

Connecticut Leads the Way as Green Manufacturing Takes Hold

In the unending battle for organizations to achieve a stronger bottom line, many of the nation's leading manufacturers and their suppliers have engaged in a process that is fast becoming one of the foremost methods of helping manufacturers cut costs, increase productivity and at the same time, implement sound environmental practices. One of the most innovative "go clean" initiatives is the Green Suppliers Network.

The U.S. Environmental Protection Agency (EPA) established The Green Suppliers Network (GSN) to help small and medium-sized suppliers stay competitive. GSN experts work with these suppliers to identify areas within their manufacturing process to reduce the amount of materials used and learn how to use the remaining materials more efficiently. Through technical reviews on the plant floor, GSN experts identify opportunities for improvement. "We help companies that supply products and services to larger original equipment manufacturers to focus on process improvement and waste minimization," said Judy Wlodarczyk, GSN expert and member of CONNSTEP, Connecticut's manufacturing extension partnership. CONNSTEP has been on the forefront of Clean Manufacturing since 1993.

The Green Suppliers Network is a collaborative venture among industry, the U.S. Environmental Protection Agency, and the U.S. Department of Commerce's National Institute of Standards and Technology's Manufacturing Extension Partnership (NIST MEP), a leading provider of technical assistance to manufacturers.

Integrating Lean and Clean for Expanded Benefits

Lean Manufacturing is a systematic approach to identifying and eliminating waste – non-valued added activities – through continuous improvement by flowing the product at the pull of the customer in pursuit of perfection. "Clean manufacturing takes the focus one step further to look at environmental waste. It's a team-based activity, facilitated by both a Lean expert and Clean expert, designed to identify and eliminate all waste," said Wlodarczyk.

The Green Supplier Network program provides examination of the root causes of inefficiencies in order to provide alternatives that are in keeping with sound environmental strategies. For example, a GSN expert may recommend adding environmentally friendly materials; projects for reuse or recycling; examining the ability for full use of raw materials; energy efficiency; water conservation; eliminating toxic materials and reduction of packaging wastes, emissions to air, water, solid and hazardous wastes in their plant. The entire process helps manufacturers lessen their footprint on the environment and save money.

CONNSTEP, along with Connecticut manufacturer Har-Conn of West Hartford, participated in a pilot program sponsored by aerospace OEMs and the EPA back in the fall of 2003. Out of the six selected suppliers who participated in the pilot program, two were in located in Connecticut; with the other four were spread around the country. The pilot program was a success and the EPA rolled out the program nationwide. Wlodarczyk is a Clean Manufactur-

ing expert and has been involved with the GSN programs from the onset. "Clean manufacturing can create significant cost reductions because it looks at the wastes that are generally untapped by the Lean philosophy and focuses on eliminating them or reducing them. Clean emphasizes optimizing materials, resources, processes and products while minimizing the impact to the environment. Companies that deliver products and services with fewer environmental impacts have the potential to capture a significant competitive advantage," she said.

According to Mary Ellen Mika, Manager of Environmental and Supplier Diversity at Steelcase Incorporated, a global office furniture manufacturer headquartered in Michigan, "the program is beneficial to Steelcase Inc., because it helps our suppliers find opportunities to reduce costs while reducing waste. It certainly helps Steelcase when our suppliers are able to support innovative, sustainable product development projects for us in a cost-effective manner. Suppliers who focus on being lean strengthen their own financial position, which ultimately strengthens ours. We cannot make our products without our suppliers and we cannot make them sustainable without our suppliers' cooperation and creativity. Suppliers who understand this message – such as those who have successfully participated in the GSN program – are those with whom we are more likely to establish a long-term relationship."

The process increases productivity and reduces costs across the board. Some experts in the field feel that if a company isn't participating in the Clean part of Lean Manufacturing, they're missing a major part. "According to our numbers, if a company is just doing Lean Manufacturing and not engaging additional clean benefits, they are missing out on up to an additional 30% of the potential cost savings," said Kristin Pierre, EPA Program Manager for GSN.

The process also includes value stream and process mapping. These techniques help to identify sources of non-value added time or materials, increase efficiency and develop a plan for implementing improvements. The earlier in the manufacturing process value stream-mapping starts, the better guarantee the company has at achieving maximum value. Looking upstream to determine why the wastes are created and then determining how to eliminate the practice is a better scenario than waiting until the end of the manufacturing process to figure out how to dispose or recycle. Using value stream mapping at the onset of Lean initiatives is a great place to start. GSN experts will conduct reviews; provide custom reports outlining inefficiencies and areas for improvement and cost savings as well as an overall environmental snapshot of the manufacturing facility.

Results of the GSN program

According to the EPA, GSN has generated the following results for 49 completed reviews nationwide:

- More than \$7 million in annual environmental savings
- Approximately \$20 million in annual Lean savings
- \$200,000 in other cost savings
- \$26 million in total annual potential

impact

- Approximately \$20 million in one-time Lean impact opportunities.

