



FACULTY OF ARTS AND SCIENCES
EAST WING OFFICES - NORTHWEST LABS BUILDING
52 OXFORD STREET, CAMBRIDGE, MA 02138

**LEED-Civ2.0
GOLD**

The Northwest Laboratories Complex is owned by the Harvard Faculty of Arts and Sciences (FAS). It was a core and shell construction project completed in 2008. While the main structure is eight stories, four above grade and four below grade, the East Wing of the facility is two stories tall and encompasses 15,600 square feet.

The first floor of the Northwest Labs' East Wing houses the FAS Physics department and Molecular & Cellular Biology department. The second floor contains the Physics Neuroimaging department. A 2009 renovation of the office spaces provided an opportunity to improve both electrical and HVAC systems, in addition to updating finishes and furnishings.

In support of Harvard's goal of reducing greenhouse gas emissions 30% below 2006 levels by 2016, inclusive of growth, FAS and the project team were committed to sustainability from the onset and throughout the duration of the project. This dedication ultimately allowed the East Wing Offices to achieve a LEED Gold Certification under the LEED for Commercial Interiors (LEED-CI) version 2.0 rating system.



East Wing Offices
Photo: Harvard Green Building Services, 2009

PROJECT HIGHLIGHTS

LEED® Facts

Northwest East Wing Offices
Harvard Faculty of Arts & Sciences
2009

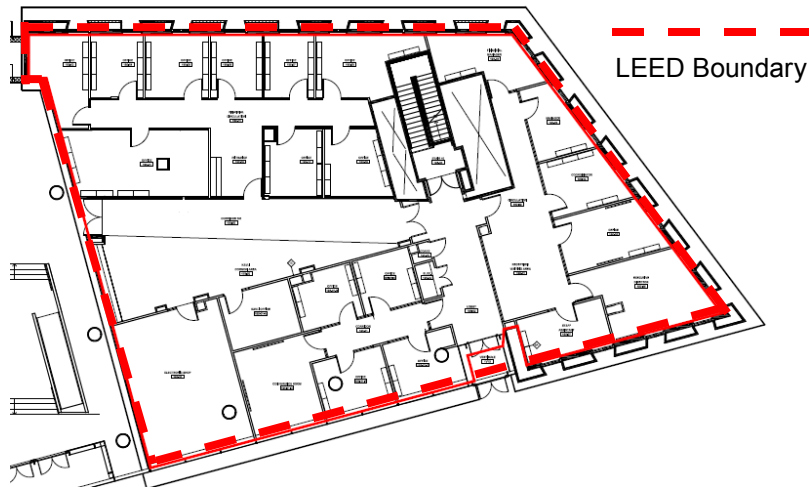


Location.....	Cambridge, Massachusetts
Rating System.....	Commercial Interiors v2.0
Certification Achieved.....	Gold
Total Points Earned	38/57
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Sustainable Sites.....	7/7
Water Efficiency.....	2/2
Energy and Atmosphere.....	7/14
Materials and Resources.....	3/14
Indoor Environmental Quality.....	14/17
Innovation and Design.....	5/5

- 18%** reduction in lighting power by using efficient lamps and fixtures.
- 14%** of the materials contain recycled content, by overall material value.
- 23%** of the materials, by overall material value, were manufactured within 500 miles of the project.
- 100%** of the composite wood in the project is urea-formaldehyde free.
- 30%** reduction in water consumption over EPA 1992 compliant fixtures.
- 98%** of regularly occupied areas have exterior views.



