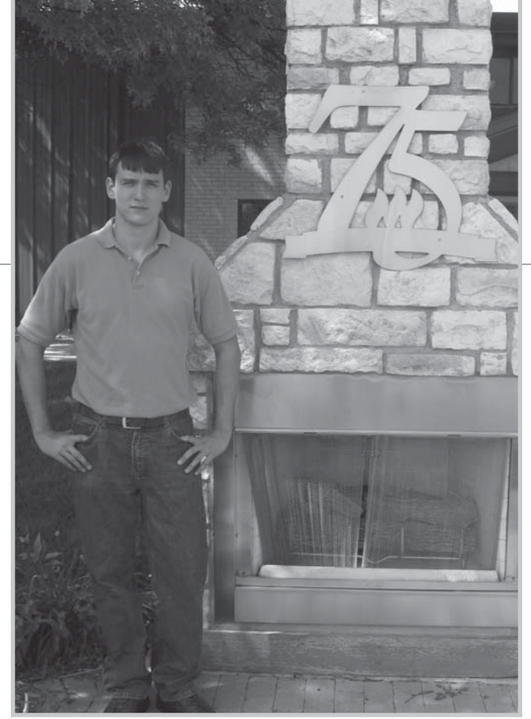
HEARTH & HOME TECHNOLOGIES

COMPANY BACKGROUND

Hearth & Home Technologies (HHT) is a member of HNI Corporation and a Fortune 1000 member with sales of more than $460 million in 2007. Located in Mt. Pleasant, IA, HHT employs over 400 people, has three sister plants across the country, and specializes in the manufacturing of fireplaces and accessories. HHT owns four brand names that date back as far as 1927.

MOUNT PLEASANT



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PROJECT BACKGROUND

The internship was focused on the compressed air system at HHT. Analysis of the entire system was performed to determine viable options for improving efficiency of generation and use of compressed air. Also of interest is recovering the heat from the compressors during the colder portions of the year. This is the first year HHT has participated in the Pollution Prevention Internship Program.

INCENTIVES TO CHANGE

Hearth & Home Technologies stands to make significant gains in maximizing both profit potential and environmentally friendly operations. HHT is committed to forward thinking as part of its solidly-founded rapid continuous improvement program. As energy prices rise, HHT will benefit greatly from sustainable practices.

RESULTS

Operational Improvements: Compressed air is a primary utility for HHT. Therefore it is a priority to ensure that it is generated as efficiently as possible. Purchasing a variable speed compressor and properly sequencing existing compressors at full power is crucial to achieving that efficiency. Managing all the compressors will require a robust control system that will automatically turn base compressors on and off while the variable speed compressor matches the supply to the demand.

Laser Operation: A robotic laser operates during times when the main plant is offline and during such times it is important to supply the compressed air needs of the unit most efficiently. To this end, it was recommended that a high efficiency, variable speed compressor be purchased to satisfy this unique demand. It is also important to note that the laser requires higher pressure than the rest of the plant, so a dedicated compressor would be optimal.

Distribution: Part of a robust management strategy for compressed air would come in the form of a new distribution system. Once installed, the system would have no leaks and would allow certain areas or cells of the plant to be cut off from the compressed air system when they are not in production, thereby eliminating losses in those areas.

Heat Recovery: It was determined that there are 28,300 BTU per minute produced by the after-coolers on the compressors. During the colder portions of the year it is recommended that the heat be ducted back into the building to aid in heating the building. This should provide significant savings on HHT's heating costs.

Loss Reduction: There are several places in the plant where small adjustments can add up to major savings. Properly sizing pipe to end uses would remove restrictions and allow the compressors to operate at a lower pressure. Replacing air sensors on spot nail machines with proximity sensors would eliminate waste. Air knives used to dry paint on fireboxes that are not given enough time to benefit from the air can be removed, along with an air bar used to blow chimney pipe down a table to where it is packaged, as these are unnecessary uses.

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	7.842
CO	0.802
NOX	3.717
VOC	0.129
PM	0.194

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	1445
CH4	54.49
N2O	0.726
CFCS	17.76

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
OPERATIONAL SAVINGS	$31,569.84	268,272 KWH	RECOMMENDED
LASER PROPOSAL	$27,165.29	232,320 KWH	RECOMMENDED
DISTRIBUTION REPLACEMENT	$34,128.87	359,251 KWH	RECOMMENDED
HEAT RECOVERY	$27,168	32,907 THERMS	RECOMMENDED
LOSS REDUCTION	$25,258.84	235,089 KWH	RECOMMENDED