

All in the family

With a little creativity, a Canadian family-owned manufacturer proves **it's easy being green**

BY MARY DEL CIANCIO



CALSTONE INC.

Your Furniture Solutions Partner

MOVING TOWARDS GREEN

Operating under a policy that fights for environmental

It is our responsibility to exhibit environmental sustainability and stewardship to become a leader in the manufacturing industry, practicing environmentally sound procedures. Our environmental policy is shared with all employees and is intended to promote economically sensitive and socially appropriate practices for our customers. Calstone Inc. will continue to encourage the protection, preservation and enhancement of the environment today for the security of tomorrow.

Calstone Inc. has taken these valuable steps toward environmental improvements:

- The Vapour Spray Degreaser is the latest in the industry and constantly purifies chemicals to be **reused** in the degreasing of all metal components.
- A 2000 gallon, stainless steel water tank is used for cooling all spot welding equipment allowing all water to be **reused** throughout the welding process.
- All sheet metal is cut to size to **reduce** the amount of scrap metal. All scrap metal is **recycled**.
- All manufactured parts are placed in specialty carts made of steel to be moved throughout the manufacturing process with ease and are **reused** to repeat the process.
- Calstone Inc. purchases cloth rags from the clothing industry that are left over from their manufacturing process to **reduce** the amount of waste.
- Calstone Inc. buys all laminate tops and drawer fronts from two different suppliers and has set up an agreement with both suppliers to **reuse** all skids for deliveries.
- All cardboard packaging used by Calstone Inc. contains a minimum of 70% **recycled** materials and are **reused** for deliveries and installations.
- Calstone Inc. **reduces** the need to purchase new tools as our in-house machine shop allows us to sharpen tools and re-work all drills and dyes.
- **Reusable** cloth towels are installed in all washrooms to **reduce** waste.
- Solar power panels will provide energy to power the plant and **reduce** the amount of outside energy required.

Code of Conduct For Environmental Practices

- Use energy wisely and when possible, improve the energy efficiency of our operations.
- Comply with environmental laws and regulations, company policies and professional standards of sound industry practices.
- Use technology and operating procedures designed to minimize health and safety risks.
- Encourage employees to report any conditions that may pose an environmental, health or safety hazard and establish procedures to enforce accurate correction methods.

Protecting the environment for the security of

CANADIAN MANUFACTURING

Jim Ecclestone has been called an “environmental mastermind.” But the modest owner and president of Calstone, a Canadian family-owned business that creates and manufactures metal furniture products, just laughs at the idea.

He prefers to call it “an unusual mind.”

It’s this “unusual mind” that’s behind many of the award-winning environmental initiatives that Calstone has implemented over the past five years at its Scarborough, Ont.-based facility.

Ecclestone invited *Manufacturing AUTOMATION* to the 55,000-sq.-ft. facility earlier this year to see the initiatives in action, and to sit with him and his three children — twin daughters Laura and Jamie, both product managers, and son Matthew, manufacturing co-ordinator — to learn how this family works together with the goal of building a company that is both sustainable and successful.



THE CALSTONE STORY

Established in 1985 by Jim Ecclestone and two business partners, Calstone manufactures mailroom furniture, modular pack bench lines and business furniture. The company designs, manufactures, paints, packages and inventories products, and prepares them for shipping. Customers include universities, colleges, government, large and small organizations, and health care facilities throughout Canada and the U.S.

In 2006, when Ecclestone’s partners retired, his family decided to buy out their shares, making Calstone a 100 percent Canadian family-owned business. The company was entering a new era and it was the perfect time to make some changes.

“I tried to take a look at what manufacturing was going to be like 25 years out,” Ecclestone recalls. “[I was] looking at papers every day and seeing global warming...So what can we do as a company? Should we be looking at some of this stuff?”

That’s when the Ecclestone family decided to develop the company around a new environmental philosophy that would set them apart from their competition, strengthen their customer relationships and push them into the next chapter of business — all while doing their part for the environment by raising awareness and contributing to the greening of its supply chain. It was a win-win.

