Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of common-sense practices.

IPM programs use information on the life cycles of pests and their interaction with the environment. This information, in combination with available pest control methods, is used to manage pest damage by the most economical means, and with the least possible hazard to people, property, and the environment.
What is IPM?
★ IPM takes advantage of all appropriate pest management options including, but not limited to, the careful use of pesticides

Why Have an IPM
★ Save money
★ Lessen possible hazards
★ People
★ Property and
★ Environment
★ Educated residents
★ Makes HUD happy

How to Implement an IPM in 5 Basic Steps
How to Implement an IPM in 5 Basic Steps

1. Inspect and monitor
2. Identify bed bugs
3. Establish acceptable thresholds
4. Make a plan
5. Ensure plan effectiveness

1. INSPECT AND MONITOR

Inspect and Monitor
★ Set up resident unit inspections
★ Inspect each room
★ Place monitors
★ Re-inspect after one week
Where to Look for Bed Bugs

- Check the sheets, pillows and blankets for bugs and stains
- Look under the mattress and pillows
- Check the seams and puckers of the mattress and box spring
- Look at the bed frame for bugs and stains
- Check the floor, carpet edges and moldings
- Look inside and underneath drawers
- Look at radios, phones, clocks near the bed or on a night stand may also be hiding places for bed bugs
Move-out Inspections

- Do a thorough inspection of the unit
- Check baseboards
- Check carpets
- Check mini blinds/curtains
- Check ceiling especially popcorn ceilings
- Check closet tracks

APPENDIX D – PM FOCUS UNIT TRACKING LOG

2. IDENTIFY BED BUGS
THE FACTS ABOUT BED BUGS

What is a Bed Bug?

- Bed bugs are small wingless insects that feed on blood of humans or warm blooded animals
- Bed bugs are reddish or brownish flat bugs
- Bed bugs are nocturnal
- A full grown bed bug is about the size of an apple seed
- They molt in between feedings
Bed bugs date back to the 1700s. Bed bugs were almost eradicated between 1950 to the early 1970s. In 1972 DDT was banned. Reports have increased by 81% since the year 2000. 9 out of 10 Pest Control Companies have treated for bed bugs.

**Why the Increase**

- Growth from nymph to adult is completed in 37 to 128 days.
- A blood meal is required between molts. Usually takes 8 days between molts.
Why the Increase

- Female lays 5-50 eggs on rough surfaces usually in cracks
- Female lays 200 to 500 eggs in lifetime
- Eggs hatch in about 10 days
Why the Increase

- World travel has increased
- Garage sales
- Increase in Homeless Shelters
- Increase in Public Transit
- Improper disposal of infested items

2015 TOP 50 Bed Bug Cities

1. Chicago
2. Detroit (+2)
3. Columbus, Ohio
4. Los Angeles (-2)
5. Cleveland – Akron – Canton, Ohio (+1)
6. Orlando – Fort Lauderdale – Miami, Fla. (+5)
7. Jacksonville – St. Augustine – Daytona Beach, Fla. (+2)
8. Cincinnati (-2)
9. Denver (+1)
10. Richmond – Petersburg, Va. (+2)
11. Dayton, Ohio (-3)
12. Indianapolis (-1)
13. Houston (+4)
15. Milwaukee (+6)
16. San Francisco – Oakland – San Jose, Calif. (+3)
17. Sacramento – Stockton – Modesto, Calif. (+14)
18. Fort Wayne, Ind.
19. Orlando – Kissimmee – Sanford, Fla. (+11)
20. St. Louis
22. Bowling Green, Ky.
23. Buffalo, N.Y. (+12)
24. Kansas City, Mo. (+9)
25. Honolulu (+3)
27. Memphis
28. San Antonio – New Braunfels, Texas (+1)
29. Honolulu (+3)
30. Anchorage, Alaska
31. Austin – Round Rock, Texas (+4)
32. Portland, Ore.
33. San Diego (-13)
34. Oakland
35. Champaign – Urbana – Decatur, Ill. (-3)
36. Minot, N.D.
37. Mesquite, Nev.
38. Huntington – Charleston, W.V. (+11)
40. McAllen – Edinburg – Mission, Texas (+3)
How Do Bed Bugs Find a “Meal”

- Bed bug travel along pipes and through wall cracks and electrical outlets
- They are able to sense temperature and carbon dioxide
- They are attracted to oily skin
- A bed bug can go as long as a year without a blood meal

Bed Bug Bites

- They usually feed about an hour or two before sunrise
- As they bite they inject and anticoagulant to get the blood flowing

- Their saliva also contains an anesthetic causing the bite to be painless while they are feeding
- They only feed for about 5 minutes then they return to a hiding place
Bed Bug Bites

- A lot of people have allergic reactions to the bites causing welts and severe itching
- Severe infestations can cause people to suffer from sleeplessness, they become irritable and may even develop an iron deficiency
- Some people do not have any reaction to the bites
- Bed bugs do not transmit disease

3. ESTABLISH ACCEPTABLE THRESHOLDS
**Establish Acceptable Thresholds**

- How many are too many
- Determine acceptable pest levels
- Determine level of control
  - Eradication is often impossible
  - Keeps bed bugs from forming a genetic biases
- What happens when the threshold is exceeded?

