



Case Study: 1810 Liacouras Walk Temple University

A More Sustainable University

In alignment with its 100th anniversary, Fox School of Business completed 1810 Liacouras Walk, a project that builds on the existing Fox campus of Alter and Speakman halls. The building provides additional office, classroom, research, and study space for students enrolled in the School of Sport, Tourism, and Hospitality Management and Fox School of Business. The building fronts directly on Liacouras Walk, which is a vibrant pedestrian walkway that runs through the heart of Temple’s Main Campus and connects its northern and southern edges. The project builds on the recent landscape projects at Wachman Hall, O’Connor Plaza and Liacouras Walk, which incorporate storm water management technologies such as pervious pavers and porous pavement. With the renovation and addition at 1810 Liacouras Walk, Temple University has expanded its portfolio of sustainable buildings. The project incorporates high performance design and construction elements, as well as green operations. This case study will highlight how an urban, public university can contribute to the sustainable design practice.



Address : 1810 Liacouras Walk,
Philadelphia, PA 19122

Size : 98,365 square feet

Use : Core Learning Space: College/
University

Date of Completion: August 30, 2018

Owner : Temple University

Project Team

Architecture:	Jacobs
Structural Engineering :	Jacobs
MEP (Mechanical, Electrical, Plumbing): Fire Protection	Bala Engineering
Landscape Architecture:	Ground Reconsidered
Construction:	Jacobs
Sustainability and Certification Consultant:	Allen Schaffer
Commissioning:	Bala Commissioning

Sustainable Strategies

Location and Transportation



Temple University is well positioned to take advantage of alternative transportation options and nearby services and shops. The project is easily accessible by regional rail, four bus routes, and subway. LEED v4 recognizes access to transit in terms of number of trips available – that is, number of individual transit options available over the course of a day. Due to our location near multiple bus, regional rail, and subway lines, our project had over 800 individual transit trips per weekday, more than double the number required for the credit. The project also provides ample bike racks along North 12th Street to encourage cycling as a form of commuting. The racks add to the numerous bike amenities on campus, such as fix-it stations, showers, and secure storage, that contribute to the university's status as a Bicycle Friendly University - Silver Campus. The project also cuts down on transportation emissions through its proximity to services and shops. Occupants of 1810 Liacouras Walk are a close walking distance to restaurants, banks, computer repair services, a grocery store and other services. Occupants can easily access lunch and other services without getting into their cars.

Sustainable Sites



The site was previously developed, and holds a Historic Commission designation. The project preserves the facade of 1810 Liacouras Walk, which aids in keeping the character of the building and the embodied energy of the original construction intact. Additionally, 1810 Liacouras Walk features a highly reflective roof, which was installed to reduce cooling cost and the urban heat island effect. A "cool roof" reflects and emits the sun's heat back to the sky instead of transferring it to the building below. A part of the roof is covered with a vegetated "green" roof that both reduces local heat island effect and captures and treats rainwater hitting the roof. The rainwater absorbed into the planting medium reduces the strain on the city's combined sewer-storm water overflow system.

Water Efficiency



On site a combination of efficient landscape design for drought tolerant plantings and an efficient irrigation system provides a solution that uses approximately 35% less water than a conventional landscape solution. The site also contains a combination of low-flow and low-flush fixtures so the building water systems use 37% less water than a conventional design and approximately saves 240,000 gallons of water per year.

Energy and Atmosphere



Temple engaged in a five year contract with Community Energy Inc. which provides 50% of the 1810 Liacouras Walk's electricity from wind energy, a renewable energy source. Along with wind energy Liacouras Walk has a carbon offset for all other sources such as gas and chilled water. 1810 Liacouras Walk's building systems performance demonstrates a 16% energy cost savings reducing environmental and economic impacts associated with excessive energy use.

Materials and Resources



The 1810 Liacouras Walk has dedicated collection and storage areas for the recycling of materials; including paper, cardboard, glass, plastic and metals, as well as compact fluorescent and e-waste collection. This project was designed with the intent to reduce the amount of virgin materials used in construction. This both lowers the embodied energy of the project and minimizes the amount of waste entering the landfill. The structure of the building is made of steel and materials with a high level of recycled content. Products used include: fly ash, aggregates, gypsum wall board, acoustical tile ceilings, asphalt, terrazzo, carpet tile, ceramic tile and restroom partitions. The project was designed and constructed using as many materials as possible sourced close to the project to minimize the energy used for transport of the raw or finished materials.

