

## APPENDEX D

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**ENVIRONMENTAL HEALTH WATCH**  
**HUD HEALTHY HOUSE – COCKROACH ALLERGEN REDUCTION PROJECT**

### **Cockroach Control Recommendations for Public Housing**

**11-30-03**

#### **Cockroaches and Asthma**

Control of cockroaches is an on-going headache in many public housing buildings. Making matters worse, recent research finds that roaches are the source of potent, pervasive and persistent allergens – chemicals that can trigger asthma attacks in people who are sensitive to them. Asthma rates have increased dramatically over the past twenty years and asthma is now a major public health concern, especially for children. By getting rid of roaches and cleaning up their debris, which contains the allergens, we can help people with asthma.

#### **Roaches Can Be Defeated**

The experience of this small exploratory project was that, in all but one case, previously intractable roach infestations were virtually eliminated through a labor-intensive, aggressive and precision-targeted Integrated Pest Management strategy sustained over several months. It required cooperation from the public housing management, maintenance and environmental staff and from the tenants. Can this approach be feasibly and cost-effectively adopted by a public housing authority and its pest control contractors? It would take attention to: 1) the pest control contracting process (e.g., fee structure, specifications, monitoring); 2) training and supervision of contractor personnel; 3) maintenance and repair practices; and, 4) tenant education and enforcement of responsibilities.

#### **Shared Responsibility**

Effective roach control requires a division of responsibility among the housing authority, the pest control contractor and the tenant. The housing authority has to provide and maintain the dwelling unit free from defects that support roach infestation. The pest control contractor has to thoroughly inspect the entire unit to determine roach harborage, reservoirs, entry points, food and water resources, use safe and effective treatments to get rid of the roaches, and provide on-going monitoring. And, the tenants must maintain housekeeping practices that do not support roach infestation and they must cooperate with pest control efforts by the contractor.

#### **Maintenance Problems and Structural Defects:**

Chronic plumbing leaks and structural damage can support roach infestation and make control efforts more difficult. Failure to make repairs over long periods of time contributes to roach infestation and its spread.

- Make repairs promptly – plumbing leaks; holes in walls, ceilings, floors and doors.
- Make sure that common areas are cleaned frequently.
- Inspect for roaches, do not count entirely on the pest control contractor's report. Identify as soon as possible heavy infestations that act as roach reservoirs and can spread infestation throughout a building. Consider training and hiring tenants to 1) inspect for roaches (using observation and sticky traps) and 2) educate tenants on implementing environmental controls.
- Other problems:
  - Make sure all appliances are moveable for effective inspection, cleaning and baiting. For example, some stoves have rigid gas supply lines and some refrigerators are locked in by carpentry changes.

- Vent clothes dryers in kitchens to the exterior to reduce high humidity.
- Cover exposed cold water pipes in kitchens, bathrooms and basements with neoprene to prevent condensation.
- Avoid components that provide roach harborage (e.g., cove base, surface conduit, hollow core doors). At installation or repair, dust the back of cove base with borate powder.
- Built-in shelves would help reduce clutter (e.g., piles of clothes) when people have little furniture (e.g., no dressers).

**Turnover Treatment:**

Before a new tenant moves into a vacated unit is the time to 1) get rid of all roaches, 2) cleanup roach debris, and 3) make repairs to prevent reinfestation.

