

Let's Beat the Bug!

In Short:

- Bed bugs hide most of their lives close to where people or pets rest.
- Bed bugs feed when they detect that people or pets are resting (Bed bugs are most active at night but can be active during the day).
- After feeding, bed bugs go back to hiding.
- Bed bugs disperse around the bed and resting areas keeping in small groups.
- When bed bug hiding sites become overpopulated, they begin to move from their old hiding places in search of new sites.
- If bed bugs do not feed within 14 days some starved bugs will begin to move away from hiding places in search of a meal.
- Bed bugs hitchhike by moving onto items that people may carry to other areas.

Bed Bug Behavior



Bed bugs spend the majority of their lives in hiding. This makes finding and controlling bed bugs difficult. Bed bugs move to new locations by hiding in clothing, luggage, furniture and household goods. Bed bugs are small and flat and able to hide in many areas, making it difficult to find and exterminate them.

Bed bugs are a "nesting parasite" that hide near resting people and pets. The bed bug feeds while a person or pet is at rest and or sitting still. Once they have fed, bed bugs will return to hiding. Bed bugs hide in any tight, dark, undisturbed locations near sleeping or resting areas. Bed bugs can be found behind wall paper, pictures and clocks and in curtains, in cracks in hard wood floors, under carpeting and behind electrical outlet or switch plates.

Most bed bugs may be found within 8 feet of a person's resting place. As the infestation grows, bed bugs will spread further.

Bed bugs tend to live in groups, but depending on a number of factors they will move to other areas. Female bed bugs will leave a group if they have been mated multiple times. Bed bugs will move in search of food if they are starved and have been known to leave one apartment and enter another in search of a food source. Bed bugs are also known to hitchhike and are easily transported on furniture, luggage, boxes, clothes, toys and other personal items when moving to a new location.

Bed bugs do not like light and they will hide during the day coming out to feed at night.

Bed bugs do not feed on a predictable schedule. Bed bugs mostly feed at night but they will feed during the day if they are hungry and there is a resting host. Human reactions to bed bug bites are unpredictable, varying from no reaction at all to a severe allergic reaction. This can make it difficult to know if you have bed bugs.

For more information contact the
bed bug hotline at 612-624-2200,
1-855-644-2200
bedbugs@umn.edu, or visit
www.bedbugs.umn.edu

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By Amelia Shindelar and Dr. Stephen Kells, 2011
Funding for "Let's Beat the Bug" Campaign provided by the United States Environmental Protection Agency. Additional assistance from the Minnesota Department of Health was greatly appreciated.



Let's Beat the Bug!

Bed Bug Basics

- Bed bugs are a small insect, about the size of an apple seed. Adult bed bugs are flat, oval and reddish-brown in color.
- Bed bugs feed on human blood and can live for up to a year without a meal. They are usually active at night when people are sleeping.
- Some people do not react when bitten by a bed bug. Others who do react have a small bump or a large itchy welt depending on the severity of their reaction. Marks from these bites may appear in hours or days after being bitten. Bites usually occur on skin that is exposed during sleep and sometimes occur in lines on the skin.
- If you think you have bed bugs check for the bugs, blood stains, droppings, eggs and shed skins
 - Where you sit and where you sleep
 - In mattresses, box springs, bed frames and bedding
 - In cracks and crevices in bedroom furniture, floor boards, base boards, windows, door frames and electrical outlets

Remember, bed bugs are very small, flat and fast.

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Bed Bug Control in Residences

When trying to control bed bugs in your home:

- **DO NOT** use pesticides meant for garden or agricultural use.
- **DO NOT** use products that appear to be “homemade” or “custom formulated” or products purchased from someone without a license.

The most effective way to control bed bugs in your home is through a combination of chemical measures and heat treatments applied by a Pest Management Professional (PMP). Unfortunately, the service of a PMP can be costly. So we are providing information on how to control a bed bug infestation on your own.

