

CASE STUDY: *ACTIVEGUARD*® MATTRESS LINERS FOR BED BUG CONTROL IN A LARGE METROPOLITAN HOTEL

Use of *ActiveGuard* Mattress Liners as part of a Comprehensive Pest Management Bed Bug Control Strategy Saves Large Metropolitan Hotel in Excess of \$500,000 per annum.

- The subject hotel is located in the southern United States and is heavily dependent on convention business.
- The facility has 1600 rooms and approximately 3000 beds.
- The hotel had a persistent bedbug problem. The typical rate of infestations was two per week spread consistently over a typical year.
- The hotel uses a pest management professional to chemically treat rooms when an infestation occurs.
- In accordance with good pest management control practice, for each infestation the hotel would treat the infected room, the two adjacent rooms and the each of the rooms above and below the infected room.
- **Limited installation of *ActiveGuard* in 45 rooms demonstrated protection against bed bug infestations for two years**
- **Subsequent hotel-wide installation of *ActiveGuard* continues to provide prevention against infestations establishing in over 1600 rooms**
- **\$500,000+ cost savings per annum as a result of *ActiveGuard* installation causing reduction in pest control costs and maintenance of hotel rental revenue**

In September 2010, the hotel installed *ActiveGuard* Mattress Liners to confirm their bed bug protective activity in forty-five rooms on a single floor. This limited installation was designed to test the effectiveness of *ActiveGuard* as a standalone protective tool. The floor chosen was one that traditionally had a high level of infestations.

In the two-year period following the initial installation, there were no bedbug incidents on either mattresses or box springs of these protected rooms. Furthermore, no infestations were reported in any protected room whatsoever. Based average historical rate of infestations at the hotel, the number of expected infestations in these rooms over a two year period would have been nine. As these were rooms with a history of

infestations, the actual expected rate was probably higher. There were no changes to the pest management practices other than the installation of *ActiveGuard*.

In December 2012, encouraged by the success of initial program, the hotel installed *ActiveGuard* Mattress Liners hotel-wide; an installation in excess of 3000 liners. Furthermore, the hotel has discontinued the use of mattress encasements due to their ineffectiveness in preventing infestations and propensity for ripping on box springs.

Through December 2013, there have been six (6) reported bedbug incidents, none of which presented as an infestation. Of the six incidents; four (4) involved bed bugs found dead on/underneath the *ActiveGuard* liner or on the floor just alongside the bed. In one instance, 2-3 bed bugs were found on the headboard; the other instance involved 2-3 bed bugs found within the dust ruffle surrounding the box spring. These rooms were placed on increased vigilance status but IN NO INSTANCE WAS TREATMENT REQUIRED. This represents approximately a 94% reduction in incident frequency with a surprising 100% decrease in bed bug infestations requiring treatment.

Cost analysis

The financial return on the use of *ActiveGuard* Mattress Liners as an integral part of a bedbug control program will vary by facility based on historic levels of infestation, occupancy levels, room rates, use of mattress encasements and the cost of pest management services. The simplified analysis below is based on discussion with the subject hotel and industry knowledge as to the typical costs associated with pest control services;

Assumptions

Room revenue per diem	\$200
Number of rooms in facility	1600
Number of infestations per year	100
Number of rooms removed from service per infestation	5
Number of days of lost revenue per infestation	7
Cost for pest management services per infestation	\$1,000
Cost of active guard liners per room (annual cost pro rated over two year life of product.)	\$80

Illustration based on 3,000 *ActiveGuard* Mattress Liners installed

Lost revenue (at 80% occupancy) per annum due to infestations	\$560,000
Pest Management costs	<u>\$100,000</u>
Total cost per annum	\$660,000
Cost of <i>ActiveGuard</i> per year amortized over two years:	<u>\$120,000</u>
Savings per annum	\$540,000

This simplified financial analysis makes a compelling case for utilizing *ActiveGuard* as part of any bedbug control program. There are numerous other factors that should be considered:

- *ActiveGuard* Mattress Liners can be used in place of mattress or box spring encasements. *ActiveGuard* Mattress Liners are far more effective in prevention and control of bed bug infestations, and easier to install and maintain. If a facility currently uses encasements, the switch to *ActiveGuard* may have a very small incremental cost.
- There are significant reputational benefits to proactively dealing with bedbug infestations, which are not reflected in this analysis.
- There are additional costs associated with compensating customers who complain about a bedbug infested room, which are not reflected in this analysis.
- There are potential reductions in litigation expense and subsequent awards to plaintiffs complaining about bed bug incidents, which are not reflected in this analysis
- Employee and customers benefit from a bedbug free environment.

***ActiveGuard*[®] Mattress Liners** are a revolutionary mattress and box spring product that kill bed bugs and dust mites generally within 72 hours. Used as a complement to any present treatment program and as the centerpiece of a preventative program, *ActiveGuard*[®] is the only EPA-registered pro-active tool labeled to provide control and prevention for up to two years. These liners' ability to keep on killing bed bugs provides for continual protection against any adult bed bugs, nymphs or eggs missed during initial treatment or any bed bugs re-introduced after treatment has been concluded. These liners also kill dust mites when installed on a mattress surface, providing a hypoallergenic environment for guests to sleep. Fashioned and installed simply and as quickly as a fitted sheet, *ActiveGuard*[®] has no cautionary signal words or use restrictions on its label. Only four sizes (Single/Twin, Double/Full, Queen and King) fit almost every available mattress or box spring, and accommodate up to XL in length and 17" in depth. *ActiveGuard*[®] will continue to work 24/7 even if ripped or torn; a decided advantage especially when installed on a box spring. *ActiveGuard* is covered under U.S. Patents 5,916,580, 6,214,365, 6,440,438 and pending patents.