Environmental initiatives

Over the past five years, the small company, which has a staff of 44, has made many changes to its manufacturing operations to improve upon its environmental footprint. The ultimate goal is to be 100 percent off the grid and to have zero emissions coming out of the building — goals that the Ecclestone family is inching closer to with each successful initiative.

• **Remanufacturing program:** The company’s first major initiative was its remanufacturing program — an initiative that invites customers to send back their used Calstone metal furniture to the factory to be recycled and/or remanufactured, guaranteeing that zero percent of Calstone products will end up in a landfill site.

Ecclestone got the idea for this program when one of his customers asked him to pick up 60 stations because they were putting new stations in.

“It was my product that I installed back in 1987,” he recalls. “I looked at it and said, ‘This stuff is in pretty good shape.’”

He says that he took the stations apart and, because the furniture is metal based, more than 80 percent of it was in perfect shape. So they inspected the welds, sanded it, painted it, reassembled it and were able to re-sell it, good as new.

“And that’s where I got the idea for the remanufacturing program, that we can guarantee that zero percent to landfill site; that we will take back any of our product that we sell to any of our customers across Canada, because it has value,” he says.

The family sat down to develop the program, and had to contact their suppliers and get them on board, too, since certain parts would have to go back to them. Their suppliers were all on board with the idea.

So, when old product is returned to the manufacturing facility, Calstone’s trained personnel examine all components. Reusable items undergo a cleansing procedure, which prepares all parts for remanufacturing. All other parts are sorted and prepared for pick up by the appropriate suppliers to be properly reused or recycled.

For example, when Calstone returns the desktops back to its top supplier, if it’s still in good shape, it can be re-laminated and resold. Otherwise, they grind it up and sell it to the farming industry for animal bedding.

“So every piece of equipment coming back to us gets reused or recycled,” he explains.

And their customers really embraced the idea, too.

“Everyone was totally onside with it. It was very well received. And the truth is, it probably helped cement our relationships with those people,” Ecclestone says, adding that the initiative has helped them land a major account.

But there are many other programs in place that are also helping to decrease the company’s environmental footprint.

• **Emissions testing:** Today, Calstone products are manufactured in an environmentally sound facility with pollutant prevention programs. In fact, all of Calstone products are Greenguard certified, ensuring that they have been cleared of any indoor air contaminants. Calstone’s manufacturing facility has been tested for harmful emissions going into the atmosphere, as required by the Ministry of Environment. They are currently 56 percent below the standards set for their size and category of a facility.

• **Soap-based solvent and vapour degreaser:** The company made the switch from trichloroethylene (TCE) to TechKleen NPB, a more environmentally friendly solvent, for its vapour degreaser machine, which cleans all metal parts before they are painted. The company says that TechKleen NPB has a much lower atmospheric lifetime than TCE, and almost zero global warming potential. The degreaser was installed to purify chemicals for reuse in the degreasing process of metal components. According to the company, chemical use has been reduced by 60 percent compared to 2005 levels since the installation of the vapour spray degreaser.

• **Recycled rainwater:** Calstone has installed a 2,000-gallon, stainless steel water tank in its plant, which is filled with rainwater collected from the roof. The water in this tank is used to cool all spot welding equipment, to flush all toilets, water indoor and outdoor gardens, and to heat the facility through the heat exchange unit. Thanks to the use of the water tank, Ecclestone says they are probably saving about 75 percent of what would normally be city water that they would use. In addition, by collecting rainwater for toilet flushing, water consumption has been reduced by 15 percent compared to 2004 levels.

• **Heat exchange:** Once the cool water flows through the spot welding equipment, it heats up. The hot water is then filtered back into the tank, where it is extracted by the heat exchange unit and blown into the facility through a car radiator — a concept Ecclestone came up with.

“I tried to think of how I could get the heat out of it, and I thought, ‘Well, car radiators are probably one of the best heat exchangers in the world.’”