Controlling bed bugs by yourself is very difficult and time consuming. It involves moving furniture, household goods and personal items. Plan how you to treat each room. Set up a “clean area”. Clean floors, baseboards, windows and carpet. Go to www.bedbugs.umn.edu for more information on setting up a clean area. Treat objects and move them to the clean area. Move the treated objects back in to the clean room. .

Killing bed bugs by hand is not 100% effective. You can capture and squash them or capture them on sticky tape and remove. This may reduce the number of bugs if done over and over again.

Tools for hunting and destroying bed bugs: Flashlight, old credit card (or similar) clear tape, plastic bags, and hot soapy water.

Steps: Use the flashlight and credit card to search out bed bugs by moving the card along cracks and crevices to push out the bugs. Use the sticky tape to trap the bugs. Use the hot soapy water to wipe up infestations, the bugs, blood stains, droppings, eggs and shed skins.



Vacuuming helps to quickly capture and contain bed bugs. Vacuum crevices around baseboards, electronic items (such as TVs and stereos) and any other likely hiding places. If using a canister vacuum, immediately empty the contents into a plastic bag, seal and throw away. Clean the vacuum thoroughly. If using a vacuum with a bag, immediately remove the bag and seal in plastic for disposal. Check the vacuum for any remaining bugs and kill them to avoid spreading the bed bugs further.

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Steam is a very effective method, if applied correctly, for killing bed bugs when they are eggs, nymphs or adult bugs. The quality of the steamer is very important, so use a commercial steamer with a minimum capacity of 1 gallon, preferably with a volume control. Use a floor or upholstery attachment because it allows steam to penetrate the fabric of furniture or drapes but is not such strong streams of steam that it simply blows bed bugs away. To effectively kill bed bugs, the surface temperature of the object should be 160-180 F immediately after the steam brush has passed. Use a non-contact thermometer to monitor progress. Use great care when using steam as steam can cause burns.



Laundering is a very effective method to treat items that can be placed in the washing machine or dryer. Collect linens and dirty clothes and seal in plastic bags until they can be washed to decrease the chance of spreading bed bugs. Use the highest temperature the fabric can withstand for washing and drying. If an item cannot be washed, dry it for 30 minutes at the highest temperature the item can withstand.

Freezing items that are infested is an easy way to kill bed bugs. All you need is a freezer and some time. When freezing items to kill bed bugs you will need to leave the items in the freezer for at least 4 days, at a temperature that is at or lower than 0°F.

Mattress covers prevent bed bugs from hiding in the mattress, a prime location for

the bugs and difficult to treat. If a mattress is infested, cover it to contain the bed bugs which will start to die after 2 weeks but leave the cover on for at least 18 months. In addition, mattress covers can easily be cleaned if a new infestation occurs. Purchase a mattress cover that is labeled specifically for bed bugs as covers designed only to reduce allergens may not stop bed bugs.

Dry heat treatment is an effective method of controlling bed bugs. This treatment is only conducted by a Pest Management Professional in order to ensure that infested items and rooms reach the required temperature for effective pest control. Do not attempt a heat treatment by yourself.

Insecticides are an important part of bed bug control as it is common for individual bed bugs to move away from the main infestation site to another site. Use all insecticides carefully and according to the label. It is highly recommended that you hire a Pest Management Professional to apply the appropriate insecticides. Do not try to treat a bed bug infestation with insecticides labeled for other insects which can cause the bed bugs to disperse and increase the area infested.



Let's Beat the Bug!

Controlling Bed Bugs by Hand

Do-it-yourself bed bug control starts with carefully looking for bed bugs and squashing them or capturing them as they are found. You have to carefully check every place in the infested room(s). You have to take your time and be patient when hunting bed bugs. This method will not kill all the bugs, but it can reduce the number of bed bugs in your home with repeated use.

