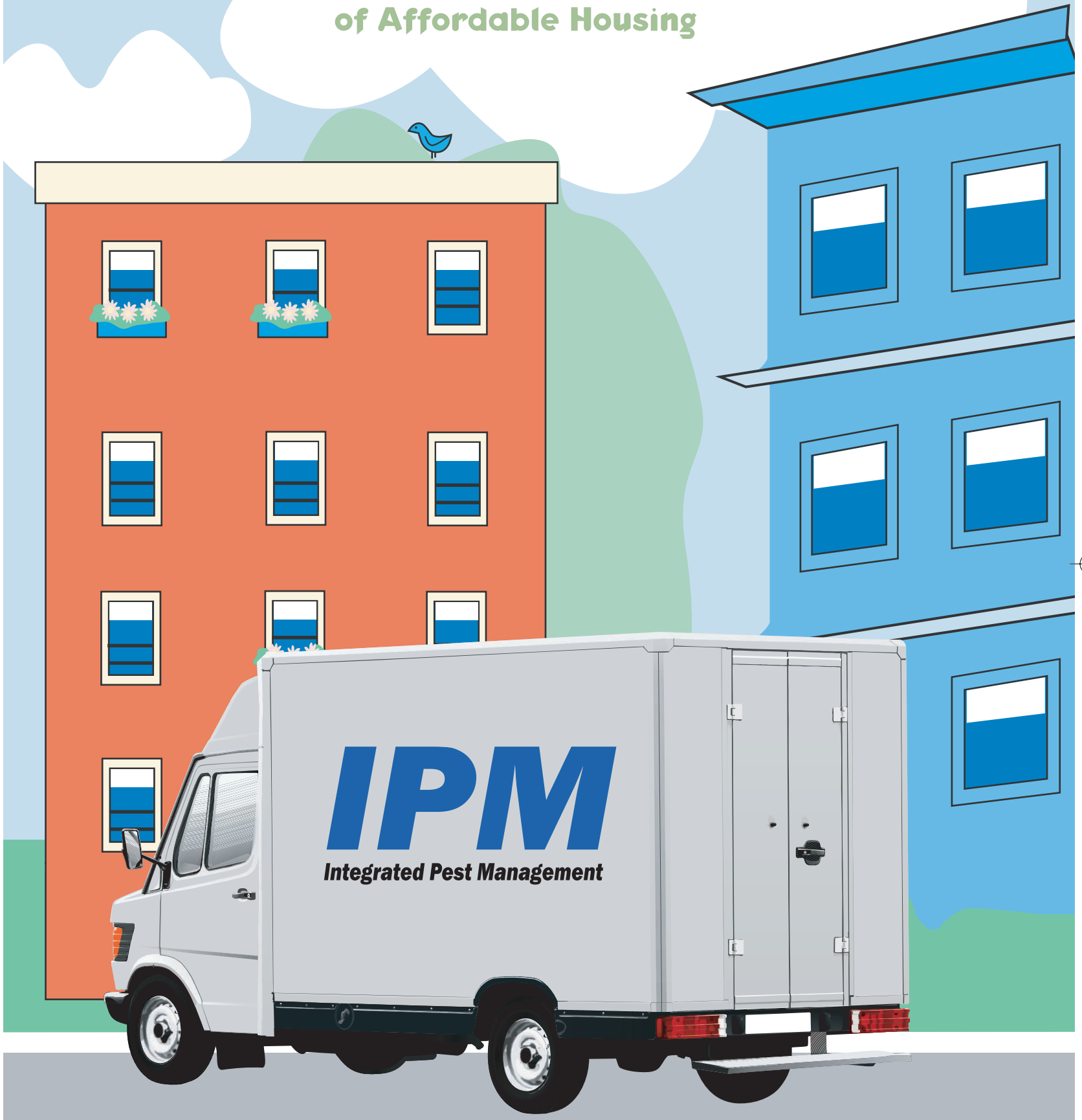


integrated Pest Management: A Guide for Managers and Owners of Affordable Housing



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December 2007



Boston Public Health Commission
Mayor Thomas M. Menino

Acknowledgements

The Boston Public Health Commission, founded in 1799, was the first city health department in the country; Paul Revere was a director of the original board.

The Commission's mission is to protect preserve and promote the health and well-being of residents, particularly those who are most vulnerable. Through community-based health improvement projects in asthma, diabetes, cancer, infant mortality, elder health, cardiovascular health and other areas, the Commission is seeking to restructure and transform health care delivery systems to reduce the burden of disease and eliminate racial disparities in health outcomes.

www.bphc.org/bphc/healthyhomes_main.asp

The Asthma Regional Council of New England (ARC) is a collaboration of public agencies, NGO's and researchers that bring together the diverse organizational perspectives and resources of health, housing, education and environment to focus on the environmental contributors to asthma in our region. Leaders with knowledge, resources and determination have joined forces to swiftly identify and implement solutions to improve the lives of people with asthma. ARC is a program of The Medical Foundation.

www.asthmaregionalcouncil.org

This guide is a product of the Healthy Pest Free Housing Initiative (HPFHI). HPFHI is a collaborative effort, involving ARC, the BPHC and housing, health, advocacy and academic institutions, designed to reduce pest infestation and pesticide use in public housing in Boston. HPFHI is funded with support from the W.K. Kellogg Foundation and the U. S. Environmental Protection Agency. The primary focus of HPFHI is to improve the health and quality of life of residents through the implementation of integrated pest management (IPM), a safer more effective alternative to traditional pest control. IPM relies on managers, residents and pest control companies working together to reduce pest infestation.

HPFHI partners include the Boston Public Health Commission which serves as the lead agency, Committee for Boston Public Housing, the West Broadway Task Force, the Boston Housing Authority, the Boston University School of Public Health, the Asthma Regional Council, Don Rivard of Rivard's Resources, the Massachusetts Public Health Association, and the Boston Urban Asthma Coalition.

How Will this Guide Help You?

Pest control is only one of your many responsibilities as a manager or owner of affordable or public housing, but it can be one of the most challenging. Struggles with pest problems occur constantly. Residents complain. Costs for pest control continue to rise, yet pest problems don't ever seem to go away, or even lessen for long.

But you can gain control over pests. This Guide describes a process of pest control that has proven effective in public housing developments all around the country. This process, called **Integrated Pest Management** or IPM, is both more effective *and* in the long run probably less expensive than traditional pest management. IPM uses a range of pest control methods, including pest exclusion, sanitary improvements, and minor structural alterations rather than relying on just one approach, such as pesticide application. Targeting pests in a variety of ways greatly reduces the dependency on pesticides.

The four basic IPM principles are (1) monitoring pest populations with sticky traps to find out where pests are living and hiding, (2) blocking pest access and entryways, (3) eliminating food and water, and (4) applying low-toxicity, low-risk pesticides only as necessary to address problems. Housing developments that have implemented IPM get their pest problems under control. The more thoroughly they use IPM and the longer they stick with it, the better their results. And their pest control costs may come down as well.

But like anything that works, IPM *takes* work. It requires long-term dedication, management, planning, teamwork, and communication. Residents, pest control contractors and housing management must all be committed in order for IPM to be effective. This Guide will help you set up an IPM program and succeed in carrying it out.

Affordable housing is meant to shelter and protect the most vulnerable people in our society, and IPM is an important step in making this possible. Once residents see how well IPM works, they will want to work with you, they will be more satisfied, and the buildings will be safer—especially for babies and children, pregnant women, and elderly people.

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IPM—A More Effective Solution to Pest Problems

Everyone who develops a fever doesn't need an antibiotic. Typically a health professional asks a lot of questions and performs several tests before deciding on a treatment approach. In the same way, trying to control pests with pesticides alone doesn't work well and pests frequently return.

Integrated Pest Management (IPM) is a commonsense approach that first identifies the root of your pest problem and then prescribes the most appropriate treatment. Unlike traditional pest management, IPM addresses the causes of infestation, not just the symptoms, and focuses on preventing pest problems rather than reacting to them.

Basic Principles of IPM

Identify pest problems through monitoring and information: Counting pests caught in well-placed traps will help to determine exactly which pests are problems, how many there are in different parts of a building, and how they are getting in. IPM relies on gathering information first, so that your approach to controlling pests is smart and targets the problem effectively.

Block entry: If pests can't get in, you've solved a lot of the problem. Pests can fit through very small spaces, so blocking their access may take significant work.

Remove food, water, and shelter: If pests can't get in and they can't find anything to live on, you've solved most of the problem. This requires vigilance on the part of both residents and staff. If pests are effectively barred from one space, they will try to find another place to hide. Clean and clutter-free developments—including living spaces, basements, trash collection and storage areas, common areas, and outside areas adjacent to housing—are essential to preventing pests from finding places to hide.

Use low-toxicity, low-risk pesticides only as needed: IPM also uses some pesticides, but as the last resort instead of the first. IPM avoids use of highly toxic sprays, bombs, and foggers, which cause serious reactions in many people and can cause problems for years. IPM means trying to control pest problems with a whole arsenal of other tools before using pesticides, and using less-toxic and lower-risk products when you do apply pesticides. By thoroughly carrying out the steps in this list, you will know when you really need to apply pesticides and when they are having the desired effects. And you will be using pesticide products that are safer.

