

## SHOWCASE PROJECT: LOEWS VANDERBILT HOTEL

### SOLUTION OVERVIEW

Loews Vanderbilt Hotel is located in downtown Nashville, across from Vanderbilt University. The 420,000-square-foot, 11-story hotel has 351 guestrooms, 24,000 square feet of meeting space, a four-story garage, a 24-hour fitness center and business center, and an onsite restaurant and bar. Loews initially flagged the Vanderbilt Hotel for energy projects due to its significant savings potential and outdated facility equipment, including chillers, condenser pumps, roofing, and lighting.

Loews undertook a study on chiller re-sizing with their Mechanical, Electrical, and Plumbing consultant to determine cost and expected return on investment. Loews also researched available utility incentive programs, and successfully worked with the local utility to receive \$125,000 in funding assistance. Loews then compiled and submitted the project proposal to the Corporate Executive Leadership Team for review and subsequent approval. The implemented energy conservation measures resulted in 22 percent savings.

### SECTOR TYPE

Commercial

### LOCATION

Nashville, Tennessee

### PROJECT SIZE

420,000 Square Feet

### SOLUTIONS

Starting in 2015, Loews Vanderbilt Hotel completed the following energy upgrades to improve overall building performance and lower operating costs:

- Replaced outdated 750-ton centrifugal chillers with re-sized, highly efficient Trane 500-ton chillers;
- Installed a new domestic water triplex pump variable frequency drive system to deliver hot and cold water to the guestrooms, kitchen, and laundry;
- Installed new variable frequency drives on the existing chilled water pumps and condenser pumps;
- Replaced the water distribution media inside the cooling tower;
- Installed new direct-drive elevator hoist motors on seven passenger elevators in the hotel, reducing energy consumption by over 20 percent for each elevator;

- Replaced over 2,000 square feet of ballroom roofing that improved the building's overall R-value (insulation effectiveness) by 20 percent;
- Upgraded all public area lighting fixtures to LEDs;
- Began monitoring the equipment preventative maintenance system using monthly score cards to gauge performance; and
- Implemented a new water filter program in all ice machines, improving the efficiency of the ice machine compressors.

The equipment upgrades and retrofits were just the start of a larger energy and water efficiency effort at Loews Vanderbilt Hotel. In 2017, the hotel's engineering team plans to install a new InnComm thermostat centralized control system that will enable them to control guestroom fan coil units from the engineering office, allowing for better temperature management across the hotel for guests. Additionally, older pipe insulation will be replaced to minimize heat loss in conjunction with the installation of three new hot water boilers, improving guest comfort while avoiding energy and water waste.

## **OTHER BENEFITS**

Loews Vanderbilt Hotel's efficiency upgrades resulted in benefits beyond energy savings, including:

- Reduced cooling tower make-up water and spend on cooling tower chemicals;
- Enhanced guest experience and comfort level by reaching and maintaining desired room temperatures much faster in guestrooms and meeting spaces;
- Improved TripAdvisor GreenLeaders status to Bronze level;
- Improved the hotel's ENERGY STAR score from 45 to 68, indicating the hotel is now operating 18 percent more efficiently than the average hotel;
- Contributed to Loews' achieving corporate-level recognition by ENERGY STAR via an ENERGY STAR Success Story: Loews Hotels in 2016;
- Participated in the "How Loews Can You Go" internal ENERGY STAR building energy performance competition in 2016; and
- Recognition for the Directors of Engineering through Loews' internal Gold Wrench Award.

## Annual Energy Use

Baseline(2014)  
242 kBtu/sq. ft.

Actual(2016)  
190 kBtu/sq. ft.

**Energy Savings**  
**22%**

## Annual Energy Cost

Baseline(2014)  
\$1,203,600

Actual(2016)  
\$875,350

**Cost Savings**  
**\$328,250**



Front entrance of Vanderbilt Hotel



Two highly efficient Trane 500-ton chillers



Loews replaced over 2,000 square feet of ballroom roofing that improved the building's overall R-value by 20 percent



Control panel for triplex booster system