Tools necessary to kill bed bugs by hand

Tools needed to find and kill bed bugs are easy to use and available at hardware stores or around your home. These tools include:

- **A flashlight:** Bed bugs hide in dark areas and in cracks and crevices. Bed bugs are a dark red to brown color, but they can be light brown if they haven't been feeding. This makes it very hard to see them. When hunting for bed bugs hold your flashlight parallel to the surface being inspected, this will cause eggs and small bed bugs to cast a shadow, making them easier to find.
- **A playing card or old credit card:** These are plastic or they have a plastic coating which allows their edges to be pushed into cracks and crevices. By moving the card's edge along cracks and crevices, you can push bed bugs out where they can be captured or killed.



In Short:

- Take your time when looking for bed bugs.
- Have these tools on hand when looking for bed bugs:
 - Flashlight
 - Playing card or old credit card
 - Roll of sticky tape
 - Cloth and hot soapy water
 - Plastic bags
 - Mattress encasements
- Create a clean zone where you can put items that you have inspected for bed bugs.
- Search for bed bugs
 - Where you sit and where you sleep
 - In mattresses, box springs, bed frames and bedding
 - In cracks and crevices in bedroom furniture, floor boards, base boards, windows, door frames and electrical outlets
- As you are looking for bed bugs capture or kill any that you find.
- This method will not kill all bed bugs but will help reduce the number of bed bugs in your home.

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- **A roll of sticky tape:** Wide, clear plastic shipping tape is particularly useful because it enables you to capture bed bugs, and it provides a closer look at them to confirm that it is a bed bug. As you see insects, or as you are digging along cracks and crevices, have a sticky edge of the tape exposed to quickly trap bed bugs.
- **A cloth and hot soapy water:** Like the sticky tape, a cloth with hot water can be useful for capturing bed bugs. Have a bucket of water handy and as you wipe an area, check the surface of the cloth and then immerse the cloth in the bucket. Wring the cloth to remove excess water; you do not need to soak the surface that you are wiping. Also, check the area that you just wiped because heat may cause hungry bed bugs to move. The cloth is particularly effective when you find a cluster or group of bed bugs. Keep in mind that wet surfaces will reduce the effectiveness of sticky tape as a trapping method.
- **Plastic bags:** Shopping bags and garbage bags are useful for holding items like clothes and bedding that may be infested. Placing infested items in bags will help you move these items without spreading bed bugs into other areas.
- **Mattress Encasements:** Mattress encasements are large “fabric bags” that you place a mattress inside. Once zippered closed, any surviving bed bugs will eventually starve. You will need an encasement for each mattress and box-spring in your home. If there are bedbugs in your mattress or box-spring they will start to die within two weeks, inside an encasement, but encasements should be left on for at least a year.

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Establishing the Clean Zone

To begin your search for bed bugs establish a clean zone into which you can move furniture and items which you have inspected and cleaned to reduce the chance that they will be re-contaminated.

Start in the corners and along edges of an open wall. With the card, see if you can dig things out of the cracks and crevices. Work your way along the cracks and crevices. For example, if you are checking a baseboard along the floor, see if you can get the card between the baseboard and the floor, as well as the top of the baseboard and the wall. If you have a bare tile or wood floor, consider using a damp cloth to wipe the floor, a mop may be used as well. Don't use too much water as floors can be slippery. Look for anything moving after you apply the warm cloth (or mop). If you have carpeted areas vacuum the clean area. See *“Vacuuming Items to Capture Bed Bugs”* Don't forget to check pictures and other items on this wall.

You are now ready to inspect other items and put these into the clean zone. As you continue to move things into the clean zone, more of the room will open and you can expand this clean zone. Using this method means you will not have

to move furniture and items more than twice. This will allow you to concentrate on searching for bed bugs, rather than moving furniture.

Sort clothes, bedding, and other items that can be laundered. Fewer things to inspect mean an easier job. See: *"Laundering Items to Kill Bed Bugs"* for more information.

