



Integrated Pest Management at Washington Columbia II A Management-led Program



Washington Columbia II is a seven-building apartment complex in Boston, MA resting on approximately 4.6 acres. Renovated in 1992, the property has 175 units including 56 one-bedroom, 109 two-bedroom and 10 four-bedroom units. WinnResidential, a Boston-based property management company with more than 80,000 multifamily residences nationwide in its portfolio, manages the site.

Before the M2M Green Initiative:

WinnResidential heard about Boston Housing Authority's (BHA) integrated pest management (IPM) efforts in 2006 and pursued putting together its own IPM program to reduce the amount of chemicals that were being applied in its properties. Management knew IPM would be time-consuming for staff, residents, and contractors and probably more expensive

than the traditional method of pest control, yet felt that the potential benefits would more than compensate for the time and money spent.

To initiate its IPM program, WinnResidential hired local IPM consultant Don Rivard of Rivard's Resources who was working with the BHA and was able to apply lessons learned to WinnResidential's program. Mr. Rivard helped write the IPM policy, plan, and procedures that WinnResidential currently uses throughout its portfolio.

Orkin conducted the IPM Inspection Report for the Green Property Conditions Assessment (GPCA) in preparation for the Mark to Market (M2M) Green Initiative. Orkin found mouse and German cockroach infestations as well as building deficiencies in the basements of the buildings and in the units. Orkin's report was highly detailed and included pictures with recommendations for each pictured deficiency. The property manager at Washington Columbia reviewed the report and considered its recommendations when planning Green Initiative renovation efforts.

The pest control contractor, MD Weaver Corporation, did not use Orkin's IPM Inspection Report to form its proposal or plan its IPM efforts. Several pest control companies contracted to perform IPM services reported that the monitoring component of the IPM Inspection Report is unnecessary because properties contract for pest control regardless of infestation level to meet the M2M

requirements and that any IPM program should begin with building-wide monitoring by the contractor.

Property Management's IPM Plan:

Appendix 1 includes WinnResidential IPM Plan, a document that property managers share with residents, staff, and contractors. Readers should note that IPM procedures vary by region and that this is for a property in the Northeast. The plan covers the following IPM program components:

- IPM program goal
- Policy statement
- Roles of IPM team members
 - Building manager
 - Residents
 - Pest control contractors
- IPM procedures for building staff
- Lease addendum
- Assessment and evaluation
- Potential Linkages to LEED EB Credits

IPM Service Agreement:

MD Weaver has managed pests at Washington Columbia II since 2008. At the beginning of the program, it performed property-wide inspections twice a year. With infestations under control, the goal of identifying infestations early-on is met through property staff and residents calling in work orders. This property-led program only works if staff and residents are committed to IPM and all receive IPM education on how to inspect and report.

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Every six months the contractor, residents, and property staff have a meeting where the contractor presents IPM information. At this meeting, members of the IPM team can make suggestions for program performance. One common barrier to pest control in residences is poor housekeeping. MD Weaver will not service a unit that is not prepared. If residents have persistent housekeeping issues that staff cannot address, WinnResidential hires cleaning or organizing contractors to work with residents. In some cases, the property management will pay MD Weaver to do the preparation, but this is the exception. Overall, compliance with preparation instructions is good at the property.

The pest management professional (PMP) services all of the units once per year. If no infestation is found through monitoring, the unit is automatically scheduled for the following year. If infestation



Table 1: Pest control service schedule

	Weekly	As-needed during weekly visits	Yearly
Inspect and replace monitors in each unit			X
Inspect common areas	X		
Service vacant units		X	
Follow up on treatment		X	
Respond to work orders		X	

exists, the contractor schedules a follow up treatment. Follow up continues until no infestation exists. The PMP visits the property each week to inspect common areas, respond to any pest-related work orders that have come in from residents, service any vacant units and follow up on previous efforts. Units may be scheduled for service because of prior pest issues, continued sightings, or because a given unit is suspected of having an issue. A repeated pest issue in one unit sometimes requires treating adjacent units even though they are not calling for service. The PMP and property staff work as a team to plan building-wide pest control efforts and designate the units requiring treatment.

The charges for this service agreement include an annual fee for property-wide inspection, a per-unit per-visit fee (Washington Columbia II budgets for 10 in-unit services per month) and additional charges for specialty services such as wildlife control. The budget for pest control in 2008 was \$14,936. This has increased to \$18,000 in 2010. The number of pest control-related work orders and affected units has also increased. Some of this can be attributed to bed bugs. In 2008 there was only one unit with bed bugs. In 2010, there were 10 units with active bed bug infestations. Despite the increases, WinnResidential is still committed to IPM and is pleased with the overall result of the program.

