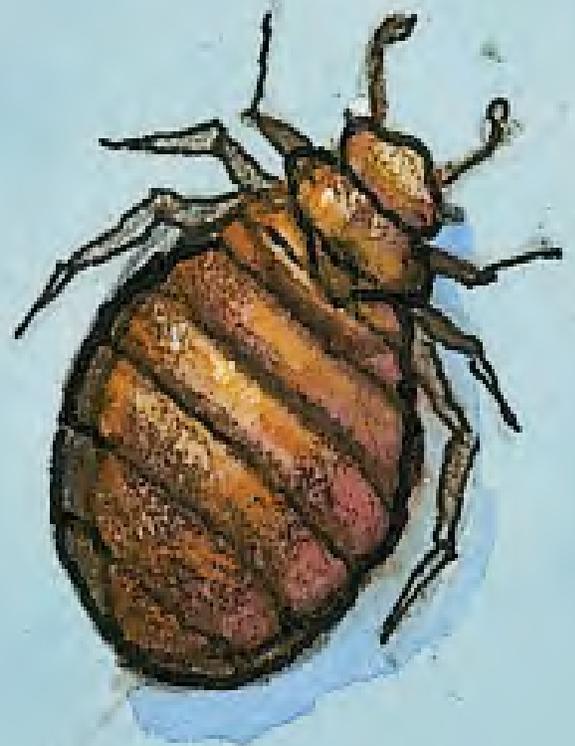


# Battling Bed Bugs

## Safely:

## A Guide to Preventing and Eliminating Bed Bugs



Baltimore City Health Department  
Healthy Homes Bureau

## **Acknowledgements**

Adapted with permission from the New York City Department of Health and Mental Hygiene's Guide to Preventing and Getting Rid of Bed Bugs Safely. Illustrations by David Cain.

## **Disclaimer**

This document sets forth best management practices for preventing and treating bed bugs as of the date of publication. The Baltimore City Health Department assumes no liability for the efficacy of these practices or their effectiveness in preventing or eradicating bed bug infestations.

For more information or to download this document please visit

<http://www.baltimorehealth.org>

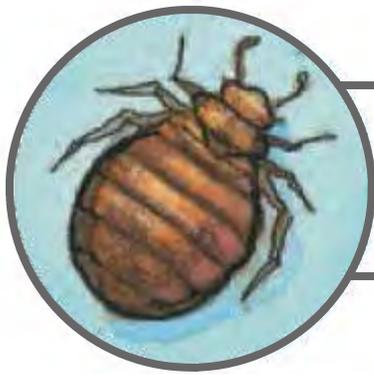
Or contact us at:

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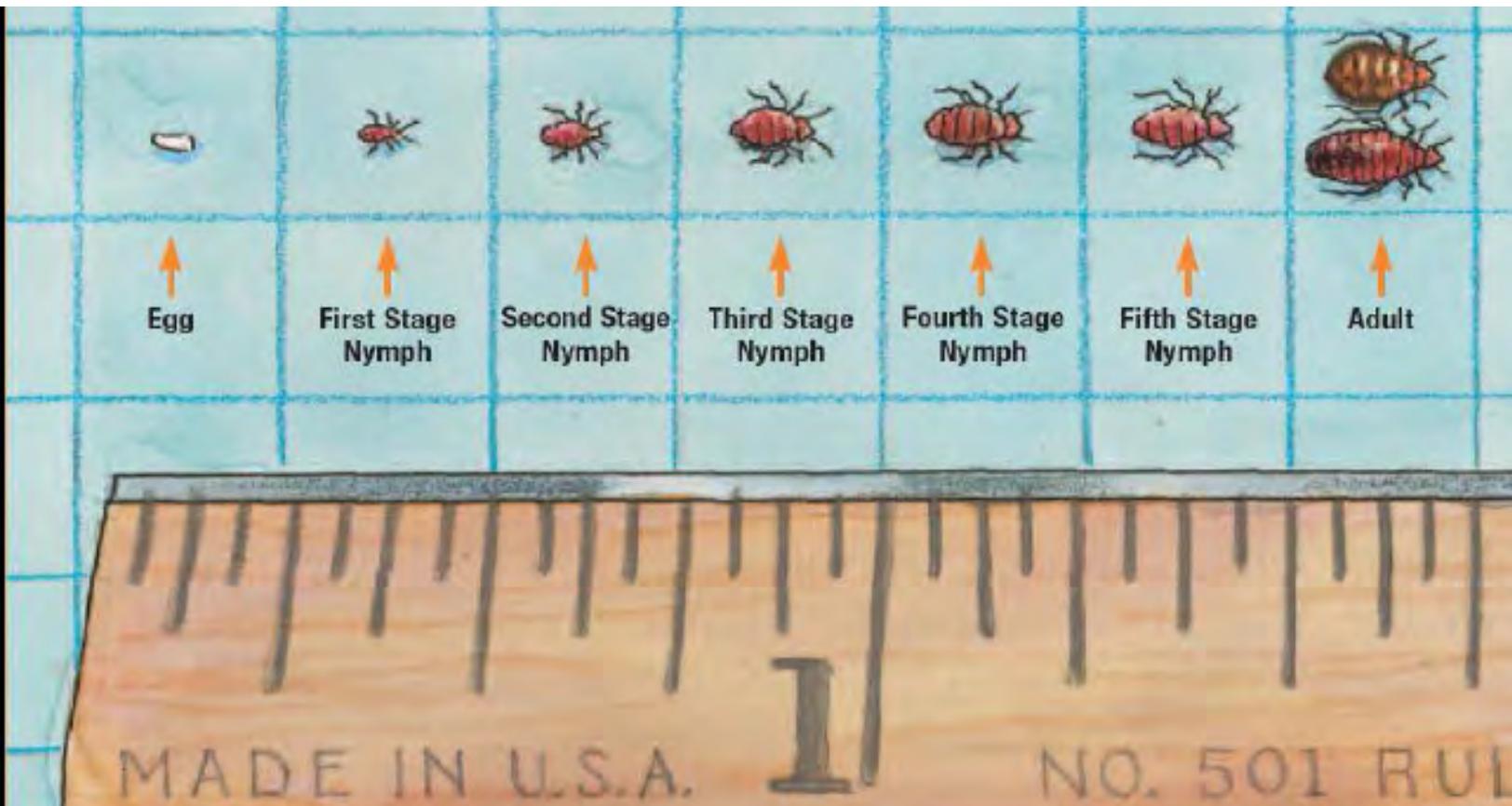
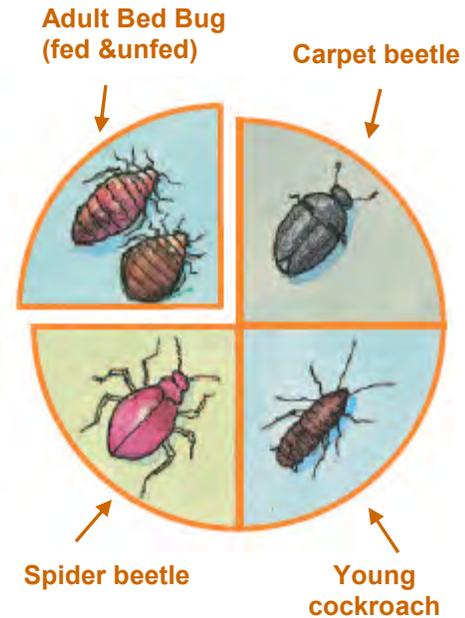
# Identifying Bed Bugs

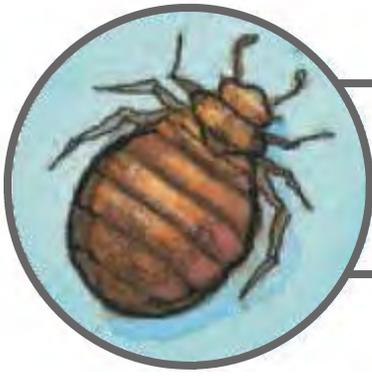
Bed bugs are small, reddish brown, wingless insects that feed on human blood.

An adult bed bug is the size and shape of an apple seed. A young bed bug is a light tan color and the eggs are small and white.

Bed bugs feed on human blood. After feeding, bed bugs become bloated and turn a dark red color.

Bed bugs can be confused with other insects, including beetles and newly hatched cockroaches.





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# Identifying Bed Bugs

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## What are the health risks?

For most people, bed bugs are a nuisance and annoyance more than a health threat. Bed bugs are not known to spread any diseases.

Bed bug bites can cause small bumps or large itchy welts, although some people do not have any reaction. The bites may appear within minutes or a few days.

Bed bugs tend to bite areas of the body that are exposed during sleep, such as the face, neck, arms and hands. In some cases, scratching the bites can lead to infections.