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**4. MAKE A PLAN**

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**ENSURE EARLY DETECTION**
Education, Education, Education!

★ Reduce Clutter
★ Educate Residents at move-in
★ Continued education

Reduce Clutter

★ Work with residents to ensure clutter is reduced
★ Seek community resources for residents that have hoarding problems
★ Eliminate hiding places
★ Make the bed an island
Educate Residents

- Give information at move-in
- Identify what bed bugs look like
- Explain how to inspect for bed bugs
- Have bed bug policies and procedures incorporate them into House Rules
Educate Residents

★ Show the video found at:

★ 17 Minute Video in English and Spanish
  ▪ http://www.stoppests.org/working-with-residents/residents-briefing-video/
  or
  ▪ 8 Minute Video in English
    ▪ http://www.onpha.on.ca/AM/Template.cfm?Section=Video_Library&CONTENTID=5524&TEMPLATE=/CM/ContentDisplay.cfm

Educate Residents

★ Give brochure
★ Provide ongoing training about how bed bugs are brought into the unit/building

Do Not Bring in...

★ Used mattresses, furniture, books
When Removing Furniture or Other Items

Education
★ Teach your residents how to be vigilant when they are traveling

Incentive to Report
★ Offer gift cards to residents who report bed bugs and bed bugs are found during a subsequent inspection.
Before travel

★ Check travel websites to see if there have been reports of bed bugs
   ★ http://www.tripadvisor.com
   ★ http://www.hotelchatter.com
   ★ http://www.bedbugregistry.com
   ★ http://www.bedbugcentral.com
★ User reviews on the hotel’s website

Once in the Hotel Room

★ Peel back the bed sheets, check the mattress, pay special attention to the seams
★ Check mattress tag
★ Check behind the headboard if possible
Once in the Hotel Room
★ Inspect the baseboards along the wall

Once in the Hotel Room
★ Check the bedside table under alarm clock and the phone
Once in the Hotel Room
★ Look for signs of bed bugs in the drawers

Once in the Hotel Room
★ Look behind hanging pictures

Once in the Hotel Room
★ Look behind the curtains
★ Look along the window tracks
★ Look for white powder
★ Smell of raspberries
If bed bugs are found, move to another room!

**Safeguards**
- Keep luggage off of the floor
- Keep luggage off of or next to the bed
- Use metal/wood racks provided
Safeguards
★ Do not place items in drawers

Safeguards
★ Keep luggage closed/zipped

When You Are Going Home
★ Inspect luggage
★ Pack items in plastic travel bags
Greatest Invention Ever!

* Simply place your clothes into a GreenClean bag, tie the bag with the attached dissolvable tie strip, walk to your laundry machine and drop the bag into the machine, add your normal detergent and set the cycle to hot laundering and turn the washer on. When you return only your clean clothes will remain free of bed bugs.

What to do When You Get Home

★ Remember bed bugs are “Hitchhikers”
★ Unpack luggage away from the bedroom
★ Launder clothes in the hottest water possible
★ Dry-cleaning
★ Items can be put in black trash bags

WHAT TO LOOK FOR IN AN EXTERMINATOR/INSPECTOR
Questions to Ask an Exterminator

- Does your company treat for bed bugs
- How long have you been treating for bed bugs
- Can you provide references
- Do you charge an inspection fee

Questions to Ask an Exterminator

- What do you use to treat bed bugs
- Do you rotate your chemicals
- Do you only use pesticides recommended for bed bugs
- Do you offer steam cleaning or other types of heat treatments

Develop an Integrated Pest Management (IPM) Plan

This is a plan to help prevent and respond to pests

http://www.stoppests.org
**Addressing Infestations**

- Within 24 hours, the Owner/Agent (O/A) should respond or make contact with the resident if there is a report of bed bugs.
- The O/A should provide:
  - Information about bed bugs
  - Discuss pre-inspections measures the resident should take

- The O/A or a qualified third party trained in bed bug detection should inspect the unit to determine if bed bugs are present

- The inspection should cover the unit reporting the infestation and no less than surrounding apartments consisting of the units above, below, left and right, and should be completed within 3 calendar days of a resident complaint if possible
If reputable, licensed pest control companies are unattainable within three calendar days, the O/A is required to retain documentation of the efforts to obtain qualified services.

