LEED, or Leadership in Energy and Environmental Design, is an internationally-recognized green building certification system. Developed by the U.S. Green Building Council (USGBC) in March 2000, LEED provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

LEED®
Project
Profile

J. Bennett Johnston
Health and Environmental Research Building

Tulane University
New Orleans, Louisiana

Project Summary

The J. Bennett Johnston Health and Environmental Research (JBJ) Building, located on Tulane Avenue on the Tulane Downtown Campus, is a seven story, state-of-the-art facility which houses Tulane research activities. With the help of a grant provided by the National Institute of Health, three floors totaling 62,367 square feet of labs and support spaces were renovated to foster interdisciplinary research. Formerly composed of cellular, individual rooms, the laboratory space was converted to large "ballroom" style laboratory spaces, fostering communication and collaboration between researchers while creating a more pleasing work environment. The open laboratories are composed of 360 square foot modules, permitting economical reconfiguration of the lab space as research activities and needs change. This is the first Tulane project certified under LEED for Commercial Interiors.

Transportation

The J. Bennett Johnston Health and Environmental Research building is centrally located just outside of downtown New Orleans. Thanks to this location, public transportation to nearly anywhere in the city is readily available. A new streetcar line links the building to the remainder of the system and several "bus hubs" connect multiple bus lines at single stops. Bicycling to the building is made easy by newly installed bike lanes on a nearby major street, connecting it to an every growing network throughout the city. Within a short walk of the building are numerous services and business from a quick bite to eat to the New Orleans central library.

Efficient Water Use

Installed within the building are a number of low-flow plumbing fixtures, reducing the amount of water the building uses. The biggest savings comes from the low-flow Water Closets which use only 1.28 gallons per flush. In total, water efficient water fixtures are estimated to reduce water consumption in the renovated areas by more that 30%.

Energy Efficiency

As laboratory buildings with fume hoods use more energy per square foot than any other type of university building, energy upgrades were a top priority of the project. To keep the air inside free of hazardous materials, fume hoods draw large volumes of heated or cooled air out of the building. Variable airflow fume hoods were installed to reduce the amount of conditioned air that is required. These "VAV" fume hoods draw out a lower volume of air when the sash is closed. The laboratory airflow control system now controls the airflow into and out of the laboratory areas and integrates both temperature and airflow controls. The laboratory control system will vary the amount of supply air into the room to operate the laboratories at the lowest possible airflow rates necessary to maintain laboratory pressurization in relation to adjacent spaces, maintain temperature control, and maintain minimum ventilation rates.

The lighting in the laboratory was designed to give researchers control over the lighting in their work areas. The lighting in the laboratory reduces glare and has increased light levels on the work surface. The light fixtures are controlled by a day light harvesting system with full dimming control,

PROJECT DETAILS

- Completed: August 2013
- Project Size: 62,367 sf.
- Total Project Cost: $13.5 million

occupancy sensing detection, and individual zone control. In other words, the lights shut off when the room has ample daylighting or is empty! A lower ambient design with increased task lighting was chosen to increase energy savings.

The building's energy systems were reviewed by an independent engineering team, called a Commissioning Authority, during design, installation, and initial operation. The Commissioning Authority helps identify issues in the mechanical and electrical systems before they become major problems. The Commissioning Authority also organized training for Facilities Services staff and recorded the training, to facilitate proper operation into the future.

Recycling & Sustainable Materials

Over 54% of the existing materials remained throughout the renovated space, reducing the amount of demolition waste and the amount of new material required to replace it. During construction, more than 264 tons of material was recycled—approximately 53% of the project's demolition and construction waste. Materials recycled include metal, drywall, wood and brick waste. The building's users can continue this trend by utilizing the recycling bins available in most rooms and in a central location on each floor.

Measured by cost, 12% of the material purchased for the new building was made of recycled content including ceiling tiles, drywall, doors and furniture. Much of the wood used in the project, including the beautiful maple veneer wood ceilings and custom millwork, is certified as sustainably grown and harvested by the Forest Stewardship Council.

