

Building Green for the Future

Case Studies of Sustainable Development in Michigan

Helmus Building, Grand Rapids



Urban Catalyst Associates

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University of Michigan
Ann Arbor, Michigan

June 2005



This grand entrance to Bazzani's offices was achieved by removing the former mezzanine, opening the space to create the current entrance.

FIREPROOF
WAREHOUSE



Grand Rapids, Michigan

Helmus Building

Project type	Commercial
Project scale	Building
Construction type	Renovation - Urban
Date completed	July 2002
Address	959 Wealthy SE, Grand Rapids MI 49506
Subjects	Energy Efficiency
	Materials Use
	Social Benefits
	Lessons Learned
Total project costs	\$1,042,800 (soft costs) \$249,000 (building acquisition)
Building	9,480 sq. ft.
Cost	\$110/sq. ft. (soft costs, excluding building acquisition)

History

Built in 1918, the Helmus Building in Grand Rapids, Michigan, was a dry storage warehouse for most of its life. After going vacant and falling into a state of disrepair, much like the surrounding neighborhood, Guy Bazzani purchased the building in 1999. Bazzani bought the Helmus Building not only for its redevelopment potential, but because of his commitment to the local community.

For over a decade, Bazzani has been active in real estate development in the area, and sustainable building design and development are at the core of his business practices. Intending to locate his offices in the Helmus Building, he sought to demonstrate the economic, social, and environmental value of sustainable design with this project; the Helmus renovation project is an historic rehabilitation that salvaged 100% of the original shell, and more than 50% of the non-shell materials. The super-insulated and super-efficient building pays dividends in many ways: utility and water bills are significantly lower than comparables, and the improved insulation of the building envelope have enabled Bazzani to downsize the HVAC systems, reducing construction costs as well as future replacement costs.

The Helmus Building is more than just energy and water efficient. Under its one roof, the building mixes residential, commercial, and retail uses. Sustainable materials – including low-VOC paints, recycled carpeting, and recycled content ceiling pads – were used throughout the renovation. Most important, this project affected more than Bazzani Associates and its customers; the renovation of the Helmus Building sparked the revitalization of the surrounding community.

VOC - Volatile organic compounds; Secondary petrochemicals which evaporate readily into the atmosphere at normal temperatures. They include light alcohols, acetone, trichloroethylene, perchloroethylene, dichloroethylene, benzene, vinyl chloride, toluene, and methyl chloride. These potentially toxic chemicals are used as solvents, degreasers, paint thinners, adhesives, and fuels and contribute significantly to photochemical smog production and certain health problems. Signs and symptoms of VOC exposure may include eye and upper respiratory irritation, nasal congestion, headache, and dizziness.

Energy Efficiency

Initially, the exterior walls of the Helmus Building consisted of only brick. Upon renovation, all exterior walls were super-insulated using the Icynene Insulation System, an open-cell foam insulation with an R21 rating. Additionally, the energy efficiency of the walls was increased through the use of **thermal breaks**, **vapor barriers**, and **low-E** glass in all the windows. The building was built to ASHRAE/IESNA 90.1-1999 energy efficiency standards, and Bazzani estimates that his super-insulated building saves him roughly \$2,444 annually in gas and electric utility costs.

In addition to super-insulating the walls, several energy efficient devices were installed throughout the building, including dimmable compact fluorescent lights, timers for all light fixtures, and occupancy sensors. ENERGY STAR-rated appliances and equipment also were installed throughout the building. One of the most innovative approaches to conserving energy was the design of the building's awnings, positioned at an angle to shade the storefront windows in the summer and to allow maximum sunlight penetration in the winter to optimize passive solar gain.

To complete the energy-efficient envelope of the building, Bazzani installed a Carlisle-Syntec 2,511-square-foot green roof. Using plants that require little water and maintenance, the green roof helps release moisture, cool the building in the summer, and reduce stormwater runoff, in addition to conserving energy and prolonging the life of the roof. Additionally, the green roof was designed as a usable rooftop garden providing additional green space for occupants of the building to enjoy.

Bazzani's investments in efficiency created immediate and long-term savings. The improved insulation of the building allowed them to downsize HVAC equipment, reducing construction costs. According to Nathan Gillette, Project Manager for Bazzani Associates, "We almost couldn't find HVAC equipment small enough for the building and ended up using a residential unit." They selected a Bryant 350MAV Furnace and a Bryant 533A central air conditioner. The downsized HVAC equipment coupled with the building's energy efficient envelope offer significantly reduced annual energy costs at \$0.68 per square foot per year.

In addition to cooling the building in the summer, reducing water runoff, improving energy efficiency, and prolonging the life of the roof, this green roof creates new usable space for occupants.



