



## STANDARDS + SPECIFICATIONS: INSULATION

## SUCCESS WITH AFFORDABLE HOUSING

SystemVision

All insulation shall be installed so that the full R-value is achieved in every location. No voids, gaps, compression or wind intrusion shall be permitted in wall, floor or ceiling insulation. The insulation shall be touching the air barrier in all locations. Physical backing is required on the attic side of all knee walls and on the tub or shower side of all exterior walls touching a tub or shower. The following guidelines will help you meet the standard (Detailed drawings showing many of these details are in the Builder's Field Guide, Chapter 9 - Insulation, and Chapter 5 - Framing):

- Insulation levels shall be, at a minimum, equal to those required by the 2009 International Energy Conservation Code (IECC).
- Insulation shall be installed so as to fill 100 percent of every cavity exactly.
- Insulation shall be cut to fit around all plumbing, heating, electrical and other obstacles in such a way as to fill the spaces while leaving no gaps and not compressing the insulation.
- If batts are used, they will be split to go behind and in front of wires and plumbing.
- The space behind electrical boxes shall be fully insulated.
- Exterior walls behind tub and shower enclosures shall be insulated, and an appropriate (rigid and durable) air barrier (sheetrock, OSB or plywood, Thermoply, etc.) shall be installed before installation of the tub or shower.
- Knee walls shall be appropriately backed. THERMAX™ has been fire-rated for attic exposure (knee wall-backing). Check with your local code officials.
- If faced batts are used in walls or cathedral ceilings, the flanges must be stapled to the face of the studs or rafters. Staple the flange to the surface facing into the room, not the surface facing into the cavity.
- Full thickness attic insulation shall extend to the exterior edge of the top plate of the wall below. This will require roof framing details that allow for this, such as raised heel trusses or over-sized trusses. Baffles shall be installed to prevent overblow into soffits and to prevent wind from passing through the insulation.

- Spaces between windows and rough framing, and between doors and rough framing, shall be sealed with a closed cell foam material or, if the gap is small enough, caulk. Fiberglass or rock wool insulation shall not be used for this purpose.
- Attic access openings (hatches or pull-down stairs) shall be insulated to at least R-30 and weather-stripped to prevent air movement between the attic and the living space. The insulation must be glued or stapled to prevent misalignment. The attic insulation shall extend to the edge of the opening, and should be contained (dammed) in such a way as to prevent insulation from falling through the opening.
- Floor insulation shall be installed so as to provide continuous coverage with no compression of the insulation and with no gaps. Insulation shall be cut and fit around pipes, blocking and bridging, and other obstacles so as to provide the full R-value in all spaces where possible. Floor insulation must be in continuous contact with the subfloor.
- Band joists shall be insulated to at least the level of exterior walls.
- Recessed light fixtures, if installed in insulated cavities, shall be IC-rated. It shall be the responsibility of the insulation contractor to verify the rating on the fixture before insulating over it. Recessed fixtures shall also be the low air leakage type, tested to have leakage of less than 2 CFM at 1.57 psf according to ASTM E 283.

*The following are strongly recommended:*

- All headers should be insulated with rigid foam insulation (minimum R-3) [e.g., half inch foam board between 2 - 2x10's].
- Walls between conditioned space and attic space should always have a rigid material on the attic side, preferably foam insulation, which will increase the R-value of the wall.
- Insulated foam sheathing around the entire exterior wall surface is strongly recommended.
- All corners and t-intersections shall be insulated before sheathing is installed, or be constructed in such a way that they can be fully insulated afterwards.