

Resources for Controlling Bed Bugs Using Steam Cleaning as Part of an Integrated Pest Management Program

Our perception of Bed Bugs must change IMMEDIATELY.

They should not be seen as a social taboo - anyone can have them. There is an increased risk associated with Bed Bugs – they cause open sores, degrade assets, are becoming increasingly resilient and are now carrying superbugs. The following information is sourced from Best Practices Documents, Agency Recommendations and Pest Control Company websites.

Excerpt from *National Pest Management Association - Best Management Practices for Bed Bugs*

11.3.2. Steam treatment

11.3.2.1. Steam can kill all stages of bed bugs when temperatures reach critical levels as outlined in **Appendix B**

11.3.2.2. The use of a commercial-grade “dry steam” unit can be a useful tool for bed bug control.

11.3.2.3. When steaming, follow these procedures:

11.3.2.3.1. Place the steamer head in direct contact with the surface.

11.3.2.3.2. Move the head slowly across the surface (about 1 foot every 10-15 seconds).

11.3.2.3.3. Apply steam treatments to areas where live bed bugs or eggs have been observed and critical areas where bed bugs are suspected.

11.3.2.3.4. Pull out furniture drawers and steam inside, then turn over and steam underneath.

11.3.2.3.5. Steam potential harborage sites where you see bed bug fecal material.

11.3.2.4. When in doubt about the risk of heat or moisture damage, first steam an inconspicuous area and then check for damage.

Appendix B - Recommended Temperature and Exposure Periods for Bed Bug Control

Temperature/ Exposure Time Required to Kill All Bed Bug Stages

Temperature Exposure Time

113 F (45 C) 7 hours

118 F (48 C) 90 minutes

122 F (50 C) < 1 minute

For steam treatments surface temperatures should reach 160 - 180 F (71-82 C) to ensure that surface temperatures rapidly exceed 122 F (50 C).

Excerpt from www.greenleafpestcontrol.com

Why High Heat Steam for Bed Bugs?



Most toxic insecticides are non-ovicidal, which means they do not kill eggs so it's no surprise that re-infestation *often occurs soon after a chemical treatment (10-14 days)*.

GreenLeaf can eradicate a wide range of pests with high heat steam: including the very persistent bed bug, fleas and dust mites. Green Leaf's techniques are effective against the most severe infestations and high heat steam isn't selective therefore you also have the benefits of the high heat steam killing viruses, germs and bacteria. High heat steam is pure water and air so it is 100% safe for you and for the environment.

HOW DOES IT WORK?

Temperatures above 45°C will kill bed bugs – but the heat must be applied properly and long enough to each area. At Green Leaf, we treat infested areas with temperatures above 100°C of high heat steam at a minimum flow rate, to ensure bugs aren't blown around. It kills bed bugs, bed bug eggs, fleas and dust mites instantly, yet also cools to the touch within seconds so no damage is caused to surfaces.

HIGH HEAT STEAM –VS- CHEMICAL INSECTICIDES

It's common for eggs to start hatching within 10-14 DAYS after a chemical treatment – This is because chemical insecticides are non-ovicidal, which means they do not penetrate and kill eggs. High heat steam on the other hand, heats pests and their eggs to temperatures which instantly destroy them. Chemical treatments rely on a living pest to inhale/absorb their mostly dangerous compounds. This method kills pests more slowly and has no impact on the embryos within eggs. If no active chemical residual is present when these eggs hatch, the breeding cycle continues. The most recent research from leading Bed Bug Specialists (Dr. Potter, Dinni Miller, Dr. Dogget & Rick Cooper) shows us that the common pesticides in Canada that have bed bugs on their label only have low kill rate on adult bed bugs. In fact some are very resistant to the pyrethroids we have registered (reference: *Romero, A., M.F. Potter, D.A. Potter and K.F. Haynes. 2007. Insecticide resistance in the bed bug: a factor in the pest's sudden resurgence? J. Med. Entomol. 44 (2):175-178*).

GreenLeaf's high heat steam kills all five nymph stages of bed bugs – including the eggs – bringing an end to the breeding cycle. Bed bugs are small, thin, and often hide in the narrowest of cracks. In other words, out of reach of most chemical treatments. High heat steam is capable of reaching just about anywhere – so bed bugs have nowhere to hide.

Excerpt from www.nimby.com/steam.htm

KILL BED BUGS WITH STEAM

It has been proven that vapor steam machines are the best way to kill and control bed bugs.

TREATMENT PROCEDURES

Bed bugs are very sensitive to heat and are rapidly killed when exposed to temperatures over 45°C. If heat is used for bed bug control it is important that the high temperatures are applied suddenly; a gradual rise in temperature will cause the bed bugs to disperse, thereby potentially spreading an infestation. Thus using heaters to heat up a room to a lethal point for bed bugs is inappropriate.

The most practical method of exploiting heat is through the use of steam. The great advantage is that it will kill all bed bug stages including the eggs (most insecticides are non-ovicidal).

