

# Building Green for the Future

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*Case Studies of Sustainable Development in Michigan*

*East Hills Center, Grand Rapids*



UrbanCatalystAssociates

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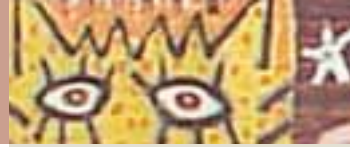
June 2005



# EAST HILLS CENTER

(of the UNIVERSE)

*Once an abandoned brownfield site,  
the East Hills Center now serves as  
a focal point for the community.*



Project type	Commercial
Project scale	Building
Construction type	New Construction - Urban Infill
Date completed	October 2004
Address	1001-1009 Lake Dr. SE, Grand Rapids, MI 49506
Subjects	Brownfield Redevelopment Stormwater Management Social Benefits Materials Use Funding Sources
Total project costs	\$800,000 (building shell)
Building square footage	7,200 sq. ft.
Cost/square foot	\$111/sq. ft.

*Grand Rapids, Michigan*

## East Hills Center

### History

Located at the center of five different neighborhoods and four business districts, the site of the East Hills Center was a prime piece of real estate. The site had been abandoned for over 15 years and was badly contaminated when, in 2002, Guy Bazzani partnered with the East Hills Neighborhood Association to purchase and redevelop it. Today the property is home to a brand new 7,200-square-foot commercial building with zero stormwater discharge and superior energy efficiency. The tenant-owners are proud to be part of what is rapidly becoming the focal point of the community.

The property was originally home to three residential properties and, in 1932 the properties were converted into a single gas station site. The site remained a gas station until Shell Oil Company shut it down in 1987, and razed it in 1989. After lying vacant for 15 years, the soil was severely contaminated by the leaking underground storage tanks of the former gas station. For many years, Shell tried to get rid of the property in bulk with other vacant sites, but could not find a willing buyer. In 1994, a neighboring business could not get a loan due to the contamination of the Shell site, convincing the East Hills Neighborhood Association to pursue Shell Oil to clean up the site.

In 1998, Shell Oil Company sold the site to Cherokee Festival Holdings, a holding company in California. In 2001, Cherokee began shopping the property around to large fast-food franchises, refueling the neighborhood association's campaign to find a property owner to work in cooperation with the surrounding businesses.

In February 2003, Bazzani became the official owner of the site, deeding the design rights of the future exterior building to Neighborhood Association, thus protecting the neighborhood's historic character for perpetuity. Now almost complete, the mixed use Center is home to two businesses and one nonprofit: Cobblestone, a clothing shop; Marie Catrib's of Grand Rapids, a gourmet neighborhood bistro; and the offices of the West Michigan Environmental Action Council. The property provides an excellent example of urban infill and brownfield redevelopment, and also serves as a community redevelopment catalyst, motivating the city as well as local business owners to invest in the community, its buildings, and the neighborhood infrastructure, creating a sense of pride for local residents.

**brownfield** - Abandoned, idled, or under-used industrial and commercial facilities/sites where expansion or redevelopment is complicated by real or perceived environmental contamination.

## Brownfield Redevelopment

Bazzani Associates purchased the site, with a stipulation that Shell would cover all remediation costs. A Baseline Environmental Assessment (BEA) determined the level of existing contamination, prescribed remediation strategies, and protected future owners from liability. Upon completion of the BEA, Shell spent \$520,000 on site remediation before the Michigan Department of Environmental Quality (DEQ) signed off on the redevelopment of the site.

As part of Shell's clean up efforts, the contaminated soil was removed from the site and hauled to a toxic waste dump. Additionally Shell used a **bioremediation** technique of hydrogen-peroxide injection commonly used to clean up petroleum ground water and soil contamination. The presence of hydrogen peroxide in the groundwater and soil increases available oxygen which, in turn, increases the microbe activity and the breakdown of the petroleum hydrocarbons present in the soil and groundwater.

Before construction started, Bazzani installed a 60-mil polyethylene liner six feet below the footings of the building. The liner spans the entire footprint of the building plus three feet in all directions, and is designed to divert any remaining hydrocarbons rising from beneath the building away from its footprint. Otherwise, the hydrocarbons could seep through the foundation and make their way into the building itself.

