



## **Governor's Pollution Prevention Awards & Illinois Sustainable Technology Award**

For the past 22 years, the Illinois Sustainable Technology Center (ISTC) has worked with the Illinois Governor's office to recognize outstanding pollution prevention efforts in our state. These annual awards are presented to businesses and organizations in Illinois that have successfully reduced the generation of gaseous, liquid, and solid waste. The Pollution Prevention (P2) projects honored this year saved the companies and organizations millions of dollars in material and disposal costs. The companies and organizations also prevented hundreds of tons of waste materials from being released into the environment and saved millions of gallons of water from being sent to treatment facilities. There are two types of Governor's P2 Awards—the one given to first time winners and the Continuous Improvement Award, which is given to repeat winners.

This year, ISTC also is honoring a company with the Illinois Sustainable Technology Award. The Illinois Sustainable Technology Award recognizes a novel technology or process that leads to significant waste reduction, waste elimination, or environmental impact.





## A new day!!

Those who have participated in past Governor's Pollution Prevention Awards are noticing something's different this year. It's us, the proud sponsor of the event. It's a new day for us with a different name, a different leadership, and a renewed commitment to our values. We are now the Illinois Sustainable Technology Center (ISTC) instead of the Waste Management & Research Center. The new name better represents the goals and direction of the organization. The name change is part of even larger changes at ISTC. The Center is now part of the University of Illinois. It joined the other scientific surveys (Illinois State Water Survey, Illinois State Geological Survey, and Illinois Natural History Survey) in moving out of the Illinois Department of Natural Resources. The four organizations are now part of the Institute of Natural Resource Sustainability at the University of Illinois. The ISTC staff remains committed to providing real world solutions to real world problems - solutions that bridge the gap between the natural resources and the human ones. Sustainability examines how to make human economic systems last longer and have less impact on ecological systems, and particularly relates to concern over major global problems such as climate change. By putting "Sustainable Technology" in our name, ISTC is showing its commitment to providing the ideas and systems to reduce environmental impacts and enhance the bottom line.

ISTC will continue to maintain offices on the University of Illinois campus in Urbana-Champaign, and in Oak Brook, Peoria, and Brighton.



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## **Abbott Laboratories--North Chicago Continuous Improvement Award**

Abbott is a global, broad-based health care company devoted to discovery, development, manufacture, and marketing of pharmaceutical and medical products. The following projects were undertaken in the past year:

- Greenhouse gas emissions were reduced at the fermentation facility by decoupling chillers and optimizing air on seed tanks prior to inoculation. Low-pressure air, chilled water, steam, and electricity demand were reduced by these projects.
- A team identified a way to reduce the acetone used in the final stage of the Cyclosporine manufacturing process. The cycle time of the acetone flush was successfully reduced by 80%, resulting in a 50% reduction (35,000 lbs.) in acetone usage per year.
- Two Ceramic Ultrafilter (CUF) cleaning processes were combined into a single process. This resulted in a reduction last year of 800,000 gallons of water, 18,000 liters of sodium hydroxide, and 5,400 kg of Ultrasil. Ultrasil is a specially formulated product used to clean ceramic ultrafilter systems. Other benefits included a reduction in the associated waste treatment plant load and steam used to heat the cleaning solution.
- The centrifuging and drying process steps were improved to reduce acetone usage by 50%. This resulted in a savings of two million pounds of steam and \$190,000.
- Two major Erythromycin process improvement projects were undertaken. These resulted reducing steam by 50% and saving six million lbs. of non hazardous waste and five millions lbs. of raw materials.



**Ball Corporation -- Elgin  
Pollution Prevention Award**

Ball Corporation is a provider of metal and plastic packaging for beverages, foods, and household products. The Elgin facility produces aerosol cans and metal paint cans. The following P2 projects were accomplished at the facility:

- Solvent backwash systems were replaced by a system that utilizes a sharp knife blade to scrape the coating from the roller instead of flooding it with solvent.
- UV printing and varnish technology was implemented to reduce ink and coating solvent usage. It also reduces waste generated.
- Conversion to zero alcohol fountain solution for the UV printing lines was completed that reduced alcohol usage 5%.
- 13 solvent parts cleaners were replaced with aqueous systems.
- Disposable absorbent pigs that are used to sop up and contain oil leaks were replaced with recyclable ones that are laundered and returned for reuse.
- Industrial mop water generated by the floor cleaner machine and various hand mop buckets is now filtered by an ultrafiltration unit to prevent possible contamination to the Water Reclamation District.

