafts, utility penetrations, knee walls and flue shafts opening to exterior or unconditional space are sealed.
Narrow cavities	Batts in narrow cavities are cut to fit, or narrow cavities are filled by sprayed/blown insulation.
Garage separation R-13 minimum	Air sealing is provided between the garage and conditioned spaces.
Recessed lighting	Recessed light fixtures are airtight, IC rated and sealed to drywall. Exception – fixtures in conditioned space.
Plumbing R-2 minimum and wiring	Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.
Shower/tub on exterior wall R-13 minimum	Showers and tubs on exterior walls have insulation and an air barrier separating them from the exterior wall.
Electrical/phone box on exterior wall	Air barrier extends behind boxes or air sealed type boxes are installed.
Common wall	Air barrier is installed in common wall between dwelling units.

HVAC register boots	HVAC register boots that penetrate building envelope are sealed to subfloor or drywall.
Fireplace	Fireplace walls include an air barrier.