Green & Healthy Property Management

A Guide for Multifamily Buildings

February 2013

Local Initiatives Support Corporation

LISC

Prepared by

Ellen Tohn, Tohn Environmental Strategies, LLC
Elizabeth Glynn and Kristin Blum, Boston LISC

Published by

Boston Local Initiatives Support Corporation

Acknowledgements

The participation of staff at several organizations spurred the publication of this guide and we are indebted to them for their time and energy, including the Just-A-Start Corporation, Dorchester Bay Economic Development Corporation, Maloney Properties, and WinnResidential. Further guidance was provided by LISC's Green Development Center, New Ecology, Inc., Allston Brighton Community Development Corporation, Homeowner's Rehab, Inc., Urban Edge, WegoWise, Enerspective, Inc., the Boston Housing Authority, Smoke Free Housing Coalition of Maine, MinolUSA, and Smoke Free Housing New England. We would like to thank Lisa Cowan at Studioverde for her assistance with green landscaping. LISC New York City (NYC) and the NYC Department of Health and Mental Hygiene also provided invaluable input.

Boston LISC wishes to thank the Barr Foundation for its generous support of our green initiatives.

Table of Contents

Introduction

Local Initiatives Support Corporation (LISC) believes that everyone should have the right to live in a safe, prosperous neighborhood full of opportunities. Since 1981, Boston LISC has been working toward this vision by providing funding, financing, and technical assistance to Community Development Corporations (CDCs), non-profit developers, and policy and advocacy organizations in Greater Boston. With Boston LISC's support, community developers have been able, and will continue to provide and preserve affordable housing, spark economic development, and increase access to high-quality education, transportation, and other crucial resources.

In 2009 Boston LISC created the CDC Green Retrofit Initiative to build CDC capacity to implement energy efficiency improvements in their portfolios of affordable rental housing. The program grew to cover all of Massachusetts and all owners of affordable housing in 2012 through a partnership with our long-time building science collaborator, New Ecology, Inc.

Through our work in the Green Retrofit Initiative we learned that there are many ways to improve the energy performance of a property, maximize the health of residents, and decrease safety hazards.

We are publishing this guide to provide our community partners and other owners of low-income housing with a basis for an open discussion with their property managers about green and healthy goals, implementation of those goals, and ongoing oversight of the properties' energy performance. The guide will help organizations to decide which tasks need to be implemented by the owner, and those that need to be executed by the management staff to achieve the best results within their housing portfolios.

In creating this guide we actively engaged three CDCs and their third-party property managers to comb through applicable green and healthy goals, the thresholds for action, and the responsibility of each party. In the same way, we hope others will use this document as an organizational policy, adopted by executive leadership, and a working procedures manual for ensuring high-performing physical assets while improving the health and safety of residents.

- Save money on energy and water
- Improve building durability
- Reduce greenhouse gases and conserve water
- Create healthier environments for tenants and workers

Overview

LISC created this Guide to help affordable housing owners define and pursue measures to reduce the use of energy, water, and harmful chemicals in their properties, reduce waste generated on site, create healthier living environments for residents, and reduce the carbon and environmental footprint associated with residential properties. Owners and property managers are encouraged to review the sample policies and practices and tailor them to meet their needs.

The Guide was developed to complement and enhance the U.S. Department of Housing and Urban Development's (HUD) Housing Quality Standards. Activities best undertaken by the property owner are distinguished from those most appropriately pursued by the property manager. Activities to monitor green and healthy practices are most effectively linked to existing tasks (e.g., monthly meetings, annual financial reviews, capital planning, etc.). The recommended green and healthy practices are, whenever possible, integrated with existing management practices. Appendix A summarizes a model schedule to implement these green and healthy policies.

The policies, particularly those related to energy reduction, were prepared for owners operating in a heating climate. Property owners in areas with greater cooling needs may want to modify the policies to address their local climate.

Finally, going green is a process! Owners are encouraged to update their green commitments to take advantage of new technologies, strategies, and opportunities.

How to Use This Guide

Property owners and managers can use this Guide to develop green and healthy property management practices that are appropriate for their organization and buildings. It is a four-step process.

1. Assess Current Practices: Start by comparing current practices to those recommended in this Guide. Both the property owner and manager should participate in this step because each has relevant information. Use the worksheet provided in Appendix C to help with this process. For example, ask:

- Is your organization tracking energy and water use in each building?
- Have you established energy and water targets?
- Do you have an Integrated Pest Management Policy?

The assessment should help the team to discuss key issues:

- If we are not achieving the practice recommended in this Guide, is it possible?
- What would it take for us to improve our practices?
- What is a reasonable goal for our organization and a given property?

2. Develop Your Goals: Decide the scope of the green and healthy practices your organization would like to address. Do you want to tackle the 15 listed in this Guide or begin with a subset? Using the information gathered in Step 1, tailor goals that will be effective for your organization. State each goal clearly and identify the responsibilities for both the owner and property manager. LISC has a template of this Guide in a word processing format to help property owners develop a tailored set of policies and procedures.

3. Secure Organizational Commitment: Green and healthy practices thrive when the portfolio has a "green champion," and the leadership of that organization has empowered the green champion to implement portfolio-wide and property-specific green policies. At this stage, it is important to secure the support of the organization's senior managers. For non-profit housing owners, this will often be the Board and Executive Director. In for-profit companies, the senior managers' support is critical.

4. Pursue and Track New Practices: It is critical to monitor progress in addition to implementing your new procedures. Often new practices require tweaking. Regular tracking, as outlined in this Guide, is an important element of any change in operational activities and will enable the owner and manager to provide information to the Board or senior managers, who will ask, "How is it going?" The written Green and Healthy Property Management Guide and monitoring data will help the property owner tell the "green story" of the portfolio.

Energy Assessment

Goal

Measure and track energy use associated with buildings using a common metric, normalized by square footage, and adjusted for weather conditions to enable comparisons in energy use across the portfolio and across years. Various benchmarking tools exist for multifamily properties, which allow for property and asset management trouble-shooting and proactive maintenance. Use energy tracking data to inform maintenance and management activities, capital needs planning, and targeted energy upgrades.

Key Actions

Property Owner

1. Compile Benchmarking Data: Compile and enter baseline data into a benchmarking program that will allow comparisons among buildings and across years. Collecting the necessary information can be time consuming initially, but using a program that will automatically upload utility use data from your utility provider greatly eases this burden going forward. We recommend that you start with the properties you believe are the worst performing and those that have master-metered utility accounts.