A study from the United States (Meek 2003) has shown that using a combination of steam and insecticides provides better long term control than by using insecticides alone. As steam is composed only of heated water, some clients favour this treatment over chemicals, particularly for their mattress and bed. Your **NIMBY** Professionals will also use **only steam**, on people-sensitive areas such as mattresses, upholstered furniture, children's stuffed animals and the like when eradicating bedbugs.

Excerpt from

http://www.orkinCanada.ca/enca/pest_solutions/residential/bed-bug-control

➤ **A treatment with dry steam will kill bed bugs on contact**

DO:

- Take the room out of service and quarantine it
- If the room is occupied, work with management to move residents to a new room
- Contact Orkin immediately to:
 1. inspect the infested room
 2. pre-treat room to which any residents are to be moved

IF ORKIN INSPECTION CONFIRMS BED BUGS:

- Prepare the designated rooms for service according to Orkin's Bed Bug Service Preparation Checklist, which includes:
 - ◆ Pulling furniture into center of room and turning over
 - ◆ Removing or loosening all items attached to the walls
 - ◆ Loosening carpet around the perimeter of each room
 - ◆ Vacuuming the mattress, box springs and carpets along baseboards



Excerpt from *STRUCTURAL PEST MANAGEMENT ASSOCIATION OF ONTARIO*

The following document was prepared by the Structural Pest Management Association of Ontario and is a collaboration of industry professionals for the purpose of setting industry standards for the treatment of bed bugs in multi unit buildings. The document contains "Best Practices" and is a minimum standard guideline.

Exceeding the Standard:

Steam Treatment: If budget permits we recommend that steam treatment be incorporated into the bed bug treatment. The mattress and box spring should be steamed and sofa etc. as the PMP sees fit. This is a time consuming process but steam kills all stages of bed bugs.

Excerpt from *Bed Bugs Explained – Reliable Corporation*

Steam treatment is a recommended method for eliminating Bed Bugs. In fact, steam kills all stages of bed bugs without the use of chemicals. Sleeping on a surface that has been soaked in chemicals is not only unpleasant smelling but poses potential health hazards. Successful treatment depends on an Integrated Pest Management approach to bed bug control. This involves steaming and vacuuming, laundering belongings, and sealing areas and gaps where bed bugs can hide.

"...Steam kills all stages of bed bugs." –CITY OF TORONTO, PUBLIC HEALTH DEPARTMENT

Temperatures that are too low will permit survival of bed bugs hidden in stitching; too high and surfaces could be damaged.

Always test the steam on a hidden area to confirm that treated fabric, dyes and wood finishes can withstand this temperature.

Apply steam to each item and object in the room as control procedures progress. Concentrate on areas and features that were mentioned in the inspection part of this fact sheet. Steam is particularly useful for carpeting, upholstery, the mattress / box spring, and deep cracks and crevices. Steam is useful for box springs because it can penetrate the fabric (and padding) and the many crevices that form during construction of a bed. Steam can also be useful on tubular steel frames, particularly when multiple holes are present.

Note that steam kills the bugs immediately, but does not provide important residual control necessary to ensure no bugs remain alive. As soon as the heat is removed, the area can be prone to re-infestation.

Also note that once finished, humidity will be rather high. To promote drying, a fan (dehumidifier or natural ventilation) should be used to prevent mold and mildew growth.

After steam-treating each item, apply any additional treatments (where possible -- see below) and place item into the clean area (See the section about working efficiently).

Excerpt from *PCT – Pest Control Technology*

KILLING THEM SOFTLY



BATTLING BED BUGS IN SENSITIVE PLACES

Researchers from the University of Kentucky discuss treatment options for bed bugs when insecticides may not be desirable

By: Michael F. Potter, Alcaro Romero, Kenneth F. Haynes and Erich Hardebeck

Subheading: Steamers

***“If bedbugs have a weakness, it’s elevated temperature. Temperatures of 120°F are lethal to most insects provided they cannot escape to a cooler location. The advantage of steam is that heating is intense and immediate, killing both bugs and eggs on contact.*”**



PROTECTION FROM BEDBUGS!

Ameristeam

Use only Tap Water to kill Bed Bugs and their Eggs.

Safe to use on mattresses, furniture, carpets, flooring, toys, animal beds, office partitions and more.

No harmful chemicals, no smell, no waiting for pest control company appointments.

Save money, re-treat surfaces as often as necessary on your schedule.

STEAM CLEANING IS EFFECTIVE ON BED BUGS AND BED BUG EGGS - EXTREME HEAT KILLS THOROUGHLY.

All Steam Systems from Intersteam Technologies include the attachments you need to easily reach crevices (baseboards, bedframes), destroy bugs on furniture and mattress edging and treat large areas (mattress surface, carpet).

Choose a steam cleaner that meets your needs and budget - we have the right one for you!

Ideal for Nursing/Retirement Care, Theatres, Office Buildings, Mattress Retailers, Pest Control Companies, Day Care - KEEP YOUR ENVIRONMENT BED BUG FREE!