Searching for Bed Bugs

With your tools by you, begin searching for bed bugs. Remember what you are looking for: adults, young bed bugs, eggs, molted skins and fecal spots. More information on how to identify bed bugs can be found in the factsheet titled *"Have I found a Bed Bug?"*

Start with the bed, including mattress, box-spring and bed frame. Inspect the visible areas first. Look along all edges and corners. Also check along all stitch lines and the mattress label (if any). Five sides the mattress can be checked while the mattress is on the bed. When you are finished checking the upper surfaces, you can then stand the mattress upright so you can check the bottom of the mattress.



Repeat this same search with the box-spring. The only difference is that box-springs usually have plastic edge guards and a loose fabric called "ticking" stapled on the underside. These seams and edges on the underside of the box-spring are very common hiding places for bed bugs. To ensure there are no bed bugs inside the box-spring, you should remove the ticking and check the wood, cracks and crevices, and screw holes within. After inspection, the ticking can be re-stapled in place.

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Check all sides of the bed frame, even if it is a metal frame. Pay attention to where the frame is joined together and any overlapping parts. The headboard and footboard are particular areas where bed bugs may set up their first infestation. Carefully check all surfaces, and look closely at any slots, screw holes and cracks in the furniture.

After the bed is complete, continue with any furniture that is in the room. Preferably, the larger furniture should be inspected first because it can be placed safely against the wall, in the clean zone, and other items can be placed around the larger furniture.



Start with the visible areas of furniture first. Look along all edges, corners and overhangs. Carefully look at molding details and any gaps. Move the furniture out from the wall and check the back. Look closely at the seam along the backer board and any screw holes.

Remove any drawers and check all sides, corners and edges. Remove items from the drawers and sort for laundering or other appropriate treatment.

Once the furniture is empty, you will need to check the bottom. You may have to obtain help to move the furniture and place it on its side. Make sure you take steps to protect the finish of the furniture – use a towel or soft item between the furniture and the floor.

Continue checking furniture and other items until everything is in the clean zone. You may have to expand the clean zone two or three times to accommodate everything. To expand the clean zone follow the same steps that you used to originally establish the clean zone.

After you are finished with all the furniture and objects in the room check the remaining areas of the room that are not in the clean zone. As described above check along baseboards, and in any other cracks or crevices.

Once you are finished, put the furniture back and process your laundry. Anything that was not inspected will have to undergo one of the other control methods (freezing, steam) or you will have to consider discarding the item.

It is highly recommended that you put mattress encasements on your mattress and box-spring. Encasements reduce the number of areas you would have to re-inspect and make it easier to find and control bed bugs in the future.

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By Amelia Shindelar and Dr. Stephen Kells, 2012

Funding for "Let's Beat the Bug" Campaign provided by the United States Environmental Protection Agency and MDA. Additional assistance from the Minnesota Department of Health was greatly appreciated.

In accordance with the Americans with Disabilities Act, this information is available in alternative forms of communication upon request by calling 651/201-6000. TTY users can call the Minnesota Relay Service at 711 or 1-800-627-3529.

The University of Minnesota and MDA are equal opportunity educators and employers.



Let's Beat the Bug!

In Short:

- Bed bugs may have different shapes and sizes
- Bed bugs are small insects, about the size of an apple seed.
- Look for bed bugs, fecal spots and skins
- Bed bugs are night feeders, but sometimes feed during the day
- How can I tell that I found a bed bug
- What to do if I find a bed bug

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Have I Found a Bed Bug?



Bed bugs can be difficult to identify as they are similar to many other small insects. Also, their appearance can change depending on their age and if they have recently eaten.

Adult bed bugs are reddish brown in color and approximately $\frac{1}{4}$ to $\frac{3}{8}$ inch long; they are nearly as wide as they are long. They are about the size of an apple seed. Bed bugs do not have wings, and cannot fly. Bed Bugs can move very quickly on both horizontal and vertical surfaces

If a bed bug has not recently eaten it is flat and oval shaped. Once a bed bug has bitten someone it swells in size, becoming longer and redder in color.

