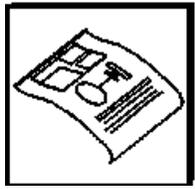




# Improve Energy Efficiency with Advanced Floor & Ceiling Insulation Techniques

## Builder Guide



### DESCRIPTION

Advanced floor and ceiling insulation techniques can significantly reduce the amount of energy a house consumes with little additional effort. Two key practices are required to maximize insulation effectiveness: 1) adopt framing techniques that eliminate uninsulated floor and ceiling sections - such as rim joists and wall-roof connections; and 2) fill insulation cavities entirely leaving no gaps where convection currents can form. The following examples illustrate advanced techniques for installing insulation in typical trouble spots.



### BENEFITS

- Providing comfortable energy efficient houses with lower utility bills will increase customer satisfaction, reduce callbacks, and increase referrals.
- When you provide a potential home buyer with a more desirable product, closing the sale is easier.

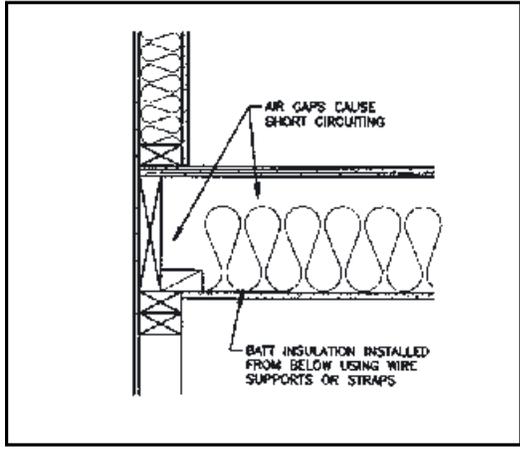


### INTEGRATION

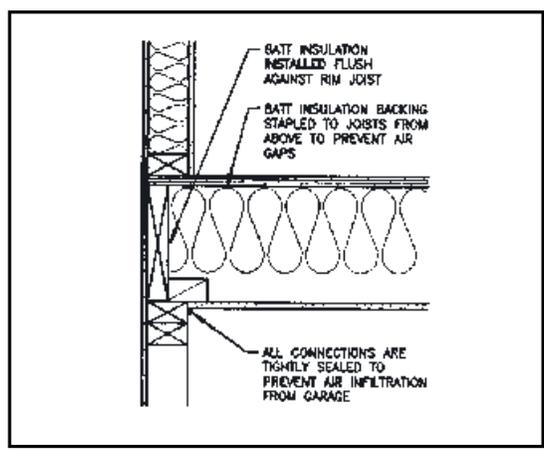
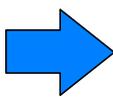
- Production sequencing may have to change somewhat to accommodate some of these advanced framing techniques. For instance, stapling insulation batts in floors above garages requires the insulation contractor to install insulation before subfloor is in place. This can be done efficiently if prior planning is done.

## Improved Insulation Techniques for Floors Over Garages

When insulating floors over unheated garages, the joint between the header or band joist and the subfloor must be sealed to keep out cold air. Also, the joint between the top or sill plate and the header joist must be sealed, as must all air leakage sites in the floor (e.g., electrical penetrations). Insulation should be trimmed to fit snugly, with no gaps. Whereas typical construction uses wire mesh or stay wires to support and keep the insulation in place, a preferred method is to staple the kraft paper to the floor joist from above. In addition, a properly installed air barrier prevents cold air in the garage from “short circuiting” the insulation underneath the subfloor.



