# *****Pest-Specific Integrated Pest Management (IPM) Plans for Multifamily Housing*****

1. Develop your own pest management plan. Review the following and edit for your individual multifamily housing site.
2. Consider assigning the following responsibilities to specific staff and/or pest management professionals.
3. Highlighted items should be edited to meet the needs of your building, staff, and residents.
4. *Pest management professional* or *PMP* is anyone licensed to perform pest control and apply pesticides. We use this term instead of *exterminator* throughout the this document.
5. Integrated pest management or IPM is a process to control pests which includes regular inspection and monitoring, applying multiple tools depending on infestation level and conditions, and evaluating the success of the pest control program by reviewing records and monitoring progress in eliminating pests. IPM emphasizes the use of non-chemical tools and preventative tactics to prevent pest infestations and make buildings safer and healthier places to live and work. Visit [StopPests.org](http://www.stoppests.org/) for more information.

Bed Bugs

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| Plan for Prevention |
| 1. Educate all staff and residents. They should be aware of the signs of bed bugs, how to inspect, and ways to prevent bringing them home. In-person resident meetings, brochures, and posters will be used to build awareness and encourage reporting of suspected infestations.
2. When bed bugs are reported a bed bug specific work order will be used. Inspection by qualified staff or professional will occur within 3 days of reporting and treatment will be scheduled no more than 5 days from confirmed infestation.
3. Treatment notification will be given to residents 48 hours in advance
4. Inspection: all units will be inspected at least once a year and quarterly if there is a history of bed bugs in the unit. Passive insect interceptor monitors which sit under furniture legs, make this easier. Monitors will be placed in all active units and the neighboring units. Depending on budget and infestation rates monitors could be placed all units, or units with bed bug history. Active monitors with a lure can also be used. Following the end of treatment, units should be inspected monthly for at least 2 to 3 months. Note: typical rebound of the bed bug population can take months before the infestation is evident. Periodic inspections should occur for at least the next 6 months.
5. Establish an elimination confirmation procedure with pest management professionals. Ex. No bed bugs found (based on resident interview, visual inspection, and monitors) during two consecutive visits within a 45 day period is required to confirm elimination.
6. Monitor placement and checks can be done by unlicensed staff.
7. All cracks and crevices around pipes, utilities, bathroom vents, and under doors will be sealed to prevent infestations from travelling between apartments in multifamily housing.
8. Management can supply monitors and mattress encasements for free or have available for residents to purchase at cost if contractor does not provide as part of treatment.
9. A thorough inspection and vacuuming will be done at unit turnover. Desiccant or chemical dusts will be applied in hard to reach places such as wall voids and under flooring if it is replaced.
10. Assistance will be provided to residents who are unable to perform the necessary treatment preparation instructions.
11. Lease includes clause to ensure residents will cooperate with reasonable treatment preparation instructions and a fine will be issued if a resident is non-compliant but minimal treatment will still be done to prevent the spread of bed bugs to other units.
12. Cost of treatment will be covered by building management. It is impossible to prove why a re-occurrence of an infestation occurs. It is often caused by treatment failure rather than resident reintroduction. Charging residents for the cost of treatment discourages reporting infestations to management and encourages un-safe and ineffective do-it-yourself treatments. This will allow the bed bugs to spread if they are not treated by a professional or trained staff.
13. Home remedies and over-the-counter product use by residents is discouraged and will be noted in housekeeping inspections.
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| Pest Management Plan |
| Inspection1. Annual **inspection** (canine or visual) will be conducted by PMP or trained staff in units with no history of infestations. Units with a history of infestations will be inspected quarterly. Units with active infestations will be inspected every two week and retreated until the unit is cleared. A 45-day period with no live bed bugs or new bites is needed to confirm a unit is cleared of an infestation.
2. If Canines are used for inspection, alerts should be verified with evidence (a live bug/s or egg/s), ideally the canine team should be independent from the contractor used for treatment, and they should be certified by an independent certifying agency such as NESDCA (National Entomology Scent Detection Canine Association).

