

# Household and Structural

Department of Entomology

## A PRACTICAL GUIDE TO BED BUG PREVENTION AND CONTROL FOR PROPERTY MANAGERS AND TENANTS IN MULTI-FAMILY HOUSING UNITS\*

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The common bed bug is one of the most common pests found in human dwellings all over the world, especially in multi-family housing units. Many people, especially property managers and tenants in apartment buildings (complexes), shelters, dormitories, and other housing facilities, do not know how to properly get rid of bed bugs. Perhaps more importantly, they do not know how to keep bed bugs from gaining entry into public facilities. This publication provides some basic information about the bed bug, how to prevent it from infesting a housing unit, and how to eliminate bed bug infestations.

### Stop Bed Bugs Before They Get In

Multiple-family housing is at high risk for bed bug infestations. People and their personal belongings move into these facilities almost every day, which makes the chances quite high that bed bugs will enter. It is important for management to work with individuals who are moving in or coming for a visit to prevent them from introducing bed bugs. Existing tenants can also take steps to keep bed bugs from establishing in the building, which will reduce the cost of any control program.

A property manager should interview incoming tenants and ask if they have been exposed to bed bugs recently, if anyone in the family has been bitten by bed bugs, and if they need help with a known or suspected bed bug problem. Immediate help is critical to avoid spreading bed bugs in the facility. Assist potential tenants with medical attention for bites, help them launder clothes, and isolate their furniture and other belongings until the bugs can be killed. Keep in mind that an interview isn't always foolproof: tenants may not know they have bed bugs or that they have been bitten by them.

If a potential tenant refuses to follow recommended management procedures for bed bugs, (such as inspecting furniture and other belongings, laundering clothes, and other items, and getting medical attention for bites), a social worker may need to incorporate these activities into the case plan.

Be sure to keep good records on all of these activities, and follow up on these findings and actions that have been taken. Raise awareness about bed bugs in the facility by offering educational programs and materials, such as fliers about the various topics discussed below. Train facility staff to identify bed bugs and to perform the ongoing prevention and control actions outlined in this publication.

### Identification and Behavior

Bed bugs feed on human blood and usually bite when people are sleeping. In most people, the bites cause red welts and itching that can last several days. Some people have no reaction to bed bug bites and are not even aware of an infestation.

Unlike mosquitoes, bed bugs do not transmit diseases, although prolonged exposure can cause allergic reactions or asthma, especially in children. Bed bugs must feed several times on humans to complete their life cycle and lay eggs. Since they depend solely on blood for food, and can develop large infestations, bed bug bites often lead to emotional anguish and sleeplessness.



Bed bug bite. (Photo credit: Tom Myers)

\*Multiple-family housing units are often thought of as apartment buildings and complexes. For the purposes of this publication the authors include dormitories, prisons, hotels, shelters, hostels, and other types of lodging in this definition. The principals discussed here apply to all housing facilities.



Blood-filled adult bed bug, with light colored nymphs, and pearl-white egg cases. (Photo credit: Tom Myers)

Bed bugs are flat, oval-shaped, wingless insects. They are about ¼-inch long and are reddish-brown in color as adults. They are similar in size, shape, and color to an apple seed, but are flat unless they have had a recent blood meal. Immature bed bugs vary in size from a pinhead to an apple seed (depending on the number of blood meals and molts they have had), and are yellow to light tan. Bed bug eggs are white and about the size of a pinhead.

Bed bugs are efficient hitchhikers and depend on humans to transport them in luggage, clothing, beds, furniture, and other personal items. Bed bugs are small and agile, hide undetected in human belongings, and are easily transported into previously uninfested dwellings. Outbreaks can often be traced to travel, especially in countries or cities where bed bugs are common. Within a community, bed bugs are spread when infested personal possessions and furniture are moved into a new apartment, home, or housing facility. Where occupant turnover is constant, or where used beds, couches, or other furniture are being moved from one apartment to another, bed bugs are likely to become a problem. Once established, bed bugs often move from room to room by crawling and using cracks and openings in walls and ceilings.

### Detecting A Problem

Bed bug bites may be the first sign of an infestation. Bites usually appear as small welts (similar to mosquito bites) that itch and sometimes swell. Bed bug bites do not cause immediate itching or pain, so a person's sleep is not disturbed. There are other signs of bed bug infestations: they leave blood stains on sheets and mattresses, and they defecate after feeding, which leaves small dark stains on bedding sheets and mattresses.

