

Plasti-Fab Design Manual

Single Ply Roofing Insulation



PlastiSpan™ Insulation

Single Ply Roofing

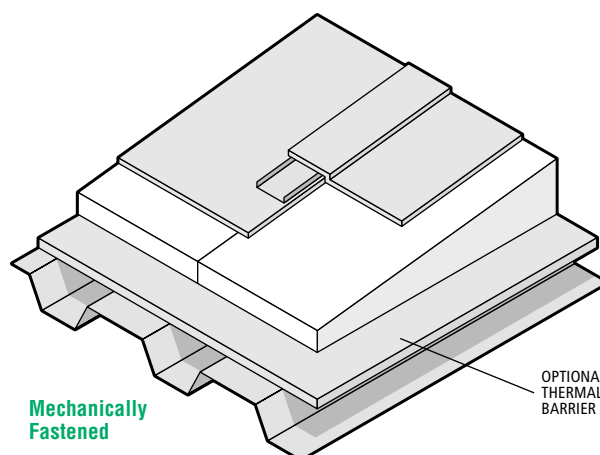
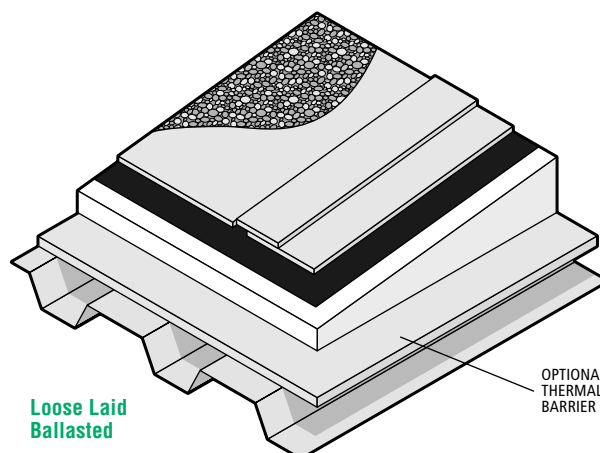
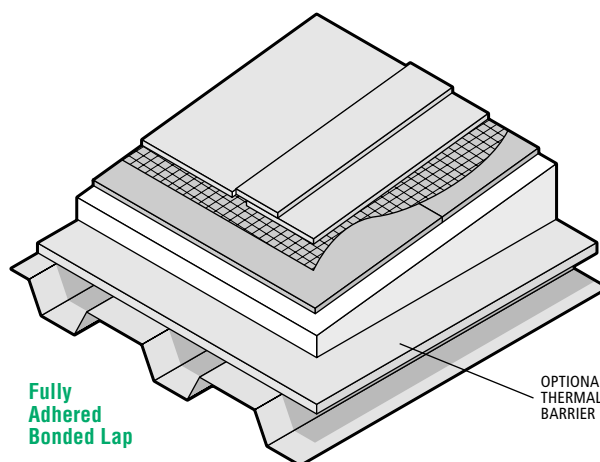
Plasti-Fab PlastiSpan insulation board can be used in combination with most types of single ply membranes. Single ply roofing systems offer the advantages of rapid installation and lightweight construction. This type of roofing system has many years of proven performance in both new and maintenance roof construction.

Various single ply roof assemblies incorporating PlastiSpan insulation board have been tested for compliance with requirements related to fire and wind hazards. Additional information on these requirements can be found in the PlastiSpan brochure "Roof & Deck Insulation: Fire Rated Assemblies".

Single ply roofs may be installed loose laid and ballasted, fully or partially adhered to the substrate, or mechanically fastened. Installation can be over a single layer of flat or sloped PlastiSpan insulation or multiple layers of insulation to provide any thermal resistance required. The attachment of the insulation will be influenced by the requirement for a base for the single ply membrane to be installed.

