

CaseStudy: Steelcase Grand Rapids, Michigan

Environmental Stewardship is Foundation of New Facility

Protecting the environment is a core value of Steelcase, the nation's largest furniture manufacturer. That's why when the company decided to construct a new manufacturing plant for its Wood Furniture Division, environmental stewardship was the foundation on which the facility was built. As a result, the building is the first manufacturing facility in the world to be certified under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program.

Wood furniture is a growing segment of Steelcase's sales. Steelcase Wood Division's new 600,000-square-foot Grand Rapids plant produces about 5% of the company's \$3.9 billion of product and employs some 700 workers. Founded in 1912 as The Metal Office Furniture Company in Grand Rapids, Michigan, Steelcase is now an international company with approximately 14,000 employees, and

manufacturing facilities in over 50 locations worldwide.

To accommodate the growth of the Wood Division and with the lease expiring on its existing space, Steelcase made the decision to build a new facility. New construction would allow the company to address space constraints and environmental issues. After years of research, the company wanted to switch over to water-based finishing lines that would have been very difficult to retrofit into its existing space. The new finishing process would enable Steelcase to reduce VOC emissions by as much as 70 percent.

The facility itself was built using principles of environmental architecture. A host of features such as low-energy lighting and use of recycled building materials, among others, were incorporated into the building's design. The design also includes the integration of a permanent air monitoring system from Johnson Controls, which monitors and records internal air quality. The system is integrated with a Johnson Controls Metasys® building management system along with the facility's HVAC equipment and fire alarm systems.

"Construction of the wood furniture manufacturing facility provided an opportunity to do something substantial that represented our commitment to promoting a healthy environment. Steelcase was founded by people with strong values in respect to how a responsible company should conduct itself. These values, they have shaped our approach to many things that we've done," says David Rinard, director of corporate environmental performance for Steelcase. The company believes that living its core values – to act with integrity, tell the truth, keep commitments, treat people with dignity, promote positive relationships, protect the environment and excel – is essential to its identity.

LEED Links Environmental Strategy and Business Strategy

The Steelcase environmental vision is, "To become more environmentally effective tomorrow than we are today by conserving resources, preventing pollution, achieving sustainability, exceeding compliance obligations and nurturing environmental consciousness in our people. We will realize this vision by seeking the knowledge and insight we need to make wise and effective decisions about our business and the environment, and then act on what we've learned."



“We fully embraced this environmental vision and saw construction of the new facility as an opportunity to demonstrate it,” states Rinard. “The challenge was finding a process that was a good fit for our company, one that would provide a link between our environmental and business strategies. The LEED program was a natural choice because it could be applied to each segment of our business; these being **products** – how we manufacture, **activities** – building and renovating facilities, **services** – how we go to market, and **people** – educating, inspiring and engaging them.”

Project Achieves Silver Rating

Even though the LEED program accommodated Steelcase’s business and environmental objectives, it did not have existing provisions for manufacturing facilities. “We had some initial concerns on whether we could even achieve a LEED certification since the program was really written around commercial office buildings,” states Rinard. “With the help of the U.S Green Building Council, we were able to adapt the program to our needs by defining requirements more appropriate for a factory.”



These efforts resulted in Steelcase Wood’s facility achieving the Silver level of certification, requiring at least 33 of 69 possible credits. Steelcase has led the way in green construction as the very first manufacturing facility to receive certification by the U.S Green Building Council. Credits for environmental features at the new facility are broken down into five categories:

Sustainable Sites

- Reducing Heat Islands: Planted 958 trees to shade more than 30% of impervious surfaces
- Reduced Habitat Disturbance: Building exceeds open space requirements by 750 percent, leaving open more than 30 acres of prairie grass, low maintenance grass and ponds
- Site Preservation Restoration: Topsoil was reused and native trees and plants added
- Alternative Transportation and Fuels: Bicycle lock-up areas, showers, and electric refueling stations provided

Water Efficiency

- Water Conservation: Low-flow fixtures use 34 percent less water; new cooling tower reduces drift and evaporation
- Water Recovery: Roof and ground-water collected in retention ponds provides 100 percent of landscape irrigation needs

Energy and Atmosphere

- Lighting: Meets California’s Title 24 lighting requirements
- Waste Heat Recovery: 88 percent of waste heat recovered to reduce heating costs

Materials and Resources

- Recycled and Local Materials: Used recycled structural steel produced locally

- Elimination of CFCs, CFs, and Halons: Chiller uses refrigerant 134A; these pollutants also eliminated from fire suppression system, other cooling systems, insulation, adhesives and carpet tiles
- Recycling: Extensive recycling program and corresponding equipment maintain a recycling rate of 75 percent or more

Indoor Environmental Quality

- Construction IAQ Management: Rooms cleaned after construction; some ventilation equipment was not used during construction and other equipment was thoroughly cleaned before occupancy
- Permanent Air Monitoring System: Johnson Controls Metasys building management system monitors and records air quality

Future Steelcase facilities will follow the LEED program’s principles. Besides positively impacting the environment, the company expects improved morale, reduced operational costs and improved products.

