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Environmental

HOW DO I PREVENT BED BUGS?

Prevention tips and resources



SECOND EDITION



Scan to receive special offers and download a bed bug white paper.

“The NPMA recommends for people to be proactive in not just their efforts to educate themselves against bed bugs, but also when looking for the right pest control company. Individuals should seek out companies that offer specific service agreements for bed bugs, adhere strictly to IPM guidelines, and enforce advanced levels of specialized training for all technicians and sales staff.”

MISSY HENRIKSON, Vice President of Public Affairs,
National Pest Management Association

Cimex lectularius

actual adult size



magnified 4x



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I JUST FOUND A BED BUG...

What do I do now? Here's a quick snapshot at the first five things that need to be done:

- 1. Bag It Up** Try to catch a sample and place it in a sealable plastic bag or jar. If you're able to do this, snap a photo and send it in to pest control companies like M&M that offer free insect ID services.
- 2. Inspect** Look for more overt signs of bed bugs on your bed, other belongings, personal items, desks or articles of clothing.
- 3. Take It Off** If you came across the bug outside of your home, remove your clothing before entering your home and place all of it, including whatever hand bag or purse you may have been using, in a sealable plastic bag or container.
- 4. Wash and/or Dry It** Place previously worn clothing or fabrics in the washer or the dryer on HIGH heat for at least 20 minutes. More delicate items can be dry cleaned or steam cleaned.
- 5. Investigate** Try to determine where this unexpected visitor came from (Your office? Your gym? Your neighbors?) and bring this to the appropriate parties' attention so that proper personnel can take the right measures in inspecting and remediating this situation quickly and effectively.

Not a bed bug? Below are three non-biting insects that are often mistaken for bed bugs:

Shiny spider beetle



Carpet beetle



Cigarette beetle





THOUGH **BED BUGS** had virtually disappeared over the past 50 years, these days they're making headlines throughout the country, affecting people and industries like apparel retail, theaters, schools, tourism and health care. While globalization has contributed to the reintroduction of bed bugs, the problem has been exacerbated by our unfamiliarity with them and their growing resistance to the insecticides that are supposed to control them.

Fortunately, this media attention has also led to an increase in proactive approaches for both combating and preventing bed bugs.

With over 25 years of pest management experience, our experts collaborated to fill these pages with helpful advice for shoppers, retailers, travelers and in general, urban city dwellers, on practices for their everyday lives to help them avoid running into bed bugs. Be *proactive* and incorporate these practices into your everyday lives to give yourself a *calmer peace of mind*.

Here's how.

COMMON MISCONCEPTIONS

- **Myth: Bed bugs are only found in beds.**
Fact: They can exist anywhere indoors — in beds, furniture, small electronics, clothing, personal items or belongings — and can also burrow deep inside cracks and crevices in walls and electrical outlets.
- **Myth: Bed bugs can fly and jump.**
Fact: They do not have wings and therefore cannot fly and only can crawl.
- **Myth: People who have bed bugs always wake up with bites on their bodies.**
Fact: Studies show that 30% of people do not experience physiological reactions to bed bug bites.
- **Myth: Bed bugs will bite anyone and everyone.**
Fact: They will not always bite two people sharing the same bed and are generally more attracted to whoever emits more body heat or CO₂.
- **Myth: Switching apartments is a way to get rid of bed bugs.**
Fact: Moving is not a solution for a bed bug problem. If you do not exterminate them from your belongings, you will end up carrying the infestation with you.
- **Myth: Anyone with bed bugs will always have to get rid of their bed and furniture.**
Fact: Not all infestations will require you to discard your bed and furniture. There are solutions for treating these items.
- **Myth: Bed bugs glow in infrared light.**
Fact: Bed bugs do not glow in infrared light. There is no reason why any special kind of light would make a bed bug glow.

APPEARANCE

- Immature bed bugs (nymphs) and their eggs are difficult to see with the naked eye.
- Bed bug adults are large enough to be seen. They appear mahogany to rusty brown-colored in their natural state, and become larger and more reddish after a blood meal.
- They have six legs, are flat and oval-shaped, and grow to be no longer than a 1/4 inch.

