

2018 IECC Knee Wall Requirements

Requirement:

IECC R202 Definition:

- **ABOVE-GRADE WALL.** A wall more than 50 percent above grade and enclosing *conditioned space*. This includes between-floor spandrels, peripheral edges of floors, roof and basement **knee walls**, dormer walls, gable end walls, walls enclosing a mansard roof and *skylight* shafts.
- **BUILDING THERMAL ENVELOPE.** The *basement walls*, *exterior walls*, floors, ceiling, roofs and any other *building element* assemblies that **enclose conditioned space or provide a boundary between conditioned space and exempt or unconditioned space**.

IECC Table R402.4.1.1

- Access openings, drop downstairs or knee wall doors to unconditioned attic spaces shall be sealed.
- The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.
- Knee walls shall be sealed.

Translated:

- Knee walls are considered above grade walls that enclose conditioned space. Separate conditioned space from unconditioned space.
- Insulation must be installed in alignment (**touching**) the air barrier system. Like other above grade walls, a six side enclosed assembly is required.
- Knee wall must be airtight assemblies

Example Execution of Requirement:

- More and more **roof trusses are defining the separation** between conditioned space and unconditioned ventilated attics.
- “Doing it Right” is about **creating a six-sided cavity** that can be insulated. An insulator should refuse to insulate a cavity that cannot be fully enclosed.
- Framers must tackle the knee wall before passing the house off to the insulator.
- Therefore, **Framers must perform the following tasks:**
 1. Identify knee walls separating conditioned space from the attic.
 2. Ensure there is at least a 3.5 Inch cavity. Better yet **make all exterior wall cavities the same dimension**.
 3. Ensure there are **continuous bottom and top plates**.
 4. Ensure side studs are defined.
 5. Ensure there is attic side sheathing installed. (**Air barrier to the unconditioned side of the wall**)
 6. Ensure that after insulation the cavity can be enclosed with drywall on the conditioned side of the cavity.

The Problem



The Solution



Small Knee walls (the ONE FOOT Rule)

- Raised ceiling and other areas of a house create knee walls that are a foot or less tall. The rule of thumb to remember is that you can insulated over a 1' or smaller knee wall.
- If it is **taller than 1'** treat it like a normal knee wall PLUS extend the attic side sheathing to create an insulation dam to hold the insulation on the taller attic from falling off to the lower attic. This is now required by the 2021 IECC.

Knee wall greater than 1' is a small attic knee wall

