Safe, easy and effective Bedbug Detection for you and your family.
What are Bedbugs?

A bedbug is a wingless, rust-colored insect about the size of an apple seed. Bedbugs are nocturnal parasites, resting during the day and coming out at night to dine on the blood of humans.
I urge you to take action to help curb a growing public health epidemic in regards to the common bedbug.

— Senator Charles Schumer, New York
In a letter to the U.S. Dept. of Health
I actually did a double take. I couldn’t believe I was actually seeing a true bedbug in my very own condo!

It sounds like you can get them anywhere, any time of day and not know it until you get home.

I don’t like talking about bedbugs. I don’t think people will understand. I don’t know if I’ll be thought of as dirty, or something.
Top 15 Most Infested Cities

1. NEW YORK
2. PHILADELPHIA
3. DETROIT
4. CINCINNATI
5. CHICAGO
6. DENVER
7. COLUMBUS, OH
8. DAYTON, OH
9. WASHINGTON, D.C.
10. LOS ANGELES
11. BOSTON
12. INDIANAPOLIS
13. LOUISVILLE, KY
14. CLEVELAND
15. MINNEAPOLIS, MN
How Bedbugs Spread Geographically

“We’re now in the era where people travel everywhere,” [entomologist Michael] Raupp says. “They just don’t go to major cities like London or Paris. We have people going to second world countries and third world countries, where frankly, bedbugs are commonplace. And these guys are real troopers - they’re hitchhikers and stowaways. So whenever we travel, there’s always a possibility that we can bring bedbugs home with us. And bedbugs don’t discriminate. This is not a matter of poor sanitation or poor housekeeping or uncleanliness.”
Feeding Habits

- Bedbugs are bloodsucking insects that feed by hematophagy.
- They are normally active at night just before dawn, with a peak feeding period of about an hour before sunrise but can bite at anytime.
- They reach their host by crawling, climbing walls and are known to drop from the ceiling when they feel a heat wave.
- Attractants: heat, carbon dioxide, Movement (Vibrations such as the bass in a voice).
- The bug pierces the skin of its host with two hollow tubes of which one contains anticoagulants and anesthetics which makes the bites extremely hard to detect. The second tube withdraws the blood of its host.
- After feeding for about five minutes, the bug returns to its hiding place.
- The bites cannot usually be felt until some minutes (if at all), as a dermatological reaction to the injected agents, and the first indication of a bite usually comes from the desire to scratch the bite site.
- Normally they try to feed every five to ten days.
- Bedbugs can live without food for longer than a year.
Reaction to Bedbug Bites

- People react differently to bedbugs, and individual responses vary with factors including skin type, environment, and the species (108 types) of bug.
- Not all persons will react to bedbug bites (50%)
- When a reaction does occur they consist of a raised red bump or flat welt, and are often accompanied by very intense itching.
- Reactions to bedbug bites may appear indistinguishable from mosquito bites.
- Bites may not become immediately visible, and can take up to nine days to appear.
- “Fleas bite in threes”, bites are often aligned three in a row.
- In some cases, allergic reactions to the bites may cause nausea and illness.
- People commonly respond to bed bug infestations and their bites with anxiety, stress, and insomnia. Individuals may also develop skin infections and scars from scratching the bedbug bite locations.
- The notion of “not seeing any bites” or the common belief of “having never been bitten” are not reliable measures in confirming whether or not bedbugs have actually been introduced to a dwelling.
“Getting rid of bed bugs is a long, tedious and, unfortunately, expensive process. Some bed-bug experts say it's not unusual for an infested family to spend upwards of $5,000 in its efforts to get rid of the critters.”

— New York Times
July 10, 2010
Markets: Home Use

- Bedbugs can be introduced to a person's dwelling in many ways. The most popular include traveling and through clothing.
- Being that bites sometimes can go undetected, one's household may slowly become infested without knowing it.
- Bedbugs spread from one room to another very rapidly.
- Bedbugs are not easily detected by sight unless by a professional.
- Globally there has been a 70% increase in home Bedbug infestations over the past 7 years.
- NYC HPD has reported an increase of over 1000% of Bedbug calls over the last 7 years. These figures do not take into consideration the 311 hotline which NYC has set up a separate section for Bedbugs.
- These increases are worldwide and only growing by the day.
Markets: Hotel and Hospitality

- Since 2001 there has been an increase of over 71% in hotel Bedbug infestations.
- In a 700 hotel study, 24% of the hotels experienced Bedbug infestations.
- In the final year of the study 293 out of 700 or 42% of the hotels experienced Bedbug infestations.
- In a separate study of 800 random hotel rooms, 645 rooms were treated for Bedbug infestations.
- In a 2008 survey by Trip Advisor, 8% of travelers said they have experienced Bedbugs at a hotel.
- Adjoining hotel room become infested 25% of the time.
Markets: Landlords & Apartments

