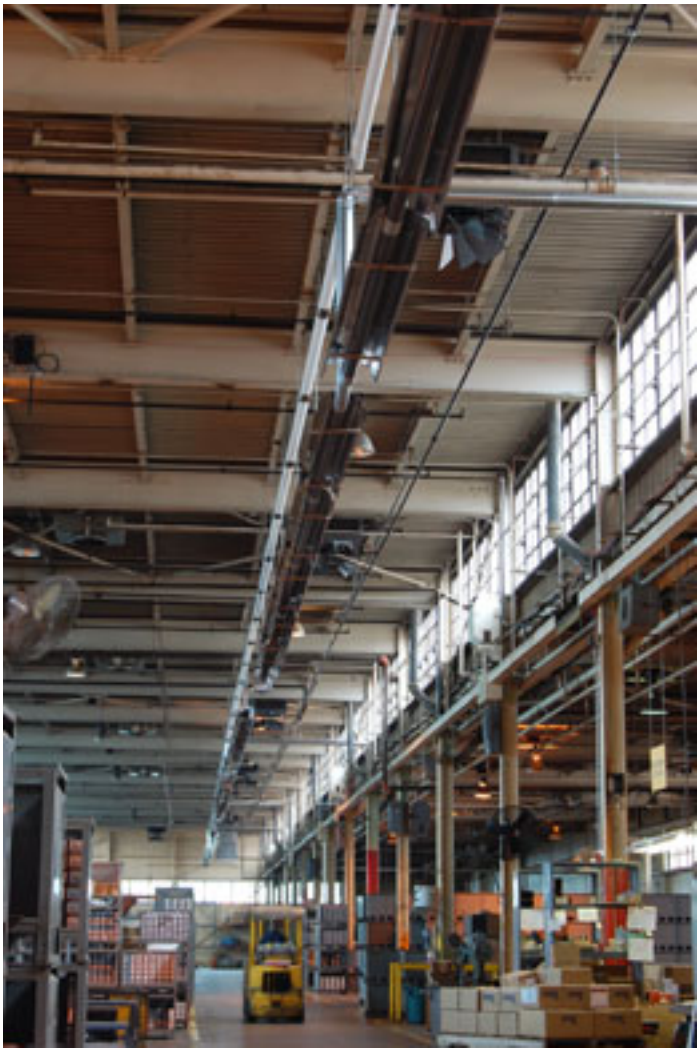
Cooling Down High Fuel Costs



Saving energy and improving comfort for over 100 employees topped the list of priorities for Adam Leiferman, project engineer for the Cleveland building of SPS Technologies. This automotive and aerospace certified manufacturer, with operations worldwide, produces high strength fasteners and precision components for commercial and military applications, jet engines, automobiles, and power generation industries.

Leiferman maintains that while employee comfort is paramount in any workplace, it is especially important in a manufacturing environment because it correlates directly to on-the-job safety, productivity, and finished goods quality.

Energy efficiency is particularly significant here because the company’s operations are heavily dependent on natural gas.
“When the price of natural gas increased to over $10/mcf, SPS Technologies

realized it had to reduce its energy costs and stay competitive with factories based in warmer climates," says Leiferman. "But the company's process operations (heat treating) consume most of the required energy, with little or no possibility for higher efficiencies."

Energy savings would have to come from other areas. Leiferman scrutinized the heating, lighting, and air compressor systems to figure out which improvements were needed, and determined that fixing the building's heating problem was of immediate concern.

Two 14.5 million BTU boilers from the early 1990s supplied steam to forced air unit heaters located on the ceiling. A third boiler was fired up on especially cold days.

"The system was very inefficient—steam had to be pushed over 500 ft. to the heaters and then pumped back to the boilers," says Leiferman. Many of the heaters were in need of repair. To make matters worse, heat stratified to the ceiling; heat at the floor was uneven. Employee comfort was less than ideal, and the cost to maintain the boilers was approaching $33,000 a year.
Estimates received for restoring the boiler system to good working order exceeded $500,000. "Considering the system's age and problems, eliminating the inefficient boilers would be the first step in reducing the heating bill and improving employee comfort levels," he says.

"We looked at in-house remedies such as heat recovery from the process furnaces and compressors as well as forced air heating, but dismissed those ideas," says Leiferman. Because of the known energy efficiencies, and the way they direct heat to work areas, gas-fired infra-red heating systems were investigated. "A half dozen infra-red companies were sourced," he says. "We selected Solaronics after contacting companies using their heaters for their comments."

Scott Campbell of Western Reserve Energy Corp., the Ohio representative for Solaronics, Inc., analyzed the building's heating requirements to determine heater placement and sizings appropriate for the various manufacturing and warehouse areas. Low intensity tubular heaters (28) were specified, along with four high intensity heaters to warm the loading dock employees.

According to Campbell, Solaronics heaters are easily mounted via safety chain high above and out of the way of work areas—which in this particular application involved an overhead crane. Without moving air, the heaters beam infra-red energy that is converted into warm, radiant heat as it reaches work surfaces, machinery, tools, concrete floors, and people below. Similar to how we are warmed by the sun, the heat is retained where it's directed, so people are comfortable and equipment and floors are warm to the touch.

Energy efficient Solaronics heaters are CSA International Design Certified to ANSI/CGA Standards and are fueled by Natural Gas or Propane Gas (LP). Customarily specified for new construction and retrofits to existing commercial and industrial buildings, they can achieve fuel cost savings of up to 75 percent when compared to conventional boilers and warm air unit heaters, according to Robert

Rush, the company’s vice president of sales and marketing.

Compact, silent fans are the only moving parts. The heaters utilize a patented reflector design for optimum infra-red dispersion and have a reflectional efficiency exceeding 90 percent.

Following the first full heating season with the Solaronics system, Leiferman reports that energy savings totaled $150,000, plus $33,000 saved from not having to maintain the old boiler system.