

StopPests Bed Bug Webinar  
9/10/14

Lowering Costs With An In-House  
Bed Bug Prevention and  
Management Plan



www.StopPests.org

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Program information

Brought to you by the Northeastern IPM Center at Cornell University with funding from the U.S. Dept. of Housing and Urban Development and the U.S. Dept. of Agriculture

Presenters



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The recording and written responses to questions will be available at [www.stoppests.org/vtechbedbug](http://www.stoppests.org/vtechbedbug)

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Who We Are

What's your role in bed bug management?



- Property Manager
- Maintenance
- Pest Management Industry
- Resident
- Extension
- University Researcher
- Consultant
- Other

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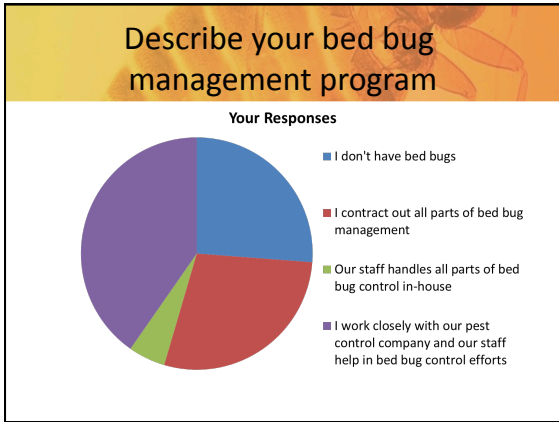
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# StopPests Bed Bug Webinar

## 9/10/14




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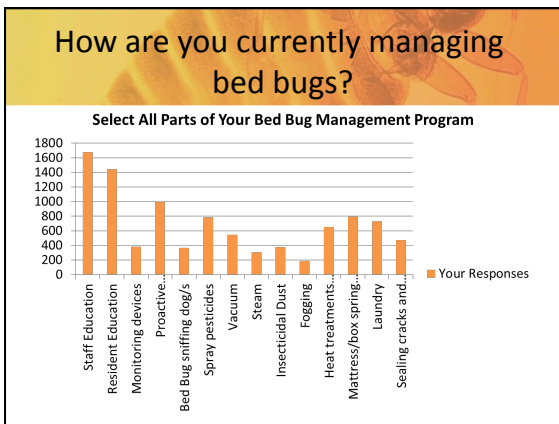
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### Topics:

## Lowering Long-Term Costs

- **Bed bug ID- Know what bed bugs look like**
- **Proactive bed bug inspections (early detection)**
- **How to prevent with-in building spread**
- **Staff and Resident Education**
- **Your pest control contract**
- **Working with a pest management company**
- **What you need to know about professional bed bug treatment**
- **Records and oversight- are you getting what you a paid for?**

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Bed Bug & Urban Pest Information Center  
VirginiaTech  
"Bed bugs? I thought they were a myth!"

- Small
- Wingless
- Dorso-ventrally flattened
- Has piercing-sucking mouthparts
- Undergoes incomplete metamorphosis

Each of the five instars and the adults will feed



MR. Bell 2009

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Bed Bug & Urban Pest Information Center  
VirginiaTech  
Bed Bug Evidence



Bites

Feces

Molted skin (exuvia)

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Bed Bug & Urban Pest Information Center  
VirginiaTech  
Bed Bug Evidence

Have you seen a bed bug??



You should have a vial or baggie of bed bugs so that you can:

1. Show them to people who have never seen bed bugs before
2. Have a reference to compare insects found or brought to you for positive identification

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# StopPests Bed Bug Webinar

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Bed Bug & Urban Pest Information Center  
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### Cost of Bed Bug Control

- Bed bug remediation costs vary depending on the infestation level, clutter level, and treatment strategy used.
  - Visual inspection ~\$0-200
  - Canine inspection ~\$300-600
  - Insecticide treatment ~\$500 per apartment unit
    - Three treatments are recommended at 2-week intervals
    - \$200-400 per room (Bed Bug Solutions, Inc., Chicago, IL)
  - Whole-unit heat treatment ~\$800-1200 per unit
  - Mattress encasements ~\$70-150 per set
  - Monitoring devices ~\$20 for a set of 4
  - Containerized fumigation ~\$1000 per treatment



