

BEST PRACTICES

Insulation of Attics and Roofs

The necessary complement to successful ICF construction

Amvic ICF walls provide the most energy efficient wall system that are possible. They provide all three elements of structural thermal energy efficiency:

1. **Air tightness** – reduced infiltration
2. **Substantial insulation** – closed cell EPS foam, the best possible wall insulation, with a rated R-22.5 and an equivalent performance of an R-50 wall.
3. **Thermal mass.** The “energy flywheel” that provides either energy delay or energy transfer from the hot part of the day to the cool and vice versa.

However, if you don’t adequately seal and insulate the attic space you’ll only get half of the energy value possible.

IF there is ductwork in the attic space:

1. First choice, go with an unvented attic and insulate and seal to the rafters on the underside of the roof. Use a spray applied polyurethane foam, preferably an open cell variety such as Demilec SealAction 500.
2. Second choice, vented attic with tight air seal at the bottom of the roof trusses (sheetrock ceiling). The best case would use spray on open cell foam to seal the sheetrock and to fill the cavity between the framework. At least 2-4 inches of foam. Then top that with blown cellulose to a total of at least R-30, or possibly R-45 total.
3. Third choice install an air barrier between the ceiling sheetrock and the ceiling rafters. It is essential that the air-seal is complete and uninterrupted. Then blow cellulose over the rafters to a total of R-30 and upto R-45.

In any case, DO NOT USE FIBERGLASS insulation. It is the lowest grade and poorest of the insulations that is permitted. To understand why, go to www.energywisestructures.com

If there is NO ductwork in the attic space, then seal and insulate to the ceiling of the occupied space using method 2 or at least method 3 as outlined above.

When using an vented attic design it is critical to seal all openings in the ceiling so that there is no leakage. In particular, if can lights are used, they must be air tight cans with a full double enclosure. These and other important energy efficient issues are addressed at the Energy Wise Structures website, www.energywisestructures.com

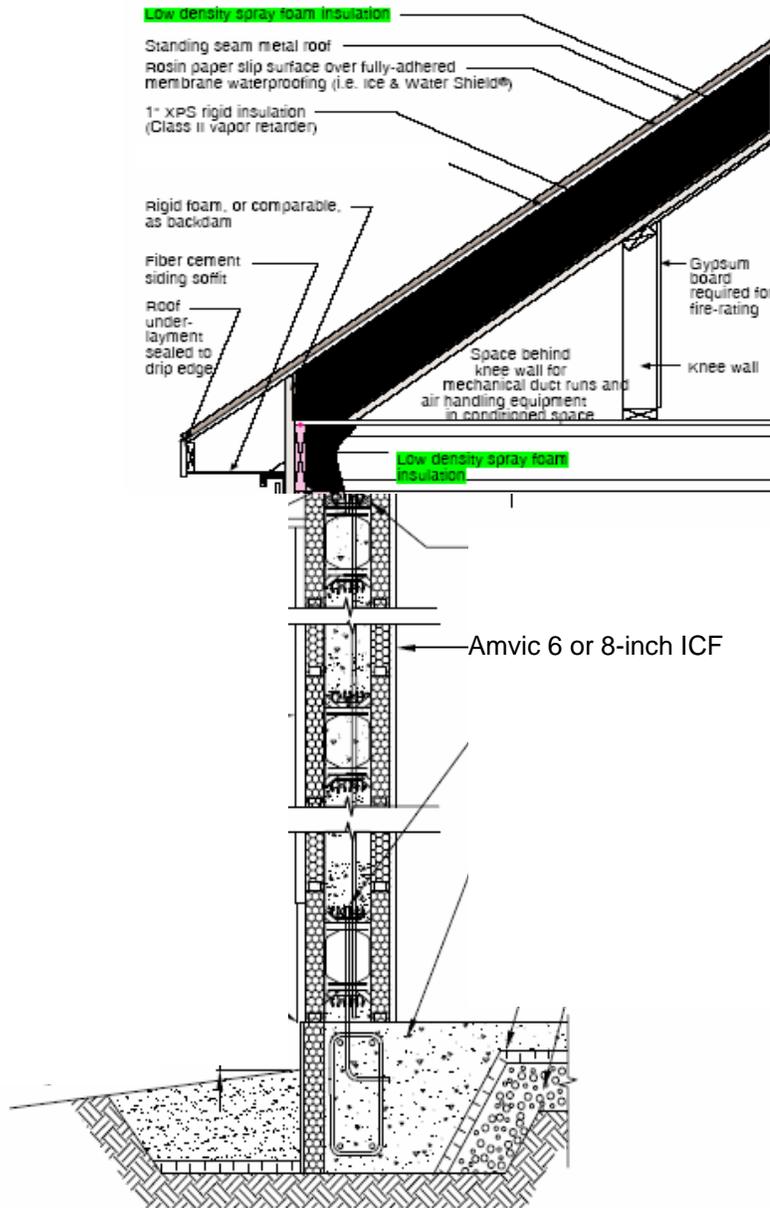
Friends don't
let friends do
Fiberglass!

Why would you use
the best possible
wall system and the
lowest grade insula-
tion that building
codes permit?

More information on ICF construction: www.amvic-pacific.com

or call Amvic Pacific at 530-265-9085

Ultra Energy-efficient Design: *Unvented Attic* Insulated on the underside of the roof



This unvented attic design generally provides the most energy efficient envelope design to complement ICF walls for arid western U.S. climates. This design originates from U.S. Department of Energy research. Details on this design can be found on the Building Science Corporation website. www.buildingscience.com

Sealing the envelope and insulating it fully are the key elements of this design. This is accomplished best by applying a sprayed on foam to the underside of the rafters.

Spray foams are either closed cell or open cell. Closed cell foams have a slightly higher R-value, but are impermeable. Use of an open cell spray polyurethane foam against the roof sheathing permits any moisture that works under the roofing paper to work its way out and to be equalized rather than trapped as a source of decay or mold.

For more information call: Amvic Pacific 800-296-1971