The Northwest Labs Molecular and Cellular Biology (MCB) renovations involved the fit-out of 22,500 square feet of lab and office space. The intent of the project was to accommodate eight Principal Investigators (PIs) displaced during the selective demolition of the Sherman Fairchild building as part of the Stem Cell and Regenerative Biology (SCRB) program. Renovations occurred on five levels of the Northwest Labs building at 52 Oxford Street in Cambridge, MA. The scope of work included fit-out of office and support spaces. By floor, the project scope is summarized as follows:

- **Level 3 South** – Fitout of shell space for Professors David Jeruzalmi, Rachelle Gaudet, Andres Leschziner, and Victoria D’Souza. Minor modifications to the meeting space are included for additional computer space.
- **Level 2 North** – Fitout of shell space and modifications to existing lab and office space for Stem Cell and Regenerative Biology (SCRB) Professors Doug Melton and Kevin Eggan. A compressor room in the corridor is included as part of this scope.
- **Level 1 North** – Fitout of shell space for Professors Nancy Kleckner and Guido Guidotti.
- **Level B2 South** – Renovation of existing mailroom/shipping and receiving for an x-ray crystallography suite.
- **Level B4 South** – Fitout of shell space for a 700 MHz NMR to be relocated from the Naito building.

### PROJECT HIGHLIGHTS

#### LEED® Facts

**Northwest Labs MCB**

Harvard Faculty of Arts and Sciences

2010

<table>
<thead>
<tr>
<th>Category</th>
<th>Points Achieved</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Cambridge, MA</td>
<td></td>
</tr>
<tr>
<td>Rating System</td>
<td>Commercial Interiors v2.0</td>
<td></td>
</tr>
<tr>
<td>Certification Achieved</td>
<td>Gold</td>
<td></td>
</tr>
<tr>
<td>Total Points Achieved</td>
<td>33/57</td>
<td></td>
</tr>
<tr>
<td>Sustainable Sites</td>
<td>7/7</td>
<td></td>
</tr>
<tr>
<td>Water Efficiency</td>
<td>2/2</td>
<td></td>
</tr>
<tr>
<td>Energy and Atmosphere</td>
<td>3/14</td>
<td></td>
</tr>
<tr>
<td>Materials and Resources</td>
<td>4/14</td>
<td></td>
</tr>
<tr>
<td>Indoor Environmental Quality</td>
<td>12/17</td>
<td></td>
</tr>
<tr>
<td>Innovation and Design</td>
<td>5/5</td>
<td></td>
</tr>
</tbody>
</table>

- **30%** reduction in potable water consumption
- **76%** of regularly occupied spaces receive ample daylighting.
- **37%** of construction materials were manufactured within 500 miles of the project location.
HARVARD FACULTY OF ARTS AND SCIENCES - NORTHWEST LABS MCB
MOLECULAR AND CELLULAR BIOLOGY

PROJECT OVERVIEW

NORTHWEST LABS MCB FLOOR PLANS

Northwest Labs MCB: Floors 1, 2 and 3
Architectural Drawings by Payette, September, 2009

PROJECT TEAM

Owner
Harvard Faculty of Arts and Sciences

Project Manager
Harvard Faculty of Arts and Sciences

Architect
Payette

Contractor
Richard White Sons

HVAC Engineer
Bard, Rao + Athanas

Commissioning Authority
Energy Management Associates

Sustainability Consultant
Harvard Green Building Services

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

To encourage alternatives to driving, all occupants of the Northwest Labs building have access to Harvard’s CommuterChoice Program, which provides incentives and discounts for all modes of alternative transportation as well as carpooling and fuel efficient vehicles.

The Northwest Labs building is located within walking distance to the Harvard Square MBTA stop, several bus lines, and the Harvard University Shuttle.

Inverted U Rack bicycle stands are located at several entrance points surrounding the Northwest Labs 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.

WATER EFFICIENCY

Low flow fixtures were specified in order to achieve a 30% reduction of potable water consumption below EPAct 1992 standard flush and flow rates. Dual flush toilets and low flush kitchen and bath faucets will decrease occupant water use by limiting the rate at which water is discharged from fixtures.

<table>
<thead>
<tr>
<th>Fixture Type</th>
<th>Northwest Labs MCB Flush &amp; Flow Rates</th>
<th>EPAct 1992 Standard Flush &amp; Flow Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Closet [GPF]</td>
<td>1.35</td>
<td>1.6</td>
</tr>
<tr>
<td>Urinal [GPF]</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Bathroom Sink [GPM]</td>
<td>0.5</td>
<td>2.2</td>
</tr>
<tr>
<td>Shower [GPM]</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Kitchen Sink [GPM]</td>
<td>1.6</td>
<td>2.2</td>
</tr>
</tbody>
</table>

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 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 goal of this renovation project.

MECHANICAL SYSTEMS

Efficient HVAC systems were designed in order to reduce unnecessary energy and resource consumption.

HVAC Setbacks: During periods when researchers are not present, ventilation airflow is reduced by 2/3, from 6 air changes per hour down to 2.

Demand Control Ventilation: In certain project areas, when CO₂ levels permit, ventilation will be reduced to save energy.

Energy Efficient Fume Hoods: All constant air volume (CAV) fume hoods are low airflow, high-containment class A type chemical fume hoods set for 70 feet per minute (FPM) face velocity.

ELECTRICAL SYSTEMS

Efficient lighting systems were designed in order to reduce unnecessary energy consumption.