Bed bugs are large enough to see, and are usually found hiding in the seams and tufts of mattresses and crevices of box springs, bed frames, and headboards. In more serious infestations, they will be found in upholstered chairs and sofas, again hiding along seams and tufts, under skirts, and in crevices. Unchecked, bed bugs may spread to dressers, curtains, drapes, clutter on the floor and inside closets, and almost any other area that provides a hiding area. In infestations, one can find multiple signs in hiding areas: bed bugs in various growing stages (from egg to adult) as well as shed skins, fecal spots, and bloodstains.

### Responsibilities of Property Managers

To prevent bed bugs in their properties, managers should:

- Encourage tenants and guests to report bed bugs.
- Keep a log book of bed bug sightings.
- Respond quickly to complaints with an inspection.
- Develop an aggressive bed bug IPM program.
- Use educational programs to raise awareness of bed bugs.
- Institute an interview program to deny bed bugs access to the building.
- Implement an awareness/prevention program.
- Refer tenants and guests to the proper sources of help: medical, mental health, financial, or social services.

### Preventing Bed Bug Infestations

Education is the most valuable asset for keeping bed bugs out of apartments and other living units. Tenants and property managers need to be aware of the threat of bed bugs; and:

- Understand where they come from.
- Know how they travel.
- Know what they look like and where to find them.
- Understand how to inspect for them.
- Inspect mattresses, box springs, and head board for bed bugs and fecal or blood spots.
- Prevent used furniture or clothing from entering the building
- Launder bed clothes, regular clothing, and any other items that can be laundered in hot, soapy water, and place them in a hot dryer for 30 minutes.
- Clean up and reduce clutter (clothes, boxes, papers, general household items, etc.) to eliminate hiding spots for bedbugs.
- Vacuum mattresses frequently or permanently encase them in bed bug-proof plastic encasements.
- Keep furniture, especially beds, away from walls.
- Tuck in sheets and blankets to avoid contact with the floor or walls.

### Responsibilities of Tenants

To prevent bed bug problems, tenants should:

- Cooperate with management to control bed bugs.
- Report bed bugs and signs of bed bugs.
- Follow guidelines for cleaning and preparing for treatments.
- Encourage other residents to cooperate in preventing and controlling bed bugs.

## How to Inspect For Bed Bugs

Tenants, and especially property managers, need to know if there is a bed bug problem on the property. They also should know how to inspect for bed bugs. Because inspections can be complex, it is usually best to contact a professional pest manager. However, there are some basic inspection tips to keep in mind.

Use a bright flashlight to look for bed bugs - blood stains, and fecal spots on mattress seams and tufts, sheets, and other bedding; cracks and crevices in head boards and the frame of the bed; and the box springs (and slats underneath). If possible, turn over and disassemble these parts of the bed to examine all potential bed bug hiding places.

You can use traps (such as Climb-Up Interceptors®) to inspect for bed bugs by placing traps beneath the legs of the bed and other furniture. Bed bugs get caught in the traps as they travel between furniture and the floor.

## How to Control a Bed Bug Infestation

Bed bugs are difficult to find and control because of their small size, secretive behavior, and lack of effective control tools. Thus, it is a good idea to hire an experienced professional pest management firm that uses an integrated pest management (IPM) program. An IPM approach is the most effective way to treat infestations in the unit and surrounding units.

Tenants and property managers must work with the pest management professional (PMP) by cleaning, laundering, vacuuming, and removing clutter. There also has to be good communication and cooperation in using steam treatments, mattress encasements, and inorganic powders (such as diatomaceous earth) for the IPM program to work best.

PMPs are trained to apply treatments that involve heat, vacuuming, and insecticides. A hot steam machine and a vacuum cleaner, can be used to kill or remove large numbers of bed bugs in heavily infested areas. Bedding and other infested materials (shoes, toys, curtains, backpacks, etc.) should be laundered in hot, soapy water and hot air dried in a clothes dryer at the time of the treatment and on a regular basis afterwards. You can place nonwashable items in a hot dryer for 30-45 minutes, or in a freezer for a few days to kill all bed bugs present.