Energy Efficiency

1st floor offices = 4,740 sq. ft.

Annual natural gas = \$1,229

Annual electricity = \$1,987

Total of \$0.68/sq. ft./yr

thermal breaks - An insulating barrier which provides a separation between construction elements that are exposed to the outside. A thermal break minimizes the possibility of condensation on surfaces of exterior framing.

vapor barriers - An impermeable membrane that blocks the flow of air through the building envelope. Vapor barriers protect the building envelope structure and insulation from condensation damage, prevent air leakage, and maintain interior humidification.

Bazzani's emphasis on sustainability and environmentally friendly materials results in very comfortable and attractive residential space.



The Helmus Building offers its tenants nicely appointed workspace with ample daylight.



Materials Use

Reuse is always the optimal choice for any material that reaches the end of its intended life, and Bazzani Associates wholeheartedly embraced the reuse concept when renovating Helmus. In fact, Bazzani reused 100% of the building's existing frame and more than 50% of the "non-shell." One of the most unique reuses was the loading dock, which originally was two feet higher than the rest of the first floor to accommodate delivery trucks. Rather than sending all the concrete from the loading dock to a landfill, Bazzani disconnected it from the walls and lowered it to ground level, providing a perfectly surfaced floor for what is now the building's new garage.

Finishing materials were selected to maximize sustainability. Interface carpeting with recycled nylon and backing material was used on the floors throughout the Helmus Building as were Armstrong Cirrus ceiling tiles containing 72% recycled content. All paints, stains, and sealants were low-VOC products. As a result of the carefully developed and implemented waste management plan, the renovation project generated less than 25% of the waste normally generated by new construction of a similar building.

low-E glass - *Low-emissivity windows: glazing that has special coatings to permit most of the sun's light radiation to enter the building, but prevents heat radiation from passing through.*

Social Benefits

Incorporating multiple uses into one facility ensures that the capital and energy invested in the project are used to a higher potential while delivering social benefits, such as reducing transportation demands and creating a more vibrant community. Bazzani Associates' core staff of five and Clean Water Action, a local non-profit, inhabit the office space on the first floor of the Helmus Building. Guy Bazzani and his wife reside on the second floor, where two additional residential units are nearing completion. Finally, local individuals and businesses rent storage units in the basement.

Guy Bazzani has a proven track record of personal involvement in the community, including his work with local non-profits and his involvement with the West Michigan Sustainable Business Forum and EDGE2 advisory committee (Economic Development and Growth through Environmental Efficiency). The Bazzani's Helmus Building project has extraordinarily impacted the surrounding community. When Bazzani bought the building in 1999, the neighborhood was plagued with drugs and prostitution. In fact, the police often used the Helmus Building for stakeouts.

After years of decay, Bazzani's redevelopment catalyzed the revitalization of the surrounding area. As a result of the renovation, the city invested in new street lighting, paved the main street with recycled bricks, and implemented a program to curb graffiti that has plagued the area. Just after the completion of the building, several new and local businesses moved into the neighborhood.

Lessons Learned

According to Guy Bazzani, the historic preservation and renovation of the Helmus Building in Grand Rapids went fairly smoothly, although the project hit a snag when Bazzani wanted the state's Historic Commission to approve new low-E glass windows for the building. The Commission originally rejected the permit request because of the building's "historic" designation and the Historic Commission's concern that the low-E glass would not match the reflective properties of other historic windows in the area. After several presentations to the Commission, Bazzani's request for the new windows was approved.

Awards

- LEED-NC Silver
- Best Exterior Renovation, Grand Rapids Historic Preservation Commission
- Outstanding Commercial Historic Preservation, City of Grand Rapids
- NBA Award (Neighborhood Business Alliance) for Best Façade
- Certificate of Excellence for Best Reuse of a Building
- 2003 Outstanding Historic Preservation Project Award
- 2003 Outstanding Historic Preservation Volunteer Award

"We almost couldn't find HVAC equipment small enough for the building and ended up using a residential heating unit."

- Nathan Gillette

The Bottom Line

The Helmus Building illustrates what can be accomplished despite the limitations of a renovation project and a historic rehab. Bazzani's investments in energy efficiency resulted in reduced capital requirements (downsizing HVAC equipment, for example) and will pay future dividends through reduced utility bills. Furthermore, his pursuit of a mixed-use structure insures that his investments will be fully utilized while also delivering social benefits to society and the building's occupants.



Located inside Bazzani's apartment, this spiral staircase provides access to the green roof to barbecue, take in summer rays, or just enjoy the view.