“*We always had problems with cockroaches and mice. A lot of the residents have asthma. Living with cockroaches and mice makes the asthma worse. The spraying just didn't work. It would work for a week or two and then they'd be back. And the residents would be calling us again saying they had the same level of infestation.*”

*Jim McCarthy, Director,
Elderly Division of the Boston Housing Authority*

Advantages of IPM include:

- **Greater effectiveness:**

Overuse of pesticides causes pests to become resistant to the chemicals, so that no amount of pesticide will get rid of them, and sometimes their numbers increase instead. IPM increases control over pests and reduces the need for pesticides.

An analysis of cockroach related work orders comparing the year of the IPM program with the preceding year found that in three of the four developments there were significant reductions: 41%, 55% and 76% respectively during the year IPM was implemented. *Healthy Pest Free Housing Initiative Evaluation, October 2007*

- **Better control over time and money:**

Dealing with pesticide problems is expensive and takes up a lot of time. And time equals money. With IPM, you will spend less of your time—as well as staff and contractor time—tending to problems and

properly disposing of pesticides. It costs money up front to plan an IPM program, but initial studies show that over the long run IPM is typically very cost effective. In some cases it is no more expensive, or even less expensive, than traditional pest control approaches, especially when other costs such as reduced maintenance requests related to infestation are considered. Preliminary information from a pilot program in Boston public housing shows that while initial costs are somewhat higher, savings are achieved elsewhere and infestation levels have decreased.

Sealing your buildings against pests has an important secondary benefit: it can reduce your energy expenditures and increase comfort levels inside the buildings. Simple measures such as weather stripping, caulking, and sealing holes and cracks can significantly reduce both indoor pest levels and temperature extremes.

- **Healthier living environments, along with lower health and safety risks, for several reasons:**

Pesticides are meant to kill insects and rodents, not people. Unfortunately, pesticides are linked to many thousands of human poisonings each year. Heavy use of pesticides indoors and in places where children live is bad for health. Also, pests, both dead and alive, are linked to serious chronic health problems. Cockroaches molt multiple times, and their bodies, body parts, and feces are all associated with respiratory conditions. Mouse droppings, body parts, and bodies are similarly linked to health problems. Cockroaches and mice are also the most common pests in housing developments.

Residents of public housing are more likely to have asthma, an especially serious health problem that is exacerbated by exposure to pests and pesticides. Because IPM relies less on pesticides and is more effective than traditional pest management, people are less likely to get sick. And if residents don't experience pest infestations, they won't need to keep toxic pesticides in their units, reducing the likelihood of accidental poisonings and asthma episodes.

Old containers of pesticide, pesticide residues, and resulting air quality problems can cause problems years down the road. Since IPM relies less on pesticides, the risks can decline as well.

In addition to human health risks, many pesticides damage the environment, causing water contamination and risks to plants and wildlife—including fish, and birds, beneficial and ecologically critical insects such as honeybees, and other animals. The less pesticide products that are used, and the less toxic they are, the lower the environmental risks will be.

- **Better relationships with residents:**

IPM provides an opportunity for residents to reduce pest problems in their own apartments, and can lead to better interactions with them. “It’s a win-win-win approach!” says Luis Ponce with the New York City Housing Authority.

Caution

Always read and follow the label directions on the pesticide container for proper mixing, application, and disposal of both the product and its container. Remember that pesticides are poisons!

Jamal Rashid, an IPM specialist with the New York City Housing Authority, says,

“*I was an enthusiastic exterminator when I started out. Now I’m a convert to IPM.*”

Setting the Stage for Your IPM Program

Your first step in developing an IPM program is to figure out the big picture. To do this, you will need to think about a number of issues, such as these:

- What do you plan to accomplish with your IPM program?
- Why is it a good idea?
- Who will benefit?
- Whom do you need to convince that it is worth investing in?
- Whom do you need to involve to ensure the program's success?
- How much time and money will it take?
- What will be the main steps for getting it approved and implemented?

You need to answer these questions so that you can sell your program to the decision makers and get everyone's support.

Set Up Your IPM Team

You also will need to assemble and work with a team of people who have different skills and play various roles. An IPM program works much better than traditional pest control methods, but making IPM succeed is a team process. Making sure you have people in certain specific positions will help your IPM program succeed:

IPM Coordinator and IPM Resident Assistant

You need someone to oversee and coordinate IPM work. This person should be you or someone on your staff (such as a building engineer or current pest control staff) who reports to you. A license or degree is not required for this position, but the person should be trained in the essentials of IPM. The IPM Coordinator should also be dependable, organized, have good interpersonal and communication skills, and be enthusiastic about IPM.

You may also need to have one or more Resident Assistants on your team who can help some residents, such as elderly or disabled tenants, to prepare for pest control service in their units. Many residents face serious housekeeping challenges and need ongoing help to prepare and maintain clean, clutter-free living space. A Resident Assistant can improve and enhance the delivery of services while promoting a healthier living and working environment. A Resident Assistant can educate and empower residents about their important role in safe and effective pest management.

Role of a Resident Assistant

The tasks of a Resident Assistant may include, but are not limited, to:

- Describing to residents basic pests and their behaviors to help motivate them to eliminate pest harborage and sustenance.
- Demonstrating to residents the preparation and cleaning needed for improved pest control and personal health, as well as how to deal with and handle any insects that are found in living spaces.
- Helping residents, pest contractors, maintenance staff, and management personnel with planning and scheduling of IPM visits.
- Setting and collecting monitors and traps, recording and analyzing data.
- Identifying households that need additional support, and communicating with others (e.g., elder services, home care agencies, social workers, family support services, non-resident family members) to obtain those services.
- Helping residents with housekeeping tasks, as needed.

IPM Resident Champion and/or Resident Leader

Having someone who is really committed to making IPM work and will talk about it publicly will help your program succeed. You may want to recruit a resident IPM champion to promote the program. Residents may place more trust in someone who does not work for, or professionally represent, the IPM program. Respected residents who have influence with other residents—whether or not they have formal appointments such as committee heads—are important to the success of your program.

IPM Contractor

IPM is a specialized service, and it takes a lot of skill and practice to do it well. A pest control license does not guarantee the expertise or quality you are looking for. Unlike traditional pest control, the IPM contractor ideally should be your partner in solving pest problems. (For details about the skills to look for in IPM Contractors, see “Finding an IPM Contractor.”)

The team may also include:

- Other building management and staff, especially maintenance staff and their supervisors.
- Someone from your current pest-control company (if you want to continue working with them, and if they already are trained in and practice IPM).
- A representative from your trash removal company and/or recycling company.
- Someone who knows about any special problem areas. For instance, if there is a food concession or daycare facility in the building that has pest problems, be sure to include someone who can speak for the staff there.
- Landscapers and/or groundskeepers.

Develop an IPM Policy

One of the first tasks of the IPM team is to spell out the major points of the IPM program. Developing a short written IPM policy as a group can help the team to clarify the reasons for IPM and experience working together. The policy should:

- Define IPM.
- Say why IPM is important.
- List the main groups and job positions that will be involved (but not the names of people).
- State the main steps of putting IPM into practice in your development.

Once the IPM policy has been written and approved, you should distribute and communicate it.

- Post it in your office, where anyone who comes in can see it. Translate it into all major languages used in your development and post it (in all languages available) in public places. Make sure the text is large and easy to read.
- Hold meetings for buildings staff, to explain why you are establishing an IPM program and get their support and participation. They will be critical to success. They will have questions and concerns, so have a conversation with them. Encourage them to ask questions, and answer them openly.
- Give a copy of the policy to new residents when they move in and have them certify in writing that they have received it.
- Hand out the policy during new-staff and new-resident orientations.
- Include a copy of the policy when you send out pest control bid solicitations.
- Hold meetings for residents. Give them copies of the policy (and make sure translations are available), read the policy aloud, and invite them to ask questions. Be sure your resident leaders come to the meetings. Have a translator for residents who are not comfortable in English.
- Give a copy of the policy to residents during regular pest inspections of their units.

Sample IPM Policy

Successful pest control requires a partnership between building management, pest controllers, and residents:

Building Management (Manager)

The manager will *prevent* pest infestations by establishing a monitoring program, providing monitors; ensuring thorough sanitation; and removing harborages, cracks and crevices, holes in walls, floors, and ceilings, water leaks, water damage, and clutter and rubbish on the premises. The manager will pay special attention to basements, storage areas, and trash disposal area with regard to monitoring, cleaning, and preventing clutter.

The manager will respond to residents' reports of pest problems as promptly as possible.

If physical interventions fail to prevent pest infestations, the manager will use targeted applications of pesticides, beginning with the least toxic first, and using a pesticide applicator who has the licenses or certifications required by state and local laws. Whenever possible, use of spray or liquid pesticides will be avoided.

The manager will follow all instructions provided on pesticide labels and will not apply any pesticide in any manner that is inconsistent with label instructions.

The manager will provide all residents with written notice of intention to apply pesticides anywhere on the premises, at least 24 hours prior to application. A copy of this notice will be posted in public areas, also 24 hours in advance of application.

Building contracts will specify housekeeping standards for living spaces and consequences for residents who repeatedly fail to follow these guidelines.

Living units will be inspected annually, and IPM guidelines for housekeeping will be incorporated into the reports.

Management will educate residents about the importance and effectiveness of IPM, and will work with residents to ensure that they prepare their living units properly for visits by pest management professionals.

Residents

Residents will prepare their living units for visits by pest management professionals (PMP) according to guidelines supplied to them by building management and/or the PMP.

