

LEEDing the Way in Energy Savings:

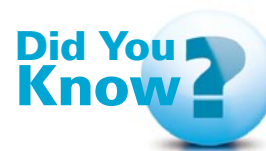
Achieving a “Green” Design Standard for Industrial Buildings

LEED Certification

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ offers third party validation of a project’s green features and verifies that the building operates as designed. LEED was developed by the U.S. Green Building Council (USGBC), a 501(c)(3) non-profit community of leaders working to make green buildings available to everyone within a generation.

LEED encourages and accelerates adoption of sustainable green building and development practices by recognizing performance in five key areas of human and environmental health:

- Sustainable Site Development
- Water Savings
- Energy Efficiency
- Materials Selection
- Indoor Environmental Quality



Atlas Copco is a member of the US Green Building Council which is dedicated to sustainable building design and construction.

Energy efficient technologies create a win-win scenario: lower cost, better for the environment. This is especially true with air compressors. Older compressed air systems – even those in good repair – often cost much more to operate than a compressed air system using up-to-date, energy efficient technology.

One such technology, Variable Speed Drive (VSD), reduces energy consumption as much as 35% by exactly matching production of compressed air to demand. Atlas Copco invented VSD compressors, and they are at work the world over in production environments and as components in OEM systems. For one company, Oxygen Generating Systems International (OGSI), Atlas Copco VSD compressors are at work in both of these applications.

OGSI incorporates Atlas Copco compressors into its gas separation systems, which are used to make bottled oxygen for hospitals, industry, and many other applications. OGSI uses Atlas Copco GA series Full Features compressors in their oxygen plants. The compressors provide a supply of clean, dry, high quality air from which the nitrogen is stripped. Depending on the amount of bottled oxygen demanded, the compressors range from a 3 hp GX2FF to a 250 hp GA200FF, and a VSD option is available.

“We call on a lot of different kinds of companies,” according to Joe McMahon, President of OGSI. “About 50% of our products go to hospitals and medical concerns, and the other 50% go to industry, fish farms, wastewater treatment plants, metal cutting and processing plants, gold mining, smelting, and any operation where heat treating is done. Our customers are around the world, and we decided to partner with Atlas Copco because of our familiarity with the company and for its well-established worldwide service network.”

OGSI also uses an Atlas Copco 125 hp GA90FF VSD compressor to produce the plant air used in their facility in North Tonawanda, New York. “We use compressed air to power pneumatic tools throughout the shop and to provide makeup gas for testing our oxygen generating systems,” says McMahon. “We need to run clean, dry compressed air into a system so it can strip the nitrogen out and provide the oxygen.” OGSI’s plant air system includes the VSD compressor plus two receiver tanks with 1,000 gallons total volume located near the test cells.

Building “Green”

Rapid growth at OGSI called for a larger physical plant, and in 2004 construction of new headquarters began. “A new building gave us an opportunity to start down a ‘green’ path to minimize our energy expenses,” McMahon explains. “Honestly, we looked at it from an economic standpoint. There’s no point spending any more than we have to on power and utilities.”

During the design phase, OGSI worked with the New York State Energy Research and Development Authority (NYSERDA), which sponsors demand side initiatives to promote power conservation. Using a whole-building approach to energy efficiency, OGSI



was able to earn NYSERDA monetary incentives and have its new facility officially certified by the U.S. Green Building Council (USGBC), a non-profit organization that promotes energy efficiency in the design, construction and renovation of all types of buildings.

“In the course of investigating alternatives,” McMahon recalls, “we looked into LEED certification. It was more difficult to accomplish than I thought, but OGSi became the first LEED-certified factory in New York State.”

The USGBC would be glad if every building was certified, but the designation goes only to companies that earn it. McMahon says his management team knew there would be some work involved in getting certified, but they soon discovered it would be more work than they first envisioned. “We decided to hire a civil engineering student to take up the task as an intern project and brought on a young man from the Engineering school at SUNY Buffalo (the University at Buffalo, State University of New York). We sent him for training to become a LEED Accredited Professional.”

The USGBC application ended up taking over a year to complete, as the intern compiled documents, filled in forms and tables, and coordinated with contractors and subcontractors. “It was exacting work and he was up to the task,” McMahon recalls. “You really have to pay attention to the details in your LEED application. We filed the application electronically, but on paper it would be 1,500 pages with the supporting documents.”

