Multifamily Meet-up
Part 2
Better Buildings Challenge Showcase:
Shepherd Park Apartments

The Schochet Companies – AMO ®
Schochet Companies is a full service real estate development and management company headquartered in Braintree, MA. Founded by Jay R. Schochet over forty years ago, Schochet has since developed, owned, and/or managed in excess of 7,000 apartments and over 600,000 square feet of retail and commercial space throughout New England and on the West Coast. Currently Schochet owns and/or manages 31 sites throughout the Northeast, overseeing over 5,000 units.
Based in Boston, MA

Is an energy and sustainability consulting company

In 2009 was enlisted by Schochet to assist in launching a comprehensive **Sustainability Initiative**:

The initiative defined strategies to achieve specific targets and goals related to:

- Energy and water use reductions
- Greenhouse gas emission reductions
- Staff and tenant engagement
- Information exchange with others in the industry
- Healthy living
- Organizational development
SHEPHERD PARK

Sector Type: Multifamily

Location: Hartford, CT

Project Size: 144,000 square feet

Financial Overview:

- Project Costs: $656,650
- Utility Incentive: $177,984

Annual Energy Use + Annual Energy Cost (with Savings):

- Annual Energy Savings: 20%
- Annual Cost Savings: $68,100
Shepherd Park is a 373 unit apartment complex consisting of seven buildings, and provides subsidized senior housing. Originally built in the early 1900’s, the property served as a ward and convent until 1980 when it was rehabilitated into affordable housing. Managed by The Schochet Companies with a portfolio-wide Sustainability Initiative that includes several goals:

- Energy reduction
- Water and greenhouse gas reduction

Since 2012 Shepherd Park has implemented a broad range of efficiency upgrades detailed here.
Projects
• Boiler Replacement
• Hot Water Circulation Pump Replacement
• Interior LED Lighting Replacement
• Exterior LED Lighting Replacement
• Unit Air Sealing
• Unit Water Saving Measures

Energy and Cost Savings
• Annual kWh Savings: 109,603 kWh
• Annual Therm Savings: 13,051 therms
• Est. Avoided Costs: $26,733
• Utility Incentives for Projects: $177,984
EFFICIENCY MEASURE DETAIL

- **Hot Water Circulation Pump Replacement**: The property downsized from two to one high efficiency circulation pump. Additionally, the pump replacement project resolved several ongoing maintenance issues.
  - Annual kWh Savings: 27,315 kWh
  - Estimated Avoided Costs: $3,278
  - Project Cost: $59,378
  - Utility Incentive: $21,950

- **Interior LED Lighting Project**: The property upgraded from induction to LED lighting.
  - Annual kWh Savings: 39,752 kWh
  - Estimated Avoided Costs: $4,770
  - Project Cost: $66,412
  - Utility Incentive: $14,956

- **Exterior LED Lighting Project**:  
  - Annual kWh Savings: 42,536 kWh
  - Estimated Avoided Costs: $5,104
  - Project Cost: $88,052
  - Utility Incentive: $39,599
EFFICIENCY MEASURE DETAIL

• **Boiler Replacement**: The boilers, which were at the end of their useful life, were replaced with high efficiency, condensing boilers.
  - Annual therms savings: 4,230 therms
  - Estimated avoided costs: $4,737
  - Project Cost: $165,108
  - Utility Incentive: $33,199

• **Unit Air Sealing**: in addition to reducing energy use, air sealing reduced issues with cooking smells.
  - Annual Therms Savings: 7,706 therms
  - Estimated Avoided Cost: $8,631
  - Project Cost: $62,415
  - Utility Incentive: $62,415

• **Unit Water Saving Measures**: .8 gpf (gallons per flush) toilets as well as low flow devices save on both water and sewer costs.
  - Annual Therms Savings: 190 therms
  - Estimated Avoided Costs: $213
  - Project Cost: $5,865
  - Utility Incentive: $5,865
• Increased overall efficiency.

• Lighting projects alleviated safety concerns.

• Air sealing increased occupancy comfort and reduced odors, as well as decreased number of maintenance calls for staff.

• Reduced use of toxic chemicals on-site improved health and safety. Implemented a green cleaning program, no-smoking policy and integrated pest management plan.
Better Buildings Financing Navigator Demo

Wednesday, August 22\textsuperscript{nd}, 2018
The Better Buildings Financing Navigator is an online tool that helps public and private organizations find financing solutions for energy efficiency and renewable energy projects.

