NYCHA Smith House DSOM® Installation
Excerpts from CY 2002 Annual Report

One of the apartment buildings at NYCHA's Smith House Complex

Background: On October 13, 1999, the New York City Housing Authority (NYCHA) and Battelle Memorial Institute entered into an agreement to install a Decision Support for Operation and Maintenance (DSOM®) system at the Governor Smith Housing Project in Manhattan, New York.

Per contract requirements, Battelle conducted an initial assessment of the energy site and supporting infrastructure from November 29 through December 3, 1999. The major conclusions, issued in the characterization report dated March 7, 2000, were:

1. There is a major opportunity to improve the steam production efficiency of the boiler plant.
2. The steam distribution and condensate return systems were in good condition.
3. A second major improvement was identified in building energy management. Implementing an automatic feedback and control system to better regulate heat delivery to the apartments could dramatically reduce building steam demand.

4. By utilizing condition-based maintenance principles and advanced machinery diagnostics, a significant reduction in maintenance cost and improvement in life-cycle economics could be obtained.

NYCHA accepted Battelle's characterization report and authorized Battelle to proceed with the installation of DSOM at Smith Houses.

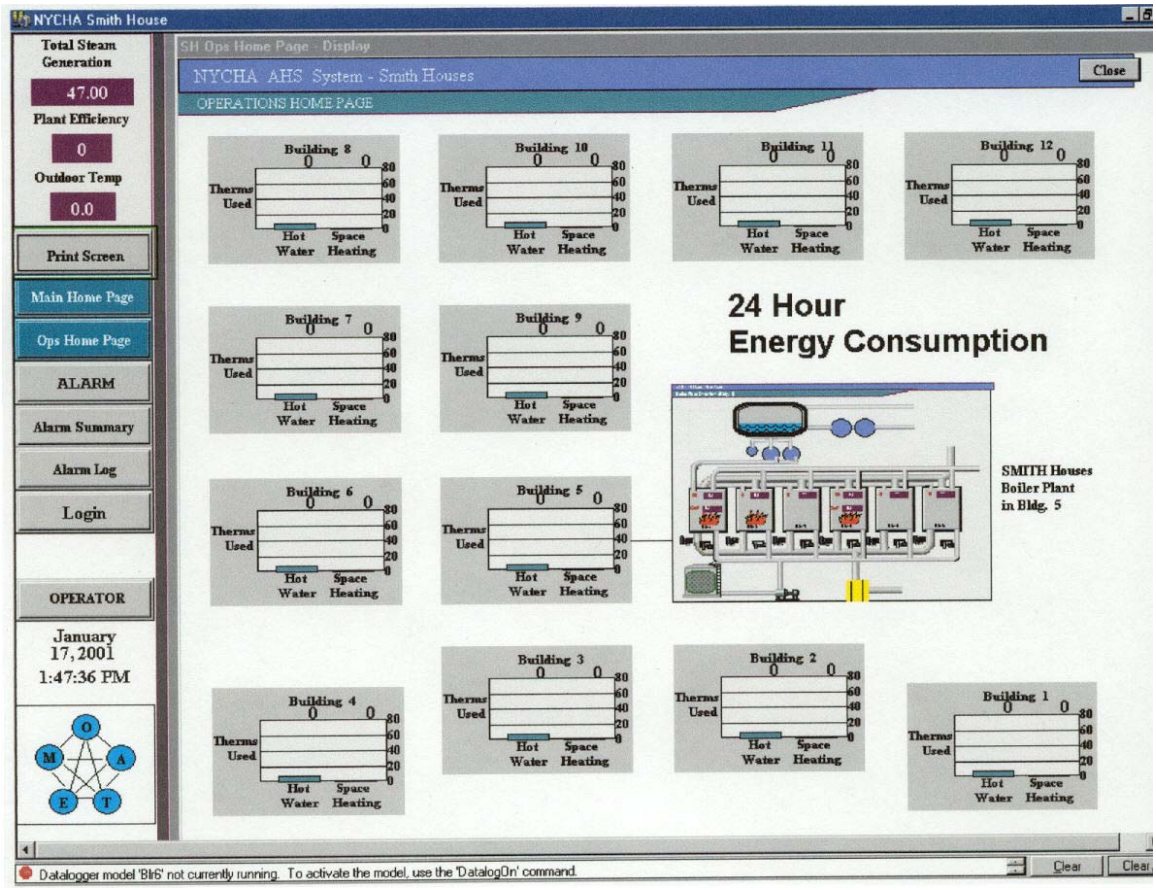
In support of the system installation, Battelle entered into subcontracts for instrument installation and electrical wiring for the installation and commissioning of the boiler controls system.