- One of the worst problems a landlord can have is Bedbugs. Many laws in effect allow for free rent during times of infestation.
- Bedbugs can very quickly spread throughout the other units through warm and snuggly cracks, vents and wall outlets.
- The cost for ridding a large infestation can be astronomical.
- The cost for replacing furniture and mattresses makes the cost even higher.
- Landlords would more likely find a tenant or keep a tenant when it is known they are proactive in Bedbug detection.
Markets: Other Opportunities

SHELTERS
- Bedbugs are known to flourish in places where there is poor sanitation and hygiene.
- Only 17% of shelters are treating Bedbugs.

DORMITORIES
- Dorms are prime grounds for infestations and spread of Bedbugs from unit to unit very quickly.
- Dorm statistics have seen increases very similar to hotels.

HOSPITALS
- ARMY
- CRUISE SHIPS
- MOVIE THEATERS
- AIRPLANES
- GOVERNMENT USE (BUILDINGS, HOUSING UNITS ETC..)
Pest Control Industry

- In the US the pest control industry boasts over 10,000 companies and over $7 Billion in sales of services annually.
- SC Johnson has built a company with over $8 Billion in revenue based around its Raid and OFF brands as well as many other cleaning products and consumer goods.
- Riddex, a popular device for roach's has sold over 3 million units at over $29.99/piece.
- Typical treatment for Bedbug infestations cost around $300-$400 a room.
Introducing BED BUG PLUG ™
Our goal was to create an affordable product that combines effectiveness with a clean, simple look.
Our solution

**EFFECTIVENESS**

- Our product successfully detects Bedbug presence in almost any location using the most vital attractant, heat combined with a little moisture. Our specially designed glue boards when heated, slowly release moisture to create this luring effect.

- Our product has been designed having in mind that its placement has to be strategically located.

- Bedbugs love hiding in cave like crevices. We therefore created cave like entrances into the device to help lure the Bedbug into what it thinks is a nice warm crevice.

- Heating element encompasses the whole unit so the plastic housing doesn't hide the heat from the bedbugs senses.

- Bedbugs are very cautious creatures and therefore usually do not get caught on glue traps. Their antennas sense what is on the floor in front of them at all times. We have custom designed our cave-like entrances to incline as the bedbug gets deeper into the device. We then have a glue like substance on the roof of the unit which sticks to the most vulnerable part of the Bedbug, its back.
our solution

DESIGN & APPEARANCE

- The unit is small and easily placed almost anywhere in a room.
- The design allows the device to be attached to a wall socket (where many Bedbugs usually hide) and can easily be hidden or covered.
- Device is easily transportable anywhere you want to take it.
- One of our designs has a dual socket where you can plug something else directly into the device making it look like a wall socket.
- The unit comes with a cord (retractable) for placement on a bed or in a closet or drawer.
- We have designed the unit to accept cartridges which contain the special glue boards. This makes it both clean and easy to check if the device has caught any Bedbugs and also to replace the special glue boards.
LOW PRICED AND CONSUMER ORIENTED

• Our goal is to have the device price MSRP $19.99. Additional cartridges at $5 apiece. Deals on bundles (eg. 4 units for $60)
• Only one unit is required for each room
• Cartridge last for up to 3 months.
• Design makes it optimal for home, hotel or any desired placement
• The unit is 110 ~ 240v compliant for international use.
• BBP plans on private labeling many other Bedbug products including: Spray which kills Bedbugs on the spot, Mattress covers, Inceptors

ADDITIONAL FEATURES

• Low priced commercial unit with CO2 component.
• Embedded unit for mattresses and headboards.
• Wall socket unit for discreet placement in hotels and other dwellings.
• Travel unit operating on batteries
Retail Packaging
“Thoroughness is the key” is the mantra most widely used to describe the successful Bed Bug inspection process. While this is most certainly accurate, it provides the novice Bed Bug inspector with very little guidance on where to start and what to expect.

