



HARVARD FACULTY OF ARTS AND SCIENCES

LEED-CI v2

MURR ATHLETIC CENTER—LOCKER ROOMS

LEED CERTIFIED

65 N. Harvard Street, Boston, MA 02168

The Murr Athletic Center Locker Rooms renovation project included architectural and mechanical alterations to 1,850 square feet of the athletic facility. The Murr Center tennis courts, a state-of-the-art complex complete with spectator seating, received a 1999 USTA Facility Award which recognizes high standards in public tennis facilities. Its six indoor courts, combined with the 18-court Beren outdoor facility gives the tennis teams arguably the finest facilities in the Northeast. The building also houses 14 internationally-sized Squash Courts, giving Harvard a home deserved of its stature as one of the nation's top programs. The alterations provide locker room facilities for the squash court area. Existing space within the Murr Tennis Center was repurposed to provide additional space for athletes to change and shower.



The work involved selective demolition of flooring, gypsum board, ceilings, plumbing fixtures, finishes and existing MEP systems. The renovated space will include four baths, two showers, changing areas, lockers, and two small lounge areas.

The new space was sustainably renovated at a minimal expense and the project team strived to meet their sustainability and efficiency goals which included, salvaging and reusing materials, furniture and furnishings and the use of recycled and regional materials. In consideration of the surrounding tenants and to insure indoor environmental quality, an IAQ management plan was implemented and the construction site was isolated for the building HVAC system.

Murr Athletic Center
Photo: Lee Kennedy Company

PROJECT HIGHLIGHTS

LEED® Facts

Murr Athletic Center Locker Rooms
Harvard Faculty of Arts and Sciences
2008



Location.....	Boston, MA
Rating System.....	LEED-CI v.2
Certification Achieved.....	LEED-CI Certified
Total Points Achieved.....	23/59
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Sustainable Sites.....	4/7
Water Efficiency.....	2/2
Energy and Atmosphere.....	6/14
Materials and Resources.....	1/14
Indoor Environmental Quality.....	6/17
Innovation and Design.....	4/5

38.7%

Reduction in water use compared to EPA 1992 baselines.