2. Create a Threshold for Action: Establish a threshold for action related to heating energy use. For example, all buildings using more than 10 BTU per square foot per Heating Degree Day (BTU/ft^2/HDD) will require action.

3. Review Baseline Data: Meet with the Property Manager to review the baseline energy data for each building and resolve any data quality issues. Determine which metrics you want to monitor regularly.

4. Review Data Monthly: Require tracking reports from the Property Manager that highlight worst performers, recent upgrade activity, or significant changes in consumption.

5. Conduct Annual Review of Data: Annually review energy use, effectiveness of efficiency efforts (including new construction, renovations, or energy upgrades), and plan energy retrofits.

Property Manager

1. Provide Monthly Update to Property Owner: Identify buildings that exceed the established thresholds and/or show significant changes from the same period the previous year. Show before and after energy use data from properties with completed energy retrofits.

2. Provide Annual Review to Property Owner: Identify changes in energy use, track use after upgrades, and suggest actions to reduce high-energy use.

Tracking

Monthly review energy data with the Property Owner and Manager. Integrate energy tracking with other performance metrics used by the owner. See Appendix A for sample agenda items to add to your monthly management meetings.

Annually review threshold for action.

Resources

WegoWise—*www.wegowise.com*

Energy Scorecards—*www.energyscorecards.com*

EPA Portfolio Manager—*www.energystar.gov/istar/pmpam/*

Energy Reduction

Goal

Reduce energy use in buildings to achieve the target energy benchmark in existing buildings of less than 10 BTU/ft²/HDD and in new construction to less than 6 BTU/ft²/HDD.

Key Actions

Property Owner

1. Pursue Utility Funding: Apply to government or utility funded energy retrofit programs. Target buildings using more than 10 BTU/ft²/HDD.

2. Identify Energy Saving Opportunities For Projects Not Undergoing Energy Retrofits: Request that the Property Manager provide a written summary of potential energy saving measures in buildings that exceed the target energy use and are not pursing audits or energy retrofits. Consider the opportunities listed below and others the property manager may identify.

a. Mechanical Equipment: Identify buildings with old equipment (over 20 years) or inefficient equipment, if easily determined (e.g., <80%). Examples of equipment that can be inefficient include: 1) steam, oil, or atmospheric gas boilers; 2) stand-alone atmospheric or instantaneous domestic hot water systems, particularly in buildings with greater than 50 units; 3) water re-circulating loops with constant circulation and un-insulated pipes; 4) missing or out of commission boiler controls.

b. Appliances: Identify inefficient appliances (e.g., refrigerators, room air conditioners, clothes washers, etc. not labeled as ENERGY STAR).

c. Common Area Lighting: Identify incandescent bulbs for replacement with screw-in compact fluorescents. Identify T-12 lights with magnetic ballasts (replace with T-8 and electronic ballasts). Identify exterior lights without photo sensors; consider replacing halogen or metal halide fixtures with LED fixtures. Identify opportunities for motion or occupancy sensors indoors. Replace incandescent Exit signs with LED models.

d. Insulation Opportunities: Identify opportunities to add insulation: attics and below roof crawl spaces (<8–10 inches); wall cavities; foundations; hot water pipes; and other locations. Air sealing should be completed prior to insulating.

e. Air Sealing: Identify opportunities in attics or below roof crawl spaces, unconditioned basement spaces with penetrations to conditioned spaces, penetrations through exterior walls in conditioned spaces, and penetrations between units.

3. Integrate with Capital Planning: During annual capital planning process, identify potential energy saving measures in priority properties (>10 BTU/ft²/HDD), review available utility program rebates and incentives, and integrate energy saving measures in capital planning. Engage a professional energy auditor in conjunction with periodic Capital Needs Assessments (about every 5 years).

4. Specify Energy Conserving Equipment: Specify ENERGY STAR appliances for all replacements provided by the Property Owner to common areas or apartments (e.g., refrigerators, bath fans, boilers, air conditioners, clothes washers [see Green Laundry], windows, doors, and skylights).

5. Maintenance and Unit Turnover: Require management to remove window air conditioning (AC) units or, if not possible, provide insulating sleeves for window units during heating season (Nov–Apr). Incorporate energy savings assessment and upgrades into unit turnover and annual inspection protocols. (See Unit Turnover and Inspection Priorities.)

6. Track Energy Performance After Construction: In recently constructed or renovated properties, require commissioning of all major systems, review energy use data to assure the building is performing as intended, and undertake actions to address poor performance (e.g., mechanical system and control adjustments).

Property Manager

1. Baseline: Provide baseline inventory of potential energy saving measures noted in #2 above.

2. Annually: Provide summary of energy benchmarking data to identify buildings above the target energy use (>10 BTU/ft^2/HDD) and potential energy saving measures.

3. Specify ENERGY STAR Appliances: Specify ENERGY STAR for all replacements (e.g., refrigerator, bath fan, boiler, air conditioner [central and room], clothes washer, windows, doors, skylights).

4. Maintenance: Actively market your services to tenants for the removal of their window AC units during the heating season (Nov–Apr), to the extent feasible. Provide and install AC window sleeve covers during heating season.

Tracking

Annually review energy use and opportunities for reduction.

Resources

The Massachusetts Green Retrofit Initiative—*www.magreenretrofit.org*

The Massachusetts LEAN (Low-Income Affordability Network) Multifamily Program—*www.leanmultifamily.org*

Consortium for Energy Efficiency, Residential Sector—*www.cee1.org*

U.S. EPA EnergyStar—*www.energystar.gov*

Water Assessment

Goal

Evaluate all properties for water use and normalize data by bedroom (remove any water use attributed to irrigation). Identify properties where water use exceeds the initial target benchmark of greater than 75 gallons per bedroom per day. This benchmark is an upper limit that is easily achievable through installation of inexpensive aerators and showerheads and repairing leaks in a timely manner. Lower benchmarks may apply in single room occupancy buildings, buildings with elderly populations, in cases of partial occupancy, or when laundry is done off premises. Efficient portfolios are able to achieve 55 gallons/bedroom/day. (This additional savings is often achieved by replacing toilets and washing machines.)

Key Actions

Property Owner

1. Develop baseline water use in gallons/bedroom/day. If you are using an energy benchmarking program it may also benchmark water use.

2. Identify properties where water use exceeds the target benchmark of greater than 75 gallons/bedroom/day.

Property Manager

1. Under direction from the Property Owner, input water use data into a benchmarking program on a quarterly basis, at a minimum.