— National Pest Management Association
September 18, 2010
Competitive Overview

**NIGHTWATCH**

- Uses heat, CO2, and a lure mimicking the natural pheromones (chemicals that bed bugs extrude) to attract, trap and kill bed bugs.
- MSRP $650, Lure Bag $60
- Mostly for commercial use.
- Pheromones for Bedbugs have not been discovered as of yet. Pheromones used in this unit are for gimmick purposes only.
- CO2 portion of device only lasts 10 hours
- Size and dimensions of unit are not conducive to long term detection and size prohibits placement in the most strategic places
- Design and selling point is to lure and trap bedbugs. It is not possible to attract all bedbugs so supplementary Pest Control services are required regardless.
- Cannot be used when traveling
- Product recalled
CDC3000 BEDBUG MONITOR

- Uses heat, CO2, and chemicals to attract, trap and kill bed bugs.
- MSRP $950, Slides $10, CO2, $7
- Mostly for commercial use.
- Pheromones for Bedbugs have not been discovered as of yet. Pheromones used in this unit are for gimmick purposes only.
- CO2 portion of device only lasts 10 hours
- Size and dimensions of unit are not conducive to long term detection and size prohibits placement in the most strategic places.
- Design and selling point is to lure and trap bedbugs. It is not possible to attract all bedbugs so supplementary Pest Control services are required regardless.
- Cannot be used when traveling.
CLIMB-UP INSECT INTERCEPTOR

- Installed under bed posts, bed frame legs, sofa legs and creates a barrier between the floor and the bed or seating surface.
- Bedbugs climb the surface of the Climb-up Interceptor and fall, they stay trapped due to a slippery layer of tac.
- MSRP 1/$6, 12/$60
- Assumes Bedbugs are coming to specific furniture from the legs.
- Requires at least 4 per piece of furniture already equaling at least $24 per room.
- Has no attractants
- Furniture must be pulled away from the wall and nothing hanging to the floor in order to be effective.
- Interceptor is very easily noticed and not applicable for hotels and many residents.
BB ALERT ACTIVE

- Activator pouch is removed from sealed package and placed in unit. When opened and exposed to the air it starts to generate heat and moisture which triggers a feeding response in Bed Bugs.
- MSRP $35, New Pouches $6
- Unit is physically similar to our design
- Each pouch is for one time use. It is not a continuous detection.
- Chemicals make it dangerous for traveling and for homes with children.
BUG DOME

- Uses a small heating element placed underneath a dome to attract bedbugs.
- The dome recess is coated with a special glue to hold insects and bedbugs for inspection.
- The trap section is replaceable when full.
- MSRP $89, Adtl Dome Traps $69
- Product is dome shaped and therefore not conducive to trapping bugs.
- Its physical dimensions make it difficult to keep around in a room for full time detection.
- Very costly
- Heating element is small and in the center of the dome making it difficult for bedbugs to detect the heat.
**HUMAN DETECTION**

- Bedbugs have many hiding places are not easily detected.
- Most people do not have the expertise to know what to look for.
- It is not practical to search every room everyday especially in large homes and hotels.

**CANINE DETECTION**

- Very expensive
- Not an active detection
- Not readily available
Sleepless in New York

An epidemic of bedbugs in the Big Apple has brought panic, revulsion and a nasty little rash to rich and poor alike. Can the city cope?

— The Sunday Times, London
May 31, 2010
BED BUG SEARCH VOLUME TRENDS AND FORECAST
Forecasting Model: ARIMA, 1st difference, 1 MA term

Bed Bugs Search Volume
Forecasted Search Volume

Forcasts Increasing Bed Bugs
Department of Housing Preservation and Development (HPD)

BED BUG COMPLAINTS AND VIOLATIONS
FY 2004 – 2010

New York vs Bed Bugs
Fiscal year: July 1 to June 30
Data source: NYC Department of Housing Preservation and Development

Compared to previously reported data, FY04 has been revised up from 192 complaints to 537 complaints, and FY05 was revised down from 1,855 to 1,839.
### NYC Bed Bug Complaints Fiscal Year 2010 Update

#### 311 Directory Assistance — FY 2008-2010

<table>
<thead>
<tr>
<th></th>
<th>FY 2008</th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>% change FY09-FY10</th>
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<tbody>
<tr>
<td>Bed bug complaint - NYC schools</td>
<td>n/a</td>
<td>n/a</td>
<td>71</td>
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<tr>
<td>Bed bug complaint - day care</td>
<td>23</td>
<td>41</td>
<td>58</td>
<td>41.5%</td>
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<tr>
<td>Bed bug control for homeowners</td>
<td>n/a</td>
<td>5,894</td>
<td>4,215</td>
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<td>Preventing &amp; Getting Rid of Bed Bugs Safely brochure</td>
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<td>Eliminating Bed Bugs - fact sheet</td>
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<td>n/a</td>
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<td>Bed bug seminars</td>
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<td>Bed bug complaint - hotel or SRO</td>
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<td>376</td>
<td>565</td>
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<td>Bed bug complaint - residence</td>
<td>12,941</td>
<td>17,650</td>
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<td>Bed bug complaint - domestic violence shelter</td>
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<td>19</td>
<td>49</td>
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<td>239</td>
<td>402</td>
<td>603</td>
<td>50.0%</td>
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<td>544</td>
<td>731</td>
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<td>531</td>
<td>892</td>
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<tr>
<td>Bed bug complaint - public housing - Queens</td>
<td>103</td>
<td>127</td>
<td>169</td>
<td>33.1%</td>
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<tr>
<td>Bed bug complaint - public housing - Staten Island</td>
<td>16</td>
<td>29</td>
<td>30</td>
<td>3.4%</td>
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<tr>
<td>total</td>
<td>20,019</td>
<td>25,613</td>
<td>34,123</td>
<td>33.2%</td>
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</table>