Infested items that cannot be washed, cold treated, or heat treated should be sealed in plastic and discarded. Clutter in infested areas should be reduced, laundered and heat dried, or sealed in plastic bags and discarded.

Other nonchemical treatments are often necessary to eliminate infestations. Mattress and box spring encasements (PMPs know which ones work best) are designed to permanently seal bed bugs inside the mattress or box spring, killing the bed bugs that may have avoided other control measures. Encasements also eliminate hiding places (keep bed bugs from entering the mattress), and make future inspections and treatments much easier.

It is also helpful to caulk and seal as many of the cracks and crevices where bed bugs hide as possible. Bed bug traps can also help reduce the infestation. Bed bugs moving to or from the bed or other furniture will be trapped in the interceptor and die. The traps can also be used to monitor the bed bug populations



Use a bright flashlight to inspect for bed bugs along the seams of mattresses and upholstered furniture, as well as in cracks, crevices and other hiding areas. (Photo credit: Tom Myers)



Protective encasements are available for box springs and mattresses. (Photo credit: Tom Myers)



Steam equipment can be used to kill bed bugs. Vacuum machines can also be used to physically remove bed bugs. (Photo credit: Tom Myers)

— so they can verify whether bed bugs have been eliminated from a room, apartment, or building. Check the traps every 7-10 days, vacuum or clean them out, and then add a thin layer of talcum powder (to kill the bugs) to the traps until bed bugs are no longer being found.

Part of the IPM approach will often include insecticide treatments. PMPs will know which insecticides are labeled for bed bug control, and which ones should work best in local areas. PMPs also have the proper experience and application and safety equipment to make the application effectively and safely.

PMPs typically use dust formulations to treat cracks and crevices where bed bugs hide behind baseboards, inside electric or telephone outlets, beneath certain furniture, inside void areas, etc. As long as the dust stays dry, it will continue to provide some insecticidal value. They will apply liquid insecticides to bed frames, baseboards, inside furniture, and to most cracks and crevices where bed bugs may hide. Liquid insecticide applications are most effective when they are ap-



Using crack and crevice insecticide applications to treat bed bug harborage areas. (Photo credit: Tom Myers)



Installing a mattress encasement in a bed bug management program. (Photo credit: Tom Myers)

plied directly to the bed bugs, rather than relying on the bed bugs to crawl over dry insecticide residues. Always read and follow label directions before applying any insecticide.

In multi-family buildings, all apartments and rooms need to be inspected and, if bed bugs are found, treated. It is also important to remember that all common areas, offices, storage rooms, etc., need to be inspected and treated if bed bugs are found. Inspect and treat these areas the same way as described above.

Avoid certain strategies for bed bug control that do not work. “Bug bombs” or total release foggers produce small insecticide droplets that do not penetrate areas where bed bugs hide. In addition to being ineffective, these “bombs” may pose a fire hazard if they come in contact with pilot lights or flames associated with gas appliances.

Do not simply discard beds, bedding, and other infested belongings. This practice can spread bed bugs to other areas in the apartment, room, or building. Items to be disposed of should be wrapped in plastic, sealed with tape, and marked “Do Not Salvage - Bed Bugs”.

In summary, IPM is the most effective program for eliminating bed bugs. As part of an IPM program:

- Inspect potentially infested areas.
- Correctly identify the pest.
- Keep records, including dates and locations where bed bugs are found.
- Reduce clutter that bed bugs can use to hide in.
- Physically remove bed bugs by cleaning and vacuuming.
- Use insecticides according to label directions.
- Follow up on inspections and treatments.

Use education and awareness programs to prevent bed bugs, and to control them quickly when they do occur.

READ AND FOLLOW ALL LABEL INSTRUCTIONS. THIS INCLUDES DIRECTIONS FOR USE, PRECAUTIONARY STATEMENTS (HAZARDS TO HUMANS, DOMESTIC ANIMALS, AND ENDANGERED SPECIES), ENVIRONMENTAL HAZARDS, RATES OF APPLICATION, NUMBER OF APPLICATIONS, REENTRY INTERVALS, HARVEST RESTRICTIONS, STORAGE AND DISPOSAL, AND ANY SPECIFIC WARNINGS AND/OR PRECAUTIONS FOR SAFE HANDLING OF THE PESTICIDE.

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