Spurlock Museum #373

Building Gross Sq.Ft.: 53,921

Retrocommissioning Team Visit Period: FY 2012 Mar—April

Principal Building Use: Museum

Facility Contacts: Christa Deacy-Quinn and John Holton

Expected Simple Payback: 3 YRS

Expected Annual Utility Avoidance: 20% **OR** ▼ 3,795 MMBTU

Campus Energy Rank FY10: 54

Building & Occupant Overview

The Spurlock Museum features five galleries house exhibits representing peoples of different cultures and geographic areas of the world. The building is opened as follows: Mon. – closed, Tues. 12-5 P.M., Wed. to Fri. 9-5 P.M., Sat. 10-4 P.M. and Sun. 12-4 P.M. The building opened in 2006 and has four air handlers for conditioning of the spaces. There are three constant volume units and one variable air volume unit. Building heat is provided by two hydronic system, one that serves the preheat coil for AHU3 and all the reheat coils, and the other provides hot water to the perimeter. The building controls consist of a series of Siemens PXC modulars and Compacts.

The facility's total metered energy during FY11 was 18,973 MMBTU.

Post RCx Energy Use Intensity (EUI) & Cost Index (ECI)

E.U.I.	E.C.I. #1	E.C.I. #2*
282 kBTU / Sq.Ft.	$4.64 / Sq.Ft.	$321 / person

** ~780 PEOPLE OCCUPY BUILDING ON A GIVEN DAY*

Retrocommissioning Specifics & Results

The air handling units (AHUs) providing air conditioning were maintaining space conditions in offices and the museum 24/7/365. The primary energy conservation method was scheduling AHU 3 off during non occupied hours and AHU 1 and 2 with static discharge setbacks.

The existing control systems were replaced with new systems that have the capabilities viewing the control graphics.

There were new humidity sensors installed in the return air on three of the four AHU's and a CO2 sensor was installed on AHU 3. These can be utilized in the sequence of operation to achieve better operating and comfort conditions.

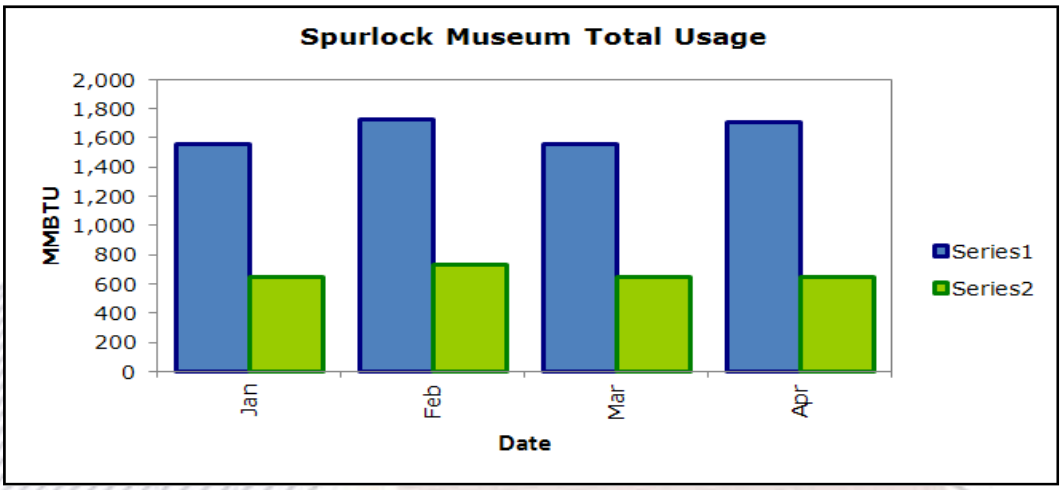
To maintain comfort conditions, all thermostats were calibrated and the heating valves were inspected for proper operation. The variable air volume (VAV) boxes were also inspected and brought back to proper operation. There were nine inoperable VAV controllers found and replaced. There are approximately 16 VAV's in the building.

