The Harvard Institutes of Medicine is a building owned by the Harvard Medical School and located at 4 Blackfan Circle, Boston, Massachusetts. The ten-story building is used primarily by Harvard Medical School, but several floors of the building are also leased to Brigham & Womens Hospital.

The HIM 4th Floor Renovation project scope included renovations of office space within the 4th floor of the Harvard Institutes of Medicine and consisted of architectural, mechanical, electrical, and plumbing upgrades. Architectural work included the select demolition and construction of new partitions, as well as new ceilings, floors, finishes, and furniture. Mechanical, electrical, and plumbing upgrades included new terminal units, ductwork, piping, lighting, and controls. The renovation encompassed approximately 18,937 square feet.

The project’s goals were to create high performance office spaces that optimize energy and the indoor environment, reduce resource consumption, and increase occupant engagement. The project team was committed to sustainability from the onset and followed the Harvard Green Building Standards to make more informed decisions. These standards led to the inclusion of a number of progressive design strategies to meet aggressive energy targets and reduce water use without significant additional cost. The project achieved LEED-CI v3 Gold certification in 2017.

**LEED® Facts**

Harvard University  
HIM 4th Floor  

<table>
<thead>
<tr>
<th>Category</th>
<th>Points Anticipated</th>
<th>Total Points Anticipated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Sites</td>
<td>.16/21</td>
<td>62/110</td>
</tr>
<tr>
<td>Water Efficiency</td>
<td>.0/11</td>
<td></td>
</tr>
<tr>
<td>Energy and Atmosphere</td>
<td>.22/37</td>
<td></td>
</tr>
<tr>
<td>Materials and Resources</td>
<td>.5/14</td>
<td></td>
</tr>
<tr>
<td>Indoor Environmental Quality</td>
<td>.10/17</td>
<td></td>
</tr>
<tr>
<td>Innovation and Design</td>
<td>.5/6</td>
<td></td>
</tr>
<tr>
<td>Regional Priority</td>
<td>.4/4</td>
<td></td>
</tr>
</tbody>
</table>

**Project Metrics**

- **36%** Reduction in lighting power density below ASHRAE 90.1-2007 baseline
- **12%** Recycled content value as a percentage of total materials cost
- **27%** Regional content (manufactured within 500 miles of project site) as a percentage of total materials cost
- **78%** Diversion of construction and demolition waste from landfills
The HIM 4th Floor space is expected to be occupied for extended periods throughout the year, therefore, it is crucial that the energy reduction strategies also focus on reducing lighting energy. The lighting system was designed to not only reduce energy use, but also to improve the indoor environmental quality of the space and provide optimal lighting. Some of the strategies employed include:

- Reduce lighting power density by 36% below the ASHRAE 90.1 baseline standard
- High performance LEDs installed throughout the project space
- Ceiling mounted occupancy sensors capable of managing lighting setbacks for work spaces and support rooms
- Lighting controls with multiple lighting levels to provide adequate illumination for a higher indoor environmental quality
ENERGY EFFICIENCY AND INDOOR ENVIRONMENTAL QUALITY

ENERGY EFFICIENCY

The overall strategy of the HVAC system design was to reduce energy use through the installation of high efficiency equipment and controls. The project includes the installation of new terminal units and associated ductwork. Terminal units included high efficiency four-pipe fan coil units equipped with EC motors and low pressure drop VAV boxes.

A demand control ventilation strategy was utilized in all densely occupied spaces within the project, providing increased ventilation levels when sensors in the room detect high levels of carbon dioxide. This strategy can save energy, as rooms with variable occupancy (such as conference rooms) can provide variable amounts of conditioned air according to its level of occupancy.

All space temperatures and set-points are mapped to the building automation system, which uses temperature and occupancy sensors to adjust HVAC system operation to further maximize energy efficiency.

INDOOR ENVIRONMENTAL QUALITY

The high indoor environmental quality of the HIM 4th Floor renovation was a significant focus of the project. An indoor Air Quality Management Plan was enacted to ensure the protection of building systems, building occupants, construction related occupants, and interior building materials from air pollutants, excessive moisture exposure, and moisture damage during construction.

The selection of low chemical-emitting construction and finish materials was an important driving force in the design phase. The project includes low VOC adhesives, sealants, paints, coatings, primers, and flooring systems. All wood and agrifiber products are also free of urea-formaldehyde.

Additionally, all systems furniture selected for the project was either Greenguard certified or BIFMA level certified and free of chemical flame retardants.

Photo: copyright Miller Dyer Spears, 2017

Photo: copyright Miller Dyer Spears, 2017
**PRODUCTS AND MATERIALS**

**LIGHTING AND CONTROLS**

- **36% reduction** in lighting power density (watts/square foot)

![LED Downlight](image)

**Low VOCs**
- LED Fixture
- Total fixture wattage = 21 watts
- Delivered lumens = 1,388 lumens
- Life: 50,000 hours

![LED Pendant](image)

**Low VOCs**
- LED Fixture
- Total fixture wattage = 36 Watts
- Delivered lumens = 1,800 lumens
- Life: 6,000 hours

![LED Troffer](image)

**Low VOCs**
- LED fixture
- Total fixture wattage = 29 Watts
- Delivered lumens = 2,500 lumens
- Life: 78,000 hours

**LOW-EMITTING MATERIALS**

- **100% of the project’s adhesives, sealants, paints, coatings, flooring, and engineered wood are low-emitting.**

![Wood Substrate Adhesive](image)

**Low VOCs**
- Wood Substrate Adhesive
- 3100 PVA Adhesive
- Wilsonart
- Low VOCs

![Architectural Sealant](image)