With the Navigator, you can…

1. **Explore**: Learn the basics of the clean energy financing market
2. **Find**: Answer a few simple questions to see which financing options might be a fit for your project
3. **Connect**: Speak to Better Buildings Financial Allies who may be able to finance your project

Available at: [https://betterbuildingssolutioncenter.energy.gov/financing-navigator](https://betterbuildingssolutioncenter.energy.gov/financing-navigator)
Live Demo
Thank You!

Holt Mountcastle
Financial Ally Sector Lead
703-639-4258
hmountcastle@retechadvisors.com
Layering Rebates & Choosing a Scope of Work

A whole-building retrofit at $0 net cost!

TNDC’s Case Study

Ruchi Shah, Sustainability Manager, Tenderloin Neighborhood Development Corporation
Tenderloin Neighborhood Development Corporation (TNDC) at a Glance!

What We Do
- Affordable housing – 40 buildings in 8 San Francisco neighborhoods, serving over 3,500 units

Who We House
- 80% of our residents have an annual income of less than $18,000
- Diverse racial & ethnic backgrounds – over 30 languages spoken
- Nearly 50% of our residents are seniors and 20% of all our tenants have experienced at least one recent episode of homelessness

How We Go Beyond Housing
- Tenderloin After-School Program – provides assistance to 250 kids for out of school support, including completing their homework
- Health & Wellness Program – serves over 700 seniors learn healthy aging skills
- Community Gardens and Neighborhood Pantries – in association with the San Francisco Food Bank:
  - provide 225,000 pounds of fresh produce and food to the local community
Better Buildings Challenge Goals

• Energy - Reducing portfolio-wide source EUI (kBtu/sf.ft) **20%** from a 2012 baseline by 2023.

• Water - Reducing portfolio-wide source WUI (gal/sq.ft) **20%** from a 2012 baseline by 2023.
Need to Retrofit

Alexander Residences
- Built in 1928
- 179 senior units
- 81,000 Sq. ft
-Central space heat & DHW

- One of the least efficient and most expensive properties in TNDC’s portfolio
- Annual energy expense - $111,000
- Master-metered for all utilities
- Eligibility for 3 rebate programs: Low-Income Weatherization Program (LIWP-Multifamily), BayREN, and CSI Solar Thermal
- Rooftop space availability
- Strong property reserves
With technical assistance from Association for Energy Affordability (AEA), we developed an extensive retrofit scope:

<table>
<thead>
<tr>
<th>Measures</th>
<th>Modeled Energy Savings</th>
<th>GHG Savings (MTCO2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole-building LED lighting retrofit</td>
<td>5.5%</td>
<td>29.1</td>
</tr>
<tr>
<td>Solar thermal hot water system</td>
<td>8.0%</td>
<td>23.3</td>
</tr>
<tr>
<td>Energy Star refrigerators</td>
<td>0.3%</td>
<td>2.3</td>
</tr>
<tr>
<td>New higher efficiency steam boiler</td>
<td>2.5%</td>
<td>7.5</td>
</tr>
<tr>
<td>Robust steam distribution upgrade and commissioning:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Thermostatic Radiator Valves (TRVs)</td>
<td></td>
<td></td>
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<tr>
<td>- Orifice plates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Steam cycle controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Upgrades to condensate recapture system</td>
<td>9.5%</td>
<td>27.9</td>
</tr>
<tr>
<td>Hot water distribution upgrades:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Pipe insulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Variable speed hot water pump</td>
<td>2.6%</td>
<td>7.6</td>
</tr>
<tr>
<td>- Low-flow water fixtures</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

28.4% 97.7
Rebates & Incentives

CSI Solar Thermal
$108,033 (19%)

BayREN
$134,250 (23%)

LIWP
$329,152 (58%)

* Rare opportunity to combine several rebate programs for full cost coverage based on scope of work, location, and current incentive levels. Typical projects participating in energy incentive programs would likely see 50-75% cost coverage.
Costs by Scope Category

- LED Lighting: $115,667.00
- Solar Thermal: $193,350.00
- Refrigerators: $38,255.00
- Steam Boiler: $94,325.00
- Steam Distribution Upgrades: $116,595.00
- Hot Water Distribution Upgrades: $13,243.00
- LED Lighting: $115,667.00
Before and After Photos – Steam Boiler

