



HARVARD MEDICAL SCHOOL

DEPACE LAB, WARREN ALPERT BUILDING

200 LONGWOOD AVENUE, BOSTON, MA 02115



GREEN
is the new Crimson

LEED-CI v2.0
GOLD

DePace Lab is located on the 4th floor of the Harvard Medical School's Warren Alpert Building at 200 Longwood Avenue in Boston, MA. The renovation project achieved LEED-CI certification at the Gold level in July, 2009. This was the first renovation of a wet lab at Harvard University to achieve a LEED certification, and shows the Medical Schools strong commitment to sustainability.

The 1,900 square foot renovation of the DePace Lab was completed in May, 2008 to meet the needs of Professor Angela DePace, whose group conducts research on genetics and evolution. A stated goal of the project was to provide a top quality lab facility while reusing the existing conditions as much as possible. This lead to the reuse of existing fume hoods, certain pieces of case work, and a carefully planned selective demolition of only some interior walls.



DePace Lab

Photo: Harvard Office for Sustainability. 2008

PROJECT HIGHLIGHTS

LEED® Facts

DePace Lab, Warren Alpert Bldg

Harvard Medical School

2008 Renovation



Location.....	Boston, Massachusetts
Rating System.....	Commercial Interiors v2.0
Certification Pending.....	Gold
Total Points Achieved.....	34 / 57

Sustainable Sites.....	3/7
Water Efficiency.....	0/2
Energy and Atmosphere.....	7/12
Materials and Resources.....	6/14
Indoor Environmental Quality.....	13/17
Innovation and Design.....	5/5

98% of the on-site generated construction waste was diverted from the landfill.

31% of the project furniture and furnishings were salvaged, refurbished or reused.

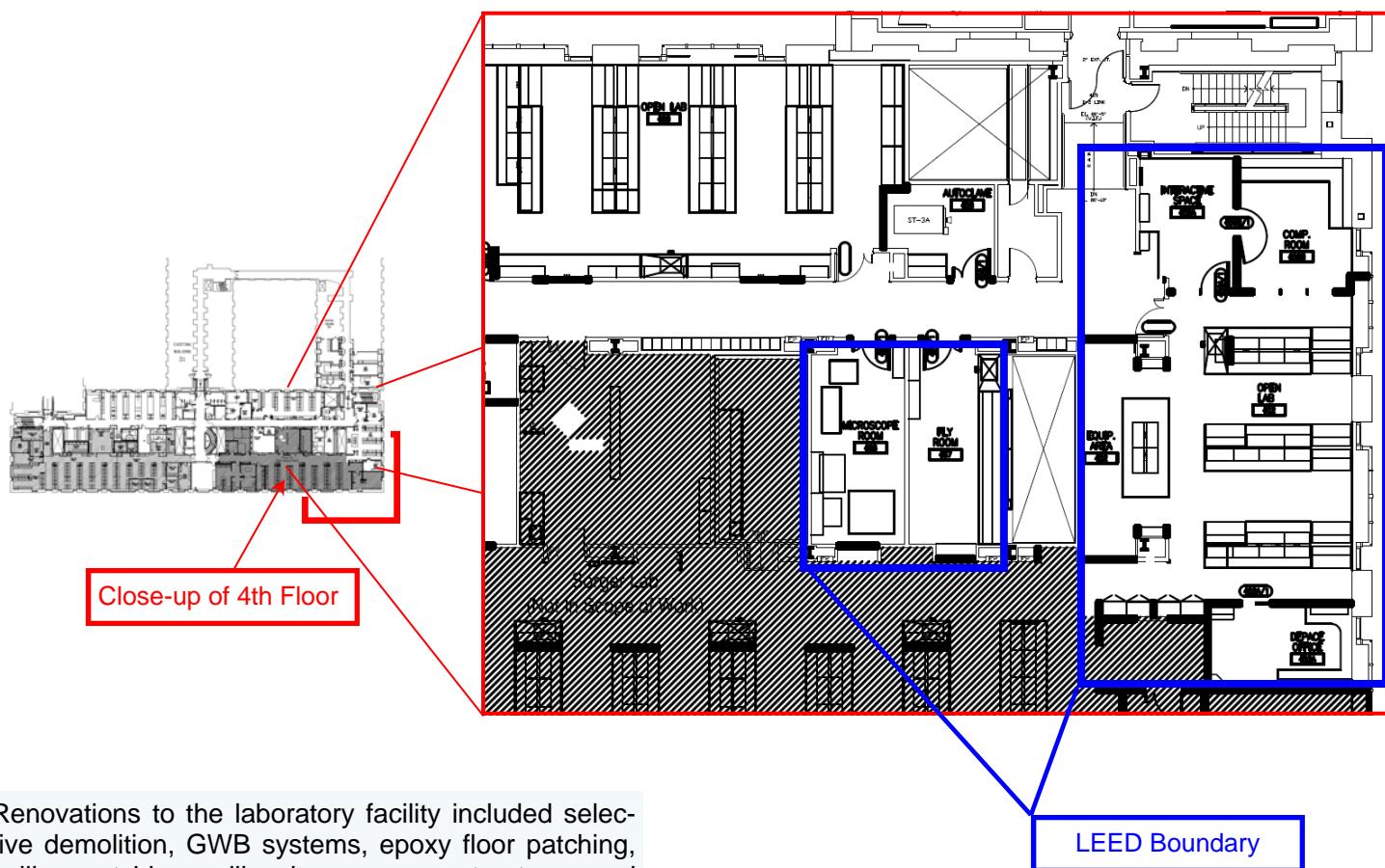
79% of the building materials (by value) were manufactured within 500 miles of Boston.

