



**10 Akron Street
Harvard Real Estate Services
LEED GOLD**

Integrated design and a commitment to sustainability made this 151-unit graduate student housing complex an enjoyable and healthy place to live, and lowered the impact on the local and global environment.



Green Building Highlights

- **Efficient water cooled chiller and central campus steam.**
- **Natural Light:** 20% of the wall area is glazing, all windows are energy efficient low-E, and double pane.
- **Water Consumption:** Efficient showers and sinks reduce water use by 32.7%.
- **Real Time Utility Display–** A monitor in the lobby shows tenants how much energy and water they are using, in real-time!
- **91% diversion of construction wastes away from landfills.**
- **21.1% recycled content of all materials in the building.**

Location

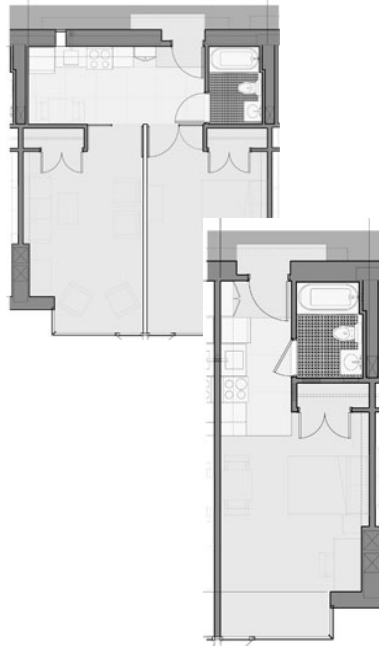
Situated along the Charles River, this outstanding property is convenient to both Harvard and Central Squares. Many apartments feature river views. Other amenities include a nearby campus shuttle stop and easy walking distance to shops, restaurants, and a subway station.



Program

The new Harvard 10 Akron Street Residence Hall provides the campus with new graduate student housing. The seven story building includes 151 living units and three additional levels of below-grade parking. Total size of the building is 106,569 square feet. The first and second floors have a fitness center, lounge space, meeting space, and a laundry room. Floors three through seven are mostly apartment units, with some shared common spaces.

The project used LEED for New Construction, version 2.2, to guide and certify green design elements. The Gold certification achieved is a testament to the commitment of Harvard Real Estate and the design team.



Project Team

Client: Harvard Real Estate Services

Development Manager: Jones, Lang, LaSalle

Architect: Kyu Sung Woo Architects, Inc.

Construction Manager: Bond Brothers

Landscape Architect: Michael Van Valkenburgh Associates

MEP Engineer: SEi Companies

LEED Consultant: Viridian Energy & Environmental, LLC

Civil Engineer: Green International

Geotechnical Engineer: Haley & Aldrich, Inc

Sustainability Consultant: Harvard Green Campus Initiative

Structural Engineer: Lim Consultants, Inc.

Sustainable Strategies

The project achieved 13 out of 14 Sustainable Sites credits in the LEED program, including:

Protecting open space – The portion of the parking garage that extends beyond the footprint of the building is covered with grass, creating an open space for residents to enjoy.

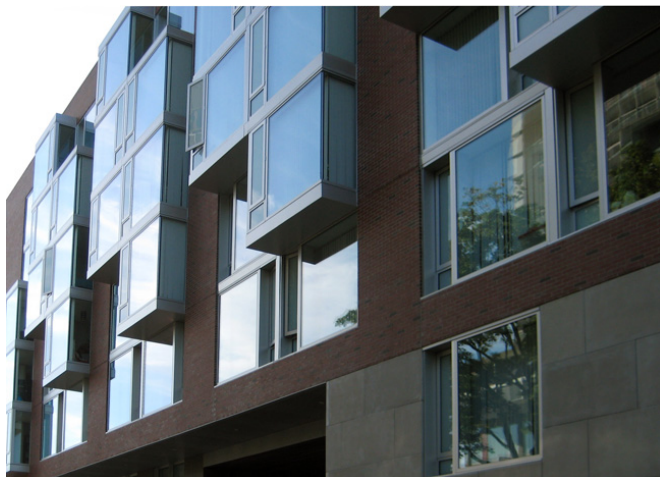
Public Transportation and Bicycling – In addition to promoting carpooling, Harvard provides a free shuttle service, assists bicyclists by identifying bike routes and providing adequate racks.

