FACULTY OF ARTS AND SCIENCES

GREEN is the new Crimson

FACULTY OF ARTS AND SCIENCES

ENGERT LAB - BIOLABS BUILDING

16 DIVINITY AVENUE, CAMBRIDGE, MA 02138

LEED-CI v3.0

GOLD

Engert Lab is a 3,373 square foot laboratory located on the 2nd floor of the Harvard's Biological Laboratories (BioLabs) Building. As part of the Faculty of Arts and Sciences (FAS), Department of Molecular and Cellular Biology, Professor Engert and his team are carrying out research that "advances [our] basic understanding of brain functions and offers a complete view into the neuronal activity underlying a series of relatively complex behaviors."*

In addition to faculty office space, the 2009/2010 renovation included microscope rooms, laboratory space, a multipurpose break room, and seating for eleven graduate students.

In support of Harvard's goal of reducing greenhouse gas emissions 30% below 2006 levels by 2016, inclusive of growth, FAS and the project team were committed to sustainability from the onset and throughout the duration of the project. This allowed for the development of more efficient lighting and HVAC systems serving the space and the selection of low-VOC furnishings and finishes.

Wet Lab Room
Photo: Heather Richardson, **GBS** 2010

* http://golgi.harvard.edu/Faculty/faculty_profile.php?f=florian-engert

PROJECT HIGHLIGHTS

LEED® Facts

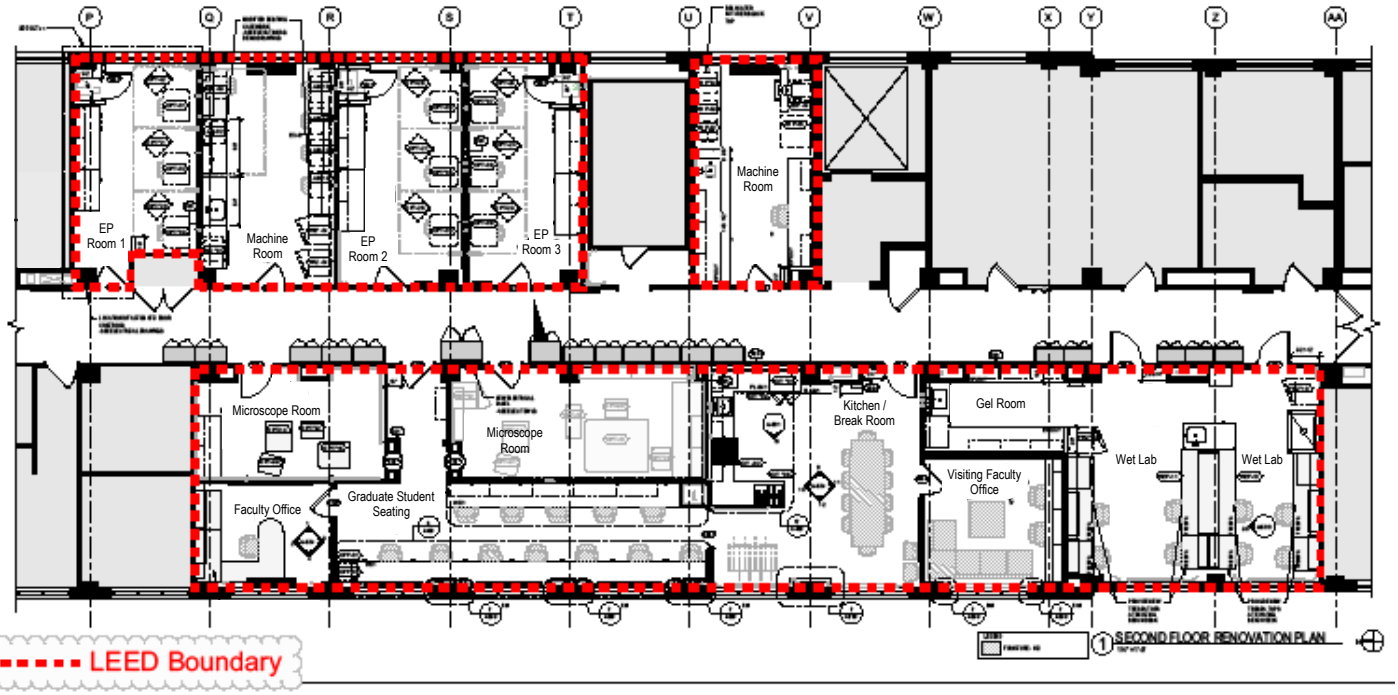
Engert Lab
Harvard Faculty of Arts & Sciences
2009 Renovation

