Case Study
Sidney R. Yates Federal Building
Washington, DC

Energy Reduction and Historical Integrity

The Sidney R. Yates Federal Building is a 5 story historic complex located in Washington, DC at 14th Street and Independence Avenue SW. The building consists of 152,329 square feet of office and support spaces and was given a Category III Landmark designation by the National Register of Historic Places. It was constructed from 1878-1880 in the Classical Revival style to serve as home to the Bureau of Engraving and Printing. Formerly known as the Auditors Building Complex, the building was renamed in honor of Illinois Congressman Sidney R. Yates. The building now serves as the USDA Forest Service headquarters, and also contains a Visitors Center with museum and the National Fire Center.

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Thermolite Window Systems installed in the hallway, viewed from the inside.

Energy Efficiency and Historical Integrity

The facilities staff at the Yates Building was looking for ways to improve the energy efficiency of the building, particularly due to the Visitors Center and National Fire Center (NFC) being open outside of the normal office hours of the rest of the building's occupants. Maintaining temperature control for these two areas required the entire building's Heating, Ventilating, and Air Condition (HVAC) system.

As a means to save energy, the facilities staff wanted to isolate the HVAC for the Visitors Center and NFC so the entire building's system wouldn't need to be operating in order to maintain temperature for these two areas.

Since the Yates Building is a Category III Landmark, exterior renovation options to improve energy efficiency are limited by the DC Commission of Fine Arts, (CFA) and possibly the National Capitol Planning Commission (NCPC).

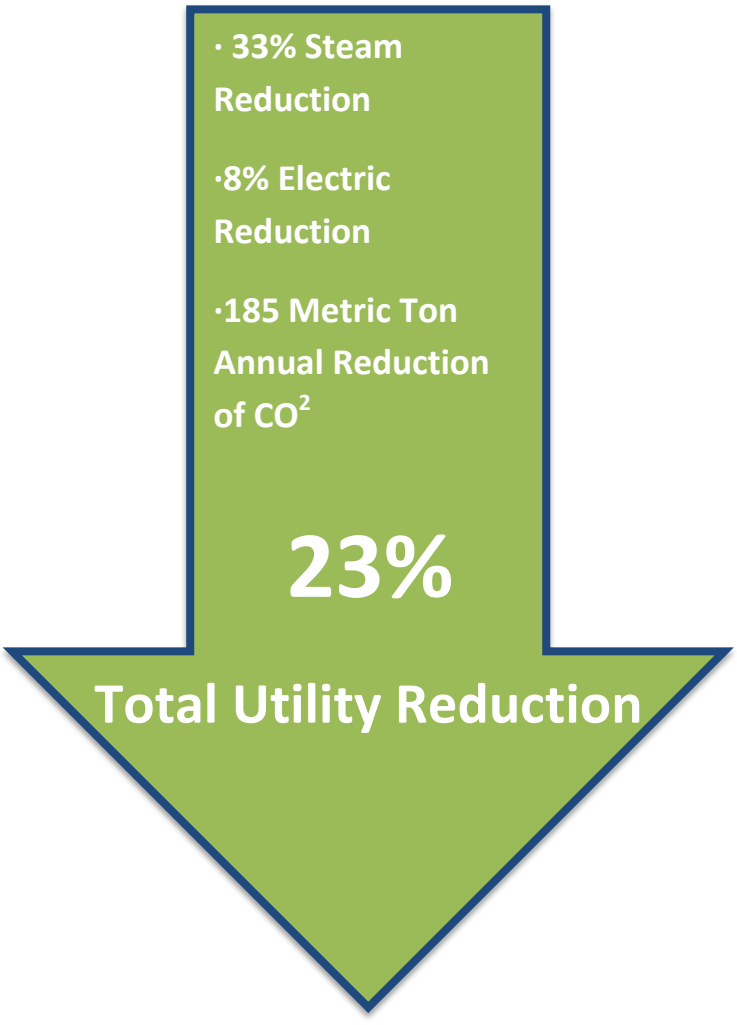
The top priority of these agencies is preserving the external appearance of historic buildings, such as matching original materials and details; however, the standard option for improving a building's energy performance typically includes replacing older fixtures with new versions that reduce air infiltration.