If you have a bed bug infestation you may also notice cast skins. The cast skin of a bed bug is an empty shell that is left behind when a bed bug grows. This skin will be in the shape of a bed bug but it will be transparent.



These images are not to scale

Bed bugs are active mainly at night, so it is unlikely that you will see one during the day. They can become accustomed to feeding during the day if they become aware that people are resting or sleeping during the day. Bed bugs may be seen during the day if there is a big infestation, or if the insect you have found is actually a bat bug. Bat Bugs are very similar to bed bugs and are often found in places with bats or birds. Bugs should be sent to a professional for identification.

If you think you have found a bed bug, try to catch it on a piece of tape or put it in a plastic bag, you can then have this bug identified by a pest management professional (exterminator).

If an exterminator cannot verify it is a bed bug, send a sample on sticky tape to:

Bed Bug Hotline
Rm 219 Hodson Hall
1980 Folwell Ave
St. Paul, Mn 55108



If you find bed bugs, make a note of when and where you saw them. This will help the pest management Professional in the inspection of your home and will increase the likelihood that treatment will be effective.

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Hiring a Pest Management Professional

The most effective way to deal with a bed bug infestation is to hire a Pest Management Professional (PMP), otherwise known as an "Exterminator". Residents attempting bed bug control on their own are likely to fail. When looking for a PMP take the time to do some research and find a good company. The cheapest may not be the best option.

Finding a Pest Management Professional

1. Use the "Find a pro" section on www.pestworld.org, the official website of the National Pest Management Association.
2. In Minnesota, a PMP must be licensed by the Minnesota Department of Agriculture (MDA) to perform commercial structural pest control. Licensed Structural Pest Control Companies and Applicators are listed on the Minnesota Department of Agriculture website: <http://www2.mda.state.mn.us/webapp/lis/pestappdefault.jsp>
3. Look in phonebook Yellow Pages under "Pest"; get recommendations from friends or neighbors.

Questions to Ask the Pest Management Professional

When looking for a PMP to help you, we recommend that you ask the following questions:

- Ask if the company is licensed with the Minnesota Department of Agriculture? Ask to see the MDA issued license before work commences. Other states: check your state's department of agriculture.
- Does your company carry liability insurance?
- Is the company affiliated with the National Pest Management Association? (The NPMA has drafted best management practices for their members to follow).
- Check with the Better Business Bureau to learn if the company has a complaint history.
- How much experience does the company and applicator have inspecting and treating for bed bugs? What kind of training do employees receive, and how often?
- What is the company's standard procedure for dealing with bed bug infestations?



Beware of companies that:

- Are not licensed
- Show up for service unannounced and in unmarked vehicles
- Try to pressure you to sign a contract
- Cannot answer questions you have about their company
- Attempt to treat your property without first thoroughly inspecting for bed bugs

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- What is the length of the treatment?
- What are your (as the customer) responsibilities in helping control the infestation?
- Ask the PMP if follow up visits, after the initial treatment, are part of the management plan?
- If a heat treatment is planned, does the company also use a supplemental insecticide?
- What safety precautions need to be taken during a bed bug treatment?

Additional Information to Know

- Effective insecticide treatments may require three types: residual chemicals that have a specific duration, immediate acting (chemicals that come in contact with bed bugs), and dust (applied to hiding areas of bed bugs away from human activity).

Reviewing the Contract

When you have selected the pest control company that you would like to hire, carefully review the contract for:

- Company name, address, contact information
- Details on work to be completed
- Insecticides or treatment methods to be applied
- Any pre-treatment instructions you will need to follow
- Start/end date and dates for follow up visits (if necessary)
- License and insurance coverage offered by the company
- Any possible exclusions, cancellation policy, and arbitration clause to settle disputes
- Guarantee
- Price

If insecticide products are to be applied, you can request a copy of the product label and copies of the material safety data sheet (MSDS). Reputable pest control companies will provide these documents and review them with their clients as part of their service contract.