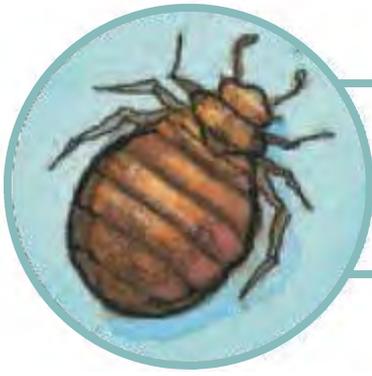


## Why are bed bugs so hard to get rid of?

Under the right conditions, adult bed bugs can survive for up to 18 months without feeding. They can hide in places as narrow as the width of a credit card.

One adult female can lay around five eggs per day and up to 500 eggs after mating. In just 6 months, one bed bug can become over 30,000!

**The key is to find bed bugs early and start treatment as soon as you find them.**



# Preventing Bed Bugs

Bed bugs can be found in all kinds of homes, no matter how clean. Bed bugs cannot fly or jump so they usually travel by ‘hitchhiking.’

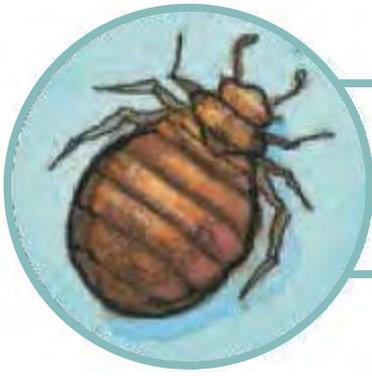
These are some common ways bed bugs enter a home:

- Attached to clothing and in purses, bags, and backpacks.
- Crawling between apartments or rowhomes.
- Traveling in luggage from infested hotels.
- Hiding in secondhand items such as mattresses, furniture, and clothing.

**Take the following steps to reduce the chance of getting bed bugs:**

- Do not pick up mattresses, beds, or other furniture that have been discarded on the side of the road or in dumpsters.
- Before bringing used furniture into your home, carefully inspect for bed bugs, eggs, and droppings. The droppings look like black or brown spots. Look for these signs along the seams, under folds of clothes, under cushions and in narrow spaces.
- Remove clutter under and around your beds. Do not store items under the bed. Remove bed skirts because bed bugs can crawl up them to get to your bed.
- Protect mattresses and box springs in zippered covers labeled as “bed bug proof.”
- Avoid bed bug infested materials and places.





# Preventing Bed Bugs

## Avoiding Bed Bugs While Traveling

### *Check your hotel room for bed bugs:*

Pull the sheets back and check the mattress and box spring for signs of bed bugs. Also check furniture in the room (drawers, night stands, etc.).

Slide a credit card or other card under the headboard to see if bed bugs are hiding there.

Store your suitcases on the luggage rack. Do not put your suitcases on the floor.

### *If you think that you might have picked up bed bugs:*

Seal your clothes in plastic bags before you bring them home.

At home, immediately wash your clothes and dry on high heat for at least 30 minutes.

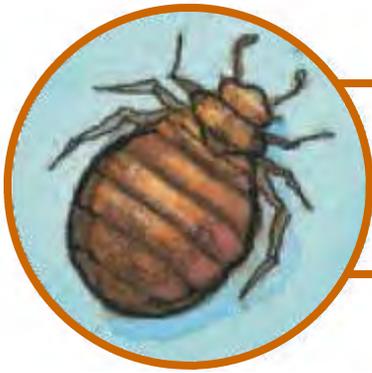
Inspect your luggage, especially the cracks and crevices.



**An important way to prevent an infestation is to check your home for bed bugs often.**

See page 6.

**If you find bed bugs early, it will be much easier to get rid of them.**



# Getting Rid of Bed Bugs

It can be very difficult to get rid of bed bugs once they have infested your home. It is important to **act right away** if you think you have a problem.

Remember, bed bugs can happen to anyone. Bed bugs have nothing to do with a person's cleanliness or activities.

Even the most careful person can have bed bugs. Having bed bugs is no one's fault.

There is no single solution for bed bugs and it is best to hire a pest management professional.

## Don't Use Foggers, Bombs, and Sprays

**Foggers, bug bombs, and sprays are not effective against bed bugs.** Bed bugs are often resistant to these products. Also, these products cause bed bugs to hide deeper in cracks and crevices. This makes it harder to get rid of them.