2. Under direction from the Property Owner, conduct a water assessment to document water use specifications for fixtures in buildings and to identify leaks. Calibrated bags can be purchased to easily measure the flow rate of kitchen and bath faucets and showerheads. Leaks should be noted, including across the shower diverter valve (excessive water exiting the tub spout while the shower is on). Dye tablets easily identify toilet flapper leaks. Irrigations systems should be checked for leaks at the beginning of each season.

3. Quarterly & Annually: Provide updates to the Property Owner on water use in buildings.

Tracking

Quarterly review of water use.

Annually identify significant changes in water consumption, target buildings for water conservation efforts in the coming year, and evaluate the effectiveness of completed water conservation measures in terms of water consumption.

Resources

WegoWise—*www.wegowise.com*

Energy Scorecard—*www.energyscorecards.com*

U.S. EPA Portfolio Manager—*www.energystar.gov/istar/pmpam/*

U.S. HUD Retrofitting Apartment Buildings to Conserve Water—*http://www.huduser.org/Publications/PDF/Book2.pdf*

Water Conservation

Goal

Reduce water use in properties to below the target benchmark of 75 gallons per bedroom per day.

Key Actions

Property Owner

1. Appliances and Fixtures: Specify water conserving appliances and fixtures during upgrades and unit turnover (see Green Products). These recommendations exceed the EPA WaterSense standards, and are recommended based on the experience of other owners.

- **Toilets:** EPA WaterSense and minimum 750 solid gram removal (WaterSense sets a minimum of 350 grams). Added information on solid gram removal is available at Maximum Performance Testing (MaP) *www.map-testing.com*—a searchable database.
- **Kitchen Faucets:** 1.75 gallons of water per minute (gpm) (EPA WaterSense sets a standard of 2 gpm).
- **Bathroom Faucets:** 0.5 gpm (EPA WaterSense sets a standard of 2 gpm).
- **Showerheads:** 1.75 gpm (EPA WaterSense sets a standard of 2 gpm).

2. Water Saving Strategies: In buildings that exceed water targets, request proposals from the Property Manager and a third party contractor to conduct water saving measures with the anticipated payback. Pursue cost-effective strategies.

3. Resident Training: Provide resident training in conjunction with the Property Manager at lease up and regular intervals, consistent with resident training plan.

4. Plantings: Ensure new plantings are draught tolerant and will not need irrigation systems.

5. Sewer Abatement Meter: Determine if the property may qualify for a sewer abatement meter, working in conjunction with the Property Manager. Sewer abatement programs are offered in some localities, and must be examined on a case-to-case basis. If programs are offered, a sewer abatement credits the owner for water that enters a building or site, but does not enter the sewer system (e.g., irrigation systems, water-cooled air conditioning systems, or large scale laundries). Depending on the amount of water being used for these purposes, abatement credits can significantly decrease sewer charges.

Property Manager

1. Appliances and Fixtures: Install water conserving fixtures and appliances (see specifications aforementioned and in Green Products).

2. Laundry: Require laundry contractor to meet Green Laundry specifications.

3. Unit Turnover: Test and install water-conserving fixtures during unit turnover (see Unit Turnover and Inspection). Test and replace leaking toilet flappers.

4. Toilet Maintenance: Replace toilet flappers on a five to seven year schedule.

5. Water Conserving Strategies: Provide cost proposals, as requested by the Property Owner, to undertake water conservation upgrades. Implement water conservation upgrades as requested by the Property Owner.

6. Resident Education: Provide information to tenants on how to identify toilet and fixture leaks and the importance of reporting them.

7. Sewer Abatement Meter: Identify buildings where it may be appropriate to obtain a sewer abatement meter (properties with substantial water needs, but no accompanying sewer use, such as irrigation, water-cooling air conditioning system, or large scale laundry rooms). Contact the local water and sewer authority to ask for information on abatement meters. If abatement meters are allowed, ask the authority how to obtain a permit and if there are specific installation requirements. Determine, working in conjunction with the owner, if it is cost-effective to install the abatement meter. If yes, proceed to installation.

Tracking

Annually establish priorities for water conservation efforts and update policy.

Resources

EPA WaterSense—*www.epa.gov/watersense*

MaP Testing—*www.map-testing.com*

U.S. HUD Retrofitting Apartment Buildings to Conserve Water—*http://www.huduser.org/Publications/PDF/Book2.pdf*

Green Laundry

Goal

Reduce the use of water and energy by laundry equipment, while maintaining high functioning cleaning and drying equipment.

Key Actions

Property Owner

Require ENERGY STAR clothes washers and clothes dryers with moisture sensors in central laundry facilities.

Property Manager

1. Central Laundry Contracts: Require contractors and vendors of central laundry equipment to provide ENERGY STAR washers and clothes dryers with automatic shut off controls linked to moisture sensors. Using ENERGY STAR's qualification system, select the most efficient machines taking into account cost-effectiveness. For dryers, maximize the Modified Energy Factor (minimum 1.8) and minimize the Water Factor (maximum 8.0). Provide signage for residents regarding high efficiency machines and appropriate detergent use (e.g., most high efficiency machines require much less detergent). Require annual cleaning of dryer vents and annual inspection of connections and machine operations.

2. Lease Addendum for Residents Supplying Personal Machines: If residents are permitted to install washer and/or dryers, inspect the unit annually to ensure the water is drained properly, connections are secure, and dryers are vented appropriately. Dryer vents should be cleaned annually.

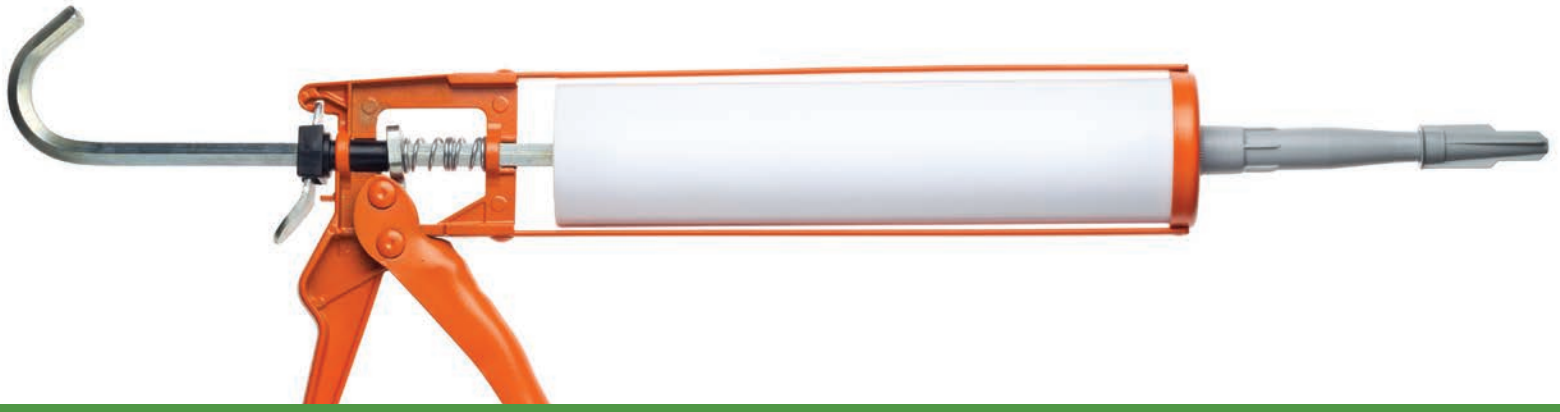
Tracking

Annually review Green Laundry progress.