Preparation for Treatment

Prior to the treatment date follow any instructions supplied by the PMP. Following these instructions is critical for successfully controlling bed bugs and may include:

- Laundering your clothing and bedding
- Reducing clutter, picking up all objects from the floor
- Making physical repairs to your home
- Moving furniture and items so perimeter of room is accessible
- Emptying closets, bedside tables and dressers
- Encasing mattresses and box springs

After the Pest Management Professional has completed treatment, contact the company if you have concerns or questions.

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Kevin Cavanaugh, Minnesota Department of Agriculture
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How to Prevent Bed Bugs from Entering your Home

Bed bugs can enter your home; in used clothing, furniture or bedding; by traveling along pipes and wiring; and as "hitch-hikers" on you or your visitors clothing, shoes and bags.

To prevent bed bugs from entering your home:

- Do not bring furniture, mattresses, box springs, or bed frames found on the street into your home.
- Check all used or rented furniture for bed bugs. Only get used or rented furniture from a place with a bed bug prevention policy. See the factsheet titled "*Have I found a bed bug?*" for information on identifying bed bugs.
- Do not place backpacks, purses or bags on beds, couches, or other areas where you rest.



- When traveling check for bed bugs in your hotel room. Check the bedding, furniture and luggage valet. Keep your suitcases off the bed and check them for bed bugs when departing. See "*Inspecting your Hotel Room for Bed Bugs*" for more information
- For apartments, seal cracks and crevices around plumbing and wiring, this will help prevent bed bugs traveling from next door apartments.
- If you think you have come into contact with bed bugs, immediately wash and dry your clothing on the hottest setting the fabric can withstand, or store them in a sealed plastic bag until you are able to do so. Shoes, bags and other objects can be put in the dryer for 20 min; at medium-high temperature or the highest temperature the material can tolerate, to kill bed bugs. For more information see "*Laundering Items to Kill Bed Bugs*."

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In Short:

- Washing your clothes is an easy way to kill bed bugs.
- Sort your clothes into plastic bags before you leave the infested area.
- Wash and dry clothes and bedding on the highest temperature the fabric will allow.
- If you still have bed bugs in your home keep the clean clothes in clean plastic bags or plastic boxes so they will not get bed bugs again.

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Laundering Items to Kill Bed Bugs

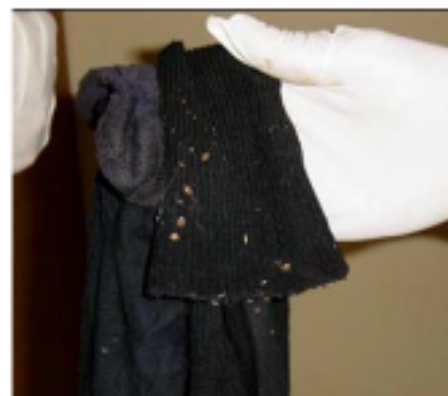
Washing clothes and bedding is a simple and cheap method of killing all stages of bed bugs. It is a very important part of both do-it-yourself bed bug control, and when you have a professional pest management company apply insecticides. Washing will kill some of the bed bugs, but it is the heat of drying that will kill any remaining bed bugs. With a few common-sense practices, you can easily disinfest clothes and ensure these items do not become bed bug hiding places as you remove bed bugs from the rest of your home.



Key steps in washing clothes to control bed bugs

There are three main steps to think about when washing items to remove bed bugs. These steps include: sorting clothes; washing and drying; and storing clean clothes.

