Bedbugs
Multimodal Abatement Strategies

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Take Home

• It takes time, effort, resources, and a multi-pronged approach to be successful.

• You get what you pay for!
Why Bedbugs are a Control Challenge?

• Often hard to detect in small numbers.
  – (small, nocturnal, cryptic, & fairly mobile)

• Currently no reliable attractant available.

• Readily detect (& avoid) many chemicals.

• Adults can live > 1 yr. without feeding.

• Insecticide resistance well documented.

• Easily re-introduced and/or spread.
## Proactive Multimodal Abatement Strategy

<table>
<thead>
<tr>
<th><strong>PROACTIVE</strong></th>
<th><strong>ACTIVE</strong></th>
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<tbody>
<tr>
<td><strong>1.</strong> Thorough Survey &amp; Accurate ID</td>
<td><strong>1.</strong> ThermaPureHeat® Treatment</td>
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<td><strong>2.</strong> Education of Tenants, Staff, and the Pest Control Industry.</td>
<td><strong>2.</strong> Chemical Treatment of Harborages</td>
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<td><strong>3.</strong> Elimination of Clutter and Harborage</td>
<td><strong>3.</strong> Bedbug Detection K9’s (Post Treatment Follow Up)</td>
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<td><strong>4.</strong> Use of Mattress Encasements and Bedbug Monitors</td>
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Inspections, Monitoring, Follow-Up, Follow-Up

- Visual Inspections can detect what is there to be seen

- Canine Inspections can detect what is there to be smelled (this is often more than can be seen)

- Regular re-inspections allows detection of new infestations and helps ensure successful eradication of the current problem

- Follow-Ups – every two weeks? All units or just the worst? For how long (30-60-90 days?)

- Monitor traps can bridge the gap between inspections and treatments.
Pest Proofing

• Habitat Modifications to make it harder for the bug to find the resources it needs to survive...

  – Encase the mattress and box springs!
  – Seal floor level cracks and crevices
  – “Make Your Bed an Island”
  – Regularly disturb the preferred habitat through cleaning

ELIMINATE CLUTTER!
Mattress Encasements

3-Sided Zipper System

Bed Bug Proof Encasement

Certified by an Entomology Laboratory to be Bed Bug Safe, Escape & Entry Proof
3-Sided zipper makes installation easy
Be proactive - Protect your mattress, box spring and pillow investment
Suitable for mattress and box spring encasement
Available in all popular sizes

BeyondBeds.com
Monitors

• Traps can sometimes be a better detector than any inspector!
• Bugs that emerge from deep harborage or hatch from eggs after the inspection can be caught by the trap, but missed by inspectors
• Traps can provide an ongoing monitor between inspections\treatments and the follow-ups.
• *Traps can help to remove reliance on the resident to notice and report activity.*
• But... does zero caught mean zero bugs?
Monitors
ThermaPureHeat® Treatment

• Integrated Pest Management (IPM)
• 100% Non-Toxic and Highly Effective.
• Kills all stages of bedbug growth including the eggs.
• Penetrates deep into bedbug harborages, including furniture, electronics and walls.
• Treatment completed in as little as 8 hours.
• No development of resistance.
# Thermal Death Point - Bed Bugs

<table>
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<tr>
<th>Life Stage</th>
<th>Temperature</th>
<th>Duration</th>
<th>Reference</th>
</tr>
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<tbody>
<tr>
<td>Adults and Nymphs</td>
<td>45°C (113°F)</td>
<td>15 Minutes</td>
<td>Mallis, 2004</td>
</tr>
<tr>
<td>Eggs</td>
<td>45°C (113°F)</td>
<td>60 Minutes</td>
<td>Gulmahamad, 2002</td>
</tr>
<tr>
<td>All Stages</td>
<td>46°C (114.8°F)</td>
<td>7 Minutes</td>
<td>Quarles, 2007</td>
</tr>
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</table>
• Patented Technology allows for precise delivery of heat to specific rooms or areas of a hotel where the room is slowly heated up to a safe sauna-like temperature hot enough to kill Bedbugs and their eggs.


• Uses special air movers that circulate the air rapidly to cause the heated molecules to penetrate the cavities where bedbugs reside including mattresses, upholstered furniture, under carpeting, and inside walls. It also works to reduce the presence of air pollutants, viruses, bacteria, asthma triggers, allergens, and dust mites. Air Scrubbers are used to clean and improve the indoor air quality.
Two delivery methods.

# 1. Duct system – may be used for 1 and 2 story structures such as motels, single homes, apartments and condos.
# 2. Portable electric heaters which are very discreet and nondescript.

- They are designed specifically for hotels and high-rises.
Actively heating structures without air filtration is dangerous

- Heating structures, or areas within structures, is fast becoming the most effective methodology of bedbug eradication.

- Aggressive air mixing generates a significant aerosol event.

- HEPA air filtration is effective and warranted to control particulate aerosols.
Preparing for Treatment

- Bed Bugs are great hiders, nocturnal, small and flat, so...
- Eliminate clutter! (Clutter kills any control program!)
- Remove headboards
- Remove electrical switch and plug plates
- Bag all linens and comforters.
- Wash all bagged items on high heat and dry on hottest setting separately!
HEAT Providers.....Keep In Mind

- Everyone is jumping on the heat bandwagon.
- Make sure they are licensed and insured.
- Make sure they’re highly experienced.
- Make sure they are safe and using proper temperatures and duration.
Chemical Treatment of Harborages

Treatment of Harborages w/ Non-Repellent and highly Persistent Materials where possible.

-Non-Repellent/ Non-Pyrethroid - Highly Effective on pyrethroid-resistant strains of bed bugs. Will not disperse or “lock in” bed bugs.

1. Temprid SC
2. Phantom
3. Transport
4. Tempo 1% Dust
Bedbug Detection Dogs

Quick Detection and Accurate Monitoring of Infestation Levels throughout the structure.

1. Ensures post treatment efficacy.

2. Leads to lower remediation costs.

3. Faster/ More effective inspection periods.
VISUAL CONFIRMATION!

- All alerts MUST be visually confirmed!
- The dog is a tool used to assist the technician in the inspection not replace the technician.
- Using visual inspections along with the aide of the K-9 yields the best results.
Why is **PROPER** Certification so important?

1. **Improves and maintains the accuracy, dependability and performance of detector dog teams.**

2. **Gives clients assurance that the search team is properly qualified.**

3. **The findings of the search team are admissible in court as evidence.**
Certification
Don’t be fooled by all “certifications”

• It is IMPOSSIBLE to certify a Scent Detection Team WITHOUT seeing/watching the team complete the test in a environment that would typically be searched for the scent that the team is testing for.

• The person providing the certification cannot have ANY monetary interest, or conflict of interest, IE: vendor.

*ref. Terry Fleck - expert in the field of canine legalities. Author of the Canine Legal Update.
* ref. Mark Green – Director of Training, National Police Canine Association
Take Away

The Bed Bug...

Is really good at hiding

Use Well Trained and Certified Companies

Can always be beat *if*......

**PROACTIVELY MANAGED!**