



TECHNICAL BULLETIN 22: FILLING THE PURLIN AND GIRT SPACE WITH INSULATION

Pre-Engineered Metal Building

Thermal Design recommends filling the entire space between the purlins as well as the entire depth of the purlin with insulation to assure the highest in place R-values and to help avoid possible condensation problems. Leaving an air space in the cavity may require ventilation or dehumidification systems to prevent air infiltration and potential build up of water vapor in the air space, the same as in any attic space. Filling the purlin depth with insulation also helps eliminate “roof rumble”, caused by wind blowing across the roof sheets allowing the roof panels to flex up and down, although this is effect is rare.

Bar Joist Roofs

Thermal Design recommends to consult the project engineer that is familiar with the project location climate, the building's use and the other systems being incorporated into the project. We do not recommend mismanaged air space or bare, uninsulated, metal deck as it is likely to have seasonal condensation issues. However, here are available options for any particular application that should be considered when incorporating the Simple Saver System®.

1. Simple Saver liner system installed on the bottom of the bar joist with the appropriate insulation resting on the liner between the joist. The unfaced insulation should fit tightly together around the joist chords. The full depth space should be filled with unfaced insulation. The upper most layer should be installed over the top of the joist or alternatively, a separate thermal block applied to the top of the joist.
2. Simple Saver liner system installed on the bottom of the bar joist with the appropriate insulation resting on the liner between the joist. The unfaced insulation should fit tightly together around the joist chords. The Dispense-R™ System may be installed over the top side of the joists along with an upper layer of thin fiberglass insulation resting on top of the upper fabric to provide a thermal buffer directly below the metal panel roofing. An air space may be the result, depending on the depth of the joist and the thicknesses of the insulation layers.
3. Simple Saver liner system installed on the bottom of the bar joist with the appropriate insulation resting on the liner between the joist. The unfaced insulation should fit tightly together around the joist chords. An air space may be the result, depending on the depth of the joist and the thickness of the insulation. "Above Deck Insulation" can be installed on top of the joists. If there is an air space, it can be addressed by one of the three Space Options listed below.

Space Options:

1. Ventilated by gravity vents
2. Power Ventilated, heat and humidity controlled
3. Non vented closed, dehumidified

For further information, contact for your Simple Saver System® sales representative at 800.255.0776.