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

Adhesives, sealants, paints, coatings, carpets, composite wood and laminate adhesives are low-emitting (low or no VOC content).



PROJECT OVERVIEW



Renovations to the laboratory facility included selective demolition, GWB systems, epoxy floor patching, ceiling patching, millwork, epoxy counter tops, and finishes. The mechanical, plumbing, fire protection, fire alarm and electrical systems were reused from the existing facility.



DePace Lab

Photo: Harvard Office for Sustainability. 2008

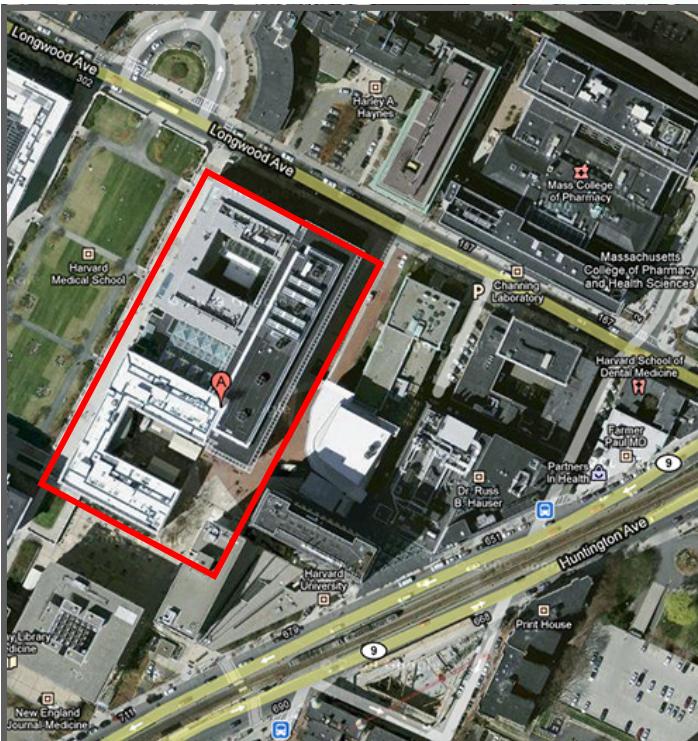
PROJECT TEAM

Owner	Harvard Medical School
Project Manager	Jay Ostema, Michael Nazzaro, Harvard Medical School
Architect	Architectural Resources Cambridge (ARC)
Contractor	Wescor Construction
Engineer	BR + A Consulting Engineers, LLC.
Commissioning Agent	Kjelgaard Engineering LLC
Sustainability Consultant	Harvard University, Office For Sustainability Green Building Services