References

Interviews with Nathan Gillette and Rachel Lee
 The Helmus Building, Bazzani Associates
 The Helmus Building Story, Bazzani Associates

Contact Information

Builder and Developer	Bazzani Associates, www.bazzani.com
Nathan Gillette	AIA, LEED-AP, CNU, Project Design Manager, Bazzani Associates, (616) 774-2002, nate@bazzani.com
Rachel Lee	Neighborhood Development Liaison, Bazzani Associates, (616) 774-2002, rachel@bazzani.com
Architect of Record	DTS Architects, 62 Commerce St. SW Suite 200, G.R., MI, 49503 (616) 451-4707 Contact: Dave Sobota

Resources for further information

Icynene Insulation System - www.icynene.com
 Armstrong Ceiling Tiles - www.armstrong.com
 Bryant HVAC Systems - www.bryant.com

Interface Flooring Systems - www.interfaceflooring.com
 Carlisle-Syntec Rooftop Planting Systems - www.carlisle-syntec.com

Urban Catalyst Associates

Urban Catalyst Associates

Urban Catalyst Associates (UCA) is an interdisciplinary team of recent University of Michigan graduate students who have combined their experiences, interests, and educations to create a positive impact on the future of the State of Michigan. The team holds a strong passion for fostering innovative, sustainable development that will shape the evolution of the new urban environment.

In collaboration with the Michigan Department of Environmental Quality, Urban Catalyst Associates developed this handbook to serve as inspiration and ready reference to the development community and other interested groups. As the State furthers its investment in green development, the UCA team hopes that this handbook will encourage developers to infuse elements of environmental sustainability into their planning and development processes.

Urban Catalyst Associates can be contacted via email at uca@uca-michigan.com. See the contact information below for information on contacting individual team members.

Zeb Acuff

Zeb holds Master's degrees from the School of Natural Resources and Environment and the Taubman College of Architecture and Urban Planning, both at the University of Michigan in Ann Arbor. He is also a 2001 graduate of the College of Agriculture and Natural Resources at the University of Delaware. Zeb has extensive experience in farmland preservation and local planning research, as well as familiarity working with demographic and social science media. His professional interests include parks and recreation planning, non-motorized transportation, trails and greenway development, and public transit systems. Zeb and his wife currently reside in Dexter, Michigan. Zeb can be contacted via email at zeb@theacuffs.com.

Bryan Magnus

Bryan graduated from the University of Michigan in April, 2005, with an MBA from the Ross School of Business and a MS from the School of Natural Resources. His undergraduate degree is in Finance and Actuarial Math from Bryant University in Smithfield, Rhode Island. Bryan has extensive knowledge of socially and environmentally responsible business with an emphasis on renewable energy and alternative transportation. He has interned with General Motors' Fuel Cell Activities Group as well as Honeywell's Transportation Systems, and is currently employed by Honeywell TS as a Marketing Analyst. Bryan, his wife Lynn, and their "child" Meadow (dog) live in Ann Arbor, Michigan. Bryan can be contacted via email at magnusb@umich.edu.

Aaron Harris

Aaron will complete his final year at the University of Michigan in spring 2006 with both an MBA from the Ross School of Business and an MS from the School of Natural Resources and Environment. Prior to Michigan, Aaron co-founded Harris Brothers LLC, a real estate development/management company based in Chicago and focused on green building design and environmentally sensitive renovation projects. Upon completion of graduate studies, Aaron plans to return to the real estate field to pursue urban brownfield redevelopment projects. Aaron graduated from the University of Wisconsin-Madison with a BA in Sociology (Honors) and a Certificate in Environmental Studies. Aaron can be contacted via email at aaronmh@umich.edu.

Allyson Pumphrey

Allyson graduated from the School of Natural Resources & Environment with a Master's degree in Landscape Architecture in April 2005. Prior to attending the University of Michigan, she received her BS in Landscape Horticulture & Design from Purdue University in West Lafayette, Indiana. Allyson has experience in residential site design and urban redevelopment projects. Her professional interests include urban trails and greenways, brownfield redevelopment, and urban design. Allyson is employed by InSite Design Studio, Inc. in Ann Arbor, Michigan. Allyson can be contacted via email at apumphrey@insite-studio.com.

Larissa Larsen

Larissa Larsen, Ph.D., is an assistant professor with positions in both the School of Natural Resources and Environment and the Urban Planning Program at the University of Michigan. Larissa has a Master's in Landscape Architecture degree from the University of Guelph in Canada and a Ph.D. in regional planning from the University of Illinois at Urbana-Champaign. Prior to becoming a professor, Larissa practiced landscape architecture and urban planning in Chicago. Her current research investigates the ecological and social impacts of urban settlement patterns. Larissa can be contacted via email at larissal@umich.edu.