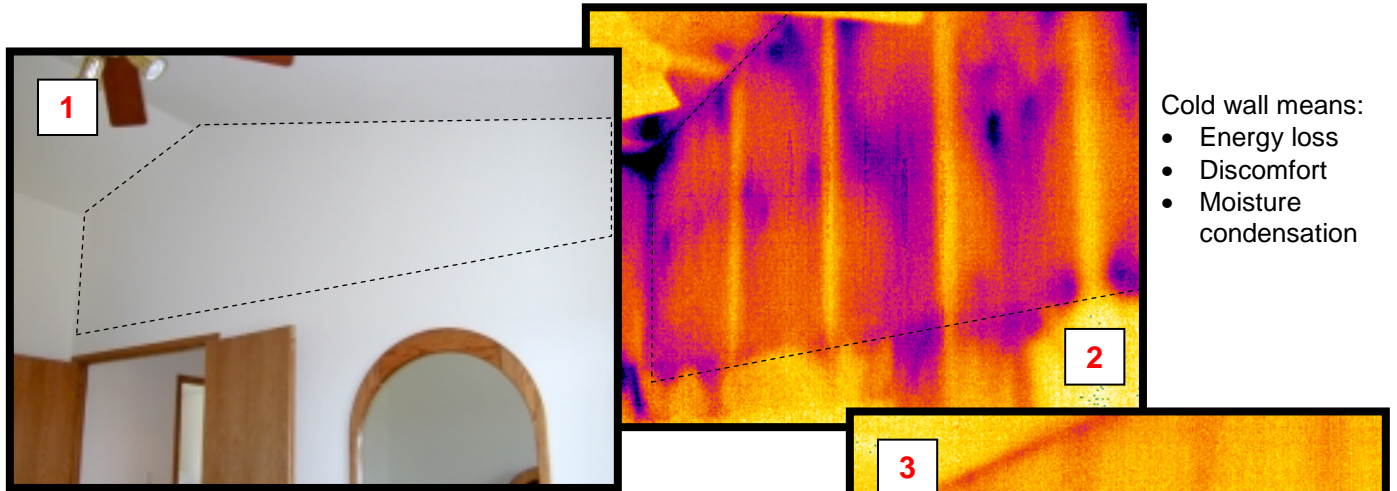


Architectural Detail: Bedroom Knee Wall

Modern houses often include many eye-catching architectural details. They add interest to a home.

Beware: to perform well, these details require special attention. These photos show an architectural detail that didn't get enough attention.



- Cold wall means:
- Energy loss
 - Discomfort
 - Moisture condensation

The dashed lines in Photos 1 and 2 highlight a “knee wall” – a short wall separating the vaulted space in a bedroom from the adjoining attic space. Photo 1 is a normal photo. Photo 2 is an infrared image; the colors indicate temperatures. Lighter colors mean warmer surfaces; darker colors mean cooler surfaces. The temperature pattern on the knee wall is very irregular, with many cold areas. The vertical framing is warmer than the areas between.

In contrast, Photo 3 shows the exterior wall in the same room. Note the regular pattern on this warm wall. The framing is slightly cooler than the insulated portions, because wood conducts heat faster than insulation. This is what the knee wall **should** look like.

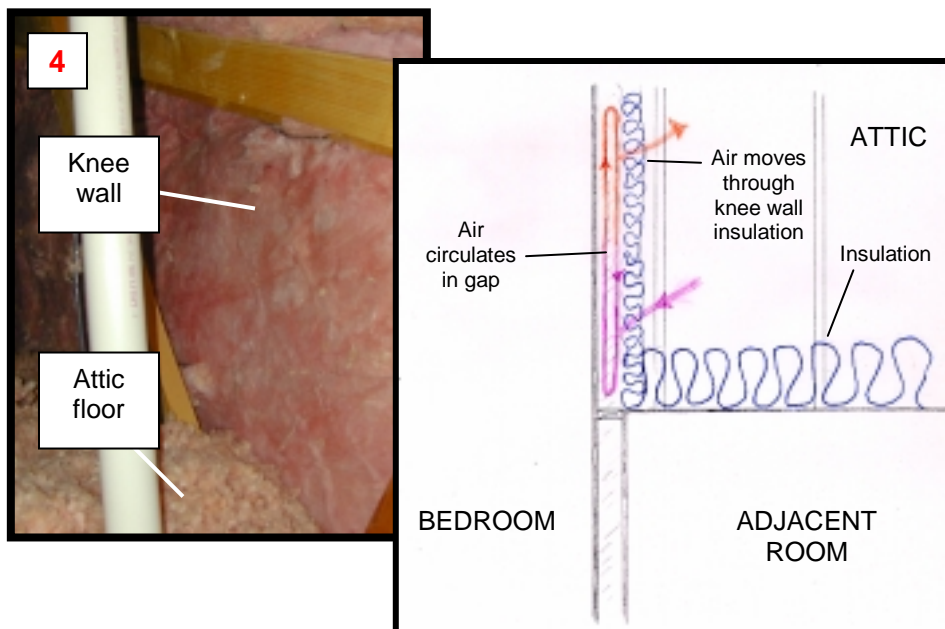


Photo 4 shows the attic side of the kneewall. It's insulated. Why isn't the insulation doing a better job?

The diagram shows what's going on. The insulation is installed behind the wall framing, leaving a several-inch-wide gap between the insulation and the wallboard. There also is no barrier to stop cold air from moving into and through the insulation from the attic. The combination of the warm room and cold attic gets air moving, robbing heat from the wallboard.

Details matter!