Resources

Consortium for Energy Efficiency—*www.cee1.org*

EPA WaterSense—*www.epa.gov/watersense*



Pest Control

Goal

Minimize pest problems using Integrated Pest Management (IPM) strategies, which cost-effectively prevent and address pest problems while minimizing the harm to people, property and the environment. IPM methods rely on a range of strategies beyond the application of pesticides to prevent and control pest issues.

Key Actions

Property Owner

Ensure contracts with pest professionals require use of IPM certified professionals (e.g., Green Pro or Greenshield certified) and IPM practices. Pesticide sprays (unless it is an insect growth regulator or needed to address bedbug infestations), foggers or bombs, organophosphate or chlorinated hydrocarbons pesticides should not be permitted.

IPM Practices

Ensure that contracts with pest professionals require the Integrated Pest Management elements listed below, taking into account internal contracting policies.

1. IPM Training and Certification: Require all pest professionals to show proof of IPM training/certification from a state agency or third party—Green Pro or Greenshield certified; demonstrate equivalent IPM training.

2. IPM Policy: Contractor shall include a written IPM policy.

3. Inspections: Conduct initial and periodic inspections of exterior and interior spaces to identify pest entry points and evidence of pests. Pest professionals should provide written evaluation of pest control needs for approval by the Property Manager. Identify problem areas, recommended structural, sanitary, or procedural modifications that will reduce pest access to food, water and shelter (e.g., seal entry points such as openings, cracks, crevices; cover and control pest access to trash cans/dumpsters/trash chutes).

4. Monitoring: Once recommended repairs and pest control actions are undertaken, direct contractor to monitor pest levels and report results to the Property Owner and manager.

5. Pesticide Use: Pesticide application shall be considered after all other methods have been attempted to respond to observed pest problems. Use spot treatments rather than area-wide applications. Select lowest-toxicity pesticide and treat only in response to presence of pests.

a. Approved Products: Do not apply any pesticide product that has not been included in the IPM Plan or approved in writing by the Property Owner.

b. Application by Need: Employ the least hazardous material, most precise application technique, and minimum quantity of pesticide necessary to achieve control. Ensure application of products containing pesticides render the pesticides inaccessible to residents, visitors, pets (if allowed), and staff.

c. Prohibited Products: Pesticide sprays (unless it is an insect growth regulator or needed to address bedbug infestations), foggers or bombs, organophosphate or chlorinated hydrocarbons pesticides are not permitted.

d. Pesticide Storage: The Contractor shall not store any pesticide product in the buildings specified in this contract.

e. Notification: Provide written notice of the intention to apply any pesticide application and post a warning in areas that will receive treatment at least 24 hours prior to application. Rooms, apartments, and other areas sprayed with insecticides must be posted at conspicuous entries at least 24 hours prior to application.

6. Insect Control: Apply insecticides as "crack and crevice" treatments—i.e., formulated insecticide is not visible to a bystander during or after the application process. For cockroaches, the preferred treatments are baits, gels, growth regulators, and boric acid.

7. Rodent Control: As a general rule, rodent control inside buildings shall be accomplished with trapping devices only.

a. Trapping Devices: Trapping devices shall be out of public view or locked inside trapping stations to avoid being disturbed by routine cleaning. Devices shall be checked on a schedule and the Contractor shall be responsible for disposing of all trapped rodents.

b. Bait Boxes: All bait boxes shall be placed out of general view, in locations where they will not be disturbed by routine operations. Securely lock or fasten lids. Secure the box so it cannot be picked up or moved. Label the box inside with the Contractor's business name and address, date of installation, and date of subsequent servicing.

c. Rodenticides: In exceptional circumstances, when rodenticides are deemed essential, the Contractor shall obtain approval from the Site/Building Manager. All rodenticides, regardless of packaging, shall be placed either in locations not accessible to children, pets, wildlife, and domestic animals, or in EPA-approved tamper-resistant bait boxes.

8. Unit Turnover: Provide unit turnover services and recommended responses for maintenance staff to prevent and address pest issues including sealing cracks, crevices, and other exclusion strategies.

9. Resident Education: Provide on-site resident education in conjunction with the Property Owner and Manager. Ensure that all building occupants know how to report pest sightings. Provide residents with guidance on how to dispose of all household garbage and recycling.

Property Manager

1. Preventative Measures: Maintenance staff will help prevent pest issues by:

- Provide housekeeping in common areas, hallways, stairwells, laundry rooms, trash chutes, garbage areas, and maintenance/utility areas.

- Pest proof by sealing cracks, holes and crevices, doors, windows, and other entry points (such as pipes) to prevent potential pest entry.
- Provide trash removal. Provide sufficient cans or dumpsters to contain waste before pick-up. Regularly clean compacter to prevent build up of debris.
- Integrate pest exclusion (e.g., sealing holes, cracks, and crevices) with energy efficiency and air sealing activities.
- Keep any landscaped areas well-trimmed and maintained to reduce harborage.

3. Approve Contractor IPM Plan: The Property Manager shall review and approve the IPM Plan submitted by the Pest Control Contractor and work with residents to undertake appropriate actions.

a. Resident Complaints: Maintenance staff shall respond promptly to pest complaints. Ten to 14 days after action has been taken, the building manager/ property manager shall follow up on the conditions.

b. Written Notice: Property Managers shall provide written notice to residents at least 24 hours prior to pesticide application.

c. Resident Education: In conjunction with IPM contractor, Property Managers shall conduct education and outreach for periodic resident education sessions, during lease up, and during pest infestations. To the extent feasible, incorporate the below items in resident leases. Work to ensure residents understand their responsibilities:

i. Report to management pest sightings and conditions that may attract pests.

ii. Do not use foggers, bombs, or sprays.

iii. Keep the home in a clean, clutter-free and sanitary condition.

iv. Prepare apartment for pest management service visits according to instructions provided in advance.

v. Participate in monitoring the apartment with traps provided by management.

