HARVARD Campus Services

GREEN is the new Crimson

HARVARD CAMPUS SERVICES

LEED-CI v3

HOLYOKE EIGHTH FLOOR | CAMPUS SERVICE CENTER

GOLD

75 Mount Auburn Street, Cambridge, MA 02138

The Harvard Campus Service Center LEED–CI project is an interior renovation of existing office space located within the Harvard University Housing office suite on the eighth floor of the Holyoke Center to accommodate the expanded needs of the Harvard University Campus Services and Transportation Services Department. The purpose of the new Campus Services Center is to provide a single location conveniently located within Harvard Square for Harvard students, faculty and staff to visit when seeking University housing, parking permits, and identification cards. Existing office spaces were removed to create the open floor space required for the new programming, which includes eight flexible customer transaction stations to meet peak customer demands.

The new space was sustainably renovated at a minimal expense and the project team strived to meet their sustainability goals which included maintaining and reusing a significant portion of the non-structural interior, salvaging and reusing materials, furniture and furnishings and the use of recycled and regional materials. In consideration of the surrounding tenants and to insure healthy indoor environmental quality, an IAQ management plan was implemented and the construction site was isolated from the building's HVAC system.

Campus Service Center
Photo: Harvard Green Building Services, 2011.

The new Campus Service Center's open floor plan allows the project to take advantage of the window-wrapped perimeter, to provide natural daylight to 75% of the space and direct views for more than 80% of the regularly occupied spaces. As a central hub of University activity, the space will feature signage to educate future occupants and visitors about the many sustainable features included in the LEED renovation, including the flexible and multipurpose layout and design.

PROJECT HIGHLIGHTS

LEED® Facts

Holyoke Campus Service Center
Harvard Campus Services
2011

Location	Cambridge, MA
Rating System	LEED-CI v.3
Certification	Gold
Total Points	70/110
Sustainable Sites	20/21
Water Efficiency	11/11
Energy and Atmosphere	15/37
Materials and Resources	8/14
Indoor Environmental Quality	7/17
Innovation in Design	6/6
Regional Priority	3/4

75% of the regularly occupied spaces are daylit.

40% reduction in water consumption.

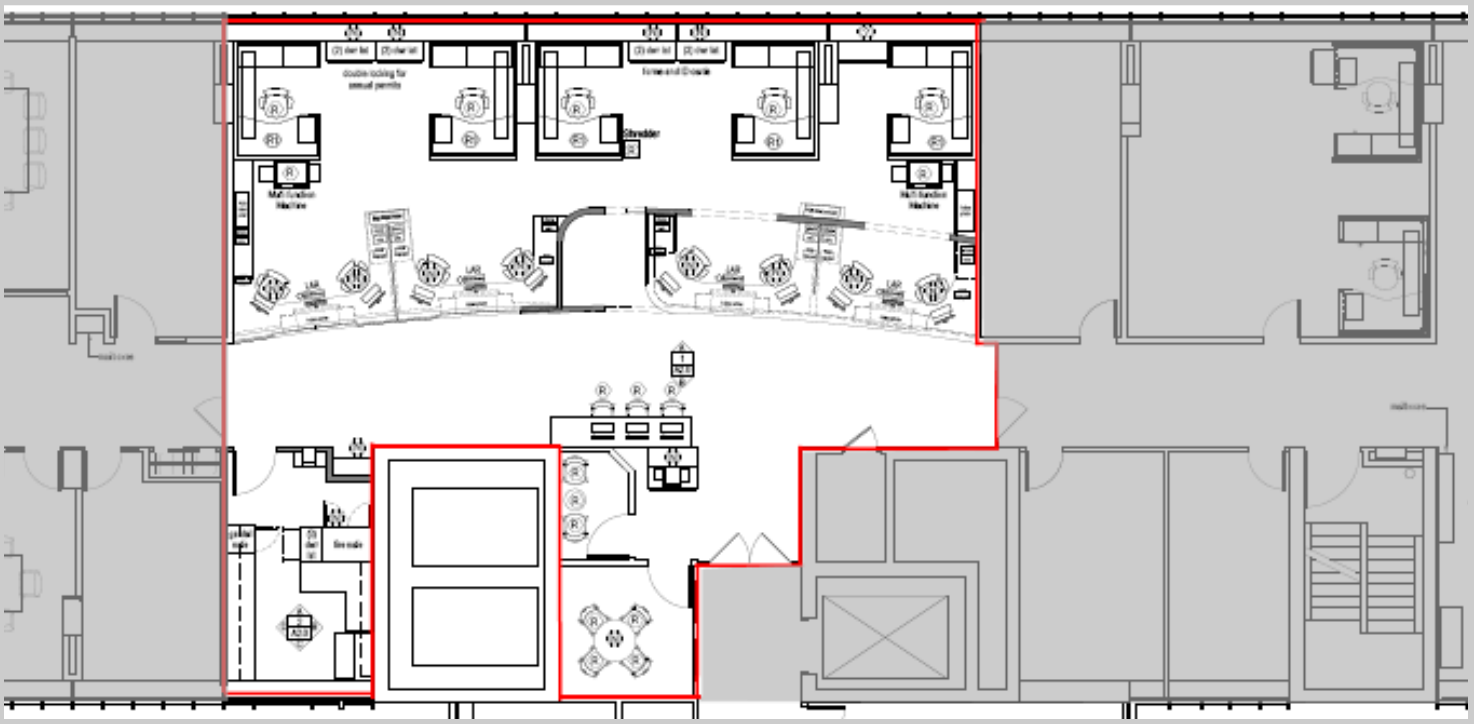
43% of the total material value consists of products manufactured and/or extracted locally.