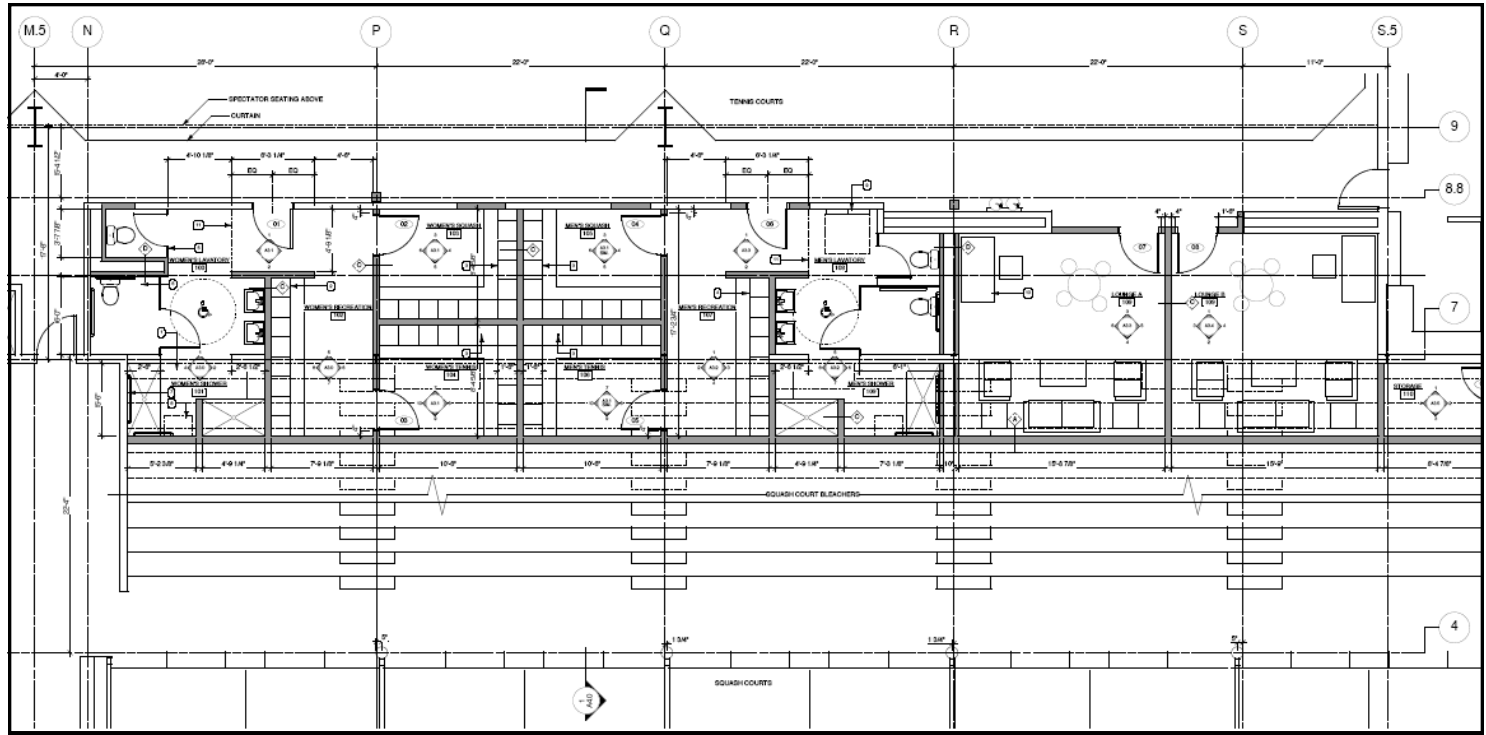
25%

Reduction in lighting power density compared to ASHRAE 90.1-2004 requirements.



PROJECT OVERVIEW

MURR ATHLETIC CENTER LOCKER ROOMS FLOOR PLAN



Murr Athletic Center
 Photo: Harvard, 2010.

PROJECT TEAM

Owner	Jay Phillips, Harvard FAS
Project Manager	Petrina Garbarini, Harvard FAS
Architect	Imai Keller Moore
Contractor	Jones Lang LaSalle
HVAC Engineer	MacRitchie Engineering, Inc.
Commissioning Authority	MacRitchie Engineering, Inc.
Sustainability Consultant	Harvard Green Building Services

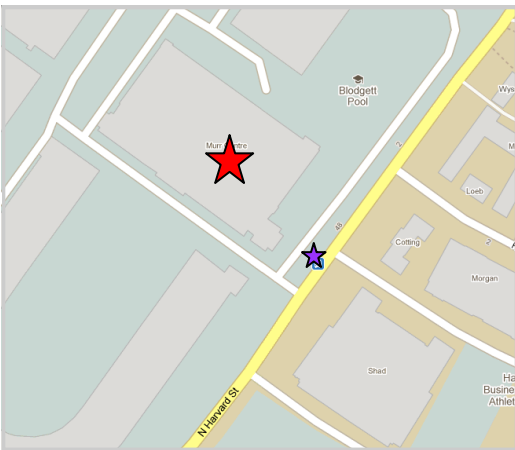


SITE



- To encourage alternatives to driving, all occupants of the Murr Athletic Center have access to Harvard's comprehensive **CommuterChoice Program**, which provides incentives and discounts for all modes of alternative transportation as well as carpooling and fuel efficient vehicles.
- The building is located within walking distance to MBTA bus lines, and the Harvard University Shuttle.
- Bicycle Racks are located directly outside the Murr Athletic Center to encourage bicycle transportation.
- 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.

Murr Athletic Center
65 N. Harvard St. Boston, MA



★ Murr Athletic Center
★ MBTA Bus Stop

Bike Racks

Photo: Green Building Services



WATER EFFICIENCY

Water-efficient and low-flow fixtures were installed in the Murr Tennis Center building in order to achieve a **38.7%** reduction of potable water consumption below standard fixtures.

FIXTURES IN MURR ATHLETIC CENTER



SLOAN ECOS®
Electronic Dual Flush
1.1/1.6 gpf

Differences in the Flush & Flow Rates for EPAct 1992 Standard Fixtures and the fixtures installed for the Murr Athletic Center Project		
Fixture Type	Murr Athletic Center Flush & Flow Rates	EPAct 1992 Standard Flush & Flow Rates
Water Closet [GPF]	1.1	1.6
Urinal [GPF]	0	1.0
Bathroom Sink [GPM]	0.8	2.5
Shower [GPM]	1.8	2.5
Kitchen Sink	1.8	2.5
GPF - Gallons Per Flush GPM - Gallons Per Minute		



SYMMONS®
SCOT/Metering
0.5 gpm



INDOOR ENVIRONMENTAL QUALITY

Harvard FAS 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. All grills and vents were sealed to keep any construction debris from migrating into occupied spaces.