PROJECT OVERVIEW

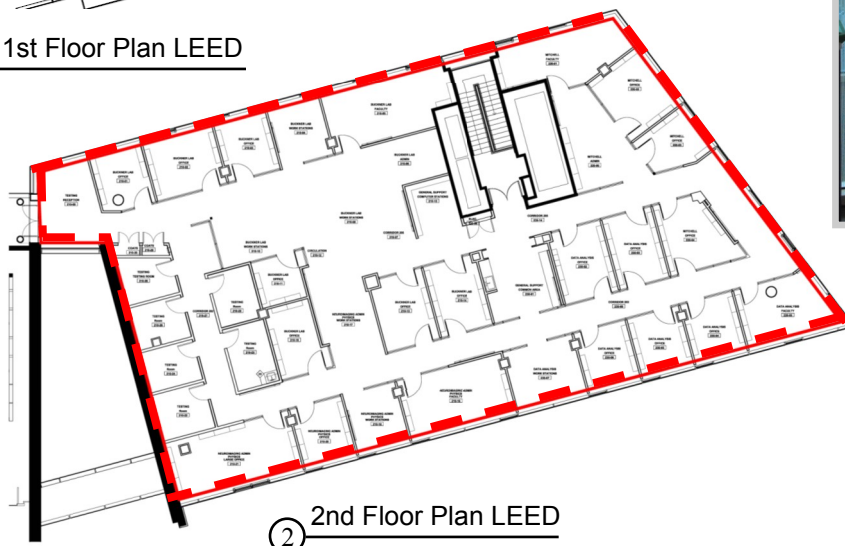


LEED Boundary



East Wing Offices
 Photo: Harvard Green Building Services, 2009

① 1st Floor Plan LEED



② 2nd Floor Plan LEED



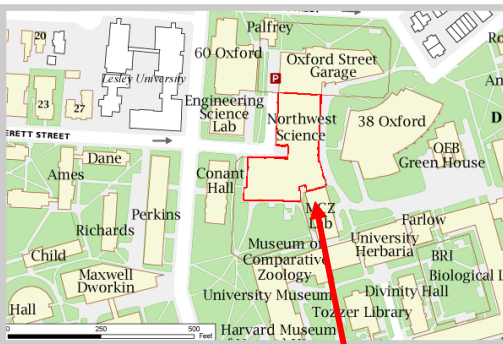
Northwest Labs
 Photo: Harvard Green Building Services, 2009

PROJECT TEAM

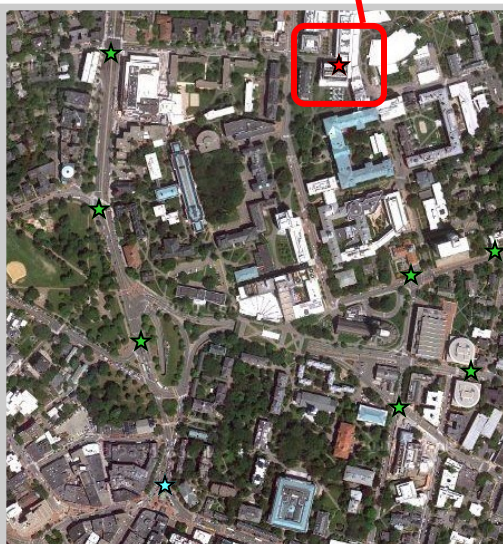
Owner	Harvard Faculty of Arts and Sciences
Project Manager	Harvard Faculty of Arts and Sciences
Architect	Tsoi / Kobus & Associates
Construction Manager	Wise Construction Corporation
HVAC & Lighting Engineer	Bard, Rao + Athanas Consulting Engineers
Commissioning Agent	Harvard Green Building Services
Sustainability Consultant	Harvard Green Building Services



SITE



Northwest Labs
52 Oxford Street, Cambridge, MA



- ★ Northwest Labs
- ★ MBTA Subway Station
- ★ Bus Stop Location

- To encourage alternatives to driving, all occupants of the East Wing Offices have access to Harvard's **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)
- The Northwest Labs building is located in a dense urban area which allows occupants to easily access amenities such as restaurants, banks, churches and retail stores.
- The building is located within walking distance to the Harvard Square T Station, the MBTA route 77 and 96 buses, and the Harvard campus shuttle.
- Three bicycle racks with a capacity of 70 bicycles are located adjacent to the Northwest Labs building. Seven shower and changing facilities are located within the building.



