

## Hitting the Bricks: Building Green in New England

by Edward Young,  
BlueWave Strategies

Building green is gaining momentum in New England, and it is not just the environmental feel-good factor that is driving construction. Building owners are getting switched on to the economic benefits. The popular notion is that green buildings are not economic enough to build. In the past that may have been true, but as more and more green buildings are constructed, the technologies, innovations and materials needed are becoming more commonplace.

Two recently constructed green buildings in the Boston area illustrate that there is something for every budget; you don't have to pay a premium just to build green.

### Genzyme Center

The \$140 million, 300,000 square-foot Genzyme Center in Cambridge's Kendall Square is the new green headquarters of one of the world's leading biotechnology companies. The



Wide view of the lower levels of the atrium at the Genzyme Center, showing the grand stairway, internal staircase, and landing. © 2003 Genzyme Corporation.

Center, located next to the Massachusetts Institute of Technology, is a top-of-the-line building. With all the bells and whistles, the building

shouts prestige. Meanwhile, Artists for Humanity, a local non-profit organization that helps inner city youth artists, has built a more down-to-earth green headquarters – the EpiCenter – across the river in South Boston. Both buildings are seeking the Platinum rating in Leadership in Energy and Environmental

Design (LEED) from the U.S. Green Building Council – the highest ranking possible. Both buildings incorporate simple but innovative design features that can be applied to most building projects.

Genzyme chief executive officer Henri Termeer wanted to mark the company's meteoric rise from start-up 20 years ago by erecting a landmark

building, something that reflected in glass and steel the company's reputation for relentless innovation. The 12-story glass structure fits the bill. Located two blocks from a



Artists for Humanity is a non-profit organization that offers paid apprenticeship programs in the arts to inner-city teens. AfH was awarded a \$20,000 grant for a feasibility study and later a \$500,000 grant for design and construction of its 45-kilowatt producing roof-mounted PV cells, and glass curtain wall. © T.R. White

subway station and on a former Brownfield site, it is a model of water and energy efficiency and indoor environmental quality.

But it is not just the warm glow of moral satisfaction that motivates Genzyme to build green. It is the economics.

Granted, some of Genzyme's green technology is expensive. The heliostats on the roof that track the sun to channel natural light throughout most of the building: 75 percent of offices are lit with sunlight. The building also has a double-layer glass building shell that reduces heat loss and means it consumes 38 percent less energy than a regular building. Genzyme estimates that about 16 percent of total costs went to green features.

However, other green design features don't require money; they just require the architect to think a little green. Waterless urinals, dual-flush toilets and low-flow faucets mean the building consumes 32 percent less water than a regular building. Seventy-five percent of the building is constructed out of

recycled content and 90 percent of construction and demolition waste was recycled or reused.

### Artists for Humanity

In constructing their new headquarters – a combination office, workspace and 500-person gallery for local youngsters to learn how to turn their artistic skills into jobs – Artists for Humanity (AfH) have been motivated less by prestige and more by a desire to educate. AfH’s mission statement lays out their belief: “A healthy building, which conserves vital resources, is an ideal environment for education and training young leaders and will serve as a model for future developments as it demonstrates that environmental sustainability is practical, economical and timely.”

For a non-profit serving at-risk youth, economy is everything. This is no corporate giant, this is shoestring sustainability: The 23,500 square-foot EpiCenter was built on a budget of \$6.5 million. On a cost-per-square-foot basis, it is roughly equivalent to a non-green building. Its running costs, however, are minimal. The EpiCenter will use almost no additional energy in excess of the power created by the 48-kilowatt solar photovoltaic array on its roof. In fact, project coordinator Eli Long says they hope to be able to see electricity back to the grid.

And if you think the upfront costs are still a bit steep reconsider. AfH received grants and rebates for many of its green design solutions. AfH received funding from the Massachusetts Technology Collaborative to install the solar photovoltaic array on its roof. The local utility company pays AfH for any energy it adds to the grid from its solar panels and grants rebates because it is energy efficient. The EpiCenter’s efficiency is partly due to the extensive day-lighting they have achieved by building two of the four

walls entirely out of high thermal performance glass and open, unobstructed, adaptable interior spaces. Common areas such as stairwells and bathrooms employ occupancy sensors to save electricity. As in the Genzyme Center, low-flow water fixtures and on-site gray water irrigation minimizes water use.

Another money-saving green choice AfH made was to not install air-conditioning. But green design did not simply trump comfort. Instead the building is designed so that two large fans on the roof circulate air throughout the building via ducts to cool it in the summer months. Super insulated exterior walls and the solar panels on the roof also prevent the building heating up as much a regular blacktop roofed building. In the winter, the same fans help redistribute excess heat from grouped computers and manufacturing spaces. Reused and recycled materials have been integrated throughout the building process; a local sculpture has even used salvaged taxi and police car windshields for the gallery’s decorative balustrade.

### Planning – Not Spending – is Essential

Many of the design features that make a building green are essentially free. Building site selection is key, locating buildings in urban areas, away from environmentally sensitive areas like wetland, near public transport, and on infill properties that can benefit from public redevelopment funding. Other design features such as using low VOC paints and flooring, maximizing day-lighting, using locally extracted, manufactured or recycled materials, recycling and reusing construction and demolition waste, and providing access to bicycle and recycling facilities, also cost little to install or implement.

A 2003 report commissioned by the California Green Building Task Force

tried to put a number on the amount of money saved by giving your building an environmental twist “The benefits of green design are between \$50 and \$70 per square foot in a LEED building, over 10 times the additional cost associated with building green.”

For many building owners, the biggest financial benefits of green building aren’t the direct construction cost savings. Genzyme’s top priority was to increase employee health and productivity. “We think there will be tremendous payback on the people part of the equation, in terms of performance and attitude,” says Gordon Bailsford Jr., Genzyme’s senior project manager quoted in the Boston Globe. It is hoped that a healthy, attractive – not to mention prestigious – green building will ease recruitment and retention, giving Genzyme an edge on its competitors.

Green buildings don’t have to mean a lot of greenbacks, either. AfH’s EpiCenter demonstrates that green design should be an option for everyone, not to just for those willing to pay a premium.

Building green will no longer require architects to “think out of the box” but simply to put in place sensible, livable design solutions. ■

Edward Young is an Associate with BlueWave Strategies, a strategic environmental consulting firm in Boston. For more information, please contact him at (617) 266-0505 or via e-mail at [eyoung@bluewavestrategies.com](mailto:eyoung@bluewavestrategies.com).

BlueWave Strategies worked with the Coalition of Environmentally Responsible Conventions (CERC) to lead a tour of the Genzyme Center and the Artists for Humanity EpiCenter for delegates of the Democratic National Convention.