• **Plants in the plant:** When you first walk into Calstone’s manufacturing plant, you’re greeted by a living wall — a wall of plants and trees that work together to eliminate the toxins and purify the air within the facility. A few species of ivy plants known for their purification methods were planted to rid the air of contaminants, while helping to beautify the facility.

Walk a little further and you’ll see Ivy Devil Pothos plants climbing the steel support beams throughout the facility. There are more than a 100 of these hearty interior plants throughout the facility, functioning as air contaminant purifiers.

• **Recycling program:** In addition to recycling and reusing its products, Calstone recycles its packaging. Upon delivery of furniture, all packaging is removed from the site and returned to Calstone to be reused for new shipments or to be properly recycled. The company also buys packaging that contains a minimum of 85 percent recycled materials.

• **Green electricity:** Calstone’s office and showroom area — about 6,000-sq.-ft. — are powered by Bullfrog Power, a renewable energy source that provides 100 percent green electricity. By signing up with Bullfrog Power, the company says it displaces 84.48 tonnes of carbon dioxide, 296.28 kilograms of





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sulphur dioxide and 70.8 kilograms of nitric oxide a year.

• **Energy-efficient lighting:** Calstone has changed the lighting in its facility to an energy-efficient, high-max compact fluorescent lighting system that consumes less energy to power each light bulb. This lighting, says the company, has a guaranteed energy savings of more than 50 percent. They estimate a 30 to 40 percent savings on their hydro bill because of this.

For manufacturers looking to decrease their environmental footprint, Ecclestone recommends taking a look at lighting first.

“The government still has incentives to do that. We have 90 fixtures in the back that we’ve...replaced, and they’re \$100 each. So you’re talking about \$9,000, but I got \$4,500 back from the government. And then you save energy,” he says. “The payback in that is less than one year. It’s not [a] 10-year payback; it’s an instant payback.”

• **Natural light:** Calstone has installed three five-ft by five-ft skylights throughout its manufacturing facility to test how far the natural light will project into each area, while at the same time reducing the hydro requirements. The plan is to install more in the future, with the goal of using all natural light within five years.

• **More initiatives:** Some of the other initiatives the company has undertaken include: selling products that contain 45 percent of material that is 100 percent recyclable; all scrap metal left over from manufacturing is recycled and/or used for in-house projects; wooden skids are returned to suppliers for reuse; cloth rags to wipe down their products are purchased from the clothing industry that are leftover from their manufacturing process; they recycle printer ink and use an Eco font for in-house documents that creates tiny holes in letters, saving 20 percent of the ink and toner when printing; they have replaced their shipping and receiving doors with thermo-insulated doors complete with a window to help reduce heat loss and provide natural light into the manufacturing facility; and they have replaced both of their propane lift trucks with electric lift trucks to eliminate emissions in the manufacturing facility.

Thinking outside of the box

Most of Ecclestone’s ideas come from thinking outside of the box.

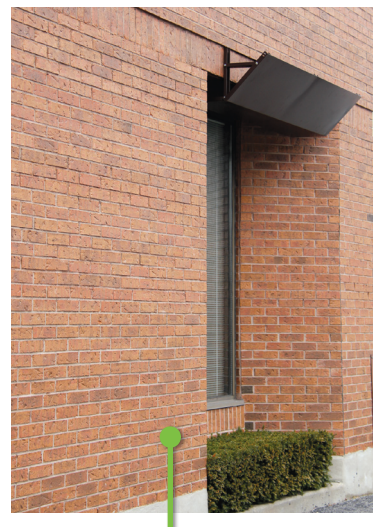
An example of this thinking is using bathroom fans to get heat from the ceiling to the floor. On a metal post, he has installed a fan that you’d have in your bathroom at home. He attached a tube to it, and the fan blows the hot air from the ceiling, down the tube, to the floor.

“So if I put that on every one of my posts throughout the operation, I can get

the heat from the ceiling right down to the floor. So we think that will help conserve a lot of the energy in the building by doing that.”

He came up with that idea while shopping at Canadian Tire one day. He installed one as a test, and plans to install more throughout the facility.