**"It's not unusual for the typical afflicted family to spend \$5,000 or more on inspections, exterminator fees, cleaning and storage"**  
Jody Gangloff-Kaufmann, New York State IPM Program

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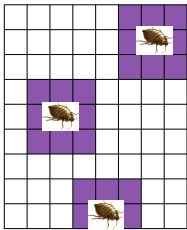
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Bed Bug & Urban Pest Information Center  
VirginiaTech

### Who is suffering the most?

Low-income, multi-unit apartment facilities are being financially devastated by bed bugs. (Wang et al. 2013)

- Residents are often elderly, mentally or physically handicapped, unable to recognize the signs of an infestation, unable to afford treatment. (Wang et al. 2010)
- High risk for repeated infestations because of low-relocation ability and high transfer of second hand goods among residents
- Multi-unit facilities are especially vulnerable because of shared interior walls, ventilation, electrical, and plumbing systems (Joggitt and Russell 2008)



~~Many multi-unit facilities treat not only the infested apartment but also the eight surrounding units.~~

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Bed Bug & Urban Pest Information Center  
VirginiaTech

### Adjacent Unit Inspections

**We need to \$TOP blindly treating adjacent units!**

- 1. Adjacent units should be inspected for bed bugs and evidence!**  
You know that bed bugs and evidence can be seen—Look for it!
- 2. Passive monitors should be installed and left in place!**  
Because bed bugs do not feed everyday, monitors should be left in place. Active (heat or CO<sub>2</sub>) or sticky monitors have no added benefit!
- 3. Monitors should be regularly inspected!**  
How will we know if the monitors catch anything (or not) if we don't look??
- 4. Building construction should be taken into account!**  
Are there poured concrete walls? Are there even routes for bugs to get to the adjacent units??
- 5. Units should not be treated if no bed bug evidence is found!**  
Wouldn't that be silly...and expensive??

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**STOP Pests**  
in housing  
www.StopPests.org

## From the Q&A

**What is a passive monitor?**  
An object that catches bed bugs when the bugs crawl over/fall into it. Passive monitors rely on proper placement to trap bugs that crawl over them. Proper placement instructions will be in the manufacturer's instructions. Passive monitors have no attractant (heat or CO2)

**If they're not sticky, how do they work?**  
"Pitfall-style bed bug monitors" have a moat that the bugs fall into and, because of the smooth sides, can't escape. These monitors are not sticky. Sticky traps are passive monitors too, but are not very effective for bed bugs.

**What's an example of a passive monitor and where can I buy them?**  
Examples of passive monitors include "BlackOut" and "ClimbUP" interceptors which can both be purchased directly from the manufacturer or through a pest control supply distributor. These are the two that have the most university-based research backing them.

Research on bed bug monitors is available at [www.stoppests.org/research](http://www.stoppests.org/research)

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Virginia Tech

## Proactive Inspections

Apartments, hotel rooms, single-family homes, hospitals, classrooms, dorms, etc. can ALL take proactive measures before bed bugs arrive!

- 1. Someone who is qualified should inspect for bed bugs**  
Looking for evidence and potential harborages, taking your own bed bug sample with you to confirm positive identification!
- 2. Inspections should be done on a REGULAR basis**  
Include bed bug inspections when units/rooms are already being entered, i.e. A/C filter change, regularly scheduled maintenance, healthy home visits,
- 3. DOCUMENT EVERYTHING**  
Proof of regular proactive inspections will not only protect you from lawsuits in the future, but can also help you to recognize introductions or small infestations before they get out of hand!

A lot can be done reactively, but being proactive will be the best defense  
**Not just today and tomorrow, but for the next 10 years and beyond!**

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## Vacant Unit Inspection

**A unit can be inspected and treated more easily when vacant, but often pest pressure may not be obvious when there is no human presence.**

In vacant units or rooms, you should:

- 1. Send your own, qualified person in to see if there are ANY pests at all**
- 2. If pests are found or suspected, a professional should inspect and monitor**  
...NOT just treat!!
- 3. Pest control professional should treat ONLY if they have determined that the pest pressure warrants treatment**
- 4. Make sure ALL pests are gone before someone new moves in**

-If a unit has bed bug history, a professional should inspect at vacancy, before treatment!  
-If there is an opportunity to leave the unit vacant for a week+, put passive monitors in bedrooms, living rooms, and common spaces, such as laundry rooms or lobbies  
-Again, these monitors must be checked regularly!

