



HARVARD UNIVERSITY EMPLOYEES CREDIT UNION

140 MT. AUBURN STREET, CAMBRIDGE, MA 02138

LEED-CI v2.0

CERTIFIED 2009 (PENDING)

The Harvard University Employees Credit Union's (HUECU) Administrative Office is a 6,826 square foot renovation of the fourth floor at 104 Mount Auburn Street in Cambridge, MA. Construction was completed in October 2008. The building is a 34,526 square foot, five-story office building with retail establishments on the first floor. The project is located in the heart of Harvard Square, within close proximity to the Harvard campus, many public transportation options, services, restaurants, and stores.

Due to the confidential and sensitive nature of their work with personal finances, HUECU employees generally work individually, not in teams. Therefore, the renovation needed to include (10) private offices, one of which shall be shared by (2) collections staff, and (19) furniture cubicles with standing-height panels and sliding doors, to provide visual and some acoustic privacy. Even though the space needs to maintain private offices and cubicles, the architects looked at ways to bring daylight into the central, cubicle area – both directly via exterior windows and indirectly through interior glass walls.

In addition to carrying out a LEED renovation, the HUECU, as part of its ongoing commitment to protect the environment, encourages members to purchase more fuel-efficient vehicles through the Green Auto Loan Program. This Loan Program provides auto loans at a reduced interest rate for HUECU members looking to finance a vehicle that gets at least 30 miles-per-gallon (highway).



Main Conference Room

Photo: Perry and Radford Architects. 2008

PROJECT HIGHLIGHTS

LEED® Facts

Harvard University

Employees Credit Union

2008 Renovation

PENDING



Location.....Cambridge, Massachusetts

Rating System.....Commercial Interiors v2.0

Certification Pending.....Silver

Total Points Achieved.....30 / 57

Sustainable Sites.....4/7

Water Efficiency.....2/2

Energy and Atmosphere.....6/12

Materials and Resources.....5/14

Indoor Environmental Quality.....8/17

Innovation and Design.....5/5

17% reduction in installed interior lighting power density (watts/square feet) below the code standard.

79% of all construction and demolition waste was diverted from landfills.

41% reduction in water consumption over EPA 1992 compliant fixtures.

100% of the equipment and appliances are Energy Star® rated

All thermostats are programmed with timers that set back the temperature during un-occupied hours.

Only low or zero-VOC materials were used during construction





# PROJECT OVERVIEW



Looking down the Corridor Photo: Perry & Radford, 2008

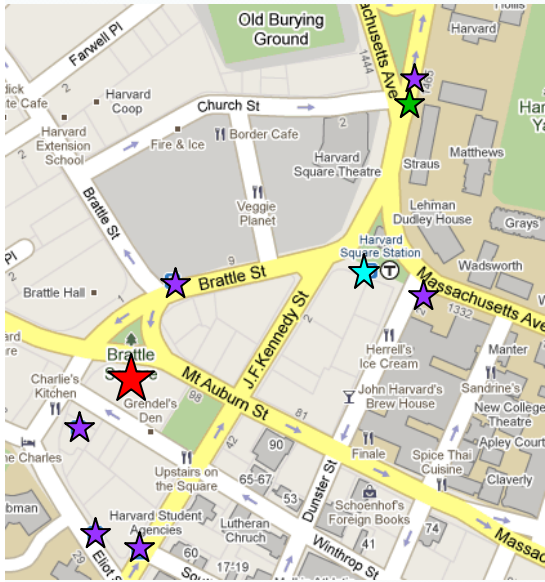
## PROJECT TEAM

<b>Owner</b>	Harvard University Employees Credit Union
<b>Building Management</b>	Intercontinental Management Corporation
<b>Architect</b>	Perry & Radford
<b>Contractor</b>	Devonshire Construction Corp.
<b>Engineer</b>	Energy Planning, Inc
<b>Commissioning Agent</b>	Perry & Radford
<b>Sustainability Consultant</b>	Harvard University, Office for Sustainability Green Building Services





SITE



- To encourage alternatives to driving, all occupants have access to Harvard's comprehensive **CommuterChoice Program**, which provides incentives, such as discounts, for all modes of alternative transportation as well as carpooling and fuel efficient vehicles. The Program is promoted through informational kiosks in building common areas and an extensive website. ([www.commuterchoice.harvard.edu](http://www.commuterchoice.harvard.edu))
- The building is located within walking distance to the Harvard Square MBTA stop, several bus lines, and the Harvard University Shuttle.
- A bicycle rack was installed on the sidewalk in front of the building as part of this project, in an effort to promote bicycle commuting. Shower facilities are available to tenants in the nearby Malkin Athletic Center.
- The building is located in a dense urban area with several services, which allows occupants to walk and easily access amenities such as restaurants, banks, churches, and retail stores.

