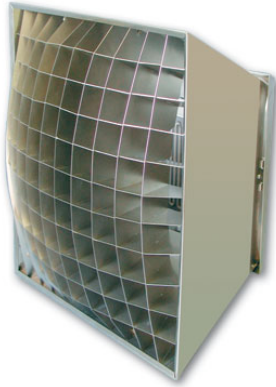


## Spot Comfort Heating with HotZone™ Infrared Heaters

Roger Johnson & Neil Crocker



Radiant Optics' HotZONE™ infrared heaters differ from other infrared (IR) heaters on the market in several very important ways:

- Most IR installations use low-intensity tube heaters, which—though marketed as IR— have a convective heat loss rate so great (60-80 percent) that they don't even pass the measured-IR portion of the ASHRAE-supported ANSI test.
- Tube heaters produce a 5-7 degree increase in target surface temperature. For the same input energy HotZONE™ heaters can easily produce a 20-degree increase.
- Tube heaters are long and heavy. Our heaters are compact and lightweight
- HotZONE™ heaters are fitted with an exclusive and patented IRLens™ that increases the heat delivered to the target by 300 to 500 percent, depending on the lens chosen. The IRLens™, inspired by the optical device of lobster eyes, as explained in a Scientific American article (December, 1978), captures the IR radiating away for the target redirects it to the target zone.
- Other IR heaters are fitted with parabolic devices and other reflective gadgets but they accomplish little. By contrast, the IRLens™ accomplishes a great deal.

In the larger scheme of things, however, HotZONE™ heaters are merely a tool that enables a previously unworkable heating strategy called “**spot comfort heating**” whereby you provide freeze protection with convective or other space heaters and workspace heating with HotZone™ high intensity infrared spot heaters.

The typical profile of a large-volume building (e.g. hangars, warehouses, distribution centers, vehicle repair facilities) is as follows: old, with high levels of air infiltration and low levels of insulation. If the buildings are heated convectively, large costs are incurred because the hot air first, rises to the ceiling away from occupants and workspaces; and second, escapes through walls and ceilings and open doors. Beyond being expensive and inefficient, convective heating often doesn't even work well. Occupants, especially those located near the perimeter, frequently complain about being cold. A common response is to turn up the thermostat, so interior occupants are overheated, while those on the perimeter are less cold, but still uncomfortable.

Our suggestion is to "heat people, not buildings" with a spot comfort heating strategy.

## **Step 1: Lower the ambient heating setpoint to 40°F.**

The heating degree-day tables reveal that throughout the US lowering heating setpoints from 70°F to 40°F typically equates to a 60-90 percent reduction in heating costs. In the US Northern Tier the percentage reduction is closer to 50 percent, but the dollar savings in fact are greater because the heating load is so large to begin with.

## **Step 2: Heat workspaces with electric or gas HotZone™ high intensity infrared spot heaters.**

By workspaces we mean along conveyor belts, around equipment, aircraft, or vehicles, etc. Focused IR allows you to supply the correct quantity of comfort heat **where you want it** (you need not heat the whole facility) but equally important from an energy efficiency standpoint, **when you want it** (only turn the fast acting heaters on when needed.)

Spot comfort heating is analogous to task lighting, a recognized energy savings strategy. At that point we ask, *"If you are going to invest in task lighting, why not invest in task heating, whose energy-savings potential is greater by an order of magnitude?"*

For those interested in an outside appraisal of our spot heating technology, we encourage you to read the Heating Plants Chapter of the Rocky Mountain Institute's E-Source Heating Atlas.