- Sorting clothes
 - In the infested area, pre-sort clothes as you would when you normally wash clothes and place each sorted pile into its own plastic bag. Make note of the washing instructions. This will allow you to set the highest allowable wash and dry temperatures for your clothes.
 - Separate dry-clean-only clothes because these should not be made wet, but they may be placed in a dryer.
- Seal the bags prior to moving your laundry. This will prevent bed bugs from moving into other areas of your home or the Laundromat.
- Washing and drying clothes
 - Tip each bag into a washer (or the dryer for dry-clean-only).
 - When each bag is emptied, fold the bag opening into the center then wrap the rest of the bag around the opening.



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- Immediately put empty bags into another clean bag and seal before disposal.
- Wash and dry the clothes on the hottest temperature the fabric can safely withstand.
- For dry clean clothes that are able to be placed in a dryer, put into a dryer on at least medium to high setting and run the dryer for at least 20 minutes. Then take dry clean clothes to a professional cleaner's for cleaning and pressing. Drying will kill the bugs but not clean the clothes.
- Storing cleaned clothes
 - Fold clothes as soon as they are removed from the dryer. If you are doing laundry in a commercial laundromat or laundry facility in an apartment complex, place the clothes immediately into a new plastic bag. Do not set your clothes on a folding table unless you have inspected the table for bed bugs.
 - Keep laundry in bags until you arrive at your apartment.
 - If you have successfully controlled bed bugs in your home, take the laundry out of the bag and put away.
 - If you still have an infestation, keep the folded laundry in the bag and remove clothes as needed. This will prevent the clothes from becoming reinfested, providing another area for bed bugs to hide.



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bedbugs@umn.edu, or visit www.bedbugs.umn.edu

Using Freezing Conditions to Kill Bed Bugs

Putting infested items in a freezer can kill bed bugs. Freezing causes ice to form inside the bed bug, causing injury or death. Freezing bed bugs is easy to do. All it requires is:

- a freezer that is at or below 0°F (-18°C)
- time
- some plastic bags to put the items you want to freeze into



There are some things to know to ensure that freezing is effective and does not cause damage to items.

What can be frozen?

Most dry household items can be frozen, including:

- items that you cannot (or do not want to) wash or launder
- modern books
- shoes
- items made of cloth
- jewelry
- pictures
- toys
- electronics without an LCD screen

What should I not freeze?

There are a few items that require caution when attempting to freeze or that should not be frozen. Do not freeze:

- electronics with LCD panels
- historic artifacts or old books of considerable value
- items that cannot be replaced
- items that may be damaged if condensation occurs
- items that contain high moisture or liquids inside



What temperatures are required?

The temperature of your freezer is very important. The lower the temperature, the less time needed to kill bed bugs.

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- Freezers set to 0°F are effective in killing bed bugs, but items must be left in the freezer for at least 4 days.
- If you are concerned about ensuring that temperatures are low enough, purchase an indoor/outdoor thermometer and monitor the temperature inside the items you are freezing.
- 0°F must be reached in the center of the materials being frozen to kill bed bugs. Bulky items require more time. Start counting the 4 day exposure time when the center of the object has reached 0°F.
- Do not use temperatures above 5°F (-15°C) as eggs and small bed bugs may survive.

Its winter, and it's cold, can I simply put my stuff outside or open the windows in my home?

Unfortunately, no. Sunlight, humidity, temperature variations during the day increase the risk that bed bugs will survive. DO NOT attempt to freeze your apartment or house by opening the windows and turning off the heat. There is a major risk that structural damage will occur and you will not kill the bed bugs.

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By Amelia Shindelar and Dr. Stephen Kells, 2011
Funding for "Let's Beat the Bug" Campaign provided by the United States Environmental Protection Agency and MDA. Additional assistance from the Minnesota Department of Health was greatly appreciated.

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Let's Beat the Bug!