Since WinnResidential implemented IPM, pest control has improved to the point that growing infestations are rare. However, with infestations becoming less common, residents face the unintended consequence of property managers de-prioritizing pest control efforts. It has become more difficult to schedule a property-wide inspection because someone from property staff is not always available to grant unit access to the PMP. Each year the annual inspection has been delayed a few months, but does eventually get done. Despite the difficulties with scheduling, MD Weaver reports that, once the PMP is on site, staff and residents are cooperative and follow up on the PMP's recommendations. This cooperation makes the PMP's work more rewarding, encouraging him to give pest control at this property the time and effort it deserves.

Details of MD Weaver's service in units are included as Appendix 2. Noteworthy is the fact that the PMP regularly uses a low expansion foam to fill small holes, cracks and crevices at no additional charge. Regarding exclusion work, it is useful to clearly delineate whether filling cracks and crevices is a maintenance activity or a PMP responsibility.

IPM Implementation

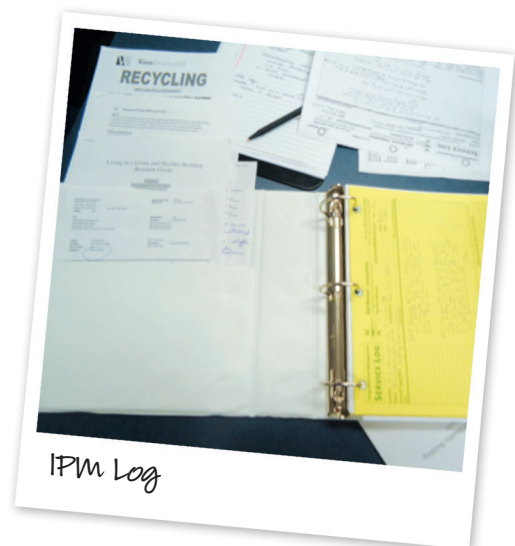
A September 2010 visit to Washington Columbia II revealed that the property manager knew about IPM and its implementation. All required paperwork was in the office in the IPM Log. On paper, all components of the IPM program were in place.

A tour of the property revealed that the staff, residents and contractor were in-fact implementing WinnResidential's comprehensive IPM Plan. Because IPM had been implemented before the M2M Green Initiative renovations, WinnResidential required the renovation contractors to seal up holes, cracks, and crevices with management oversight. The outcome is a building that prevents pest entry and harborage. The pictures below demonstrate some of the exclusion that was done in response to the GPCA IPM Inspection Report and M2M renovations. The author has been in many multifamily properties and has rarely seen renovations done to such a high standard.

GPCA IPM Inspection Report and September 2010 Visit

According to the property manager, it took about three months after the renovation to get control of the pests, and since then the upkeep has been minimal.

The IPM Inspection Report did find pest infestation at Washington Columbia II in 2008 despite there being an IPM program in place. Much of this was attributed to building deficiencies. The property





WinnResidential has been able to maintain a high level of pest management at various properties despite employing different pest control companies to serve the units. This consistent level of control is a result of the property-led IPM initiative.

the only property management company that had an IPM policy and plan in place that was written by property management rather than a pest control company. WinnResidential has been implementing IPM at Washington Columbia II for five years and has reached a point where property staff and residents detect pest infestations early and a PMP is available to service promptly. Reaching this level of control took renovation efforts to seal up pest entry points and harborage and a property-wide commitment to IPM. WinnResidential has been able to maintain a high level of pest management at various properties despite employing different pest control companies to service the units. This consistent level of control is a result of the property-led IPM initiative. Since property managers are educated about and committed to IPM, contractors and residents are held to their responsibilities in the pest control program.

manager said that the door sweeps, recycling program, and new dumpsters that were installed as part of the M2M project showed residents that management was really making a change and helped motivate residents to do their part in pest control. According to the property manager, it took about three months after the renovation to get control of the pests, and since then the upkeep has been minimal. WinnResidential is paying the same amount for pest control (excluding bed bug treatments) as they were before the renovations, yet control is higher. This is a testament to the impact maintenance considerations can have on pest management. The staff at Washington Columbia II plans to maintain the units by ensuring all cracks and crevices in kitchens and bathrooms are sealed when a unit is turned over.

Conclusion

In preparation for these case studies, the author interviewed staff and PMPs at 14 properties involved in HUD's Office of Affordable Housing Preservation's M2M Green Initiative. WinnResidential was

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The National Center for Healthy Housing (NCHH) is a 501(c)(3) nonprofit dedicated to creating healthy and safe homes for children through practical and proven steps. For more information about green and healthy housing, visit: www.nchh.org/training/Green-and-Healthy-Housing.aspx.