HABITS

- Bed bugs are attracted to body heat and the CO₂ that people exhale. They feed on warm-blooded hosts, like humans or warm-blooded animals.
 - They are nocturnal insects, generally feeding at night and harboring during the day.
 - Bed bugs feed for 2-5 minutes on humans. Bite reactions can take a few minutes to as many as 14 days to appear, but reactions vary.
 - Bed bugs can lay 200 to 500 eggs during their lifespan.
 - They live in cracks and crevices, in electrical outlets, behind wallpaper, baseboards and picture frames, inside mattresses, box springs and headboards and in bedding materials.
- ## IMPORTANT FACTS
- There is no direct correlation between bed bugs and cleanliness, but keep in mind that properties with more clutter will offer more hiding spaces.
 - Bed bugs can survive throughout different seasons, but tend to be more active during the warmer summer months.



IN YOUR HOME

Avoid bringing used or discarded furniture into your home, especially mattresses and box springs, because direct signs of bed bugs may not be visible.

Wash and dry used or vintage clothing at high temperatures before bringing them into your home.

Monitor for signs of bed bugs, such as shed skins, fecal matter and eggs. Check bed sheets for unusual blood spots.

Eliminate as much clutter as possible from your home since clutter gives bed bugs hiding places and breeding spots during infestations.

Avoid do-it-yourself treatments, as this could make matters worse. Using the wrong kind of pesticide may end up prolonging the treatment process.

Encase your mattress and box spring in bed bug-proof encasements to protect them and increase the likelihood of early detection.

Inspect your bed and bedding every time you change the sheets by looking for dark spots or live bed bugs.

Seal all suspicious or infested items with plastic. Label items and dispose of them carefully, in accordance with proper community guidelines.¹

Vacuum floors regularly, and discard the contents of vacuum cleaner bags afterward.

Research your options for pest management professionals. Make sure they are licensed and certified with your local regulatory state agency, e.g., in New York, the DEC.

Participate in resident meetings because bed bugs often travel between apartments. Neighbors should communicate openly and share tips on prevention, as this will decrease the likelihood of future infestations. Catching bed bugs before they spread can save time, effort and money.

¹. See more about proper disposal laws on p.10.



WHEN YOU TRAVEL

Check online before you book your hotel for any reports of infestations (www.bedbugregistry.com).

Bring a large plastic bag to keep your suitcase in at hotels.

Perform a visual inspection of your room immediately upon entry. Not all infestations will be visible, but a room inspection does mitigate the risk. Inspections are done by:

- Pulling up the sheets and searching the seams for bed bugs, shell casings or fecal matter.
- Checking under the mattress tags, where bed bugs can hide.
- Examining the walls near the bed, headboard and nightstand as well as the nearby furniture. Bed bugs can hide under lamp bases and other items on the nightstand.

Use the luggage rack, if you must keep your luggage in the main room, and not the bathroom.

Wash and dry everything immediately upon returning home. Wash and dry cloth or canvas luggage as well.

Keep luggage from coming into contact with carpet or bed linens, since bed bugs are often found on fabric. It's best to keep luggage in the bathroom when performing hotel room inspections, since bed bugs do not like cold, slippery surfaces.

Vacuum luggage and suitcases or use a steam cleaner upon returning home and pay careful attention to the seams and crevices.

Consider purchasing luggage liners for your suitcase.

WHEN YOU DO LAUNDRY

Launder clothing in a **HOT WATER CYCLE** to kill all stages of bed bugs. In general, hot water is 130 degrees Fahrenheit or greater.

Dry clothing on **HIGH HEAT** for 20 minutes. This temperature (120°F) and time duration will kill all stages of bed bugs.

“New York City has become such a hotspot for bed bugs partly because of a lack of public education, since their common name ‘bed bugs’ leads people to believe that they are restricted to beds. Clearly, this is incorrect. People also don’t understand that the common bed bug begins life as an extremely small pale colored insect, its length the thickness of a credit card.”