The Harvard University Employees Credit Union is on the fourth floor of the 104 Mt. Auburn building, which is leased from a third party.

- ★ 104 Mount Auburn
- ★ MBTA Bus Stops
- ★ Harvard University Shuttle Bus Stops
- ★ MBTA Subway Station



Photo: Intercontinental Real Estate Corporation



WATER EFFICIENCY

The Credit Union's fourth floor LEED Boundary includes the renovation of two bathrooms. Per project specifications, only water efficient fixtures were installed, which **reduces domestic water consumption by 41% over standard EPA 1992 fixtures**. This is the equivalent of saving over 21,000 gallons per year.

FIXTURES IN CREDIT UNION PROJECT SCOPE



SLOAN OPTIMA Plus® ERF-885 0.5 GPM Battery Powered Wireless Faucet, Spray Head, Sensor Activated



SLOAN ECOS® Electronic Dual Flush (Full Flush 1.6 gpf and Reduced Flush 1.1 gpf)

Differences in the Flush & Flow Rates for EPA 1992 Standard Fixtures and the fixtures installed for the Credit Union Fourth Floor Office Project		
Fixture Type	Credit Union Office Flush & Flow Rates	EPA 1992 Standard Flush & Flow Rates
Water Closet [GPF]	Dual-Flush 1.6 & 1.1	1.6
Urinal [GPF]	0.5	1.0
Bathroom Sink [GPM]	0.5	2.5
Kitchen Sink	1.5	2.5
GPF - Gallons Per Flush                      GPM - Gallons Per Minute		





## ENERGY EFFICIENCY

The HUECU has committed, along with the larger Harvard University, to focus on ways to reduce greenhouse gas emissions 30% below 2006 levels by 2016, inclusive of growth. To this end, energy efficiency was one of the primary sustainability-related goals in this renovation project.

### Mechanical Systems

- **Automatic Temperature Controls:** All thermostats are on timers that are programmed to setback during unoccupied times, which can save a significant amount of energy. For the HUECU, the timers were set-up with the following configuration:
  - Occupied Hours (8 AM to 5:30 PM, Monday through Friday):
    - Winter: 70 degrees F
    - Summer: 73 degrees F
  - Unoccupied Hours:
    - Winter: 60 degrees F
    - Summer: 78 degrees F
- **System Upgrades:** As part of the project the HUECU replaced the existing heat pumps (which are more than 25-years old and in deteriorating condition) to upgrade their efficiency.
- **Plug Loads:** Energy Star equipment was selected for all Energy Star-eligible equipment in the space. This includes three computers and a commercial refrigerator.
- **Commissioning:** The mechanical and electrical systems were fully commissioned by a third-party Commissioning Authority, which ensured that all energy-related systems were installed as designed, and operating efficiently prior to occupancy.
- **Separate Metering:** The HUECU electricity is separately metered from the other floors in the building, which allows the occupants to be aware of their consumption and encourage conservation.



**Programming the Thermostat**  
Photo: Perry and Radford Architects. 2008

### Electrical Systems

- **Occupancy Sensors** are installed in all rooms within the project scope. These sensors turn the lights in a space off when they have not been activated by motion for set periods of time.
- **Daylight Sensors** were installed in all offices with exterior windows. These sensors reduce electrical lighting demand by dimming lights when natural light is present, maintaining a constant light level within the room.
- **Light Fixtures:** Energy-efficient fluorescent lighting fixtures and lamps were carefully chosen and placed to reduce electricity consumption. As a result, the project has achieved a **17.14%** reduction in installed lighting power density (watts/square feet) below the code standard.
- **Daylight:** Even though the space needs to maintain private offices and cubicles, the architects looked at ways to bring the daylight into the central, cubicle area – either directly via exterior windows or indirectly through interior glass walls.



**Commissioning: Testing the Daylight Sensors**  
Photo: Perry and Radford Architects. 2008



## INDOOR ENVIRONMENTAL QUALITY

The Harvard University Employee Credit Union is committed to providing a healthy indoor environment for all occupants. The project team was careful to maintain healthy indoor air quality during construction and to also ensure the space is designed to promote healthy indoor air quality during occupancy.

