LOW EMISSIVITY CEILINGS

Application & Benefit Basics

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LOW EMISSIVITY CEILINGS

Emissivity is the term used to describe the ability of a material to radiate heat. Materials which are perfect radiators have an Emissivity (EM) of 1.0, while materials which radiate no heat have an EM of 0.

Most roof and ceiling materials (wood, steel, concrete, and painted surfaces) have high EM's of about .9, radiating about 90% of the heat from their surfaces. Since radiant heat migrates from a warm surface to a cold surface, the heat load in ice rinks radiates from the ceiling to the ice surface.

The amount of heat radiated from the ceiling to the ice is directly proportional to the EM of the ceiling. Reducing the EM of your arena ceiling can have a large impact on the load on your ice plant, reducing energy costs and providing better ice conditions.

True Low Emissivity Ceiling materials have an EM of 0.05, or 5% or less. Silver and aluminum products fall into this category, and both have been used to reduce the radiant heat load in ice rinks.

It is important to note that some products using a metalized polyester material are being sold into the arena market. The high gloss shiny surface looks very similar to and is often misrepresented as Low Emissivity material, when in fact it actually has a very high EM. Materials of this type provide little more than a cosmetic benefit and a false sense of accomplishment.

To ensure you are getting a true Low Emissivity material, you should always work with a reputable supplier and insist on them providing material specifications for their product.

Ceilings can be installed to cover the areas just beyond the ice surface, or over the full ceiling. Since the radiant heat load on the ice comes from directly above, installing the ceiling just beyond the ice surface provides the most cost effective application. However with additional costs often being minimal, many facilities choose to do a full ceiling installation.

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The installation of a Low Emissivity ceiling provides numerous benefits for your facility. A dramatic increase of up to a 50% improvement in lighting may be the most obvious however a 15% to 20% reduction in refrigeration costs will likely be your most important benefit. Additional benefits include a reduction or elimination of condensation problems, better acoustics, and overall improved building aesthetics.

Tsawwassen BC Arena
Before & After Installation Of The Low Emissivity Ceiling

photo courtesy of Twin Maple Marketing

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Depending on electrical rates, and building operating conditions and practices cost paybacks for the installation of a Low Emissivity ceiling may be achieved in as little as two to three years. Although for some facilities it may take longer, there is no question that the installation of a Low Emissivity ceiling will pay for itself and generate future savings through a reduction in operating costs.

For additional information on Low Emissivity products, please contact us at the numbers listed below.

photo courtesy of Hi-Pro Sporting Goods

Winfield BC Curling Club
During Installation The Low Emissivity Ceiling.

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