LOU SORKIN, board certified entomologist and expert in bed bug biology and behavior. Mr. Sorkin works as the consulting entomologist for Entsalt Associates, Inc. For more information, visit www.entsultassociates.com.

Hand-wash sensitive clothing. For really delicate items, allow them to soak in warm water with plenty of laundry detergent for several hours and then wash as usual to remove the bed bugs.

Store treated clothing in air-tight plastic bins or sealable bags when dealing with an infestation. You can also hang clothes on smooth metal poles, since bed bugs can’t climb on smooth surfaces, however, it’s not advisable to do this until after the premises has been treated.

Use dissolvable laundry bags. This makes transferring items to a washing machine safe, quick and easy. These bags are excellent for traveling and shared laundry facilities.

Disclose to your dry cleaner or laundering company if your clothing has been exposed to bed bugs so that they can take proper precautions.

WHEN YOU MOVE

Check the Bed Bug Registry² and the NYC Dept. of Buildings web sites to cross reference if there have been reports on recent bed bug infestations at your future residence.

2. More Info about the Bed Bug Registry on p.12.

Inspect the interior of your moving truck, whether it’s a rental or it belongs to a moving company, for overt signs of bed bugs prior to using it. Consider using a bed bug detecting dog for this.

Select your moving company carefully by asking detailed questions such as:

- Do they have a bed bug prevention protocol?
- Are their trucks inspected regularly?

Consider fumigating³ your personal belongings if you are moving from a space that has been affected by bed bugs. To be fumigated, items must be specially packed and prepared.

Request to see and sign a state form listing any bed bug infestations that have taken place in the building, dating one year back. According to NYC’s newly passed Bed Bug Disclosure Act,⁴ NYC landlords and tenants must now sign the state form. If possible, request a bed bug history of the building dating further than one year back.

3. Fumigation is the use of a colorless and odorless gas inside of an airtight environment. When applied correctly, fumigation has been documented to be 100% effective in eliminating insects (and their eggs) in all stages of life without leaving any residual fumigant.

4. See more on this law on p.10.

AT YOUR OFFICE

Keep personal items in a sealed plastic bag or in a canvas bag that can be thrown into a dryer at home.

Avoid putting bags or clothes on carpeted floors.

De-clutter your office to uncover places where bed bugs can hide.

Report all concerns (in office and home) to your office manager.

Remember that an office environment is not ideal for bed bugs to thrive. If present, their number will almost always tend to be low.

WHEN YOU GO SHOPPING

Inquire before shopping at vintage stores to find out what kind of protocol the store has to combat bed bugs.

Purchase items online only from secure and trusted retailers.

Wash and dry all purchased fabric items prior to wearing them. Dry clean more delicate items.

Observe caution when buying things like used furniture online from site like Craigslist. Use point-blank questions when asking the sellers if they've ever dealt with bed bugs.

Hang your handbag on a hook when trying on clothing in a dressing room, instead of simply placing it on the ground.

WHEN YOU COMMUTE

Inspect your vehicle regularly for evidence of bed bugs.

Choose standing over sitting if this is an option, but if you do decide to sit, make sure to give the seat a quick visual inspection for any overt signs of bed bugs.

Carry rubbing alcohol wipes with you to use on particularly suspicious looking seating areas.





What if I'm a landlord or property manager?

Respond quickly to resident concerns to decrease the chance of an infestation spreading to other units.

Inspect the entire building, or at least units adjacent to the affected one. This will decrease the chances of spreading.

Instruct residents on how to properly discard infested items and how to use shared laundry facilities.

Check the Better Business Bureau to choose a pest management professional with direct experience and a proven track record for treating bed bugs.

Confirm that all residents have followed the proper pre-treatment and inspection instructions, including disclosure of any do-it-yourself treatments that they've already applied in their apartments. This will help appropriately prepare the pest control company prior to treatments.