These projects resulted in a reduction of 1,800 lbs. of waste, and 410,000 lbs. VOC emissions.



### **Baxter Healthcare - Round Lake Continuous Improvement Award**

Baxter Healthcare developed a number of projects last year:

- Several energy efficiency projects were implemented that resulted in a savings of 366,000 kWh's per year. Projects included changing condensate return pumps to pressure systems; washroom and conference room lighting was retrofitted with motion activated sensors; and parking lot lights were replaced with more efficient units.
- Equipment was re-engineered to reduce solvent use. The testing methods for the determination of organic analytes in aqueous solutions was changed and reduced solvent use by 17%. New test methods were implemented that resulted in lower sample times and flow rates.
- A new on-line Waste Disposal Management and Environmental Awareness training course was developed and is now required to be completed by all manufacturing and laboratory employees as well as contractors.
- New controls were installed on laboratory sterilizers to eliminate once-thru water. This project alone conserved an estimated 910,000 gallons.
- A 44 % reduction in air toxics was achieved through a new system to improve existing building air conditioning units and replacement of older systems.
- Ten acres of Baxter owned land were restored to their natural features including an oak savanna, a stream corridor, and an oak woodland. The work included the removal of invasive species, an integrated weed management program, planting of native species, and erosion control within the stream corridor.



**Cadbury Adams - Rockford  
Continuous Improvement Award**

Cadbury Adams is a leading manufacturer of chewing gums, gum base, and encapsulated artificial sweeteners. The company has equipment that uses large amounts of cold water. In order to reduce water usage, a return chilled water system cooling loop system has been installed to supply cooling water to air compressors and compressed air dryers. By utilizing return chilled water for cooling, the plant has reduced discharge to the sanitary district by 94 million gallons of water at a savings of \$12,650. The reduction of water discharged from the plant also has reduced chemical treatment and increased equipment performance.

The company's process also requires the use of hot compressed air dryers that require large amounts of electrical power. Cadbury Adams installed a new air compressor and dryer to provide moisture free air to production equipment. By utilizing the hot compressed air discharge, Cadbury Adams has eliminated the need for additional 46 kw and 42 kw electrical heaters, resulting in an annual savings of \$39,799.



**Carlisle Syntech Inc. - Greenville  
Pollution Prevention Award**

Carlisle Syntech is a manufacturer of single-ply roofing systems. Carlisle's manufacturing facility in Greenville, primarily manufactures rubber roofing membrane and pressure-sensitive accessories. In an effort to reduce the amount of energy used and waste produced during the manufacturing process, Carlisle has implemented a variety of energy and waste conservation programs, including improved efficiency lighting, recovery of scrap flashing rubber, pressure-sensitive tape, molding scrap and other sheeting scrap, as well as recycling of aluminum cans, polypropylene, paper, and cardboard. The improved efficiency lighting program has saved more than 600,000 kilowatts annually and will significantly reduce the amount of pollution created by the production of electricity. The recycling program is projected to eliminate more than 700 tons of materials currently being sent to landfills. The use of recycled materials will reduce the amount of raw materials used in the manufacturing process and will provide a significant environmental benefit to the Greenville community.



## **Caterpillar Logistics - Morton Continuous Improvement Award**

Caterpillar Logistics Services, Inc. provides supply chain solutions and services to its parent company, Caterpillar Inc., and more than 60 other leading corporations throughout the world. Cat Logistics recently implemented projects to reduce energy consumption and landfill waste at the Global Distribution Center Headquarters in Morton including:

- The lighting system was upgraded to energy efficient T5 & T8 lighting that utilize occupancy control to turn off lighting in unoccupied areas. The project has reduced the facility's electrical consumption by 16 percent and reduced greenhouse gas emissions by 12 percent, saving over a half million dollars annually.
- The Morton facility also improved a wash-booth process that cleans Caterpillar parts before painting. The process switched to a new alkaline cleaner that allowed the wash water temperature to be significantly lower, saving natural gas. The process change has resulted in cleaner parts and reduced equipment maintenance.
- A wood grinding process was set up to grind wood waste that was previously sent to the landfill. Last year over 800 tons of wood was ground up for use as animal bedding instead of being sent to a landfill.

These projects are being replicated at many Cat Logistics facilities worldwide.