68% of the total materials value was comprised of salvaged, refurbished, or reused furnishings.

90% of the project's construction and demolition debris was diverted from the landfill.

PROJECT OVERVIEW

CAMPUS SERVICES FLOOR PLAN & LEED BOUNDARY



Harvard Campus Services LEED Boundary
Photo: Galante Architecture Studio, 2011.

Campus Services Entrance
Photo: Green Building Services, 2011.

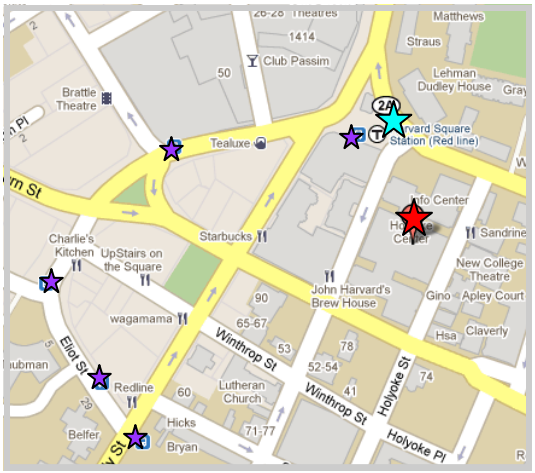
PROJECT TEAM

Owner	Harvard Campus Services
Project Manager	Jones Lang LaSalle
Architect	Galante Architecture Studio
Contractor	Shawmut Design and Construction
MEP Engineer	BLW Engineers, Inc.
Commissioning Authority	Facility Dynamics
Sustainability Consultant	Harvard Green Building Services

SITE

Harvard Holyoke Center
Cambridge, MA

- To encourage alternatives to driving, all occupants of Campus Service Center and the Holyoke Center base building have access to Harvard's comprehensive ***CommuterChoice Program***, which provides incentives and discounts for all modes of alternative transportation as well as carpooling and fuel efficient vehicles.
- The building is located within walking distance to the Harvard Square MBTA stop, several bus lines, and the Harvard University Shuttle.
- Bicycle racks are available for use by the building's occupants located both in the building's basement and directly adjacent to both the east and west sides of the building.
- The building is located in a dense urban area, which allows occupants to walk and easily access amenities such as restaurants, banks, churches, and retail stores.



Holyoke Center

MBTA Bus Stops

MBTA Subway Station

Bike Racks at Holyoke Center
Photo: Green Building Services, 2010.

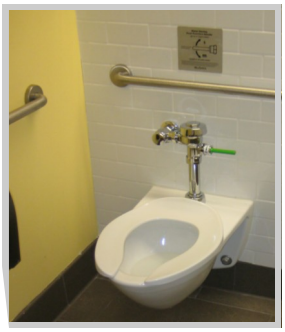
WATER EFFICIENCY

Per LEED requirements, if a project boundary does not include restrooms, calculations must be for the fixtures in the closest restroom. The closest bathrooms to the Campus Service Center have water efficient fixtures, which **reduce domestic water consumption by 40% over standard EPAct 1992 fixtures.**

Differences in the Flush & Flow Rates for EPAct 1992 Standard Fixtures and the fixtures installed for the project

Fixture Type	Flush & Flow Rates	EPAct 1992 Standard Flush & Flow Rates
Water Closet [GPF]	1.35	1.6
Urinal [GPF]	0	1.0
Sink [Gallons per cycle]	0.13	2.5
Shower [GPM]	1.6	2.5
GPF - Gallons Per Flush	GPM - Gallons Per Minute	

FIXTURES IN HOLYOKE CENTER



Sloan Uppercut®
Dual-flush Water Closet
1.1—1.6 gpf

Zurn AquaSpec®
Sink
0.13 gallons per cycle

Please print this project profile only if necessary.
If printing is required, please print double sided and recycle when finished. Thank you!