APPENDIX 1: WinnResidential IPM Plan

Goal

The goal of this Integrated Pest Management (IPM) policy is to 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.

Policy Statement

Integrated pest management (IPM) is a common-sense method used to eliminate and manage pests in a manner that minimizes the harm to people, property and the environment through multiple strategies: inspection and monitoring, exclusion, housekeeping, landscaping, grounds and trash management and use of low toxicity/low risk pesticides. Effective IPM requires the partnership of all residents, staff and contractors. This property will use and support IPM strategies and activities. This policy and IPM activities will be reviewed annually by the property manager and, when appropriate, Resident Council or Committee.

The key elements of the policy include: modifications to vendor contracts, changes in internal procedures and purchases, enhanced education for residents, lease addenda and evaluation of IPM practices and results.

Roles of the Building Manager and Residents

The Building Management will:

1. Provide new resident and staff with a copy of the IPM Policy.
2. Discourage pests from entering the building through exclusion (sealing holes, crevices and cracks), grounds keeping, trash removal, proper cleaning and maintenance of common areas, effective response to conditions in resident living areas. The manager will pay special attention to basements, storage areas and trash disposal areas with regard to monitoring cleaning and preventing clutter.
3. Establish, in conjunction with the pest control contractor, a pest monitoring system to prevent infestations. Monitors (e.g., sticky traps for cockroaches) will be provided to staff and residents with placement instructions or the manager will contract with a licensed Pest Management Contractor to undertake monitoring.
4. Contract with a state licensed Pest Management Contractor (PMC) who may apply low-impact pesticides, according to label directions and minimize exposure to residents. The contractor shall also have training and/or certification in IPM methods.

5. Provide written notice of the intention to apply any pesticide application and post treated areas, 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. Specify in the Lease Agreement/Contract housekeeping and IPM standards, annual inspections and the consequences for failure to meet these standards.
7. Inspect living units annually; IPM guidelines for housekeeping will be incorporated into the reports.
8. Provide periodic resident education on the importance and effectiveness of IPM and work with residents to ensure that they prepare their living units properly for visits by pest management professionals.

Residents will:

1. Not use pesticides without the permission of the property manager. Some pesticides can increase resident exposure to chemicals and reduce the effectiveness of other products used to control pests.
2. Keep their home in a clean, clutter-free and sanitary condition. Keep common areas clean of rubbish, food and beverages.
3. Prepare their apartment for pest management service visits according to instructions provided in advance.
4. Participate in monitoring their apartment with traps provided by management, under the direction of the building manager or pest control contractor
5. Report to management pest sightings and conditions that may invite, promote or harbor pests including but not limited to: plumbing problems and water leaks; holes/cracks to exterior.
6. Attend IPM educational sessions provided by management

IPM Specifications for Vendor Contracts

1. Minimum IPM Requirements for Bidding:

- a. **Show Evidence of skills** at providing IPM services.
- b. **Provide proof of IPM training** and/or certification from state agency or third party (e.g., GreenPro — formerly known as QualityPro Green — www.npmagreenpro.org/; Greenshield Certification — www.greenshieldcertified.org).

2. Scope of Services:

- a. **IPM Policy:** Provide building manager with vendor's company IPM policy. Provide services consistent with WinnResidential IPM Policy

b. Conduct a through initial visual inspection and monitoring of pests at each building to evaluate pest control needs.

c. Initial IPM Inspection and Plan: Provide written inspection report identifying problem areas, recommended structural, sanitary, or procedural modifications that will reduce pest access to food, water and shelter. Report shall also provide an IPM plan for approval by the building manager or Regional Maintenance Coordinator. The plan shall include an ongoing monitoring plan for all locations where there is an active infestation, pest evidence, or conditions potentially leading to infestation, an exit meeting/call after treatment of infested areas and recommended unit turn over procedures. Provide a written IPM Work Plan in advance of any contracted work.

d. IPM Services: Provide IPM services that include: inspecting likely living and breeding sites; removing pests and their debris, food and dust by HEPA vacuuming; placing sticky traps and other monitoring devices in appropriate locations and monitoring pest activities; sealing openings, cracks, crevices and other entry points and other locations with pest/pest debris or where food/water can collect; applying approved gel and baits as needed; and applying other pesticides as specified in Pesticide section below.

3. Use of Pesticides: The Contractor shall adhere to the following rules for pesticide use:

a. Approved Products: The Contractor shall not apply any pesticide product that has not been included in the IPM Plan or approved in writing by the Vice President of Maintenance.

b. 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.

