



National Sustainable Buildings Workshop, Ann Arbor, October 8-9 1999

Case studies and presenters

Case Study 1: **Miller SQA Building, Holland, MI**

Presenter: **Judi Heerwagen**

Location: 10201 Adams Street
Holland, Michigan 49424

Owner: Herman Miller (616) 654-3000 (p)
855 East Main Ave (616) 654-3632 (f)
Zeeland, MI 49464 email: webmaster@hermanmiller.com
<http://www.hermanmiller.com>

Summary of Project (from <http://www.usgbc.org/resource/miller.htm>)

Miller SQA, a subsidiary of Herman Miller, Inc., commissioned William McDonough + Partners to design a 295,000 square foot office, manufacturing and distribution center. The result is a crescent-shaped single-story structure that follows the natural contours of the site, adjoined by a created wetland that processes and purifies the building's stormwater. The building is heated and cooled passively and is equipped with state-of-the-art ventilation systems. The entire building is brightly daylit, with roof monitors, skylights and sloped glazing. Photo sensors control artificial light so as not to duplicate natural daylight, substantially reducing energy consumption.

The approach to the construction of this building was as environmentally-aware as the design process. The design team created a waste management plan for the construction process, which was adhered to successfully due to Miller|SQA's diligence in training the contractors. Construction waste was sorted on the site into a number of large containers and all recyclable by-products of the construction process were dealt with in an environmentally-sensitive manner. Miller|SQA monitored the implementation of this written plan in weekly meetings. Throughout the entire construction process, attention was paid to waste reduction, salvage and recycling of leftover materials. An onsite boiler was used to convert some waste materials directly into energy while other materials, such as aluminum, steel, concrete, and cardboard, were taken to local recycling facilities.

Similarly, the design team created a site protection plan, which was also adhered to successfully. To minimize soil and sediment runoff from the construction site, silt fences, straw bales, stone mudtracking, and other erosion control measures were placed prior to and during construction. Native grasses and wildflowers were drilled and broadcast once site grading was completed. The native seed matrix consisted of temporary annual grasses and forbs for immediate germination to stabilize the site.

In addition to addressing issues pertaining to the construction process; the design team gave ample attention to the impacts of the materials used in the building. "Green" specifications were written for materials, such as paint and carpeting, that have the potential to impact the indoor air quality of the structure. These materials, in particular, were studied because of the large surface area they cover within the building.

The passive solar heating and natural ventilation, high-efficiency lights with electronic sensors, natural drainage, native plantings, constructed wetlands, and commitment to recycling have substantially increased both worker productivity and quality of work, decreased natural gas consumption by 7%, water and sewer costs by 65%, and electric costs by 18% when compared to their previous facility. Built at \$49/square foot, this building could pay for itself through increases in worker productivity alone!



National Sustainable Buildings Workshop, Ann Arbor, October 8-9 1999

Case studies and presenters

Bio

Judi Heerwagen, Consulting and research on environmental psychology and workplace ecology

EDUCATION

1966 B.S., Communications, University of Illinois (Champaign-Urbana)

1982 Ph.D., Psychology, University of Washington (Minor degree in ecology)

EXPERIENCE OVERVIEW

Dr. Heerwagen is an environmental psychologist whose research and writing have focused on the human factors of sustainable design and workplace ecology. She currently has her own consulting and research practice in Seattle. Prior to starting her own business, Dr. Heerwagen was a principal with Space, LLC, a strategic planning and design firm, and a senior scientist at the Pacific Northwest National Laboratory. At Space, Dr. Heerwagen was co-director of research and helped develop metrics for the Workplace Productivity Diagnostic Tool. The tool was developed under the auspices of the Workplace Productivity Consortium, a national group of high tech and financial firms. At the Pacific Northwest National Laboratory, she was responsible for developing research methodologies to assess the human and organizational impacts of sustainable building design. Dr. Heerwagen has been an invited participant at a number of national meetings focused on workplace productivity. Prior to her work with Battelle, she was on the research faculty at the University of Washington, first in the College of Architecture and Urban Planning and later in the College of Nursing. She is a member of the American Psychological Association.