Tracking

Quarterly review pest issues and responses.

Annually review Pest Control progress.

Resources

Boston Public Health Commission, “IPM: A Guide for Managers and Owners of Affordable Housing”—*www.bphc.org*

GreenPro Certification—*www.npmagreenpro.org*

Green Shield Certification—*www.greenshieldcertified.org*

National Center for Healthy Housing, “IPM in Multi Family Housing,” training for managers and contractors—*www.healthyhomestraining.org*

Stop Pests, “Integrated Pest Management Guide for Affordable Housing”—*www.stoppests.org*

Green Cleaning

Goal

Maintain properties cost-effectively using green cleaning products that minimize the use of harmful or toxic chemicals. Ensure property management staff and vendors use green cleaning products.

Key Actions

Property Owner

Require staff, Property Manager, vendors and contractors to use green cleaning products that meet third party certification unless such products are not available or cost-effective. Acceptable green certifications include: Greenseal, U.S. EPA Design for the Environment (Dfe), and Eco Logo.

Property Manager

1. Require all vendors (cleaning, other rehab contractors) to use green certified cleaning products unless the product is not available. If vendors cannot identify an available cost-effective cleaning product that is GreenSeal or EcoLogo Certified, or Dfe approved for a particular use, the vendor shall evaluate if that specific product is needed. If the product is critical the vendor shall provide the Property Manager a written request to justify the use of a non-third party certified cleaning product and obtain written authorization. Such authorization is not required during emergency cleaning activities.

2. Encourage the use of: dilution control systems (to reduce packaging waste and supplies), Microfiber wipes and mops, HEPA filtration vacuums, Green Seal certified or Forest Stewardship Council (FSC) certified paper products

Tracking

Annually review Green Cleaning progress.

Resources

Design for the Environment (Dfe)—*www.epa.gov/dfe*

EcoLogo—*www.ecologo.org/en/*

GreenSeal—*www.greenseal.org*

New York State Green Cleaning Program—*www.greencleaning.ny.gov*

Waste Reduction and Recycling

Goal

Reduce waste disposal and encourage recycling to the maximum extent feasible.

Key Actions

Property Owner

1. Provide resident training, in conjunction with the Property Manager, to encourage recycling.

2. Incorporate recycling friendly design into rehab specifications and relevant work order requests.

3. Require the Property Manager to request bids from flooring vendors to recycle removed carpet.

4. Work with the Property Manager to undertake at least one recycling pilot initiative to provide options for residents to recycle electronics not currently recyclable at the curbside.

5. Work with the Property Manager to provide resident training on green practices, including recycling, at lease up and on an ongoing basis.

Property Manager

1. Require flooring contractors to provide bids to recycle removed carpet during carpet installations.

2. Provide each housing unit with a recycling bin and instructions for cleaning the bin.

3. Prepare recycling pilot innovation plan to explore recycling electronics at community collection days, if available. In conjunction with the Property Owner, determine if pilot will be conducted.

Tracking

Annually review and evaluate new recycling initiatives to assess success, costs, and implementation issues.

Resources

U.S. Environmental Protection Agency—*www.epa.gov/osw/conserve/rrr/recycle.htm*

Unit Turnover and Inspection

Goal

Incorporate actions to identify and address opportunities to save energy and water, reduce waste disposal, reduce the use of pesticides and chemicals, and create healthier living environments into unit turnover practices and annual inspection protocols.

Key Actions

Property Owner

Require the Property Manager to review performance and incorporate energy and water saving features into unit turnover protocols, annual inspections, and other comprehensive property maintenance inspections.

Mechanical Systems/Electrical

- Set thermostat to 50 degrees in unoccupied apartments.
- Replace analog thermostats with limiting and/or programmable thermostats.
- Turn off air conditioner units unless needed to avoid excessive heat.
- Between November and April remove the air conditioner or install a cover sleeve; check caulking.
- HEPA vacuum and wipe baseboard radiators and ventilation fans.
- Ensure light fixtures are ENERGY STAR, if not replace with ENERGY STAR.
- Replace incandescent bulbs with compact fluorescent bulbs or LED fixtures/bulbs.
- Check operation of carbon monoxide and smoke alarms, repair as needed in accordance with state or local laws.

Appliances

- Install ENERGY STAR appliances where replacements are made.
- Direct vent kitchen range to exterior where possible.
- Hoods venting to the exterior should be dampered. Ensure ducting is rigid and properly sealed at joints.

Plumbing/Bath/Kitchen

- Replace non-code toilets, or those operating with 3 or greater gallons per flush with EPA WaterSense toilets that also has a minimum 750 grams of solid gram removal—see *www.map-testing.org* for results. Consider flapperless designs.
- Test toilet flapper and replace if leaking.
- Check showerhead for flow >1.75 gpm, install new low flow as needed.
- Check shower diverter valve for leaks and repair or replace as needed.

- Check bath fan operations, install ENERGY STAR fan on timer or humidistat where possible.
- Check faucet aerators and install as needed: kitchen at 1.5 gpm, bath at 0.5 gpm.
- Check under sinks for leaks and air gaps, repair and air seal as needed.

Windows/Doors

- Caulk windows and storms, rebalance and ensure smooth operation.
- Check and repair weather stripping and door sweeps on entry doors.

Flooring/Painting/Cleaning/Pests/Trash (See Green Products)

- HEPA vacuum carpet.
- Use green certified replacement flooring.
- Recycle removed carpet.
- Use low or no-VOC paints.
- Use green certified cleaning products.
- Inspect for pests; report problems to IPM contractor, seal holes for pest entry.
- Ensure recycling bins are present.

Property Manager

1. Integrate green unit turnover and inspection items into existing checklists and protocols.

2. Provide green unit turnover protocol to the Property Owner to review.

3. Train maintenance staff on new procedures.

4. Train new residents on recycling procedures, use of thermostats and baseboard controls, cleaning of any special floor materials, etc.

Tracking

Annually review Unit Turnover and Inspection compliance.

Resources

Design for the Environment (Dfe)—*www.epa.gov/dfe*

EcoLogo—*www.ecologo.org/en/*

EPA Energy Star—*www.energystar.gov*

EPA WaterSense—*www.epa.gov/watersense*

GreenSeal—*www.greenseal.org*

Maximum Toilet Performance Testing—*www.map-testing.com*

New York State Green Cleaning Program—*www.greencleaning.ny.gov*

Green Product Specifications

Goal

Specify and install green products when available and cost effective during work order requests, renovation, unit turnover, and property maintenance.