Indoor Environmental Quality

During construction, the contractor took proactive measures to protect the future indoor air quality inside the building, such as protecting the HVAC system from dirt and dust and protecting materials from moisture. All paints, primers, adhesives, and sealants were screened to ensure that they meet low-VOC standards. The building's carpet is certified by the Carpet and Rug Institute's Green Label Plus Program as meeting a very low VOC emissions standard. Finally, before the building occupants moved in, air sample testing was conducted for formaldehyde, particulates, total VOCs and carbon monoxide to ensure excellent indoor air quality for the research and the building's air filters were upgraded to maintain the optimum indoor air quality. Finally, before the occupants moved in, air sample testing was conducted and the project space flushed with fresh air to ensure excellent indoor air quality

User experience was also taken into consideration in the renovation. Exterior windows can be peered through from 99 percent of regularly occupied spaces in the renovated space which also allows sunlight into most rooms. When the sunlight is not enough to work from, users have the ability to control both room and task lighting to customize their individual workspace. In future months, we will check on the comfort of faculty, staff and students working in the building through occupant surveys.

Prerequisites

C	R	SSp1	Construction Activity Pollution Prevention
D	R	WEp1	Water Use Reduction, 20% Reduction
C	R	EAp1	Fundamental Commissioning of the Building Energy Systems
D	R	EAp2	Minimum Energy Performance
C	R	EAp3	Fundamental Refrigerant Management
D	R	MRp1	Storage and Collection of Recyclables
D	R	IEQp1	Minimum Indoor Air Quality Performance
D	R	IEQp2	Environmental Tobacco Smoke (ETS) Control

Earned Points - 72

D	1	SSc1	Site Selection
D	5	SSc2	Development Density & Community Connectivity
D	6	SSc4.1	Alternative Transportation - Public Transportation Access
D	1	SSc4.2	Alternative Transportation - Bicycle Storage and Changing Rooms
D	2	SSc4.4	Alternative Transportation - Parking Capacity
D	6	WEc3	Water Use Reduction (32% reduction)
D	3	EAc1.1	Optimize Energy Performance - Lighting Power (25% reduction)
D	10	EAc1.3	Optimize Energy Performance - HVAC
D	4	EAc1.4	Optimize Energy Performance - Equipment and Appliances (100% Energy Star)
C	5	EAc2	Enhanced Commissioning
D	5	EAc3	Measurement and Verification
D	1	MRc1.1	Tenant Space - Long-Term Commitment
C	1	MRc1.2	Building Reuse
C	1	MRc2	Construction Waste Management (86% waste diverted)
C	1	MRc3.2	Materials Reuse - Furniture and Furnishings (46% by cost)
C	1	MRc4	Recycled Content (12% by cost)
D	1	IEQc1	Outdoor Air Delivery Monitoring
D	1	IEQc2	Increased Ventilation
C	1	IEQc3.1	Construction IAQ Management Plan - During Construction
C	1	IEQc3.2	Construction IAQ Management Plan - Before Occupancy
C	1	IEQc4.1	Low-Emitting Materials - Adhesives and Sealants
C	1	IEQc4.2	Low-Emitting Materials - Paints and Coatings
C	1	IEQc4.3	Low-Emitting Materials - Flooring Systems
C	1	IEQc4.4	Low-Emitting Materials - Composite Wood and Agrifiber Products
C	1	IEQc4.5	Low-Emitting Materials - Systems Furniture and Seating
D	1	IEQc5	Indoor Chemical and Pollutant Source Control
D	1	IEQc6.1	Controllability of Systems - Lighting
D	1	IEQc7.1	Thermal Comfort - Design
D	1	IEQc7.2	Thermal Comfort - Verification
D	2	IEQc8.2	Daylight and Views - Daylight (82% achieved)
D	1	IEQc8.2	Daylight and Views - Views for Seated Spaces (99% achieved)
C	1	IDc1.1	Innovation in Design - Education/Lab Orientation
C	1	IDc1.2	Innovation in Design - Labs 21
C	1	IDc2	LEED® Accredited Professional

LEED Certification Thresholds

CERTIFIED - 40+ pts. SILVER - 50+pts. GOLD - 60+pts. PLATINUM - 80+pts.

PROJECT TEAM

Architect: Eskew+Dumez+Ripple, New Orleans, LA
Mechanical, Electrical and Plumbing: Huseman & Associates, Metairie, LA
Construction: The Lemoine Company, New Orleans, LA
Commissioning: Energy Ace, Decatur, GA
Office of the University Architect, Facilities Services Downtown
Health Science Leadership Council, Tulane University Department of Microbiology and Immunology
Funding provided by the National Institute of Health American Recovery and Reinvestment Act grant
Photographs courtesy of The Lemoine Company and the Office of the University Architect