Sustainable Strategies

Most of the installed materials fit into this definition of low impact environmentally preferable materials. The project was designed and constructed using mostly products made from regional materials in order to minimize the energy used for transport of the raw or finished materials. Building finish materials were selected with an emphasis on those whose manufacturers have publicly disclosed detailed information about their environmental impacts - either through a life cycle impact on the environment (called an Environmental Product Declaration), or through disclosure of product components to insure minimal adverse health impacts (through a document called a Health Product Declaration). Studies show that disclosure of material impacts encourages manufacturers to innovate and find healthier options wherever possible. Over 40 different product types from 10 different manufacturers used in this project meet this requirement for material impact disclosure.

Indoor Environmental Quality

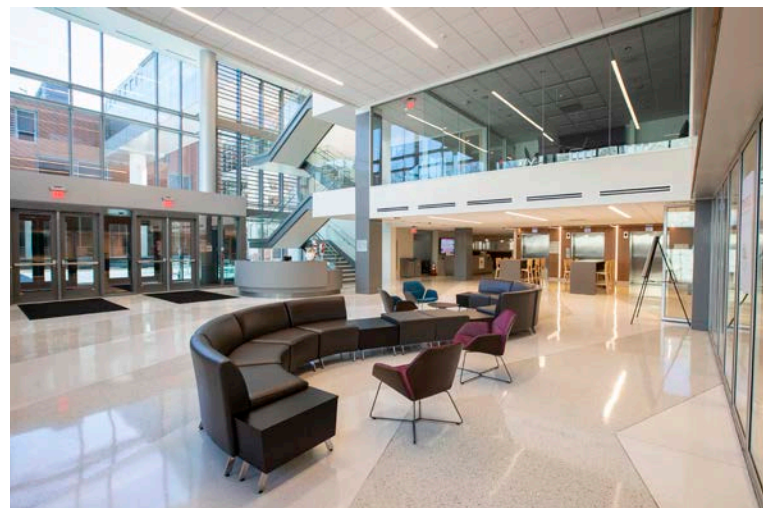
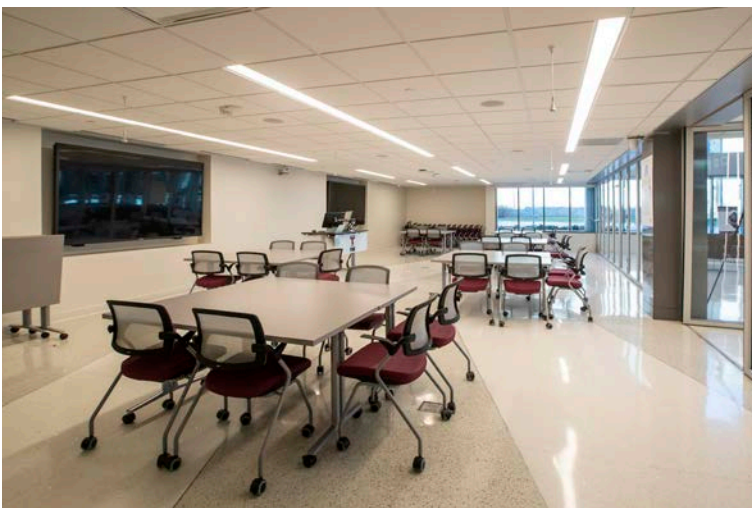


This project used low-emitting materials in construction, including adhesives, sealants, paints, coatings, floor systems and composite wood and agrifiber products which reduces the concentration of volatile organic compounds inside the building providing a healthier working and learning environment. Studies have shown that better indoor air quality is correlated with better performance by both faculty and students. The project installed permanent CO2 monitoring sensors that provide feedback on system performance to ensure that ventilation systems maintain design minimum ventilation requirements to maintain superior air quality. They also work in conjunction with the building automation system to identify occupied areas, ensuring building systems run only when necessary. In addition, the school features ventilation systems that provide constant supply of fresh air to increase productivity and keep occupants more alert. The windows in this building provide a stunning view of campus life at Temple and Philadelphia. The energy efficient low-e coated glazing, in conjunction with exterior louvers, shade building spaces from direct sunlight and provide ambient illumination for building occupants reducing the use of artificial light. In addition, very efficient light fixtures, occupant sensors and time clocks were installed to ensure a reduction in energy consumption. The occupant sensors and time clocks make sure that the lights are only on when the room is in active use.