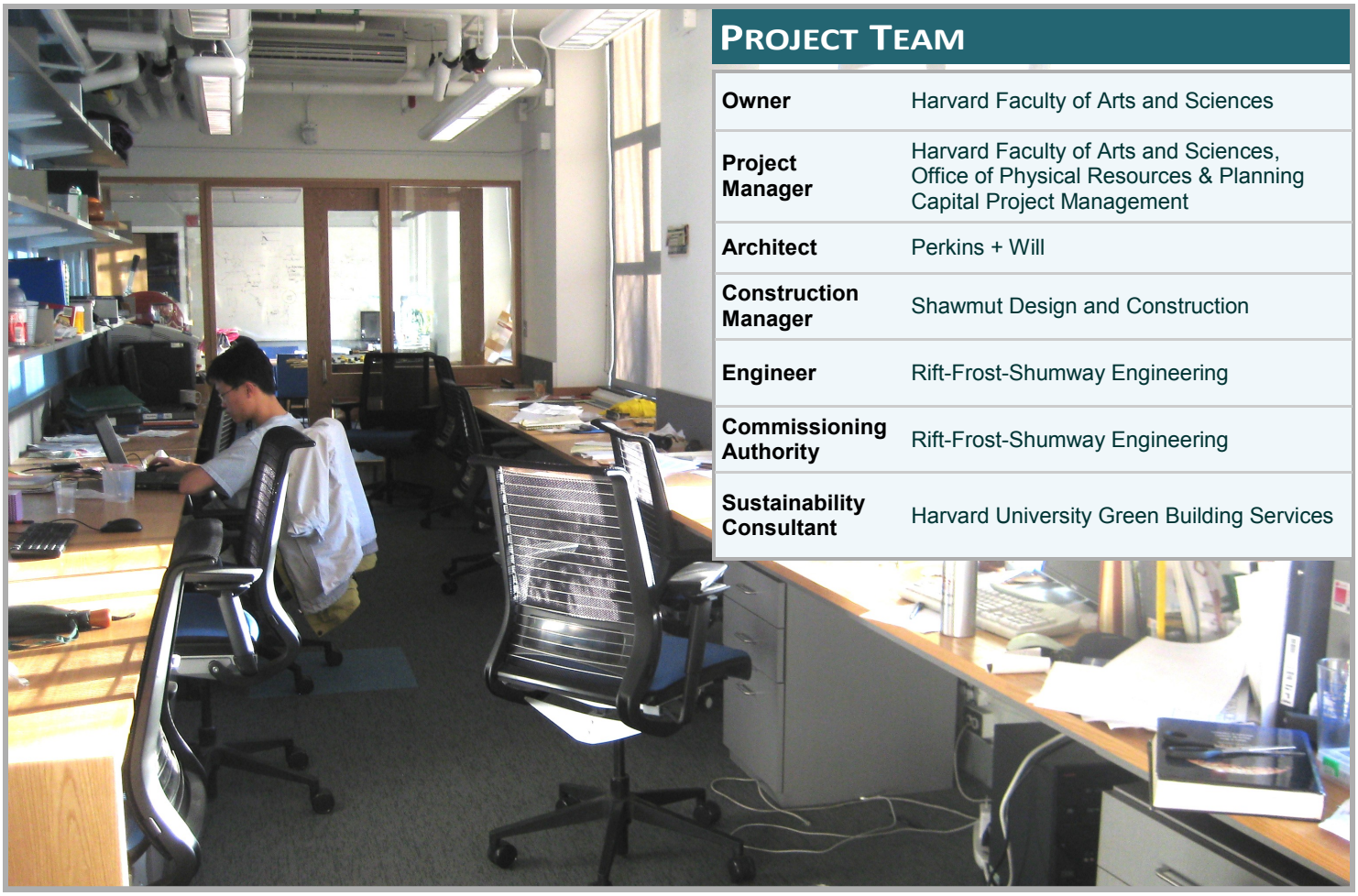
Location	Cambridge, Massachusetts
Rating System	Commercial Interiors v3.0
Certification Achieved	Gold
Total Points Achieved	71/110
Sustainable Sites	16/21
Water Efficiency	11/11
Energy and Atmosphere	16/37
Materials and Resources	7/14
Indoor Environmental Quality	13/17
Innovation and Design	6/6
Regional Priority	4/4