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

d. Application by Need: Pesticide application shall be considered only after all other methods have been attempted. Pesticide application shall be according to need and not by schedule. As a general rule, application of pesticides in any inside or outside area shall not occur unless visual inspection or monitoring devices indicate the presence of pests in that specific area and actionable levels specified in IPM Plan are exceeded. The Vice President of Maintenance will evaluate and provide written approval for any preventive pesticide treatments in areas where surveillance indicates a potential insect or rodent infestation may develop.

e. Minimization of Risk: When pesticide use is necessary, the Contractor shall 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.

f. Notification: Provide written notice of the intention to apply any pesticide application and post treated areas, 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.

4. Insect Control:

a. Emphasis on Non-Pesticide Methods: The Contractor shall use non-pesticide methods of control as the preferred solution. For example:

- i. Portable vacuums rather than pesticide sprays shall be the standard method for initial cleanouts of cockroach infestations, for swarming (winged) ants and termites and for control of spiders in webs.
- ii. Trapping devices rather than pesticide sprays shall be the standard method for indoor fly control.

b. Application of Insecticides to Cracks and Crevices: As a general rule, the Contractor shall apply all insecticides as “crack and crevice” treatments only, defined in this contract as treatments in which the formulated insecticide is not visible to a bystander during or after the application process.

c. Application of Sprays or Insecticides to Exposed Surfaces: Application of spray insecticides to exposed surfaces or fogging shall be restricted to exceptional circumstances where no alternative measures are practical. The Contractor shall obtain approval of the Regional Maintenance Coordinator prior to any application of insecticide to an exposed surface or application of a spray treatment. No surface application or space spray shall be conducted while resident personnel are present. The Contractor shall take all necessary precautions to ensure resident and employee safety and all necessary steps to ensure the containment of the pesticide to the site of application.

d. Insecticide Bait Formulations: Bait formulations shall be the standard pesticide technology for cockroach and ant control, with alternate formulations restricted to unique situations where baits are not practical.

e. Monitoring: Sticky traps shall be used to guide and evaluate indoor insect control efforts wherever necessary.

5. Rodent Control:

a. Indoor Trapping: As a general rule, rodent control inside buildings shall be accomplished with trapping devices only. All such devices shall be concealed out of the general view and in protected areas so as not to be affected by routine cleaning and other operations. Trapping devices shall be checked on a schedule approved by the Site Manager. The Contractor shall be responsible for disposing of all trapped rodents and all rodent carcasses in an appropriate manner.

b. Use of Bait Boxes: All bait boxes shall be maintained in accordance with EPA regulations, with an emphasis on the safety of non-target organisms. The Contractor shall adhere to the following five points:

- i. All bait boxes shall be placed out of the general view, in locations where they will not be disturbed by routine operations.
- ii. The lids of all bait boxes shall be securely locked or fastened shut.
- iii. All bait boxes shall be securely attached or anchored to floor, ground, wall, or other immovable surface, so that the box cannot be picked up or moved.
- iv. Bait shall always be secured in the feeding chamber of the box and never placed in the runway or entryways of the box.
- v. All bait boxes shall be labeled on the inside with the Contractor's business name and address and dated by the Contractor's technician at the time of installation and each servicing.

c. Use of Rodenticides: In exceptional circumstances, when rodenticides are deemed essential for adequate rodent control inside buildings, the Contractor shall obtain approval of the Site Manager prior to making any interior rodenticide treatment. 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. As a general rule, rodenticide application outside buildings shall emphasize the direct treatment of rodent burrows wherever feasible.

6. Other:

a. Cleaning Products: Any cleaning materials used by the Contractor, in conjunction with pest control activities, shall be certified by GreenSeal (www.greenseal.org) or Environmental Choice/Ecologo program (www.terrachoice-certified.com), unless written approval is obtained from the contract manager.

b. Emergency Procedures: The Contractor shall seek written or verbal (follow by written) approval in varying from the above procedures in the case of emergency situations.

c. Recordkeeping: The contractor and building manager will develop and approve monitoring and recordkeeping forms. The contractor will submit a signed, dated checklist for each building site visited that will include: record of monitoring device results, list of all actions taken, list of threshold information, location, brand name and active ingredient for any pre-approved pesticide product used. Reports on problem units will be provided after services are provided. The contractor shall meet with the building manager quarterly to provide an update on work performed, an assessment of existing problem areas and future treatment plans. The contractor shall provide an annual summary of pesticides

uses, brand names and active ingredients and progress and planned activities for problem infestation areas.