Key Actions

Property Owner

Identify green certifications and products for use by: property management staff, contractors and owner staff undertaking repairs, renovations, or maintenance. A list of such certifications and products is provided below.

Property Manager

Require staff and contractors to specify the green products identified by the Property Owner. Modify vendor contracts as needed to ensure compliance with your green goals.

Product	Green Specification
Bathroom	
Toilet	1.28 gpf with at least 750 gram waste removal (EPA WaterSense specifies 1.28 gpf and minimum 350 grams of waste removal).
Showerhead/	<1.75 gpm—adjust if low water pressure (EPA WaterSense specifies 2 gpm)
Faucet Aerators	Kitchen: 1.5 gpm at 60 psi
Bath	<.5 gpm test for performance (WaterSense allows 1.5 gpm)
Bath Fan	EPA ENERGY STAR with timer or humidistat
Appliances & Lighting	
Refrigerators	EPA ENERGY STAR
Air Conditioner	EPA ENERGY STAR
Dishwasher	EPA ENERGY STAR
Lighting	EPA ENERGY STAR; Interior CFL and T-8 linear fluorescent lamps with electronic ballasts; Exterior—photo sensors; LED exit lights

Cleaning Supplies	
Cleaners	GreenSeal, Dfe Approved, or EcoLogo Certified
Flooring & Cabinets	
Carpet & Entry Mats	Green Label or Green Label Plus Certified by Carpet & Rug Institute
Recycle removed carpet	Vendor to supply price quote to recycle removed carpet and components (100%, 50%, 30% recycled).
Resilient Floor	FloorScore Certified by Resilient Flooring Association
Floor Adhesives	Low VOC <50 g/L for carpet and VCT; consistent with US GBC LEED
Cabinets	Urea formaldehyde free cabinets, certified California 93120 Compliant for Formaldehyde—Phase 2. If not available seal edges and exposed wood
Paint & Paper	
Interior Paint	GreenSeal certified or meet LEED for Homes VOC standards
Paper Towels	GreenSeal or EcoLogo Certified

Tracking

Annually review Green Product Specifications compliance.

Resources

Dfe (US EPA Design for the Environment)—*www.epa.gov/dfe*

EcoLogo – Certified by Canadian Government—*www.ecologo.org/en/*

EPA WaterSense—*www.epa.gov/watersense*

EPA ENERGY STAR—www.epa.gov/energystar

FloorScore—Certified by Resilient Flooring Association—*http://www.rfci.com*

Green Label and Green Label Plus Certified by Carpet and Rug Institute (CRI)—*http://www.carpet-rug.org/commercial-customers*

GreenSeal—*www.greenseal.org*

MaP Toilet Testing—*www.map-testing.com*

photo courtesy of Lisa Cowan, PLA, ASLA, Principal, Studioverde, Cumberland, Maine and Austin, Texas

Green Landscaping

Goals

Develop high performance landscapes that reduce the use of water and chemicals, create habitat, and encourage community engagement.

Key Actions

Property Owner

1. Pest & Insect Control: Develop an Integrated Pest Management (IPM) policy for landscaping and direct the Property Manager and contractors to follow IPM practices.

2. Landscaping: Design and maintain outdoor spaces to encourage natural processes that reduce maintenance, water use, fertilizer use, and air pollution.

a. New Plantings: Provide sufficient soil and appropriate selection to minimize use of fertilizer, water, and maintenance.

b. Native and Adaptive Perennial Plantings: Use native, adaptive (hardy non-natives), and non-invasive woody and perennial plantings that are drought resistant and low maintenance. Annual plantings, if desired, should be limited to containers or small planters to reduce the need for watering and fertilizing large areas.

c. Lawns: New lawn areas should use tall fescue sod and seed mixes (over Kentucky Bluegrass mixes) that require less fertilizer and maintenance. Replace existing lawn with high performance woody and herbaceous plant groups in lieu of high maintenance turf areas, when possible. Well-designed plant groups perform multiple functions—they provide shade and reduce heat island effect, allow stormwater infiltration, reduce mowing, provide multi-seasonal structure and color, and improve habitat for pollinators.

d. Lawn Care: Discourage the Property Manager from hiring companies that favor "Mow and Blow." The use of gas powered equipment may appear to save labor costs, but it can be over applied resulting in extra hours of labor time if not applied strategically, create a noise nuisance, provide unhealthy air quality for residents, and will increase in cost as energy prices rise.

e. Mulch: Use mulch and compost mixes to reduce fertilizer, herbicides and water use.

f. Irrigation and Watering: Minimize the use of irrigation and watering.

g. Fertilizer: Minimize or eliminate the use of fertilizer where possible.

3. Food Production: Consider developing spaces for community gardens to encourage residents to spend time outdoors and care for outdoor areas around their buildings. Due to potential soil contamination from past historic uses, raised beds should be used for all gardens. Raised beds are also easier to maintain, and look neater and more organized.

Property Manager

1. Pest and Insect Control: Follow IPM practices. Contract with IPM trained or certified professionals when addressing pest or insect issues.

2. New Planting: Provide 6 inches of a combination a loam and compost for all new plant projects. Healthy soils encourage microbiota that will support healthy plant growth reducing the need for labor, energy, fertilizers, and water.

3. Native and Adaptive Perennial Plantings: Use regionally appropriate, low water-using, native plants, adaptive (non-native and hardy), non-invasive plants. A list of locally appropriate plantings can be found at the EPA WaterSense web site by state, see Resources listed below. Consider engaging the expertise of a plant designer that has experience in low maintenance landscapes to guide the choice and combination of plants.

4. Grass & Turf: When possible take the below actions.

a. Reduce Grass Areas: Substitute large plant groupings that include a combination of trees, shrubs and perennial plants designed for reduced maintenance.

b. Substitute or Integrate Low Maintenance Grass Mixes: Use grass mixes that are designed to require less water, less fertilizer, remain green during the summer drought periods and grow less quickly. The sample seed mix below is designed for higher traffic area, is disease and insect resistant, requires less water, and provides good color and texture:

- 25% Masterpiece Tall Fescue
- 25% Rembrandt Tall Fescue
- 20% Kittyhawk SST Tall Fescue
- 20% Exacta Perennial Ryegrass
- 10% Bordeaux Kentucky Bluegrass

Fescue and perennial ryegrass mixtures are better alternatives to mixtures favoring traditional Kentucky Bluegrass.

c. Compost Lawn Areas: In areas where grass clippings are removed, all turf mixes (including high maintenance turf) should receive a light topdress of organic matter like compost (compost tea is an alternative) and be aerated at least once per year. Reseed all areas in early fall or late spring. These practices will help reduce weeds and the need for herbicides, which create poor soil conditions in which weeds thrive.

d. Mowing: Set mower blade at 3-inches all year. Longer grass shades out weeds, promotes deeper root growth and a more drought resistant lawn. Consider leaving clippings on the ground in less visible areas. Mulching places grass clippings back on the lawn, which helps to add nitrogen and organic matter to the soil and enhance grass health.

e. Lawn Care: Do not allow on-site managers to hire companies that favor “Mow and Blow” as discussed under the Property Owner section.