Existing Steam Boiler

New Steam Boiler
Before and After Photos – Solar Thermal
Before and After Photos – LED Lighting
1st Year Monitoring Results

* Electric space heating used during construction while steam boiler was offline
### Detailed Energy Use Comparison

<table>
<thead>
<tr>
<th></th>
<th>kWh</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Electricity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Electricity Use Pre-LIWP</td>
<td>610,287</td>
<td>$62,880.08</td>
</tr>
<tr>
<td>Annual Electricity Use Post-LIWP</td>
<td>556,410</td>
<td>$60,486.63</td>
</tr>
<tr>
<td><strong>Electricity Savings</strong></td>
<td>53,877</td>
<td>$2,393.45</td>
</tr>
<tr>
<td></td>
<td>9%</td>
<td>4%</td>
</tr>
<tr>
<td><strong>Natural Gas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Gas Use Pre-LIWP</td>
<td>44,438</td>
<td>$48,496.11</td>
</tr>
<tr>
<td>Annual Gas Use Post-LIWP</td>
<td>30,683</td>
<td>$32,805.28</td>
</tr>
<tr>
<td><strong>Natural Gas Savings</strong></td>
<td>13,755</td>
<td>$15,690.83</td>
</tr>
<tr>
<td></td>
<td>31%</td>
<td>32%</td>
</tr>
<tr>
<td><strong>Total Energy Use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Energy Use Pre-LIWP</td>
<td>6,526,098,290</td>
<td>$111,376.19</td>
</tr>
<tr>
<td>Annual Energy Use Post-LIWP</td>
<td>4,966,744,820</td>
<td>$93,291.91</td>
</tr>
<tr>
<td><strong>Total Energy Savings</strong></td>
<td>1,559,353,470</td>
<td>$18,084.28</td>
</tr>
<tr>
<td></td>
<td>24%</td>
<td>16%</td>
</tr>
</tbody>
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### Green House Gas Savings

<table>
<thead>
<tr>
<th></th>
<th>Metric Tons CO2</th>
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<tbody>
<tr>
<td>Pre-LIWP</td>
<td>428.25</td>
</tr>
<tr>
<td>Post-LIWP</td>
<td>338.23</td>
</tr>
<tr>
<td><strong>GHG Savings</strong></td>
<td><strong>90.03</strong></td>
</tr>
<tr>
<td></td>
<td><strong>21%</strong></td>
</tr>
</tbody>
</table>
Lessons Learned

1. Knowledge of available incentive programs and its applicability
2. Strong buy-in from top-down and bottom-up
3. Staff capacity and turn-over issues
4. Teamwork and relationship with program managers
5. Vendor management
6. Monitoring and tracking performance to sustain the savings
Thank You!
Discussion & Questions!

Ruchi Shah – rshah@tndc.org

For more information about the LIWP rebate program, visit: https://camultifamilyenergyefficiency.org/

For more information about the BayREN rebate program, visit: https://bayareamultifamily.org/
The Year Ahead
Survey Results and Discussion
Survey Results

Areas of Focus for the next 12 months

- Green Jobs/Workforce Dev
- Increasing Org'l Capacity
- Improving Portfolio Mgr Skills
- Planning for 20% Savings
- Renewables
- Resident Engagement
- Green O&M
- Utility Data Tracking
- Deep Green/Net Zero
- Water Savings
- Financing
- Healthy Buildings
- Resilience
Survey Results

Interest in Financing Options

- Energy Efficiency
- Renewables
- Other
- Direct Finance
- PACE
- ESPCs
- Leasing/PPAs
Survey Results

Better Buildings Challenge Program Support

- Advice from Technical Experts
- In-person Workshops
- Better Buildings Summit
- Webinars/Open Calls
- Peer Exchange/Interactions
- One-On-One Calls With Account Managers
- Technical Assistance
- Online Tools and Resources
Survey Results

Biggest Challenges

- Other
- Data Gaps
- HUD Regulations/Incentives
- Availability/Difficulty of Financing
- Staff Capacity
- Organizational Culture/Support

Survey respondents rated the biggest challenges they face, with Availability/Difficulty of Financing being the most significant issue.
HUD Initiatives

- BBC Support
- Pay for Success
- Health@Home TA
- Building Futures
- Community Solar/RRI Policies
- PRPHA Power Oasis
- Data and Communication
Have Another Great Year!