

ENERGY BENCHMARKING PROFILE

EMBARCADERO CENTER

The team at Embarcadero Center embraced the adage, "You manage what you measure," when they began benchmarking with ENERGY STAR Portfolio Manager in 2001.

Embarcadero Center is comprised of four buildings totaling 3.3 million square feet, which include office, retail, dining, and parking. Since 2001, energy efficiency retrofits have cut annual annual usage by over 9.8 million kWh, saving more than \$1.4 million per year in energy costs. Examples of these projects include application of spectrally selective window film on all four buildings, extensive installation of Variable Frequency Drive (VFD) units and multiple lighting retrofit projects, including de-lamping strategies.

Drawing on his 30 years of experience, Danny Murtagh, Director of Engineering with Boston Properties for the Embarcadero Center, leads the engineering team to approach energy retrofit projects from a holistic perspective. When considering a new energy efficiency project, the team researches how a proposed measure has been applied to other buildings in the past and if the energy savings were measureable. They analyze if the systems will work in the Embarcadero Center buildings, calculate the expected savings, and present the results to the building owners. The easiest cases to make are for projects which pay for themselves in the first four years, and upgrades to equipment near the end of its service life.

WINDOW FILM INSTALLATION

More than 345,000 square feet of spectrally selective interior window films were applied to all four buildings within a four month period. The film reduces the transfer of heat through the windows with almost no reduction in visible light. The work had to be completed at night, and required relocating tenant furnishings and replacing them before business the next day. Tenant feedback was immediate and positive, reporting greater comfort. The upgrade saves nearly 2 million kWh each year, cutting annual energy costs by \$273,000.

GARAGE LIGHTING RETROFIT

The garage lighting retrofit was a learning experience, underlining the importance of tenant satisfaction. Initially, all garage lights were placed on sensors, but tenants were not happy entering a dark garage. Therefore, the engineering team reconfigured the system to leave lights in targeted



BUILDING FACTS

ADDRESS

Embarcadero Center
San Francisco, CA

SIZE

3,324,536 sq. ft. (4 Buildings)

YEAR BUILT

EC1 = 1971 EC3 = 1976
EC2 = 1974 EC4 = 1979

CERTIFICATIONS

EC 4 = LEED-EBOM Gold

BUILDING OWNER/MANAGER

Boston Properties
<http://www.bostonproperties.com>

MORE INFORMATION



SF Environment
www.sfenvironment.org/ecb

“The goal is to make the buildings run better at a lower operating cost for tenants.

Benchmarking is critical to the business case for efficiency. PG&E’s Automated Benchmarking Service removes the heavy lifting of data entry and frees you up to look for better ways to operate.”

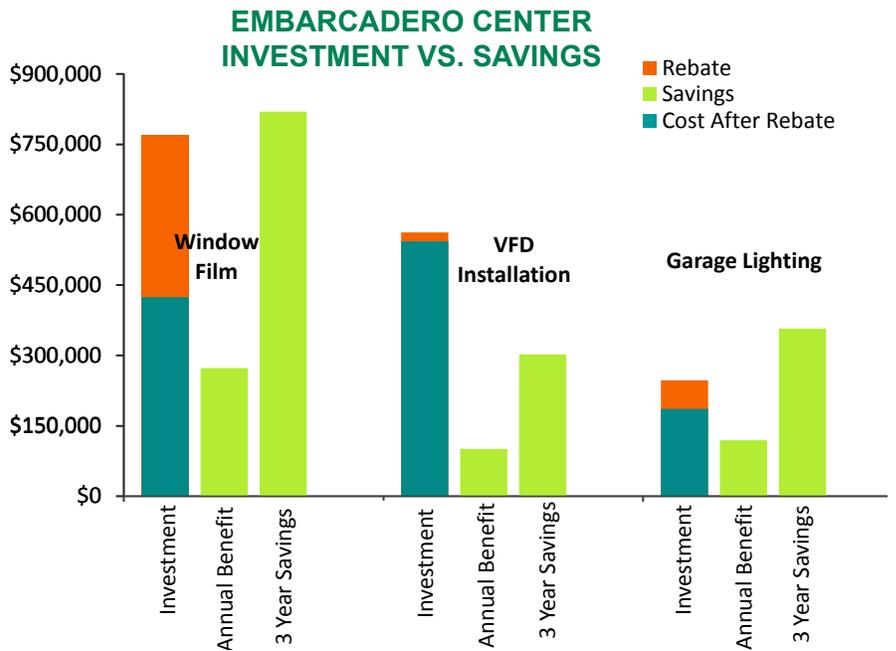
- Danny Murtagh
Director of Engineering

areas of the garage at all times (in addition to emergency lighting fixtures,) and then place the rest of the lighting on sensors. This solution was far more satisfactory to the tenants and still netted energy savings of over 750,000 kWh per year.

REPLACEMENT IS AN OPPORTUNITY

Danny also finds opportunity for energy efficiency projects when equipment nears the end of its service life. Many projects replacing large equipment can’t be financially justified based on energy savings alone. However, when aging equipment must be replaced, it’s an ideal time to invest just a bit more and specify the most energy efficient option to maximize long term value. To this end, the Embarcadero center has installed VFDs throughout each building and an assortment of energy efficient prime movers, fans and pumps.

- 1 **WINDOW FILM**
Investment \$768,782
Rebate \$344,427
Annual Benefit \$273,291
3 Year Savings \$819,873
- 2 **VFD INSTALLATION**
Investment \$562,207
Rebate \$18,500
Annual Benefit \$100,786
3 Year Savings \$302,358
- 3 **GARAGE LIGHTING**
Investment \$246,762
Rebate \$60,450
Annual Benefit \$119,217
3 Year Savings \$357,651



SAN FRANCISCO EXISTING COMMERCIAL BUILDINGS ENERGY PERFORMANCE ORDINANCE

Energy is the single largest controllable operating cost in commercial facilities. The Existing Commercial Buildings Energy Performance Ordinance empowers owners, managers, operators, and occupants with the key information to control utility costs, and to know exactly how they can benefit by improving energy efficiency.

For existing nonresidential buildings 10,000 square feet and larger, the ordinance has two requirements. The first is to benchmark the building’s energy use each year, which shows how it compares to similar facilities and makes it easier to track progress. The second is an energy audit every five years, which identifies specific and cost effective opportunities to save energy.

The policy is based on the recommendations of real estate professionals, building managers, engineers, and contractors about how to empower decision-makers with the essential information to make smart decisions about energy management.

For more information: www.sfenvironment.org/ecb



SF Environment

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A Department of the City and County of San Francisco