Innovation and Design



One of the major impacts of a demolition and construction project is waste - on this job the construction team carefully managed this process and diverted nearly 87 percent, or over 200 tons of construction waste away from landfill sites. Some of this was recycled, other items were salvaged and sent for reuse in other buildings. The project reduces the amount of mercury in landfills by establishing an Induction Lamp Recycling Program in conjunction with the University's Office of Sustainability. This mercury recycling program provides for the safe recovery of the mercury in the lamps. By specifying almost exclusively LED lighting, there is nearly zero mercury in the project's light fixture lamps, which minimizes the potential impact to the operations staff and the waste management teams.





LEED Certification Review Report

This report contains the results of the technical review of an application for LEED® certification submitted for the specified project. LEED certification is an official recognition that a project complies with the requirements prescribed within the LEED rating systems as created and maintained by the U.S. Green Building Council® (USGBC®). The LEED certification program is administered by Green Business Certification Inc. (GBCI®).

Temple University 1810 Liacouras Renov.

Project ID 1000098502
Rating system & version LEED v4 BD+C: NC
Project registration date 02/28/2017



Construction Preliminary Application

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

LEED V4 BD+C: NEW CONSTRUCTION

ATTEMPTED: 35, DENIED: 1, PENDING: 2, AWARDED: 31 OF 123 POINTS

INTEGRATIVE PROCESS 0 OF 1	MATERIALS AND RESOURCES CONTINUED
Integrative Process 0/1	Construction and Demolition Waste Mgmt 0/2
LOCATION AND TRANSPORTATION 12 OF 32	INDOOR ENVIRONMENTAL QUALITY 4 OF 16
LEED for Neighborhood Development Location 0/16	Minimum IAQ Performance N
Sensitive Land Protection 1/1	Environmental Tobacco Smoke Control Y
High Priority Site 1/2	Enhanced IAQ Strategies 1/2
Surrounding Density and Diverse Uses 5/5	Low-Emitting Materials 0/3
Access to Quality Transit 5/5	Construction IAQ Mgmt Plan 0/1
Bicycle Facilities 0/1	IAQ Assessment 0/2
Reduced Parking Footprint 0/1	Thermal Comfort 0/1
Green Vehicles 0/1	Interior Lighting 2/2
	Daylight 0/3
	Quality Views 1/1
	Acoustic Performance 0/1
SUSTAINABLE SITES 0 OF 10	INNOVATION 3 OF 6
Construction Activity Pollution Prevention N	Innovation 3/5
Site Assessment 0/1	LEED Accredited Professional 0/1
Site Development - Protect or Restore Habitat 0/2	
Open Space 0/1	REGIONAL PRIORITY CREDITS 1 OF 1
Rainwater Mgmt 0/3	Access to Quality Transit 1/1
Heat Island Reduction 0/2	
Light Pollution Reduction 0/1	TOTAL 31 OF 123
WATER EFFICIENCY 4 OF 11	
Outdoor Water Use Reduction Y	
Outdoor Water Use Reduction 0/2	
Indoor Water Use Reduction Y	
Indoor Water Use Reduction 3/6	
Building-Level Water Metering Y	
Cooling Tower Water Use 0/2	
Water Metering 1/1	
ENERGY AND ATMOSPHERE 7 OF 33	
Fundamental Commissioning and Verification N	
Minimum Energy Performance Y	
Optimize Energy Performance 6/18	
Building-Level Energy Metering Y	
Fundamental Refrigerant Mgmt Y	
Enhanced Commissioning 0/6	
Advanced Energy Metering 0/1	
Demand Response 0/2	
Renewable Energy Production 0/3	
Enhanced Refrigerant Mgmt 1/1	
Green Power and Carbon Offsets 0/2	
MATERIALS AND RESOURCES 6 OF 13	
Storage and Collection of Recyclables Y	
Construction and Demolition Waste Mgmt Planning N	
Building Life-Cycle Impact Reduction 0/5	
Product disclosure & optimization - Environmental 0/2	
Product disclosure & optimization - Sourcing of It 0/2	
Product disclosure & optimization - Material Ingr 0/2	