Keep an open dialogue with residents by scheduling resident meetings to ensure that they feel safe addressing you with concerns. This will also keep residents on the same page when they must work together towards common goals of eradication.

Co-Op or Condo Board Presidents should:

Put your residents' minds at ease by acting

without judgment and keeping lines of communication open.

Participate in open dialogues with your neighbors to come to mutual agreements.

What if I'm a hotelier?

Respond to guest concerns immediately and proactively, leaving no time for dissatisfaction.

Inspect neighboring and adjacent rooms immediately after an infestation has been identified to determine quickly if the infestation has spread.

Work with your pest management professional to establish a specific protocol for preventing infestations.

Educate your staff with training classes to instruct them on your specified protocol, taught with your pest management professional.

Create a one-sheet guide for guests with a detailed outline of your bed bug prevention protocol.

Schedule routine inspections with a pest control company that works with a bed bug detecting canine so that multiple rooms can benefit from quick and efficient inspections.

Schedule regular preventive treatments with your pest management professional.



What if I'm a social worker or visiting nurse?

Carry large sealable plastic bags in which to store your coats, briefcases and shoes.

Inspect fabric furniture prior to sitting to ensure that there is no evidence of bed bugs.

Inquire about insect bites if you identify them on clients or other household members.

People working on premises with current infestations should:

Bring a change of clothes and shoes for work. Change clothes at work and keep the field clothes and shoes in a sealed bag for laundering.

Wear disposable covers over your shoes.

Bring a portable stool to sit on and remain in the middle of the room. If this is not possible, only sit on a hard chair, not on plush furniture or beds.

What if I'm a retail employee?

Report to management any sightings of potential bed bugs either by a client or yourself.

Save physical samples to be identified by a professional.

Communicate openly with your management team if you're dealing with bed bugs in your home so they will be able to take proper precautions.

Inquire within your management team about the possibility of fellow employees having bed bugs to encourage early detection and decrease the likelihood of spreading them amongst colleagues.

Keep your personal items in a plastic bag when using employee lockers.

What if I'm an education professional?

Report any suspicious sightings, like casings, to a principal or school official to ensure that proper measures are taken.

Refrain from self-treating suspect areas with over-the-counter pesticides.

Store your coats, briefcases and shoes in sealed plastic bins or bags.

Monitor your students' behavior for excessive scratching or itching.

Replace fabric area rugs with rubber mats.

Pay attention to students' appearance for irregularities, like clusters of bites.

Advise students on how to inspect their homes, by sharing illustrations conveying details of potential warning signs.

Address personal student bed bug issues with the individual students in private to prevent these students from being targeted amongst their classmates.

Discuss the importance of maintaining an open dialogue with other colleagues and teachers to help keep every employee on the same page.



IT'S NOT IMPOSSIBLE to make everyday decisions that will help prevent you from running into bed bugs. Educate yourself on things like how bed bug detecting canines work, and what types of options are available when evaluating treatment solutions.

As a general rule of thumb, you should consider non-chemical methods before using pesticides. Some early stages or low-level infestations can be controlled simply with an accurate inspection and the use of a vacuum cleaner and rubbing alcohol. When the severity level requires a more aggressive approach, there are many more advanced green solutions, such as ambient heat, instant freeze and off-site fumigation.



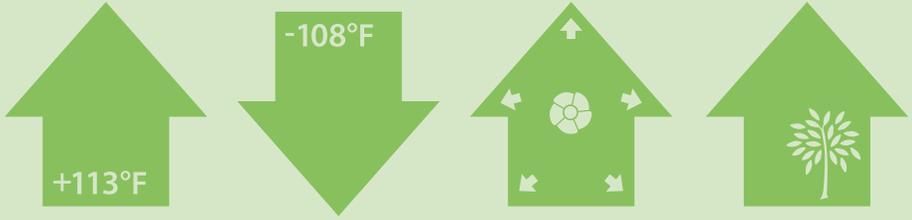
ECO-FRIENDLY APPROACHES

Environmentally friendly choices are increasingly popular in pest control. Companies now offer a plethora of eco-friendly solutions for bed bug removal. Integrated pest management (IPM) is a set of guidelines focusing on long-term pest prevention without harming human health or safety. IPM works by evaluating all alternative treatment methods, prior to the use of actual pesticides. To incorporate IPM practices, professionals must work closely with clients, communicating clearly proper practices of sanitation and exclusion. For bed bugs, there

is a whole list of IPM-approved, eco-friendly treatment options.