Residents will participate in pest monitoring by placing monitors, collecting them when full, and reporting on monitored pest activity. Residents will promptly report other pests they notice to management.

Residents will promptly report plumbing problems and other water leaks to management.

Residents will keep common areas clean of rubbish, food, and beverages.

To the extent possible, residents will keep their homes free of trash, clutter, dust, sitting water, food, and crumbs.

Gel baits can be deactivated by other pesticides. To avoid this, residents will not use pesticides during implementation of the IPM program.

Find an IPM Contractor

The U.S. government, the states, and some cities have laws about who may buy and apply pesticides. Your contractor must know, understand, and be able to follow these laws. Many states have IPM certification programs and registries that can help you find an IPM provider. (See Attachment D.) You also can check with your state pesticide regulator to see if a contractor has been reported for violating any pest control regulations.

An IPM contractor also should have experience in, and be willing to perform, tasks that typical pest control operators are not familiar with, possibly including:

- Preventing access to buildings by pests (e.g., sealing holes and cracks where pests can enter). Pests that can't get into a building cannot contribute to its pest problem.
- Identifying locations of shelter and sustenance for pests. The goal is to remove all food and standing water, as well as places where pests hide and reproduce (also known as harborage and breeding mediums).
- Monitoring pests using visual inspection, nontoxic baits and traps, to identify the areas where more work is needed. (You may want to list several possible monitoring schemes as a separate cost item in your bid specifications. This will allow you to compare work promised and costs for several possible plans.) Potential IPM contractors should be given the opportunity to (or preferably be required to) attend a "walk-through" of your housing project prior to submitting a bid. This helps ensure that they know what is going to be required, and lessens the chance that they'll want to cut corners later on.
- Removing pests and their body parts, fecal droppings, and other debris using special "HEPA" vacuums.
- Understanding of how best to use low-toxicity and low-risk products, such as boric acid, insecticide dust, and gel baits.
- Keeping careful records and submitting detailed reports to see where problems are reduced and where they persist. This way you can focus resources where they are needed.
- Working with management, staff, and residents. Obviously the contractors cannot do all the work in a housing development, especially not inside residents' homes. Successful contractors are able to

explain to residents what needs to be done, clearly and respectfully, and provide simple, easy-to-follow written instructions.

- And optionally, participating in training building personnel and residents, reviewing design plans, etc. Because it may difficult to predict the frequency of these events, it might be appropriate to establish an hourly fee for training services. Some bidders may include this as a part of regular service, at no extra cost, while others do not.

Other things to look for when choosing an IPM contractor are listed in the box below.

Check that your IPM contractor...

- provides proof of certification or a pesticide license.
- shows evidence of continuing IPM training.
- provides samples of successful IPM programs.
- has been in business a sufficient amount of time (e.g., 3 or 5 years).
- has sufficient licensed employees to cover your property/needs.
- provides copies of general liability insurance certificates.
- belongs to respected professional organizations (preferably some that stress IPM).
- provides positive referrals from similar types of buildings.
- provides comprehensive guarantees.
- has a good, proven safety record.
- is able to provide sample labels and MSDS (material safety data sheets) fact sheets about pesticides when requested.
- keeps well-organized, comprehensive records of work done.
- provides a written IPM work plan in advance.
- has easy-to-read brochures about IPM, and can provide copies for staff and residents.
- checks out well with your state's pesticide authority.

IPM Bid Specifications

You will typically go out to bid for an IPM contractor. (Some states maintain a list of qualified contractors who have met certain standards put forth by the state. In this case you may select a bidder from this list and contract with them for the already negotiated state rate.) See Attachment A for a model IPM bid specifications as well as the specifications currently in use by the Boston Housing Authority. *Make sure your bid specifications include proof of the minimum qualifications and performance criteria you are expecting.*

One way to get the best-qualified bidder and value is to review the bid in two phases. First, you rank the bidders by their ability to meet your qualifications. Then you compare costs, only for those bidders who meet your qualifications. Price should never be your only criteria—or even your first—in choosing a pest control contractor.

Because IPM requires special skills and experience, and because it demands more work—especially at the beginning—from the contractor, you might at first experience a few problems:

- A lower response rate to your bid request than you are used to
- Response from contractors who don't have as much experience or skill in IPM as you are looking for
- Resistance to the concept of IPM or their interpretation of it

Performance-Based Contracts

An IPM contract should be written to require results rather than a regular schedule of visits from the contractor. This type of requirement is known as a “performance-based” contract. Payments should be tied to success in controlling pests, rather than being triggered by routine visits. The key to this type of contract is the scope of work, which includes:

- Performance goals developed jointly by both parties (e.g., fewer cockroach complaints)
- Pests covered and excluded
- Types of service to be provided (e.g., inspections; placement of sticky traps; HEPA vacuuming) and methods to be used
- Frequency of service

- Areas of service
- Products, tools, and materials to be used and avoided
- List of pesticides proposed for regular and emergency services, specifying any that are subject to your approval

Remember that IPM is a relatively recent development, so that many contractors haven't worked with clients who demand IPM. You may need to work harder to find an IPM contractor, but it will be worth the search. Also, by specifically seeking a contractor with IPM expertise, you will be helping to convince pest control operators that IPM is something their potential customers want. Over time, this will change the market, making IPM much more available and increasing the pool of contractors who use it well.

Working with an IPM Contractor

Once you have an IPM contractor in place, keep in mind that the contractor works for you, and needs to be held accountable for high-quality work and careful, accurate documentation.

It's important to supervise and evaluate their work. There are a number of ways to effectively manage your contractor:

- Interact with them regularly, and keep communication open. Ask them questions about their work in your development. Make sure to stress your interest in IPM.
- Walk around with them from time to time. Look at the buildings from their point of view. Make sure they are paying attention to everything listed in the Action Plan.
- Make sure they submit completed forms at every visit, and review the forms to be sure the contractors are providing the information you need.
- Ask your staff, residents and IPM team members for constructive feedback about the contractor.
- Go into units that have been identified as highly infested units and inspect the work done by the contractor; check to see if holes have been filled, cracks are sealed, monitors are visible, etc.

Getting Quality IPM Work: Some Questions to Ask Your Contractor

- Have you noticed any “hot spots” (areas of high infestation)?
- Are pest populations declining, increasing or staying the same?
- Is your use of pesticides declining overall in the development?
- What barriers to success are you encountering?
- What pesticides are you using?
- Are you aware of any new IPM pesticide products that you might want to consider using?
- Have you stopped using any previously used pesticide products? Why?
- Are you finding any resistance or aversion by pests to baits?
- Are further building repairs needed?
- Do living units present challenges that should be addressed by building management?
- What other suggestions for improvement do you have?

Identify and Overcome Challenges to IPM

Although IPM is not technically difficult to implement, it does take the active participation of many people. Thus the biggest challenge to a successful IPM program is people. Some challenges you may encounter include:

- **Difficulty of making changes:** Doing things differently is hard for everyone at first. Expect that people will want to find reasons to keep things as they are. When that happens, it’s good to have a list of reasons for IPM handy to remind them of its benefits.
- **Fear of failure:** Anything new can be hard for people, even when it’s a very good thing, like your IPM program. You can expect to feel discouraged from time to time. Fear of failing is natural. Think about how successful IPM has been for other public housing developments. If they did it, you can too. IPM is more work than your current program in the short term, but it’s also much more thorough and sensible, and much more likely to succeed.
- **Lack of trust and experience** working as a team: It takes time, effort, and patience to build a good working team.

To ensure that your IPM program succeeds, you need to work with many people who can help you make that happen. The next sections provide information about working with different groups of people to implement your IPM program.

Working with Agency Management

Before you can get your IPM program rolling, you may face challenges in getting it authorized, such as:

- Potentially higher expenses at the beginning of the program. You already know that IPM will probably save money down the road, but the planning process and the extra steps of IPM can cost more up front. You need to plan for this. Your budget for the program should include such extra costs.
- The need to prove the cost-effectiveness of the change before you even begin the program.
- Difficulty getting the attention of the key players at the agency.

“We spend millions on pest control programs that we know don’t work. What’s cost-effective about that?”

Kim Vermeer, Urban Habitat Initiatives

To convince them, it may help to:

- Show them how much the pest contractor has charged over the past several years, especially if the costs and problems have increased over time.
- Show cost comparisons from other housing authorities before and after implementing IPM.
- Discuss the possibility of “site-based” budgeting for pest control with your agency. This will show how much money IPM costs at an individual development or building, rather than spreading pest control costs over the entire housing development or all developments managed by the agency.
- Look for creative ways to fund some of the up-front costs, such as getting a grant to pay the IPM Coordinator.
- Bring in an IPM consultant to make a presentation stressing the benefits and potential cost-savings of IPM.

Working with Buildings Personnel

People don't often find change to be easy. That includes workers and residents. They may:

- Have become used to old habits, poor performance, and low standards for pest control.
- Not believe that IPM can work.
- Lack motivation to work harder or differently, or lack expertise.
- Not realize there are problems with the current pest control system, and don't understand why changes are necessary.

But pest infestation is a major source of frustration and stress for staff and residents. To get support for the program:

- Get key staff onto the IPM team early. Good bets are those who are both good workers and liked by other staff and residents.
- Point out the problems with your current pest control program.
- Hire an IPM trainer. Be sure that the staff receives thorough training, both about IPM and about interacting with residents and pest control applicators. Be sure to provide enough training time, support, and answers to tough questions.

