

# *Bed Bugs* **Bed Bugs** What You *Need* to Know



irwin siegel agency, inc.  
risk management services



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# Bed Bugs

## What You *Need* to Know



### Introduction



Bed bugs are becoming increasingly problematic in residences of all kinds, including homes, apartments, hotels, cruise ships, dormitories, and shelters. This resource is intended to provide basic information about the precautions, health risks, preparation, and treatment of these pests while offering guidance to safely and effectively manage an infested residence.



## What are bed bugs?

Bed bugs are small wingless insects that feed solely upon the blood of warm blooded animals, you and I. Bed bugs and their relatives have evolved as nest parasites. Some species inhabit bird nests or bat roosts and await the return of their hosts; others have adapted well to living in the homes of people.

When bed bugs hatch, they are about the size of a poppy seed and grow to  $\frac{1}{4}$  of an inch in length as a full grown adult. Bed Bugs are oval in shape and have a flat profile. Their color ranges from off white to a deep brown.

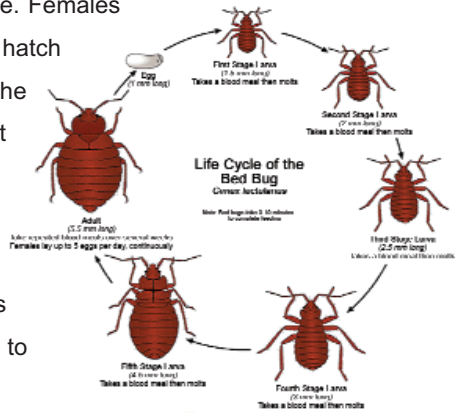
Unlike other household bugs, the bed bug can not fly. When disturbed, bed bugs actively seek shelter in dark cracks and crevices which can be as small as a screw hole in a wooden bed frame. Cast skins, which are dead bed bugs, are sometimes discovered. Although such a finding confirms that bed bugs had been present previously, it does not confirm that any continue to infest the residence. *Thus, it is important to inspect carefully for live crawling bed bugs.* Because many other kinds of small brown bugs may be discovered, it is critical to ensure that the bugs are correctly identified. It is recommended that you consult with a professional for proper identification of bed bugs.

Adult bed bugs generally feed at night and hide in dark spaces during the day. Common hiding places include seams in mattresses and box springs, cracks in bed frames, under loose wallpaper, behind picture frames, and inside furniture and upholstery. Bed bugs travel with the assistance of humans. People can pick up bed bugs in theaters, on buses and trains, hotels, or even firewood. Once picked up, bed bugs can be transported into homes on clothing, bedding, or luggage. Bed bugs may find a way into your residence if their current home is disrupted or their host removed.



# How quickly do they multiply?

Inside buildings, bed bugs can breed all year round. In the Northeast, they typically yield up to three litters per year. Their average lifespan is ten to thirteen months, and in that time, a female may lay 200–500 eggs depending on the temperature and the amount of food available. Females need a meal before laying eggs and the eggs hatch in about ten days. Under ideal conditions, the young can reach adulthood in five to eight weeks. Development occurs rapidly in temperatures ranging 70° to 82°F. Young bed bugs must eat before they can shed their skin and grow. They shed their skins five times before becoming adults. Bed bugs can go 80 to 140 days, or longer; without feeding.



Picture from [www.bed-bug.org](http://www.bed-bug.org)

# Do bed bugs pose an infection control threat?

*Despite what you may have heard or read elsewhere, bed bugs are not known to transmit disease or infection to their host.* Bed bugs seek out people and animals,



generally at night while their hosts are asleep, enabling them to bite and feed off of a host undetected. As they feed, tiny amounts of saliva are injected into the hosts skin. Repeated exposures to bed bug bites during a period of several weeks can cause people to become sensitized to the saliva and bites may result in allergic reactions. The skin lesion produced by a bed bug resembles those caused by many other kinds of insects, such as mosquitoes and fleas, making it difficult to identify a bed bug bite vs. other similar

bug bites. A physician should be consulted to examine the bite and offer treatment, as needed. The affected person should resist the urge to scratch the bites as this can intensify the irritation and may lead to secondary infection. Patients are often treated with antihistamines and corticosteroids to reduce allergic reactions and inflammation.