Project implementation proceeded in accordance with the installation plan. Initial functionality of the system was achieved early in 2001. This was followed during the balance of the year by fine-tuning of the boiler controls system, customization of the software to meet the operational requirements of the Housing Authority, and the commissioning of the building control systems to achieve the building energy management strategies identified during the characterization process.

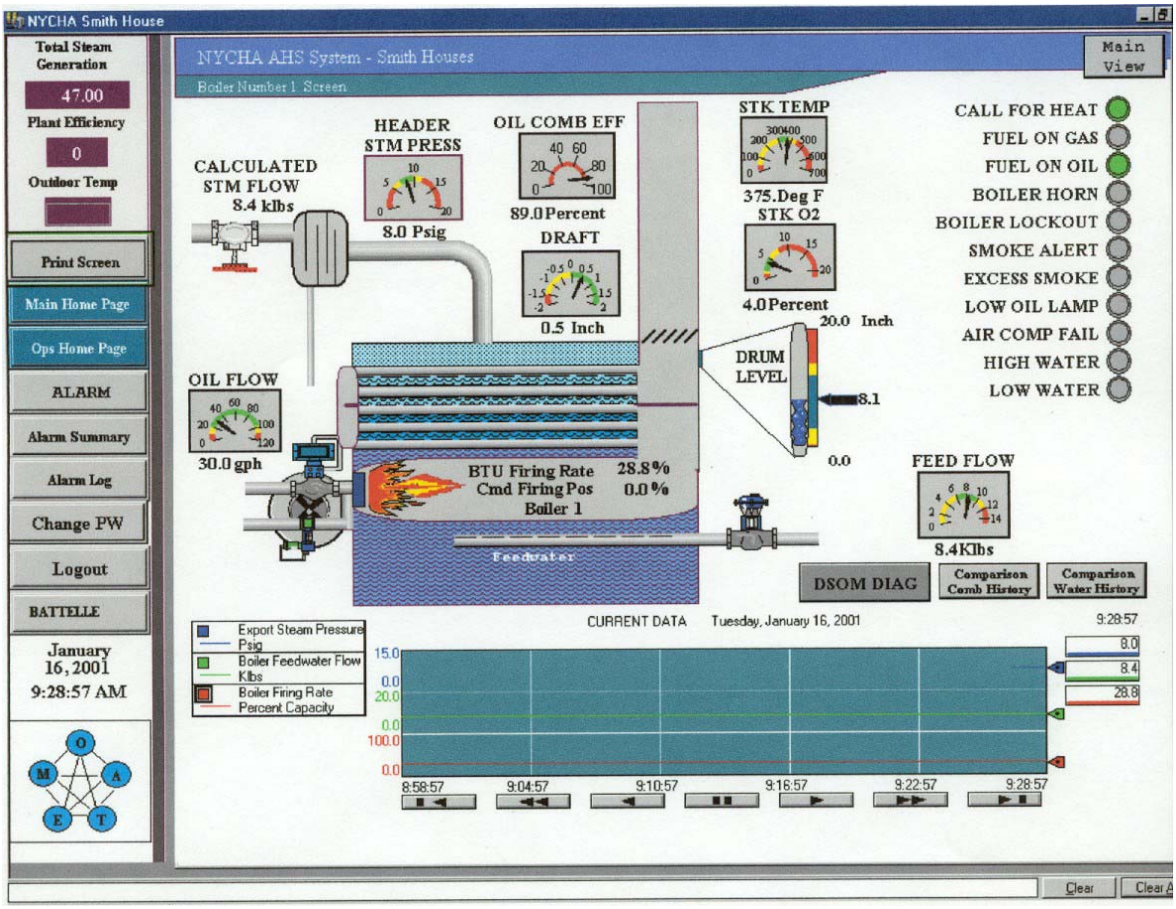
System Performance: Calendar year 2002 system performance significantly exceeded the previous year. Overall system efficiency was a 26.1% improvement over the baseline period; a 7% improvement over the previous year. Much of this efficiency gain is due to enabling of the building control functionality with DSOM. Additional efficiency improvements are expected when effective O_2 trim can be accomplished to minimize the use of excess combustion air in the boilers.