Another example: The team created five large cubes made from recycled materials and hung them from the ceiling around the manufacturing plant. The idea here, explains Ecclestone, is to use these cubes to absorb a lot of the noise from their manufacturing operation, and to take up wasted space, so that there is less space to heat. Eventually, they plan to install more throughout the facility.



One of Ecclestone’s latest initiatives is his water catcher, a trough system (designed and built by Calstone) with perforated holes in the bottom to catch rainwater and direct it to flow downward over plants, located in recessed planters in front of the Calstone office windows. The goal is to eliminate the use of city water to water plants. He is currently testing the design over one window to see how it survives through the winter with the weight of the snow. If all goes well, says Ecclestone, the water catchers will be installed across the front of the building to water the plants below.

Where does Jim come up with these out-of-the-box ideas?

“I grew up in a cottage,” he says. “I was in my teens before we had electricity at the cottage. So we had to do without and make a lot of things happen... We collected rainwater and we did all that kind of stuff.

“But I’ve always been handy,” he adds. “I think different than most people.

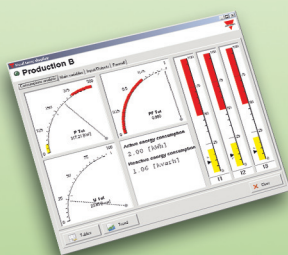
“I keep thinking about the easiest way to do things and once it just sticks in my head, then I do it,” he says. “You don’t have to do it all over night; you just have to get it started. That’s the big thing with anybody in manufacturing. You’ve got to get started and just try different things. Take a look at your operations and try to improve on it.”

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Ecclestone estimates that the company has spent about \$100,000 over the past five years on its green initiatives, but that it has been able to reduce its operating costs by \$20,000 annually.

“It can be expensive to go green, but it’s the little things,” he explains. “People have to start [with] the little things first.”

What the future holds

Calstone has implemented a 10-year plan that will enable them to be 100 percent off the grid. In the coming years, they plan to build their own water filtration system, which will exchange contaminants for puri-


“This is a journey that will never end. *Going green* is part of the company’s culture now.”

fied air/oxygen. They also hope to install a solar wall that would stretch 3,000-sq.-ft. across one side of the building, and invest in solar power by installing solar panels on

the roof. They plan to switch all paint materials over to a water-based paint system that will eliminate the release of contaminants into the air. Ecclestone also says they hope to install storage tanks outside so that they can continue to collect all of the rainwater from the roof, even when the water tank inside gets full.

And, of course, Ecclestone and his family continue to think of creative ways

to decrease the company’s environmental footprint, inspiring customers, suppliers and even competitors along the way.

“This is a journey that will never end. Going green,” says Ecclestone, “is part of the company’s culture now. It’s part of what we do. So everything we look at, from the building to our products, has got something green on it. I think it’s important. It also feels good...and it’s part of our story.” 



Awards and accolades

Calstone has received several awards honouring its commitment to the environment.

In 2008, the Scarborough Chamber of Commerce named Calstone the winner of their green category at their annual Business Excellence Awards gala for its remanufacturing program.

That same year, the company was nominated for a 2008 Green Toronto Award in the “Market Transformation” category, recognizing their commitment to change the manufacturing industry to be less of an impact on the environment.