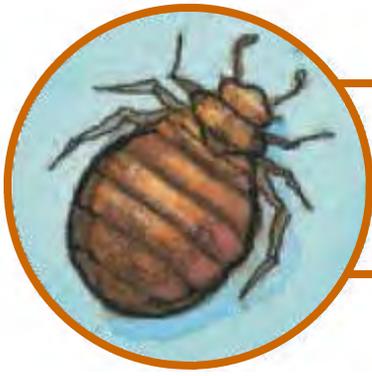
Foggers, bombs, and sprays can cause asthma attacks and other health problems. If used improperly, foggers can cause death.

**Diatomaceous earth is a better choice.** It is a natural, white, powder-like substance that is effective against pests and safe to use. It works in a non-chemical way, so bed bugs cannot become resistant. Please see page 14 for more information on diatomaceous earth.

If you decide to use any product, follow the instructions on the label.

## If you hire a professional management company:

- Use only a pest control firm licensed with the Maryland Dept. of Agriculture.
- Choose a company with experience in managing bed bugs.
- Ask for references and contact them.
- Ask the company to explain the plan of action in detail, including your responsibilities. The plan should include inspecting thoroughly to locate where the bed bugs are hiding. The plan should use cleaning and heat treatments, not just chemicals.
- Expect 2-4 visits for most infestations.



# Getting Rid of Bed Bugs

## Doing It Yourself

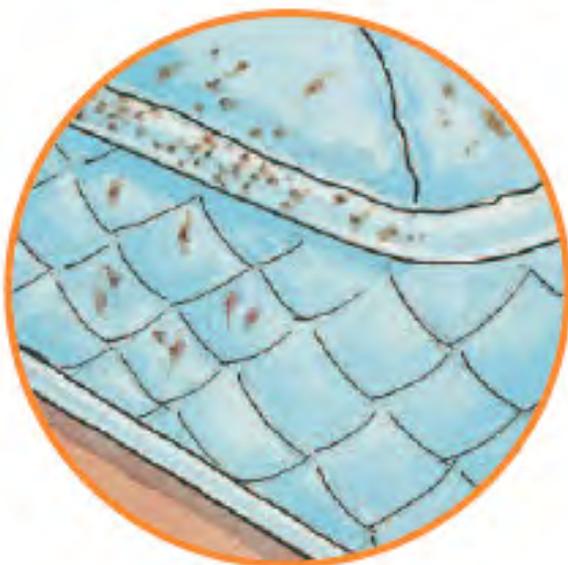
If you cannot afford professional help, follow all of the steps in this guide very carefully. If you keep at it, you may be able to get rid of bed bugs on your own.

To have the greatest chance of success, complete the steps in order.

### Step 1: Find the Bed Bugs

There are three tools that can help with your search:

