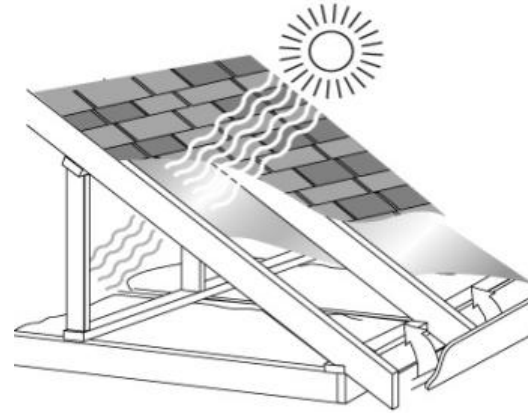


Radiant Barriers



Radiant Barriers

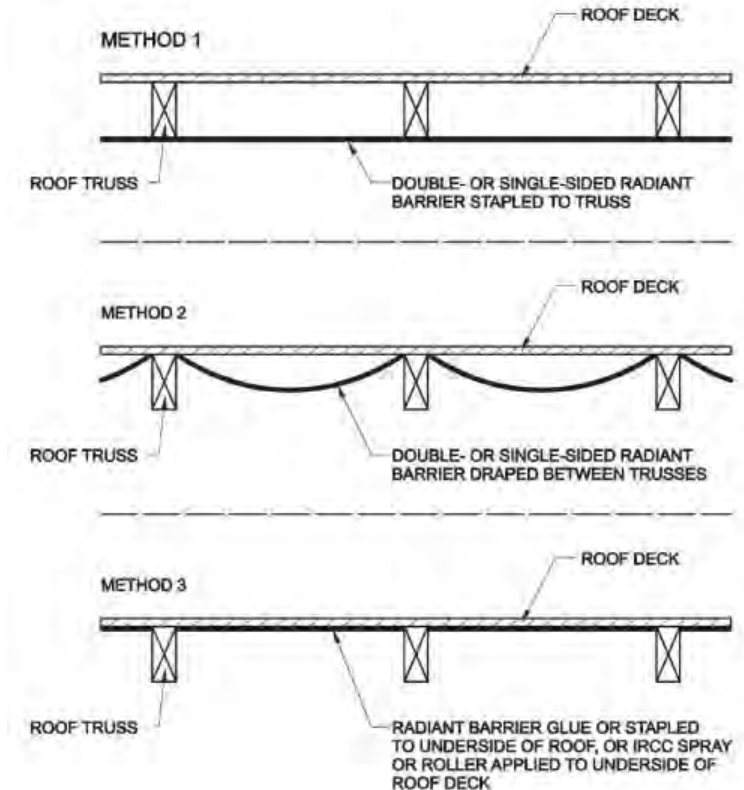
- All materials give off, or emit, energy by thermal radiation as a result of their temperature.
- Radiant barriers work by reducing heat transfer by thermal radiation between the roof and the rest of the attic.
- According to the Oak Ridge National Lab, radiant barriers can reduce cooling bills by 2-10 percent.