**Caterpillar Engine Plant - Mossville  
Continuous Improvement Award**

In 2006 and 2007 a diverse team representing facility engineering functions and environmental functions collaborated on a multifaceted energy efficiency project to help reduce the factory's impact on greenhouse gas emissions. The bottom line for the energy efficiency project was

- a cost reduction of over \$1,500,000 annually
- an annual reduction of over 14,000 metric tons (CO<sub>2</sub> equivalents)
- a positive effect on safety and people

The project centered on re-lamping the entire facility (both factory and office areas) with higher efficiency lighting, the installation of a new roof, performing steam-leak repairs, implementing a project to clean the fan and ventilation systems, and to upgrade energy related infrastructure. Ultimately, the facility's energy footprint, and consequently, greenhouse gas footprint, was reduced by nearly 10%.



## **Christy Webber Landscapes - Chicago Pollution Prevention Award**

Christy Webber Landscapes is headquartered at Rancho Verde eco-industrial park in Chicago. The headquarters building has been rated LEED Platinum by the U.S. Green Building Council. The guiding principle for Rancho Verde was co-location of affiliated businesses to shorten delivery distances and transform waste by-products from one industry into raw materials for another. As part of a sustainable system, components at the main building and at the job site work together to achieve a number of goals, including improved efficiency and reductions in stormwater runoff and energy consumption. Rainwater is treated on site by filtration through an integrated system including permeable paved roads, bioswales, and a porous-bottomed detention basin.

Key green design features of the headquarters building are:

- Green roof: Intensive and extensive green roof system accentuates building, captures and stores rainwater, and insulates structure
- Geothermal heating and cooling system: Harvests the consistently moderate temperature within the earth's surface to heat the building in winter and keep it cool in summer
- Active and passive solar thermal systems: Supplements geothermal system for winter heat, supplies domestic hot water, and provides heat to the warehouse building



**Cintas Corporation - Bedford Park  
Pollution Prevention Award**

Over the past year, Cintas has engaged in several major projects aimed at minimizing its impact on the environment and reducing operating costs. The largest project was the installation of a new waste water pretreatment plant, which allowed the facility to reuse up to 30% of process water used, saving \$12,000 annually. In addition, the system removed more than 49,000 lbs. of biological oxygen demand (BOD) pollutants and 48,318 lbs. of suspended solid reduction which would have been discharged into the sanitary sewer. This translated into a \$20,000 in user charge savings. Finally, the new system eliminated 3,000 gallons of liquid sludge per month that was hauled off site for disposal, saving the company an additional \$25,000.

Through the implementation of a clay free water pretreatment system, Cintas has reduced sludge production by 180 tons annually. This system also saves approximately \$10,000 annually.

Finally, the plant lighting was updated to reduce energy use. This involved replacing mercury vapor high intensity discharge and 96" T12 fluorescent lamps with electronic ballast F32 T-8 lamps. The change will save 121,212 kWh and \$9,000 annually.



**Digital Hub - Chicago  
Pollution Prevention Award**

Digital Hub is a provider of quality offset and digital printing services. The company has a comprehensive recycling program in place and shipping supplies also contain recycled material. Digital Hub uses a waterless printing process which not only conserves water, but eliminates hazardous wastewater that is associated with chemicals used in traditional printing processes. Other environmental benefits associated with waterless offset printing include:

- Reduced paper waste by up to 500% and energy consumption by 10 to 25%. By eliminating the water and chemicals used in the dampening portion of the printing process, Digital Hub is able to obtain a usable first sheet off the press as compared to traditional printing which can produce 100 to 500 press sheets. This reduction also cuts back on the amount of energy consumed.
- Digital Hub uses vegetable based printing inks eliminating 30-35% of the petroleum that is used in traditional offset printing inks.
- By implementing e-mail and FTP ordering systems, Digital Hub was able to cut down on automobile emissions used to deliver orders directly to its facility.
- Digital Hub implemented an employee lunch program where one restaurant is picked each day and a single employee takes the orders of all other employees and then drives to pick up the order. This eliminates 22 to 27 individuals from driving to and from lunch everyday.



**Electro-Motive Diesel, Inc. - LaGrange  
Continuous Improvement Award**

Electro-Motive Diesel generates a variety of waste materials from its manufacturing and testing operations. Even though EMD's Standard Labor Hours increased by 20% in 2007, the total waste output decreased by 34%.

EMD replaced a varnish used for the insulation of electric coils in alternators with a less toxic material. This resulted in a 95% reduction (or 12,440 lbs.) of annual xylene air emissions for the facility. The overall process time has been reduced by two hours, there is decreased maintenance of the process tank, and the quality of the product has improved. The annual savings for the substitution of the new varnish is \$563,600.