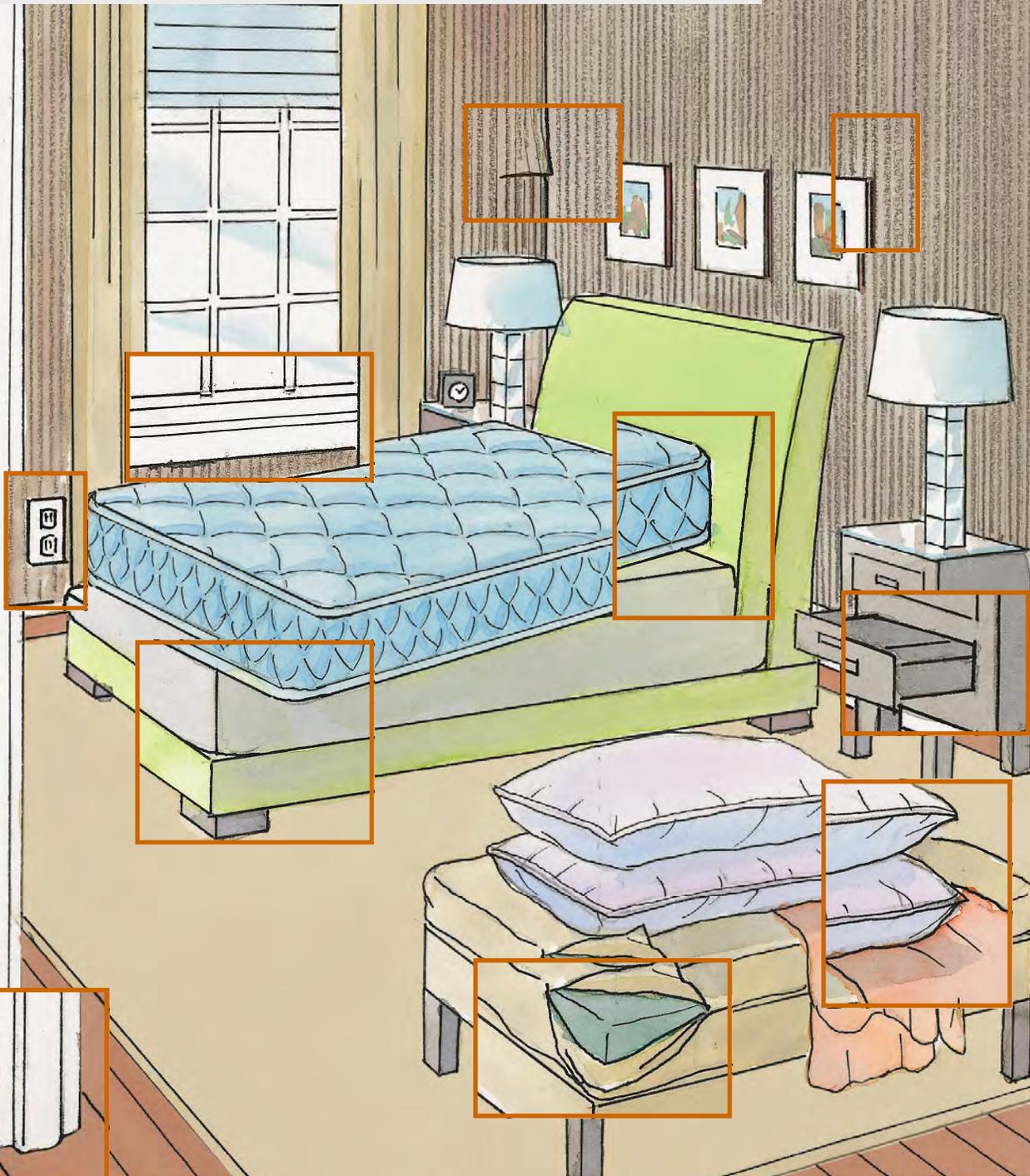
- A flashlight.
- A magnifying glass.
- A spatula, credit card or supermarket card for cracks and crevices.



Look for:

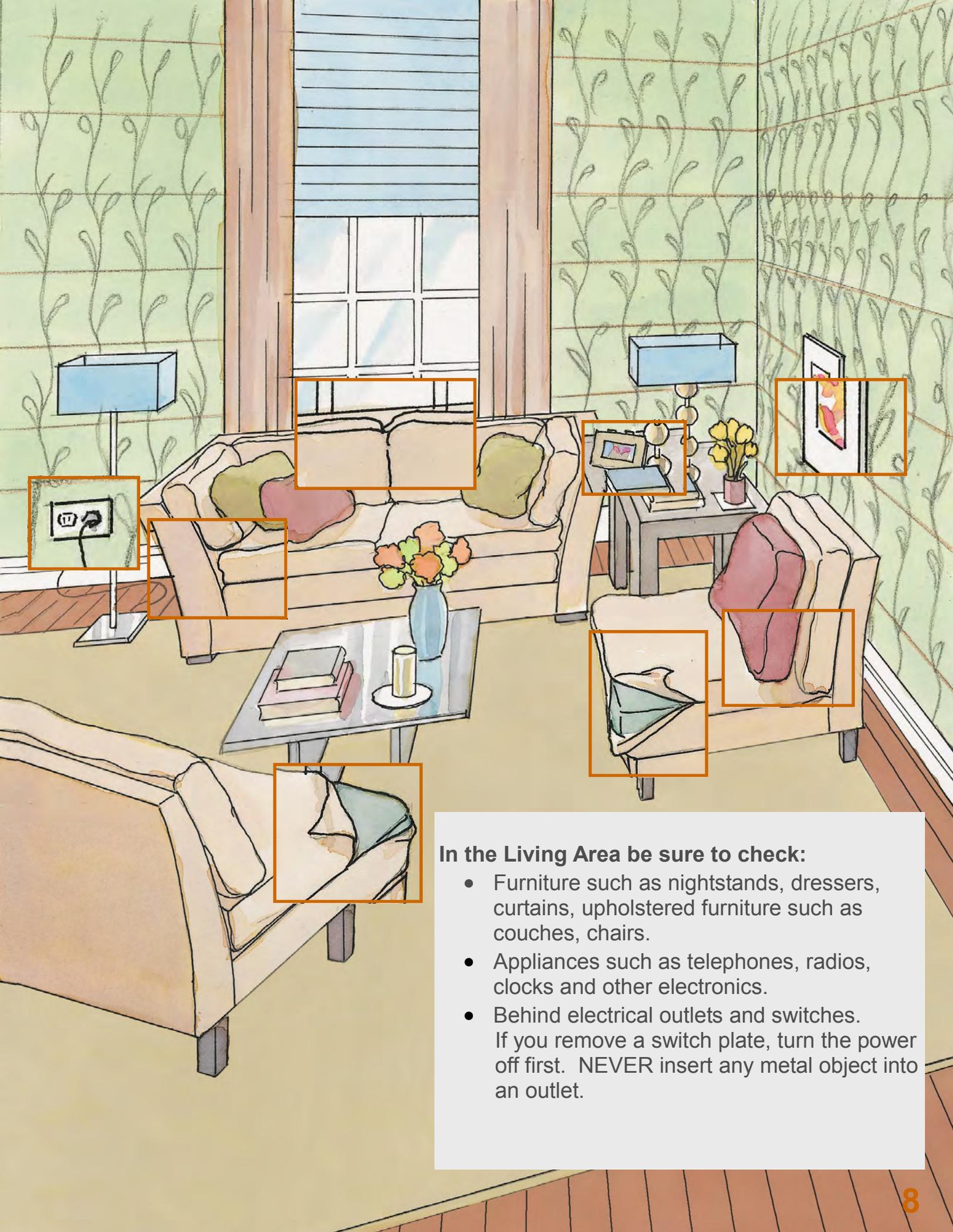
- Live bugs or bed bug skins and eggs.
- Black or brown spots on bed or sofa.
- Blood smears from bed bugs near baseboards and carpet edges.

