

# How do you insulate a vaulted ceiling?

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Bernice from Midland, Ontario wants to know how to get more insulation into her vaulted, or cathedral ceiling.

The common problem with structures like this, that we call "compact roofs", is that there is not usually enough space for a lot of insulation and a lot of ventilation. In fact, when the only space you have is that left by a 2x8 or even a 2x10, you really can't do a perfect job of both insulation and ventilation. These ceilings often show the location of the rafters by dirt marking on the drywall, because the cold will come in through the wood, chill down the drywall, attract moisture which attracts and holds dirt faster than the rest of the wall -- something we call "ghosting".

When you can't do much about the roof, one of the easiest and quickest ways to beef up the insulation on a ceiling like this is to add 1 to 2 inches of ridged foam insulation right over the drywall and then add more drywall. That prevents all the old stuff from falling out. If you are into major ceiling renovations anyway, remove all the old insulation, assure a 1 inch air passage from the soffits right up to a ridge vent (maybe put 1x1 spacers in the corners where the joists and the roof meet and then put cardboard, wood panels or even insulation board up against this. This guarantees a smooth air flow on the underside of the roof. Then fill the rest with insulation. Then add foam insulation right across the whole thing, preventing the wood from touching the drywall.

If you are building a new house, or going to seriously modify the top of your existing house, the graphic from the R-2000 program builder's manual shows a scissors truss. This modern structure will give you the vaulted ceiling that you wanted to copy from California, but with enough space above it to have lots of insulation and lots of ventilation as we need in Canada. I often use the documentation from the R-2000 program to evaluate or compare any building practice. In the R-2000 program, they don't skimp but simply do it right.

**Keywords:**

Ceiling, Insulation, R-2000, Roof, Ventilation