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**STOP Pests in housing** From the Q&A  
www.StopPests.org

**What is "pest pressure."**  
"Pest Pressure" is determined by the risk of pests arriving in an area.

**Example of HIGH bed bug pressure:**

- Ms. A lives in a bed-bug-free unit that shares a hollow wall with Ms. B's unit.
- Ms. B's unit is has a heavy infestation.
- Ms. B watches Ms. A's son after school.

The pest pressure on Ms. A's unit is HIGH.

**Example of LOW bed bug pressure:**

- Mr. A lives in a bed-bug-free unit that shares a poured cement wall with Mr. B's unit.
- Mr. B's unit has no bed bugs (verified by passive monitors).
- Mr. A doesn't get many visitors.
- Mr. A's unit has all the furnishings he wants.

The pest pressure on Ms. A's unit is LOW.

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Current Bed Bug Control

**Non-Chemical Methods**

**Mattress encasements** are used to prevent bed bugs from infesting a bed so that the mattress and box spring do not have to be discarded

- Widely used and recommended by PMPs (Cooper 2007, Potter et al. 2011)

**Monitoring devices** are intended to intercept bugs as they climb furniture

- Early detection of low-level infestations, and to determine if bed bugs are still present after a treatment (Cooper 2011, Wang et al. 2009a, 2009b)

**Extreme cold** (< -26° C) can kill bed bugs of all life stages (Kells 2006)

- Cryonite® (-60° C carbon dioxide snow) is not widely used in the U.S. (Cooper 2011)

**Heat** (>122° F) is lethal to all bed bug life stages (Kells and Goblirsch 2011)

- Household dryers (Potter et al. 2007, Naylor and Bease 2010)
- Containerized heating (Pereira et al. 2009, Miller 2009c)
- Whole-unit/structural heating (Cooper 2011, Miller 2009c)

**Desiccant dusts** are effective mechanical insecticides, which desiccate insects by absorbing the waterproofing components of the epicuticle (Appel et al. 1999, Romero 2009b)

- Diatomaceous earth (Doggett et al. 2008, Akhtar and Isman 2013)
- Amorphous silica (Shawir et al. 1988, Romero et al. 2009)

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**STOP Pests in housing** From the Q&A  
www.StopPests.org

**Is diatomaceous earth (DE) a pesticide?**  
Diatomaceous earth (DE) is an active ingredient in some pesticides. DE is made from the fossilized remains of tiny, aquatic organisms called diatoms. Their skeletons are made of a natural substance called silica. Over a long period of time, diatoms accumulated in the sediment of rivers, streams, lakes, and oceans. Today, silica deposits are mined from these areas.  
For more information, see <http://npic.orst.edu/factsheets/degen.html>

**What are the risks associated with diatomaceous earth (DE)?**  
DE has a very "broad label." This means the label directions state many locations where it can be applied. It is an irritant to some people. Follow the label instructions for maximum efficacy and minimum risk to people and pets.

A good rule-of-thumb with pesticide dusts: if you can see the white powder/dust, it's likely in the wrong location and too much was applied.

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### From the Q&A

**If a pregnant female bedbug comes in contact with a desiccant, will it also kill the eggs?**  
 DE does not kill eggs. If a female dies from anything, the eggs inside her will not hatch. If eggs are laid where DE is applied, the nymphs that hatch out will be exposed to the dust and they will die.

**How long will a DE application remain effective?**  
 DE remains effective as long as it is dry and not covered by other dust. In wall voids, reapplication may be necessary once every few years. If it gets wet and then dries, it will not be as effective.

**What are Cyclone and Exacticide?**  
 They are applicators for pesticides that are in a dust formulation. The researchers at Virginia Tech found the Cyclone was better for treating many units. The Cyclone duster costs approximately \$600.