87%	of on-site generated construction waste was diverted from landfills.
82%	of the equipment and appliances are Energy Star® rated.
72%	of interior non-structural elements were re-used.
48%	of materials are locally manufactured, by total overall material cost.
77%	reduction in water consumption over EPAct 1992 compliant fixtures

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

PROJECT OVERVIEW





PROJECT TEAM

Owner	Harvard Faculty of Arts and Sciences
Project Manager	Harvard Faculty of Arts and Sciences, Office of Physical Resources & Planning Capital Project Management
Architect	Perkins + Will
Construction Manager	Shawmut Design and Construction
Engineer	Rift-Frost-Shumway Engineering
Commissioning Authority	Rift-Frost-Shumway Engineering
Sustainability Consultant	Harvard University Green Building Services

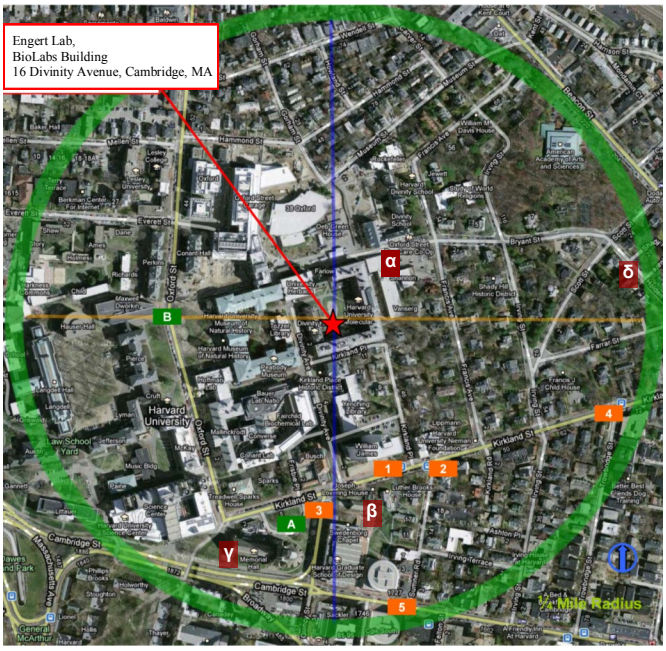
Graduate Student Seating
Photo: Heather Richardson, **GBS** 2010

PUBLIC TRANSPORTATION AND COMMUNITY CONNECTIVITY

➤ The BioLabs Building is located within 1/4 mile of 5 MBTA bus stops and 2 Harvard shuttle bus stops. The building footprint is within the bounds of a vibrant urban area, which affords occupants plentiful access to amenities such as restaurants, banks, churches and retail stores.

# on Map	Service Name or Bus Stop	Distance	Line Name, Number or Service type
1	Kirkland St @ Kirkland Place	0.13	86
2	Kirkland St & Summer Rd.	0.14	
3	Kirkland St & Quincy St.	0.14	
4	Kirkland St & Towbridge St.	0.22	
5	Cambridge St @ Prescott St	0.23	69
A	Memorial Hall	0.15	Quad Express and Mather Express
B	Maxwell Dworkin	0.12	
α	Harvard Yard Child Care Center	0.07	Daycare
β	Church of the New Jerusalem	0.2	Place of worship
γ	Queens Head pub	0.19	Restaurant
δ	Shady Hill Square	0.25	Park

BUS STOPS AND SERVICES WITHIN 1/4 MILE OF ENGERT LAB



FAS GREEN LABS

The FAS Green Labs Program works with researchers, staff, faculty and building managers to implement sustainable practices and technologies in FAS lab buildings. Because of the resource intensity of lab science and the unique conditions and requirements in each individual lab, sustainability approaches are made from both a building-wide perspective, and a granular perspective aimed at identifying local opportunities. With the support of paid lab sustainability representatives, FAS Green Labs Program initiatives 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 and water efficiency, material recycling and 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

ENERGY EFFICIENCY

The 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 focus.

MECHANICAL SYSTEMS

- **Building Automation System:** Space temperatures and set-points are mapped to the facility's building automation system (BAS), which uses space conditions in its various energy management strategies, and adjust central HVAC system operation to match overall building loads. The local systems are controlled to avoid simultaneous heating and cooling.
- **Occupancy and Temperature Sensors:** Where the space program allows temperature and ventilation system setbacks, operation of the local HVAC systems (and consequently the central system) is reduced or shut-off when the spaces are unoccupied.
- **Commissioning:** The mechanical and electrical systems have been fully commissioned, ensuring that all energy-related systems were installed as designed and operate efficiently prior to occupancy.
- **Renewable Energy:** Renewable Energy Certificates (RECs) were purchased from Sterling Planet (wind power), equivalent to 100% of the anticipated electricity over 2 years, equal to 55,000 kWh.