Saving "Green"

The engineering firm of Erdman Anthony of Rochester, New York, compared energy consumption over one year for OGSi's new building with an existing building of the same size, type and purpose. “Their estimate was we'd use 70% less energy with all the initiatives in place,” McMahon states.

Adding in NYSERDA's monetary incentives gave OGSi an even larger return on its investment in energy efficient technology. “NYSERDA gives you the opportunity to score ‘points’ in various energy saving categories,” says McMahon. “There are 69 points in all, although several are mutually exclusive so it's not possible to get all 69. We scored 26 points,

which earned us certification. We used multiple NYSERDA programs, including one based on the amount of recycled content in the building, another based on our use of energy efficient equipment in the building, and another that subsidized the mortgage value of items within either of those categories. We included the value of our VSD compressor among the expenses related to optimizing our energy footprint.”

The VSD compressor was supplied by Atlas Copco distributor Glauber Equipment Corporation of Lancaster, New York. “I've been working with Joe since he started OGSi in 1995,” says Peter Glauber, President of Glauber Equipment Corporation. “I felt we'd have an advantage going with Atlas Copco, given the company's global reach and Joe's business plan for producing oxygen world over. Coincidentally, we've sold OGSi a few other products besides compressors, and we've provided engineering assistance as well. It's a very symbiotic relationship. The products we offer fit well with his needs, and his type of business is a good fit for us.”

Additional Cost Savings

Atlas Copco's leadership in VSD technology contributes to the energy savings that earned OGSi its LEED certification, but the savings were not limited to lower energy costs. “Another advantage of the VSD compressor was a quality of life issue,” says McMahon. “If we had gone with a typical compressor, the noise would have required us to build a separate compressor room. The added square footage for that compressor room would have pushed us past a threshold in the city's building code where a sprinkler system has to be included. Because the Atlas Copco VSD compressor is so quiet, we had the option to locate it right on the shop floor instead. Doing that would save us about \$150,000 that otherwise would have to go into building a compressor room and sprinkler system.”

It was the right move economically, although McMahon says initially he harbored some doubts. “I have to tell you, I was concerned,” he admits. “I knew the Atlas Copco VSD compressor was quieter than our old unit, but I didn't realize how much quieter. I guess I should have. We include an Atlas Copco VSD compressor in our products used by veterinary clinics. Those users typically locate all

Glauber Equipment Corporation, an authorized servicing distributor of Atlas Copco equipment, is the premier supplier of pumps, compressors, blowers, dryers, after-market parts and other services in western New York. Founded in 1960 by Paul Glauber, GEC has nearly 50 plus years of experience in the design and construction of custom fabricated packages, pump systems, compressed air systems, landfill gas treatment systems and more. To learn more, visit www.glauber.com.



the oxygen generating equipment in a utility closet, which often is right next to an examination room. Quiet is a major advantage with the VSD compressor. It's something we promote to customers, and now it's something we take advantage of in our own building.”

Energy Reduction = Cost Savings

How has OGSi's green initiative worked out? “We went from a 24,000 square foot building up to 42,000 square feet, and our electric bill is no higher than in the smaller building,” according to McMahon. “We're seeing energy savings from efficient heat and lighting, variable frequency drive on our crane, auto shut down of some systems, and a VSD compressor that uses significantly less power than the compressor we had in the old building. All the money we don't have to spend on energy goes right to the bottom line.”

Oxygen Generation – To Go

“The U.S. Air Force approached us to make a specialized oxygen generation system to meet their needs,” according to Joe McMahon, President of Oxygen Generating Systems International. “There are six major Joint Forces Medical Centers in Iraq and Afghanistan, and all of them have oxygen systems that we provided. The Air Force wanted a system similar to what they have at hospital, but wanted it to fill gas bottles for military aircraft.”

“We selected a small system with an Atlas Copco GA11 compressor,” McMahon explains, “and to make it portable we fitted into a 20-foot shipping container, complete with a drop ceiling, paneled walls, and tiled floor. There's still enough room to walk around. Basically you haul it where it's needed, plug into an electrical supply and you can make high quality, high pressure oxygen wherever you are.”

Projects earn LEED points for satisfying specific green building criteria. LEED certification is available for all building types including new construction and major renovation, existing buildings, commercial interiors, core and shell, schools, and homes.

To learn more about LEED, visit: www.usgbc.org.



OGSi is a member of USGBC and its new headquarters facility was built with LEED compliance.

To learn more about OGSi, visit:

www.ogsi.com