“The best strategy to deal with bed bugs is Integrated Pest Management (IPM), which combines a variety of practical techniques and products that pose the lowest risk to our health and to the environment.”

From “Bed Bugs Are Back! An IPM Answer” by Dr. Jody Gangloff-Kaufmann and Jill Shultz. Cornell Cooperative Extension. March 31, 2003.



Heating – Bed bugs and their eggs cannot survive in extreme temperatures. Heating treatments work by raising the ambient temperatures in entire apartments above 113° Fahrenheit. Generators and fans are used to accomplish this, all falling directly in line with NYC building safety codes. Heating treatments kill all stages of bed bugs and work best when paired with an eco-friendly residual pesticide used inside of the walls.

Freezing – Like heating, freezing is an extreme temperature (-108°F) that kills all stages of bed bugs. Freezing works best on things like machines, electronics, musical instruments and some furniture. Cryonite instant freeze guns are used to create a CO₂ snow that kills all stages of bed bugs and are best used on items that cannot be treated with liquid pesticides.

Fumigation – Fumigation is the use of a colorless and odorless gas inside of an airtight environment. When applied correctly, fumigation has been documented to be 100% effective in eliminating insects (and their eggs) in all stages of life without leaving any residual fumigant.

Eco-friendly pesticides – Check with your pest control company to confirm that their pesticides have been approved by the EPA and fall in line with IPM guidelines. Inquire as to whether or not they have been certified by the NPMA in GreenPro or QualityPro designations. Companies that bear these certifications must comply with standards that require only using the bare minimum of pesticides like these, if at all necessary.

BED BUGS AND THE LAW



Treatment methods aren't the only facet evolving along with bed bugs; local law is following suit too. Since 2010, these following two initiatives were passed:

1. Bed Bug Disclosure Act – NYC property managers are now legally required to provide forms declaring existence of previous bed bug infestations in their buildings dating one year back.

2. DSNY ruling on proper mattress disposal – Cities like New York and Ocean City,

MD are now requiring discarded mattresses to be fully covered in plastic. Beginning January 3, 2011 in NYC, those not covered in plastic are now subject to fines of \$100.

With 2010's increased awareness and occurrence of bed bug cases, the laws related to this pest will only continue to evolve. To stay on top of these rules and regulations, contact your local representative or visit one of the links on our list of Useful Web sites (page 12).



Michael Kelly

BED BUG DETECTING DOGS

An independent study conducted by the University of Florida concluded that certified canines are 98% accurate in locating the scent of live bed bugs. When detecting bed bugs, canines require substantially less time than people do and are able to detect live bed bug scents even at extremely low infestation levels. They are especially effective for detecting bed bugs that are lodged deep in mattresses or sofas — places less easy to pinpoint with visual inspections. Here's how to find the right canine team:

Check for certification by the National Entomology Scent Detection Canine Association (see www.NESDCA.com).

Avoid companies that don't provide written inspection results.

Evaluate whether or not the company provides instructions on how to prepare your homes, prior to the inspection to insure that the canine on site is not hindered by the environment.

Question how frequently the canine's training is conditioned and maintained.

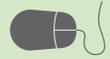
Confirm that the handler is certified to work with that particular canine. Teams must be recertified annually.

Inquire about the canine's ability to differentiate between bed bugs and other insects.

"Our study has shown that dogs can be trained to accurately locate live bed bugs and viable bed bug eggs; however, bed bug detecting canines and handlers are not all equal. The quality of canines depends on the efficiency of their training, handlers and what the dogs are trained to do."

