

GREEN FOUNDRY CASE STUDIES

MATERIAL & RESOURCE CONSERVATION

Cupola Waste Heat Recovery for Facility Heating



Description

The facility historically discharged waste heat via a heat transfer system from the cupola iron melting process to the atmosphere. A heat recovery loop was added to provide building heat during the colder months. The closed-loop system was designed to transfer heat via a propylene glycol solution circulating through heat transfer coils. The heating coils pre-heat the ambient air prior to intake by the space heating units in various zones throughout the facility.

Environmental Benefits

- The completed heat recovery system provides 70% of the plant's heating requirements for a typical winter, resulting in energy conservation.
- As an added benefit, the system provides hot water to the facility throughout the year.

Cost & Savings

- Heating costs have been reduced and carbon dioxide emissions have been cut by 4,600 metric tons of carbon dioxide per year.
- The initial cost of equipment was paid for within two years by savings on heating costs.

Other Benefits

- Strengthened business continuity due to reduced energy dependence.
- The project earned the 2009 State Governor's Award for Excellence in Environmental Performance.

Applicability

- This project would be transferable to any facility that has waste heat discharged into the ambient environment.

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