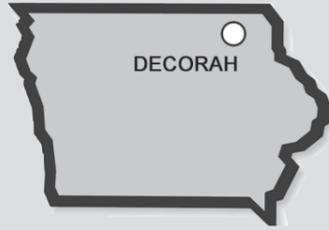


Textron Fastening Systems

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Established in 1969, Textron Fastening Systems is a leader in the manufacture of fastening and assembly systems. Textron Fastening Systems supplies fasteners for the aerospace, automotive, electronics, construction, non-automotive transportation and consumer products industries. The 600 employees of the Decorah facility produce 10 million threaded fasteners a day for customers such as Motorola, Seagate, Harley Davidson, Ford and Leatherman.

Project Background

The Textron Fastening Systems manufacturing facility in Decorah experiences significant negative air pressure in the winter due to an insufficient supply of make-up air. The negative air pressure causes increased power consumption by exhaust fans, poor control of the heat treat furnaces, increased infiltration of cold air, and employee discomfort. Although a manually controlled system to recover heat from the air compressors and supply make-up air was installed, it was frequently turned off because it could not be controlled adequately. The company wanted a constant supply of make-up air, and an improved heat recovery system.

In addition, Textron Fastening Systems wanted to decrease the amount of waste it sent to the landfill. Therefore, increased recycling opportunities were investigated.

Incentives to Change

Textron Fastening Systems is ISO 14001 certified and is dedicated to reducing its impact on the environment. Textron has continually sought to reduce the amount of energy used by its facility as well as the amount of waste generated in its manufacturing process. Textron recognized that significant environmental and financial savings could be realized by implementing an improved heat recovery system and

correcting its negative air pressure problem.

Results

Reduce Temperature of Make-up Air Supplied to Compressors
Outside air is supplied to the air compressors, and must be heated in the winter to avoid damage to the machines. Currently, the air is heated to 55 degrees F. By reducing the temperature of the air to 50

degrees F, 1,400 MMBtu of natural gas, costing \$15,000, can be saved annually.

Negative Air Pressure Correction and Heat Recovery

The installation of an automatic system to heat make-up air using the waste heat of the facility's air compressors will alleviate the negative air pressure problem and maintain a comfortable environment.

The compressors are air cooled, and the large volume of coolant air experiences a significant temperature rise. In the winter, mixing boxes will mix the hot coolant air with outside air to produce air at a desired temperature, which will then be supplied to the plant. By utilizing the waste heat of the air compressors, 4,200 MMBtu of natural gas, costing \$43,500, will be saved annually. In addition, neutralizing the pressure of the facility will decrease the electrical consumption of exhaust fans and improve the operation of the heat treat furnaces.

Plastic Pallet Recycling

By recycling worn out plastic pallets, Textron can avoid spending \$370 to send 8,300 lbs. of plastic to the landfill.

Toner Cartridge Recycling

Recycling copier, fax and printer toner and ink cartridges is a very visible form of Textron's commitment to the environment. Employees were educated on how to recycle used cartridges. An additional 220 lbs. of toner cartridges will now be recycled annually.

Plastic Bag Recycling

Textron currently throws away over 24,000 lbs of plastic bags used as tub liners. The amount of revenue generated from recycling the plastic cannot justify the capital and labor required to start recycling the plastic at this time.



Air Pollutants Diverted in Tons

	Total for all sectors
SO2	14.7
CO	0.27
NOX	0.16
VOC	0.39
LEAD	0.0
PM	0.13

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	459.4
CH4	86.8
N2O	35.4
CFCS	0.67

Project	Annual Cost Savings	Environmental Results	Status
REDUCE MAKE-UP AIR TEMPERATURE	\$15,000	14,000 therms	Implementation in progress
CORRECT NEGATIVE AIR PRESSURE AND HEAT RECOVERY	\$43,500	42,000 therms	Recommended
PALLET RECYCLING	\$370 one time	8,300 lbs. of waste diverted	Implemented
TONER CARTRIDGE RECYCLING	Not quantified	220 lbs. of waste diverted	Implemented
PLASTIC BAG RECYCLING	\$600	24,000 lbs. of waste diverted	Not recommended

