

The Benefits of Using Reflective Insulation in Metal Building Systems

Submitted by: Reflective Insulation Manufacturers Association International (RIMA-I)

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During the past few years, more and more companies have found the solution for keeping the desired temperature inside their buildings while keeping energy cost down. The solution is reflective insulation products. Reflective insulation products are gaining popularity for their energy savings benefits, ease of installation and competitive pricing.

Because metal buildings conduct heat, maintaining desired temperatures during the summer and winter months can be ongoing and expensive. Reflective insulation works by reducing the transfer of heat across a buildings' air spaces. Reflective insulation is manufactured with highly reflective surfaces, 95-97 percent of the radiant heat that strikes the surface is reflected, and only three to five percent of the heat is emitted through the insulation.

The major benefit of reflective insulation is that in the summer, heat that's radiated through the roof is reflected off the insulations surface back to the roof - not to the inside the buildings – keeping temperatures inside the building cooler. In the winter, heat inside a metal building is reflected off the insulation's shiny surface back into the building so that the heat is retained inside.

Types of reflective insulation include:

- single or double layer of polyethylene bubble, bonded to and sandwiched between two radiant barrier sheets.
- single or double layer of polyethylene bubble, bonded to and sandwiched between one radiant barrier sheet and one white polyethylene sheet.

To achieve the maximum performance, the insulation must be properly installed according to the manufacturer's specifications. In addition to its energy saving capabilities, reflective insulation has many other features:

- Easy to install, resulting in lower labor cost.
- Lightweight, and can be cut to fit any configuration.
- Can be installed over previous insulation to increase insulating properties, or to improve a buildings' interior appearance.
- Reflective surface can reduce interior lighting requirements by as much as 35 percent, helping to reduce energy cost.
- Low moisture transfer improves the overall thermal performance of the building

While reflective insulation can be used in any climate, they are most effective in the southern states where excessive heat can send energy cost soaring.

Reflective insulation materials are tested under the ASTM 1224 Standard Specifications for Reflective Insulation for Building Applications. Included in this criteria is a fire test. ASTM E84-09 and ASTM E2599 require reflective insulation to achieve a Class A, Class 1 rating. Most building codes require foil faced metal building insulation to have a flame spread rating of 25 or less, and a smoke development rating of 50 or less.

The Reflective Insulation Manufacturers Association International (RIMA International), the only trade association representing the reflective insulation, radiant barrier and interior radiation control coating industries, provides guidelines and information about reflective products and manufacturers in the industry. Visit the website at www.rimainternational.org and check out the 'Technical Info' section for our handbook and technical bulletin, articles and test information. RIMA-I has also recently introduced their Verification Program. This program has been established to identify reflective products which have fulfilled test requirements in accordance with the current applicable code standards. Members can voluntarily apply for verification, which is conducted by a third party accredited laboratory on RIMA-I's behalf, to establish that product meets or exceeds code requirements. Learn more about this program and what products have been verified to date on the website under 'Verified Products'. For more information or personal assistance, contact the association at 800/279-4123 or via e-mail at [rima@rima.net](mailto:rима@rima.net).

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