5. Watering & Irrigation: Water the grass and plantings as needed. Create zones of low maintenance plants with similar requirements and reduce watering and irrigation accordingly. Well-designed groupings of drought tolerant plants that are tailored to a site’s soil conditions will eliminate the need for watering after the first 2 years of planting if mulched regularly. If irrigation systems are used, recommend use of drip irrigation or other methods to effectively soak plantings. Even for higher maintenance plants it is not necessary to adhere to a strict water schedule (e.g., 1 inch per week), which can waste

water. Watering demands are based on weather and soil conditions. Verify that any irrigation controls take into account recent rain or the soil conditions and that they are properly functioning. Consider the use of in-ground moisture sensors linked to irrigation system and drip irrigation or equivalent systems to save money on water use in wet periods.

6. Mulch: Consider mulching with compost/bark mixes over straight wood bark mixes. Compost provides organic matter and micronutrients that build soils and improve plant performance. Compost can also eliminate the need for fertilizers and herbicides after plants are established. Repeated applications of bark mulch in poor soil areas can reduce plant performance.

7. Fertilizer: Fertilizer encourages thirsty new growth, causing the landscape to require additional water. If fertilizer is needed, look for a product that contains "natural organic" or "slow-release" ingredients. These fertilizers feed plants slowly and evenly, helping to create healthier plants with strong root systems and no excessive "top growth". Moreover, using "slow-release" fertilizers can reduce nutrient run-off into ground and surface waters, protecting natural resources. The first three numbers (nitrogen, phosphorous, and potassium) listed on fertilizer should be as low as possible. These numbers represent the percentage (by weight) of these three nutrients. Stay away from high numbers, especially the first number (nitrogen,) that is only necessary for establishing new lawns. Fertilizers with higher numbers can burn plants.

8. Trees: Explore the opportunities to plant trees on the site. Some cities and localities offer free trees or may make referrals to local non-profits who can provide trees for urban spaces. Trees provide reduce heat island effect, save building energy costs, provide shade, and help reduce stormwater runoff. Leaves can be used in community garden compost piles or shredded and used as mulch on garden areas.

Tracking

Annually review Green Landscaping progress.

Resources

Sustainable Sites Initiative—*www.sustainablesites.org*

The Yardscaping Initiative—*www.yardscaping.org*

U.S. Department of Agriculture, Cooperative Extension—Information on plantings and IPM—*www.csrees.usda.gov/Extension*

U.S. EPA WaterSense—*www.epa.gov/watersense/outdoor*

Active Design

Goal

Pursue active design strategies to increase opportunities for physical activity for building residents, workers, and visitors.

Key Actions

Property Owners and Property Managers

1. Encourage Stair Use: Direct the Property Manager to post signs and take other actions to encourage stair use.

2. Encourage Children's Play: Provide safe indoor and/or outdoor active play spaces for children and youth. Simple inexpensive features such as colorful ground markings that are stenciled or painted into available spaces can inspire children to play more actively.

3. Facilitate Exercise For Adults: Provide a room or space with exercise equipment. Consider making it adjacent to children's play areas so parents can exercise while keeping an eye on their children. A simple walking track around children's play areas can be created inexpensively with paint.

4. Create Community Through Healthy Activities: Provide multi-use rooms for social gatherings involving exercise classes, healthy cooking classes, and other activities.

5. Create A Gardening Space: Large or small, in a yard or on a roof, gardens are good for health. Gardening is a form of physical activity for people of all ages. And gardens can provide fresh, healthy food while helping to create a sense of community.

6. Support Bicycling: Provide indoor bicycle storage and/or secure outdoor bicycle parking.

7. Provide Water Fountains In Common Areas: Promote access to a healthy and sustainable beverage option. Providing a spigot on water fountains allows users to safely and easily fill reusable water bottles.

Property Manager

1. Ensure Stairs Are Accessible: Provide access to stairs from all apartments and common areas. If there are security concerns, consider implementing a key-card or security-code system to maintain security.

2. Encourage Stair Use: Consider posting signs (e.g., New York City—"Burn Calories, Not Electricity. Take the Stairs!") at elevator call areas and outside stairwells. Studies show that signs result in increased stair use. Use signage and design treatments to help direct people to the stairs. Make stairs more inviting by repainting with bright colors, and

incorporating artwork such as murals, and providing music. Consider the use of fire-rated glass on stair doors to increase the visibility for the stairs and to increase natural lighting, which may help reduce energy use for lighting.

3. Other: Implement other actions related to play areas, healthy activities, gardening, cycling, etc. as directed by the Property Owner.

Tracking

Annually review Active Design progress.

Resources

New York City Active Design Guidelines—*www.nyc.gov/adg*

Centers for Disease Control—search "StairWELL to Better Health" at—*www.cdc.gov*

Smoke Free Housing

Goal

Explore establishing smoke free housing policies for new developments and existing properties. Smoking is the single greatest cause of disease and premature death in the United States, contributes to tenant complaints related to odor, and increases the properties operational costs.

Key Actions

Property Owner

1. Pilot Program: Pilot test a smoke free housing policy for new construction or substantial rehab properties. Alternately, choose a single site to implement a smoke free housing pilot policy. Use results to inform efforts to expand smoke free policies to the existing portfolio.

2. Resident Outreach: Explore resident interest in pursuing smoke free housing in existing buildings through the use of tenant surveys and resident outreach.

Property Manager

1. Tenant Outreach and Surveys: Work with the Property Owner to support resident education and outreach, including resident surveys.

2. Enforcement: Enforce smoke free housing policy and related lease restrictions at pilot site and any additional properties adopting a smoke free housing policy.

3. Signage: Install signage and provided printed material for visitors at the main entrances of each building with a smoke free housing policy.

Sample Smoke Free Housing Policy

Effective [DATE], the use of all tobacco smoking products (cigarettes, cigars, and pipes) is prohibited on [Property Name] property and within 25 feet of the building. This prohibition applies to all indoor and outdoor areas (apartments, entry areas, walkways, grassed areas, picnic areas, parking lots, vehicles owned by [property owner and manager] and private vehicles parked on [Property Name] property). This policy applies to all employees, visitors, residents, subcontractors, volunteers, and vendors.

