

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

FLOWER HALL

tulane university
new orleans, louisiana



Project Summary

The Donna and Paul Flower Hall for Research and Innovation provides research laboratories, a teaching laboratory, and offices for faculty and students in the School of Science and Engineering. Home to researchers in the Department of Chemical and Biomolecular Engineering, the building is 25,525 square feet, accommodated over 4 stories. In December 2012, the first and fourth floors of the building were completed. The second and third floors will be fit-out to accommodate the needs of emerging research and innovation. Flower Hall was designed and built following LEED green building principles to provide healthy indoor spaces for occupants while reducing the energy consumption and environmental impact of a building type that typically functions contrary to those goals.

Energy Efficiency

Laboratory buildings with fume hoods use more energy per square foot than any other type of building on campus to keep the air inside free of hazardous materials. To reduce some of that energy use, the fume hoods in Flower Hall are “Variable Air Flow” (“VAV”). When the hood is not in use and the sash is closed, they adjust the level of air drawn out, substantially reducing the energy used by the building for heating and cooling. The labs in Flower Hall use occupancy sensors to shift to an energy-saving unoccupied mode, shutting the lights off and shifting the fume hoods to a lower face velocity. Alarms go off if researchers forget to shut the sash of the fume hoods before they leave. Occupants were briefed on these features when they moved in, and a User’s Guide has been posted in the building and on Green.tulane.edu.

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.

Efficient Water Use

Inside the building, the use of low-flow fixtures will reduce water use. Most notable are the low-flow urinals, which use .128 gallons per flush. The water closets use 1.28 gallons per flush. Outside the building, an irrigation system was installed in a small area to provide water as the plants establish themselves. The components were chosen for their efficiency and use controls that allow the irrigation system to be adjusted seasonally. Moisture sensors shut off the system if there has been sufficient rainfall.

Recycling & Sustainable Materials

During construction, 540 tons of materials were recycled—approximately 40% of the project’s demolition and construction waste. The building has recycling bins in offices, a recycling room on the first floor and a recycling station in the Fourth floor study lounge for paper, bottles & cans.

PROJECT DETAILS

- Completed: December 2012
- Project Size: 25,525 sf.
- Total Project Cost: \$7.2 million



Measured by cost, 39% of the material purchased for the new building was recycled. Materials with recycled content include rebar, structural steel, metal stairs, metal studs, gypsum board, ceiling grid and tile, carpet, toilet partitions, components of the curtain wall, and wall panels, doors and frames. Measured by cost, 26% of the material purchased for the building was produced or manufactured locally, including timber piles, brick, concrete, roofing, metal stairs and the exterior metal studs.

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. (Volatile organic compounds or VOCs vaporize at room temperature and can be harmful to both installers and occupants.) 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. In future months, we will check on the comfort of faculty, staff and students working in the building through occupant surveys.

Transportation

The LEED Green Building certification system recognizes projects that are constructed in dense, walkable neighborhoods with good access to public transportation. The researchers in Flower Hall have exceptional access to public transit, with the stop for the historic St. Charles Streetcar line just .27 miles away, the stop for the RTA's Freret bus line .1 mile away, and the stops for three different Tulane-operated shuttles within a quarter mile. These streetcars, shuttles and buses stop 386 times each day near Flower Hall!

Landscaping

The building's footprint was planned to protect the magnificent live oak growing between the Science and Engineering Complex and the Lindy Boggs Building. Tulane has a tree policy that outlines stringent measures to protect the health of campus trees during construction.

Heat island effect is the localized warming that occurs when dark building and paving materials absorb and re-radiate the sun's heat. In urban areas the heat island effect can create dangerously high temperatures, increase a building energy use, and accelerate the formation of local air pollution. Flower Hall reflects away the sun's rays with a high-albedo roof. The roof has a Solar Reflectance Index (SRI) of 96.98. The university's use of white concrete on the site also reflects solar radiation and helps keep the area cooler.



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 - 51

- D 1 SSc1 Site Selection
- D 5 SSc2 Development Density & Community Connectivity
- D 2 SSc3 Brownfield Redevelopment
- D 6 SSc4.1 Alternative Transportation - Public Transportation Access
- D 2 SSc4.4 Alternative Transportation - Parking Capacity
- D 1 SSc5.2 Site Development - Maximize Open Space
- C 1 SSc7.1 Heat Island Effect - Non-Roof
- D 1 SSc7.2 Heat Island Effect - Roof
- D 2 WEc1 Water Efficient Landscaping (70% reduction)
- D 7 EAc1 Optimize Energy Performance (25% energy cost savings)
- C 2 EAc3 Enhanced Commissioning
- C 3 EAc5 Measurement and Verification
- C 2 MRc4 Recycled Content (39% achieved)
- C 2 MRc5 Regional Materials (26% of materials by cost produced within 500 mi)
- 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
- D 1 IEQc6.1 Controllability of Systems - Lighting
- C 1 IDc1.1 Innovation in Design - SSc5.2 Site Development-Maximize Open Space
- C 1 IDc1.2 Innovation in Design - Occupant Education
- C 1 IDc1.3 Innovation in Design - SSc4.1 Alternative Transportation-Public Transit Access
- C 1 IDc1.4 Innovation in Design - MRc4 Recycled Content
- C 1 IDc1.5 Innovation in Design - Green Cleaning Policy
- C 1 IDc2 LEED® Accredited Professional

LEED Certification Thresholds

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



PROJECT TEAM

Architect: Woodward Design+Build, New Orleans, LA
Mechanical, Electrical and Plumbing: MCC Group, Metairie, LA
Construction: Woodward Design+Build, New Orleans, LA
Commissioning: Sebesta Blomberg, St. Paul, MN
Office of the University Architect, Facilities Services, Office of Environmental Affairs
Photographs courtesy of Woodward Design+Build unless otherwise noted