Advanced Lighting Controls: Lutron’s EcoSystem was utilized for full control of open laboratory and open office spaces.

Daylight Harvesting: Pendant fixtures within 15 feet of exterior perimeter windows will dim in response to the presence daylight illumination.

Occupancy Sensors: Occupancy sensors are strategically placed throughout the project that are activated by sound and motion. When activated, lighting is switched on only in the zones controlled by the particular sensor. Occupancy sensors were strategically located to minimize lamp run-times based on occupant behavior.

FAS GREEN LABS

The FAS Green Labs Program works with researchers, staff, faculty, and building managers to implement sustainable practices and technologies in the FAS lab buildings. Because of the resource intensity of lab science and the unique conditions and requirements in each individual lab, lab sustainability approaches must be made from both a building-wide perspective, as well as a granular perspective aimed at identifying local opportunities at the lab level. FAS Green Labs Program initiatives, with the support of paid lab sustainability representatives, help mitigate resource intensity, while respecting the resource demands of science.

Lab Sustainability Assessments:

The Lab Sustainability Assessment program, a component of FAS Green Labs, operates under the conviction that scientific research can be conducted in more environmentally sustainable ways without adversely impacting research quality. By involving researchers in the process of assessing potential sustainability opportunities, the program aims to share best practices regarding lab energy efficiency, lab water efficiency, lab material recycling, lab material procurement, and toxic waste reduction/prevention.

Key Energy Conservation Measures (ECMs):

- Installing occupancy sensors on lights
- Setting back building temperatures and ventilation rates slightly at night
- Replacing inefficient lighting
- Converting constant volume fume hoods into variable volume fume hoods
INDOOR ENVIRONMENTAL QUALITY

Harvard’s 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: 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. A flush-out of the space was done prior to construction to remove any potential contaminants.

Only materials with Low or No VOC Content were used in the Northwest Labs MCB 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 System** Shaw EcoWorx broadloom carpet product is CRI Green Label Plus certified.

### Construction IAQ Measures Implemented During Construction

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Product &amp; Manufacturer</th>
<th>VOC Content (g/l)</th>
<th>VOC Limit (g/l)</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paints &amp; Coatings</td>
<td>DEX-O-TEX Décor Epoxy Flooring</td>
<td>7</td>
<td>100</td>
<td>SCAQMD Rule #1168</td>
</tr>
<tr>
<td></td>
<td>PPG Pure Performance Primer</td>
<td>0</td>
<td>100</td>
<td>SCAQMD Rule #1168</td>
</tr>
<tr>
<td></td>
<td>PPG Pure Performance Eggshell Finish</td>
<td>0</td>
<td>150</td>
<td>GS-11</td>
</tr>
<tr>
<td>Adhesives &amp; Sealants</td>
<td>STI LCI Fireproofing Sealant</td>
<td>35</td>
<td>420</td>
<td>SCAQMD Rule #1168</td>
</tr>
<tr>
<td></td>
<td>AAT 280 Carpet Adhesive</td>
<td>0</td>
<td>50</td>
<td>SCAQMD Rule #1168</td>
</tr>
</tbody>
</table>

Daylight and Views: The laboratory architecture and fenestration provides a connection between indoor and outdoor environment by introducing daylight and views to 76% of the regularly occupied spaces.

Health and Wellness: Studies have linked access to views of nature in the workplace to the relief of boredom, anxiety, and stress¹.

MATERIALS & WASTE

Selecting environmentally preferable materials and minimizing the amount of construction waste sent to landfill was important to the project. For the additional materials purchased, the project gave preference to low-emitting materials with recycled content and local manufacturing.

37% of the total material value consists of products manufactured within 500 miles of the project site.

80% of the on-site generated construction waste was diverted from the landfill.

16% of the total value of materials used in the project consist of materials with recycled content.

ENVIRONMENTALLY PREFERABLE MATERIALS IN NORTHWEST LABS MCB

- **Gypsum Board Drywall** (USG)
  - 94% pre-consumer, 5% post-consumer

- **Acoustical Ceiling Tile** (Armstrong)
  - 65% pre-consumer, 15% post-consumer

- **Melamine Flakeboard** (Panolam Zcore)
  - 100% pre-consumer, 0% post-consumer

- **Stainless Steel Lab Casework** (Bedcolab)
  - 81% pre-consumer, 19% post-consumer

Examples of regional materials used in project:

<table>
<thead>
<tr>
<th>Material Name</th>
<th>Manufacturer</th>
<th>Distance between project &amp; Manufacturer (mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epoxy Flooring</td>
<td>Décor Floor Company</td>
<td>233</td>
</tr>
<tr>
<td>Melamine Flakeboard</td>
<td>Panolam Zcore</td>
<td>60</td>
</tr>
<tr>
<td>Rolled Rubber Flooring</td>
<td>Nora</td>
<td>50</td>
</tr>
</tbody>
</table>

ADDITIONAL RESOURCES

- Harvard FAS, Department of Molecular and Cellular Biology: [http://mcb.harvard.edu](http://mcb.harvard.edu)
- Harvard FAS, Green Labs Program: [http://green.harvard.edu/fas/green-labs](http://green.harvard.edu/fas/green-labs)
- Harvard Green Building Services: [http://green.harvard.edu/green-building-services](http://green.harvard.edu/green-building-services)
- Harvard Green Building Resource: [http://green.harvard.edu/theresource](http://green.harvard.edu/theresource)
- Follow Harvard Green Building Services: [Twitter](http://twitter.com) | [Facebook](http://facebook.com)

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