

Core Oven Replacement–Higher Efficiency, Lower Emissions

Full Scale Implementation OR Pilot Scale/Study

1. Description of the project: What is the issue and how did you fix it?

We replaced our 80 year old batch oven that ran on #2 fuel oil with a new flow through propane oven with modern controls.

2. Environmental Benefits: Conservation of raw materials or energy, reduction or elimination of emissions, wastes, toxics, water discharges, etc.

The new oven and the adjustments it allowed us to make in production resulted in a 68% reduction in emissions.

3. Other Benefits: Productivity, health and safety, employee morale, etc.

Increased productivity, increased process stability, greater reproducibility

4. Cost Savings: Capital cost, operating cost, ROI or other pertinent cost information.

We've realized a 70% reduction in operating costs

5. Applicability to other foundries and additional Comments

6. Applicable Environmental Categories and Foundry Processes. Select all that apply.

Environmental Categories

- Carbon (GHG) Emissions Measurement and Reduction
- Air Quality Water Use and Discharge Waste Management
- Beneficial Use Stormwater Material and Resource Conservation
- Community Engagement

Foundry Process(es) Impacted

- Melt Pour Mold Core sand system/reclaim
- Shakeout Heat Treat Quench Finishing Shipping
- Maintenance Pattern Shop Casting Design
- Management Systems and Metrics
- Other, explain:

7. Add photos to enhance your application, if applicable.



Core Oven Update

Due to the diligence of Mary Ellen Freed and Amanda Hartman, the new core oven is performing better than predicted. The old core oven used more expensive and dirtier fuel oil and the new oven has much better controls and propane.

<u>For the Year</u>	Fuel Oil	Propane Used Initially New Oven	Propane used after Amanda Hartman and Mary Ellen Freed's tweaks:
Number of Gallons	7848	6623	4531
Price per Gallon	\$1.65	.86	.86
Annual Cost	\$12,949	\$5,696	\$3,897
CO ₂ - Tons	88	41	28

In addition it is easier to load and unload. The air flow is better and handling equipment takes some of the heavy lifting out of this operation. On the green side, there is a 68% reduction in CO₂ tons emitted. One gallon of fuel oil emits 22.3 lbs. of CO₂ vs. propane which emits 12.5 lbs. of CO₂ per gallon. *Great job!*