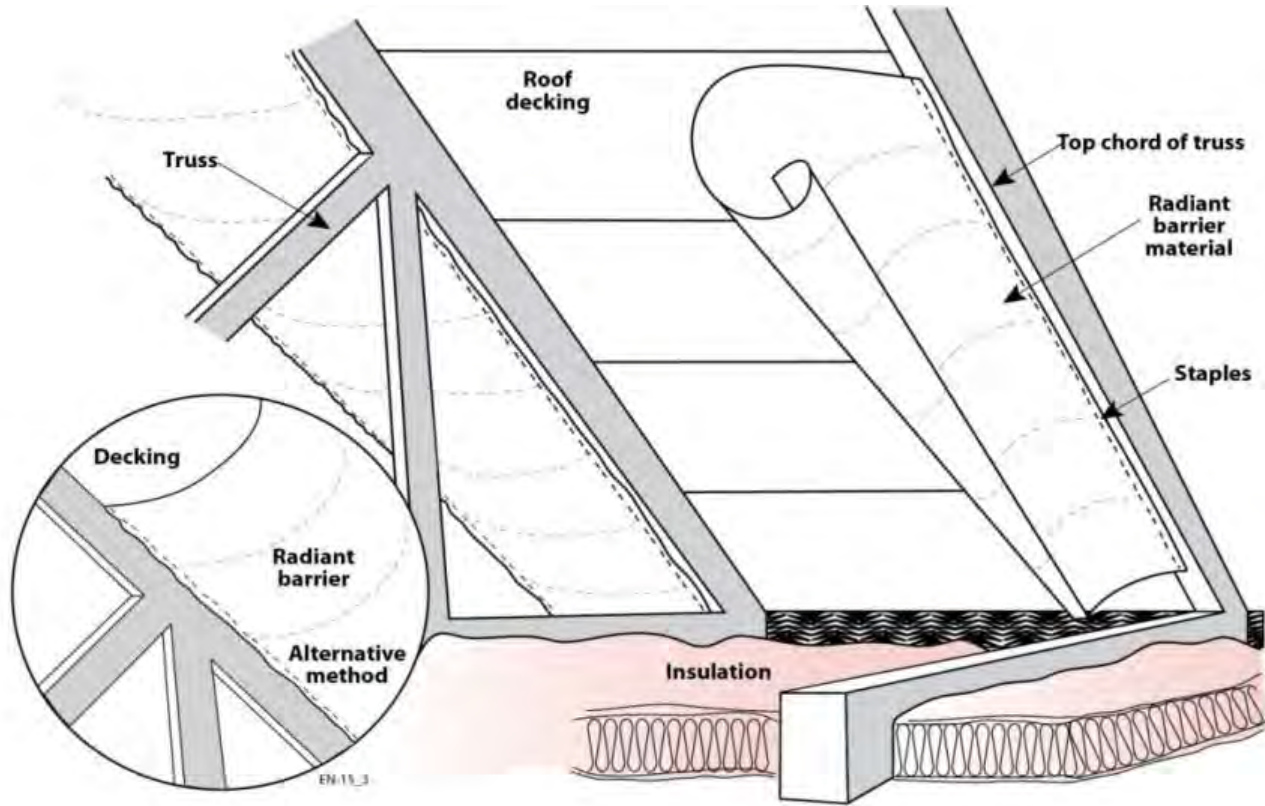


Radiant Barrier Installation

Radiant barriers can be installed four ways:

1. Along the top chord of the truss
2. Against the roof deck (with an air space)
3. As part of the roof decking assembly (TechShield® or spray on product)
4. On top of ceiling insulation





Foil-faced radiant sheathing

- Easiest method for new construction
- Recommend products that are perforated to allow the decking to “breathe,” allowing the passage of moisture



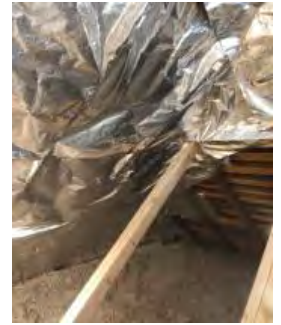
Radiant Barriers - SWS

TITLE	SPECIFICATION(S)	OBJECTIVE(S)
4.1088.2a Stapling	An air space no less than ¾" will be maintained between the barrier and the bottom of the roof deck	Ensure performance of radiant barrier
4.1088.2b Ventilation	A minimum of 3" clearance from soffit vents and ridge vents will be maintained	Allow for air flow behind barrier
4.1088.2c Gable walls	Radiant barrier will apply to gable walls while maintaining a ¾" air space Radiant barrier will not block gable vents	Ensure performance of radiant barrier
4.1088.2d Porch and garage attic spaces	Radiant barrier will be installed to separate the attic above conditioned space from adjacent attics Radiant barrier will be installed to withstand local wind loads	Reduce radiant heat entry Ensure durability
4.1088.2e Onsite documentation	<ul style="list-style-type: none"> •A dated receipt signed by the installer will be provided that includes: Number and thickness of air spaces •R-value •Direction of heat flow 	Document job completion to contract specifications Comply with 16 CFR 460.17