- Ensure that managers and staff know when and how to communicate with each other about the IPM program, and all the key players are in place.
- Provide follow-up training and supervision.

Working with Residents

Most residents, whether in public or private housing, are not familiar with the principles of integrated pest management. Residents will need to be educated about how IPM works and may need to be convinced that it can be an effective approach. But residents can be your greatest allies since they are the most impacted by pest infestation and have the most to gain by a successful IPM program.

You may encounter some challenges in working with residents, such as these:

- They may have experienced poor or ineffective pest control service and unresponsive building management. Residents may not believe that pests can be eliminated.
- They may continue to apply pesticides (including illegal and restricted pesticides) until they see that alternatives can work. It is important to let residents know that the pesticides they apply will make the gel baits used by the pest control contractor ineffective.
- Long-term residents may have collected possessions that make it hard to clean or prepare for IPM.
- Units may have inadequate storage, also making it hard to clean or prepare for IPM.
- Some families may have disabilities or special needs which make it difficult for them to prepare their units for IPM. You should be prepared to work with the tenant coordinator to refer families to social and other supportive services.

“It's so important to have residents work with residents.”

Mae Bradley,

Director of the Committee for Boston Public Housing

“*Tenants are more likely to change behavioral habits when they feel management is working with them and for them.*”

Edna Rivera-Carrasco, Community Health Advocate

Your greatest challenge will be helping residents to understand and accept IPM. The main role of the Resident Leaders and IPM Champion is to help residents understand their important part in the IPM program. It takes time to overcome the skepticism of some people. However, the best way to convince residents that IPM can work is to get the program going. When they begin to see that IPM is working they will become very engaged in the program.

Typically, a small subset of residents cannot or will not participate readily in the IPM program. Some will need additional services to help them remove clutter and clean. The Building Manager or the IPM Resident Assistant should develop a list of social service agencies that can provide assistance, and should help residents with referrals. The Building Manager may need to use additional means of persuasion with occasional residents, including disciplinary action based on the stipulation in the lease that requires residents to maintain clean living units. If a resident is not actively participating in the IPM program and the unit continues to provide a source of food and harborage for pests, it will

be extremely difficult to improve conditions in adjacent units. Attached in Appendix C is a log used by public housing managers to track units where problems with housekeeping and preparation have been identified.

However, residents can also be your greatest asset. Staff can't be everywhere and see everything, but residents can. They can be the eyes and ears of the IPM program. No one can better tell you whether the IPM contractor is following the agreed upon protocol. To do this, the residents need to know what the contractor is supposed to do.

- Get Resident Leaders on board early, as part of the IPM Team. Meet with them directly. Explain IPM and solicit their input into the development of your IPM program. Avoid telling them what to do. Ask for their help in working with residents.
- Encourage Resident Leaders, the IPM Coordinator, and the IPM Champion to talk directly with residents to help convince them of the importance of IPM and its benefits.
- Set realistic levels of participation. Don't expect all residents to go along with the full IPM program right away. Jim McCarthy, Director of Elderly Housing for the Boston Housing Authority, says, "Residents will ask for IPM once they know it works."
- Provide enough time for introducing the program to residents.

Some of the most common illegal and restricted pesticides to watch out for:

Residents in public housing, especially if they belong to an Asian or Hispanic community, may be buying and using pesticides in their homes that they are familiar with and think are safe, but *are not!*

Chinese chalk or Miracle Chalk: This product, which looks like blackboard chalk, is illegal to purchase or use in the United States.

Tres Pasitos: Illegal to purchase or use in the United States, but is commonly used in some Spanish-speaking countries. The name is Spanish for "three little steps" (...and then the pest dies).

Tempo: Sale and use is restricted to licensed pest control professionals.

Create Your IPM Program

You have written your IPM policy, set up the IPM team, and identified the challenges you will need to overcome in making your program a success. Congratulations! Now you can develop the specifics of your program.

Train Key People

When you start an IPM program, you may want to work with some experts to get your team up to speed. (Attachment D: IPM Resources and Contacts lists several training organizations.) Training will help:

- get the buy-in and active participation of all team members,
- teach them the basics of IPM,
- reinforce what they see and hear in the field, and
- help everyone work together well.

Create Clear Roles and Functions

The IPM team needs to decide which tasks are to be done by the team, staff, residents, and the pest contractor.

Roles of Public Housing Residents

Residents are often your most important partners in pest control. When they are treated with respect as equal partners and have developed trust, they are more likely to respond positively.

Typical IPM-related tasks for residents include:

- housekeeping and removal of clutter,
- providing information about pests and access points,
- preparing for contractor visits, such as emptying cabinets and moving furniture or equipment,
- observing the quality and thoroughness of pest inspections and treatments, and
- providing feedback about progress of the program.

Encourage Participation

You can choose many tools for involving staff and residents in the program. Building awareness and understanding of the program is important. As people get used to the concepts of IPM, they will be more likely to accept it.

- Develop a plan to overcome barriers to successful participation. Incentives should respond to important barriers. If some staff members seem unmotivated, you might set up an incentive program to reward those who participate most actively and to publicize their participation.
- Have easy-to-read educational materials or videos available for everyone who wants them. Try to supply these documents in every major language spoken in your housing project. (The pest contractor should also provide some materials, which should be specified in the IPM contract.)
- Educate residents on what an effective IPM contractor does. Residents who are educated consumers of IPM services can provide feedback to building management on the quality of the services they are receiving, including whether units are being closely inspected for access points, whether monitors are being placed and collected, and whether the contractor is vacuuming and removing dead pests.
- Provide free trainings by the IPM team and other IPM experts, and plan for follow-up training.
- Structure meetings and trainings so they act as problem-solving sessions rather than as a way for individuals to complain.
- Provide refreshments at meetings.
- Take advantage of other opportunities for education, such as new-staff orientations, new-resident orientations, one-to-one counseling, and unit inspections.
- Provide giveaways that support IPM, such as bag clips, plastic storage containers, caulk, wire mesh, snap traps, or fly swatters.

“Without a full team, IPM won't work. Get everyone you need on your team, as early as you can, and work to keep them involved.”

Pat Hynes, Boston University's Center for Healthy Homes and Neighborhoods

Make Sure You Have an Action Plan

Unlike traditional pest management, IPM does not rely on a regular schedule of pesticide applications. An IPM Action Plan defines when action will be taken against specific pests, how many of each pest must be found before action is taken (through monitoring), and which actions will be taken.

Typically the IPM Team or the contractor writes the Action Plan. It should include recommendations on changes and building modifications that need to be undertaken, as well as recommended pesticide applications. The plan should also identify a schedule for regular activity reports.

A site-specific Action Plan will allow you to monitor and treat pests differently, depending on where they are found in the development. In turn, this will help you justify pest control expenses based on the locations of greatest need, and to revisit expenses as you gain control over pests.

It's important to create a basic outline of the process (or “protocol”) to be followed. The process document should specify every step of the program, as well as who is responsible and when the step should occur. (See Attachment B for an example.)

Implement Your IPM Program

Now that you have a plan for using IPM to control pests and have trained the people who will make it a reality, you are ready to put your plan into practice.

Diagnose and monitor the pest problem

Assessing and monitoring pest populations and keeping complete, accurate records are critical for a successful IPM program. *Baseline inspection, which happens at the very beginning of the process, is critical because with IPM, the actions that are taken to control and prevent pest activity are based upon detailed knowledge of the pest problem. Without a careful record at the start, you will*

not know whether you should act, or whether your actions have had the desired results.

Your monitoring process should specify:

- Placement and frequency of monitors
- Monitoring methods to be used
 - visual observation and documentation of pests, pest activity, damage, and pest droppings
 - visual observation and documentation of holes, spaces, cracks, and other potential entry points for pests
 - visual observation and documentation of degraded building conditions that may promote pest activity
 - placement of traps (e.g., sticky traps) in locations where pests may be congregating, followed by counting pests caught in them after a specified amount of time.
 - vacuuming and counting of pests
- Key locations to monitor
- Forms and reports for presenting information
- Evaluation of the problem

Because IPM is a team effort, residents and staff should participate in monitoring and evaluating pest populations and determining the effectiveness of the IPM program. Reports should be developed by the IPM team for team members to complete, and a schedule should be set up.

Sample monitoring forms and report are shown in Attachment C. Each inspector should fill out the report for each unit or common area *before* moving on to the next location. Memory is not reliable. The accuracy of results depends on following this procedure.

Stop pests from getting into the buildings

Thoroughly and permanently block all cracks and holes, as well as spaces around doors, windows, rooflines, and pipes. Install door sweeps; apply caulk. Remember that mice and rats can chew through many materials, and need only a very small hole to enter. Young cockroaches can squeeze through a space smaller than you can see.

Remove food, water, and places where pests can hide

This requires a coordinated effort by staff, residents, and the IPM contractor. Food is not the only attraction for pests. Roaches, for example, can live on water and paper alone for a very long time.

- Staff should repair leaks, and also should dry and seal damp places in residential units and all common areas, to remove potential water supplies for pests. Trash should be removed frequently, and trash containers should have secure, tight-fitting covers. Areas where food can be found (e.g., vending machines, meeting rooms) should be cleaned frequently to remove sources of food for pests.
- Residents need to clean their units and remove clutter so pests have fewer places to hide and less to eat. They also need to prepare for contractor visits as needed, such as by moving furniture away from walls and cleaning out cabinets.
- The contractor should inspect residential units and common areas including basements, which are often the source of infestation.
- The contractor should remove old insecticide gels, baits, and pest leavings. (Note: Tell staff and residents to avoid touching these items, as they can pose health risks.)