DR. PHILIP G. KOEHLER, *professor of entomology at the University of Florida and Florida Pest Management Association's Endowed Professor of Urban Entomology.*

USEFUL WEB SITES



www.newyorkvsbedbugs.org/ A NYC advocacy group that helps bring about change and awareness for bed bug-related issues.

www.bedbugger.com A blog devoted to current news, events and developments in the bed bug world

www.bedbugregistry.com/ A free public database of North American bed bug infestations.

www.nyc.gov/apps/311 The first agency that a bed bug infestation needs to be reported to for accurate record keeping.

www.nyc.gov/html/doh/html/vector/vector-faq1.shtml Links to information from the DOHMH about preventative bed bug practices.

www.epa.gov/pesticides/bedbugs/ EPA's bed bug info page including facts on biology and behavior.

www.nysipm.cornell.edu/whats_bugging_you/bed_bugs/bedbugs_faqs.asp A comprehensive listing of bed bug FAQ's

www.nysipm.cornell.edu/publications/bed_bugs/files/bed_bug.pdf Essential IPM guide to eco-friendly pest management options.

http://ipm.ifas.ufl.edu/resources/grants_showcase/people_and_communities/bed_bugs_manual.pdf 100 page long slideshow containing many pictures and fact sheets on signs and what to look for

mmbuzz.mandmenvironmental.com M&M Environmental's company blog, devoted to unearthing all things bed bug news, events, arts and culture.

www.pestworld.org The official web site of the National Pest Management Association, this destination offers a portal to pest-related information for various industries.

ITEMS TO AID WITH DETECTION AND PREVENTION



Flashlight Choose one that is small and strong for quick visual inspections.

Bed bug interceptor These form a barrier between floor and bed. Bed bugs approaching or descending from the bed will be trapped inside.*

Portable steamer Used to sanitize clothing, shoes, etc. At +212 degrees Fahrenheit, steam can kill both bed bugs and their eggs.

Encasements Used for mattresses and box springs, the patented zipper technology and specific material makes these items unique to protecting against bed bugs.*

Large sealable plastic bag Used to contain bulkier items for pre- and post- treatment purposes.*

Nightwatch This bed bug trap and monitor mimics the bodies' natural sleeping patterns and pheromones through the use of CO₂ and heat.*

PackTite These heating chambers, about the size of a large suitcase, kill all stages of bed bugs by increasing temperatures over a predetermined period of time and can be compacted and stored easily.*

**These items can be purchased online at www.mmenvirostore.com*



You do not need to change your lifestyle to avoid bed bugs. Arming yourself with proper knowledge and resources will help keep you and your neighbors worry- (and bed bug-) free.

There's no reason to be embarrassed about bed bugs. Learning from professionals who deal with them regularly will help provide you with the right solutions. Bed bugs can affect anyone — rich or poor — especially those in urban areas. Knowing the basics of bed bug biology and understanding the treatment processes will save you time, energy and money.

If you encounter bed bugs, do not panic. Utilize the information and resources provided in this guide to help find the right professional to aid you through the process.

If you have any questions, please do not hesitate to contact an M&M representative at (212) 219-8218.





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M&M ENVIRONMENTAL UNDERSTANDS THAT NO TWO PEST MANAGEMENT SITUATIONS ARE EXACTLY ALIKE, ESPECIALLY WITH BED BUGS.

We've earned National Pest Management Association certifications in **QualityPro** and **GreenPro**, two of their highest distinctions, awarded to companies with rigorous hiring and training standards, and those using strict green practices.

We offer **eco-friendly treatments** customized to fit your needs, and if you need inspection help, our NESDCA certified canine team detects bed bugs and their eggs. We also offer informational workshops, an outreach program geared towards senior citizens, and a video series about safely preventing and controlling bed bugs.

We evolve by listening carefully to customers' concerns. Not certain if the insect you found really is a bed bug? Try our **free insect ID services**, in person or online, and we will gladly tell you what kind of pest you're dealing with.

For a full range of eco-friendly solutions, contact M&M Environmental.