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Guidelines for the Control and Prevention of Bed Bug Infestations in California

In recent years there has been a resurgence of bed bug infestations throughout the United States. In response to this re-emerging public health issue, the California Department of Public Health (CDPH) is providing guidelines to assist affected entities in the prevention, surveillance, and control of bed bug infestations. Based on reports from local health departments and pest control operators (PCOs), bed bug infestations have been found in hotels, nursing homes, public housing, apartment complexes, moving vans, jails, furniture rental stores, dormitories, and other multi-unit dwellings. In addition, information is often sought by private homeowners experiencing a bed bug infestation. These guidelines¹ are intended to provide recommendations to California stakeholders on procedures to control active bed bug infestations, minimize the spread of infestations, and prevent future infestations.

Bed bugs are small wingless insects, approximately one-fourth of an inch long that feed on blood, normally during the night. Most, but not all, of a bed bug population will congregate in cracks and crevices near where humans and pets sleep or rest. Bed bugs live in furniture such as couches, easy chairs, dressers, and night tables, as well as electronic devices such as alarm clocks and radios. Infestations of bed bugs are not limited to bedrooms and hotels; they can be found in public transportation, hospitals, and long-term care facilities. Evidence of a bed bug infestation includes presence of the bed bugs or their cast exoskeletons, and blood spots/stains on bedding, walls, or upholstered furniture. Bed bugs can live many months without a blood meal while hiding in cracks and crevices.

Bed bugs, while a significant social problem, do not transmit disease to humans. However, bed bug bites will cause red, raised, itchy reactions on the skin. Scratching bed bug bites can lead to secondary skin infections. Some individuals report significant psychological distress, disruption of sleep, nervousness, and agitation when dealing with a bed bug infestation.

The essential components of bed bug control and prevention are:

- identification of bed bug infestations;
- utilization of best available bed bug treatment strategies and prevention measures; and
- cooperation between all stakeholders affected by a bed bug infestation.

A. Bed bug prevention and control recommendations for owners and operators of hotels and other multi-unit dwellings

When confronted with a bed bug infestation, owners and operators of hotels and other multi-unit dwellings should not attempt to control the infestation prior to an assessment from a licensed PCO. Licensed pest control applicators and/or companies should always provide proof of their licensure on request. Visit <http://www.pestboard.ca.gov/license.htm> or call California Department of Consumer Affairs (DCA), Structural Pest Control Board at (916) 561-8704 to confirm that the company is certified. Cooperation between the PCO and the owners and operators is essential to successfully eradicate an infestation. Due to the elusive nature of bed bugs, control can be expensive and time consuming. Educating staff to identify bed bug infestations will prompt more rapid treatment by PCOs and, thereby, prevent bed bug populations from spreading throughout the facility. A prompt response to the problem will reduce the financial burden of bed bug control to facility owners and operators.

Training recommendations for staff of hotels, guest houses, and other multi-unit dwellings

Owners and operators should provide training to all staff members on bed bug surveillance, control, and prevention. Training should be provided at the commencement of employment and annually thereafter. Elements of a training curriculum should include:

1. Identification of bed bugs and explanation of their life cycle.
2. Review of ongoing inspection procedures for hotel rooms including inspection of
 - a) seams, joints, and cracks on mattresses, bed frames, baseboards, upholstered furniture, and window sills;
 - b) cracks and crevices in the room, including the floors; and
 - c) walls behind picture frames.
3. Review of housekeeping and maintenance procedures including vacuuming and appropriate disposal of refuse.
4. Review of reporting and referral procedures subsequent to detection of bed bugs or evidence of an infestation.
5. Review of prevention and control measures aimed to reduce bed bug populations and limiting their spread within the facility.

Recordkeeping by owners and operators of hotels, guest houses, and other multi-unit dwellings

Owners and operators should keep written records of:

1. Identified instances of bed bug infestations either via staff referral, tenant, or guest complaint, PCO inspection, or observation by health inspector.
2. Responses to tenant complaints.
3. Services and recommendations made by PCOs.
4. Cooperation by staff and tenants to recommendations made by PCO, owners and operators, or health inspector to abate the bed bug infestation.

