



Brockport Research Institute is Torching Energy Waste with LEDs

Research Objective

Brockport Research Institute teamed up with SUNY Brockport, First Service Residential, and the New York State Energy Research Development Authority (NYSERDA) to investigate strategies to encourage co-op and condo boards in New York City to install energy-efficient light emitting diode (LED)s in co-op and condo common areas.

Background

First Service Residential’s energy management affiliate, FS Energy, manages a portfolio of more than 600 buildings in New York City that collectively spends \$163M/year on board-controlled common area energy expenditures. Co-op and condo boards are made up of private individuals who own and cooperatively manage co-op apartments and condominiums. Research identified cost, time, and aesthetics as the most difficult barriers board members face to installing LEDs in common areas. Other barriers include lack of information about the costs and benefits of retrofitting existing lighting with LEDs, uncertainty regarding the associated energy savings, and need to finance the LED retrofit work in situations where insufficient capital funds exist. The pilot used customized feedback and social proof to promote upgrading building common areas to LEDs.

Pilot Description

FS Energy implemented the pilot, organizing initial focus groups to identify potential barriers to installing LED lighting in common areas, developing customized “energy report cards” for co-op/condo buildings that described the cost and energy benefits of installing LED lighting in common areas, and developing case studies of co-op/condo buildings that already installed LED lighting. FS Energy invited co-op/condo board members to attend a social event at a Manhattan restaurant where co-op/condo board members whose buildings had already installed LED lighting (social proof) presented their projects. At the event, customized building energy report cards were handed out and board members were encouraged to review their buildings’ customized reports in moderated small group discussions.

The pilot used a random controlled trial design to evaluate whether attendance at the social event and receipt of customized energy report cards influenced board members to install LED lighting, compared to buildings not selected to participate. For both groups, the evaluation tracked actions leading to co-op/condo boards upgrading to LED lighting in common areas (including introducing a LED proposal for board consideration and vote and hiring a contractor to install LED lighting), energy savings, and spillover investments in unrelated energy efficiency measures.

Visit NYSERDA’s Behavior Research page nyserdera.ny.gov/behavior-research for more information.

Sherman Square ENERGY REPORT CARD

LED LIGHTING OPPORTUNITY

Lighting accounts for 25% of electricity used in most buildings. Efficient lighting can make a big difference in your monthly energy bills.

Sherman Square, a 378-unit cooperative, can reduce its annual electricity bill by \$24,500 by installing light emitting diodes (LEDs) in its common areas. Unlike CFLs, LEDs do not contain toxic mercury and last up to 10 times longer than CFLs - and 100 times longer than conventional incandescent lamps. LEDs are a green solution that will also produce significant savings on lamp replacement and maintenance costs.

Learn how easy it is to upgrade to LEDs and start saving on your electricity bills by calling FS Energy at (212) 634-8900.

Incandescent Least Efficient	Compact Fluorescent Lightbulb (CFL) Less Efficient	Light Emitting Diode (LED) Most Efficient
<ul style="list-style-type: none"> Least Energy Efficient 1,000 hrs \$329/year 3,285 kWh/year* 60 Watts* Contains Toxic Mercury Heat Emitted - 80 BTU/hour* High Maintenance 	<ul style="list-style-type: none"> Less Energy Efficient 10,000 hrs \$77/year 767 kWh/year* 13 Watts* Contains Toxic Mercury Heat Emitted - 30 BTU/hour* High Maintenance 	<ul style="list-style-type: none"> Energy Efficient 50,000 - 100,000 hrs \$33/year 329 kWh/year* 7 Watts* Mercury Free Heat Emitted - 4 BTU/hour* Design Flexible Low Maintenance

Financing is Available: FS Energy has partnered with several financial institutions to fund upgrades in Sherman Square that will produce energy savings for the building every month.

LED Retrofit Savings Analysis for Sherman Square

	Existing Lighting Package	Proposed LED Lighting Package
Total Input Watts	25,513	9,925
Total Consumption per Month	18,559 kWh	7,220 kWh
Total Spending per Year	\$ 40,087	\$15,594
Estimated LED Retrofit Cost		\$69,143
Estimated ConEd/NYSERDA Incentives		\$36,090
Estimated Total Cost w/Incentives		\$33,053
Simple Payback		1.34 years
ROI		74%

* Watts of electricity used (equivalent to 60 watt incandescent bulb)

Sherman Square | www.fsenergyservices.com

Findings

Only 26% of invited co-op/condo board members attended the first social event, and 35% of the invited board members attended the second social event. Despite low attendance and many buildings dropping from the pilot because they installed LED lighting prior to the pilot, 28% of buildings whose board members attended a social event upgraded their common area lighting to LEDs compared to 7% of the control group that were not invited and did not receive a customized energy report card. For the nine buildings whose board members attended an event and voted to install LED lighting, the total combined monthly two-year energy savings is 137,971 kWh. Because attendance at the two events had been so low, the researchers wanted to test whether attendance at an event was critical to the pilot's success. A follow-on study was conducted by Brockport Research and FS Energy to test the influence of a three-page customized LED lighting building report that was mailed to board members and building managers. No effect was detected from the mailed reports, indicating that the social event was an important component of the intervention, albeit challenging for board members to attend.

Next Steps

After the pilot was completed, FS Energy continued to provide customized energy report cards to the co-op/condo building managers to present the LED energy efficiency opportunity to board members at their regular board meetings where attendance was less challenging.