



## SHOWCASE PROJECT: FOREST CITY: SOUTH BAY GALLERIA

### SOLUTION OVERVIEW

The South Bay Galleria is a 900,000 square foot, three-story enclosed retail shopping center with over 140 specialty shops, a food court, restaurants and a movie theater. Built in 1985, the mall is located approximately 10 miles from the coast, creating an equipment maintenance challenge due to the fresh intake of salt air and its highly-corrosive effect. The building will use the EPA ENERGY STAR® Portfolio Manager system to track its energy intensity rating. Work on this project began on March 1, 2012 and the project was completed in December 2012.

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### SECTOR TYPE

Commercial

### LOCATION

Redondo Beach, California

### PROJECT SIZE

390,000 Square Feet

### SOLUTIONS

To maximize cost savings through energy efficiency, Forest City is improving the efficiency of its chilled water circulation loop with new chillers, VFD retrofits, and refurbishment of air handling units. These measures are designed to improve the effectiveness of system delivery for chilled air while reducing operating costs.

Forest City incorporated the following energy efficiency measures:

- New variable speed centrifugal chillers that operate efficiently both at full load and part load conditions.
- Conversion of the plant from constant to variable primary flow, lowering energy use at part load.
- Installation of VFDs on all condenser water pumps and air handlers.

- Implementing chilled water and condenser water reset based on outdoor air temperature.
- Incorporating air handler static pressure resets based on load demand.
- Upgrading of central plant actuators from pneumatic to DDC.
- Improved energy management system with new backbone, controls, BACnet interface, and web-enabled control.
- Automated Demand Response to reduce electric usage during peak periods without manual intervention.

## **OTHER BENEFITS**

Forest City's installation of multi-dimensional smart building controls enabled them to participate in Southern California Edison's Auto Demand Response program. This program is a partnership with local utilities and grid operators to reduce power needs during peak periods. Forest City's participation in the program will reduce its electric costs while helping to promote grid stability and power affordability in the community.

Forest City will commission a study to determine applicability for ENERGY STAR and LEED® Existing Buildings: Operations & Maintenance certifications.

## Annual Energy Use

(Source EUI)

Baseline(2012)



Actual(2013)



**Energy Savings**

**25%**

## Annual Energy Cost

Baseline(2012)



Actual(2013)



**Cost Savings**

**\$591,000**



Inside South Bay Galleria



South Bay Galleria at night



## Air handlers at South Bay Galleria