The facility reduced the usage of water by 18% in 2007 by implementing various projects. Overall, EMD has reduced the annual water use by 2.8 million gallons at a savings of \$10,500 per year. EMD implemented a program to improve the scheduling of equipment cleanouts and increase the intervals between the removal of used cutting fluid from machining equipment. As a result, EMD was able to reduce cutting fluid disposal costs by 46% and reduced the volume of waste cutting fluid by more than 121,000 gallons in 2007. This resulted in an annual savings of almost \$22,000.

Recycling programs also were improved over the past year. The facility increased the amount of pallets recycled by 70 tons, the amount of cardboard recycled increased by 29 tons, and the amount of scrap wood recycled increased 179 tons.



## **Frigel North America – Lake Zurich Pollution Prevention Award**

For over 80 years, cooling towers have been at the center of industrial cooling. Cooling towers can mean an ongoing expense of water treatment, harmful emissions, contaminated wastewater, regular heat-exchanger cleaning, difficult cold-weather operation, and large water consumption. Frigel North America introduced another way with its Ecodry, which replaces cooling towers used by manufacturers.

Ecodry is a closed-loop, dry-cooling system that saves up to 95% of water consumption and of energy bills. It eliminates chemical evaporation into the atmosphere and eliminates discharge of chemically treated water into the wastewater stream. Some specific savings include:

- **Energy/fuel saving:** A typical 100-ton cooling system operates with about 0.8 to 1.2 kWh/ton energy consumption. A comparable sized Ecodry uses only 0.05 kWh/ton.
- **Maintenance time saved:** Ecodry is highly-engineered and operates with minimal maintenance, which can save companies up to 40 hours in maintenance/month.
- **Water cost savings:** In a typical 100-ton cooling system, Ecodry reduces consumption by over 1 million gallons of water/year.
- **Adding the energy, maintenance, and water cost savings** for one customer comes to \$117,745 per year, providing return on investment in just over 2 years.



**Hitachi Metals Automotive Components - Effingham  
Continuous Improvement Award**

Hitachi Metals Automotive Components (HMAC) specializes in precision machining and assembly for the automotive industry. By-products of the machining operation are machine chips and spent coolant. During the machining process, oils contaminate the coolant promoting bacterial growth. This contamination not only reduces the life of the coolant, but also increases the amount of coolant waste that must be hauled away through a third party special waste contractor.

Several aqueous Metal Working Fluid (MWF) purifiers were purchased for all of HMAC main coolant sumps to remove the unwanted oils from the good coolant. By increasing the life of the coolant, generated wastes were decreased by 15,000 gallons annually. This resulted in annual savings of \$23,900 of coolant costs and \$6,000 on waste removal costs.



**Illinois Correctional Industries (ICI) - Menard  
Pollution Prevention Award**

ICI has developed a coalition of state agencies, county governments, municipalities, and not-for-profit organizations to provide recycling services to residents in eight Southern Illinois communities. Drop-off recycling trailers were designed and manufactured through a cooperative agreement with the Randolph County government and ICI. The containers are placed throughout participating communities so local residents can drop off their recyclables. The trailers are transported to the ICI Menard Recycling Center for processing by incarcerated offenders. The ICI recycling program has incorporated a number of measures to increase the sustainability of the effort. The most dramatic of these measures has been to manufacture biodiesel fuel made from Waste Vegetable Oil (WVO) which is collected by the program. The WVO is processed into biodiesel at the ICI Menard Recycling Center and that fuel is used to power the equipment & vehicles used by the recycling program, including those that are used to transport the oil to the center for processing. The fuel also is used to power forklifts, farm tractors, pickups, and even semi-tractors used within the recycling program. In the past fiscal year the program has diverted more than 1,000 tons of recyclable materials from Illinois landfills and sold on the open market. The recycling program does not receive any state funding; sales of recovered materials fund the program.



**Kent H. Landsberg (KHL) - Lombard  
Pollution Prevention Award**

Kent H. Landsberg (KHL) is a paper product and packaging supply company. KHL undertook an extensive warehouse lighting project in 2007 by replacing 175 metal halide lights with occupant sensing 6-lamp T8's. By reducing energy consumption, KHL eliminated 399,529 lbs. of annual carbon dioxide emission, which is equivalent to planting 49 acres in trees. This equates to a savings of \$27,000 a year. This project is one of many green projects the Landsberg family is currently employing. Other projects include an extensive recycling program, weekly recycling awareness tips, maintaining a wildlife retreat located in Sycamore, Illinois, and development of the "Greenland Line," a product line of recycled packaging supplies manufactured by KHL.

