

Technical Bulletin: Ceiling Insulation and Modeling

Residential New Construction Program



BUILDING A SMARTER ENERGY FUTURESM

Ceilings are an important part of the building envelope. Various aspects of the ceiling affect the home's energy modeling and performance. Insulation, roof decks, and baffling should be noted and inspected by raters for the type and quality of the installation. This month's technical bulletin will help raters identify insulation issues that can affect the rebate and serve as a guide for modeling of ceilings in Ekotrope.

Insulation

When inspecting ceiling insulation, raters should identify the R-value and assign a Grade depending on the quality of the installation. Batt insulation should be installed flush with the roof joists to make continuous contact with the drywall below. Blown insulation should be installed at a consistent depth without areas of compressions. Raters should verify the insulation depth matches what is on the attic insulation card.

The descriptions below highlight what raters should inspect during inspections and the images show examples of poor insulation installation.

Batt Insulation

- Identify R-value and graded during rough inspections.
- Should be installed flush to framing.
- Should be split around obstructions, common obstructions include electrical wires, supply boots and lighting fixtures.



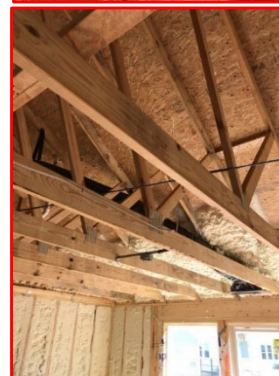
Blown Insulation

- Only seen during final inspections.
- Spot check the depth of insulation.
- Ensure there are no compressed areas, these can be caused by other contractors walking through the attic.



Spray Foam Roof

- Probe the foam to measure depth.
- Ensure consistent depth by checking a few areas.
- The roof deck should be completely insulated at the time of the rough inspection.



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Baffling & Insulation Damming

During rough inspections, raters should take note of the roof deck type as well as look at the installation of the baffling which helps prevent wind washing of the insulation as the home ages. For one story homes, raters should ensure that an insulation dam is installed to contain blown insulation around garage and porch areas.



Radiant barrier, baffling installed correctly.



Insulation dam at the garage installed properly.

Modeling

When modeling the ceiling insulation Ekotrope, make sure they are modeled accurately. Below shows examples of correct Ekotrope libraries for flat blown ceilings and batted vault ceilings.

Ceiling / Roof

Name: R38 Blown G1 2x6 24oc RB
Verified:
Description:
Has Radiant Barrier:

Assembly Properties

R 38.205
U 0.026

Layer Edit

Name:
Description:
 Continuous Stud/Cavity

Material: Cellulose Loos
Depth in.: 8.5
Per Inch: Total:
R: 23

Flat ceilings with blown insulation

Modeled layers

- Continuous insulation – loose fill
- Stud/Cavity – loose fill
- Sheetrock

Ceiling / Roof

Name: 6" R-38 Bat G2 24OC Radiant Barrier
Verified:
Description:
Has Radiant Barrier:

Assembly Properties

R 23.618
U 0.042

Layer Edit

Name: Stud/Cavity Layer
Description:
 Continuous Stud/Cavity

Material: Fiberglass Bat
Depth in.: 5.5
Insulation Grade: II
Per Inch: Total:
R: 38

Stud/Cavity

Stud Type: Wood
Depth in.: 5.5
Width in.: 1.5
Spacing in.: 24
Framing Fraction: 0.11
Override Framing Fraction:

Flat or vaulted ceiling with batt insulation

Modeled layers

- Study/Cavity - batt
- Sheetrock

Please contact us at DERNC@icfprogram.com with questions or for additional information.