SITE



Warren Alpert Building

200 Longwood Avenue, Boston, Massachusetts

- The Warren Alpert building is located on the Longwood Medical Campus in Boston, MA. This area is served by numerous rail and bus lines, including the Green Line D and Green Line E, both of which have stations within 1/2 mile of the building. Parking is limited and expensive, so both the rail and bus lines are used heavily by building occupants. In addition, the Harvard M2 shuttle provides service to Cambridge. The Longwood Medical Campus is a high density area, with numerous restaurants, banks, shops and other basic services within easy walking distance.
- Bicycle racks with a capacity to hold 180 bicycles are located adjacent to the rear of the building. The racks are covered and enclosed in cages that require an ID to enter, ensuring that they are only used by HMS affiliates and adding security for the bikes. One shower with changing space is available in the handicapped accessible bathroom on each floor of the building, for a total of 5 showers.
- 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)

WATER EFFICIENCY

The DePace Fourth Floor Lab LEED Boundary includes sinks for handwashing and sinks for lab use. Aerators were chosen for both to maximize efficiency while allowing for appropriate use. The only other water fixtures within the project scope are emergency showers and eye-wash stations. The DePace team plans to save water with those fixtures by being safe and never needing to use them!

FIXTURES IN DEPACE PROJECT SCOPE



SLOAN OPTIMA PLUS® EBF-187
0.5 GPM Battery Operated Electronic
Hand Washing Faucet



Chicago Faucets® 350-E35cCP
1.5 GPM Desk Mounted Lab Sink with 1.5
GPM Aerator



ENERGY EFFICIENCY

Mechanical Systems

- **Building Automation System:** All automatic temperature controls are direct digital control (DDC). Automatic controls provide energy savings based on system zoning, scheduling, and occupied/unoccupied setbacks. When the overhead occupancy sensors register that an individual room is unoccupied, the temperature setting in that room is setback to save energy. This is done in the office and conference spaces, but not in the microscope room or fly room, where conditions are based on process requirements rather than occupant comfort, and need to be maintained at a constant level.
- **Occupancy-Based Ventilation:** Heating and cooling are provided via the ventilation system. When the temperature setpoints are setback in the office and conference room, this will mean less ventilation air is required.
- **Plug Loads:** Energy Star equipment was selected for all Energy Star-eligible equipment in the office space portion of the project—which includes 1 desktop computer, 1 monitor, and a scientific 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.
- **Renewable Energy:** Renewable Energy Certificates (RECs) were purchased from Sterling Planet (wind power) equivalent to 50% of the anticipated electricity use.

Electrical Systems

- **Occupancy Sensors:** All rooms within the project scope have occupancy sensors that turn the lights in a space off when sensors have not been activated by motion for set periods of time. These occupancy controls sensors also control the ventilation setbacks.
- **Light Fixtures:** Energy-efficient fluorescent lighting fixtures and lamps were carefully chosen and placed to reduce electricity consumption.



DePace Lab kitchenette

Photo: Harvard Office for Sustainability, 2008



DePace Lab

Photo: Harvard Office for Sustainability, 2008



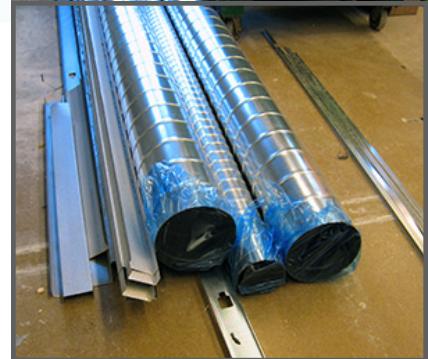
INDOOR ENVIRONMENTAL QUALITY

The Harvard Medical School 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 building maintained occupancy throughout construction. Thus, a comprehensive indoor air quality management plan was implemented during construction to maintain healthy indoor air quality. 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 DePace project. Volatile Organic Compounds (VOCs) are chemical compounds and known carcinogens found in many construction materials, and are considered detrimental to indoor air quality. Reducing the use of VOCs whenever possible improves indoor air quality and consequently occupant health and productivity. VOC limits are set by Green Seal standards and the South Coast Air Quality Management District Rules #1168 and #1113.

