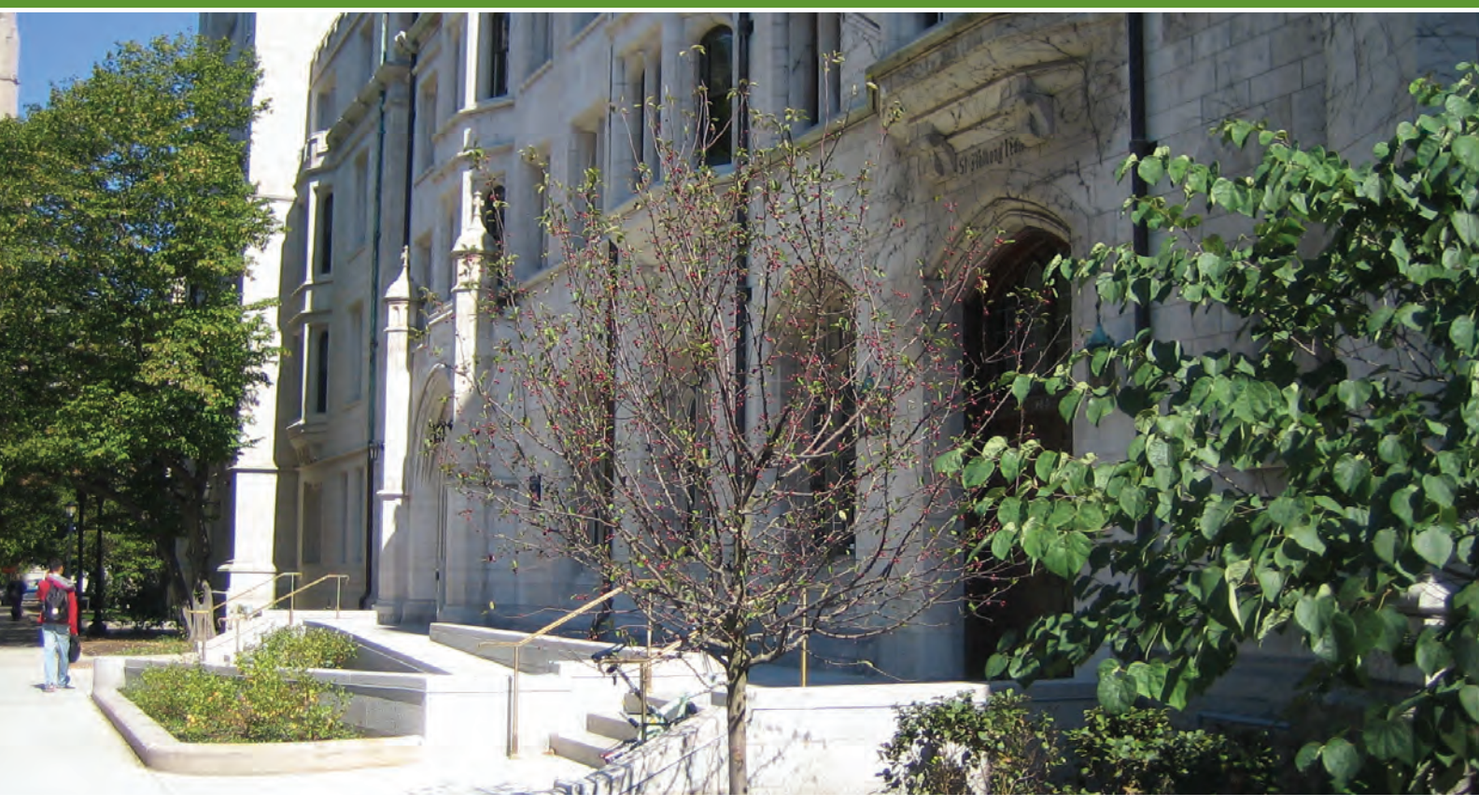
# 493 College Street



## Yale University renovated 493 College Street 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

Yale requires that all major building renovations achieve significant energy savings compared to the ASHRAE-90.1-2007 standard baseline building. The 493 College Street renovation exceeds the minimum thresholds set by the LEED EAc1.3 credit and the University's own sustainable design requirements. Currently, the project demonstrates energy performance of the proposed HVAC systems to be greater than 39.5% cost savings compared to a baseline building. Additionally, a third-party commissioning agent on the project team developed an enhanced commissioning plan to ensure that all equipment was installed and functions as designed. The building was equipped with low-energy lighting throughout, and the energy perfomance is projected to reduce lighting power density by 37%.