Sample Exception

(for existing properties establishing a smoke free policy)

Current residents who use tobacco products that have entered into a lease agreement prior to [DATE] will be permitted to continue to use tobacco products in their apartments for twelve months after the smoke free policy is in effect. Therefore, on [DATE], all units will be smoke free and at that time all smokers will need to adhere to the set policy. This exception shall not extend to visitors or anyone other than the lease holder/occupant.

Sample Lease Addendum Language

Adopt the language below, consistent with funder restrictions.

Included in the "Definitions" section of the lease:

Smoking: *"Smoking" shall include the inhaling, exhaling, burning, or carrying of any lighted cigarette, cigar or other tobacco product, marijuana, or illegal substance.*

Included in the restrictions section of the lease:

Smoking: *Due to the increased risk of fire, and the known health effects of secondhand smoke, smoking is prohibited indoors and within 25 feet of the residential building. This restriction applies to both private and common areas and applies to all owners, tenants, guests, and servicepersons.*

Tracking

Annually review Smoke Free progress.

Resources

Boston Public Health Commission—*www.bphc.org*

Capital District Tobacco Free Coalition—*www.smokefreecapital.org*

Michigan Smoke-Free Apartments—*www.mismokefreeapartments.org*

Minnesota Smoke-Free Housing—*www.mnsmokefreehousing.org*

National Center for Healthy Housing—*www.healthyhomestraining.org*

Smoke-Free Housing Coalition of Maine—*www.smokefreeforme.org*

Smoke-Free Housing New England—*www.smokefreehousingne.org*

Tobacco Technical Assistance Consortium—*www.ttac.org*

U.S. HUD Smoke Free Housing Policy Implementation, Notice H2010-21—*www.hud.gov*

U.S. HUD Multi Family Smoke Free Housing Tool Kit—*portal.hud.gov/hudportal/HUD/smokefreetoolkits1*

Green Office Practices

Goal

Reduce the use of energy, water, product consumption, and toxins in on site property management offices and in owner offices, to the extent feasible.

Key Activities

Property Owner

Use the below green products and practices at the Property Owner's offices and Property Management offices at residential properties.

Green Products & Purchases

- Purchase minimum 20% post consumer recycled paper.
- Use GreenSeal or Forest Stewardship Council Certified (FSC) certified bathroom and kitchen paper products.
- Install water filters, rather than providing bottled water.
- Supply reusable kitchenware (silverware, dishes, glasses, etc.) if washing facilities are available.
- Purchase green office furniture (Forest Stewardship Council Certified or made with high recycled content) to the extent feasible.
- Purchase green cleaning products (See Green Cleaning)

Office Practices

- Turn off lights when not in use and install motion sensors for conference rooms.
- Recycle printer cartridges, broken electronics, paper, cans, bottles, light bulbs, and batteries.
- Enable sleep mode on computers and other electronics (faxes, printers, etc.). Turn off computers, printers, and copiers at the end of the day.
- Specify new printers that have double sided printing capability.
- Check and replace drinking water filters.
- Encourage employees to get to work by walking, bike riding, carpooling, or riding public transit. See EPA's Commuter Choice Primer for information on starting a Commuter Choice program-
- Subscribe to online billing to reduce paper use, when feasible.

Property Manager

Comply with the above green practices and products, to the extent feasible.

Tracking

Annually review Green Office progress.

Resources

Commuter Choice—*http://www.commuterchoice.com/*

Resident Training

Goal

Provide resident with information and tools to support and participate in green practices.

Key Actions

Property Owner

Provide training, in conjunction with Property Manager, on green building practices when tenants move in and at regular intervals. Integrate with other related training (e.g., financial literacy).

Property Manager

1. Working with the Property Owner, provide training on green and healthy practices to resident at move in and at regular intervals. Possible training areas to include: use of thermostats and baseboard controls, energy conservation, recycling procedures, green cleaning, reporting pest problems and IPM responses, and water conservation actions.

2. Encourage residents to use online billing to reduce paper use.

Tracking

Annually review Resident Training progress.

Appendix A:
Green Property Management Schedule

	Property Owner	Property Manager
Start Up	• Adopt green policies. • Benchmark baseline energy and water use. • Identify buildings with high energy or water use. • Apply for resources, such as utility rebate programs, to address high energy and water use buildings. • Target energy and water upgrades.	• Review policies, tools, and vendor contracts for consistency with Green & Healthy Guide. • Become familiar with energy and water benchmarking data system. • Prepare report for owner identifying buildings with high energy use (>10 BTU/ft^2/HDD) and identify potential energy saving opportunities. • Work with owner to identify buildings with high water use.
Monthly	• Meet Property Manager to review energy use.	• Report energy use to owner. Identify inefficient buildings.
Quarterly	• Review water use, pest, recycling, and other green issues.	• Report water use, pest, recycling, and other green issues to owner.
Seasonal		• Remove AC units and insulate AC sleeves (Nov–Apr).
Annual	• Review energy and water use. Identify buildings with greatest energy and water saving potential, plan for upgrades, evaluate performance of upgraded buildings, and integrate opportunities for improvements with capital needs planning. • Review compliance with green specifications, vendor contracts, and policies.	• Review energy and water use with owner. Identify buildings with greatest energy and water saving potential and evaluate performance of previously upgraded buildings. • Provide owner update on compliance with green specifications, vendor contracts, and policies.
Bi-Annual	• Review and modify Green & Healthy policies.	• Review Green & Healthy policies with owner.

Appendix B:
Green Agenda Items

Sample Green Agenda Items
Monthly Property Management Meeting

1. Review energy and water use in the five most inefficient buildings
2. Review energy and water use after retrofits—if applicable
3. Review unusual energy or water use spikes and responses
4. Review unusual activities (pest problems, water leaks, unit turnover challenges, etc.)

Appendix C:
Assess Green Practices

Goal	No Actions	Partially Achieved	Achieved	Comment
Energy Assessment				
Energy Reduction				
Water Assessment				
Water Conservation				
Green Laundry				
Pest Control				
Green Cleaning				
Waste Reduction & Recycling				
Unit Turn Over & Inspection				
Green Building Products				
Green Office Practices				
Resident Training				
Smoke Free Housing				
Active Design				
Green Landscaping				

Notes:

LISC
Helping neighbors build communities

95 Berkeley St. Suite 301
Boston, MA 02116
(617) 338–0411
www.bostonlisc.org