Campus Zipcar – Harvard provides a parking space near the building for a hybrid Zipcar. This shared vehicle can be rented by building occupants, reducing their need to own vehicles.

Storm Water – Storm water runoff will be reduced by more than 44% due to the reduced amount of impervious paved surface on the site.

Heat island effect – Harvard Real Estate wanted to reduce cooling costs and the heat island effect by installing a highly reflective roof, but also wanted to avoid the glare from a white roof. The solution was to install a custom green-color FiberTite PVC roof, which has an emissivity of 95% and a Solar Reflective Index of 0.8.

Erosion and Sedimentation – During construction, erosion and sedimentation was controlled by watering to keep down dust, washing wheels at site egresses, and building silt sacks on surrounding catch basins.



Energy

Energy savings were accomplished by incorporating a number of features, including:

- **Variable Speed Pumping**—The cooling tower, hot water pumps, and chilled water pumps are controlled by variable speed drives. When full load is not required, these pumps slow down, greatly reducing energy consumption.
- **Quality Windows**—Because 10 Akron has so many windows, it was especially important to ensure that high-quality efficient windows were installed. The windows use low-e glass, which lets visible light in but lower the amount of heat from solar radiation that enters the building, reducing cooling demand.
- **Efficient Indoor Lighting**—A combination of highly efficient light fixtures and bulbs, and good lighting layout design greatly lowers the amount of electricity consumed by the building.
- **High-Efficiency Chiller**— The building's 250 ton chiller contains a variable speed drive, reducing energy consumption when demand is lower.
- **High R Value Roof**—10 Akron installed a roof with an insulating value of R-26, almost double the amount required by building codes (R-15). During winter months, this will prevent almost twice the amount of heat from escaping through the roof.



Irrigation

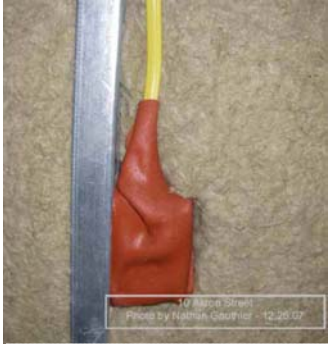
The Harvard Riverside Housing irrigation system will utilize a rain sensor to automatically turn off the irrigation system when rainfall has occurred. When irrigation is needed, the Rainbird 1800-PRS system will provide water as efficiently as possible. A pressure regulator in the sprinkler stem will maintain a constant pressure of 30 psi. This reduced, but constant pressure also reduces the amount of water consumed and prevents wasted misting and fogging. Landscape plants and turf were chosen for their low water consumption needs. Combined, these strategies will reduce the water used by irrigation by 52%.



Domestic Water

All units have shower heads that are designed to deliver a high velocity stream with a reduced water flow of only 1.6 gallons per minute. Bathroom sinks also have low flow fixtures that consume 0.5 gallons of water per minute. Combined, these measures will reduce domestic water consumption in the building by 32.7% when compared with a conventional building.





Putty Pack on electrical outlet reduces smoke transfer



Pipe penetrations well sealed

Indoor Environmental Quality

10 Akron Street achieved 12 of 15 IEQ credits, by incorporating measures such as:

Operable windows—installed in all units.

Bathroom and Kitchen Exhaust Fans—vented directly to roof exhaust.

Clothes dryers— By ducting dryers directly to the roof and controlling exhaust with pressure sensors, exhaust will be drawn outside only when needed.

Air Quality Management— Measures taken include: sealing air ducts to keep out dust, protecting absorptive materials with plastic wrapping, keeping dust from spreading with plastic curtains, and scheduling painting to take place prior to the installation of absorptive materials such as furniture and carpet.