**Low VOCs**
- Architectural Sealant
- Smoke ‘n Sound Acoustical Sealant
- SpecSeal
- Low VOCs

![Interior Paint](image)

**Low VOCs**
- Interior Paint
- V341 Semi-Gloss
- Corotech
- Low VOCs

![Indoor Carpet](image)

**CRI Green Label Plus**
- Indoor Carpet
- Color Field
- Milliken
- CRI Green Label Plus

![Linoleum](image)

- Linoleum
- Marmoleum
- Forbo
- Meets CA Section 01350 testing and product requirements

![Particleboard](image)

- Particleboard
- Nu Green 2
- Uniboard
- Contains no added urea-formaldehyde

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Please note that while many products are described in this project profile, these are provided for informational purposes only, to show a representative sample of what was included in this project. Harvard University and its affiliates do not specifically endorse nor recommend any of the products listed in this project profile and this profile may not be used in commercial or political materials, advertisements, emails, products, promotions that in any way suggests approval or endorsement of Harvard University.
LEED 2009 COMMERCIAL INTERIORS
ATTEMPTED: 68, DENIED: 2, PENDING: 0, AWARDED: 52 OF 110 POINTS

SUSTAINABLE SITES

SSC1 Site Selection 0 / 5
SSC2 Development Density and Community Connectivity 6 / 6
SSC3.1 Alternative Transportation-Public Transportation Access 6 / 6
SSC3.2 Alternative Transportation-Bicycle Storage and Changing Room 2 / 2
SSC3.3 Alternative Transportation-Parking Availability 2 / 2

WATER EFFICIENCY

WC1 Water Use Reduction-70% Reduction 0 / 11
WC1 Water Use Reduction 0 / 11

ENERGY AND ATMOSPHERE

EAI1 Fundamental Commissioning of the Building Systems Y
EAI2 Minimum Energy Performance Y
EAI3 Fundamental Refrigerant Mgmt Y
EAC1.1 Optimize Energy-Performance-Lighting Power 5 / 5
EAC2.1 Optimize Energy-Performance-Lighting Controls 1 / 3
EAC3.1 Optimize Energy Performance-HVAC 5 / 10
EAC4.1 Optimize Energy Performance-Equipment and Appliances 1 / 4
EAC4.2 Enhanced Commissioning 5 / 5
EAC4.3 Measurement and Verification 0 / 5
EAC4.4 Green Power 5 / 5

MATERIALS AND RESOURCES

MIR1 Storage and Collection of Recyclables Y
MIR1.1 Tenant Space-Long-Term Commitment 1 / 1
MIR2 Building Reuse 0 / 2
MIR2.1 Construction Waste Mgmt 2 / 2
MIR3.1 Materials Reuse 0 / 2
MIR3.2 Materials Reuse-Furniture and Fixturings 0 / 1
MIR4 Recycled Content 1 / 2
MIR5 Regional Materials 1 / 2
MIR6 Rapidly Renewable Materials 0 / 1
MIR7 Certified Wood 0 / 1

INDOOR ENVIRONMENTAL QUALITY

IEQ1.1 Minimum IAQ Performance Y
IEQ2 Environmental Tobacco Smoke (ETS) Control Y
IEQ3.1 Outdoor Air Delivery Monitoring Y
IEQ3.2 Construction IAQ Mgmt Plan During Construction 1 / 1
IEQ3.3 Construction IAQ Mgmt Plan Before Occupancy 1 / 1
IEQ4.1 Low Emitting Materials-Adhesives and Sealants 1 / 1
IEQ4.2 Low Emitting Materials-Paints and Coatings 1 / 1
IEQ4.3 Low Emitting Materials-Flooring Systems 1 / 1
IEQ4.4 Low Emitting Materials-Composite Wood and Ag/Flber Products 1 / 1
IEQ4.5 Low Emitting Materials-Systems Furniture and Seating 1 / 1
IEQ5.1 Indoor Chemical and Pollutant Source Control 1 / 1
IEQ5.2 Indoor Chemical and Pollutant Source Control 0 / 1
IEQ6.1 Controllability of Systems-Lighting 1 / 1
IEQ6.2 Controllability of Systems-Thermal Comfort 1 / 1
IEQ7.1 Thermal Comfort-Design 1 / 1
IEQ7.2 Thermal Comfort Verification 1 / 1
IEQ8.1 Daylight and Views-Daylight 0 / 2
IEQ8.2 Daylight and Views-Daylight 0 / 1

INNOVATION IN DESIGN

IIC1.1 Innovation in Design: Occupant Engagement with Case Studies 1 / 1
IIC1.2 Innovation in Design: Low-Mercury Lighting 1 / 1
IIC1.3 Innovation in Design 0 / 1
IIC1.4 Innovation in Design 1 / 1
IIC1.5 MIR7 Certified Wood 0 / 1
IIC1.6 Innovation in Design 1 / 1
IIC2 LEED Accredited Professional 1 / 1

REGIONAL PRIORITIES

SSC3.2 Alternative Transportation-Bicycle Storage and Changing Room 1 / 1
EAC2.1 Optimize Energy-Performance-Lighting Power 1 / 1
EAC3.3 Optimize Energy Performance-HVAC 1 / 1
MIR5 Regional Materials 1 / 1

TOTAL 52 OF 110

MORE INFORMATION

➤ Harvard Medical School: https://hms.harvard.edu/
➤ Harvard Institutes of Medicine: http://campustour.hms.harvard.edu/#UMAP_2014022756162%7CBLD_2014041575294
➤ Harvard - Green Building Resource: http://green.harvard.edu/theresource

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