Bed Bug Basics

- Bed bugs are a small insect, about the size of an apple seed. Adult bed bugs are flat, oval and reddish-brown in color.
- Bed bugs feed on human blood and can live for up to a year without a meal. They are usually active at night when people are sleeping.
- Some people do not react when bitten by a bed bug.
- If you think you have bed bugs check for the bugs, blood stains, droppings, eggs and shed skins
 - Where you sit and where you sleep
 - In mattresses, box springs, bed frames and bedding
 - In cracks and crevices in bedroom furniture, floor boards, base boards, windows, door frames and electrical outlets

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Vacuuming to Capture Bed Bugs

Vacuums can be helpful in reducing the numbers of bed bugs in certain locations especially where there are groups or clusters of bed bugs. Vacuuming is not 100% effective, but will help capture bed bugs. There are some key precautions that you should take when using vacuums against bed bugs to make sure you capture the most bugs possible and that you do not spread the infestation.



- Make sure you make the suction as strong as possible. Use a crevice tool attached to the vacuum. Bed bugs have the ability to cling to fabric and wedge themselves in cracks and crevices. Make sure that you concentrate on those areas.
- Do not press too hard against the fabric. There is a chance that you can "flick" bed bugs and eggs off a surface instead of capturing these insects.
- When you are finished, remove the vacuum bag and seal the bag with tape. Then place the vacuum bag into a plastic bag and seal this outer bag. This bag can be disposed in the trash. Bed bugs can survive a trip through a vacuum hose. If the vacuum does not contain a bag, empty and discard the contents in a sealed plastic bag. Wash the removable container in hot soapy water to ensure any remaining bed bugs are killed. There is usually a filter attached to this container. This filter will have to be washed, frozen, or discarded and replaced by a new filter. DO NOT use water on electrical components of the vacuum. If you plan to use the vacuum in another location for bed bug control, place tape over the nozzle to prevent bed bugs escaping; at the end of the day, discard the vacuum contents.
- Repeated vacuuming will likely be necessary to control an infestation. Make sure you remember where you previously found bed bugs and be prepared to repeatedly vacuum these areas. Eggs are glued to the surface, so they are very hard to remove. Adult bed bugs will identify areas that were previously infested. Re-checking these areas and repeated vacuuming will help reduce the number of bed bugs in your home.
- Use the other non-chemical techniques, such as laundering, heat, or freezing to supplement vacuum removal of bed bugs. This will help you reduce the labor required for vacuuming areas and improve control.
- Try to keep your living area as simple as possible. Bed bugs like to hide, so the more things you have the more likely they are to find hiding places.
- Keep clean items in plastic bags to reduce the number of areas you have to repeatedly vacuum.



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What NOT to Do When You have Bed Bugs



- ⊗ Do not Panic. You can control bed bugs with careful inspection and by using proper control methods.
- ⊗ Do not try to kill bed bugs by using agricultural or garden pesticides. Using outdoor pesticides to control bed bugs can make you or your family very sick.
- ⊗ Do not use products that appear to be "homemade" or "custom formulated." Homemade products could be dangerous and they might make the problem worse.
- ⊗ Do not use products that have labels in a non-English language
- ⊗ Do not apply pesticides directly to your body. This could make you very sick.
- ⊗ Do not use rubbing alcohol, kerosene or gasoline. These chemicals may cause fires
- ⊗ Do not throw away your furniture. Beds and other furniture can be treated for bed bugs. Throwing away your furniture can spread the bugs and you have to buy new furniture.
- ⊗ Do not store things under the bed. Storing stuff under the bed gives bed bugs many new places to hide. This makes it more difficult to get rid of bed bugs.
- ⊗ Do not move things from room to room. Moving your things from the room with bed bugs to another room in your house may spread the bed bugs.
- ⊗ Do not wrap items in black plastic and place in the sun. It will not get hot enough to kill all the bugs.

Things you can do if you think you have bed bugs:

- ✓ Make sure it is a bedbug; see the factsheet "*Have I Found a Bed Bug?*"
- ✓ Contact a Pest Management Professional or your landlord
- ✓ Take steps to control the infestation; see the factsheet "*Bed Bug Control in Residences*"

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