Record keeping 1. Include monitor and inspection counts to determine if treatment is effective. Periodic review of records will be done to track efficacy of treatments. If more than 6 treatments are applied a re-evaluation of treatment and resident behaviors will be made and adjustments to treatment will be made according to possible reasons for failure. If more than ONE heat treatment is needed a re-evaluation of treatment and resident behaviors will be made to determine the next treatment plan.

Treatment methods1. Vacuum will be used to remove live and dead bed bugs. Areas to vacuum include under and around bed and upholstered furniture, the furniture itself, around the perimeter of the bedroom or entire apartment as needed.
2. Heat and pesticides are viable controls. Freezing techniques are less reliable but can be used for small items if freezer is at or below zero degrees.
3. Heat treatments may include clothes dryers, steam, containerized heat treatments or heat chambers, and/or whole unit heat treatment. When using heat chambers or whole unit heat treatments thermometers should verify thermal death point was reached was reached in the hard to reach areas (ie. between cushions, inside drawers) and held for the appropriate time. Bed bugs and eggs die within 90 minutes at 118°F (48°C) or immediately at 122°F (50°C). During a heat treatment, the air temperature in the room is typically between 135°F (57.2°C) and 145°F (62.7 °C). Because heat cannot penetrate walls, an insecticidal dust can be used in wall voids. Often an insecticidal barrier is used as a border treatment in neighboring units to discourage bed bugs from escaping and infesting neighbors, as the room heats up. Heat treatments should only be used when live bed bugs or eggs are found. Heat treatment can be used for high level infestations or in homes with clutter.
4. Steam treatment can be applied to upholstered furniture and can penetrate through folds and hard to reach areas of furniture. Staff or PMPs who receive proper training can apply steam (as an alternative to chemical treatments) to sensitive places such as mattresses and sofas.
5. Pesticides used should be proven effective and present the least risk to residents and pets. Contractors/pest control staff must submit the SDS for each product they plan to apply to management. Products should be evaluated for effectiveness by independent research. Talk to an entomologist or StopPests consultant to confirm you are using the most effective products available and appropriate to the circumstance.
6. Chemical products should be rotated by active ingredient. Bed bugs have become resistant to many of the commonly used pyrethroid products.
7. Dusts (insecticidal or desiccant) can be applied in wall voids and under flooring when renovating. Dusting wall voids can prevent the bed bugs from infesting neighboring apartments.
8. Treatment should include mattress encasements. Building management may make bed bug encasements available for free or at cost to residents. Encasements make bed bug inspection easier and eliminates the need to discard mattresses and box springs.
9. Adjacent units (including across the hall) should be inspected, monitored and treated if bed bugs are found. Treatment should not occur unless bed bug evidence is found or the level of infestation in the adjacent unit warrants a barrier treatment of the neighboring unit.
10. Preparation instructions will be based on infestation level. Excessive preparation and moving furniture may not be needed. Treatment will be performed regardless of the residents preparation or lack-there-of.
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| **Resident’s Role** |
| * 1. Maintain home in accordance with housekeeping standards
	2. Launder bedding frequently
	3. Report entry-points and maintenance issues to building management
	4. Remain diligent and inspect when traveling, purchasing used furniture and visiting other homes.
	5. Report all suspected bed bugs to management
	6. Don’t self-treat with OTC products, bug bombs or home remedies. These can make bed bugs harder to treat effectively.
	7. Comply with treatment preparation instructions
	8. Remove items and clutter from under beds
	9. Seek help from management/resident services if instructions unable to comply with preparation instructions.
	10. Do not discard infested furniture without management approval/assistance and furniture bags. Items should be destroyed to avoid others bringing back inside.
	11. Allow pest control technician access to unit
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Cockroaches