Total Savings: Per the contractual agreement between NYCHA and Battelle, the total savings generated due to the DSOM system installation, and its supporting infrastructure, would be determined annually and the savings would be "shared" based on a pre-agreed formula. The total savings would be the sum of fuel savings, personnel savings, and maintenance savings compared to the baseline and normalized for variables such as weather. Since the initial functionality of the system was achieved early in 2001, NYCHA and Battelle agreed to use CY 2001 as the first year of shared savings for Smith House.

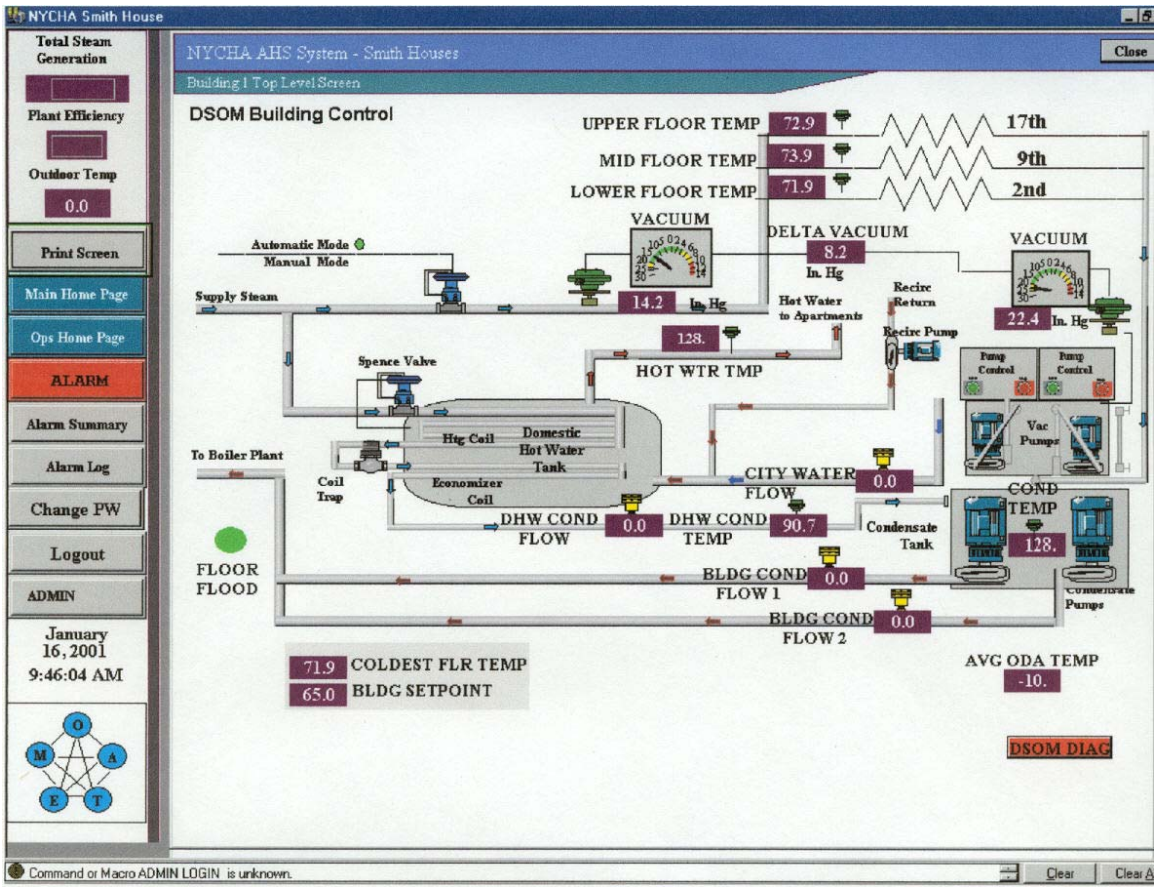
Savings for CY 2002 totaled $360,382, exceeding the first year savings of $299,913. These savings did not include the life extension cost savings. Life extension cost savings are a calculated value that will be determined at the completion of the 10-year performance period. A value for the life extension of the capital assets will be calculated at the completion of the project and will be fully credited to the Housing Authority.



Smith House DSOM Building Energy Consumption Display



Typical Smith House DSOM Boiler Display Screen



Typical Smith House DSOM Tank Room Display