

Bed Bugs

2007-2011 Polled Bed Bug Treatments

- Do-it-yourself foggers & bug bombs
- More than two chemicals - 31%
- Other chemicals to beds -20% (lighter fluid, Windex, Listerine)
- Non-chemical controls, like extensive cleaning - 19%
- Gasoline – 9%
- 8.9% paid a professional company to remediate the infestation



Top places for reported bed bug infestations 2013

1. Private residences
2. Hotels/motels
3. College dorms
4. Nursing homes
5. Office buildings
6. Schools and daycares
7. Hospitals
8. Doctor's & Outpatient Offices
8. Transportation (train/bus/taxi)
9. Retail stores
10. Movie theatres
11. Libraries
12. Laundry mats
13. Restaurants
14. Airplanes



The Bedbug Registry

[look up + report](#)

[alerts](#)

[city maps](#)

[resources](#)

[about](#)

[faq](#)

The Bed Bug Registry is a free, public database of user-submitted bed bug reports from across the United States and Canada. Founded in 2006, the site has collected about 20,000 reports covering 12,000 locations.



Download our official
[iPhone app!](#)

Check For / Report Bugs:

Hotel name:

City and state

Street Address

City and State



[click on any report to see an interactive map of infestations](#)

Bed Bug Biology

- 7 life stages
 - egg, 5 nymph stages, mature adult.
- Needs protein from blood meal to molt.
- Feed for 5-10 minutes per meal.
- Feeds every 3-7 days, but can alter metabolism to feed less. They can go at **least a year** without a blood meal.
- Usually feeds at night but can alter feeding schedule to fit host sleep schedule.



Love at first bite

- Not currently proven to transmit diseases to humans.
- Bed bug bite reactions depend on immune system and number of bites:
 - Saliva causes a sensitivity to bites:
 - No reaction
 - Delayed reaction
 - Immediate and delayed reaction
 - Immediate reaction
- In 1940-1950 almost eradicated due to widespread use of DDT.
 - Resistance to DDT, malathion, carbamates and pyrethroids now documented.



Monitor & Prevention: Bed Bug Check

- What are you looking for?
 - Frass... (its what comes from a bed bugs... back end)
 - Live and dead bed bugs
 - Bed bug eggs
 - Blood stains
- What you may need:
 - Flashlight
 - Library card



Cast skins, eggs, and fecal stains

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Bed Bug Prevention

- Inspect your beds and linens.
- Do not bring in used stuff.
- Reduce clutter.
- Launder bedding, linens & other items weekly or when you think they may have been exposed to bed bugs.
- Seal all cracks, crevasses and peeling wallpaper.
- Use bed bug covers
- Talk to your neighbors if you live in a multi family
- Avoid moving bedding to and from other locations
- Inspect all shared items like wheelchairs, vacuum
- Vacuum weekly.
- Minimize cardboard storage.
- Monitor your home for bed bugs , using interceptors



Bed Bug Control

- Dry clean or launder all items using high heat cycle more often.
- Vacuum frequently then immediately discard the vacuum canister/ bag in an outdoor dumpster.
- Wrap and mark bed bug infested items that are being discarded.
- Refrain from having guests stay over.
- Contact a pest control company and closely follow their recommendations.



Check the sheets for frass or blood stains then remove sheets from bed.



Check along the mattress seam, tag and bedskirt.



Check the seam & the wooden joints under the box spring.

- Check to see if the mattress & box spring have a cover.
 - Covers don't always keep the bed bugs out.



Check behind the headboard

- Move the bed frame from the wall quickly checking for fleeing bed bugs.
- Check the crevasses of the headboard.



Check Other Furniture

- Check the seams and crevasses of nearby and upholstered furniture.



What does TCHD do?

- We do not investigate; bedbugs are a nuisance, not a health problem.
 - Provide information on bed bugs, available on TCHD Webpage.
- **If it is a landlord/tenant issue:** Provide Colorado Legal Services phone number.
- **If it is a school/ childcare:** Recommend that the facility develops a bed bug plan using integrated pest management practices (Identify, monitoring, p and addressing:
 - Privacy issues
 - Parent/ guardian notifications
 - Student or faculty exclusions from the facility
 - Bed bug treatment/ eradication options
- Resources for Schools & Childcares
 - www.epa.gov/childcare/bed-bugs-go-school
 - www.michigan.gov/documents/emergingdiseases/Bed_bugs_schools_293498_7.pdf
 - Webdoc.agsci.colostate.edu/ipm/Recommendations%20bed%20bugs2014.pdf



What does TCHD do?