In terms of energy conserved, almost 250,000 of MM BTUs (British thermal units) realized; more than 70,000 kW of energy conserved; more than 10 million gallons of water saved; a reduction of more than 1 million pounds of solid waste; a reduction of almost 15,000 pounds of toxic and hazardous chemicals; and a reduction of more than 130,000 gallons of water pollution.

Connecticut Companies Invest in GSN

Typical GSN programs show on average a 3:1 return on investment and the eight Connecticut companies who are currently conducting or have undertaken a GSN project have realized financial benefits, "After working with CONNSTEP, we began using Clean and Lean Manufacturing techniques to reduce waste and decrease rework costs, saving us hundreds of thousands of dollars," said Tim Backus, President, Har-Conn Chrome, West Hartford, CT.

This initiative is spreading throughout the MEP network. Kurt Middelkoop of the Texas Manufacturing Assistance Center (TMAC) joined Judy Wlodarczyk to lead a GSN training session at the MEP national conference in Orlando, helping other MEP practitioners understand the benefits of the GSN program for their clients. This spurred additional involvement by other MEP centers and the program is now being offered by several centers across the country. Wlodarczyk and Middelkoop also con-

ducted GSN training for Environment Canada and "train the trainer" GSN projects at Whirlpool's Mexico facility, "Judy and Kurt were recommended by EPA. It was a great exercise. They were energetic and showed a 'streets smarts' practicality about the realities on the manufacturing floor. The "on the floor" practice application was also very helpful," said Robert J. Karwowski Director, NAR Environmental, Health & Safety at Whirlpool.

"One of the many benefits we offer to manufacturers through the GSN program is hands-on training directly on the shop floor," said Wlodarczyk.

Across All Industries

Just about every industry, from aerospace to biomedical to automotive, is involved in a Clean initiative. At this year's international air show held in Paris, the FAA and European Commission announced an initiative that supports the reduction of noise, fuel burn and emissions for transatlantic flights. Participating airlines included Air France/KLM, Boeing, Delta Air Lines, FedEx, SAS Scandinavian Airlines, Virgin Atlantic and UPS. Irish, German and Portuguese air navigation service providers will also participate.

Although the aerospace industry has been the quickest to adopt the Clean part of Lean Manufacturing, suppliers to other industries are following close behind. For example, Metal Finishing Technologies, Inc. of Forestville, CT employs 70 people and manufactures metal plated products for the automotive,

Continued on page 13



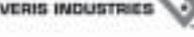
Boston Aircontrols, Inc.

**Authorized
Distributor for:**








BAI is an HVAC controls distributor offering unsurpassed technical assistance combined with a local inventory of the best controls. Whether you simply need to replace a control valve, damper actuator or thermostat, or if you need a sophisticated Tridium based DDC system to communicate with your existing system, make BAI your one-stop controls source!



888-423-2525

- Control Valves
- Damper Actuators
- DDC Controls
- Enclosures
- HVAC Controls
- Power Supplies
- Relays
- Sensors

- Thermostats
- Transducers
- Transformers
- Transmitters
- Tubing & Cable
- Variable Frequency Drives
- VAV Controls

8 Blanchard Road, Burlington, MA 01803 • Fax: 781-272-0254
E-mail: info@bostonaircontrols.com
www.bostonaircontrols.com

or more eligible jobs in the state during a single year. The company is entitled to an incentive payment equal to 50% of the eligible job's salary, multiplied by the applicable Massachusetts income tax rate of the newly hired persons.

Businesses and labor organizations are eligible to receive matching grants of up to \$250,000 through the **Workforce Training Fund** and in some cases might qualify for up to \$1 million to help pay for critical, up-to-the-minute employee train-

ing for up to two years. Additionally, the fund provides technical assistance grants of up to \$25,000 to help employers access assistance in identifying training needs, developing a training plan, curriculum, or other training-related activities.

The **Investment Tax Credit (ITC)** is 3% of the cost of qualifying tangible property acquired, constructed, reconstructed, or erected during the taxable year, after federal tax deductions are taken on the property.

New Hampshire

New Hampshire has no broad-based personal income tax and no tax on sales, inventory, personal business property, capital gains, professional service, custom/modified software, equipment/machinery, and no internet taxes.

The **Community Reinvestment Opportunity Program (CROP)** is a new incentive for businesses to create jobs. With the CROP Zone Business Tax Credit Program, companies may be eligible for tax credits to be used against the Business Profit Tax and Business Enterprise Tax. Qualifying CROP projects must create new jobs and expand the economic base for the state. Projects can range from the creation of new facilities to the rehabilitation of existing structures. The program has \$825,000 in tax liability credits available.

Rhode Island

Investment Tax Credits For Manufacturing allow manufacturers a 4% tax credit against the Rhode Island business corporation tax and the personal income tax on new facilities and machinery and equipment used in the production process. The 4% investment tax credit may not reduce the taxpayer's liability below minimum tax (\$250). Unused credits may be carried forward for up to seven years.