Ventilation Controls
Photo: Heather Richardson, **GBS** 2010

Occupancy Sensor
Watt Stopper Model DT-200
Photo: www.wattstopper.com

Kitchen and Multi-Purpose Room
Photo: Heather Richardson, **GBS** 2010

ELECTRICAL SYSTEMS

- **Occupancy Sensors:** Duel technology ceiling sensors turn the lights ON or OFF based on room occupancy. They include an integral light level sensor that prevents the lights from coming on if minimum light levels are met.
- **Lighting Fixtures:** Energy-efficient and low-mercury fluorescent lamps were carefully chosen to reduce electricity consumption while maintaining adequate lighting levels for each type of space.
- **Plug Loads:** Energy Star equipment was selected for **77%** of the eligible new equipment in the space.

INDOOR ENVIRONMENTAL QUALITY

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.

Daylight & Views: 75% of the regularly occupied spaces are day lit.

Smoking Policy: In addition to prohibiting smoking in all facilities, (FAS) does not allow smoking within 25 feet of buildings with LEED certified spaces.

Only Materials with **Low or No VOC Content** were used Engert Lab. 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 have no added Urea Formaldehyde.
- **Furniture and Finishes:** The Aeron Chair (Herman Miller) & Dario Lounge series (Keilhauer) meet the requirements of GREENGUARD® Indoor Air Quality certification. The Think Chair (Steelcase) is SCS Indoor Advantage Gold certified. Marmorette Linoleum flooring (Armstrong) complies with the FloorScore® Indoor Air Quality label.
- **Adhesives and Sealants and Paints and Coatings** Examples of the products used:

Category	Product & Manufacturer	VOC Content (g/l)	VOC Limit (g/l)	Standard
Paints & Coatings	Dur-A-Flex Floor Coating	8.5	100	SCAQMD Rule #1168
	Benjamin Moore EcoSpec Primer	0.0	200	Green Seal GS-11
	Benjamin Moore EcoSpec Interior Flat Coating	0.0	50	Green Seal GS-11
Adhesives & Sealants	Titebond Architectural, Acoustical Sealant	42.2	250	SCAQMD Rule #1168
	Armstrong Rubber Floor Adhesives	5.5	60	SCAQMD Rule #1168

Wet Lab Room, Daylight and Views
Photo: Heather Richardson, GBS 2010

MATERIALS & WASTE

Selecting environmentally preferable materials and minimizing the amount of construction waste sent to landfill was important in Engert Lab. The project team gave preference to low-emitting materials with recycled content and local manufacturing.

15% of the total value of materials used in the project consists of materials with recycled content.

48% of the total material value consists of products manufactured locally, while 7% consists of products extracted locally.

87% of the on-site generated construction waste was diverted from landfills.

55% of the wood used in the project is FSC Certified to have come from sustainably managed forests.

Faculty Office
Photo: Heather Richardson, **GBS** 2010

Dario Lounge Series Seating / Steelcase Think Chair
Photos: Heather Richardson, **GBS** 2010

ENVIRONMENTALLY PREFERABLE MATERIALS AND FURNITURE IN ENGERT LAB

- Plam Countertops Substrate (Uniboard)
  Recycled Content: **100%** pre-consumer
- Metal Casework (Mott Manufacturing)
  Recycled Content: **22%** pre-consumer, **6%** post-consumer
- Drywall (USG)
  Recycled Content: **95%** pre-consumer, **4%** post-consumer
- Window Shades (Mechoshade)
  Recycled Content: **26%** pre-consumer, **4%** post-consumer
- Aeron Chair (Herman Miller)
  Recycled Content:: **21%** pre-consumer, **41%** post-consumer

Examples of Regional materials used in the project:

Product Name	Manufacturer	Distance (Mi) between project and Manufacturer, Material Extraction	
Steel Studs	Dietrich Industries	198	354
Ceiling Grid	Armstrong	499	499
Floor Prep	ProSpec/Bonsai	247	247

ADDITIONAL RESOURCES

- Harvard University faculty of Arts and Sciences (FAS): http://www.fas.harvard.edu/home/
- FAS Green Labs Program: http://green.harvard.edu/fas/labs
- Harvard Green Building Services: http://green.harvard.edu/green-building-services
- Harvard Green Building Resource: http://green.harvard.edu/theresource