**Start by looking near where you sit or sleep. Check the bedroom first.**



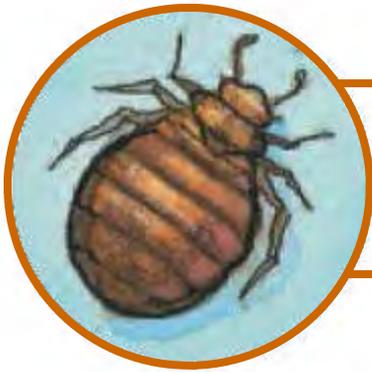
**In the bedrooms, be sure to check:**

- Beds including bed frames, mattresses, box springs, bed skirts, headboards and cribs.
- All furniture, closets, and appliances such as telephones, clocks and radios.
- Under wall hangings including loose wallpaper, paintings, posters, etc.
- Around doorways and windowsills.



**In the Living Area be sure to check:**

- Furniture such as nightstands, dressers, curtains, upholstered furniture such as couches, chairs.
- Appliances such as telephones, radios, clocks and other electronics.
- Behind electrical outlets and switches. If you remove a switch plate, turn the power off first. NEVER insert any metal object into an outlet.



# Getting Rid of Bed Bugs

## Step 2: Take Away Their Hiding Spots

Remove possible hiding places to find and eliminate bed bugs.

- Remove clutter around beds and sofas.
- Do not leave piles of clothing on the floor.
- Place unused shoes and clothing in sealable plastic bags.
- Remove pictures and posters from the walls.
- Remove rugs.
- Repair or remove any peeling wallpaper.

If you can, talk to a professional about whether you should get rid of your infested furniture or not. If you do get rid of furniture, follow these steps:

- Wrap items in plastic before disposal.
- If possible, bring items to a secure location where others cannot pick them up.
- If you cannot do this, break the furniture or cut open the fabric on all sides so others will not use it.
- If you put an item on the sidewalk (e.g. for trash pickup), be sure to write “Bed Bugs! / Chinchies!”

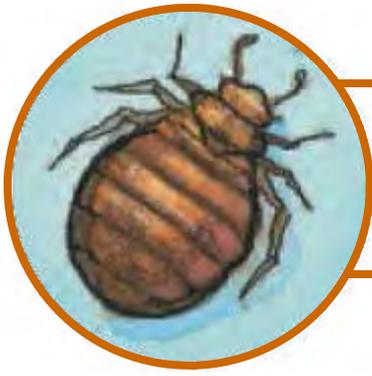


## Step 3: Make Your Bed an Island

Make your bed an island to make it harder for bed bugs to reach you.

To do this:

- Make sure nothing is hanging off the bed, such as sheets or a bed skirt, that would allow bed bugs to climb up and down the bed.
- Move bed away from the wall, and place your box spring and mattress on a frame. Make sure all four legs of the frame are touching the floor and there is space underneath the bed. This strategy will not work if your bed is not raised off the floor.