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### Prevention and Management Program

Heat Chamber	Heat chambers can be used to treat infested furniture, electronics, etc. <ul style="list-style-type: none"> <li>Before a tenant moves in for potentially infested items</li> <li>After an infestation has been reported</li> </ul>
Household Dryer	Clothes dryers (on HIGH) can reach the thermal death point for bed bugs <ul style="list-style-type: none"> <li>Must be loosely packed with room for air to flow</li> </ul>
Passive Monitors	Passive monitors can be installed under the legs of furniture <ul style="list-style-type: none"> <li>To detect low-level infestations and reintroductions</li> <li>To determine if bed bugs are still present after a treatment.</li> </ul>
Mattress Encasements	Encasements trap bed bugs already on the mattress or in the box spring and stop new bugs from entering and harboring within <ul style="list-style-type: none"> <li>Bed will not have to be thrown away</li> </ul>
Vacuuuming	Vacuums can be used to remove bed bug bodies and exuvia <ul style="list-style-type: none"> <li>Makes it easier to distinguish new bed bugs in the future</li> </ul>
Desiccant Dust	A desiccant dust can be applied to beds, furniture, outlets, and wall voids <ul style="list-style-type: none"> <li>Perimeter barrier around an apartment unit can trap bed bugs as they attempt to move to new units in a building</li> </ul>
Education	Residents and staff should know how to identify a bed bug, as well as basic biology, control, and prevention methods

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### Program Evaluation



Lineweaver Apartments  
 Harrisonburg, Virginia  
 Built in 1983

**J. R. "Polly" Lineweaver Apartments**

- Harrisonburg Housing and Redevelopment Authority (HHRA)
- 121 units (74 1-bedroom, 47 efficiency)
- Elderly/Disabled Section 8 Housing
- First 3 infestations in Dec. 2010
  - Heat treatments and inspections - \$4,975
  - No previous known infestations
- 13 infestations in 2011
  - Heat treatments and inspections - \$8,525

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Bed Bug & Urban Pest Information Center  
VirginiaTech

## Program Evaluation

- ✓ Vacuuming
- ✓ D. E. Barrier
- ✗ Monitors
- ✗ Encasements
- ✓ Clothes Dryer
- ✗ Heat Chamber
- ✓ Education

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Bed Bug & Urban Pest Information Center  
VirginiaTech

Program Evaluation:

### 1. What did it take to apply the desiccant dust perimeter barrier in each unit?

- Mean labor time and mean amount of D.E. applied were calculated based on unit size and number of workers
- Number of workers, labor time, and D.E. used were recorded in each unit and associated costs were calculated
  - D.E. @ \$69.95 / 10 lb. (MotherEarth® D Pest Control Dust, BASF Corp.)
  - \$15.42 / 1000 g
  - Labor @ \$1.00 / min / worker
  - Break-even cost for the pest management industry

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Bed Bug & Urban Pest Information Center  
VirginiaTech

Program Evaluation:

### 1. What did it take to apply the desiccant dust perimeter barrier in each unit?

	Efficiency Unit		1-Bedroom Unit	
	Exacticide	Cyclone™	Exacticide	Cyclone™
Mean Treatment Time with 2 Workers (min) ± SE	60.5 min	33.4 min	73.4 min	45.3 min
Cost per worker	\$60.50	\$33.37	\$73.44	\$45.28
Mean Diatomaceous Earth Applied (g) ± SE	54.3 g	48.5 g	74.1 g	67.8 g
Cost	\$0.84	\$0.75	\$1.14	\$1.05
Mean Cost per Unit	\$121.84	\$67.49	\$148.02	\$91.61

- **47.3 min/unit with two workers**
  - Total application time was 189 hours and 15 min
- **Approximately 60 g of D.E./unit**
  - Total amount of D.E. applied was 7,140 g
- **Theoretical Cost = \$11,465.10**
  - For two workers to apply the DE barrier in all units

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# StopPests Bed Bug Webinar

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Bed Bug & Urban Pest Information Center  
 VirginiaTech  
 Program Evaluation:

### 2. Did the perimeter barrier help reduce the # of infestations and costs?

- **Number and cost of treatments in 2011, 2012, and 2013**
  - Bed bug treatment records (Jan 2011-Dec 2013)
  - Whole-unit heat treatments only
- **Bed bug suppression program implemented (Jan-June 2012)**
  - Lineweaver volunteered for study, so program implemented at no cost
- **Percent change from year to year was calculated**
  - Number of New Units with Infestations
  - Number of Commercial Heat Treatments
  - Total Annual Cost




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Bed Bug & Urban Pest Information Center  
 VirginiaTech  
 Program Evaluation:

### 2. Did the perimeter barrier help reduce the # of infestations and costs?

Year	Initial Treatments	Re-Treatments	Total Treatments
2011	7	6	13
2012	19 (171.4% ↑)	29 (383.3% ↑)	48 (269.2% ↑)
2013	14 (26.3% ↓)	30 (3.5% ↑)	44 (8.3% ↓)

Percent increase (↑) and decrease (↓) were calculated from year to year and are reported in parentheses.

In 2012, there was a 308% increase in costs from 2011  
 In 2013, there was a 2% reduction in costs from 2012  
**2013 was the first year where the number of initial infestations, number of units treated, and COST did not increase**

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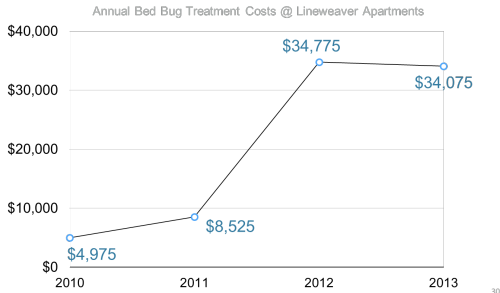
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Bed Bug & Urban Pest Information Center  
 VirginiaTech  
 Program Evaluation:

### 2. Did the perimeter barrier help reduce the # of infestations and costs?

Annual Bed Bug Treatment Costs @ Lineweaver Apartments



Year	Annual Treatment Cost
2010	\$4,975
2011	\$8,525
2012	\$34,775
2013	\$34,075

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 **Program Conclusions**

- Both the number of new infestations and the treatment costs decreased
- Program implementation time (perimeter dust barrier) can vary
- Small per unit financial investment may reduce the number of heat treatments in future
- True efficacy of the proactive bed bug suppression program will only be revealed over the next few years
- We anticipate that the number of new bed bug infestations and the cost of bed bug remediation will continue to decrease in the future



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 **EDUCATION!!**



**In 2012 and 2013, facilities in New Orleans were trained and adopted the program**

- The program was easily modified to fit the specific needs of each community
- Staff members (maintenance and administration)
- Residents

**People need information!!**

- Everyone** should know what bed bugs look like
- Basic prevention and control methods
- How to avoid bringing bed bugs into your home
- How to inspect furniture for bed bugs
- What control measures can you do on your own vs. what a professional can (and should) do
- You should know as much about bed bugs as possible, so that you can be prepared



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 **From the Q&A**

[www.StopPests.org](http://www.StopPests.org)

**I work in infested units. How do I minimize the chance of bringing them home or to other units?**

Because bed bugs do not jump or fly and are usually hiding in cracks and crevices, your risk having one get on you is fairly low if you are taking simple precautions. Avoid sitting or placing items on potentially infested surfaces.

*If you have to move infested items, wear a protective layer (like a disposable suit).*

For more specifics, visit <http://www.bedbugs.umn.edu/home-visitors/>

**Are there resident training videos available in Somali, Hmong, Spanish, etc.?**

Yes. View our bed bug playlist on YouTube at <http://ow.ly/ByVcV>

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 **Take Ownership:  
Minimizing Costs**

- If **you** do not think bed bugs are part of **your** job, seek new employment. Anyone you hire must be a bed bugger too.
- If **you** are responsible for the building, **you** need to know what is going on (to avoid class action lawsuits)
  - Educate everyone as to what bed bugs look like and the signs of infestation that are recognizable from a distance.
  - Know your building construction! How can bed bugs move from one unit to the other? Drop ceilings? Through hall ways? Wall voids? Do you have poured concrete walls?
  - Proactive inspection program- **You** do it (\$\$\$)
  - **NO FREAKING OUT!!!!!! \$\$\$\$\$\$\$\$\$**