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| Plan for Prevention |
| 1. Address housekeeping issues identified during housekeeping or pest control inspections. The resident will be informed that eliminating food and water is an important part of cockroach control.
2. Address maintenance Issues such as fixing leaky pipes, dripping faucets, sealing and fixing cracks and holes that cockroaches could get through and/or use as harborage.
3. Hire a company that uses integrated pest management (IPM) or have licensed in-house staff use IPM techniques including gel baits, insect growth regulators, monitors, and a HEPA vacuum to remove insects and associated allergens
4. Ensure pest management professionals are recording infestation levels indicated by monitors.
5. Ensure pest management professionals address heaviest infestations (focus units) first, more frequently (monthly) and with more bait
6. Regularly clean trash chute and compactor room if applicable.
7. Report cockroach sightings in apartments, offices, or common areas.
8. Evaluate monitor reports and pest reports at least once a year to determine if pest management approach is working.
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| Pest Management Plan |
| 1. Monitoringwill be done in all units. At least three sticky monitors will be placed under sinks and near other sources of food, water, and harborage in the kitchen and bathrooms. Monitors should be checked during all pest control visits. Staff can also check these monitors during housekeeping inspections and during maintenance visits for routine repairs. If pests are present, they can make a note and inform property manager that the unit needs service.
2. Inspectionswill be done in all units, at least once a year. Heaviest infested units require bi-monthly inspection and treatments. Units with past issues will have quarterly inspections.
3. Record keeping - include trap counts to determine if treatment is effective.
4. Targeted chemical use will include baits, dusts, and insect growth regulators (IGRs). Liquid residual sprays are discouraged but if used, they should only be applied as a crack and crevice treatment only. *Monthly or quarterly sprays will not eliminate infestations, therefore will not be used.*
5. Chemicals in **baits** should be rotated with every treatment or at least every three months, to discourage resistance or avoidance. Baits should also be tested to determine if cockroaches readily consume them. If cockroaches are not consuming bait, a different bait should be applied. If all the bait is consumed before contractor’s next visit, that indicates more a greater amount of bait should be applied.
6. Heaviest infestations (focus units) should be addressed with more bait. Attention to bait consumption should be paid to determine if contractor is placing enough bait or needs to change products due to bait aversion.
7. Assessment-based bait application protocol: 0 to 50 cockroaches in three traps, apply 7.5 grams of bait; 50 to 100 cockroaches in 3 traps, apply 15 grams of bait; 100 to 500 cockroaches in three traps, apply 30 grams of bait. If we have more than 500 cockroaches in three traps apply 60 grams of bait.
8. Dusts will be applied in wall and cabinet voids and other out of reach places. Unit turnover is the ideal time to apply dusts. Dusts for cockroach control include boric acid, desiccant dusts, and insecticidal dusts.
9. A vacuum will be used to knockdown high populations and to remove dead cockroaches and the associated allergens.
10. Flushing agents can be used to flush out cockroaches from hard-to-reach places.
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| Resident’s Role |
| * 1. Maintain unit according to housekeeping standards.
	2. Avoid scented cleaners and smoking when apartment is under treatment. Both can interfere with bait.
	3. Do not self-treat. Over the counter pesticides are not effective and can interfere with baits.
	4. Clean all food spills, dishes, and other food sources.
	5. Report all cockroach sightings or signs.
	6. Allow pest control technician to enter unit and access under sinks.
	7. Remove garbage from unit weekly.
	8. Report pipe leaks or moisture build up to management.
	9. Report holes and entry access points to be sealed/fixed by staff.
	10. Remove and put away all pet food and water at night
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Rodents