Suggested procedures for owners and operators reporting and responding to bed bug complaints in multi-unit dwellings, hotels, and guest houses

Building owners and operators should:

1. Develop a written referral procedure for both tenants and staff reporting pest complaints to management. This includes responding to bed bug complaints and contacting a licensed PCO.
2. Assist tenants and/or guests in seeking medical assistance when necessary.
3. Respond to staff or tenant complaints of bed bugs within 48 hours with a plan of action for the complaint. The plan of action should be executed within 72 hours (three days) of the initial complaint.
4. Relocate tenants while the infested room is being serviced by a PCO, when necessary. The room the tenant is relocated to should not be adjacent to the infested rooms and should be inspected for signs of bed bug infestation prior to relocation. If a tenant is relocated, the room they were relocated to should be inspected by a PCO once the tenant has vacated to ensure bed bugs were not transferred to the room.
5. Instruct the tenant to launder their clothing and linens, placing clothing and linens in plastic bags during room relocation so infested items do not spread bed bugs during transport to the laundry or new room. Tenants should bring a minimal amount of clothing and personal items with them to the relocated room.
6. Notify tenants adjacent (next door, above, and below the infestation) to bed bug infested properties. Such notification should specify the presence of bed bugs in adjacent properties, and the need to prepare their properties for inspection and treatment, if necessary, for bed bugs.
7. Instruct the PCO to inspect all rooms and properties adjacent to bed bug infested rooms and properties, including rooms and properties where tenants were relocated.

Treatment and control of bed bugs in hotel rooms and guest houses

Owners and operators of hotels and guest houses should:

1. Contact a PCO licensed by the DCA, Structural Pest Control Board to perform bed bug treatment.
2. Comply with the PCO's instructions on how to prepare the room for bed bug eradication, or ensure that the tenants prepare their rooms for bed bug treatment. In some instances, owners and operators may need to provide staff to assist with moving beds and other heavy furnishings.
3. Never remove any items from bed bug infested rooms before inspection and treatment by a PCO. This will help to prevent relocating bed bugs to other areas within the premises.
4. Ensure that the PCO inspects and/or services all crevices, baseboards, wall voids, window sills, bed frames, mattresses, box springs, furniture, and closets in infested rooms and rooms adjacent to infested rooms.
5. Make available to PCOs all rooms adjacent to the infested room as well as storage rooms, vacuum cleaners, service carts, hallways, and laundry rooms for bed bug inspection and treatment where necessary.
6. Seal cracks and crevices in infested rooms, per PCO instructions.

Management of furnishings and materials infested with bed bugs

1. Do not remove infested materials designated for disposal until after the room is inspected and/or treated by the PCO.
2. Remove clothing, linens, and materials designated for disposal from a bed bug infested room in sealed plastic bags to prevent relocating bed bugs to other areas within the premises.
3. Wash infested linens in hot water and dry using the hottest setting of the dryer to kill bed bugs and bed bug eggs.
4. Dispose of all vacuumed refuse from an infested room in a plastic bag (including the vacuum cleaner bag).
5. Have a PCO service all furniture and mattresses prior to disposal. After treatment, the items marked for disposal should be wrapped in a protective cover such as a sheet or plastic before removal from the infested room to the disposal site. This will prevent bed bugs and eggs from falling off while the items are moved.
6. Clearly label infested items as “bed bug infested” prior to disposal, recycling, or placing infested items curbside.

Management of rooms or situations with tenants unable to take care of themselves, or tenants who are unable to prepare a room for treatment

Owners and operators of hotels, guest houses, and other multi-unit dwellings should contact the social worker, case worker, or local county health department for assistance with tenants or guests who are unable to prepare bed bug infested rooms for inspection and treatment by a PCO.

Other recommended actions to prevent and control bed bug infestations

1. Avoid purchasing used furniture or mattresses when possible. If used furniture or mattresses are purchased, inspect and/or service for bed bugs before accepting delivery.
2. Remove bed bug infested mattresses, box springs, and bed frames from the infested property after treatment by a PCO. If this is not possible, the mattresses and box springs should be encased in a plastic hypoallergenic mattress cover at least 0.8 mm thick after treatment to prevent bed bugs from reinfesting the mattress and box springs. Eggs remaining on the mattress and box spring after PCO treatment will hatch, but the bed bugs will not be able to escape or feed through the plastic covering.
3. Consider using extreme hot and cold treatments as offered by some licensed PCOs in California. Extreme hot and cold temperatures will kill all bed bug life stages.

B. Responsibilities of tenants for the prevention and control of bed bug infestations

Tenants should cooperate fully with the recommendations provided by the PCO to prepare rooms for bed bug inspection and treatment. Laundering linens and clothing

should be completed the same day the PCO services the infested rooms. Failure to cooperate may result in a citation from the local health department.