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 **Relying(?) on a Third Party**

- **You** hire a competent bed bug management company
  - Did they find bed bugs? How many?
  - Discuss their treatment suggestions. Do they make sense?
  - Do not accept the same treatment for 2 bed bugs that you would for 1000 bed bugs (e.g. “You say bed bugs, we say heat!”)
  - Oversee their work and require documentation of insect reductions (\$\$\$ get what you paid for)
  - Do not allow same treatment over and over hoping for better results
- If **you** are unwilling to do these things, **you** will not be satisfied with the results

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**Do Not Throw Furniture Away!!!!**

- Furniture can and should be treated (heat chamber)
- **Bed bugs have no problem with metal bed frames**
- Anyone that recommends throwing bed bugs away is out of ideas



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# StopPests Bed Bug Webinar

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 **It Starts with the Pest Management Contract** 

- If you are a HUD facility, your procurement officer must be a bed bug expert.
- If the contract does not specify **exactly what is to be done**, you are at the mercy of a low-bid company coming to “treat” bed bugs.
  - Inspect and record number of bed bugs seen
  - **Install monitors** (do not default, treat adjacent units)
  - Discuss most appropriate treatment options based on infestation size, level of clutter and square footage
    - Heat?
    - Chemical?
    - Combination?
  - Two or more inspections or treatments at 2 week intervals
  - Define the word “control” (bite or sighting surveys)
  - Records and oversight (Are any bed bugs dead after the treatment? How many? Four?)
  - No walking away from up prepared residents- promotes spread \$\$\$.

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 **Let's look at some contract language...**

- “A full treatment shall consist of inspection, placement of diatomaceous earth, preparation instructions, clearance verifying eradication of bed bugs...30 day **guarantee...**”
- “The contractor shall utilize **Ambient heat treatments for bedbug treatments**”.
- “Education including **signs of bites...**”



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 **From the Q&A**

**Do I have to be licensed to apply pesticides in multifamily housing?**

Dr. Miller's statements are true for Virginia. In the U.S., each state, tribe and territory has an agency in charge of pesticide regulation and issues. It may be called the Department of Agriculture, Pesticide Regulation, Environmental Conservation or something similar. They work under cooperative agreements with Regional Offices of the US EPA. Requirements for pesticide applicator certification vary by state. In many states, the person applying the pesticide in multifamily housing as part of their job, must hold a license. In other states, individuals can operate under the license of a certified applicator. State laws also govern pesticide distribution (which would include selling pesticides to residents).

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**STOP Pests in housing**  
www.StopPests.org

### From the Q&A

continued...

You might consider contacting your State Pesticide Agency for issues like these:

- How to comply with pesticide regulations
- How to become a certified pesticide applicator, operator or dealer
- How to find local opportunities for applicators' continuing education
- How to report a pesticide application or product that may be concerning or illegal

Find contact information for your state pesticide registration agency at <http://pi.ace.orst.edu/pals/>.

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**STOP Pests in housing**  
www.StopPests.org

### From the Q&A

**Is there a sample request for proposals (RFP) available?**  
StopPests is working on one for bed bugs (estimated completion Fall 2014). It will be posted along with other sample RFPs at [www.stoppests.org/procurement](http://www.stoppests.org/procurement)

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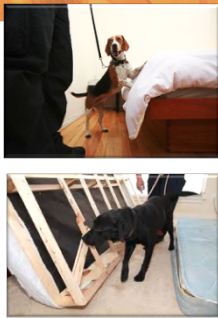
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### Bed Bug Detecting Dogs

- Excellent, fast detectors for hotels, apartments and office buildings
- Can distinguish between live and dead bed bugs
- Require constant training
- New dog handlers can weaken over time and not keep up with training.
- No such thing as a "light hit"
- Do not pay for a treatment unless you are shown a live bug. If no bug found, use monitors only \$\$\$.



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# StopPests Bed Bug Webinar

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### Treatment Preparation Instructions

**Step 1**

Prior to extermination, remove all bedding from mattresses, gather all linens, and all clothing, etc. from living space. This includes any textile materials that are machine washable - pillows, mattress covers, school bags, anything - and all items that must be dry-cleaned. Even fabric that is in storage should be collected. Wash bedding and all clothing/fabrics in HOT water and dry in the dryer on hottest setting.