ENERGY EFFICIENCY

Harvard Campus Services has committed, along with Harvard University as a whole, to reduce greenhouse gas emissions 30% below 2006 levels by 2016, inclusive of growth.

MECHANICAL SYSTEMS

The **HVAC SYSTEM** is separately zoned and controlled to account for equipment loads and solar heat gain. There are multiple separate zones within the Campus Service Center, which allows for controllability of thermal systems and helps to maintain the thermal comfort of occupants.

Advanced **SIEMENS CONTROL SYSTEMS** allow for the interoperability of occupancy sensors with lighting and HVAC systems. Moreover, where occupancy does not drive HVAC setbacks, time-clock settings adjust airflow and temperature set-points.

COMMISSIONING: The mechanical and electrical systems within the Campus Service Center were fully commissioned, which helps ensure that all energy-related systems were installed in accordance with the manufacturer's specifications and operating efficiently prior to occupancy.

ELECTRICAL SYSTEMS

HIGH EFFICIENCY LIGHTING: Existing lighting fixtures were retrofitted with energy-efficient fluorescent lamps to reduce electricity consumption. These and other lighting reductions reduced the lighting power density (watts per square feet) by **27.5%** below code.

To reduce the amount of toxic material in the building, linear fluorescent lighting which was chosen instead of compact fluorescent lighting wherever possible contains less mercury.

OCCUPANCY SENSORS were strategically placed throughout the project to sense the presence of people. Occupancy sensors have the ability to turn off all room lighting upon room vacancy.

DAYLIGHTING: 75% Of the regularly occupied space in the Campus Services Center receives natural daylight from the perimeter windows, affording the option to reduce the electrical lighting load.

Harvard Campus Services
Photos: Green Building Services, 2011.

Harvard Campus Services
Photos: Green Building Services, 2011.

INDOOR ENVIRONMENTAL QUALITY

Harvard Campus Services 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: During the renovation, the construction team implemented an Indoor Air Quality Management plan to ensure the health of the workers and the eventual inhabitants. Some of the aspects of the plan included walk-off mats to reduce the amount of debris tracked into the project, masking all return grills and ventilation with polyethylene sheets, green sweep practices, and storing all materials in cool, dry areas to prevent mold.

THERMAL COMFORT SURVEY: Occupants will be surveyed about their thermal comfort once per season. The Operations team will adjust the heating or cooling in the project space as needed.

Only materials with **LOW OR NO VOC CONTENT** were used in the Campus Services 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 do not have any added urea formaldehyde.
- **CARPET SYSTEMS** that were installed are CIR Green Label Plus certified products.
- **ADHESIVES AND SEALANTS | PAINTS AND COATINGS** Example products:

Product Category	Product & Manufacturer	VOC Content (g/l)	VOC Limit (g/l)	Standard
Paints & Coatings	➤ Sherwin William—Pro Green Primer	44	150	GS-11
	➤ Sherwin William—Pro Green Eggshell	40	150	GS-11
	➤ Sherwin William—Pro Green Semi-Gloss	46	150	GS-11
Adhesives & Sealants	➤ Mapei—Ultrabond ECO	0	50	SCAQMD #1168
	➤ Wilsonart Contact Adhesive	3	80	SCAQMD #1168

Construction IAQ Measures Implemented During Construction

Housekeeping
Sticky Walk-off Mats

Source Control
Sealing work areas

Campus Service Center Views
Photo: Green Building Services, 2011.

VIEWS: To provide a connection between indoor and outdoor environments, **84%** of the occupied spaces have access to views.

GREEN HOUSEKEEPING: Harvard has made a commitment to using green cleaning processes in its buildings, including the Holyoke Center. This includes the use of Green Seal certified cleaning solutions, 100% recycled content toilet tissue and paper towels, portion control chemical dispensers, and staff training.

MATERIALS & WASTE

Selecting environmentally preferable materials and minimizing the amount of construction waste sent to landfill was important to the project. The project gave preference to low-emitting materials with recycled content and locally manufactured.

