

MULTI-LAYERED POLYISO ROOFING INSULATION RECOMMENDATIONS

Multi-layering of Polyiso roof insulation installed with staggered joints offers a number of advantages over a single-layer system.

REDUCED THERMAL LOSS

- Multi-layered systems with staggered joints reduce gaps between boards, thereby removing any potential pathway for airflow, heat transmission and condensation or "thermal short."
- Multi-layered systems more easily retain the published R-value compared to single-layer installations.

REDUCED THERMAL BRIDGING

- Mechanical fasteners penetrating rigid board insulation may reduce thermal resistance from between 3% to 8% according to a study published in ASTM SPT 959 Roofing Research and Standards Development. Thermal bridging can be significantly reduced by mechanically fastening only the first layer of insulation and using approved adhesive for each subsequent layer.

REDUCED CONDENSATION

- Multi-layered systems may help prevent interior building moisture from condensing on the underside of the finished roof surface.

Single Layer Application

Thermal bridging (heat loss) could occur here



Multi-Layer Application

Stagger joints a minimum of 6" to reduce thermal bridging
Lower rate of air infiltration from interior to exterior spaces



Although a multi-layered system may appear to be more labor intensive to install, many contractors find that working with a thinner, lighter Polyiso base layer makes for a significantly faster overall installation, especially when combined with a specialty composite top layer. These systems may also compensate for inadequate design or improper installation.

For years the benefits of multiple-layer installation of all types of rigid board insulation have been acknowledged by leading industry authorities including the National Roofing Contractors Association (NRCA), Oak Ridge National Labs (ORNL), Canadian Roofing Contractors Association (CRCA) and the Roof Consultants Institute (RCI). Contractors, designers and specification professionals follow this best practice recommendation for the use and installation of multiple insulation layers.

For additional information see PIMA Technical Bulletin #113 or the NRCA Low Slope Roofing Manual.