Responsibilities of tenants in bed bug infested dwellings

Tenants should:

1. Report a bed bug, or other pest infestation, to the owner or operator within 24 hours of the pest sighting.
2. Cooperate with recommendations from the owner or operator and PCO to prepare rooms for bed bug treatment and inspection.
3. Do not remove anything from an infested room until after the room is treated by a PCO. (One exception is the laundering of linens and clothing. The day of the pesticide treatment all bedding and clothing should be bagged in plastic prior to removal from the infested room; launder using hot water and dry using the hottest setting on the dryer.)
4. Prior to treatment by a PCO, all clutter, debris, and garbage in the infested room should be placed into plastic bags and sealed. The bagged items should remain in the infested room for treatment by a PCO prior to disposal.
5. Ensure that all furniture and other items brought into the property are free of bed bugs by thoroughly inspecting each item for the presence of bed bugs or their cast exoskeletons and blood spots/stains.
6. Cooperate with the owner or operator if temporary relocation is required (to a bed bug free location) while the infested room is inspected or treated by a PCO.

C. Guidance for PCOs

For a client, eradication of the bed bug population by the PCO is the only option. The PCO should integrate both non-chemical and chemical means of control, referred to as integrated pest management (IPM), into a bed bug eradication treatment plan.

Complete eradication with a single treatment is unlikely, so PCOs performing bed bug treatments should provide at least one chemical or non-chemical means of control to the infested rooms every two weeks, for three consecutive treatments.

A PCO responding to a bed bug complaint at a property should:

1. Identify the species of bug infesting the property. Although rare, infestations of swallow and bat bugs may be identified.
2. Train owners, operators, and staff to recognize and inspect for bed bugs.
3. Develop an IPM treatment plan for controlling the infestation at the property.
4. Provide written instructions to owners and operators on how to prepare rooms for treatments.
5. Inspect bed bug infested rooms and all adjacent rooms for bed bug harborage. Such inspections should include, but are not limited to, the seams and joints of mattresses, behind headboards, baseboards, cracks and crevices, floors, picture frames, bed frames, upholstered furniture, and other harborage areas.
6. Apply pesticides approved by the California Department of Pesticide Regulation in a manner that is consistent with the pesticide label and California pesticide application rules and regulations.

7. Provide at least one chemical or non-chemical means of control to the infested rooms every two weeks, for three consecutive applications. When these guidelines contradict the pesticide label as to the frequency of pesticide application, the pesticide label should supersede the recommended CDHS frequency of treatment guidelines. When possible, scientifically proven, non-chemical pest control methods such as fumigation with carbon dioxide, freezing, steam, and heat applications should be used. These methods should be prioritized in rooms with families and their children, the elderly, and immune compromised tenants.
8. Provide notification of pesticide treatment to owners, operators, and tenants that include information regarding reoccupation of the rooms following pesticide application.
9. Provide written clearance to the owners and operators that the room is free of bed bugs.

D. Responsibilities of relocation, rental furniture, and public storage companies for the prevention and control of bed bug infestations

Relocation specialists, rental furniture companies, and public storage facilities can harbor populations of bed bugs. For this reason, these industries should train staff to recognize signs of a bed bug infestation and have policies and procedures in place to respond to an infestation.

Relocation, public storage, and rental furniture companies should:

1. Provide training to staff at the commencement of employment and annually thereafter, including:
 - a) identification of bed bug and other pest infestations,
 - b) reporting and referral procedures subsequent to detection of bed bugs or evidence of an infestation, and
 - c) prevention and control measures that reduce risk of bed bug infestations and their spread.
2. Develop industry-specific written procedures for the prevention and identification of bed bug infestations.
3. Respond to staff or client complaints of bed bugs within 48 hours with a plan of action for the complaint. The plan of action should be executed within 72 hours (three days).
4. Contact and retain a PCO if signs of a bed bug infestation are identified.
5. Suspend the use of infested materials for client services until written clearance is provided by the PCO that the infestation has been eradicated.
6. Ensure that all services and materials used during services are free from bed bugs at the time the service is provided.
7. Keep written records of pest sightings and PCO recommendations and treatment plans.

¹ CDPH adapted these guidelines for bed bug control from the San Francisco Department of Public Health and the Australian Environmental Pest Managers Association.