## Stormwater Management

Stormwater runoff is fast becoming a significant problem for city sewer- and water-processing systems and may lead to the contamination of drinking water. Had the East Hills Center followed a traditional design process, it too would have contributed to the stormwater runoff problem; however, Bazzani pursued a different route. When completed, the EHC will have zero stormwater discharge into the city's sewer system. A **green roof** covers the entire building and a **rain garden** in the parking lot filters all surface runoff before it reaches the water table.

*Before any construction could begin, Shell had to remove all contaminated soil from the site.*



**bioremediation** - The use of living organisms to clean up oil spills or remove other pollutants from soil, water, or wastewater.

**green roof** - A roof of a building which is partially or completely covered with plants. It may be a tended roof garden or a more self-maintaining system. Green roofs increase roof life span, reduce stormwater runoff, reduce the urban heat island effect, and provide amenity space for building users.

*The green roof on top of the East Hills Center offers better energy efficiency, reduced water runoff as well as less maintenance over the life of the roof.*

As part of the agreement with the DEQ regarding the redevelopment of the once-contaminated site, Bazzani agreed to cap the entire site to prevent migration of soil contaminants and to eliminate direct contact with any remaining contamination. After negotiating with the DEQ, Bazzani installed the rain garden which technically did not need to be capped. The two parties agreed that laying 14"

of clay soil below the topsoil of the rain garden satisfied the capping requirement for the site. The rain garden cost Bazzani about \$8,000, and should last for 50 years with only minor maintenance and trimmings.

The green roof, a Carlisle-Syntec green roof system, was installed in October 2004, using multiple varieties of Sedum that absorb rain water and minimize runoff from the building. As for the life expectancy of the roof system, the dirt and garden, with periodic replanting and minimal maintenance, can last forever. Bazzani expects the roof membrane that runs underneath the system to last 30 to 40 years or longer. Such roofing systems carry a 15-20 year warranty, and this one costs roughly \$37,000.



## Social Benefits

The local community initiated the campaign to save the East Hills Center site, and Guy Bazzani understood the importance of community involvement. Recognizing the vested interests that the surrounding businesses and residents had in the future of the property, Bazzani implemented a community-based planning approach, allowing all stakeholders to remain involved in the process. During the pre-design stage, Bazzani hosted a **design charrette** for local business owners, residents, and non-profits to help shape the design of the East Hills Center. As the process progressed, Bazzani continued to work with the Neighborhood Association to solicit feedback and shape the building to meet everyone's needs.

Further supporting the community and creating a more stable local economy, Bazzani chose to set up the five units in the EHC as condominiums and to sell them rather than rent them. By offering ownership of the units, the EHC development created a sense of pride for the new owners. From Bazzani's perspective, not only was he helping the community and the local business owners, he was better able to cover his construction costs which increased as a result of the brownfield remediation and stormwater-management technologies that needed to be implemented. The units sold at 10-20% premium over appraised value which Bazzani attributes to three factors:

1. Benefits of ownership,
2. Contextual fit of the design with its surroundings, and
3. Positive attributes of the sustainable technologies implemented.

**rain garden** - A landscaping feature that is planted with native plants and is used to manage stormwater runoff from impervious surfaces such as roofs, sidewalks, and parking lots.

**design charrette** - An intensive design process that involves the collaboration of all project stakeholders at the beginning of a project to develop a comprehensive plan or design. Although it may take place only over a few short days, it establishes groundwork for communication and a team-oriented approach to be carried throughout the building process.

## Materials Use

Material choices were driven by the motivation to obtain LEED Silver certification for the core and shell of the building. All of the exterior and primary interior walls were built using Eco-Block Insulating Concrete Forms (ICFs) consisting of concrete poured between two sheets of expanded polystyrene panels (construction grade Styrofoam). The Eco-Block system used in the East Hills Center provides an insulation value of R-24 and reduces tenants' utility bills. Furthermore, the walls offer superior sound dampening which is important to retail and commercial tenants.

To further improve the sustainability of the building, Bazzani chose to use high fly-ash concrete, using a waste product from coal-fired electrical generation industry that otherwise would be sent to a landfill. The concrete used for the project was supplied by Consumers Concrete. Bazzani simply told Consumers that he wanted a high fly-ash concrete, and Consumers created the mix to match the requirements of the building design. According to Nathan Gillette of Bazzani Associates, the fly-ash concrete demonstrated incredible strength. The targeted design strength for the concrete was 3,500 psi. On day seven, the crush test came in at 4,200 psi, and on day 28, the crush test was near 5,700 psi, vastly exceeding the target.