- Attic catwalk / platform retrofit



- Attic radiant barrier retrofit



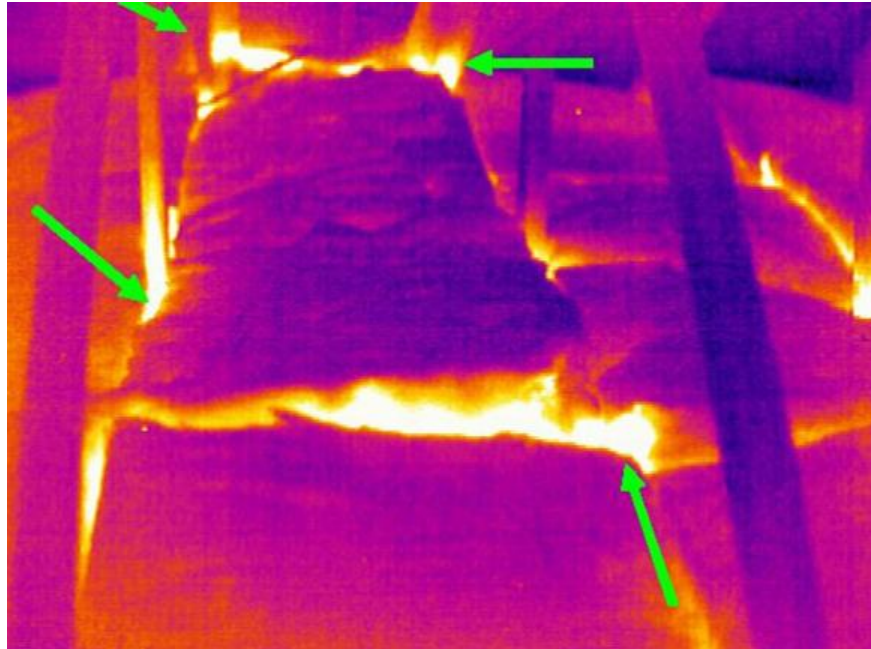
Installing Insulation

- Voids / Gaps
- Compression / Incomplete Fill



Continuous Insulation & Air Barrier

- Building Thermal Envelope
(air barrier and insulation must be in contact)



Installing Insulation

What's Wrong with This Picture?



Installing Insulation

Insulation Installation: Grade I, II, or III

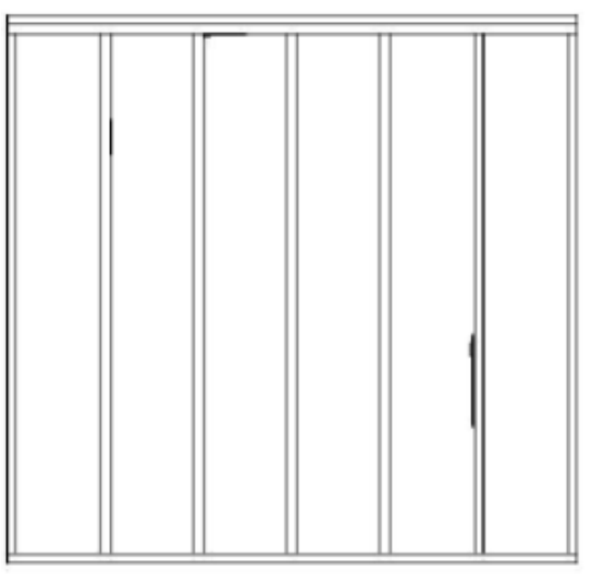
Unless verified, assume Grade III (worst) – see RESNET Appendix A-11-16



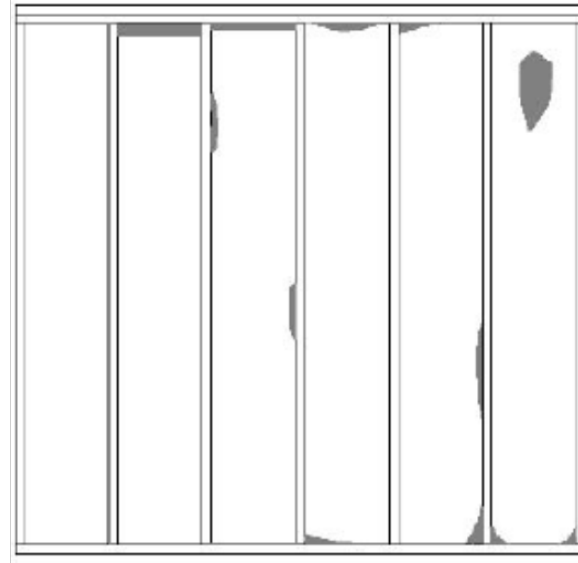
Grade I

RESNET Appendix A-11 - A-13

- occasional very small **gaps/voids**
- less than 2% **compression/incomplete fill** (which may not be more than 30% compressed)