New York vs Bed Bugs
Fiscal Year: July 1 to June 30
Data source: NYC Department of Information Technology & Telecommunications (DOITT).

Note: Not all calls to 311 tagged as “bed bug complaint residence” result in formal tenant complaints; not all tenant complaints result in HPD inspections; and not all inspections result in landlord violations.

311 is not the most used reporting channel for the Department of Education and the New York City Housing Authority, both of which maintain separate service lines (please see Bed Bugs in New York City: A Citizen’s Guide to the Problem, February 2009, for NYCHA stats obtained under FOIL). 311 accepts complaints of bed bugs in subways, but such calls are not yet represented in the above data. Finally, there has been no public education campaign directing New Yorkers to call 311 for bed bugs.
Department of Housing Preservation and Development (HPD)

**BED BUG COMPLAINTS IN THE 5 BOROUGHS**

FY 2004 - 2010

New York vs Bed Bugs
Fiscal year: July 1 to June 30
Data source: NYC Department of Housing Preservation and Development
## BED BUG COMPLAINTS IN THE 5 BOROUGHS
### FY 2004 - 2010

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Manhattan</td>
<td>103</td>
<td>425</td>
<td>1,107</td>
<td>1,729</td>
<td>2,107</td>
<td>2,553</td>
<td>2,649</td>
<td>3.8%</td>
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<td>Bronx</td>
<td>73</td>
<td>187</td>
<td>570</td>
<td>1,117</td>
<td>1,682</td>
<td>2,230</td>
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<td>Brooklyn</td>
<td>169</td>
<td>659</td>
<td>1,642</td>
<td>2,382</td>
<td>3,401</td>
<td>4,042</td>
<td>5,000</td>
<td>23.7%</td>
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<tr>
<td>Queens</td>
<td>190</td>
<td>560</td>
<td>1,278</td>
<td>1,602</td>
<td>1,927</td>
<td>2,029</td>
<td>1,881</td>
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<tr>
<td>Staten Island</td>
<td>2</td>
<td>8</td>
<td>41</td>
<td>59</td>
<td>96</td>
<td>131</td>
<td>254</td>
<td>93.9%</td>
</tr>
</tbody>
</table>

| Total       | 537     | 1,839   | 4,638   | 6,889   | 9,213   | 10,985  | 12,768  | 16.2%             |

New York vs Bed Bugs
Fiscal year: July 1 to June 30
Data source: NYC Department of Housing Preservation and Development
## Department of Housing Preservation and Development (HPD)

**BED BUG VIOLATIONS IN THE 5 BOROUGHS**  
**FY 2004 – 2010**

<table>
<thead>
<tr>
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<th></th>
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<tbody>
<tr>
<td>Manhattan</td>
<td>17</td>
<td>85</td>
<td>218</td>
<td>437</td>
<td>626</td>
<td>717</td>
<td>846</td>
<td>18.0%</td>
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<tr>
<td>Bronx</td>
<td>5</td>
<td>34</td>
<td>169</td>
<td>347</td>
<td>546</td>
<td>897</td>
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<tr>
<td>Brooklyn</td>
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<td>125</td>
<td>401</td>
<td>692</td>
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<td>1,729</td>
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<tr>
<td>Queens</td>
<td>47</td>
<td>121</td>
<td>388</td>
<td>514</td>
<td>588</td>
<td>678</td>
<td>593</td>
<td>-12.5%</td>
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<tr>
<td>Staten Island</td>
<td>0</td>
<td>1</td>
<td>17</td>
<td>18</td>
<td>38</td>
<td>63</td>
<td>118</td>
<td>87.3%</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td><strong>82</strong></td>
<td><strong>366</strong></td>
<td><strong>1,193</strong></td>
<td><strong>2,008</strong></td>
<td><strong>2,871</strong></td>
<td><strong>4,084</strong></td>
<td><strong>4,808</strong></td>
<td><strong>17.7%</strong></td>
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</tbody>
</table>

New York vs Bed Bugs  
Fiscal year: July 1 to June 30  
Data source: NYC Department of Housing Preservation and Development
Thank you!