

BBRS OFFICIAL INTERPRETATION NO. 2016_02

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Subject: Insulating strapped ceilings- a Tutorial

Attic insulation strategies that meet the 2015 IECC: Is it ok to use fiberglass batts in ceilings with strapping?

Answer: Yes. The 2015 IECC does not prohibit the use of batts in a strapped ceiling assembly provided all requirements of the code are met. This means that fiberglass batts must be split around wires and cut to fit tightly around all obstacles and to fill all voids and cavities. The batts shall be entirely in contact with a sealed air barrier.

Strapping, furring, and resilient channel are common practices used as part of ceilings assemblies in New England. Certain green and energy efficient building standards have been known to prohibit the use of fiberglass batts in these ceiling assemblies based upon the requirement that all insulation must be installed in full contact with an air barrier. It is possible that the channel created between the insulation and the strapping will lead to uncontrolled air movement, thereby reducing the effectiveness of the insulation. Though in some instances this may be true, if the air channels are protected through the air sealing requirements of the code, the risk of reduced insulation effectiveness can be minimized.



Figure 1 - Strapped ceiling insulated with fiberglass batts



Figure 2 – Ceiling with resilient channel

Fiberglass batts are allowed in strapped ceiling assemblies under the 2015 IECC provided that the mandatory air sealing requirements of the code are also met. These are:

Per **R402.1.1**, “components of the *building thermal envelope*...shall be installed in accordance with the manufacturer’s instructions.” Insulating flat attic planes with fiberglass batts can be difficult to do per manufacturer instruction, as seen in Figure 3 below. Batt's in this section of attic must be split around wires and cut to fit snugly around PVC piping.



Figure 3 - Complex flat ceiling assembly

Other attic insulation options:

Loose fill products such as blown fiberglass or cellulose can be simpler to install than fiberglass batts, particularly on complex attic planes. These blown-in materials fill gaps without requiring installers to cut and split batts at every obstacle.



Figure 4 - Blown fiberglass attic insulation



Figure 5 - Blown cellulose attic insulation

Spray polyurethane foam can be used in areas that are difficult to insulate otherwise due to space constraints or moisture concerns. Figure 6 below shows an application of spray polyurethane foam in a strapped cathedral ceiling. Spray foam is both an insulator and an air barrier, avoiding some of the challenges of insulating these areas with fiberglass and other air permeable insulation types.



Figure 6 - Spray polyurethane foam installed in a strapped cathedral ceiling

In instances where fiberglass batts and strapping are to be used where prohibited for a programmatic or other reason, it is possible to infill the gaps between the strapping with a rigid insulation of proper thickness.



Figure 7 - Strapped ceiling insulated with fiberglass batts



Figure 8 - Strapping infilled with rigid insulation equal in thickness to strapping

Per **R402.2.3**, Eave baffles are required at soffits and eave vents in attics insulated with air permeable insulation. The purpose of the baffle is to prevent air from entering the attic insulation. These baffles must be effectively installed to durably prevent air and wind from entering air permeable insulation.



Figure 9 - Wind baffles installed and sealed in a raised heel application



Figure 10 - Wind baffles installed without proper sealing, not code compliant

Per **Table 402.4.1.1**, “A continuous air barrier shall be installed in the building envelope” and “breaks or joints in the air barrier shall be sealed.” All locations at the attic plane, including perimeter, must be air sealed, to prevent air entrance into the attic and attic insulation.

Provided these requirements of the code are met, the use of fiberglass batts in strapped ceiling assemblies is allowed.