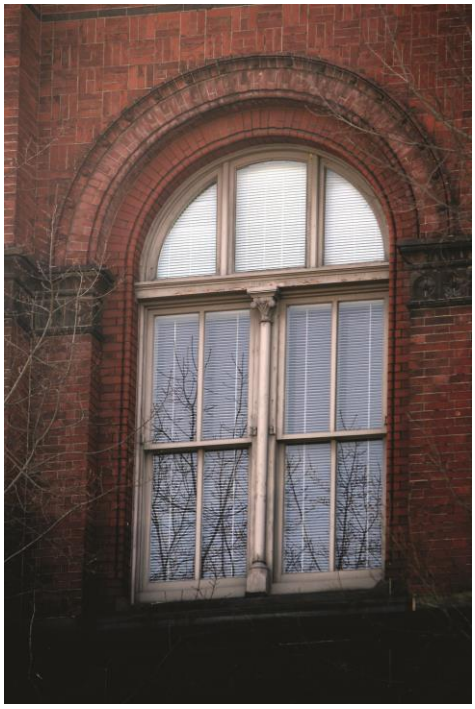
As replacement is generally not an option for historical building renovations, the Yates Building facilities staff was presented with the challenge of determining how to improve energy efficiency while not changing the exterior appearance of the building.

Updating Windows in Accordance with Preservation Guidelines

The Yates building is a General Services Administration (GSA) property, and all proposed changes must be reviewed, approved, funded, and managed by the GSA. The GSA commissioned Pepco to provide an energy analysis of the Yates Building in 2009 to develop strategies for their future management goals, in which it was recommended that high-efficiency windows be installed to improve building energy performance.

In 2011, Therm-O-lite was contracted to retrofit the existing windows of the Yates Building, which was completed in January 2012. This solution allowed for all historic exteriors to remain untouched, while still making the building more energy efficient.





Outside appearance of windows remained unaltered.

Energy Savings Findings

A utility baseline report was developed in 2013 for the evaluation of energy savings related to Therm-O-Lite's upgrade of windows at the Sidney R. Yates Federal Building. The utility bill history was provided by the building occupants and the operating information was obtained during a brief site review with the assistance of the building occupants.

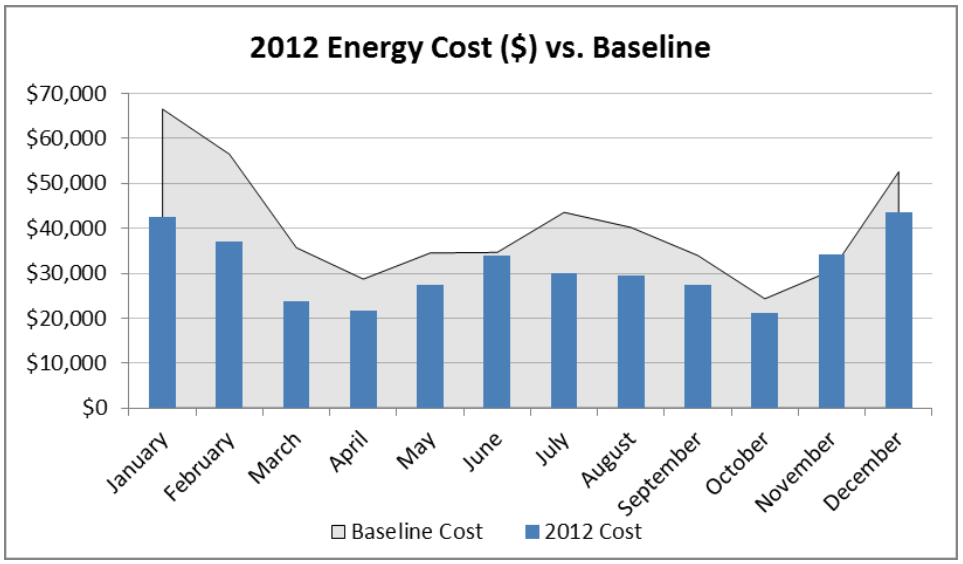
The baseline was developed utilizing two (2) years of utility history, which was then compared with energy data for the following third year after it was normalized for temperature variations. During the time of this study, there were no significant occupancy changes or other energy upgrades.

An average level of energy consumption at the building was established based on normalizing the two (2) years of utility data for specific criteria such as: weather, billing cycle, building size and occupancy.

The result is a "true" utility baseline for the facility that can then be used to compare against utility bills in future years to determine the level of savings generated from upgrades implemented at the building.

The reduction in utility consumption is experienced for both electricity and steam. However, the steam savings provides a very high level of savings due to the significant reduction in cold air infiltration and reduced heat loss through the windows.

The following chart provides an overview of the monthly savings related to the utility cost at the building pre and post-retrofit of the windows: (Gray = Pre-retrofit, Blue Bar = Post-retrofit)



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