



Ultra-Low Energy Project Profile

High Rise Office



Photos: Bruce Damonte

OVERVIEW

Site Details

Building Size: 277,500 SF

Location: San Francisco, California

Construction Type: New

Construction Year: 2012

Building Type: Large Office

CA Climate Zone: 3

Predicted Energy Stats

41 - 3 = 38

BUILDING'S
TOTAL EUI

RENEWABLE
PRODUCTION EUI

BUILDING'S
NET EUI

Site Energy Use Index (EUI) kBtu/SF/year

The Energy Equation: **the building predicted energy use minus the predicted renewables production equals the predicted net energy of the building.** Buildings may be 'Getting to Zero' and have a net EUI above zero.

If renewable production exceeds energy use its net EUI is below zero (negative) and it is creating surplus energy.

SAN FRANCISCO PUBLIC UTILITIES COMMISSION HEADQUARTERS

The San Francisco Public Utilities Commission (SFPUC) headquarters is an ultra-low-energy, Class A office building that pushes the norm in sustainable design. Located in downtown San Francisco, the 13-story building houses more than 900 employees who were previously located in separately leased spaces.

Planning & Design Approach

From the outset, the owner and design team set extremely high sustainable design goals. They aimed to create the 'greenest urban building in the United States.' Their efforts focused on achieving long-term cost savings using a 30-year life-cycle performance horizon. Employee health and comfort were other considerations of paramount importance throughout the integrated design process. This encouraged the team to carefully consider energy efficiency and the quality of interior illumination.

Energy Efficiency Strategies & Features

High Efficiency HVAC: The building has a double-glazed curtain wall and utilizes an under-floor air distribution (UFAD) system that circulates air at floor level as opposed to through ceiling panels. The UFAD allows maximum use of fresh outdoor air for cooling the building. Occupants can control the operable windows while interlocks ensure the mechanical system is turned off when natural ventilation is used.

Daylighting: Louvered venetian blinds automatically tilt based on the sun's position. They are designed to block high-intensity rays that increase cooling requirements and create glare for occupants while admitting filtered light and bouncing sunlight into interior work spaces. The south façade includes fixed fins to direct light deep into the space.

Lighting: Designers paid careful attention to the quality of light, studying occupant uses of each space, the amount of light needed for the relevant task and the fixture most appropriate to meet these needs. Dimmable LEDs are used in most common areas, including lobby and stairs. Open office spaces utilize dimming T5 fluorescent ballasts integrated with interior window shades.

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For more information:
newbuildings.org/zero-energy



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Team/Owner Details

Owner: City and County of San Francisco

Architect: KMD - Stevens JV

General Contractor: Webcor Builders

Sustainability Consultant: Simon & Associates

Seismic Engineer: Tipping Mar

Commissioning: EnerNOC Inc.

Financing & Cost

Construction Cost: \$146.5 million

Awards

LEED® Platinum
AIA Top 10 Green 2013

Water Efficiency: Gray and black water are treated by an onsite Living Machine that treats 5,000 gallons of wastewater per day. Irrigation water is stored in a 25,000-gallon rainwater harvesting system. The building is expected to use 60% less water than those of similarly size.

Renewables: The curved shape of the north façade focuses wind into the wind turbine tower. The building also includes a 164 kW roof-mounted photovoltaic array. Overall the renewables contribute approximately 7% of the building's total energy.

Lessons Learned

- Early occupant engagement in understanding the anticipated work environment, answering questions and preparing for problem solving is key in aligning the vision and having a smooth transition and occupant satisfaction.
- Engaging a strong third-party building commissioning team from the early design stage through construction and post occupancy tuning of the building assures that building systems are well tested through their full operating cycle at different seasons and before the end of construction warranty.
- Bringing new technology vendors to the design table early in the planning and design phase to allow sufficient time for engineers and designers to work through various critical operating scenarios with these new technologies in mind.

For More Information

San Francisco Public Utilities Commission—Our Headquarters:

<http://goo.gl/jvUNiN>



Administered by California utilities, Savings By Design encourages high-performance, non-residential building design and construction, and a variety of solutions to building owners and design teams. More information at: savingsbydesign.com.



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