Places to Monitor for Pest Activity

Remember to look for pests in three directions—up, down, and sideways. Most people remember to examine the floors, but it's easy to forget about the walls and ceilings. And think about what's behind, above, and below these structures. Even though you can't hide behind picture frames, slip through tiny cracks, or run around in the walls, pests can and do. Monitor and check all these areas:

- meeting rooms
- kitchens and other food preparation/storage areas
- bathrooms
- recreation centers
- daycare facilities
- basements and crawl spaces
- areas under porches, decks, etc.
- trash collection and recycling collection areas (inside and outside buildings)
- trash disposal chutes
- hallways and stairwells
- areas near vending machines
- boiler rooms
- HVAC equipment areas
- roofs, attics, chimneys
- elevators and elevator pits
- storage areas for building materials and equipment
- entry points and housing for cables and pipes
- perimeter of buildings near foundations (e.g., holes, cracks, bushes, mulch/dirt)
- janitor closets
- utility closets
- spaces (even very small ones) around doorways and windows
- chronically damp/wet areas

Treat identified problems *only*

A critical difference between IPM and traditional pest management is IPM's reliance on an Action Plan (see "Make Sure You Have an Action Plan") rather than a schedule of pesticide administration. One of the main goals of the Action Plan is to focus resources where they are needed. For example, rather than planning to provide pest control services to every unit, on a regular basis, an IPM program should begin with an inspection and treatment of all units. This will help the IPM contractor identify which units require follow up visits and how often. A unit should continue to be treated until the infestation in that unit is under control. Other units should be inspected yearly and treated only if there is a pest problem. This targeted approach is reflected in the Boston Housing Authority (BHA) IPM specifications, section 5, part d.

With an IPM program, the contractor never uses pesticides unless your Action Plan (see "Make Sure You Have an Action Plan") indicates that they are clearly needed and that pre-defined action levels have been triggered. That is, seeing an occasional pest should *not* be the signal to act. Always ensure that the contractor uses the least-toxic product available for the situation, such as gels and bait traps.

Keep clear, complete records

Your IPM team should put together an Operations Manual, which contains all the paperwork about the program, such as the policy, action plan, details about the contractor, educational materials for residents, technical information (MSDS sheets) about all pesticide products authorized for use, monitoring and reporting forms, summaries of meetings, and reports and evaluations. Separate and label each section with a tab.

Your contractor should be filling out and giving you completed forms every time they visit. Those forms should be filled out completely and clearly, as stated in the contract with them preferably in a computerized spreadsheet format. If the contractor tells you that's not possible, figure out why and change the situation. For IPM to work, you must gather all the correct information and make decisions to act based upon it.

Although it may have been standard practice for your pest control contractor to keep the paperwork about their visits to your development, this should change. All original IPM records should be kept in the housing development's offices and filed in the manual. This way, all the paperwork is kept together in one place, and management will retain control over them even if the contract is not renewed at any point. The contractor may keep copies of records if needed.

Evaluate and improve the program

An important part of the IPM Coordinator's job is to review monitoring reports and evaluate progress. S/he should recommend changes to the IPM Action Plan based upon the evidence of what is working well and what still needs to be done. *Such a review, with a report to the IPM team, should occur frequently* (e.g., four times a year), and perhaps even more often in the first year. Properly budget for the program based on this evaluation.

The evaluation should always review the items listed in the Action Plan, and it should include at least the following information:

- Types and locations of pests
- Numbers and types of monitoring devices used
- Action levels of target pests
- Building conditions that were addressed, including conditions in living units, and what was done to correct problems
- Numbers and specific pests found during the IPM program
- Number and types of contractor work orders
- Amount and types of any pesticides used
- Specific costs (including paid labor such as IPM team members)
- Comparisons of all results to baseline measurements (i.e., before the IPM program began and at various times after implementation started)

Nothing succeeds like success. *Letting your staff and residents know that the IPM program is getting results will help bring more people on board and improve the program even more.* Post and distribute short summaries of successes frequently. Hold meetings to discuss the program, at times that are as convenient for as many people as possible. Encourage all members of the IPM team to participate.

Just as all buildings need regular maintenance, your IPM program does too. As a building ages and goes through structural changes, new cracks appear, leaks develop, and clutter accumulates. Pests are always looking for new ways to get into buildings and survive, so your program must keep up with them over the long term. Your IPM program should be reviewed regularly over time to identify and address these changes and analyze trends.

What Belongs in an Action Plan

The Action Plan should specify details about procedures, schedules, products, and action triggers. Some of the basics include:

- "Target pests" that have been identified as problems in your development, and where they are found at the highest levels
- Levels of target pests that will trigger action, and the specific actions that may be followed in these cases
- Building conditions that may contribute significantly to a pest problem, and how to fix them to prevent or reduce the problem.
- Types of pesticides that should be used when needed (e.g., state-approved or EPA-approved gel baits), with approval.
- A short list of pesticide products that may be used without approval from the IPM Team
- A list of pesticide products that may *never* be used.
- What conditions constitute an "emergency" situation, and how such emergencies should be handled.

The Bottom Line about IPM

IPM works. The evidence from housing authorities around the country proves that IPM works, gives long-lasting results, and helps you gain control over pest management costs. The sooner you get started on your IPM program, the sooner you will triumph over your pest problems.

IPM is a process. For it to work, you need to give it commitment, attention, and time to succeed.

IPM is a partnership. Management, staff, pest contractors, and residents all need to work together to make the process work. All participants must do their jobs and be accountable.

IPM is better for human health and the environment. Public housing authorities have the responsibility to protect public health, and IPM is an important way to accomplish this.

“We do IPM because it is the right thing to do and because it works. Allowing our residents to live in a pest-free home is a basic service as well as a huge quality of life issue. If we are unable to provide that, the dissatisfaction of the residents interferes with our ability to communicate with them about other important issues.”

Gail Livingston, Boston Housing Authority

ATTACHMENT A.1

Model IPM Bid Specifications

These specifications are intended to address most general issues that may come up in IPM bids, but they cannot cover every situation, and you will need to review them carefully. In addition, the text contains prompts IN CAPITAL LETTERS where you will have to add specifics.

General

Integrated Pest Management (IPM) is a process for achieving long-term, environmentally sound pest suppression through the use of a range of pest control methods, including pest exclusion, sanitary practices, and minor structural alterations rather than relying on pesticides. The four basic IPM principles are (1) monitoring pest populations with sticky traps to find out where pests are living and hiding, (2) blocking pest access and entryways, (3) eliminating food and water, and (4) applying low-toxicity, low-risk pesticides only as necessary to address problems.

These specifications are part of a comprehensive IPM program for this Housing Development. Pesticides will be applied only on an “as needed” basis. The need for pesticides will be determined by pest population monitoring.

This will be a performance-based contract, wherein both parties set performance goals. As these goals are met or exceeded, each party benefits. The major goal is effective, safe control of pests.

The contract will be awarded based on:

- Meeting all minimum requirements.
- Past performance.
- Quality of the IPM plan proposed.
- Commitment to perform as a partner at a high level.
- The quotation provided.

Contractor Minimum Requirements

In order for a pest control company to qualify for this bidding process, it must be able to provide:

- Evidence of skill at providing IPM services.
- Evidence of at least [INSERT NUMBER OF YEARS DESIRED] years' experience providing pest control services.
- Proof of IPM training from [STATE AGENCY OR OTHER ORGANIZATION IF DESIRED].

- Certificate of Contractor's general liability insurance.
- Certificate of workers' compensation insurance.
- Current pest control licenses issued by the state.
- Licensed/certified pest control personnel only (including any subcontractors), with training and experience in the conduct of IPM for [SPECIFIC PROBLEM PESTS].
- Names of all current service technicians (updated annually), including those that are licensed and certified, upon request.

The pest control company needs to be willing to provide the following services as part of the contract:

- Comprehensive inspections of listed locations, and site-specific recommendations for structural and procedural modifications to aid in pest prevention
- A written IPM work plan in advance of beginning any contracted work.
- Close communication with the IPM Coordinator and other staff of the Housing Development
- All management, tools, equipment, materials, transportation, and labor necessary to ensure that the pest control services are conducted safely and according to these specifications
- Written, easy-to-read information for residents about IPM, and about the materials and methods that the Contractor will use. These materials are to be pre-approved by the IPM Coordinator and are to be offered in English [AND OTHER DESIRED LANGUAGES, IF APPROPRIATE AND FEASIBLE].
- Current labels, brand names, and Material Safety Data Sheets (MSDS) for all pesticide products to be used
- [OTHER REQUIREMENTS YOU WISH TO ADD, e.g., building safety regulations to be followed, uniforms, vehicles to be used or avoided]

Housing Development's Responsibilities

The Housing Development management views successful IPM pest control as a partnership between the Housing Development management and the Contractor, as well as other parties. The Housing Development staff/management will, as specified in the contract:

- Keep premises clean and in good repair to exclude pests and remove potential shelter.
- Communicate housing policies/decisions that may affect the Contractor's ability to provide the services specified.
- Work with the Contractor to develop or refine an Action Plan, which will include pest thresholds (numbers of pests) to be reached before certain pest control actions are taken, and specific actions that may be taken as a threshold is reached.
- Assign an IPM Coordinator to provide an accessible communication and administrative channel between the Contractor and housing management.
- Educate our staff and residents about their responsibilities, to ensure the best use of the Contractor.
- Engage IPM specialists and consultants to train housing [AND POSSIBLY CONTRACTOR] staff.
- Evaluate residents' compliance with preparation for Contractor visits and ongoing IPM practices.
- Assist with distribution of materials about the Contractor's activities to staff and residents.
- Provide the Contractor with access to all non-living areas.
- Check and record information from monitoring devices.
- Promptly respond to requests for information or pre-approvals from Contractor.
- Manage and enforce contract details.
- Pay invoices in a timely manner.
- Evaluate Contractor performance, and inform Contractor promptly and fully about performance.
- [OTHER REQUIREMENTS YOU WISH TO ADD]

Scope of Work

Locations to be Covered

[LIST ALL BUILDINGS AND SPECIFIC AREAS FOR WHICH IPM SERVICES ARE TO BE PROVIDED BY CONTRACTOR. ALSO LIST SPECIFICALLY EXCLUDED LOCATIONS/AREAS.]