- **SANITARY STANDARDS AND REGULATIONS FOR PUBLIC ACCOMMODATIONS:**

- **Complaints:**

- Currently, only complaints regarding sanitation issues with public accommodations are investigated. These would include, but are not limited to, solid waste, lack of potable water, waste water, sewage spills/leaks, or rodent infestation.
- TCHD will offer educational resources to complainants and will also offer to provide information to landlords

- **Definitions: Nuisance**

- Nuisance; The following shall be defined as nuisances:
 - a. Any public nuisance known at common law or in equity jurisprudence;
 - b. An attractive nuisance known at common law or in equity jurisprudence;
 - c. Whatever is dangerous to human life or detrimental to health;
 - d. Overcrowding a room with occupants;
 - e. Insufficient ventilation, illumination, or heating;
 - f. Inadequate or insanitary sewerage or plumbing facilities;
 - g. Insanitary conditions; h. Whatever renders air, food or drink unwholesom



of

- **Insect and Rodent Control**

- Section 7.1: Rodents and insects shall be controlled by establishing proper sanitary practices, vermin proofing of buildings, extermination, or other safe and effective control methods.

Bed Bug Prevention

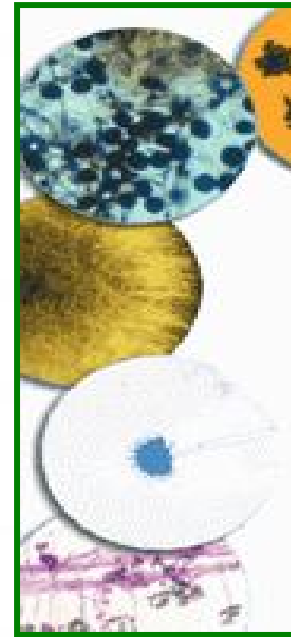
- Returning from a possible bed bug establishment:
 - If possible, undress in the garage or outside of your home.
 - Launder all clothing and applicable items immediately using the high heat cycle on the dryer. Washing alone will not kill bed bugs!
 - Items that cannot be laundered should be placed in impervious bags and frozen for 4+ days or dry cleaned.
 - Items that are too large to fit in a freezer, like large suitcases , can be vacuumed then placed in impervious bags and stored outside of the home.
 - Take a shower to get rid of any bed bugs that may be on you.



Mold

Overview

- Some basics
- Conditions for mold growth
- Health effects
- Removing and preventing mold growth
- TCHD's response to mold



Some Basics

- Fungi are everywhere
- Job: Break down matter to organic building blocks
- Fungi include yeasts, molds, mildews, large mushrooms, puffballs and bracket fungi

Some Basics, cont.

- Molds reproduce by making spores
 - Dormant until growth conditions are right
- Outdoors molds live in soil, on plants, and on dead, decaying matter
- There are 1000's of species of mold
- Mold can be any color

Conditions for Mold Growth

One basic thing is needed: moisture

- Moisture due to



- *Roof or window leaks*
- *High indoor humidity (greater than 60%)*
- *Condensation on pipes*
- *Flooding*
- *Poor drainage*
- *Improperly installed flashing*
- *Water pipe leaks*
- *Missing caulking in shower/tub*

Conditions for Mold Growth

- Nutrients
- Mold will grow on almost anything
 - *Building materials*
 - *Furniture*
 - *Paper*
 - *Dust*
 - *Soil*
 - *Any organic material*

If you can see or smell mold, you know it's there

- Air sampling isn't recommended
- Conduct visual inspection
- No health guidelines for mold exposure
 - Health effects depend on individual immune status
 - Children's immune system develops from birth to adolescence