Gaps

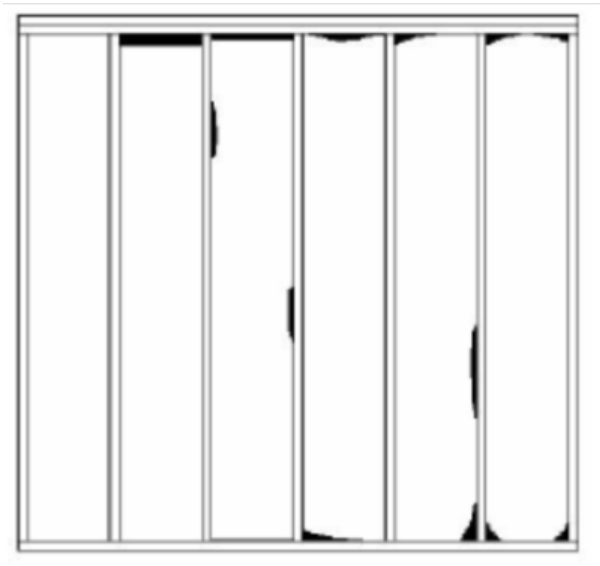


Compression

Grade II

RESNET Appendix A-11 - A-13

- <2% **gaps/voids**
- <10% **compression/incomplete fill**
(which may not be more than 30% compressed)