When an infestation is identified, the surrounding units should be treated:
- Above
- Below
- Left and Right

A balance of pesticide and non-pesticide treatment:
- Freezing
- Heat
- Diatomaceous Earth
- Isolation
- Pesticides (rotate)
Use of Pesticides

★ Signal Words
★ CAUTION
★ WARNING
★ DANGER
★ Must be registered with the EPA

How IPM differs from calendar-based extermination

<table>
<thead>
<tr>
<th>IPM</th>
<th>Calendar-Based Extermination</th>
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<tbody>
<tr>
<td>Inspection with a flashlight and monitoring are used to identify priority areas (where infestation exists or pest risk is high) for the best use of resources and staff time</td>
<td>Calendar-based use of pesticides throughout the building with quick inspection</td>
</tr>
<tr>
<td>Solves the infestation and prevents future occurrences</td>
<td>Results last only as long as the pesticide remains active</td>
</tr>
<tr>
<td>Takes into account pest behavior and life cycles and uses solutions that prevent pest population growth</td>
<td>Success depends on each pest coming in contact with a pesticide</td>
</tr>
<tr>
<td>Protects sensitive individuals from exposure to chemicals</td>
<td>Limited notification and posting about pesticides, alternatives rarely offered to sensitive individuals</td>
</tr>
</tbody>
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IPM Team
IPM Team

★ IPM Coordinator
★ Property Manager
★ Pest Management Professional (PMP)
★ Maintenance Team
★ Residents
★ Resident Support Staff

IPM Coordinator

★ This person is the leader of the team
★ Primary contact person
★ Ensures everyone is working together properly
★ Evaluates the program
★ Keeps records

Property Manager

★ This person may also be the Coordinator
★ Responsible for resident compliance with the Lease and House Rules
★ Responsible for resident education
★ Supports the Maintenance team
**Pest Management Professional (PMP)**

- Works with the Coordinator to schedule upcoming visits
- Provides support with inspections and monitoring
- Must be licensed if required by the State
- Should provide education to the property staff

**Maintenance Team**

- Respond to work-orders / service requests from residents about pest problems
- Fix source of entry if possible such as cracks and holes
- May in some cases help with unit preparation
- Upkeep and monitoring of common areas
- Uses the Tracking Log

**Residents**

- Must adhere to the terms of the lease
- Must understand the importance of good housekeeping and reduction of clutter
- Report problems immediately
- Prepare unit for inspection and treatment
Resident Support Staff

- Team that works with the resident in preparing the unit for treatment
- Local code enforcement
- Home health care workers
- Family / friends
- Faith based organizations
- Other support staff

Funding and IPM

Financial Resources for the O/A

- Owners are encouraged to make advances to the property (loan without interest) when no reserves are available
Financial Resources for the O/A

★ The owner may also want to inquire if they are able to request an increase for pest control when completing the annual budget.

ENSURE PLAN EFFECTIVENESS

Tracking

★ Costs,
★ Success of treatment
★ Efficiency.
★ Ensure that you track data from the very beginning so you can see your progress.
Costs

★ Track:
★ Pest management bills
★ Materials used
★ Staff time
★ Supplies provided to the residents

Success of Treatment

★ Track:
★ Amount of pesticide used
★ Success rate of freezing or heat
★ Number of pests captured in monitoring devices

Efficiency

★ Track:
★ Decrease in service requests
★ Resident education
★ Resident retention
★ Reduction in staff time
Raising awareness through education on prevention of bed bugs

Inspecting infested areas, plus surrounding living spaces

Checking for bed bugs on luggage and clothes when returning home from a trip

Looking for bed bugs or signs of infestation on secondhand items before bringing the items home

Correctly identifying the pest

Keeping records – including dates when and locations where pests are found
IPM for Bed Bugs Include

★ Cleaning all items within a bed bug infested living area
★ Reducing clutter where bed bugs can hide
★ Eliminating bed bug habitats

IPM for Bed Bugs Include

★ Physically removing bed bugs through cleaning
★ Using pesticides carefully according to the label directions; and
★ Following up on inspections and possible treatments

Owners are Strongly Encouraged to:

★ Provide training for staff to identify bed bugs
★ Follow the IPM plan
Owners are Strongly Encouraged to:

★ Actively engage residents in efforts to prevent bed bugs
★ Provide orientation for new residents and staff
★ Hold workshops
★ Encourage reporting

Final Note

Remember it may take a while to see the benefits of your program; however, changing your property operations from reactive management to proactive management eventually saves you money, time and resources.

You will also be providing a healthier environment for your residents and for you and your staff.

IPM for Affordable Housing Properties

★ Resources:
★ Stop Pests in Housing
  www.stoppests.org
★ Rutgers Dept. of Entomology
  http://njaes.rutgers.edu/bedbug/
★ The EPA
  http://www.epa.gov/bedbugs/
HEATHER STAGGS
720-943-8603
Questions?
heather@star-momentum.com
More Information?
www.star-momentum.com

★ http://www.epa.gov/pesticides/kids/hometour/label/read.htm