In order for bed bugs to feed from a host, they use piercing mouthparts that contain two stylets: one stylet has a groove that carries saliva into the host, while the other has a groove through which host body fluids are absorbed. Saliva that is injected during the feeding can produce large swellings on the skin that itch and may become irritated and infected when scratched. There are cases where people have had an allergic reaction to bed bug bites, but again, bed bugs are not carriers of infectious diseases such as hepatitis, malaria, or HIV. Bed bugs do have stink glands that leave odors and also leave fecal spots on bed sheets and around hiding places.

## Where are bed bugs found?

Bed bugs and their relatives are found everywhere. They are most abundant in bedrooms and generally hide near a bed or other types of furniture used for sleeping. Bed bugs are most active in the middle of the night, but when hungry, they will venture out during the day to seek a host. Their flat bodies allow them to conceal themselves in cracks and crevices around the room and within furniture. Favorite hiding sites include the bed frame, mattress, and box spring. Utilizing metal bed frames is a quick and easy way to eliminate some of the hiding places. Clutter around the room offers additional sites for these bugs to hide, and increases the difficulty in eliminating bed bugs once they have infested a room.

## How do bed bugs get into a home?

Bed Bugs travel in luggage, furniture, clothing, pillows, boxes, and other such objects that are typically moved between apartments, homes, and hotels. Used furniture such as bed frames and mattresses are of greatest risk for harboring bed bugs and eggs. One should carefully scrutinize and consider the history of any used furniture, particularly 'street' items, which may wreak havoc with a bug infestation in a home.





Bed Bugs can survive for many months without feeding, and may already be present in 'vacant' and 'clean' apartments or other housing units. Bed bugs can wander between adjoining apartments through cracks in walls and holes through which wires and pipes pass. In a few cases, bats and/or birds may introduce and host bed bugs. Pest control personnel should be mindful of the presence of bed bugs and mites that may be left behind after removing nests or roosts of birds and bats.

## How can you tell if your home is infested?

Bed bugs infest only a small proportion of residences, but they should be suspected if residents complain of bites that occurred while sleeping. The bedroom and other sleeping areas should be carefully examined for bed bugs and signs of activity. Folds and creases in bed linens, and seams and tufts of mattresses and box springs, in particular, may contain bed bugs or eggs. Be sure to inspect the pleats of curtains, beneath loose areas of wallpaper near the bed, in corners of desks and dressers, within spaces of wicker furniture, behind cove molding, and in laundry or other items on the floor or around the room. A peculiar coriander-like odor may be detected in some heavily infested residences.

## What should you do if you find bed bugs?

There are several different kinds of insects that resemble bed bugs. Specimens should be carefully compared against Bed bug images to confirm their identity. If any questions remain regarding the identity of the bugs, submit them to a competent entomologist or pest management professional for evaluation.

Once the identity is confirmed, a plan should be devised to eliminate the bugs in a manner that promotes success while limiting unnecessary costs and exposure to insecticides. It is not necessary to discard furniture, first attempt to develop a treatment plan.



## What can you do to manage bed bugs?

Prevention is key. It is invaluable to take precautions in avoiding bed bug infestations. Human Service Organizations should be vigilant when acquiring used furnishings, especially beds and couches. Curbside items should be avoided, and secondhand articles should be examined closely and laundered before being brought into the home. Apartments and other places where there is a high turn over of residents, can pose greater challenges in preventing future infestations. Inspection by residents, staff, or pest control firms is the best way to uncover infestations in the initial stages while they are easiest to control. Managing bed bugs requires a multi-faceted approach that includes cleaning, room modifications, and insecticidal treatments.

Search for signs of bed bugs. Carefully inspect the bed frame, mattress, and other furniture for signs of bed bugs and eggs. Although dead bed bugs, cast bug skins, and blood spots may indicate prior infestations; they do not confirm that an infestation is still active. Search for live bugs and ensure they are bed bugs before considering treatment.



Reduce clutter to limit hiding places for bed bugs. Thoroughly clean infested rooms as well as other rooms in the residence. Scrub infested surfaces with a stiff brush to dislodge eggs, and use a powerful vacuum to remove bed bugs from cracks and crevices. Dismantling bed frames will expose additional bug hiding sites. Remove drawers from desks and dressers and if possible, turn furniture over to inspect and clean all possible hiding areas. Because bed bugs and other pests may spread through cracks and holes in the walls, ceilings, and floors, it is wise to inspect adjoining apartments on the same floor as well as those directly above and below.