Takes the resident days - Infested books and shoes are placed in bags forever. Home is taken apart so the pest managements professional can treat baseboards, walls and furniture in hours or they walk away. Class action lawsuits will change this.



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Bed Bug & Urban Pest Information Center  
Virginia Tech

### Understanding Chemical Treatments

- **99% of PMPs use insecticides.**
- **84% of products contain pyrethroids. Contact kill.**
- **Resistance to pyrethroids is very high. So products do not work after they are dry.**
- **Phantom- stomach poison. Aerosol kills eggs. Contact kill only.**
- **Insect growth regulator (Gentrol) does not prevent reproduction in bed bugs**
- **No residual or preventative!**
  - Do pay for a preventative spray!



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Bed Bug & Urban Pest Information Center  
Virginia Tech

### Latest Products

- **Combination liquid formulations**
  - **Temprid (B-cyfluthrin & imidacloprid)**
  - **Transport (Bifenthrin & acetamiprid)**
  - **Tandam (λ-cyhalothrin & thiomethoxam)**
- **Insecticidal dusts have residual activity but label is restrictive.**
- **Just use desiccant dusts- diatomaceous earth (Mother Earth D; Alpine) or silica aerogel (Cimexa)**



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# StopPests Bed Bug Webinar 9/10/14

**Bed Bug & Urban Pest Information Center**  
Virginia Tech

## Whole Home Heat (Propane or Electric)

- Thermal Death Point of 122° F for eggs and 118° for nymphs and adults.
  - Must reach these temps in the deepest darkest hardest to heat locations.
  - Air temp irrelevant
  - Must have state required sprinkler overhead protection




Equipment cost \$85K- \$100K  
Significantly less expensive equipment will not have the fire power. **You will not be satisfied with the results.**

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## Whole Home Heat Systems

- Electric heat can be used on multi-story buildings
- Virginia Tech purchased the Temp-Aire system for dormitories
- Note there are three heaters in this single dorm room


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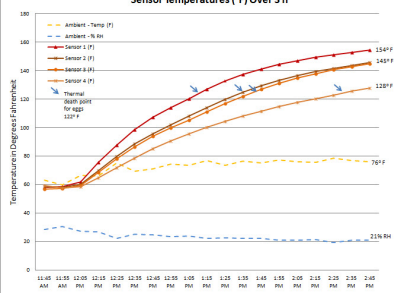
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**Bed Bug & Urban Pest Information Center**  
Virginia Tech

## Most Important for YOU!!!

Sensor Temperatures (°F) Over 3 h



Your Permanent Record!!!!

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# StopPests Bed Bug Webinar 9/10/14

Bed Bug & Urban Pest Information Center  
Virginia Tech  
"Green" is a Marketing Term Only  
(it could just as easily be purple)

bioGREEN SOLUTIONS  
The Leader in Proactive Contamination Management  
In your facility Certified BioGreen Clean® 888.247.8889

Is Your Business Bedbug Free?

Have Bedbugs?

News  
July 18, 2013  
BioGreen Solutions continues to

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Bed Bug & Urban Pest Information Center  
Virginia Tech  
**Think Before you Buy!**

- 4 hour treatment only- 1 tor 4 bedrooms
- Double treatment: 8 hrs
- Second treatment free if needed
- I was the only one with a temperature measuring device!
- Tech showed me bed bug evidence (cockroach egg cases)

\$900 per treatment!  
Heat treatment is unregulated in the state of Virginia!

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Bed Bug & Urban Pest Information Center  
Virginia Tech

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StopPests Bed Bug Webinar  
9/10/14



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StopPests Bed Bug Webinar  
9/10/14

Bed Bug & Urban Pest Information Center  
VirginiaTech  
Heat Chambers



The slide features four photographs illustrating heat chamber treatments. Top left: A black heat chamber is placed over a box. Top right: A person is using a yellow heat chamber on a sofa in a living room. Bottom left: A black heat chamber is placed over a bed. Bottom right: A yellow heat chamber is placed over a sofa.