**Indoor Air Quality During Construction:** The rest of the building maintained occupancy throughout construction. Thus, a comprehensive indoor air quality management plan was implemented to maintain healthy indoor air quality during construction. For example, all grills and vents were sealed and a HEPA Filtration unit maintained negative pressure to keep any construction debris from migrating into occupied spaces.

Only products with **Low or No VOC Content** were used in the Credit Union project. Volatile Organic Compounds (VOCs) are chemical compounds and known carcinogens found in many construction materials that are considered detrimental to indoor air quality. Reducing the use of VOCs whenever possible improves indoor air quality and consequently occupant health and productivity.

- ▶ **Composite Wood and Laminate Adhesives** used in the renovation do not have any added Urea Formaldehyde
- ▶ **Carpet Systems:** Lees Flamestitch III Broadloom Carpet and Lees Unibond Wet Set Broadloom Carpet adhesive.
- ▶ **Adhesives and Sealants and Paints and Coatings:** see below for examples of the products used.

Product & Manufacturer	VOC Content (g/l)	VOC Limit (g/l)	Classification	Standard
▶ 0223 Eco Spec Flat Latex Interior Paint - Benjamin Moore	0	50	Flat Interior Pint	GS-11
▶ 0528 Auro Semi Gloss - Benjamin Moore	11.4	150	Anti-Corrosive and Anti-Rust Paints	GS-03
▶ Titebond Acoustical Sealant	42.1	250	Sealant	SCAQMD Rule 1168
▶ Forbo T940 Adhesive	0.0	50	VCT Tile Adhesive	SCAQMD Rule 1168

**Lighting Control:** To promote productivity, comfort and wellbeing, lighting controls and task lighting are included such that 100% of the occupants can adjust lighting to suit their individual needs.

**Thermal Comfort Survey:** To ensure thermal comfort, occupants will be surveyed at least once per season for the first year of the space's operation. Building management will adjust the heating or cooling in the project space as necessary



Looking down the Corridor Photo: Perry & Radford, 2008



**HVAC Protection:**  
Ductwork kept sealed before installation



**Pathway Interruption:**  
Exhaust filtered and direct to outside



**Source Control:**  
Sealant with low VOC levels



## MATERIALS AND WASTE

Selecting environmentally preferable materials and minimizing the amount of construction waste sent to landfill was important to the project. When selecting materials, preference was given to low-emitting materials with recycled content.

**79%** of the construction and demolition waste was diverted from landfills.

**29%** of the total material value consists of post-consumer or pre-consumer recycled content.

### ENVIRONMENTALLY PREFERABLE MATERIALS IN HARVARD UNIVERSITY EMPLOYEES CREDIT UNION

- > Aluminum Panels (USG Curvatura) Recycled Content: **90%** post-consumer. Regional: **472 Miles** (Oakville, ON)
- > Metal Framing Stud (Dietrich) Recycled Content: **17%** post-consumer, **37%** pre-consumer. Regional: **355 Miles** (Sparrow Point, MD)
- > Toilet Partitions (Bobrick) Recycled Content: **15%** pre-consumer. Regional: **142 Miles** (Clifton Park, NY)
- > Particle Board (Uniboard): **100%** pre-consumer, **3 Miles**
- > Formaldehyde-Free Fiber Glass Building Insulation (John Manville): **5%** post-consumer, **20%** pre-consumer, **308 miles**

ACT - Frost Clima Plus  
(USG Corp)  
Recycled Content:  
**70% pre-consumer**



- > Haring Stile and Rail Wood Doors (Hennigar Door): **70%** pre-consumer, **21 Miles**
- > Drywall (USG): **95%** post-consumer, **5%** pre-consumer, **248 Miles**

Answer Workstation  
(Steelcase)  
Recycled Content:  
**17% post-consumer**  
**15% pre-consumer**

Amia Chair (Steelcase)  
Recycled Content:  
**13% post-consumer**  
**7% pre-consumer**

Molti Chair (Gunlocke)  
Recycled Content:  
**12% post-consumer**

Flamestitch III Broadloom Carpet  
(Lee's Industries)  
Recycled Content:  
**20% post-consumer**  
**18% pre-consumer**

## ADDITIONAL RESOURCES

### FOR MORE INFORMATION:

- > Harvard University Employees Credit Union (HUECU): <https://www.huecu.org>
- > HUECU - Green Loan: <https://www.huecu.org/auto-loans/go-green.-save-green.,1012.html>
- > Harvard Green Building Services : <http://www.greencampus.harvard.edu/green-building-services>
- > Harvard Green Building Resource : <http://www.green.harvard.edu/theresource>