Procedures for WinnResidential Staff

1. Residents shall be provided a copy of the IPM policy at move in and IPM resident responsibilities shall be reviewed at that time.
2. Resident pest complaints shall be acted upon promptly. Ten to 14 days after action has been taken, the building manager/property manager shall follow up on the conditions.
3. Managers shall review and approve the IPM Plan submitted by the Pest Control Contractor and work with residents to undertake appropriate actions.
4. Annually inspect units for evidence of pest activity or debris.
5. Ensure appropriate housekeeping in common areas, hallways, stairwells, laundry rooms and maintenance/utility areas. Ensure crack, holes and crevices for potential pest entry and sealed and pest are excluded, to the extent possible.
6. Develop an outreach and education program and ensure that leases reflect resident responsibilities for 1) housekeeping, 2) reporting presence of pests, leaks and mold, 3) cooperating with specific IPM requirements such as obtaining the building/property manager before applying pesticides. Conduct annual training of staff and residents on IPM.
7. Work with Pest Contractor, as appropriate, to provide written notice of the intention to apply any pesticide application and post treated areas, 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.
8. Integrate pest exclusion (e.g., sealing holes, crack, crevices) with energy efficiency and air sealing activities.

Lease Addendum

Residents will:

1. Not use pesticides without the permission of the property manager. Some pesticides can increase resident exposure to chemicals and reduce the effectiveness of other products used to control pests.
2. Keep their home in a clean, clutter-free and sanitary condition. Keep common areas clean of rubbish, food and beverages.
3. Prepare their apartment for pest management service visits according to instructions provided in advance.
4. Participate in monitoring their apartment with traps provided by management, facilitate the collection the traps and report pest activity found, seen or heard.

5. Report to management pest sightings and conditions that may invite, promote or harbor pests including but not limited to: plumbing problems and water leaks; and holes/cracks to exterior.
6. Attend IPM educational sessions provided by management.

The Following Products are Prohibited: Pesticide sprays, foggers or bombs, organophosphate or chlorinated hydrocarbons pesticides.

Assessment and Evaluation The property manager, in conjunction with the pest contractor, shall conduct an annual review of the pest related work orders and annual application of pesticides (locations, brand names, active ingredients and total amounts used.) The program shall also assess the effectiveness of the IPM Policy and contractor plan and related contractor, building manager and resident actions.

Potential Linkages to LEED EB Credits

Indoor Environmental Quality 3.6- Green Cleaning- Indoor Integrated Pest Management: This Policy and related specifications satisfy the LEED EB IEQ 3.6 credit.

IPM Service Procedures — Urban Multi-Family

Within Each Unit

MD Weaver Corporation provided this procedure.

When the IPM technician provides service in a residential unit it is part of a larger IPM program that accounts for all units and when and how they require service. The routine service is for mouse and cockroach management. Bed bug control may or may not be integrated in the plan.

Mini-IPM Program in Each Unit

Within each unit the IPM technician provides a mini IPM program:

- Unit is inspected
- An Assessment is made to identify problems and to determine what treatment is needed
- Action is taken as appropriate
- Work is documented with unit-specific information including if a follow up is needed.

Possible Actions

The following procedures will be used together varying degrees as determined by the pest specialist on site.

Cockroach Actions

Non-toxic insect glue monitors will be placed under the kitchen and bathroom sinks. These aid in the detection and monitoring of cockroaches and other insects.

Cockroach bait may be used against active cockroach activity. This material is applied as a gel to cracks and crevices where cockroaches hide. It can also be applied as a dust to inaccessible spaces or in a bait station.

Boric acid dust may be applied to cracks and crevices and also hollow spaces in walls and under appliances.

Mouse Actions

If mice are detected, a mouse controlling bait in the form of a block, meal or pellets may be applied to inaccessible areas or in a bait station in the problem area, so the material is inaccessible to children and pets.

Mouse Glue Boards and snap traps are important tools to capture and remove problem mice. The devices are put where mice are thought to frequent, like beside refrigerator, stove, corners of rooms, etc. These devices are non-toxic but can be hazardous around very small children and pets and must be used with discretion.

Environmental Modifications

HEPA Vacuum and Pest/Pest Debris Removal

A HEPA vacuum may be used to remove pests and pest-related debris. This also reduces the threat of allergens and contaminants. These include mouse droppings, insect bodies and other pest-related debris.

Pest Exclusion

Small holes that allow mice and insects to travel and hide between units can be sealed with copper mesh and/or rigid foam insulation. Units are inspected for exclusion and the IPM technician will perform minor exclusion work at the time of the routine service.