

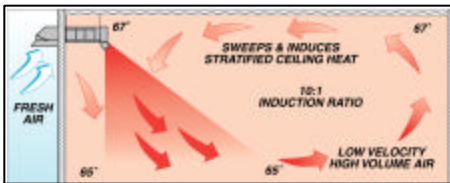
Achieve Lowest Total Heating Cost With Direct Gas-Fired Heating Systems

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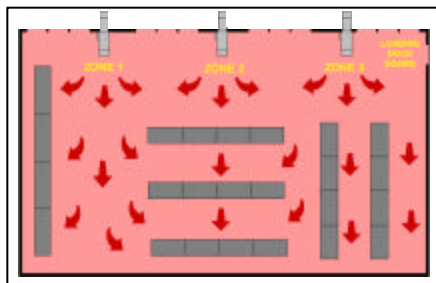
Often, the most economical heating/ventilating system for a metal builder to purchase and install turns out to be the most expensive for the building owner to operate and maintain. Direct gas-fired air heaters solve this problem for many metal building structures. They offer the lowest total heating cost for large warehouses, distribution centers, manufacturing plants, car dealerships and indoor sports facilities. It is now possible for the metal builder to achieve the lowest installed cost and still give a grateful building owner, or his tenant, the best heating/ventilating system with the lowest operating cost. The hallmarks of high temperature rise, non-recirculating, direct-fired heating systems are energy savings, thermal comfort and improved indoor air quality (IAQ).

Energy Savings

High temperature rise, direct-fired heaters are recognized as the most energy efficient way to heat/ventilate large commercial and industrial metal buildings. The technology has grown in popularity as more engineers specify direct-fired air heaters, with a certified 160 degrees F temperature rise, to replace



Above: Even floor-to-ceiling heating. Below: Wall-to-wall heating with no cold dock door areas.



less efficient unit heaters and air rotation/turnover equipment. These indirect fired heating systems are less energy efficient because they utilize both a heat exchanger and a flue. Building studies by Cambridge Engineering document 20% -50% savings with high temperature rise (160 degrees F) direct-fired heaters versus indirect-fired heating systems.

Thermal Comfort & Improved IAQ

Non-recirculating, direct-fired heaters provide more thermal comfort with improved indoor air quality. High velocity discharge air provides large volumes of fresh, warm air flowing throughout the building. This eliminates higher ceiling temperatures and cold dock door areas. Wall-to-wall, floor-to-ceiling temperature variances of three degrees to five degrees F are typical, compared to 10 degrees to 15 degrees F for other systems.

Non-recirculating heaters utilize 100% fresh air to dilute contaminants generated by forklift trucks, fuel-fired or chemical processes and out gassing of stored products within the building. This eliminates IAQ problems associated with radiant heating, unit heaters, air rotation and recirculating direct-fired systems that have no provisions for fresh outside air.

Lowest Installed Cost

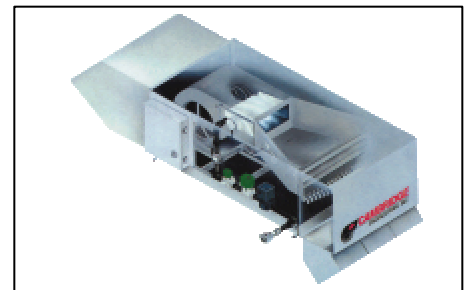
Non-recirculating, high temperature direct-fired heaters are competitively priced and easy to install in metal buildings. The heaters are small, but they put out lots of heat. The Cambridge S Series model offers the industry's highest temperature rise due to its patented "blow-thru" burner design. A few compact, lightweight direct-fired heaters are less expensive to install because they can be mounted just about anywhere. Building owners also value the additional usable floor and vertical racking space they get with these heaters.

The "Thru-Wall" installation option is very popular for metal buildings, because equipment kept off the roof reduces installation and construction costs.

However, rooftop, under-roof, indoor/outdoor vertical and ground/pad mounted options are available. Direct-fired heaters do not require a flue stack, thus eliminating costly roof penetrations. Another benefit to the metal builder is the "instant heat" provided by these units during winter construction projects.

Lowest Operating Costs

How can heating 100% outside air with direct-fired heaters be more efficient and offer lower operating costs? The answer is simple; all heating systems actually do heat outside air entering the building via natural infiltration or for ventilation requirements. The Cambridge S-Series heater, certified for 160 degrees F



S-Series space heater.

temperature rise, matches the infiltration and heats the minimum volume of outside air by supplying more BTU/cfm than other systems.

Also, with direct-fired heating, there is no wasted energy; 100% of the heat goes into the building. Therefore, high temperature rise, non-recirculating direct-fired heaters deliver the maximum amount of heat with the minimum amount of outside air to meet the building's needs and that lowers operating costs. Finally, this equipment is extremely reliable, virtually maintenance-free and easy to service which further reduces operating costs.