The **Expanded Investment Tax Credit for "High Performance"** allows manufacturers a 10% credit against the Rhode Island business corporation tax and the personal income tax on newly purchased or constructed facilities, structural components, and machinery and equipment used in the production process.

The **Rhode Island Adult Education Tax Credit** allows for both a worksite and non-worksite tax credit for vocational training or basic education of 50% of the costs incurred, up to a maximum of \$300 per employee and \$5,000 per employer per calendar year.

The **Research and Development Expense Credit** is a 22.5% tax credit for increases in qualified research expenses. The credit is available to corporations; sole proprietors; or passed through from partnerships, joint ventures, or subchapter S corporations. Unused credit may be carried forward for up to seven years.

Vermont

High-Tech Growth Incentives are eligible to high-tech businesses for a package of credits including up to 6% of total investment in machinery and equipment; up to 6% of total investment in the renovation of existing facilities to provide cable, fiber, or telecommunications access; up to 10% of qualified training, education, and workforce development expenditures; and an exemption from the sales and use tax on new personal computers and accompanying software.

A **Sales And Use Tax Exemption** applies to sales of building materials within any three consecutive years in excess of \$250,000 in purchase value used in the construction, renovation, or expansion of facilities that are used exclusively, except for isolated or occasional uses, for the manufacture of tangible personal property for sale.

The **Export Tax Credit** is available to Vermont businesses that make sales outside Vermont. The company may be eligible to receive a credit equal to the difference between the income tax calculated under the existing state apportionment formula and an alternative formula that double weights the sales factor.

Continued from Page 10

electronic, hardware, marine, medical, metal stamping, telecommunications and aerospace sectors. Wlodarczyk and associate Bill Caplan also of CONNSTEP, helped the company identify an unnecessary step, which resulted in the reduction of 400 pounds of chemicals and 2,750 gallons of water per year – a savings of \$500. "CONNSTEP identified 17 improvements for our process line – 13 of which could be implemented in less than one month," said Bruce Wheeler, Vice President, Operations. "Implementing these improvements will reduce water usage by more than 120,000 gallons, reduce solid hazardous chemicals used by more than 1,200 pounds and aqueous hazardous chemicals used by 130 gallons," he said. The company is currently exploring additional Clean Manufacturing processes that will further reduce their water usage by more than 1 million gallons and save the company about \$6,000 per year.

The strength of Connecticut's program can be used as a model for other states to adopt the GSN program. "The principles of the GSN program are applicable to companies in just about every industry across the board," said Wlodarczyk. "More and more suppliers and OEMs are taking advantage of the benefits the program offers primarily because it addresses today's overarching environmental concerns and at the same time, improves their competitive advantage."



Solutions Shop

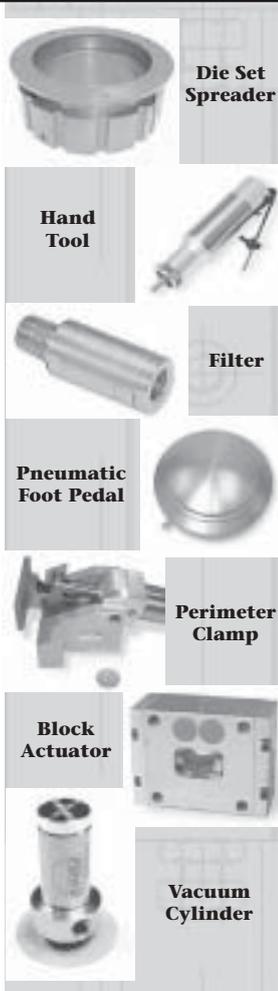
Beyond Actuation

Bimba has proven experience in an ever-expanding variety of industries with an impressive breadth of applications. From chemical filters for the printing industry to lift tables for the medical industry and everything in between, Bimba has the knowledge, experience and drive to tackle your most perplexing engineering challenges.

Offered in New England by:



9 Forge Park, Franklin, MA 02038-3135
(800) 341-2800
 or (508) 528-3020
 Fax: (508) 528-7050 Web: www.airinc.net



D.L. Thurrott, Inc.
THE INSCO GROUP

More than Pumps | Pumping Solutions



NEED PUMPS? Got a Pumping Problem? Contact the EXPERTS!

SALES

- New Pump Sales
- After Sales Support
- Fast Delivery
- Technical Advice
- Large Inventories
- Systems Design



SERVICE

- In House Repairs
- On-Site Service
- Factory Trained Technicians
- Laser Alignment
- ISO 9001



17 Powder Hill Road Lincoln, Rhode Island 02865
 Phone (800) 795-7024 Fax (401) 334-6881
www.dlthurrott.com • dltri@inscogroup.com

American-Marsh • Ampco • Cat • Deming
 Goulds • Grundfos • Innomag • Jabsco
 Hydracell • Lutz • Masterflex • MD Pneumatics
 Price • Roper • Sihi • Wemco • Wilden

- Coming in February -

Our Annual Buyers' Guide

Call for rates and advertising deadlines

Manufacturers' Mart
800-835-0017

manufacturersmart.com