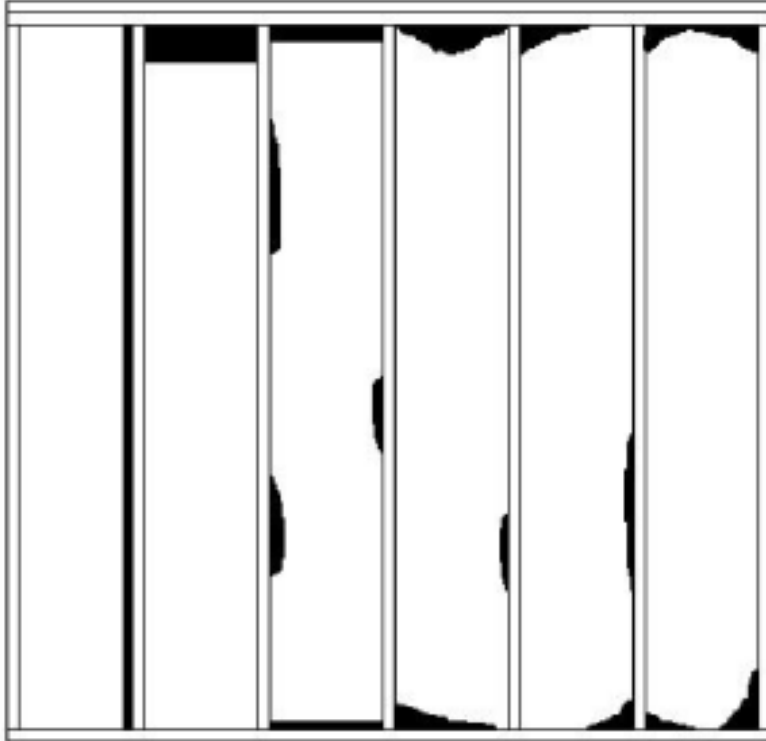
Gaps



Compression

Grade III

RESNET Appendix A-15 - A-16

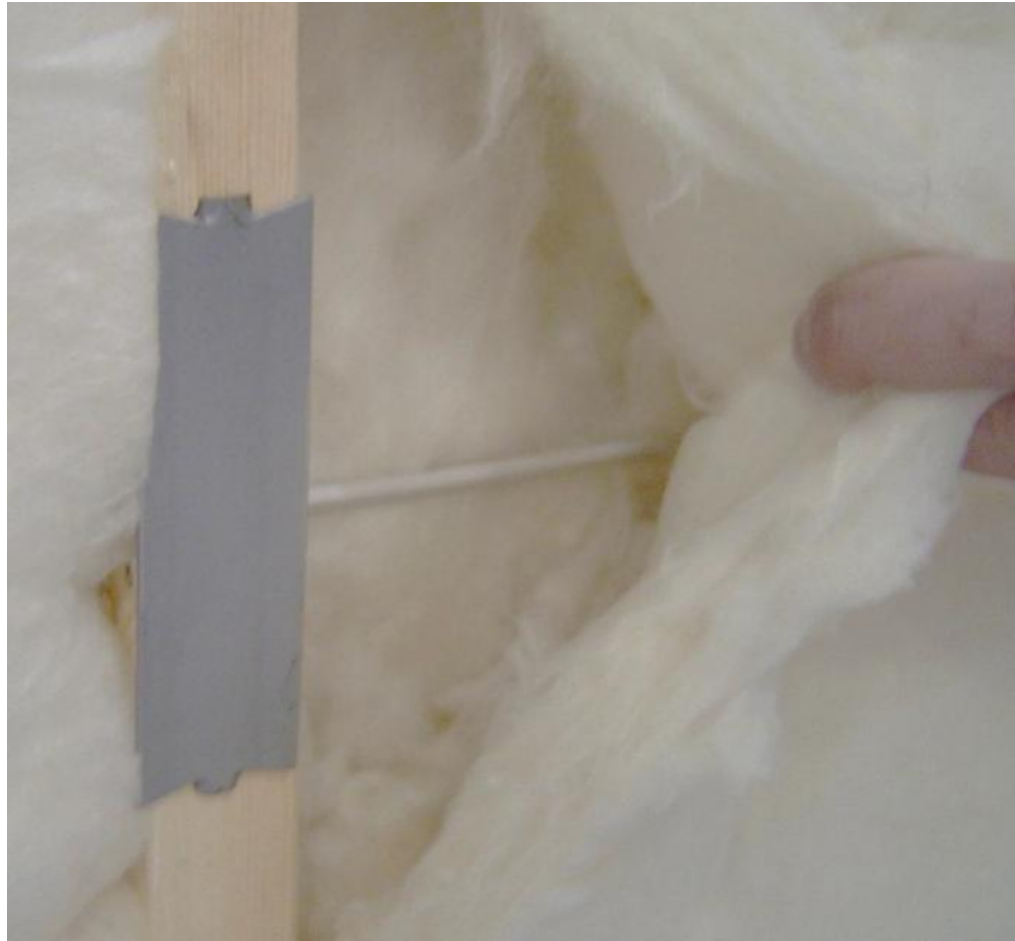


Gaps

- $> 2\%$ and $< 5\%$ **gaps/voids**
- (greater than 5% = downgraded R-value)
- 10% or worse **compression/incomplete fill**

Installing Insulation

What Grade?



Installing Insulation

What Grade?



Installing Insulation

What Grade?



Installing Insulation

What Grade?



What Grade?



What Grade?



What Grade?



What Grade?