Pests to Be Addressed

The Contractor will adequately suppress:

- Indoor populations of [SPECIFY PESTS].
- Populations of the above pests outside of the buildings but within the Housing Development property. [SOME CONTRACTORS DO NOT PROVIDE OUTDOOR SERVICES, AND INCLUDING THIS REQUIREMENT MAY DECREASE THE POTENTIAL POOL OF BIDDERS.]
- [YOU MAY WISH TO SPECIFY PESTS THAT ARE TO BE EXCLUDED FROM THE CONTRACT AS WELL.]

It is typically a good idea to have the Initial and Ongoing services priced separately.

Initial Visits and Service

The Contractor will:

- Make a thorough initial inspection of each building [MENTION ANY EXCLUDED AREAS] to evaluate the pest control needs, prior to the start date of the contract.
- Identify problem areas and any equipment, structural features, or practices that are contributing to pest infestations, and will advise the IPM Coordinator about any structural, sanitary or procedural modifications that will reduce pest access, food, water, and shelter.
- Monitor the facility using [LIST SPECIFIC BRAND OR TYPE IF DESIRED] traps to determine any existing pest problems.
- Record and evaluate conditions based on inspections and monitoring.

Develop Performance-Based Plan of Work

- The Contractor and Housing Development management will agree upon and establish a Work Plan that includes measurable goals for the remainder of the contract. [FOR EXAMPLE, IF DURING THE PAST YEAR, 1000 WORK ORDERS WERE WRITTEN FOR PEST CONTROL SERVICES, THE GOAL MIGHT BE TO REDUCE THE NUMBER OF WORK ORDERS TO 750, A 25% REDUCTION IN REQUESTS.]
- The Contractor and Housing Development management will agree upon and establish penalties that may be assessed against the Contractor for failure to perform services as agreed, or failure to be properly prepared or equipped for visits.
- The housing authority will compensate the Contractor for each residential unit scheduled for service but not serviced due to circumstances beyond the Contractor's control, (e.g., lack of preparation by residents).

Ongoing Work

[INSERT DESIRED FREQUENCY AS NEEDED FOR ITEMS THAT FOLLOW.]

The Contractor will:

- Based on the inspections and monitoring, develop and submit for approval an ongoing monitoring plan for all locations where there is an active infestation, pest evidence, or conditions potentially leading to infestation.
- Inspect all likely living and breeding sites.
- Remove pests and their debris, food, other particulate matter, and dust by HEPA vacuuming and/or hot air flushing. [SPECIFY PARTICULAR LOCATIONS, MATERIALS, AND METHODS.]
- Place sticky traps and other monitoring devices in appropriate locations, and monitor pest activity.
- Seal openings, cracks, crevices, and other entry points, as well as other locations where pests/pest debris have been found or where food/water can collect.
- Apply approved gels and baits [INCLUDE SPECIFICS] as needed.
- Apply other pesticide products only as specified in the "Pesticides" section.

Pesticides

The Contractor will:

- Use non-pesticide methods of control wherever possible.
- *Not* use any
 - Pesticide sprays, foggers or bombs.
 - Flushing.
 - Organophosphate or chlorinated hydrocarbon pesticides.
 - [NOTE: YOUR LIST OF PROHIBITED PRODUCTS MAY DIFFER.]
- *Not* apply any pesticides unless visual inspections or monitoring devices indicate the presence of pests in a specific area and unless the thresholds specified in the Action Plan have been reached.
- *Only* apply pesticide products specified in the contract, Plan of Work, and/or approved by the IPM Coordinator. Any exceptions (e.g., a new product or a product that appears on the approved list but is no longer produced) must be pre-approved by the IPM Coordinator.
- Apply any products containing pesticides (e.g., baits, gels, powders) where they are inaccessible to residents, visitors, pets [IF APPROPRIATE], and staff.
- *Not* store any pesticide product in the buildings or on the property without express, written authorization by the IPM Coordinator.
- Employ the least hazardous materials, most precise application techniques, and minimum quantity of pesticide necessary to achieve control.
- Apply all pesticides according to the label instructions.

Pest-specific Measures

[ADD SPECIFIC MEASURES AND PRODUCTS TO BE USED, AND AVOIDED, FOR PESTS OF CONCERN.]

Reports and Record Keeping

- The Contractor and Housing Development will together develop/approve monitoring and recording forms to be used.
- The Contractor will submit a signed, dated checklist for each building site visited, at the time of the visit. The checklist will:
 - Record results of each monitoring device.
 - List all actions taken.
 - Provide action threshold information, location, brand name, and active ingredient of any pre-approved pesticide product used (including baits, gels, and traps).
- The Contractor will submit reports to the IPM Coordinator [SPECIFY FREQUENCY], which will evaluate the results of the IPM program to date, and will make recommendations based upon the results.
- The Contractor is also invited to propose or recommend other services that may benefit the success of the pest management program.

ATTACHMENT A.2: SAMPLE SPECS USED BY BOSTON HOUSING AUTHORITY

This protocol was developed and is used by the Boston (MA) Housing Authority.

Boston Housing Authority "Development Name" Integrated Pest Management Specification

1) General

Integrated Pest Management (IPM) is a process for achieving long-term, environmentally sound pest suppression through the use of a range of pest control methods, including pest exclusion, sanitary practices, and minor structural alterations rather than relying on pesticides. The four basic IPM principles are (1) monitoring pest populations with sticky traps to find out where pests are living and hiding, (2) blocking pest access and entryways, (3) eliminating food and water, and (4) applying low-toxicity, low-risk pesticides only as necessary to address problems.

Chemicals will be applied only on an "as needed" basis. The need for chemicals will be determined by an initial thorough inspection and follow up monitoring of pest activity.

Integrated Pest Management (IPM) at a public housing development is a highly desirable approach to pest control that reduces chemical concerns & liabilities, which increasing efficacy, cost-effectiveness, and success of the overall effort. Implementing an IPM program in such setting can be difficult if the program isn't clearly understood, is poorly managed, or not accepted by the residents. Therefore, this is a collaborative approach to pest management.

The contract will be awarded based on:

- Meeting all minimum requirements.
- Past performance.
- Quality of the IPM plan proposed.
- Commitment to perform as a partner at a high level.
- The quotation provided.

2) Identifying and defining the roles of the Collaborators.

It is necessary to identify who is responsible for performing certain tasks within the framework of the IPM program. Collaborators will typically include: The

Property Manager, The Pest Control Contractor, The Maintenance Department, Tenant Coordinator, Outreach or Support staff (i.e. home healthcare professionals, housekeeping personnel, mental health workers, etc.) After each collaborator is identified, an initial meeting is required to identify responsibilities so that as problems arise in their specialty area, they will assume responsibility to take appropriate action.

The collaborators are effectively a community with specific responsibilities to the rest of the team. Any one area that fails to operate as expected, compromises the entire program. When this happens, a meeting of the committee should be called to remedy the situation.

3) Minimum Requirements of Bidding Contractor

- a) Must show evidence of skill at providing IPM services
- b) Must show evidence of at least 5 years experience providing pest control services.
- c) Must provide certificate of Contractor's general liability insurance.
- d) Must provide certificate of worker's compensation insurance.
- e) Must provide names of all pesticide applicators and copies of current pesticide applicator licenses to the property manager and tenants if requested. All pesticide applicators must be fully licensed as required by the state of Massachusetts, MGL Chapter 132B: Section 10.

4) Contractor can expect from the B.H.A.:

- a) Keep premises clean and in good repair to exclude pests and remove potential shelter.
- b) Work with the Contractor to develop or refine an Action Plan.

- c) Educate staff and residents about their responsibilities, to ensure the best use of the Contractor.
- d) Provide the Contractor with access to all non-living areas.
- e) Promptly respond to requests for information or pre-approvals from the Contractor.
- f) Manage and enforce contract details.
- g) Pay invoices in a timely manner.
- h) Evaluate Contractor performance and inform Contractor promptly and fully about performance.