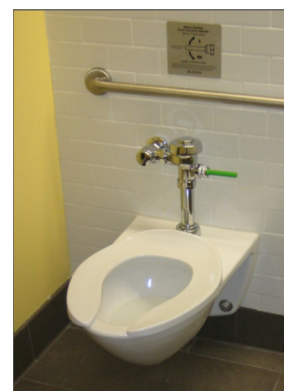
Bike Racks in East of Building
Photo: Harvard Office for Sustainability, 2009

WATER EFFICIENCY

Per LEED requirements, if a project does not include bathrooms, calculations must be for the fixtures in the closest bathroom. The closest bathroom to the East Wing Offices have water efficient fixtures, which **reduce domestic water consumption by 30% over standard EAct 1992 fixtures**. This is the equivalent of saving over 44,000 gallons per year.

Differences in the Flush & Flow Rates for EAct 1992 Standard fixtures and the fixtures utilized by Northwest Labs:

Fixture Type	East Wing Offices Flush & Flow Rates	EAct 1992 Standard Flush & Flow Rates
Water Closet [GPF]	Dual-Flush 1.6 & 1.1	1.6
Urinal [GPF]	1.0	1.0
Bathroom Sink [GPM]	0.5	2.2
Shower [GPM]	2.0	2.5
GPF - Gallons Per Flush		GPM - Gallons Per Minute



SLOAN UPPERCUT®
Dual-Flush Flushometer
(Up: 1.1 gpf for half flush
Down 1.6 gpf for full flush)



ENERGY EFFICIENCY

The Faculty of Arts and Sciences has committed, along with Harvard University as a whole, to reduce greenhouse gas emissions 30% below 2006 levels by 2016, inclusive of growth. Therefore, energy efficiency was a main focus.

MECHANICAL SYSTEMS

The East Wing's HVAC systems were constructed to improve occupant comfort and provide healthy indoor air quality. The primary source for building heat and humidification requirements is the existing campus steam plant with the adjacent campus chiller plant providing cooling. A glycol/water energy recovery loop is provided in the building to transfer sensible heat between the major laboratory supply and exhaust systems for fit-outs within the building.

- **Ventilation:** To promote healthy indoor air quality, the ventilation is designed to exceed ASHRAE 62.1-2004 minimum requirements. Demand control ventilation is used to modulate the amount of fresh air based on occupancy.
- **Occupancy Sensors:** The demand control ventilation system uses carbon dioxide sensors to reduce energy consumption. The sensors are tied to the thermostats to set back temperatures when the space is unoccupied.
- **Commissioning:** The mechanical and electrical systems have been fully commissioned, ensuring that all energy-related systems were installed as designed and operate efficiently prior to occupancy.
- **Renewable Energy:** Renewable Energy Certificates (RECs) were purchased from Sterling Planet (wind power) equivalent to 100% of the anticipated electricity over 2 years, 498,000 kWh.



East Wing Offices
Photo: Harvard Green Building Services



Occupancy Sensor
Photo: Harvard Green Building Services

ELECTRICAL SYSTEMS

The lighting system was upgraded to reduce electricity use in the space. All work was designed to comply with applicable state and national codes, as well as FAS standards.

- **Lighting Fixtures:** Energy-efficient and low-mercury fluorescent lamps were carefully chosen and strategically placed to reduce electricity consumption while maintaining adequate lighting levels for each type of space. This was done with consideration of ceiling heights, lighting levels, use and maintenance needs.
- **Plug Loads:** While no new equipment was purchased for the space, **73%** of the existing supply, such as printers, monitors, laptops and desktop computers, are Energy Star rated.



INDOOR ENVIRONMENTAL QUALITY

The Faculty of Arts and Sciences 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.

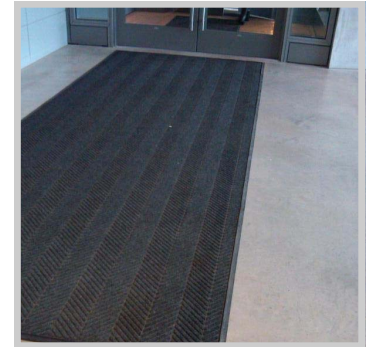
Indoor Air Quality During Construction: A comprehensive indoor air quality management plan was implemented during construction to maintain healthy indoor air quality for workers and future occupants. All ducts were sealed and a filtration unit maintained negative pressure to keep any construction debris from migrating into occupied spaces. Walk off mats were used to ensure that pollutants were not tracked outside of the construction space.