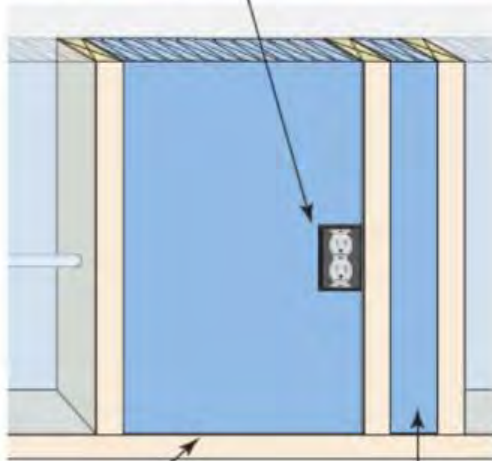
Voids & Gaps

Wall Insulation key points

Voids / Gaps

Passing Grade

Insulation is notched and completely surrounds electrical box



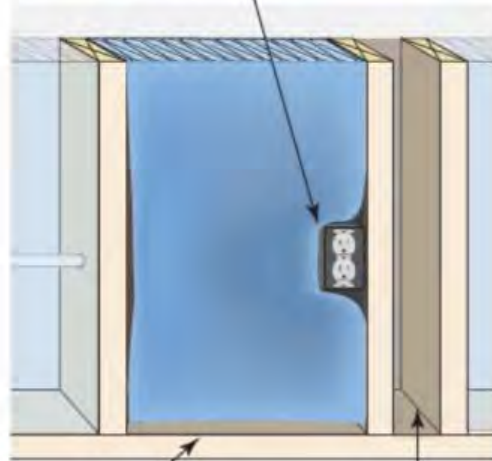
Insulation fully fills cavity at top and bottom

Narrow cavity fully insulated

Good!!!

Unacceptable Installation

Incomplete insulation coverage around electrical box



Insulation does not extend to bottom of cavity

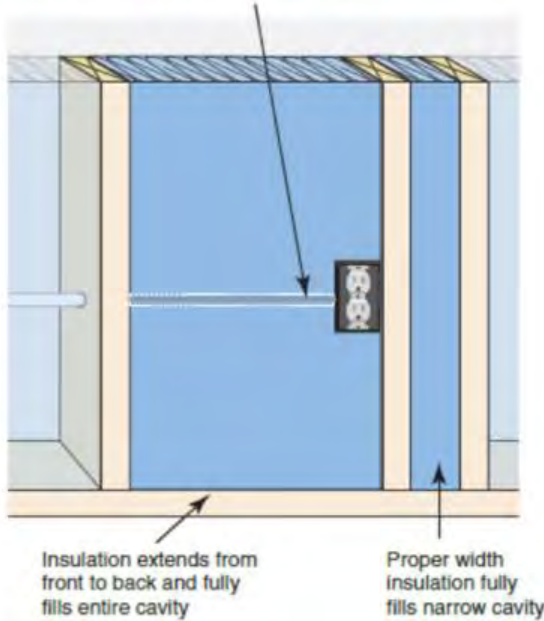
Narrow cavity not insulated

Bad!!!

Compression & Incomplete Fill

Passing Grade

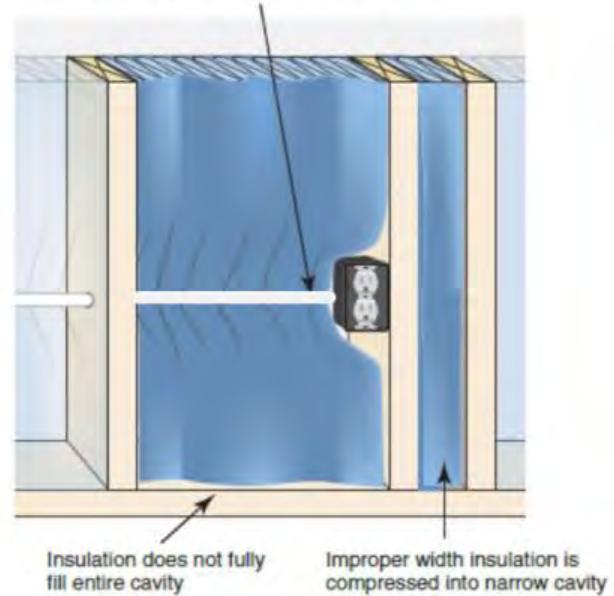
Insulation is slit around electrical wire



Good!!!

