

Can I insulate a roof from the outside?

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20 years ago Bob built a geodesic dome in Saskatchewan. As you can see, it was a community effort. After all this time he has finally gotten tired of the snow melting off the roof creating all kinds of ice cycles, so he is asking about the feasibility of putting some Styrofoam right over the shingles and then a metal roof over that. The answer is definitely yes -- with some precautions. The foam insulation can be put directly over the shingles, or the shingles removed if there is a weight consideration. Just make sure there is no rot in the roof deck before closing that all in with nice warm insulation. To make installation of the foam easiest, screw a board over the very bottom of the existing roof edge. This should be the same thickness as the foam will be, probably an inch and a half, if not three inches (two layers of foam boards). This gives you a nailing base as well as a stop which will allow you to set in the foam. The metal roof should not be in contact with the foam, primarily because in the hot prairie summer it could actually cause the foam to melt. So you need a minimum of 3/4 inch strapping, probably just 1/3's that run vertically up to the top, well, at least as close to vertical as you can get on a geodesic dome. The idea is that you need warm air to be able to rise from the very bottom edge up and out the top. This will be your new ventilation space and if there was an old one under the old roof, it should now be closed off. With metal roofing you probably don't need a roof deck as such but you do need a continuous air flow under the metal, not blocked pockets of air. That will raise some complications with this roof but people ingenious enough to build it in the first place can certainly plan for air flow in the new roof. Is all of this so strange? Actually, many regular cottages with beautiful open beam ceilings put foam insulation over the top so as to leave the inside untouched and the heating bills under control. If you are using asphalt shingles on the new roof, you simply nail a roofing deck to the strapping and treat it as a regular roof. In a case where there is no insulation on the inside (winterizing a hunting cottage) you could even put a vapour barrier over the roof first -- it does end up on the warm in winter side. That is precisely how some people manage to get a vapour barrier in their roof despite tongue and groove boards all over the ceiling.

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