Mattresses and box springs can be permanently encased within special mattress bags. Once they are installed, inspect the bags to ensure they are undamaged; if any holes or tears are found, seal them completely with permanent tape. Any bugs trapped within these sealed bags will die.

To prevent bed bugs from crawling onto a bed, pull the bed frame away from the wall, tuck sheets and blankets so they won't contact the floor. Place the frame legs into dishes or cups of mineral oil.

Caulk and seal all holes where pipes and wires come through walls and the floor. Fill cracks around baseboards and cove moldings to further reduce possible entrance points.

We suggest you contact a licensed pest control operator who is knowledgeable and experienced in managing bed bug infestations. Ask the pest control company for references, and inquire with previous customers about their experiences before you agree to a contract.

If you are renting the space, contact your property manager or landlord to discuss your obligations, and to agree on a plan to manage the infestation. Generally, landlords are legally required to contract with a licensed pest control operator. These situations should be considered prior to signing a lease agreement.

Request a written integrated pest management (IPM) plan from the pest control operator. This plan should detail the methods and insecticides to be used, as well as outlining the efforts expected by the building manager and residents.

## What cooperative relationships are necessary?

Landlords and property owners have specific legal obligations to provide safe and livable accommodations for tenants/residents. Certain infestations, including bed bugs, may constitute unacceptable conditions. Tenants have an obligation to cooperate with owners and landlords. This includes preparing the apartment so that the pest control operator can easily inspect rooms and treat if necessary. Below is a list of 10 ways to prepare for treatment of an infestation. Be sure to consult with a pest management professional for additional preparation.

- 1 Verify the pest problem is in fact a bed bug infestation. This may involve visual inspection by an exterminator.
- 2 Prior to extermination, remove all bedding from mattresses; and gather all linens, clothing, etc. from living space. This includes any fabric materials that are machine washable - pillows, mattress covers, etc - and those that must be dry cleaned. Even fabric that is in storage should be collected. Wash bedding and any clothing/fabrics that may have come in contact with bed bugs in hot water, and dry in the dryer if possible. Wash all other linens and fabrics as directed.
- 3 After washing, place items in storage bins, bags, or garbage bags. Seal as much as possible to prevent bugs from entering and hiding in clean fabric.
- 4 Empty closets in rooms where bugs have been found, or closets in which fabrics, linens, towels, etc. have been stored. The exterminator will need access to these spaces.
- 5 Unplug electronic devices in rooms that will be treated to make the area more accessible to an exterminator.
- 6 Vacuum floors, carpets, nooks and crannies. Steam clean if possible any floors, rugs (if not machine washable), couch cushions, etc.



7 Move objects away from perimeter of the rooms being treated. For example, if a sofa or bed is positioned against a wall, pull it away from the wall. The exterminator will need access to the perimeter of the rooms where bugs have been found. Vacuum along the perimeter of the room.

8 Empty wooden bookshelves, desks, dressers, etc., and remove drawers if possible. Bedbugs can and will seek refuge between the boards of wooden furniture. This may include coffee tables, television stands, bed frames, photo frames, and box springs.

9 Make sure to leave a contact number at which the exterminator can reach you, as you probably will not be allowed inside the space for about four hours.

10 Wait for all mattresses, sofas, etc. to dry before sitting or laying on them. The chemicals used on the materials can cause skin irritation.

Contact your state or municipal health agency or housing authority for additional guidance and local ordinances on these issues.

## What you should NOT do

Don't panic. Although bed bugs can be annoying, they can be battled safely and successfully if you adopt a well-considered strategy.



Do not apply pesticides unless you fully understand what the chemicals are and the risks involved. Remember, you are legally liable if you misapply a pesticide, or apply it without a license to the property of another (including common spaces in apartment buildings). Generally, landlords, owners and building managers can not legally apply pesticides. A licensed pest control operator should be hired to confirm an infestation and develop an integrated pest management plan.

Do not dispose of furniture that is useful. Infested furniture can be cleaned and treated. Placing infested furniture (particularly mattresses) into common areas or on the street will spread bed bugs to other homes within the building or on the same street. Infested furniture intended for disposal should be defaced to make it less attractive to other people. Building managers should ensure that any disposed furniture is locked within a dumpster or immediately carted away to a landfill or waste facility to reduce opportunities of infested furniture re-entering the building.