46% **of the total material value consists of products salvaged or manufactured locally.**

90% **of the on-site generated construction waste was diverted from the landfill.**

17% **of the total value of materials used in the project consist of materials with recycled content.**

ENVIRONMENTALLY PREFERABLE MATERIALS

- Hardware (Rakks)
  41% pre-consumer, **23%** post-consumer recycled content
- Metal Framing (Dietrich Steel)
  36% pre-consumer, **17%** post-consumer recycled content
- Insulation (Owens Corning)
  50% pre-consumer, **10%** post-consumer recycled content
- ACT Panels (Armstrong)
  67% pre-consumer, **4%** post-consumer recycled content

Examples of regional materials used in project:

Material Name	Manufacturer	Distance between Project & Manufacturer (mi)
Anti-Rust Coating	Sherwin Williams	348
Metal Framing	Dietrich Steel	198
Paint (semi-Gloss)	Sherwin Williams	348

Campus Service Center
Photos: Green Building Services, 2011.

ADDITIONAL RESOURCES

- **HARVARD CAMPUS SERVICES:** http://www.campusservices.harvard.edu
- **HARVARD CAMPUS SERVICES CENTER:** http://www.campusservicecenter.harvard.edu/
- **HARVARD GREEN BUILDING SERVICES:** http://green.harvard.edu/green-building-services
- **HARVARD GREEN BUILDING RESOURCE:** http://green.harvard.edu/theresource

Harvard Campus Service Center - LEED-CI v3 Scorecard

LEED GOLD: 04/25/2012

20	**0**	**0**	**0**	**21 Points**		**SUSTAINABLE SITES**	
					SSc1	**Site Selection**	
				5		Select a LEED certified building	
				up to 5		**OR a Building with following characteristics:**	
				1	Option 1A	**Brownfield Redevelopment**	
				1	Option 1B	**Stormwater Design, Quantity Control**	
				1	Option 1C	**Stormwater Design, Quality Control**	
				1	Option 1D	**Heat Island Effect, Non-Roof**	
1				1	Option 1E	**Heat Island Effect, Roof**	
				1	Option 1F	**Light Pollution Reduction**	
				2	Option 1G	**Water Efficient Landscaping, Reduce by 50%**	
				2	Option 1H	**Water Efficient Landscaping, No Potable Use**	
				2	Option 1I	**Innovative Wastewater Technologies**	
1				1	Option 1J	**Water Use Reduction, 30% Reduction**	
				2	Option 1K	**On-Site Renewable Energy**	
1				1	Option 1L	**Other Quantifiable Environmental Performance: Green Cleaning**	
6				6	SSc2	**Dev. Density & Community Connectivity**	
6				6	SSc3.1	**Alt. Transportation, Public Transportation**	
3				2	SSc3.2	**Alt. Transportation, Bicycles *(RP)***	
2				2	SSc3.3	**Alt. Transportation, Parking Availability**	
11	**0**	**0**	**0**	**11 Points**		**WATER EFFICIENCY**	
Y				**Required**	WEp1	**WE Prereq 1 Water Use Reduction,** 20% Reduction	
				6 to 11	WEc1	**WEc1 Water Use Reduction,** 30%, 35%, 40%	
						30% Reduction	
						35% Reduction	
11						40% Reduction ***(RP)***	
15	**0**	**0**	**0**	**37 Points**		**ENERGY & ATMOSPHERE**	
Y				**Required**	EA prereq 1	**Fundamental Commissioning**	
Y				**Required**	EA prereq 2	**Minimum Energy Performance** 10% Reduction in lighting power density from ASHRAE 90.1-2007 **AND**	
Y				**Required**	EA prereq 3	**Fundamental Refrigerant Management**	
				1 to 5	EAc1.1	**Optimize Energy Performance: Lighting Power**	
						Reduce power density to 15% below Standard	
2						Reduce power density to 20% below Standard	
						Reduce power density to 25% below Standard ***(RP)***	
						Reduce power density to 30% below Standard	
						Reduce power density to 35% below Standard	
				1 to 3	EAc1.2	**Optimize Energy Performance: Light Controls**	
						Option A - Daylight responsive controls within 15' of windows	
						Option B - Daylight responsive controls for 50% of load	
1						Option C - Occupancy controls for 75% of load	
				5 to 10	EAc1.3	**Optimize Energy Performance: HVAC**	
						Option A - Equipment Efficiency and Zoning & Controls ***(RP)***	
						Option B - Reduce Design Energy Cost ***(RP)***	
				1 to 4	EAc1.4	**Optimize Energy Performance: Equipment/Appliances**	
						70% of eligible equipment is ENERGY STAR	
						77% of eligible equipment is ENERGY STAR	
						84% of eligible equipment is ENERGY STAR	
4						90% of eligible equipment is ENERGY STAR	
				5	EAc2	**Enhanced Commissioning**	
				2 to 5	EAc3	**Measurement & Verification**	
						Case 1 - Install Sub-Metering Equipment (2 pts)	
3						Case 1 - Tenant Pays for Energy (3 pts)	
						Case 2 - Continuous Metering (5 pts.)	

