



Figure 1:
Ice Rink Stands with Radiant Optics heaters

Figure 2: *Single Heater with Glue Patch mount*



Radiant Optics heats up the fans at the Ice Hutch...

Cold people in an ice rink are inevitable, right? That is what management at the Ice Hutch in Mount Vernon, New York thought until they discovered Radiant Optics' unique line of infrared (IR) radiant spot heaters.

The Ice Hutch facility is a dome-covered ice rink (see Figure 1). The inflated dome structure is composed of a non-insulated vinyl, and is kept inflated using a blower fan.

PROBLEM

At the Ice Hutch, heat was not provided to the bleachers; spectators were left out in the cold. Management at the Ice Hutch did not believe they could afford to heat the people because they thought it was too costly. Every heat method known before the discovery of Focused Infrared was very expensive, and too heavy for the inflated building. If traditional forced air or IR technologies were used to heat the entire dome, the ice could melt.

OPTIONS

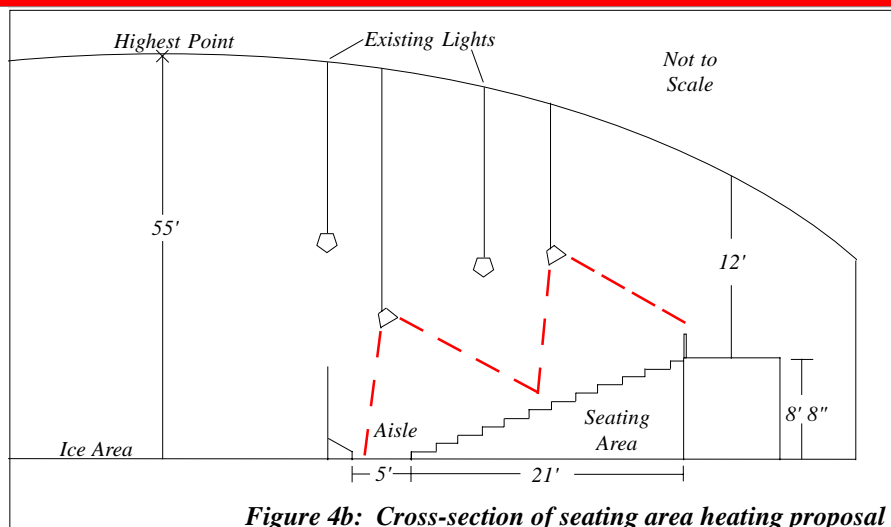
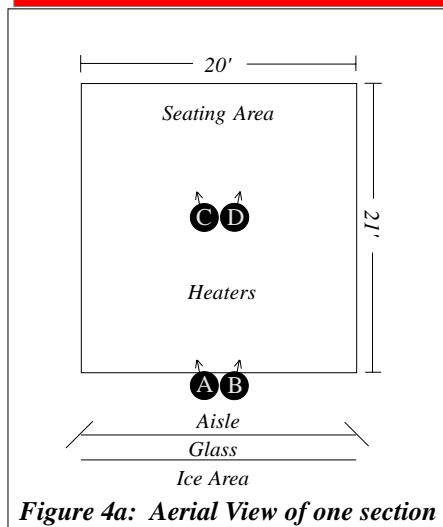
What choices did the management really have? When considering heat, conventional forced air is what most people call to mind. However, conventional heat was not practical for this application because the heated air would rise to the top of the dome and provide little heat to the spectators.

The second option available to management at the Ice Hutch was IR heating, which was better than a hot-air convective system. IR energy, like visible light, is transparent to air and air currents. (In fact, it's not heat at all until it strikes an object, at which point it converts to heat.) So ambient temperature does not affect IR's ability to heat. An IR beam will pass unobstructed through the air and heat spectators, bleachers, and everything else in its path.

By heating people and not air, Ice Hutch management would not have to worry about warm air escaping or being trapped in the high ceiling of the non-insulated dome. In addition, with high-intensity infrared heat there would be no blowing air or noises associated with conventional forced air systems.

Nevertheless, with conventional infrared heat, there were still the problems of melting ice and a dome lacking the structural support required for heater installation. What was needed was a lightweight IR heater that could focus the IR beam in a precise fashion - in other words, Radiant Optics HotZONE™ heaters.

Understanding Ice Hutch management's problems, their contractor Ike Beyer recommended using HotZONE™ heaters to warm the bleachers. Having already installed them, Ike knew HotZONE™ heaters would



solve management's problems.

SOLUTION: FOCUSED INFRARED

Radiant Optics' heaters solved the problems by providing the following benefits to the customer:

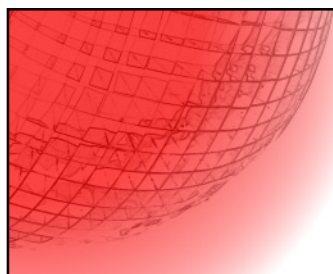
- **Focused, Concentrated Heat**
- **Lightweight and Compact**
- **Energy Efficient**
- **Versatile Design**
- **No Moving Parts**

Radiant Optics' exclusive, patented IRLens™, an IR focusing device (inspired by the design of a lobster eye) increases measured, verifiable delivered heat to target by 300 to 500 percent, depending on the lens chosen. As a result, HotZONE™ heaters are smaller and lighter than the competition. This design benefit enabled the heaters to be mounted to the unsupported inflatable dome using glue patches (see Figure 2), an adaptation achievable only with HotZONE™ spot heaters.

The IRLens™ captures the IR wasted by other manufacturers' radiant heaters and redirects it to the target zone, delivering five times more heat to the target than conventional infrared heaters. HotZONE™ heaters use less fuel, thereby providing superior comfort heat at lowest cost.

Another energy savings bonus provided by HotZONE™ heaters is the short warm-up time (3 minutes). Ice Hutch management can turn the heaters on as they allow customers to enter the facility—the bleachers will be warm by the time the spectators sit down. Manufacturers of traditional infrared heaters suggest turning their heaters on two hours prior to use, which wastes energy and money.

This has proven to be a major benefit to Ice Hutch management, says Ike Beyer.



On days when spectators' attendance in the bleachers is erratic, management can choose where people sit by turning on the heaters above only a few bleacher sections. Due to the rapid warm-up time, continues Ike Beyer, if they need more warm bleachers they can quickly provide them.

The last problem with traditional heating systems was that they could melt the ice. Only with HotZone™ heaters was the management able to heat the bleachers but not melt the ice. Only HotZone™ heaters allow for this type of precision infrared beam control. With this design capability, management was able to eliminate unnecessary heating and cooling costs that would have been required by both conventional forced air and traditional infrared systems.

In the end, no changes were made to the dome for heater support and there were cost savings from ordering smaller heaters that required less energy. Most importantly, for the first time spectators were warm, making for happier customers and more of them.