

Laboratory of Epidemiology and Public Health 6



Yale University renovated the 6th floor of the Laboratory of Epidemiology and Public Health (LEPH) in alignment with the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) rating system at the Gold certification level for Commercial Interiors.

ENERGY EFFICIENCY

Fossil fuel-based energy generation contributes toward global climate change. According to the Department of Energy, buildings consume about 39% of the energy and 74% of the electricity produced in the United States. Energy-conserving technologies utilized in the LEPH 6th-floor renovation improve efficiency and lower the annual operating cost. Energy-efficient lights use 19% less energy than minimum code requirements. Occupancy sensors in offices, lab support spaces, equipment rooms, and lavatories provide automatic off-switching when these areas are unoccupied. Ventilation fans have variable frequency drives that reduce speed in response to reduced airflow loads. Further, the addition of perimeter insulation improves the building's thermal performance.

INDOOR ENVIRONMENTAL QUALITY

On average, Americans spend 90% of their time indoors, and it is estimated that indoor pollutant levels can exceed outdoor levels by two to five times. In the LEPH 6 renovation, finishes—such as interior paints, sealants, and adhesives—have low volatile organic compound (VOC) content to reduce toxicity and noxious odors. Carbon dioxide sensors in densely occupied

78.3% of the wood products used in construction were certified by the Forest Stewardship Council

25.2% of the building materials were manufactured regionally

23.3% of the total dollar value of all materials used in this project represents recycled content

96.4% of demolition and construction debris was recycled, diverting it from landfills

spaces ensure that fresh air is supplied when CO₂ concentration levels are high, and ventilation rates have been carefully considered to ensure overall occupant well-being. Temperature and lighting controls have been designed to allow occupants to have maximum control while reducing energy use. Post-construction, the renovated floor was air-tested to ensure that VOC, particulate, and carbon monoxide levels were well below acceptable thresholds.

MATERIALS

In addition to reducing pollution risks, waste reduction contributes toward saving natural resources, energy, landfill space, and construction costs. This renovation project recycled more than 96% of construction waste. To reduce the environmental impact created from the processing and distribution of virgin materials, care was taken to specify locally manufactured materials with high recycled content. Such materials include acoustical ceiling panels, steel-wire shelving, hollow-metal doors and hardware, metal framing, and the wood used for laboratory casework. More than three-quarters of the wood products used in construction were sourced from sustainably managed forests. Yale also promotes recycling of daily waste materials such as plastic, metal, office paper, corrugated cardboard, electronics, and lab material containers by providing recycling receptacles and regular collection on the 6th floor of LEPH.

WATER EFFICIENCY

In the United States, more than 340 billion gallons of fresh water are withdrawn daily from rivers, reservoirs, and streams to support industrial, commercial, residential, and agricultural needs. After use, this water is discharged back into these water bodies. Water-conservation measures in the LEPH 6 renovation include the installation of ultra-low-flow lavatories, low-flush toilets and urinals, and low-flow kitchen sinks. Together, these measures are expected to reduce the annual potable water use by 35% below performance standards established by the U.S. Energy Policy Act of 2005.

SITE AND TRANSPORTATION

Yale University strives to reduce automobile use by providing alternative solutions such as easy access to public transportation and car/van-pooling throughout the campus. The LEPH is regularly serviced by both the Yale Shuttle and CT Transit bus lines, which also connect the facility to New Haven's Union Station, with access to multiple commuter train lines. Occupants may also take advantage of the University's partnership with the Zipcar sharing service, with three Zipcars parked in a lot just down the street. In addition, the building is within walking distance of many local amenities and services.



Architect
TLB Architecture, LLC

Total floor area
7,700 sq ft

Opening date
July 11, 2011



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