- **CARPET:** The Lees Granite carpet is certified Green Label Plus by the Carpet and Rug Institute, as well as the carpet adhesive, Mapei Ultrabond ECO 220.
- **COMPOSITE WOOD AND LAMINATE ADHESIVES:** Existing doors were refurbished and reused, and two composite wood products, Uniboard Particleboard and Hoover Fire Retardant plywood, and one laminate adhesive used, Premier Adhesives PB 910, are urea-formaldehyde free.
- **SYSTEMS FURNITURE AND SEATING:** Steelcase Criterion® Chairs are SCS Indoor Advantage™ Certified.
- **PAINTS AND COATINGS | ADHESIVES AND SEALANTS:** All interior paints used in the project have zero or low VOC Content.



IAQ Management HVAC Protection:
Ductwork kept sealed before installation



IAQ Management Housekeeping:
Walk-off mats at entrance

Product Category	Product & Manufacturer	VOC Content (g/l)	VOC Limit (g/l)	Standard
Paints & Coatings	➤ Benjamin Moore Eco-Spec Interior Latex Primer	0.0	200	Green Seal, GS-11
	➤ Benjamin Moore M29 D.T.M	207	250	Green Seal, GS-03
Adhesives & Sealants	➤ DAP Beats the Nail Construction Adhesive	2.4	70	SCAQMD Rule #1168
	➤ Mapei Ultrabond ECO 710 VCT Adhesive	0	50	SCAQMD Rule #1168
	➤ Premier Adhesives PB 910	40	80	SCAQMD Rule #1168

Lighting Control: 100% of DePace Lab occupants can utilize wall switches to control overhead lighting, while the office space is also provided with task lighting.

Thermal Comfort Survey: To ensure comfort, occupants will be surveyed about their thermal comfort once per season. The Harvard Medical School (HMS) facilities team will adjust the heating or cooling in the project space if more than 20% of the survey respondents are not comfortable.



Low Emitting Materials
Steelcase Criterion® Task Chair



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 refurbished, locally manufactured, low-emitting materials with recycled content.

98% of the construction waste was diverted from landfills.

79% of the total material value consists of materials manufactured within 500 miles of the project site

31% of the project furniture and furnishings were salvaged, refurbished, or reused.



ENVIRONMENTALLY PREFERABLE MATERIALS IN DEPACE LAB

- **Metal Studs** (MarinoWare)
Recycled Content: 25% post-consumer, 7% pre-consumer
- **Carpet** (Lees)
Recycled Content: 20% post-consumer
- **File Cabinets** (Office Specialty)
Recycled Content: 27% pre-consumer
- **Sheetrock Gypsum Panels** (USG)
Recycled Content: 94% post-consumer, 5% pre-consumer
Regional: 309 (Montreal, Quebec)
- **Aeron Chairs** (Herman Miller)
Recycled Content: 41% post-consumer, 21% pre-consumer
- **Ceramaguard Acoustical Ceiling Tile** (Armstrong)
Recycled Content: 38% pre-consumer

Reused office furniture and low-emitting carpet with recycled content



ADDITIONAL RESOURCES

- Harvard Medical School, DePace: <https://depace.med.harvard.edu/>
- Harvard Medical School Green Program: <http://www.green.harvard.edu/hms/green-program>
- Harvard Green Building Services : <http://www.greencampus.harvard.edu/green-building-services>
- Harvard Green Building Resource : <http://www.green.harvard.edu/theresource>