**Nalco Company - Bedford Park  
Continuous Improvement Award**

Nalco Company is a specialty chemical company that manufactures products used for casting of metal parts and ceramic forms. Over the past year, the plant made changes to improve lighting efficiency, improve steam system performance, and produce less manufacturing waste. These changes saved 1.3 million KWh of electricity, reduced gas emissions, improved steam system performance and reduced rinse water usage by 2.8 million gallons. The savings from these projects totaled over \$250,000. Nalco also uses its idled buildings to provide resources to various local agencies. Emergency response teams held training drills in one of the idle buildings, which benefits the entire community.



**National Manufacturing - Rock Falls  
Illinois Sustainable Technology Award  
Continuous Improvement Award**

This year National Manufacturing, a division of Stanley Tool Works, is presented with both a Continuous Improvement Award and the Illinois Sustainable Technology Award for its development of Weatherguard High Performance Coating (HPCe).

The Weatherguard HPCe coating is an innovative chemical process that was formulated to withstand the harshest weather conditions and stand up to the corrosive effects of the new pressure treated lumber. In 2003, the lumber industry removed arsenic from its process known as CCA, chromated copper arsenate and changed to ACQ, alkaline copper quaternary. But taking arsenic out and putting copper in created a problem for hardware. The elevated copper found in the ACQ lumber was corrosive to most metals, including the typical zinc finish applied to hardware.

The Weatherguard HPCe developed by National Manufacturing provides three times the corrosion protection and is an environmentally friendly coating.



**NOW Foods - Bloomingdale  
Pollution Prevention Award**

NOW Foods is a family owned manufacturer and distributor of a wide variety of nutritional supplements, health foods, cosmetics, aromatherapy products, and essential oils. NOW Foods created an environmental team that identified areas where products could be implemented to reduce the company's environmental impact and promote sustainable practices. NOW Foods was able to implement measures that reduced energy used for lighting and charging batteries, reduced water use, and conserved resources.

The company developed a ride-share program to promote carpooling and fuel efficient automobiles. NOW Foods also gets involved in the community environment by holding volunteer events at a local forest preserve where employees de-litter the grounds, as well as plant native aquatic plants to restore a lake shoreline and reduce erosion. Each of these endeavors has served to promote sustainable business practices and employee involvement.



**O'Hare Modernization Program – Chicago  
Pollution Prevention Award**

O'Hare International Airport plays a vital role in the national aviation system and is a large economic generator for the State of Illinois. The O'Hare Modernization Program (OMP) will update O'Hare's intersecting airfield into a more modern parallel configuration, thereby allowing the Airport to operate more efficiently, reducing delays and congestion. The City of Chicago has made the OMP an environmentally friendly program, starting with the development of the Sustainable Design Manual (SDM), which guides design and construction toward environmentally sustainable buildings and civil infrastructure. The OMP is setting the standard for short-term and long-term pollution prevention strategies for U.S. airport design and construction.

Daily implementation of the SDM is standard operating procedure for the OMP, such as choosing "green" when cost and other considerations are equal. And innovative application of green initiatives is used whenever possible. The SDM allows O'Hare to continue to evolve as a benchmark for environmental stewardship in design and construction and supports the City's ongoing goal to implement more environmentally sustainable buildings and civil infrastructure.



**Plum Grove Printers - Hoffman Estates  
Pollution Prevention Award**

Printing uses trees, and while trees are a renewable resource, printing still has an environmental impact. Plum Grove Printers has always recycled and avoided practices that were less than environmentally friendly. But the company decided that was not enough. In 2006, with the assistance of a college student on a green-friendly summer internship, Plum Grove reinvented itself with a multi-point program of going green.

Plum Grove Printers reviewed all aspects of the materials, energy, and supplies used in the printing process. This included examining the manufacturing, waste, and spoilage in an effort to come up with an affordable program of going green. Moreover, Plum Grove wanted a program that would encourage vendors and other partners to consider the environment as well. Plum Grove implemented a program that encourages customers to consider environmental aspects of their finished products and to consider how they could help gain themselves recognition and build a wave of environmental awareness among businesses and the community. The program has resulted in a successful partnership with customers in practices such as shipping and ordering methods that cost the customer less and help minimize environmental impact when compared to traditional ordering, production, and product delivery systems.



