

Tectum™ Roof Deck in Ice Arenas

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Tectum Roof Deck has been used successfully in ice arenas for over 35 years. Tectum Roof Deck has several features that make it ideal for use in special buildings such as ice arenas. Tectum products have excellent insulation, sound absorption, durability and light reflectance.

Tectum products are recognized by authorities on ice arena construction such as Jack Vivian, Ph.D., Director of Sports Facilities and Research Laboratory at the University of Michigan. He has commented that:

"Tectum Inc. can continue their history of proven roof design by promoting the value of known R factors. Low emissivity ceilings were developed for existing arenas as a way to reduce radiant loads without having to install a new roof deck."

Lee Otte at Cardinal Glass in Northfield, Minnesota, a manufacturer of low E-Glass for various window manufacturers has suggested that:

"Tectum Inc. should promote the value of R values as related to roof deck design and not get involved in emissivity which very few people understand."

Tectum III Roof Deck with the Dow Styrofoam brand insulation which acts as a vapor retarder or Tectum I Roof Deck with a vapor retarder and additional insulation are the recommended products. An R-Value of 20 to 30 depending upon the geographic location is most effective. Ice arenas have a special problem. A continual problem is the cost of operating a compressor to maintain the ice temperature. Refrigeration capacity, location, and the season of the year all have a bearing on the cost of operating an ice arena. The basic principals on heat transfer will always apply. Wherever two surfaces of different temperatures meet, the warmer will always lose energy to the cooler.

The amount of heat radiated to the ice is controlled by the temperature of the ceiling and of the ice surface and by a proportionality factor called emissivity. Emissivity is a property of the radiating material: it is one for a perfect radiator of heat and zero for a material that radiates no heat. The higher the R-Value of the ceiling, the lower the radiant energy transfer between the ice and the roof deck surface. Low emissivity ceilings were developed for existing arenas as a way to reduce radiant loads without having to install a new roof with additional insulation.

Conclusion

- 1) Tectum Roof Decks should be used in ice arenas because of their high R factors. This negates the need for low emissivity ceilings.
- 2) Economy of operation of an emissivity ceiling is based on clean, reflective surfaces that will not be impacted negatively with age.
- 3) Due to the potential for damage in an ice arena, a Tectum Roof Deck provides the durability that lay-in ceilings or light weight sheeting cannot provide.
- 4) Tectum Roof Decks have proven to be effective in hockey and ice arenas for sound control, light reflectance, durability and energy savings for over thirty years.

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