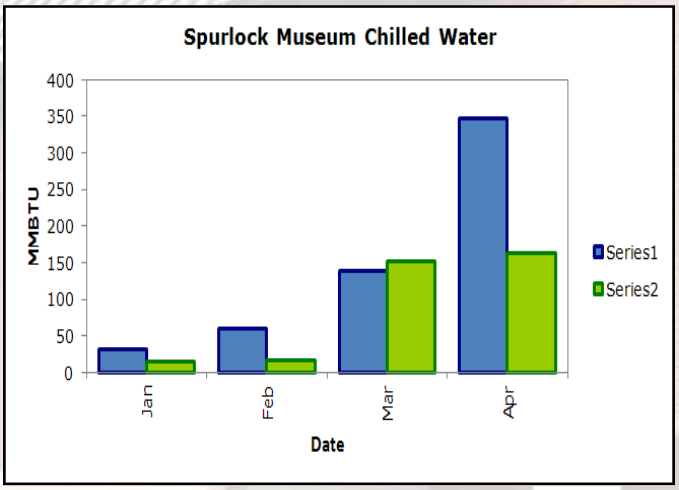
The existing building pressurization control was found not operating under control. This resulted in a negative building envelop which brought in un-conditioned outside air.

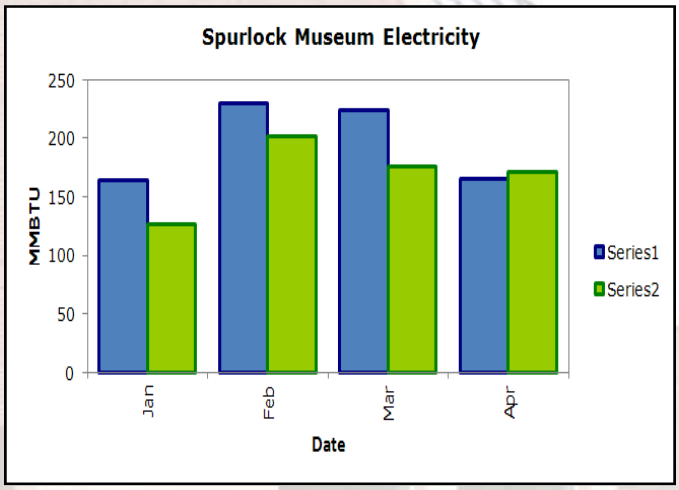
Project Highlights

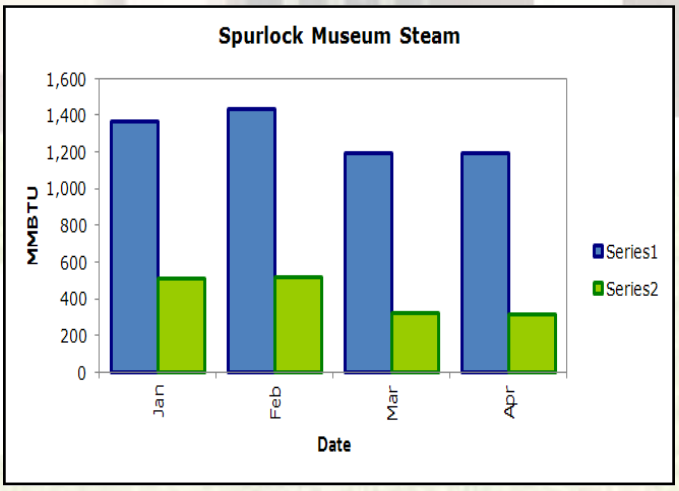
- There were additional sensors installed in the AHU units. This provided improved sequences of operation, scheduling, and comfort control.
- AHU 3, restroom and other general exhaust fans were scheduled off and set backs on the other two AHU's for unoccupied conditions.
- Building pressurization sensors were replaced and relocated. The VFD's were placed back under DDC control.
- AHU2 was found operating at full capacity and not meeting discharge air pressure set point. There were 9 defective VAV controllers replaced. The AHU now achieves set point at a reduce speed.

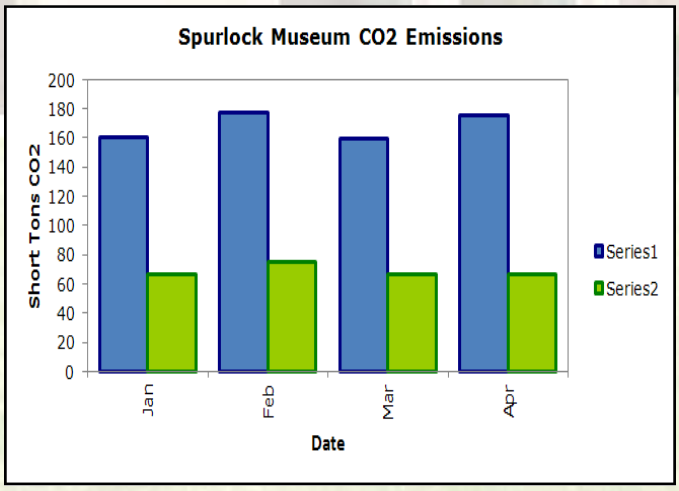
Spurlock, #0383











July 26, 2012