## What should you know about insecticides and other methods for treating bed bugs?

First, it is important to understand that a qualified licensed professional must be contracted for this service. There are many “home remedies” people believe to work and would rather try before hiring someone. Unfortunately, many of these methods do not work and in fact make matters worse by allowing further infestation.

Below is a list of suggested “home remedies” that are ineffective.

### *Myth*

Changing the temperature of your house kills bed bugs.

### *Fact*

True, heat and cold can kill bed bugs. But, fiddling with the thermostat isn't going to cut it. The temperature needs to be as high as 120°-130° Fahrenheit or below 32° Fahrenheit for a few weeks to kill bed bugs.



### *Myth*

Lavender oil helps prevent bed bugs.

### *Fact*

Lavender oil is not effective in the prevention of bed bug infestations. While there are various sprays and oils marketed as natural remedies; there is no documented proof that this method is effective.

Frequently used insecticides for treatment of bed bug infestations generally include the following:

- 🪲 **Insecticidal Dusts** penetrate the insect's outer waxy coat and cause the bugs to dry out quickly. Some consist of a finely ground glass or silica powder. These dry dusts may be applied in cracks and crevices, as well as within the hollow interior of a tubular bed frame.
- 🪲 **Contact Insecticides** kill the bugs shortly after they come into direct contact with the chemical or its residue. These mainly consist of one or more kinds of pyrethroids (synthetic analogs of the extract of chrysanthemum flowers). Because pyrethroids can be irritating and act as repellent to many insects, bed bugs may avoid treated surfaces. A different kind of contact insecticide is chlorfenapyr, which is now available to pest control operators. This product is non-repellent and is effective for a longer period of time.
- 🪲 **Insect Growth Regulators (IGR)** affects the development and reproduction of insects. Although these products can be quite effective in reducing the population of pests, they do not exterminate bugs quickly. Thus, pest control operators often use these products as a supplement to other types of insecticides.

A pest control operator may consider and propose a variety of methods to manage bed bugs. For this reason, it is important to understand the consumer population which currently lives in the infested residence to ensure that the chosen treatment will not cause problems within the population you are serving. An infestation that affects most or all units in a building may be best managed by treating the entire building with insecticides. This requires cooperation by managers and residents, and may require the residents to leave the building for a few hours or up to several days. Only licensed and knowledgeable pest control operators should attempt such treatments.



Be aware that you may spread bed bugs from a infested residence if you move to another location. Generally, it is best to leave possessions in the home or residence when it is treated. All food and eating utensils should be protected from insecticidal products.

Some building managers have allowed infested apartments to remain vacant for extended periods of time in attempts to 'out wait' or 'starve' the bed bugs. This strategy rarely works, as bed bugs are well adapted to long periods of time without food. Each bed bug requires only one full blood meal to reach the next developmental stage. Under ideal conditions, adult bed bugs can survive for 10 months to over one year. Thus, infested residences should be treated aggressively to eliminate bed bugs as quickly and efficiently as possible.

## The Bottom Line

For most people, bed bugs are more of a nuisance than a medical threat. Humans are generally responsible for introducing bed bugs into new areas. Without a host to provide transportation, bed bugs are limited in how far they can travel and spread slowly on their own. If a bed bug infestation is suspected, be sure to first identify the insect. Inspect the rooms thoroughly, focusing on bedrooms. Look for signs of bed bugs or possible hiding places and openings that could provide access to living area. Clean and dispose of clutter to eliminate shelter areas. Choose the removal methods that best suite the needs of residents. Make any repairs needed to prevent future invasions. If you decide to hire a pest management professional to deal with the infestation, ask for an IPM approach. Success will depend on your cooperation. Allow technicians access to every location that could harbor bed bugs, including closets and clothing dressers. Follow recommendations, especially concerning vacuuming and cleaning. With a proactive treatment plan, dedicated cooperation, and an IPM approach, bed bug infestations can be handled quickly and resourcefully.









This loss control brochure is offered in the hope that readers will benefit from it and take adequate steps to avoid conditions that might result in loss. It does not intend to be a complete discussion of the subject, nor do we guarantee that compliance with its suggestions will assure the safety of persons and property.

# irwin siegel agency, inc.

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insurance & risk management  
human service programs

po box 309, rock hill, ny 12775  
1.800.622.8272 fax: 845.796.3661  
email: [siegel@siegelagency.com](mailto:siegel@siegelagency.com)  
[www.siegelagency.com](http://www.siegelagency.com)