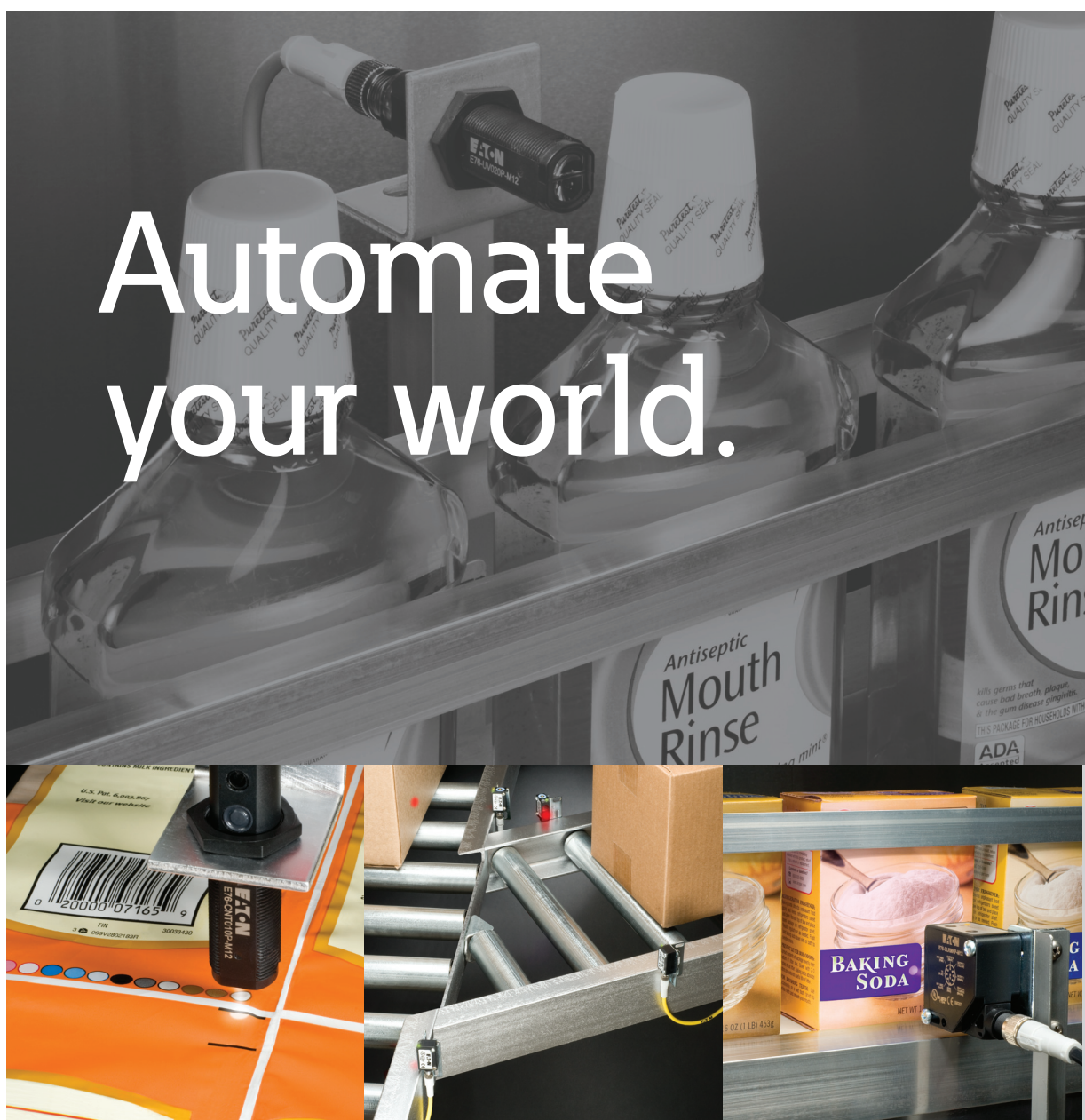
In 2009, Calstone attended the Pollution Prevention Awards in P.E.I., and took home the Canadian Council of Ministers of the Environment Pollution Prevention Award in the small business category.

In 2010, the Recycling Council of Ontario honoured Calstone with the Platinum Award in the “Sustainable Product” category, as well as the “Environmental Spirit Award” in recognition of its green programs and innovative projects to reduce the company’s environmental footprint.

The company says that it hopes to continue to gain recognition for its achievements, “only to spread the word and inspire others to do their part in reducing their environmental footprint.”

And word is spreading quickly. The company conducts tours, allowing customers, suppliers and even competitors to walk through its operations to see all of the innovative things they are doing to decrease their environmental footprint.

Ecclestone is an open book, and encourages all manufacturers to take steps to decrease their footprint in an attempt to strengthen the Canadian manufacturing industry.



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