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| Plan for Prevention |
| 1. Share withresidents their role is to limit accessto food, water and hiding places.
2. Use exclusion by sealing cracks and holes around utility lines, replace or install rodent-proof door sweeps, use copper mesh with sealant, putty or spackle to deter chewing. U**se high grade caulks that say “sealant” on the label. Use an escutcheon plate (pipe collars) around pipes and gas lines. Simply plugging holes with steel wool is not effective. Mice can chew through spray foam and use the material for nesting.**
3. **Lines to be sealed include:**
	1. **The kitchen plumbing lines beneath the cabinet**
	2. **The bathroom plumbing lines beneath the cabinet**
	3. **Any stove gas lines penetrating the floor for the stove**
	4. **The floor heating radiator lines from below**
4. **Install rodent-proof door sweeps on exterior and interior doors, especially to trash room. All openings below doors should be sealed down to ¼ inch (6mm). (This is the equivalent of a no. 2 pencil lying flat on its side).**
5. Follow the [CDC guidelines for cleaning up rodent droppings](https://www.cdc.gov/rodents/cleaning/index.html) to eliminate pathogens and allergens.
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| Pest Management Plan |
| 1. **Special attention should be paid to:**
2. **Those apartments that have repeated mouse complaints**
3. **Those apartments near trash chute, compactor room, boiler or furnace rooms and the first floor in general.**
4. Traps will be used whenever possible - (multi-catch live traps, or lethal traps such as snap traps, electronic traps, etc)
5. PMPs will use rodenticides judiciously and in secure, tamper-resistant stations according to EPA regulations. **If baits are used, they cannot be accessible to any children or pets at any time. Block baits and soft bait sachets installed inside a small tamper-resistant bait station is the preferred method of baiting**
6. Often mice nest in the insulation in appliances including stoves and refrigerators, and inside couches. These mice, their nests and droppings should be removed. Although this requires time and effort, mice will not be eliminated if they are surviving and breeding in apartments regardless of the amount of sealing and caulking and rodenticides used. Glue boards may be needed when evicting mice from their nests, but are not a reliable control method (they rarely catch adults). Appliances may need to be discarded and replaced.
7. Eliminate trash and debris on the grounds, check dumpsters for rust and holes, use garbage receptacles which can be closed securely, eliminate any entryways into building by sealing ¼ inch or larger holes. Pest management professionals will bait burrows with rodenticide or use Rat Ice (dry ice in rat burrows). Burrows should be caved in and regularly checked to see if they remain closed or have become active again and need to be re-treated.
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| Resident’s Role |
| 1. **Limit clutter and cardboard storage boxes. Mice love having their homes and families (10 mice per family unit) in cluttered rooms, closets and cabinets. Overlooked cardboard boxes stored in out of sight; out of mind areas are where baby mice will be born.**
2. **A mouse only needs one crumb of food each night to survive. Do not leave any pet food out overnight. Try to clean up any small spills, especially around the stove, refrigerator, and dishwasher. If your stove top lifts, clean beneath the range top regularly where spills and crumbs collect.**
3. **Do not attempt to control mice alone. Work with your property manager, maintenance, and the building’s exterminator.**
4. **Snap traps can be used safely when placed in out of the way areas, under sinks, behind appliances, under stoves. Check daily and use gloves to dispose of mouse and trap if caught.**
5. **If mice are seen regularly tell the building management *where* you are seeing the mice.**
6. **Example reporting process:**
	1. **If you see a mouse follow the procedure to alert management. Call the office during normal business hours. Phone # tell them where the mouse was seen.**
	2. **If a mouse is caught on a glue board during normal business hours do not touch it if possible and call the management office.**
	3. **If a mouse is caught on a glue board at night and you cannot leave it until regular business hours, this doesn’t not qualify as a maintenance emergency. Avoid touching the mouse. Wear gloves or put a plastic bag around your hand before touching the glue board. Fold glue board over and pull plastic bag over the glue board and tie the bag up. If you can, place bag on floor and use a heavy item to drop on or apply pressure to the top of the bag to crush the mouse. Although this seems cruel a quick death for the mouse is less cruel than a slow painful death stuck to the glue board trap. If you cannot crush the mouse take entire bag with glue board and mouse inside and place in trash outside. Call management office in the morning to alert them of the mouse sighting and have them replace glue boards or use traps.**
	4. **If you would prefer to not use glue boards let management know and ask to be supplied with snap traps. Snap traps have two advantages: they kill the mouse and there is no live mouse to dispose of and they attract adult mice whereas only juveniles typically get caught on glue boards. To dispose of snap traps, place a bag around your hand and pull the bag over the trap. Tie bag shut and dispose of in the garbage.**
	5. **Controlling mice involves effort from staff, pest control contractors and tenants. If everyone cooperates by following the procedures outlined, the infestation will be taken care of faster.**
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