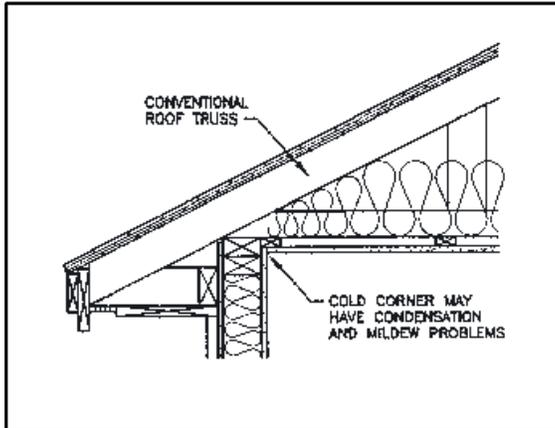
Typical Construction



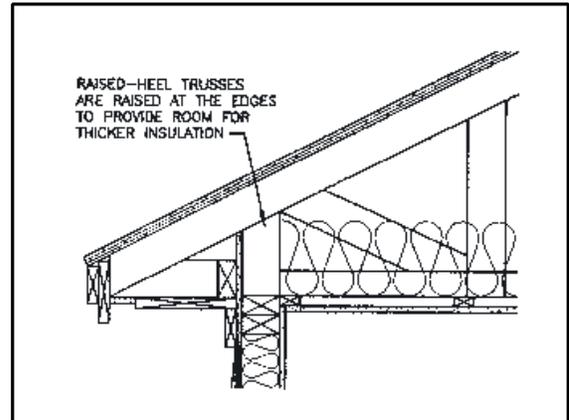
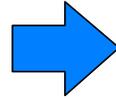
Preferred Construction

## ❑ Improved Insulation Techniques for Roof-Wall Connections

The connections between roofs and walls are a typical trouble spot for insulation. Insulation is usually compressed or left out entirely. A raised-heel truss or traditional roof framing can be used to avoid compressed or missing insulation around the edges of the ceiling.



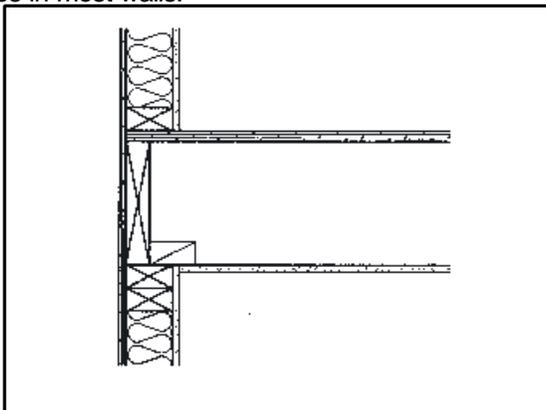
Typical Construction



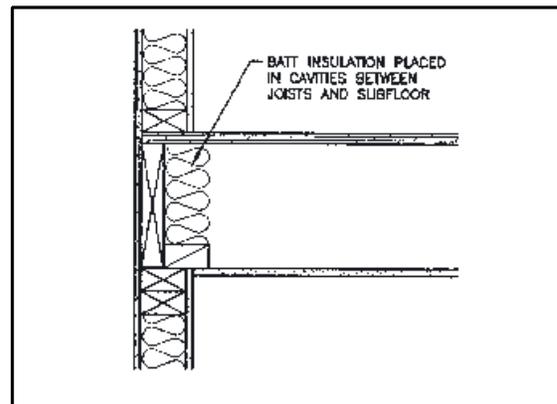
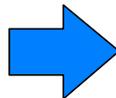
Preferred Construction

## ❑ Improved Insulation Techniques for Rim Joists

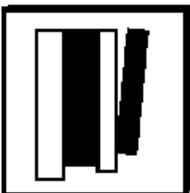
The rim joists are often overlooked when it comes to insulation and sealing. However, rim joists account for about 10 percent of the wall area. In addition, rim joist connections with walls above and below are the biggest air leakage sites in most walls.



Typical Construction



Preferred Construction



## RESOURCES

- ❑ *Super Good Cents Builder's Field Guide* (Bonneville Power Association), 1992. Available at 206-216-4272.
- ❑ *NY Star Builder's Field Guide* (NY Star, Inc.), 1994. Available at 518-465-3115.
- ❑ *Canadian Home Builder's Association Builder's Manual*, 1994. Available at 1-800-346-0104.