



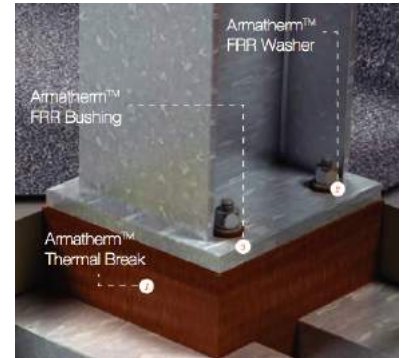
Roof Penetration Armatherm™ Grade FRR & 500

Structural Thermal Break Solutions

Introduction

The roof is part of the building envelope where penetrations such as davits, anchors and supports for dunnage extend through the thermal envelope and roof insulation creating non-continuous insulation. These interface details are typically connected to interior trusses or structural elements creating a thermal bridge and point transmittance. The R value of the roof can be reduced by 40% in these areas.

A thermal break at these locations will improve the U value of the roof assembly and prevent potential condensation problems at the structural connection. Armatherm FRR and 500 series thermal break materials can transfer the loading conditions at these locations while significantly reducing heat flow. The transmittance can be improved by as much as 80%.



Material data information for the thermal modelling examples shown is available upon request. Please contact us to obtain these or the thermal performance and condensation indices results of other modeled areas in the building envelope from our thermal modeling library.

Scenario	Roof Insulation 1D R-Value ft ² hr ² F/BTU (W/m ² K)	Clear Field R-Value (R _o) ft ² hr ² F/BTU (m ² K/W)	U _o BTU/ft ² hr ² F (W/m ² K)	R effective ft ² hr ² F/BTU (m ² K/W)	U effective BTU/ft ² hr ² F (W/m ² K)	Point Transmittance of Anchor BTU/ft ² hr ² F (W/mK)	% Reduction in Heat Loss
Roof Anchor without Thermal Break	R-40 (7.04)	R-42.3 (7.44)	0.024 (0.134)	R-25.5 (4.49)	0.04 (0.223)	0.204 (0.35)	-
Roof Anchor with 12.7mm Armatherm FRR	R-40 (7.04)	R-42.3 (7.44)	0.024 (0.134)	R-27.2 (4.79)	0.036 (0.209)	0.175 (0.30)	14%
Roof Anchor with 150mm Armatherm 500	R-40 (7.04)	R-42.3 (7.44)	0.024 (0.134)	R-37.2 (6.55)	0.027 (0.153)	0.041 (0.07)	80%

Armatherm™ Thermal bridging solutions to improve building envelope performance