### **Pontiac Township High School - Pontiac Continuous Improvement Award**

Pontiac High School developed the Pontiac Prescription Drug Disposal Program, a collaborative effort between local pharmacies, officials, and Pontiac Township High School students from the school's Ecology and Illinois Studies class. The purpose of the program is to educate the public about the harm done to the environment due to current disposal practices, which is usually flushing the medicine or throwing it into the trash. The program also provides the public with an alternative disposal method that helps protect the water supply.

Steps to the program are:

- Individuals take their unused and unwanted prescription and non-prescription drugs to participating pharmacies. Pharmacists take the pharmaceuticals and place them into secure bins. When the bins fill up, pharmacists send them off to be incinerated.
- The company that incinerates the pharmaceuticals creates energy that is used to power homes and businesses.
- Individuals can take their unused controlled substances to the Pontiac Police Department. The Police Department has a secure drop box that individuals can place their substances in - no questions asked. The substances are disposed of following proper police procedures.



**PortionPac Chemical Corp. - Chicago  
Continuous Improvement Award**

PortionPac manufactures environmentally sustainable janitorial cleaning detergents. These liquid-concentrated, pre-measured cleaning products simplify cleaning while they reduce the resources used throughout the life-cycle of production, storage, distribution, and disposal. PortionPac is used by schools, hospitals, industrial firms, and commercial cleaners to reduce cost and improve performance.

PortionPac has continued its efforts to make products and processes more sustainable and reduce their impact on the environment. This includes expanded Green Seal formulations, packaging improvements, and progress on getting LEED certification for PortionPac's existing facility. Over the past year PortionPac:

- Reduced the company's carbon footprint with a new roof and greening the auto fleet
- Reduced waste as a member of the Waste to Profit Network
- Developed communication strategies to encourage other organizations to reduce their environmental impact.



**Richelieu Foods Inc. - Elk Grove Village  
Pollution Prevention Award**

Richelieu Foods Inc. is a manufacturer of dressings and sauces that are distributed through multiple food service channels nationwide. This facility has adopted a lean philosophy and utilized associated programs, tools, and concepts to drive out waste and to reduce the company's environmental footprint.

The environmental projects implemented by Richelieu centered around energy conservation, chemical reduction, and food and solid waste recycling. The dressings and sauces production facility has reduced waste to landfill by 10 million lbs., reduced chemical toxicity by 27%, and reduced energy usage by 37% over the last three years. These projects have had an incremental positive impact:

- 20% production efficiency improvements
- \$420,000 waste disposal cost reductions
- energy reduction savings of \$46,000.

These projects have driven facility waste reduction and are a part of an overall environmental awareness, recycling, and conservation program that has been adopted by all employees.



**Wilbur Wright College - Chicago  
Pollution Prevention Award**

Wilbur Wright College is a community college serving an urban population of students. In 2005 the college began development of a new six-course, 21-credit hour curriculum in Building Energy Technologies. This accredited certificate program was intended to boost skills and employability in the building construction, rehab, and operation industries. It also was designed to act as an incentive for utilizing new energy technologies in projects throughout Illinois.

Wright's goal was to provide students with a background in concepts and practical applications of energy efficiency and alternative energy technologies, and system operations methods. It would address participation in design, installation, assessment, operation, and maintenance of these rapidly expanding technologies on the job site. The curriculum was initially offered in the Fall of 2006 and the first class of students graduated in December, 2007. Because of demand, the coursework was re-offered in the Fall semesters of 2007 and 2008.



**ZF Sales and Service - Vernon Hills  
Continuous Improvement Award**

ZF Sales and Service is a service parts sales and remanufacturing facility that is a subsidiary of a worldwide automotive supplier of environmentally friendly driveline and chassis technology. The ZF organization is an ISO 14001 Certified facility and it recognizes that reducing waste and energy consumption is mutually beneficial to the environment and the company through the reduction of operating costs.

The company identified the following energy and waste disposal strategies for implementation during 2007:

- Conversion from the T12 technology overhead lighting system to T8 lighting equipment, which reduces energy usage.
- Improved utilization of building and production equipment through better maintenance and optimization of equipment settings.
- Implementation of lean principles for more efficient operations.
- More efficient sorting of reusable scrap pallets from the waste stream.

Through the implementation of these strategies, ZF Sales and Service was able to improve its operational efficiencies and consume 7% less electrical energy; send 13% less waste to the landfill; and avoid emitting 315,000 lbs. of Greenhouse Gases to the atmosphere.