# Getting Rid of Bed Bugs

## Step 4: Install Bed Bug Interceptors

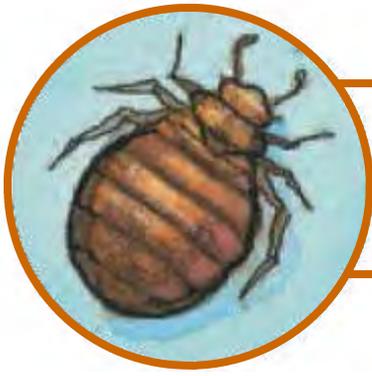
Interceptors trap bed bugs as they climb up and down your bed or sofa. They look like small plastic dishes. Ask at hardware or pest supply stores or buy them online. You can purchase them or you can make your own.

- Place interceptors under the legs of all beds and infested upholstered furniture.
- Examine them daily for bed bugs and other insects. Dump any bugs in the toilet and flush them.
- Apply additional talc powder or diatomaceous earth to inner surfaces of the interceptor as needed. See page 14 to learn about diatomaceous earth.

If you cannot afford to buy bed bug interceptors, you can make your own by following these steps:

1. Find two plastic bowls: one large bowl and one small bowl that fits inside the large one with space between.
2. Glue a rough fabric or paper on the outside of the large bowl or cover in masking tape so the bugs can climb up the plastic.
3. Place the small bowl inside the large bowl.
4. Dust a mixture of talc powder and diatomaceous earth into both bowls.
5. Place the bowls under the bed legs and repeat the process for all bed legs.





# Getting Rid of Bed Bugs

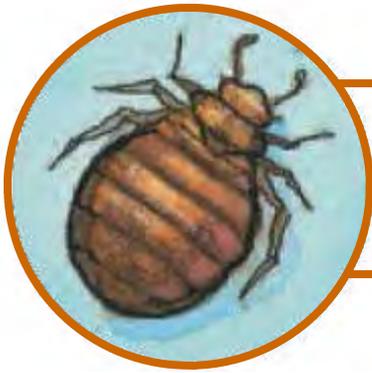
## Step 5: Bag, Wash, and Dry All Fabric Items

Trap bed bugs by putting items in plastic bags. Heat kills the bugs.

Use the following steps for clothes, curtains, bedding, plush toys and other fabric items:

- Bag items in plastic trash bags. This keeps the infested items separate from the clean items. It also traps the bugs and prevents the spread of bed bugs as you move items around your home. Seal them tightly. Double-bagging will provide added protection.
- For items that can go in the washing machine, wash and dry items on high heat for at least 60 minutes. For items that cannot go in the washing machine, put them in the dryer for 30 minutes on high heat. Run any item that can safely go into a clothes dryer on high heat.
- Remove items from plastic bags before washing. Seal up and throw away used plastic bags.
- Do not bring these items back into an infested room until finishing all steps.
- You can put clean items in new bags to protect them until the bed bugs are gone.





# Getting Rid of Bed Bugs

## Step 6: Seal All Cracks

Use silicone caulk to seal all cracks and crevices where bed bugs can hide and travel. Because bed bugs are very small, fill even the tiniest cracks.



- Seal any openings where pipes or wires or other utilities come into your home.
- Pay attention to walls that are shared with other apartments or homes.
- Be sure plates covering wall openings are in place and sealed.
- Use weather stripping and door sweeps to seal doors that go to the outside, hallways or common areas. You can buy these and silicone caulk at most hardware stores.

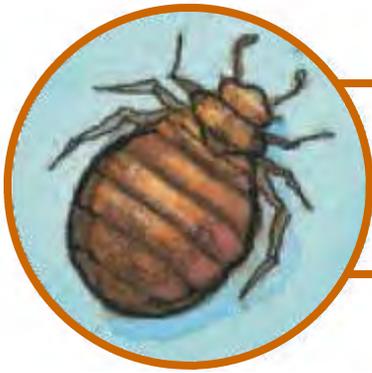
## Step 7: Vacuum and Steam Clean All Floors, Rugs, and Carpets

Scrub infested surfaces (such as mattress seams) with a dry, stiff brush to dislodge eggs. Then, vacuum and steam clean.

### **Vacuuming:**

- Vacuum all floors and carpets, including floor areas covered by carpets.
- Use the small pipe attachment to vacuum hard-to-reach corners.
- Vacuum all sides of the mattress, box spring and furniture, including the bottom. When vacuuming the mattress, concentrate on the seams, creases, and folds.
- Vacuum the furniture, bed frame, floor and baseboards.