Low-Emitting Materials—Volatile Organic Compounds (VOCs) were kept to a minimum, and below the LEED maximums for all adhesives, sealants, paints, and carpets.

User Control—Lighting and temperature systems in common spaces, as well as individual units, can be individually controlled, so tenants can define their own comfort levels.

No Smoking is allowed within 25 feet of the building. Smoking inside individual units is allowed, but smoke is prevented from migrating between units by careful sealing of any penetrations in the walls and by maintaining negative pressure within the units.



Materials and Waste

Careful attention was paid to both the disposal of construction waste and to the purchase of new materials, leading to some very impressive percentages:

- 91%** Of construction and demolition waste was diverted from landfills to be either reused or recycled.
- 22%** Of materials and products in the building were both manufactured within 500 miles and their raw materials were extracted within 500 miles of the project, reducing the transportation related energy and environmental impacts associated with supplying products from across the globe.
- 21%** Of all materials used in the project contain recycled content, reducing the impact of virgin material extraction and creating a market that encourages diversion of used materials away from landfills.



Innovations

Real-Time Utility Touchscreens—Residents of 10 Akron can see their electricity, gas and water consumption in *real-time* on a touchscreen in the lobby just inside the front doors. These systems have proven to dramatically reduce consumption, because tenants are constantly reminded of how much resources are being consumed and they can see the results when they push to conserve.

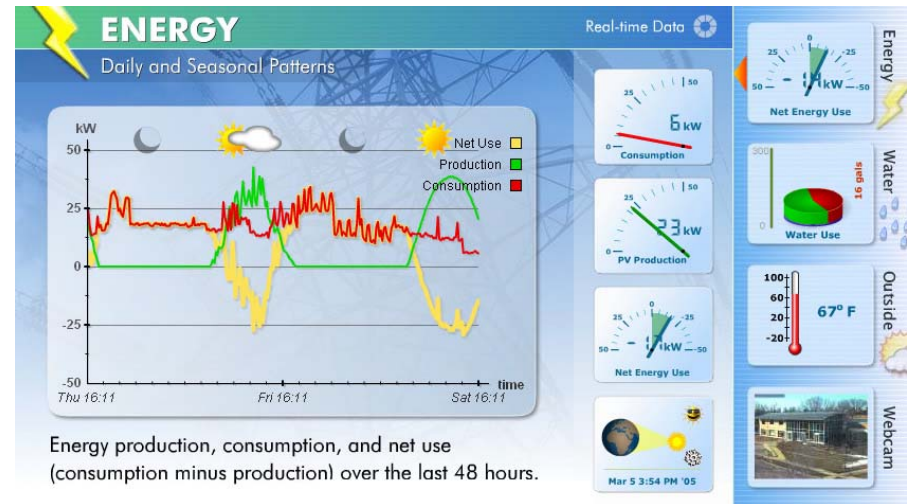


Green Cleaning—The vendor who cleans hallways, stairwells and common spaces only uses Green Seal certified cleaning products, and follows a set of practices designed to limit the amount of dirt entering the building, helping to improve indoor air quality, and reducing the impact on the environment. Building tenants are encouraged to follow suit. Each tenant is given a six-month supply of green cleaning products, along with information on the advantages of green cleaning and the locations of local stores which carry green cleaning products.

Exemplary Open Space—

10 Akron greatly exceeded the LEED requirements for leaving open space. A landscaped courtyard covers the underground parking garage, giving residents and other passersby a comfortable outdoor space to enjoy.

Picture at right is an architects rendition, as the courtyard is still being constructed (as of March, 2009)



LEED® Facts

Harvard Real Estate Services
10 Akron St - Cambridge, MA

LEED for New Construction - Version 2.2

GOLD	41*
Sustainable Sites	13/14
Water Efficiency	3/5
Energy and Atmosphere	2/17
Materials and Resources	6/13
Indoor Environmental Quality	12/15
Innovation and Design	5/5

*Out of a possible 69 points