Unacceptable Installation

Insulation is compressed behind electrical wire



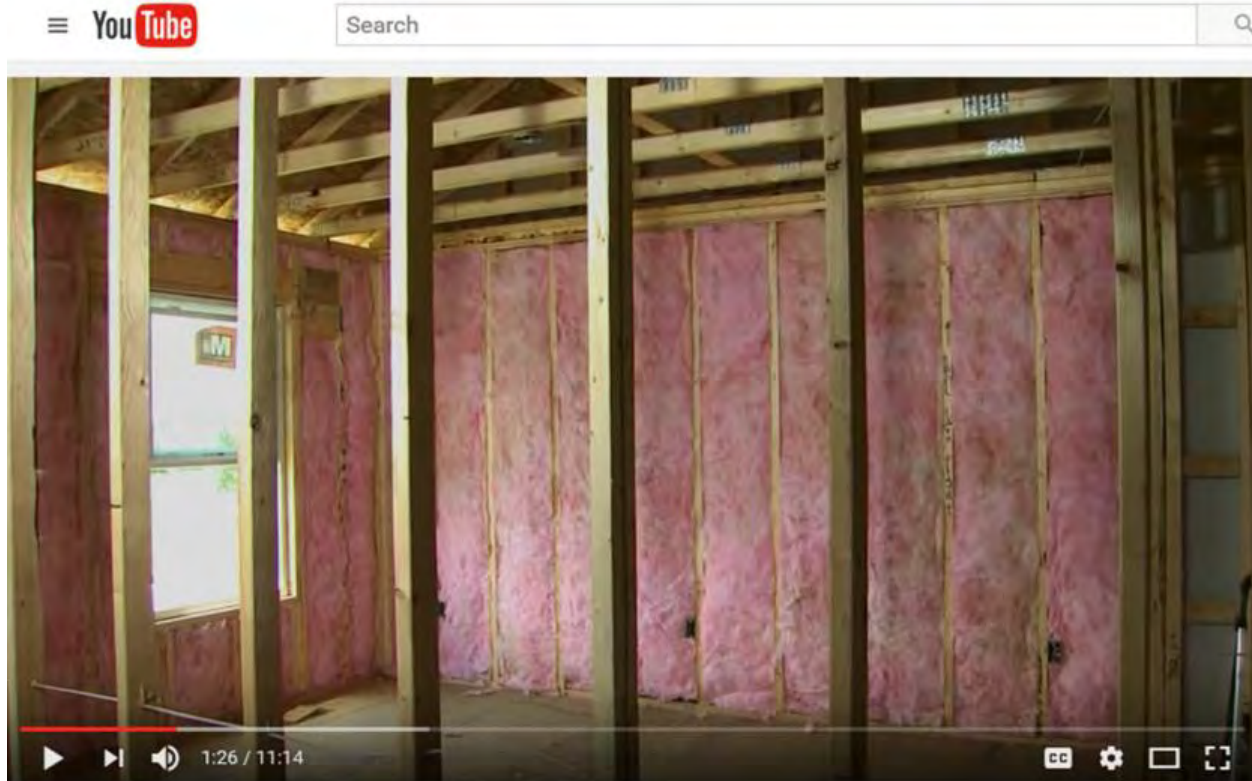
Bad!!!

Installing Insulation

Installation Videos



Installation Video



Installation Video



The image shows a YouTube video player interface. At the top left is the YouTube logo, and to its right is a search bar. The video content area displays the title "Keys to Proper Batt Installation" in large white text. Below the title is a list of four numbered tips in red and white text. At the bottom of the video player, there is a progress bar showing "3:27 / 11:14" and several control icons (play, volume, settings, full screen).

