

**HMS—HIM 4TH FLOOR RENOVATION
4 BLACKFAN CIRCLE, BOSTON, MA
PROJECT PROFILE**

**LEED-CI v3
LEED GOLD
2016**

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.



Photo: copyright Miller Dyer Spears, 2017

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**



Location.....	Cambridge, MA
Rating System.....	LEED-CI v3
Certification Anticipated.....	Gold
Total Points Anticipated.....	62/110
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Sustainable Sites.....	16/21
Water Efficiency.....	0/11
Energy and Atmosphere.....	22/37
Materials and Resources.....	5/14
Indoor Environmental Quality.....	10/17
Innovation and Design.....	5/6
Regional Priority.....	4/4

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



PROJECT HIGHLIGHTS

The HIM 4th Floor space is expected to be occupied for extended periods through-out 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



Photo: copyright Miller Dyer Spears, 2017



Photo: copyright Miller Dyer Spears, 2017

PROJECT TEAM

Owner	Harvard University
Project Manager	Harvard Medical School
Architect	MDS / Miller Dyer Spears
MEP Engineer	BR+A
Contractor	BOND
Commissioning Authority	Harvard Green Building Services
Sustainability Consultant	Harvard Green Building Services



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.



Photo: copyright Miller Dyer Spears, 2017



Photo: copyright Miller Dyer Spears, 2017

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.

PRODUCTS AND MATERIALS

LIGHTING AND CONTROLS

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



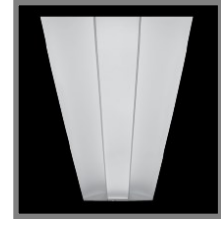
LED Downlight
Focal Point

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



LED Pendant
Barbican

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



LED Troffer
Focal Point

- ✓ 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
3100 PVA Adhesive
Wilsonart

- ✓ Low VOCs



Architectural Sealant
Smoke 'n Sound Acoustical Sealant
SpecSeal

- ✓ Low VOCs



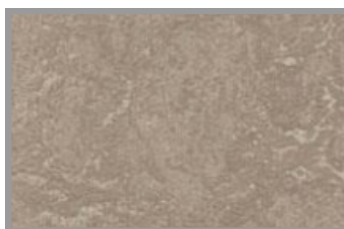
Interior Paint
V341 Semi-Gloss
Corotech

- ✓ Low VOCs



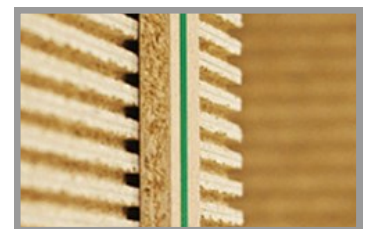
Indoor Carpet
Color Field
Milliken

- ✓ CRI Green Label Plus



Linoleum
Marmoleum
Forbo

- ✓ Meets CA Section 01350 testing and product requirements



Particleboard
Nu Green 2
Uniboard

- ✓ Contains no added urea-formaldehyde

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.



PROJECT SCORECARD



HMS - HIM 4th Floor Renovation

Project ID: 1000077549
 Rating system & version: LEED-CI v2009
 Project registration date: 09/16/2016

Certified (Gold)

CERTIFIED: 40-49, SILVER: 50-59, GOLD: 60-79, PLATINUM: 80+

[DOWNLOAD SCORECARD](#)

LEED 2009 COMMERCIAL INTERIORS

ATTEMPTED: 68, DENIED: 2, PENDING: 0, AWARDED: 62 OF 110 POINTS

SUSTAINABLE SITES		16 OF 21
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		0 OF 11
WEp1	Water Use Reduction-20% Reduction	Y
WEc1	Water Use Reduction	0 / 11

ENERGY AND ATMOSPHERE		22 OF 37
EAp1	Fundamental Commissioning of the Building Energy Systems	Y
EAp2	Minimum Energy Performance	Y
EAp3	Fundamental Refrigerant Mgmt	Y
EAc1.1	Optimize Energy Performance-Lighting Power	5 / 5
EAc1.2	Optimize Energy Performance-Lighting Controls	1 / 3
EAc1.3	Optimize Energy Performance-HVAC	5 / 10
EAc1.4	Optimize Energy Performance-Equipment and Appliances	1 / 4
EAc2	Enhanced Commissioning	5 / 5
EAc3	Measurement and Verification	0 / 5
EAc4	Green Power	5 / 5

MATERIALS AND RESOURCES		5 OF 14
MRp1	Storage and Collection of Recyclables	Y
MRC1.1	Tenant Space-Long-Term Commitment	1 / 1
MRC1.2	Building Reuse	0 / 2
MRC2	Construction Waste Mgmt	2 / 2
MRC3.1	Materials Reuse	0 / 2
MRC3.2	Materials Reuse-Furniture and Furnishings	0 / 1
MRC4	Recycled Content	1 / 2
MRC5	Regional Materials	1 / 2
MRC6	Rapidly Renewable Materials	0 / 1
MRC7	Certified Wood	0 / 1

INDOOR ENVIRONMENTAL QUALITY		10 OF 17
IEOp1	Minimum IAQ Performance	Y
IEOp2	Environmental Tobacco Smoke (ETS) Control	Y
IEQc1	Outdoor Air Delivery Monitoring	0 / 1
IEQc2	Increased Ventilation	1 / 1
IEQc3.1	Construction IAQ Mgmt Plan-During Construction	0 / 1
IEQc3.2	Construction IAQ Mgmt Plan-Before Occupancy	0 / 1
IEQc4.1	Low-Emitting Materials-Adhesives and Sealants	1 / 1
IEQc4.2	Low-Emitting Materials-Paints and Coatings	1 / 1
IEQc4.3	Low-Emitting Materials-Flooring Systems	1 / 1
IEQc4.4	Low-Emitting Materials-Composite Wood and Agrifiber Products	1 / 1
IEQc4.5	Low-Emitting Materials-Systems Furniture and Seating	1 / 1
IEQc5	Indoor Chemical and Pollutant Source Control	1 / 1
IEQc6.1	Controllability of Systems-Lighting	0 / 1
IEQc6.2	Controllability of Systems-Thermal Comfort	0 / 1
IEQc7.1	Thermal Comfort-Design	1 / 1
IEQc7.2	Thermal Comfort-Verification	1 / 1
IEQc8.1	Daylight and Views-Daylight	0 / 2
IEQc8.2	Daylight and Views-Views for Seated Spaces	0 / 1

INNOVATION IN DESIGN		5 OF 6
IDc1.1	Innovation in Design: Occupant Engagement with Case Study	1 / 1
IDc1.1	Innovation in Design	0 / 1
IDc1.2	Innovation in Design: Low-Mercury Lighting	1 / 1
IDc1.2	Innovation in Design	0 / 1
IDc1.3	Innovation in Design	1 / 1
IDc1.3	Innovation in Design	0 / 1
IDc1.4	Innovation in Design	1 / 1
IDc1.4	Innovation in Design	0 / 1
IDc1.5	MRC7: Certified Wood	0 / 1
IDc1.5	Innovation in Design	0 / 1
IDc2	LEED® Accredited Professional	1 / 1

REGIONAL PRIORITY CREDITS		4 OF 4
SSc3.2	Alternative Transportation-Bicycle Storage and Changing Room	1 / 1
EAc1.1	Optimize Energy Performance-Lighting Power	1 / 1
EAc1.3	Optimize Energy Performance-HVAC	1 / 1
MRC5	Regional Materials	1 / 1

TOTAL 62 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>