Thermal Comfort Survey: Occupants will be surveyed about their thermal comfort once per season. The Operations team will adjust the heating or cooling in the project space as needed.

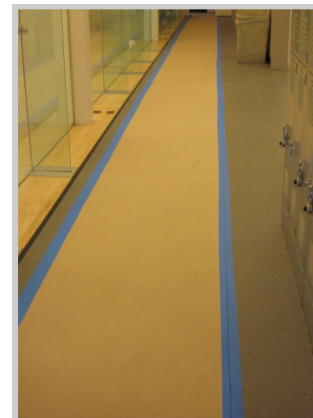
Only Materials with **Low or No VOC Content** were used in the Murr Athletic Center project. Volatile Organic Compounds (VOCs) are chemical compounds and known carcinogens found in many construction materials that are considered detrimental to indoor air quality. Reducing the use of VOCs whenever possible 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** that were installed meet the Carpet and Rug Institute's Green Label+ certification standards.
- **Adhesives and Sealants and Paints and Coatings** See chart below:

Product & Manufacturer	VOC Content (g/l)	VOC Limit (g/l)	Standard
➤ Airseal 33	35	250	SCAQMD #1168
➤ Pecora AC-20	31	50	SCAQMD #1168
➤ Chapco SS-154 Performance Plus, <i>Multi-Purpose Adhesive</i>	0	50	SCAQMD #1168
➤ SS154 Performance Plus, <i>Multi-purpose Adhesive</i>	0	50	SCAQMD #1168
➤ Dow Corning® 790, <i>Silicone Building Sealant</i>	43	70	SCAQMD #1168

Construction IAQ Measures Implemented During Construction

Housekeeping



HVAC Protection



Photo: Lee Kennedy Company

SMOKING POLICY: Smoking is prohibited in all facilities and areas of Harvard University, including the Murr Athletic Center.

GREEN HOUSEKEEPING: Harvard has made a commitment to using green cleaning processes in all of its buildings, including the Murr Tennis Facility. This includes the use of Green Seal certified cleaning solutions, 100% recycled content toilet tissue and paper towels, portion control chemical dispensers, and staff training.

ENERGY EFFICIENCY

Harvard FAS is 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

OCCUPANCY SENSORS: To provide energy savings, the two lounges have occupancy sensors set up so that the light and ventilation are turned off while the space is vacant.

The **HVAC SYSTEM** is separately zoned and controlled to account for equipment loads and solar heat gain. Locker rooms and lounge spaces are separately zoned and controlled to allow for controllability of thermal systems and maintain the thermal comfort of occupants.

COMMISSIONING: The mechanical and electrical systems within the Murr Tennis Center project were fully commissioned, which helps ensure that all energy-related systems were installed in accordance with the manufacturer's specifications and operating efficiently prior to occupancy.



Reused light fixture with low mercury bulbs

Photo: Green Building Services, 2011

ELECTRICAL SYSTEMS

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

FIRE ALARM | LUMINAIRE REUSE: All luminaires and fire alarms taken out during demolition were re-used in similar spaces on Harvard's campus, reducing the amount of waste from the renovation of the Murr Tennis Center.

HIGH EFFICIENCY LIGHT FIXTURES: Energy-efficient fluorescent lighting fixtures and lamps were carefully chosen and placed to reduce electricity consumption. Through these measures, the lighting power density (wattage) is reduced by **25%** below code-compliant fixtures.

To reduce the amount of toxic material in the building, linear fluorescent lighting was chosen instead of compact fluorescent lighting wherever possible. Low mercury lamps were also specified and installed whenever this option was available.



Reused fire alarm

Photo: Green Building Services 2011

ADDITIONAL RESOURCES

- **HARVARD UNIVERSITY FACULTY OF ARTS AND SCIENCES (FAS):** <http://www.fas.harvard.edu/home>
- **HARVARD ATHLETICS:** <http://www.gocrimson.com/sports>
- **HARVARD GREEN BUILDING SERVICES:** <http://green.harvard.edu/green-building-services>
- **HARVARD GREEN BUILDING RESOURCE:** <http://green.harvard.edu/theresource>
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