



Calculated U-values for VR+Shield Installed in Metal Framing with Flex Foam

The reflective insulation assembly VR+ Shield with $R=7.1 \text{ ft}^2\cdot\text{h}\cdot^\circ\text{F}/\text{Btu}$ (solid) or $R=7.0 \text{ ft}^2\cdot\text{h}\cdot^\circ\text{F}/\text{Btu}$ (perforated) can be installed between 1.625-in. steel framing with 1.25-in. flanges attached to masonry walls. The U-value is calculated in this report using the parallel-path method. The calculations are based on framing that is 24-in. on-center with floor to ceiling distance of 108 inches. The corresponding area fraction 0.074 has been calculated for the framing. The thermal resistance of steel framing has been taken to be zero. The thermal resistances used in the U-value calculations are listed in Table 1.

Table 1. Thermal Resistance Values ($\text{ft}^2\cdot\text{h}\cdot^\circ\text{F}/\text{Btu}$)

<u>Component</u>	<u>R-value</u>
Exterior air-film	0.25
Stucco 0.625 in.	0.14
CMU, 8 in., insulated core	2.0
CMU, 8 in., uninsulated	1.04
Flex Foam by Fi-Foil, ½ in.	1.60
VR+ Shield	7.0
Region occupied by framing	0
Interior sheathing, 0.5 in.	0.45
Interior air film	0.68

The results for calculated U-values are contained in Table 2. The results in Table 2 include CMU without core insulation and assemblies with and without continuous insulation. U-values based on 16-in. OC framing would be greater than those shown in Table 2.

Table 2. Calculated U-values ($\text{Btu}/\text{ft}^2\cdot\text{h}\cdot^\circ\text{F}$) 24 in. OC-9 ft. Ceiling

<u>Assembly</u>	<u>U-value</u>
CMU, uninsulated, no continuous insulation	0.125
CMU, uninsulated, with Flex Foam as Cont. Insulation	0.101
CMU, uninsulated, with R 0.5 added to the flanges	0.121
CMU, uninsulated, with R 1.0 added to flanges	0.118

The continuous insulation or the insulation added to the flanges can be on either side of the assembly.

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