

## SHOWCASE PROJECT: MACY'S: METRO CENTER

### SOLUTION OVERVIEW

This is a four-story building that operates as a department store. The building was originally designed with a constant volume system which limits the ability to use variable frequency drives effectively or control and maintain customer comfort within the building envelope. Prior to the retrofit project, most of the motors ran at 100%.

There are 2 AHUs in the building with 2-75 HP motors each totaling 150 HP per AHU supply. Each AHU runs as two return fans at 60 HP for 120 HP. The total HP is 400 HP, all with VFDs. There were 3,533 47W Halogen spots and 251 27W CF lamps existing in the store.

### SECTOR TYPE

Commercial

### LOCATION

Washington DC, District Of Columbia

### PROJECT SIZE

272,000 Square Feet

### FINANCIAL OVERVIEW

Project Cost \$210,000

### SOLUTIONS

Macy's installed both dampers and LED lighting in an effort to improve the energy use intensity of this building. After the dampers were installed, Macy's in-house technicians completed a re-programming of the Energy Management System. In addition to these specific solutions, Macy's drives energy efficiency on an on-going basis by leveraging its advanced energy information system, and by holding weekly calls with field personnel.

Each damper was custom fabricated and installed within a vertical plenum. New balimos and controls were installed on each damper so they could be operated and controlled individually, allowing for better air distribution and fuller modulation of the two 100 horsepower supply and return fans. The damper project was started in May 2012 and completed July 2012. The LED project involved the replacement of Halogen spotlights and compact fluorescent lamps with 3,772 – 12.5W

LED PAR 38 accent lamps and was completed in three days.

## **OTHER BENEFITS**

In addition to reducing energy usage, additional project benefits include an increase in overall customer comfort, in part through lighting and temperature improvements.

The electric usage saved through August 2013 from the two projects is equivalent to:

- Annual greenhouse gas emissions from 173 passenger vehicles
- Carbon sequestered by 21,089 tree seedlings grown for 10 years
- Greenhouse gas emissions avoided by recycling 295 tons of waste instead of sending it to the landfill

## Annual Energy Use

(Source EUI)

Baseline(2011)

157 kBtu/sq. ft.

Actual(2013)

110 kBtu/sq. ft.

## Energy Savings

30%

## Annual Energy Cost

Baseline(2011)

\$604,300

Actual(2013)

\$380,850

## Cost Savings

\$223,450



Sidewalk view to the main entrance



Inside store during cherry blossom event