Only Materials with **Low or No VOC Content** were used in the East Wing 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 have no added Urea Formaldehyde.

➤ **Systems Furniture:** Herman Miller Caper Chairs are Greenguard™ certified. Steelcase files, workstations and chairs are SCS Indoor Advantage™ certified.

➤ **Adhesives and Sealants and Paints and Coatings:** Examples of the products used:



Housekeeping

Walk off mats keep pollutants from being tracked out of the construction site.



Source-Control

Steelcase Think® Task Chairs are SCS Certified Gold for indoor advantage.

Category	Product & Manufacturer	VOC Level (g/l)	VOC Limit (g/l)	Standard
Paints & Coatings	➤ Sherwin Williams Pro-Green Latex Semi-Gloss	46.0	150.0	Green Seal GS-11
Adhesives & Sealants	➤ Shaw 8300 One Floor Carpet Seam Sealer	0.0	50.0	SCAQMD Rule #1168
	➤ Mapei Corp- Ultra Bond Eco 575 Base Adhesive	0.0	50.0	SCAQMD Rule #1168
	➤ Hilti FSONE Firestop Sealant	0.0	250.0	SCAQMD Rule #1168



View from East Wing Offices
Photo: Harvard Office for Sustainability, 2009

Daylight and Views: Over **98%** of regularly occupied areas in East Wing Offices have access to exterior views, based on square footage.

Thermal Comfort Survey: The Northwest Labs building facilities team has a Thermal Comfort Plan (TCP), under which they administers occupant surveys in the summer, fall and winter, and adjust HVAC parameters in response to comfort issues.

No Smoking Policy: To protect the health of the occupants, Harvard University's Faculty of Art and Sciences does not permit smoking either inside or within 25 feet of the Northwest Labs facility.





MATERIALS & WASTE

Selecting environmentally preferable materials and minimizing the amount of construction waste sent to landfill was important in the East Wing Offices. When selecting materials, the project team gave preference to locally manufactured, low-emitting materials with recycled content.

79% of the construction waste was diverted from landfills, and instead sent to recycling facilities.

14% of the total material value consists of post-consumer and/or pre-consumer recycled content.

100% of systems furniture used in the project, such as seating and workstations, are low-emitting.



East Wing Offices
Photo: Harvard Green Building Services



East wing Offices
Photo: Harvard Green Building Services

ENVIRONMENTALLY PREFERABLE MATERIALS IN THE EAST WING OFFICES

- › Gypsum Wallboard (USG)
Recycled Content: **5%** post-consumer, **94%**, pre-consumer
- › Fiberglass Batt Insulation (Certaineed)
Recycled Content: **20%** post-consumer
- › NuGreen Particleboard (Uniboard)
Recycled Content: **100%** pre-consumer
- › Suprafine Ceiling Grid (Armstrong)
Recycled Content: **7%** pre-consumer, **23%** post-consumer
- › Ultima Acoustical Ceiling Tile (Armstrong)
Recycled Content: **65%** pre-consumer, **6%** post-consumer
- › Think® Task Chairs (Steelcase)
Recycled Content: **4%** pre-consumer, **35%** post-consumer
- › EE6 Universal Workstations (Steelcase)
Recycled Content: **80%** pre-consumer
- › Markerboard (Interior Specialties)
Recycled Content: **45%** pre-consumer, **20%** post-consumer

ADDITIONAL RESOURCES

- › HARVARD FACULTY OF ARTS AND SCIENCES: <http://www.fas.harvard.edu/home/>
- › SUSTAINABILITY AT FAS: <http://www.greencampus.harvard.edu/fas>
- › HARVARD GREEN OFFICE CERTIFICATION PROGRAM: <http://www.greencampus.harvard.edu/green-office>
- › HARVARD GREEN BUILDING SERVICES: <http://green.harvard.edu/green-building-services>
- › HARVARD GREEN BUILDING RESOURCE: <http://green.harvard.edu/theresource>

