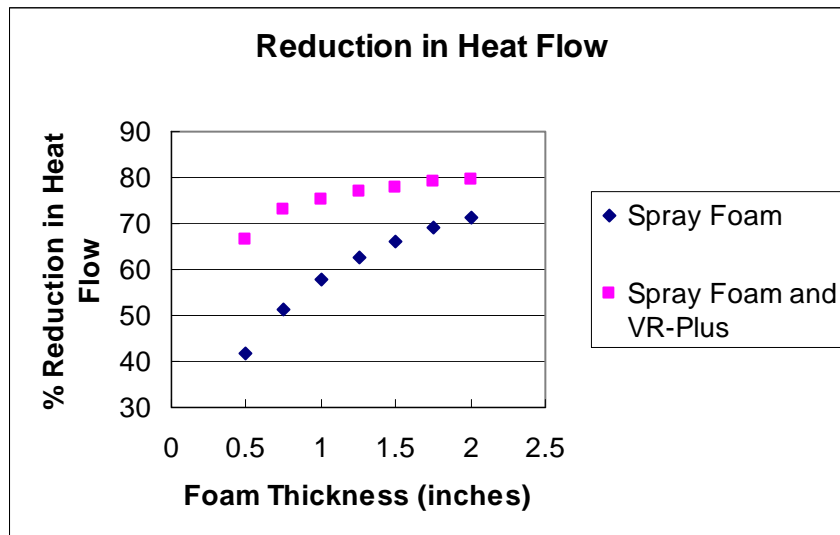




### Calculated Reductions in Heat Gain or Heat Loss Across Walls With Foam and VR Plus

Insulating a wood-frame wall with a combination of spray-applied polyurethane foam and VR-Plus Shield reflective insulation results in substantial reductions in heat loss or heat gain. A series of calculations based on component R-values and calculated reflective air-space R-values in a nominal 2x4-inch 16-inch OC wood frame wall were completed to quantify the savings. The wall was taken to have siding applied to nominal ½-inch OSB and ½-inch gypsum on the interior side. An exterior air-film resistance of 0.17 and an interior air-film resistance of 0.68 ft<sup>2</sup>·h·°F/Btu were used in a parallel path calculation of the U-values for insulated and uninsulated walls. Reductions in heat flow reported here are relative to the uninsulated wall cavity. The resistances of the unfilled air spaces are included in the calculations.

U-values and heat-flow reductions were calculated for a series of spray-foam thicknesses with and without the presence of the reflective insulation. The spray-foam thermal resistivity (R per inch) was taken to be 6.0 ft<sup>2</sup>·h·°F/Btu·in. In the following figure, the points labeled “Spray Foam” are the calculated reductions for foam installed at the indicated thickness with the remaining space an enclosed non-reflective air space. The points labeled “Spray Foam and VR-Plus” are reductions for the indicated foam thickness and VR-Plus installed in the wall cavity.



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March 3, 2008