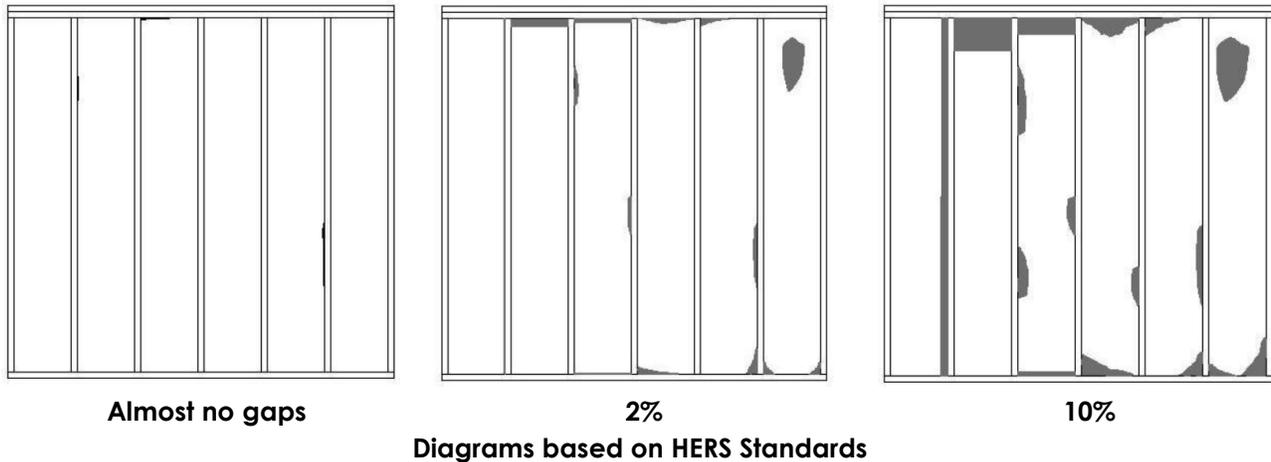


# Is the insulation up to code?

When insulation installation is evaluated, assemblies are often designated as Grade I, Grade II, or Grade III. Two criteria are considered when determining the installation grade: missing insulation and compression. **Grade I is used to describe insulation that is generally installed according to manufacturers' instructions (Section 303.2 2009 IECC) and therefore is the only grade considered to be code compliant for the prescriptive path.**

## Missing Insulation

- **Grade I\***: 0% to 0.5% of the area, or up to 7 sq. in. of missing insulation per stud bay
- **Grade II\***: 0.5% to 2% of the area, or 7 square inches to 27 sq. in. of missing insulation per stud bay
- **Grade III\***: More than 2% of the area, or more than 27 sq. in. of missing insulation per stud bay



## Compression\*\*

- **Grade I\***: Up to 2% compressed area (27 sq. in. per stud bay), must be >70% of the intended depth
- **Grade II\***: Up to 10% compressed area (133 sq. in. per stud bay), must be >70% of the intended depth
- **Grade III\***: A total compression area of more than 10%, (or more than 133 sq. in. per stud bay)

\* Suggested ranges based on RESNET guidelines. Area calculations are based on an 8 ft. ceiling with 16 in. stud bays.

\*\* The Insulation Institute allows inset stapling but it is not recommended here since it reduces the R-value of the wall.

## Why is having properly installed insulation important?

Gaps, voids, and compressions can cause cold spots in walls, ceilings, and floors. In addition to the loss of insulating value (and increased heating / cooling expense), these cold spots can cause drafts and encourage the formation of condensation in the wall cavity, floor, or ceiling.

## Challenges and Code Compliance

It's often immediately clear whether insulation installation is Grade I or Grade III. The difficulty often comes when distinguishing between I and II (**Grades II and III are not code compliant**). That's when a closer look is necessary. Is the batt split around wiring / piping and cut tightly around switches / receptacles, do compressions reduce thickness to <70%, is the total area of missing insulation >0.5%? In other words you need to carefully assess if the sum total of imperfections leads to a Grade I or Grade II determination.

## Helpful Resources



<http://bit.ly/departmentofenergy>



<http://bit.ly/InsulationInstituteTips>



<http://bit.ly/owenscorninggrade1>



# Examples from the field



**Grade I: Compliant**



**Grade II: Not Compliant**



**Grade II: Not Compliant**



**Grade I: Compliant**



**Grade III: Not Compliant**



**Grade III: Not Compliant**



**Grade I: Compliant**



**Grade I: Compliant**