

ELECTRIC PRODUCTS SHOW THEIR **VERSATILITY**

Electric radiant can fill niche applications from roof de-icing to quick-heating ceiling panels.

Antennas in mountainous regions can't be allowed to freeze; building roofs need de-icing; hotel and condo units require individually zoned, immediate-response indoor heat; lobbies require quick-response heat; critical access areas such as helicopter pads and loading ramps require automatic snow melting; zoo dens require natural habitat simulation; and the list goes on.

If you look at any given airport, you probably would discover more electric radiant installed there than you might imagine. Electric radiant systems are being used to de-ice hangar door rails, melt snow on parking and baggage ramps as well as on helipads and pedestrian bridges, de-ice terminal and station roofs, freeze-protect outdoor piping, and even warm skycaps, baggage handlers, and passengers.

The numerous benefits of electric radiant heat include:

- Upfront equipment and labor costs are inexpensive.
- Systems can stand alone, and therefore zoning individual areas is efficient and inexpensive.
- The low thermal mass required allows the systems to provide immediate heat at full power.
- No moving mechanical parts mean virtually no maintenance is required.
- Electricity is available almost everywhere and can be brought to remote and high locations without affecting system functionality.
- Systems require very little space. Indoor floor heights and outdoor areas are raised mini-

mally and no mechanical room is required.

- Heating cables can be placed inside conduit, submerged inside pipes, taped outside pipes, and placed inside gutters and downspouts.

Electric radiant-heating systems typically consist of a heating element (such as electric resistance cable, cable attached to a mat substrate, or thin-film heating element), a method of attachment, a control, and a fuel source.

Electric and hydronic radiant-heating systems both have their benefits, and in some situations, electric systems offer distinct advantages:

- The low thermal mass required, generally less than 1 inch, allows an electric system to provide heat at full power and within minutes of startup. Ceiling panels have no thermal mass and therefore are very effective for spot heating from overhead.
- Zoning is achieved practically and can be used in almost every application. In fact, roofs on hotels such as the Park Hyatt in Chicago have been zoned to take into account shade and sun patterns. Heat-traced pipes have individually controlled circuits to save on operating costs.
- In some geographic areas, electric is the low-cost fuel or the only fuel available.
- Electric systems operate at very high efficiency at any load level.
- Electricity can be brought to any location or height without compromising the radiant heating system's efficiency.

A few of the most popular commercial and residential electric radiant systems are featured in this article.