### INDOOR ENVIRONMENTAL QUALITY

The design includes increased ventilation by the HVAC systems coupled with carbon dioxide sensors to improve air quality. Low-emitting adhesives, sealants, and interior finishes were specified to ensure that a high air quality standard will be maintained in the building. Regularly occupied spaces are equipped with thermal comfort and lighting controls to provide indoor environmental comfort and personal control in all work and learning environments.

**78.6% of the wood** used in the project was certified by the Forest Stewardship Council

**86.3% of construction and demolition debris** was diverted from landfills

**10.9% of material** installed in this project was manufactured from recycled materials

**42.6% of construction material** came from within 500 miles of the project site, reducing pollution from delivery fuel and lowering overall transportation costs

**25% reduction** in annual potable water use is anticipated with the water-saving measures provided in the building

## MATERIALS

In addition to upholding environmentally responsible disposal practices for the renovated portions of 493 College Street, the project team set several targets regarding building material usage in the new portions of the building. Materials and products specified for the project contain almost 11% recycled content based on cost; 44.2% of total building materials by value was manufactured within 500 miles of the project site, and 42.6% was extracted regionally. More than 78% of all new wood purchased for the project was sourced from sustainably harvested forests. The waste management plan ensured that more than 86% of construction debris was recycled or reused, thereby diverting it from landfills. Material salvage and reuse was a top priority. Original wood doors (which did not meet code) were repurposed into benches for public seating areas throughout the building; marble toilet partitions were salvaged for stair-landing repair and new windowsills; stone plinth blocks were reused for door trim for historical reference; existing lavatories were reused in the toilet rooms; and original wood flooring was maintained and patched in all locations possible.

## WATER EFFICIENCY

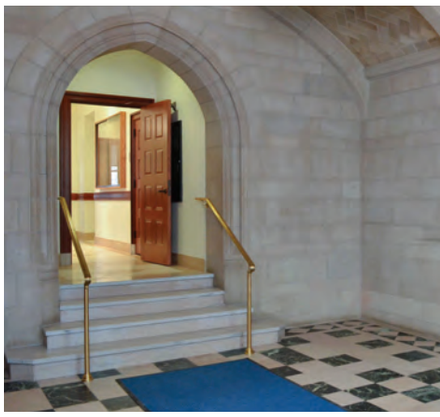
In the United States, more than 340 billion gallons of fresh water are withdrawn daily from rivers, reservoirs, and streams to support industrial, commercial, residential, and agricultural needs. After use, this water is then discharged back into these water bodies. The design for 493 College Street demonstrates a potable water reduction of 25% below EPAct 2003 standards. These savings were achieved through the installation of low-flow toilets, pint-flush urinals, and low-flow kitchen faucets.

## SITE AND LANDSCAPE

The only site modification was the addition of a ramp to provide ADA-compliant accessibility to the main entrance. The modified landscaping and new materials required for this work were designed to mitigate the heat island effect common in urban areas; new hardscape materials were specified to be high-albedo typical gray concrete, and approximately half of the hardscape has a solar reflective index (SRI) of 29 or higher. All selected plant species are native or adapted to the region, requiring no permanent irrigation and thereby having no impact on the building's overall potable water consumption.

## TRANSPORTATION

Yale University is committed to reducing the number of personal vehicles that travel to campus each day. To that end, it provides campus shuttle buses, carpooling incentives, and convenient access to Zipcars for students, faculty, and staff. Three campus buses at two bus stops near 493 College Street make a total of 300 stops each weekday. For building occupants who carpool, parking is free or available at reduced cost. The project site is in the center of New Haven, a dense urban location, which makes the transportation alternatives offered by the University appealing and convenient.



**Architect**
Apicella + Bunton Architects

**Total floor area**
20,578 sq ft

**Opening date**
August 2011

Yale