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Bed Bug & Urban Pest Information Center  
VirginiaTech  
Steam

- Steam temperature (at the bed bug) must be 130° F (54° C) or greater
- The steamer head must be large
- Steam power will kill bed bugs and their eggs
- Steaming is slow and labor intensive (time = \$\$\$)
- It will kill bugs you can see, **do not steam an item if you see no bugs on it.**



Upholstery and bedding can disperse steam heat  
Thermal death point 48°C

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Bed Bug & Urban Pest Information Center  
VirginiaTech  
What is this man doing?  
Wasting Money.



The slide shows a man in a dark shirt using a long-handled tool to clean a wooden chair. The text above the image asks 'What is this man doing?' and 'Wasting Money.'

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Bed Bug & Urban Pest Information Center  
VirginiaTech  
The Clothes Dryer

- Have several on site reserved for bed bug treatment only
- Provide tokens
- Purchase dryers with shelves so items (shoes) that cannot be tumbled can be treated



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Bed Bug & Urban Pest Information Center  
VirginiaTech  
Structural Fumigation



This is Fumigation



This is not!

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Structural Fumigation

- After a building is emptied and sealed...
- Vikane® fumigant (sulfuryl fluoride) is pumped into the building at a volume per cubic foot.
- Fumigant is monitored remotely to achieve a number of ounce hours.
- Building is aerated carefully after treatment
- Will kill everything in the building!!!
- No residues or residual activity
- Multi Unit housing- \$10K-\$100K+



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# StopPests Bed Bug Webinar

9/10/14

Bed Bug & Urban Pest Information Center  
VirginiaTech  
made and passed

## Chamber Fumigation



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## Nuvan Prostrips

- Not a fumigant!
- Highly volatile organophosphate insecticide formulated in a slow release matrix
- One 16 g strip for 100-200 cubic feet.
- Strips placed in sealed bags and closets were in place for 14 + days but did not kill 100% of the bed bugs
- ~80% mortality at 14d



Needs air flow!

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## Internet and "Green" Bed Bug Products

- Ultrasonic devices do not work on any pest ever!
- No liquid currently available repels bugs once it is dry
- Almost any liquid formulation will kill bed bugs with a direct hit (dish washing liquid, alcohol, hair spray) but **so will a hammer.**
- If any product was as great as it sounds we would all be using it. We would not be talking about bed bugs today!



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# StopPests Bed Bug Webinar 9/10/14

## Follow Up

- Written responses to the questions that were asked during this webinar are posted along with the recording on [stoppests.org/vtechbedbug](http://stoppests.org/vtechbedbug)
- E-mail questions to [stoppests@cornell.edu](mailto:stoppests@cornell.edu)
- Next webinar topic:  
Funding Opportunities for IPM in Affordable Housing

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## Want one-on-one support?

StopPests Consultants are available to work directly with public housing and PBRA properties to implement IPM

This free service includes on-site training!



- Request a call at [www.stoppests.org/request](http://www.stoppests.org/request)

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STOP Pests in housing  
www.StopPests.org

For more information [Pest Solutions](#) Search

News You Can Use

- Free Online Bed Bug Training for Health Care and Social Service Providers
- 7th International IPM Symposium
- Pest Management Foundation

ABOUT US | WHAT IS IPM? | WORKING WITH RESIDENTS | IPM TRAINING | SUCCESS STORIES  
Staff and Partners | Consultants | Resident/Staffing Issues | The Training Day | Evaluate Your Business  
Participating Pests | Using IPM | Help with Housekeeping | Training Materials | Boston Housing Authority  
Conference Presentations | Funding Sources | Ongoing Help | Training Opportunities | Case Studies

Training \$25 H | Funding \$25 H | Bug \$25 H

[www.stoppests.org/pest-solutions/bed-bugs](http://www.stoppests.org/pest-solutions/bed-bugs)

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StopPests Bed Bug Webinar  
9/10/14

**Acknowledgements**

HUD and USDA for funding the StopPests in Housing Program and some of the research presented today.

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**Thank you for listening.  
Good Luck!**

You may download a certificate for this presentation at  
<http://www.stoppests.org/vtechbedbugcertificate>

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