5) Scope of Work

- a) A community meeting will be the introduction of the awarded contractor to the residents and employees of the development. This meeting will take place in the evening and on site so maximum tenant participation will occur. At the time of the meeting the Contractor will be expected to briefly describe what IPM is and what can be expected to occur during the initial inspection, what the preparation requirements are and what follow up procedures will occur.
- b) A tenant coordinator will be hired by the Contractor to assist in access to apartments and common areas. The tenant coordinator will deliver all notifications to residents. They will accompany the Contractor when they are on site. They will be required to be with the Contractor on the initial inspection.
- c) A thorough inspection will include all apartments, common areas, basements, utility rooms, management office, maintenance shops and storage, exterior of all buildings, and agency and other spaces as deemed by the manager within the development. The initial inspection will include a pesticide treatment utilizing bait products and traps (to be approved by the manager of the development). The contractor will develop a detailed report of his/her findings during the inspection. The report shall include but not limited to:
 - 1) Was there visible pest activity; list pests seen
 - 2) Were there conditions that would promote infestation; list conditions
 - 3) Were there housekeeping issues and list issues
 - 4) Was there clutter in the unit and where
- 5) Was the tenant cooperative and did they show concern about their problem if they had visible infestation
- 6) Are there any maintenance issues that are contributing to the infestation problem?
- d) A Focus Unit List will be developed by the manager and the Contractor based on pest infestation or conditions promoting infestation. These units will be scheduled for automatic and frequent pest inspections and monitoring. Repeat treatments using baits, traps will be performed continuously as appropriate. Additionally, each unit on the Focus Unit List will be reviewed by the property manager to assess whether outside support services are called for or if legal action needs to be taken. At any time during the term of this contract, a resident complains of infestation through the work order system or directly to the management/maintenance office, they will be added to the Focus Unit List for follow up inspection, monitoring and treatment by the contractor if needed.
- e) At the completion of each service, a report will be filed with the property manager for review. Identified problem units must be taken from the IPM report and recorded in the Focus Unit List by the manager or designated employee. The units will then be scheduled, and receive automatic monitoring, treatment and review. At such time when the unit becomes pest-free and free of conditions conducive to pest activity, the technician and property manager will review the situation and make a determination about the future monitoring frequency. Even in the absence of pest infestations, the goal of the IPM is monitoring for conditions which may lead to problems.
- f) Any time a pesticide treatment is performed a report or service record must be provided to the manager and if requested the occupants of the apartment. The report should include but not limited to:
 - 1) Requirements of the pesticide board; see 333CMR: 13.08 (1, 3 and 4) Commercial Application of Pesticides to Indoor Settings
 - 2) Amount of pesticide used if treatment was done
- g) An administrative meeting with the contractor (owner or administrator) and the property manager will take place quarterly throughout the contract period. This meeting could include residents, tenant coordinator, B.H.A. employees other than the prop-

erty manager, technicians, social service personnel or anyone else deemed necessary by the property manager. This meeting will occur during B.H.A. working hours unless otherwise agreed upon by the contractor and the property manager.

6) Additional Requirements

- a) The contractor will be responsible for the preparation of all schedules for inspections and treatments. All work schedules proposed by the contractor will require prior approval of the property manager or their designee.
 - b) Instructions for the property manager and the tenants on the preparation of the apartments for inspection and treatment will be distributed with the notifications to the residents. A 48 hour notice to residents is necessary for access to the apartments for all inspections and/or treatments. All notifications and instructions will be developed by the contractor and approved by the property manager before distribution.
 - c) When performing initial inspection or follow up monitoring, remove pests and their debris, food, other particulate matter and dust by HEPA vacuuming.
 - d) Place sticky traps and other monitoring devices in appropriate locations and monitor pest activity.
 - e) Seal openings, cracks, crevices and other entry points, as well as other locations where pests/pest debris have been found or where food/water can collect. All materials used to seal openings, cracks, crevices must be pre-approved by the property manager. Suggested materials are but not limited to expanding foam, copper wool, caulking, spackle and joint compound. Any materials used for sealing holes must be previously approved by the property manager or their designee. MSDS should be provided to the property manager for all approved materials. All leaks and holes larger than the contractor can handle shall be reported to the property manager by the end of the work day.
 - f) All work will be performed during regular B.H.A. work hours, Monday to Friday, 8:00 a.m. to 5:00 p.m. and by the approval of the property manager. No work will occur on B.H.A. holidays. A schedule of holidays will be provided to the awarded contractor.
 - g) The contractor will take special measures to protect the residents from the hazards associated with the use of pesticides.
- h) The contractor is responsible for removing and legally depositing of all waste materials and rubbish and shall comply with all Federal, State, and local laws, ordinances and regulations. All waste materials and rubbish will be disposed of off site.
 - i) All pest control technicians shall wear a distinct uniform with the contractor's name displayed or wear in full view a company I.D. and present a clean, neat and professional appearance. The contractor and pest control personnel shall maintain the highest standards of conduct and integrity while on B.H.A. premises.

7) Pesticides

- a) Use non-pesticide methods of control whenever possible.
- b) Do not use any pesticide sprays, foggers or bombs. No chemical flushing. Do not use organophosphate or chlorinated hydrocarbon pesticides.
- c) Do not use any chemical controls unless visual inspections or monitoring devices indicate the presence of pests in a specific area.
- d) For all chemicals used and pre-approved by the property manager, the contractor must provide to the property manager all MSDS's.

8) Pests

- a) Mice, rats, roaches, silverfish, moths, ants, ticks, fleas, termites, flies and any other arthropod pest, as well as birds, bats, and all other vertebrates which affect the apartment or building environment and enhances the safety of the building occupants by their elimination. Mosquitoes, wasps, hornets, bees and lice shall be eliminated if the need arises, also.
- b) Bedbugs are in addition to the IPM program. There are three line items on the quotation sheet for bedbug services above and beyond the base contract. If bedbugs are visible during the first inspection or there are resident complaints during the term of the contract, the contractor with the approval of the property manager will perform those services needed and be compensated by the unit price established in the bid.

ATTACHMENT B: SAMPLE IPM PROCESS

Hold first resident meeting

- Explain IPM concept
- View resident and manager training videos
- Review key components
- Review overall procedure
- Open discussion

Establish baseline

- Inspect units, common areas, exterior of building, identify maintenance issues, place monitoring devices in units and common areas
- Document findings
- Collect dated monitoring devices
- Document findings
- Install new dated monitoring devices

Treat common areas

- Licensed applicator treats applicable areas
- Collect dated monitoring devices
- Install new dated monitoring devices
- Document findings

First unit visit by IPM coordinator

- Perform education piece
- Document findings

First unit visit by licensed applicator

- Treat unit if applicable
- Collect dated monitoring devices
- Install new dated monitoring devices
- Document findings

First unit follow-up by IPM coordinator

- Two weeks after applicator's first visit
- Document resident perception of program to date
- Inform resident of future visits by applicator (if applicable)

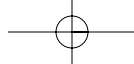
Repeat above visits if applicable

- Document findings

Distribute resident evaluation form

Evaluate data that has been collected

Report evaluation to residents and their leaders



ATTACHMENT C.1: SAMPLE MONITORING DATA FORM

Used with the Permission of Rivard's Resources, Waltham, MA

RIVARD'S RESOURCES: IPM

Environmental Management Consultants

APARTMENT MONITORING SCORE CARD[®]

Apt. No. _____

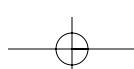
Date: _____

Address: _____

Inspector: _____

Trap#	Location	Date:	Date:	Date:	Date:
	Target pest (ants, roaches, bedbugs, mice, etc.) → →	# of Roaches ↓	# of Roaches ↓	# of Roaches ↓	# of Roaches ↓
No. 1	Kitchen Sink				
No. 2	Kitchen Refrig.				
No. 3	Kitchen/other				
No. 4	Bathroom				
No. 5	Liv. Room				
No. 6	Bedroom				
No. 7	Bedroom				
No. 8	Bedroom				
No. 9	Foyer/closet				
No. 10	Linen Closet				
No. 11	Laundry				
No. 12	Boiler/Heater				
No. 13	Basement				
No. 14					
No. 15					
No. 16					
No. 17					
No. 18					

Comments: _____



ATTACHMENT C.3: SAMPLE IPM TRACKING INFORMATION

This protocol was developed and is used by the Boston (MA) Housing Authority.

BHA Pest Control Service Record

DEVELOPMENT NAME: _____

LICENSE HOLDER NAME: _____

CODES:

Rooms:

Al = All rooms
 K = Kitchen
 Bd = Bedrooms
 Ba = Bathroom:
 Y = Yes, N = No; SP = Stored Product pests

Pest:

R = Roaches
 A = Ants
 M = Mice
 O = Other

Activity:

L = Light
 M = Moderate
 H = Heavy

Conditions:

G = Good
 F = Fair
 P = Poor
 C = Clutter
 Pr = Prepared
 NP = Not Prepared

Apt. No.	Product Code	All Rooms Insp/Trtd. ?	Pest(s) Found & activity level	Prepped?	Clean?	Repair(s) Needed?	Comments:

Code	Product(s)	%	Formulation	Amt	EPA Reg. No.	Code	Product(s)	%	Formulation	Amt	EPA Reg. No.
1						4					
2						5					
3						6					

Additional Comments:

Signature: _____ **Pesticide License #** _____

LEAVE COPY WITH DEVELOPMENT WHERE YOU ARE EXTERMINATING AND KEEP A COPY FOR YOUR RECORDS
This protocol was developed and is used by the Boston (MA) Housing Authority

ATTACHMENT D: IPM RESOURCES AND CONTACTS

National and General Contacts

Association of Structural Pest Control Regulatory Officials

A professional association of state structural pest control regulatory officials.