YouTube

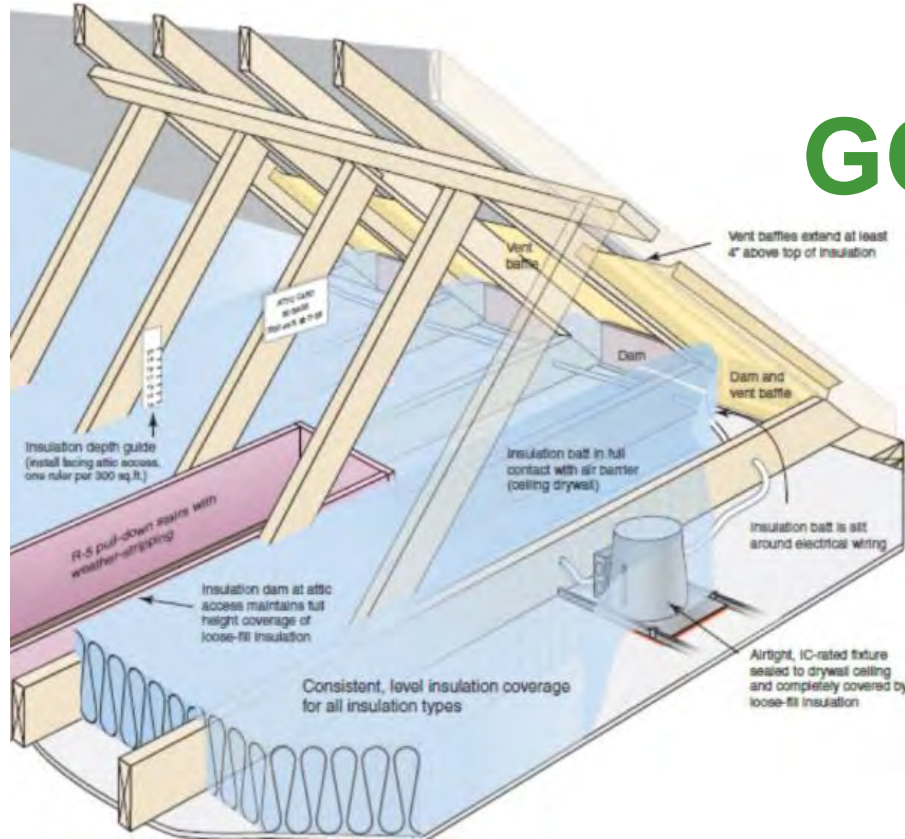
Search

Keys to Proper Batt Installation

- #1** - Fill the cavity top-to-bottom, side-to-side and back-to-front
- #2** - Leave no gaps between insulation and framing members - studs and top & bottom plates
- #3** - Split around wiring
- #4** - Insulate behind electrical boxes and other voids created by cavity obstructions

3:27 / 11:14

Ceiling Insulation

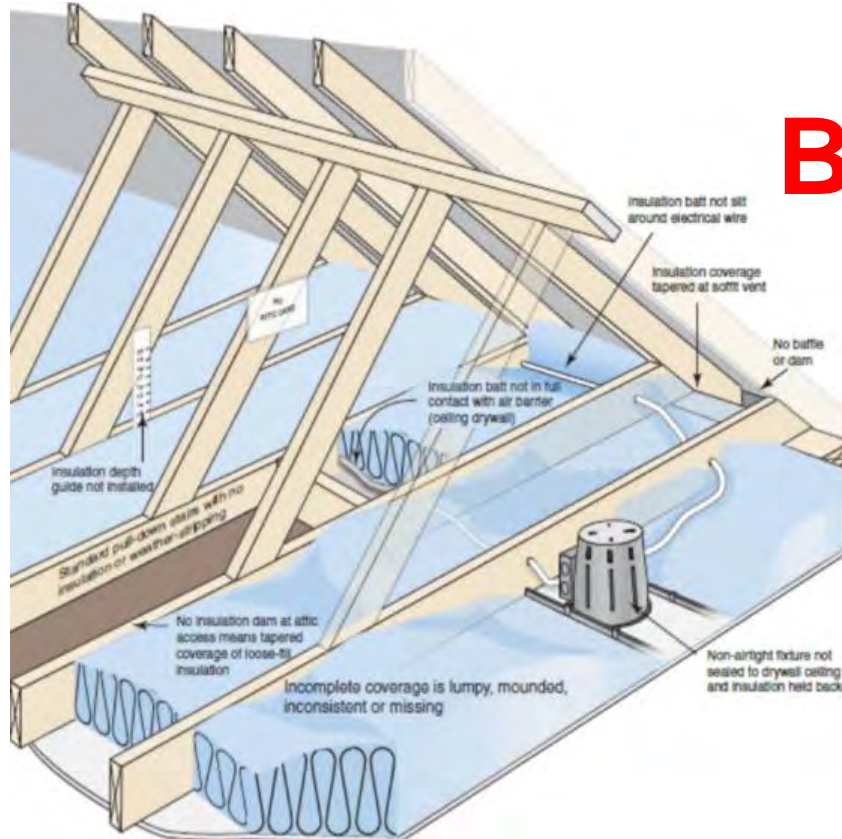


GOOD!

See IECC R303.1



Ceiling Insulation



BAD!

Ugly Ceiling Insulation