The following notes apply when using PlastiSpan insulation with the various types of single ply membranes:

1. Adhesive or solvents used to seal membrane seams are to be kept from contact with PlastiSpan insulation. A protection board or a solvent proof slip sheet over the PlastiSpan insulation may be necessary.
2. Do not install PVC membranes in direct contact with PlastiSpan insulation.
3. "Torch-on" membranes must incorporate a protection board over the PlastiSpan insulation to minimize fire hazard and to keep the insulation from deteriorating.
4. Loose laid or mechanically fastened systems may require an air barrier at the deck level to minimize air movement into the roofing system.
5. Some fire rated roof assemblies may require a thermal barrier to be applied over a steel deck. The thermal barrier will provide additional thermal resistance to the roof system.
6. When used with membranes recommended as suitable for traffic decks, a protection board over the top layer of PlastiSpan or PlastiSpan HD insulation will assure the membrane is adequately supported when the traffic deck is loaded.



Application

General application recommendations can be found in the PlastiSpan brochure "Roof & Deck Insulation: Selection, Application and Specification".

The following instructions apply specifically to single ply membranes.

Loose Laid Ballasted System

If required by membrane manufacturer; lay slip-sheet over insulation prior to application of the membrane.

Fully or Partially Adhered Systems

If required by membrane manufacturer; lay protection board over insulation. Lay membrane over protection board taking care that adhesives, solvents or torch do not deteriorate the insulation.

Mechanically Fastened Systems

Mechanically fasten roof membrane through the protection board.

OR

Mechanically fasten roof membrane to Z-bars or nailers.

OR

Mechanically fasten roof membrane through insulation to deck.

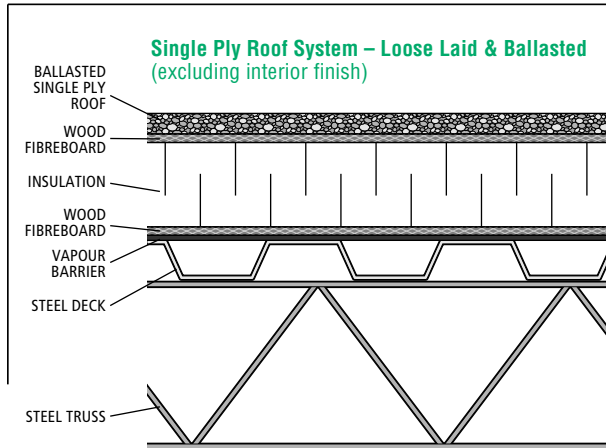
Specification

Choose specification from Specification section in the PlastiSpan brochure "Roof & Deck Insulation: Selection, Application and Specification" with the following additions:

Roof Covering

Single ply roof membrane installed in accordance with manufacturer's instructions.

Sample Thermal Resistance Calculation



Components	Metric (SI) Calculation RSI Through Insulation $m^2 \cdot ^\circ C/W$
Outside Air Film	0.03
Single Ply Roofing & Ballast	0.06
11 mm Wood Fibreboard (11 mm x 0.016 RSI/mm)	0.18
EPS Insulation (133 mm x 0.026 RSI/mm)	3.46
12.7 mm Wood Fibreboard (12.7 mm x 0.016 RSI/mm)	0.20
Inside Air Film	0.12
TOTAL RSI_T	4.05
Overall Thermal Transmittance	0.246 W/m² · °C/

Notes to the Table:

- The sample calculation uses principles detailed in the National Energy Code for Buildings 1997, issued by the Canadian Commission on Building and Fire Codes National Research Council of Canada.
- PlastiSpan insulation board meets the requirements of CAN/ULC-S701, Type 1. To calculate the RSI at any insulation thickness, multiply the specified thickness in millimetres by 0.026 RSI/mm.
- PlastiSpan HD insulation board meets the requirements of CAN/ULC-S701, Type 2. To calculate the RSI at any insulation thickness, multiply the specified thickness in millimetres by 0.028 RSI/mm.