5				5	EAc4	**Green Power**	
8	**0**	**0**	**0**	**14 Points**		**MATERIALS & RESOURCES**	
Y				**Required**	MR prereq 1	**Storage & Collection of Recyclables**	
1				1	MRc1.1	**Tenant Space, Long Term Commitment**	
1				1	MRc1.2	**Building Reuse, Maintain 40% Interior Non-Structural Components**	
				1	MRc1.3	**Building Reuse, Maintain 60% Interior Non-Structural Components**	
1				2	MRc2.1	**Construction Waste Management, Divert 50% from Landfill**	
1					MRc2.2	**Construction Waste Management, Divert 75% from Landfill**	
1				2	MRc3.1 - 3.2	**Materials Reuse, (5%, 10% Materials) *(RP)***	
				1	MRc3.3	**Materials Reuse 30% Furniture and Furnishings**	
1				1	MRc4.1	**Recycled Content, 10% (post-consumer + 1/2 pre-consumer)**	
				1	MRc4.2	**Recycled Content, 20% (post-consumer + 1/2 pre-consumer)**	
1				1	MRc5.1	**Regional Materials, 20% Manufactured Regionally *(RP)***	
				1	MRc5.2	**Regional Materials, 10% Extracted and Manufactured Regionally**	
				1	MRc6	**Rapidly Renewable Materials**	
1				1	MRc7	**Certified Wood**	
7	**0**	**0**	**0**	**17 Points**		**INDOOR ENVIRONMENTAL QUALITY**	
Y				**Required**	EQ prereq 1	**Minimum IAQ Performance**	
Y				**Required**	EQ prereq 2	**Environmental Tobacco Smoke Control**	
				1	EQc1	**Outside Air Delivery Monitoring**	
				1	EQc2	**Increased Ventilation**	
1				1	EQc3.1	**Construction IAQ Management Plan, During Construction**	
				1	EQc3.2	**Construction IAQ Management Plan, Before Occupancy**	
1				1	EQc4.1	**Low-Emitting Materials, Adhesives and Sealants**	
1				1	EQc4.2	**Low-Emitting Materials, Paints and Coatings**	
1				1	EQc4.3	**Low-Emitting Materials, Flooring Systems**	
1				1	EQc4.4	**Low-Emitting Materials, Composite Wood & Laminate Adhesives**	
1				1	EQc4.5	**Low-Emitting Materials, Systems Furniture and Seating**	
				1	EQc5	**Indoor Chemical and Pollutant Source Control**	
				1	EQc6.1	**Controllability of Systems, Lighting**	
				1	EQc6.2	**Controllability of Systems, Thermal Comfort**	
				1	EQc7.1	**Thermal Comfort, Design**	
				1	EQc7.2	**Thermal Comfort, Verification**	
1				1	EQc8.1	**Daylight and Views, Daylight 75% of Spaces**	
				1	EQc8.2	**Daylight and Views, Daylight 90% of Spaces**	
				1	EQc8.3	**Daylight and Views, Views for 90% of Seated Spaces**	
6	**0**	**0**	**0**	**6 Points**		**INNOVATION AND DESIGN PROCESS (max 3 Exemplary Performance points)**	
1				1	IDc1.1	**IDc1.1: Exemplary Performance: Green Power**	
1				1	IDc1.2	**IDc1.2: Exemplary Performance: Community Connectivity**	
1				1	IDc1.3	**IDc1.3: Exemplary Performance: MRc3.2 Furniture Reuse**	
1				1	IDc1.4	**IDc1.4: PC13 Bicycle Network, Storage, and Changing Rooms**	
1				1	IDc1.5	**IDc1.5: PC12: Reduced Automobile Dependence**	
1				1	IDc2	**IDc2 LEED AP**	
3	**0**	**0**	**0**	**4 Points**		**REGIONAL PRIORITY CREDITS**	
1				1	RP	**Regional Priority Credit:** See SSc3.2***(RP)*** above	
				1	RP	**Regional Priority Credit:** See EAc1.1***(RP)*** above	
1				1	RP	**Regional Priority Credit:** See MRc3.1-3.2***(RP)*** above	
1				1	RP	**Regional Priority Credit:** See MRc5.1***(RP)*** above	
70	**0**	**0**	**0**	**70**		**TOTAL (pre-certification estimates)**	

Certified 40 to 49 points **Silver** 50 to 59 points **Gold** 60 to 79 points **Platinum** 80 to 110 points