Las Cruces, NM

505-522-8040

<http://www.aspcro.org/htbin/aspcro.com>

Bio Integral Resource Center

Information and resources related to IPM. Focuses on California, but lists some general resources and publishes two IPM journals.

Berkeley, CA

510-524-2567

<http://www.birc.org/>

Beyond Pesticides (formerly the National Coalition Against the Misuse of Pesticides)

A membership-based advocacy organization working to protect public health and the environment from the risks of pesticides. The website has a state-by-state resources referral section.

Washington DC

202-543-5450

<http://www.beyondpesticides.org/states/index.htm>

Environmental Health Watch

Provides information, assistance, training, and advocacy on health issues related to our urban and industrial environments. Has a variety of factsheets for residents on cockroach control, asthma, etc.

Cleveland, Ohio

(216) 961-4646

www.ehw.org

http://www.ehw.org/Healthy_House/HH_home.htm

IPM Institute of North America

An independent non-profit organization that fosters recognition and rewards in the marketplace for goods and service providers who practice IPM. Their IPM Star auditing program can be a valuable service for reviewing and improving your program.

Madison, Wisconsin 53726 USA

608-232-1528

www.ipminstitute.org

National Pesticide Information Center

A toll-free information service providing objective, science-based information on a wide variety of pesticide-related subjects, including pesticide products, pesticide poisonings, toxicology, and environmental chemistry.

Corvallis, OR

800-858-7378

541-737-0761

<http://nptn.orst.edu>

Safer Pest Control Project

Works to reduce health risks and environmental impacts of pesticides and promotes safer alternatives. Although the focus is on the state of Illinois, the website has many good, general educational fact sheets for residents and managers.

Chicago, IL 60602-1849

312-641-5575

<http://www.spcpweb.org/resources/index.php#factsheets>

U.S. Environmental Protection Agency, Pesticides Division

Offers a great deal of general and specific information about pesticides and IPM, although primarily dealing with school settings.

Washington, DC

Hotline: 1-800-858-PEST

<http://www.epa.gov/pesticides/controlling/index.htm>

State Agencies

Each state has different resources and information on IPM. Cooperative extensions of state agricultural colleges often have good resources. You may also want to check the state department Environment, Health, Poison Control, or Pesticide Control. One list of state agencies is available at:

<http://www.beyondpesticides.org/states/index.htm>

Finding a Qualified IPM Provider

GreenShield Certified

Green Shield Certified is an independent, non-profit certification program that promotes practitioners of effective, prevention-based pest control while minimizing the use of pesticides. Green Shield Certification is available to qualifying structural pest management service providers anywhere in the continental United States.

<http://www.greenshieldcertified.org/>

New England Pest Management Association

This professional organization for pesticide applicators and related companies maintains a list of registered IPM practitioners, at:

<http://www.nepma.org/>

Training and Education for Buildings Personnel

Organizations

The Alliance for Healthy Homes

A national, nonprofit, public interest organization working to prevent and eliminate hazards in homes that can harm the health of children, families, and other residents.

Washington, DC

http://afhh.org/dah/dah_training_resources.htm

American Association of Pesticide Safety Educators

An association of educators providing science-based pesticide safety education programs through tribal and government agencies and the land-grant university cooperative extension services.

Virginia Tech Pesticide Programs

Blacksburg, VA

<http://aapse.ext.vt.edu/index.html>

New England Pest Management Association

An advocacy organization for members (primarily pesticide applicators). Promotes professional IPM in the region and now maintains an IPM registry of qualified vendors.

76 South State Street

Concord, NH 03301

866-386-3762

<http://www.nepma.org/>

National Center for Healthy Housing

Develops and promotes practical methods to protect children from environmental health hazards in homes while preserving affordable housing, including IPM.

Columbia, MD 21044

410-992-0712

<http://www.healthyhomestraining.org/ipm/index.htm>

Center for Healthy Homes and Neighborhoods

The Center for Healthy Homes and Neighborhoods in the Boston University School of Public Health offers trainings for health and housing professionals in New England on principles and best practices for healthy homes as a member of the National Healthy Homes Training Center & Network. The Center also offers IPM courses for managers of low-income, multifamily housing, including public housing authorities, community development corporations, and Section 8 programs.

Professor H. Patricia Hynes

617-638-7720

Kathleen MacVarish

617-638-5032

Dr. Megan Sandel

617-414-3680

Publications

Integrated Pest Management Guidelines for Structural Pests: Model Guidelines for Training and Implementation

Detailed, easy to read information for pest control professionals and building managers who wish to practice integrated pest management. Specific pests discussed include ants, bedbugs, cockroaches, fleas, flies, rodents, termites, and more. Order from:

UMass Extension Bookstore

Draper Hall

40 Campus Center Way

Amherst, MA 01003-9244

nates@umext.umass.edu

<http://umassoutreachbookstore.com/catalog/>

Integrated Pest Management:

A Real Solution to Pest Problems

An educational DVD that talks about the benefits of IPM and addresses property managers, property owners, and maintenance staff. The housing manager of the Boston Housing Authority explains how he has successfully used IPM practices to address pest problems in the buildings he manages. Produced by the Asthma Regional Council, Dorchester, MA. Free from ARC:

617-451-0049

<http://asthmaregionalcouncil.org/ordering.htm>

IPM Kit for Building Managers

Published by the Massachusetts Department of Food and Agriculture. Contains very brief, easy-to-read information for specific groups, including:

Pest Control Services

Recycling Waste Disposal and Disposal Contract

Custodial Services

Landscape and Grounds Design

Landscape and Grounds Maintenance

Renovation and Construction Projects

Building Repair, and Repair Contracts

Food Service Managers

HVAC

Electrical

Plumbing

Roofing

Office Workers

Condominium and Apartment Residents

http://www.mass.gov/agr/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf

<http://www.mass.gov/agr/pesticides/publications/index.htm>

Educational Materials for Residents

Stop Pests in Your Homes

An educational DVD that targets tenants and residents and offers advice on how to avoid pest problems. Available in Spanish and English. Produced by the Asthma Regional Council, Dorchester, MA. Free from ARC:
617-451-0049

<http://asthmaregionalcouncil.org/ordering.htm>

What is IPM?

This 16-page booklet describes the basic principles of integrated pest management in nine languages: English, Spanish, Portuguese, French, German, Italian, Khmer, Vietnamese and Chinese. Produced with funding from the EPA Pesticide Environmental Stewardship Program. Single copies free. \$5.00 for 20 copies or \$10 for 100 copies.

Order from:

Bookstore, Draper Hall
40 Campus Center Way
University of Massachusetts
Amherst, MA 01003-9244
413-545-2717

Ten Steps to Pest Control

A fact sheet from Safer Pest Control Project (English and Spanish)

<http://www.spcpweb.org/residential/>

Healthy Homes: Keeping Homes Healthy & Safe for Children

A booklet from the New York City Department of Health and Mental Hygiene.

<http://www.nyc.gov/html/doh/downloads/pdf/lead/lead-brochure-healthy-home.pdf>

Kids' Guide to Pesticides

A factsheet from Safer Pest Control Project (English and Spanish)

<http://www.spcpweb.org/residential/>

Healthy Homes: What you need to know about pests and pesticides to protect your family's health

Boston Public Health Commission, 2006.

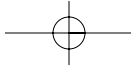
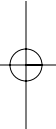
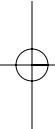
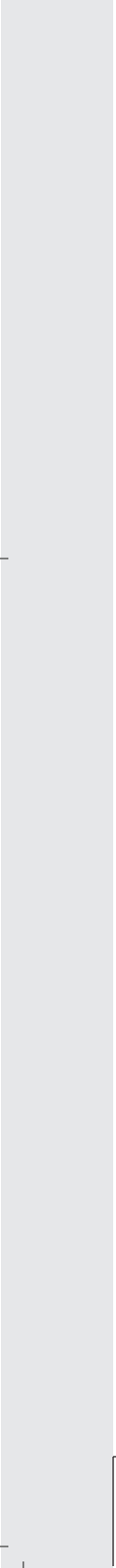
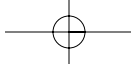
A resident-friendly "kit" that provides helpful hints for pest prevention on tear-off cards to place around the home as handy reminders. Useful for home visiting programs. Also includes an asthma control checklist, a smoke-free home pledge card. In nine languages (English, Spanish, Haitian Creole, Russian, Chinese, Vietnamese, Somali, European Portuguese and Brazilian Portuguese). Available from the Healthy Homes Program, Boston Public Health Commission, 617-534-5395.

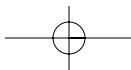
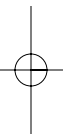
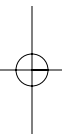
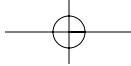
http://www.bphc.org/bphc/healthyhomes_main.asp

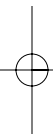
Citizen's Guide to Pest Control and Pesticide Safety

USEPA, EPA 730-K-95-001, September 1999

An in-depth guide most appropriate for homeowners; contains good description of IPM and helpful information on preventing pests. Free.







Asthma Regional Council
The Medical Foundation
622 Washington Street, 2nd Floor
Dorchester MA 02124
Phone: 617-451-0049
www.asthmaregionalcouncil.org



Boston Public Health Commission
1010 Massachusetts Avenue, 2nd Floor
Boston, MA 02118
Phone: 617-534-5966
www.bphc.org/bphc/healthyhomes_main.asp