Another innovative design aspect was Bazzani's use of **passive solar** design throughout the building. The south facing building proved the ideal setup for the use of **light shelves**, which provide shade in the summer months to keep the building cool and reflect daylight deep into the building all year round. By increasing the daylight that reaches the depths of the building, not only is more natural light provided, the building requires fewer, less powerful, installed lights, resulting in decreased electricity bills.

## Funding Sources

As part of the community's involvement with the project, Bazzani deeded the design rights for the building back to the East Hills Neighborhood Association in exchange for the \$32,000 that it had raised towards the purchase of the site. The State of Michigan Cool Cities Initiative selected the project as the recipient of a Catalyst Grant, providing Bazzani Associates with \$50,000 towards the development of the East Hills Center. The grant also provided the Neighborhood Façade Improvement Program with \$30,000, and \$20,000 toward a **way-finding program**, both of which benefited the East Hills Center project by improving the facades of neighboring businesses and by providing a unified image for the neighborhood.

## Awards

- Michigan Cool Cities catalyst grantee
- LEED-Commercial interior - Platinum is goal (West Michigan Environmental Action Council office)
- LEED-Core and Shell - Gold

**passive solar** - Systems that collect, move, and store heat using natural heat-transfer mechanisms such as conduction and air convection currents.

**light shelves** - A daylighting strategy that allows natural light to bounce off a shelf located in a window and onto the ceiling to bring light deep into the interior of a space.

**way-finding program** - A process of using spatial and environmental information to find one's way around, a critical element of easily navigating buildings and campuses.

## The Bottom Line

The East Hills Center demonstrates two key points: (1) along with the challenges that come with a brownfield redevelopment project, the engagement of stakeholders is crucial and significant liability issues need to be dealt with; and (2) the project demonstrates the power that a community can exert when efforts are coordinated. The East Hills Neighborhood Association managed what many would consider impossible and, in the end, everyone is better off as a result of their efforts.



*This sign was developed by the Neighborhood Association to rally support during the negotiations with Shell.*

### References

Interviews with Nathan Gillette and Rachel Lee  
*Bazzani Takes Green into the Mainstream*,  
 West Michigan Commercial Development  
 & Real Estate Quarterly, November 1, 2003  
*Uptown's Cool City District*, Bazzani Associates

### Contact Information

Design/Builder	Bazzani Associates <a href="http://www.bazzani.com">www.bazzani.com</a>
Nathan Gillette	AIA, LEED-AP, CNU, Project Design Manager, Bazzani Associates, (616) 774-2002, <a href="mailto:nate@bazzani.com">nate@bazzani.com</a>
Rachel Lee	Neighborhood Development Liaison, Bazzani Associates, (616) 774-2002, <a href="mailto:rachel@bazzani.com">rachel@bazzani.com</a>
Business Owners	Marie Catrib's of Grand Rapids: (616) 454-4020
	Cobblestone: <a href="http://www.cobblestonehome.com">www.cobblestonehome.com</a> (616) 774-3483
	West Michigan Environmental Action Council: <a href="http://www.wmeac.org">www.wmeac.org</a>

### Resources for further information

Syntec Rooftop Planting Systems - [www.carlisle-syntec.com](http://www.carlisle-syntec.com)  
 Insulated Concrete Forms [www.eco-block.com](http://www.eco-block.com)

Consumers Concrete Corporation - [www.consumersconcrete.com](http://www.consumersconcrete.com)  
 For more information on bioremediation:  
<http://water.usgs.gov/wid/html/bioremed.html>

# Urban Catalyst Associates

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## Urban Catalyst Associates

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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](mailto:uca@uca-michigan.com). See the contact information below for information on contacting individual team members.

### Zeb Acuff

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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](mailto:zeb@theacuffs.com).

### Bryan Magnus

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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](mailto:magnusb@umich.edu).

### Aaron Harris

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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](mailto:aaronmh@umich.edu).

### Allyson Pumphrey

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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](mailto:apumphrey@insite-studio.com).

### Larissa Larsen

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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](mailto:larissal@umich.edu).