LEED Certification
Progress Report

Fillmore Center
July 2009

Fillmore Center

- Largest LEED EB certified project for multifamily housing known in US.
Major Outstanding Projects

- Air handlers audit
- Retro-commissioning
- Recycling Compactor
- Occupant Surveys
- Improved Pest Management
- Phase out program for CFC-based HVAC units

Performance Period
July – September 2009

<table>
<thead>
<tr>
<th>Date</th>
<th>Project Description</th>
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<tbody>
<tr>
<td>7/13/09</td>
<td>Air handlers audit</td>
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<tr>
<td>7/13/09</td>
<td>Retrocommissioning (RCx)</td>
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<tr>
<td>7/22/09</td>
<td>Improved Pest Management</td>
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<tr>
<td>8/1/09</td>
<td>Install New Recycling Compactor</td>
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<tr>
<td>8/1/09</td>
<td>Install New boilers</td>
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<tr>
<td>8/15/09</td>
<td>Occupant Surveys</td>
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<tr>
<td>8/21/09</td>
<td>Custodial Effectiveness Survey</td>
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<tr>
<td>8/31/09</td>
<td>Phase out Program for CFC based HVAC</td>
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Replace Boilers

- Replace three boilers in:
  - One in each tower: T1, T2, & T3
- Existing boilers:
  - Less than 70% efficiency
- New boilers:
  - ModCon Munchkin
    - 94% efficiency

ModCon

- 94% efficiency
- Modulating
- Stackable frame
- Requires special air intake & exhaust
  - All boiler rooms were inspected and will comply with requirements
- Equipment cost: $8,600 - $13,100 depending on size
- Some extra installation costs
- Rebate of $700 - $1,200 per unit depending on size
Boiler Savings

- Move from less than 70% efficiency to 94%.
- Approx. savings of $11,500 per year replacing 3 boilers
  - At $1.20 per therm

Waste Stream Reduction

- Composting Program
  - Landscaping Waste & Residents
- Placed posters in all trash rooms
  - Batteries and hazardous light bulbs
  - E-waste (TVs, PCs, phones, etc.)
- To install New Compactor
Plaque in Lobby

Your Disposal Room Guide

- Recycling
- Composting
- Electronic Recycling
- CFL - Fluorescent Bulb Recycling
- Battery Recycling

QUESTIONS?

Sustainable Scavengers
(415) 296-1559
Golden Gate Disposal & Recycling
(415) 937-4000
offices@sep.com
Savings from New Compactor

- Incentive: % Diverted = % Savings

- Annual Savings: 40% Diversion
  - Approx. $72,000
  - 810 cubic yards diverted from landfill

- Annual Savings: 60% Diversion
  - Approx. $114,000
  - 1,460 cubic yards diverted from landfill
    - Equivalent to 10 semi truck trailers

Waste Stream Savings

Note: This is an approximation and the actual bill amount will vary.
Tenant Education Week

- Explanation of “Fillmore Greening” to tenants
- Distributed compost bins
- Distributed 500 CFLS
  - 23.5 kW load reduction
- Bike to Work Week
- Great response from tenants!
- Video Sample

Staff Education Week – July 27 - 31

- Personal training for completed Plans & Policies:
  - Hardscape Management Plan
  - Integrated Pest Management Plan
  - Purchasing Policy
  - Waste Stream Policy
- Performed my SEP and Fillmore head staff
- The goal is to clarify & streamline processes to improve efficiencies, minimize mistakes, and increase consistency.
Air Handler Audit

- Required by LEED to meet ASHRAE standards
- Clark Seif Clark, Inc.
- Project Scope
  - Certified Industrial Hygienist / Certified Indoor Environmentalist
  - Develop comprehensive catalog of all air handling equipment
  - Assess condition of all air handling units
  - Identify inefficiencies / recommend upgrades
  - Determine indoor air flow and indoor air quality

Occupant Surveys

- 15 possible LEED points
- Transportation Survey
  - Residents who commute in a single occupied car – vs. – other forms of commuting
- Occupancy Comfort Survey
  - Satisfaction with appliances, thermal comfort, air quality, lighting levels, and building cleanliness
Integrated Pest Management (IPM)

- Site Assessment Complete
- Terminix fine-tuned IPM plan
- Fewer chemicals used
- Prevention over termination
  - Example: Alter landscaping procedures to prevent nests rather than exterminate pests

Other Projects Underway

- Custodial Effectiveness Assessment Survey
- Replacing light bulbs during unit turnover with high efficient CFLs
- Replacing fountain lights with high efficient lighting
- Replacing dog runs with new synthetic turf
  - Using recycled content
  - Scheduled for August
Solar PV & Thermal

- Power Purchase Agreement

Solar System Design

- Solar PV
  - Offsets 7% of electricity
  - System Size: 135 kW

- Solar Thermal
  - Offset 6% of natural gas
  - System Size: 3,136 Sq. Ft.
Solar Opportunity

- Great solar access
- Minimal shading
- San Francisco climate
- Full solar analysis completed

Solar Layout – F1

Blue modules are PV
Black modules are thermal
LEED Cost List

Replace three boilers $78,000
Retro commissioning $24,600
Low mercury light bulbs $12,600
New compactor $45,099
Air handler Audit $8,500
Occupant Surveys $10,000
Custodial Effectiveness Assessment $4,500
Sustainable Cleaning Supplies $10,000

TOTAL $193,299

Current Point Status

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
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<tbody>
<tr>
<td>Sustainable Sites</td>
<td>5</td>
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<tr>
<td>Water Efficiency</td>
<td>3</td>
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<tr>
<td>Energy Efficiency</td>
<td>14</td>
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<tr>
<td>Materials &amp; Resources</td>
<td>6</td>
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<tr>
<td>Air Quality</td>
<td>8</td>
</tr>
<tr>
<td>Innovation in Operations</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41</strong></td>
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- Certification – 34 points
- Silver – 43 points
- Gold – 51 points
- Platinum – 68 points