Common Places for Mold Growth to Occur

- **Rooms:**

- Crawlspace
- Below structural wooden subfloors
- Bathrooms
- Kitchens
- Attics



Common Places for Mold Growth to Occur

- **Appliances:**
 - Humidifiers
 - Air conditioners
 - Refrigerator drip pans



Health Effects

- Exposure to building dampness and mold associated with:
 - Respiratory symptoms
 - Asthma
 - Hypersensitivity Pneumonitis
 - Rhinosinusitis (nasal inflammation)
 - Bronchitis
 - Respiratory infections



Health Effects

- Individuals with asthma or HP may progress to more serious disease if exposure continues

Removing Mold Growth

- The quicker, the better!
- Covering it or painting over it will not solve the problem!



Removing Mold Growth

- 1) Fix water leaks that are providing moisture
- 2) Dry out the area using fans in less than 48 hours to prevent mold growth
- 3) Physically remove the mold
- 4) Clean the affected area with detergent or household bleach and water

Certain Items May Have to be Discarded

- It is best to discard items such as:
 - Mattresses
 - Wicker furniture
 - Carpets / carpet pads*
 - Drapes*
 - Upholstered furniture*
 - Insulation
 - Drywall
- *Can try to clean first



Management Practices to Prevent Mold Growth

- Encourage cleaning staff/occupants to report leaks
- Regularly scheduled inspections
 - Building Inspection Checklist
- Identify and correct all sources of excess moisture
 - Reduces costly repairs
 - Reduces likelihood occupants will get ill
- Policies to address rapid drying or replacement of building materials within 48 hours.

Homeowner Practices to Prevent Mold Growth

- Ventilate rooms where moisture is likely to collect
 - Use bathroom exhaust fan or open window when showering
- Properly clean and maintain the home
- Fix water leaks in roof or siding
- Fix areas in foundations where water seeps in

Preventing Mold Growth (continued)

- Install gutters on the house
- Slope the ground away from the house
- Fix leaks around bathtubs and sinks
- Replace missing caulk in shower and bath
- Ventilate the clothes dryer outside

Preventing Mold Growth

- Don't use humidifiers
- Ensure that carpet on concrete floors does not absorb moisture
- Inspect and clean window air conditioners regularly
- Avoid installing furnace in dirt crawlspace

TCHD's Response to Mold Complaints

- No regulatory enforcement
- Provide information
 - Health effects and clean-up procedures
 - Refer to mold page on www.tchd.org website
- Send letter to landlord recommending clean-up
- Discourage air sampling
 - False negatives
 - Expensive
- Bulk or swab sampling to identify mold species

TCHD's Response to Mold Complaints

- **SANITARY STANDARDS AND REGULATIONS FOR PUBLIC ACCOMMODATIONS:**
 - **Complaints:**
 - TCHD will offer educational resources to complainants and will also offer to provide information to landlords.
 - Send letter to landlord recommending clean-up
 - TCHD may conduct a site visit to determine the extent of the problem and what, if any, sampling or further effort is recommended
 - **Grounds:**
 - During periods of occupant use, the occupant shall maintain his dwelling or premises which he occupies and controls in a safe sanitary manner...
 - The operator shall be responsible for clean, safe, and sanitary condition of the building and premises prior to each occupancy.

TCHD's Response to Mold Complaints

- SANITARY STANDARDS AND REGULATIONS FOR PUBLIC ACCOMMODATIONS (cont):
 - Dwelling Requirements:
 - Floors and walls of habitable buildings shall be constructed of wood, concrete or other comparable materials and shall be reasonably smooth and so constructed as to prevent the entrance of ground and surface water.
 - Every dwelling unit shall be provided with a kitchen, providing the following:
 - ...e. Adequate ventilation of the kitchen to the outside air.
 - Every service room (bathroom, toilet room, and similar rooms) shall have at least one openable window facing directly to the outside in order to provide ventilation. An approved mechanical ventilation system, vented to the outside, may be used in lieu of a window.
 - Toilet, Lavatory, Bathing and Laundry Facility
 - Required plumbing fixtures shall be maintained in good working order and in a clean and sanitary condition.

Summary

- Mold can be remediated
 - Quick response and proper clean-up and/or removal of contaminated material is important
- In majority of cases, health effects are minor