# Getting Rid of Bed Bugs

## Steam Clean:

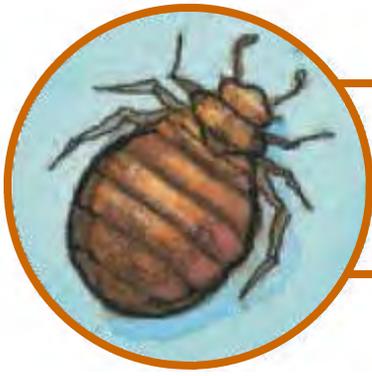
- Use a “dry” steam cleaner to clean all floors and carpets – the same areas you just vacuumed. It must produce a temperature of 215°F to 220°F.
- Steam clean all furniture, curtains, baseboards, and other suspected infested areas.
- Steam only works through direct contact with bugs and eggs, so work slowly and carefully.
- The steamer should not “blow” air as it works. Be sure the setting provides steam heat without force.
- **DO NOT apply steam to electrical outlets** – you could be electrocuted!

## Step 8: Put Mattresses and Box Springs In a Bed Bug Proof Cover

Mattresses and box springs do not need to be discarded. Covers provide good protection at a lower cost. When used properly, covers work by trapping bed bugs inside and preventing other bed bugs from getting into the mattresses.

- Cover your mattresses and box springs with covers labeled “for bed bugs.” The covers should be escape-proof and rip-resistant and should not have holes. These bed bug covers can be purchased at mattress stores or online.
- Follow all instructions for sealing the mattress or box spring.
- Do not remove for any reason for at least a year. Bed bugs trapped inside will die after one year. If you take off the cover before one year, they can escape. A mattress cover can be placed over the bed bug cover.
- Put both the mattress and box spring in covers; if you can only buy one cover, use it for the box spring. Inspect the cover periodically for rips.





# Getting Rid of Bed Bugs

## Step 9: Apply Diatomaceous Earth Dust

Diatomaceous Earth is a natural, white, powder-like substance that is effective for killing pests. When used properly, bed bugs will have to cross through diatomaceous earth to move around your home.

Diatomaceous Earth is a non-chemical way to treat pests. It is much safer than using foggers, bombs or sprays. See page 5.

Only use diatomaceous earth **labeled for insects**, and follow the label instructions carefully.

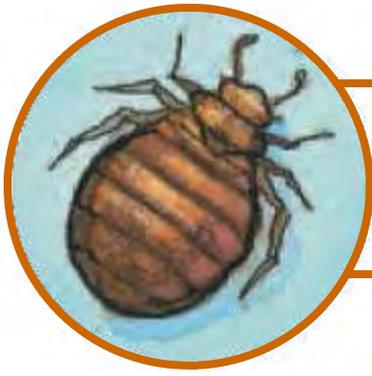
Apply diatomaceous earth to cracks and crevices in the walls, bed frames and spaces around the bed.

Diatomaceous earth can take up to two weeks to kill bed bugs.

When using diatomaceous earth, do not use other pesticides.

Ask about diatomaceous earth at hardware or pest supply stores or purchase online.





# Getting Rid of Bed Bugs

## Step 10: Work with your neighbors!

Unlike other pests, having a clean home will not make bed bugs go away. All they need is you to feed on and a place to hide.

Even if you get rid of bed bugs in your home, if your neighbor has them, they can easily crawl back into your house. So, it is important for you and your neighbors to attack bed bugs together.

**The key to getting rid of bed bugs is finding them early and starting treatment as soon as you find them. Let your neighbors know when you find bed bugs, so they can inspect and treat their homes.**

**Avoid blaming your neighbors and work with them to solve the problem.**

## What NOT to do when battling bed bugs:

- Turn up the heat in the infested area with a thermostat. This increases breeding activity.
- Rely on pesticides alone, especially foggers which can make an infestation worse.
- Give up! It is extremely difficult to find all of the bed bugs' hiding places so you may see a few living bugs for a week to ten days. After 2 weeks, if you still see many bed bugs, restart your efforts.



## Additional Resources on Bed Bugs

- Baltimore City Health Department: Bed Bug Webpage: <http://www.baltimorehealth.org/bedbugs.html>
- Environmental Protection Agency (EPA) Bed Bug Webpage: <http://www.epa.gov/bedbugs/>



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Healthy Homes Bureau  
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