- Eliminate roaches from the vacant unit.
  - First do a rough cleanup to remove all rubbish, old furniture, and other debris and to cleanup food spills and other roach food sources. Use a heat gun to flush roaches from baseboards, cupboards, light fixtures, refrigerators and other harborages. Use a HEPA vacuum to remove flushed roaches and roach debris.
  - Place baits where roaches were flushed and where there are signs of roaches.
  - Use sticky traps to monitor effectiveness of roach elimination methods.
- Thoroughly clean the unit. If the unit had been roach-infested, the cleaning needs to be undertaken as a decontamination process to remove all the roach debris and stains. This is to get rid of the allergens that trigger asthma attacks and to eliminate sources of odors that attract roaches.
  - Vacuum all horizontal surfaces with a HEPA vacuum.
  - Wash roach stains from walls, ceilings, cupboards, doors, etc. Scrub-off stains with a detergent solution; remove the dirty wash solution with disposable rags; wring-out the dirty rags into separate bucket, not into the wash water. Rinse thoroughly with clean rise water and clean rags. Wash again with a bleach solution (allow 10 minutes of contact time) and rinse.
  - For vinyl flooring, scrub with detergent solution. Mop up dirty wash solution and wring into to separate bucket, not into wash water. Rinse thoroughly with clean rise water. HEPA vacuum.
  - For carpeting, vacuum with HEPA vacuum very slowly (no faster than 4 minutes per 10 square feet).
  - Clean grease from all stove surfaces and adjacent floor and wall areas.
  - Make sure to move and clean behind and underneath appliances.
  - Do not paint over roach stains, clean them up first.
- Turnover is an opportunity to make repairs and improvements to prevent reinfestation.
  - Repair plumbing leaks; repair holes in walls, ceilings, floors.
  - Apply borate powders into voids, electrical switch and receptacle boxes (install, seal and cover plates), and cracks and crevices. Borates are effective when very lightly dusted along a wall/floor juncture (e.g., at baseboards) and under/behind appliances where roaches are known to travel. Follow label instructions of all borate products.
  - Seal openings, cracks, or crevices where food debris can collect. Seal holes, cracks and crevices where roaches live and where there is roach debris. Sealing of wall voids in kitchens and bathrooms can be particularly important in achieving elimination. Use caulk or foam seal where sinks and fixtures are mounted to the floor or wall, cracks and crevices, baseboard molding and corner guards, where shelves and cabinets meet walls or door frames, pipe penetrations and other openings which provide entry to the unit or access to harborage. Use latex acrylic with silicone caulks to seal molding.

- Roaches often create harborage behind kitchen cupboards. It may be necessary to take down the cupboards and vacuum roaches and debris that is behind them. Place borate powders behind the cupboards and caulk around the remounted cupboards.
- Add door stops and other guards to prevent damage to walls that creates harborage.

**Pest Control Contractor Performance:**

- Contractors commonly follow a limited integrated pest management (IPM) strategy:
  - Broadcast application of pesticides (spraying and fogging) not used.
  - Highly toxic and volatile pesticides not used.
  - Gel baits utilized widely.
- Areas for improvement.
  - Gel baits are often the exclusive method used.
    - Baits are generally so successful, that technicians may not have adequate training or experience with other methods.
    - Bait application is sometimes too heavy, in too few locations, in too few rooms (e.g., only kitchen cupboard door hinges).
  - Harborage in rooms other than kitchen often not treated. They may not be discovered because of inadequate inspection.
  - Too little time spent in a unit to inspect for harborage, monitor sticky traps and treat.
  - There may not be adequate supervision and training of technicians.
  - Resident complaints not adequately responded to.
- There are a number of contracting features, particularly the service fee structure, that may impede effective pest control contractor performance.
  - Service fees, based on monthly spray model, with a low fee per unit per monthly visit, do not pay enough to provide adequate time for effective service.
  - Fee structure does not take into account the considerable variation in labor and materials from unit to unit and from the initial intensive service to low-level maintenance.
  - Closer monitoring of contractor performance, not dependant on contractor reports would more quickly reveal problem areas.

**Tenant Role:**

Tenant responsibility needs to be invoked in ways that do not simply blame the victim. On the one hand, the tenant should not be held exclusively responsible for roach infestation if there are building deficiencies that contribute to the infestation and the contractor is not doing their part effectively.

- However, there are certain things that are only within the tenant's control.
  - Spilled food and food waste on floors, tables and counters and in cupboards feed roaches and compete with baits.
  - Clutter (e.g., newspapers, plastic bags, boxes, clothing, trash) create untreatable harborage and make it difficult to inspect and bait effectively.
  - Use of do-it-yourself sprays interferes with baits.
- People are more likely to do the right thing if it is easier to do the right thing than not. Chronic plumbing leaks, unrepaired holes in walls and ceilings, and broken floor tiles make it difficult, if not impossible, to maintain proper sanitation. Lack of shelving and storage areas makes clutter more likely.
- Tenant education should focus on the connection between roach infestation and asthma as a motivating factor. Multiple modes of education are necessary because different approaches are effective with different people – group meetings, peer-to-peer sessions, in-home visits.

- How to deal with the few tenants whose poor sanitation impacts other units, those who see their apartment “not as a home, but as a flop house,” is a difficult problem that must be addressed.

See also: Model Contractor Program - Cockroach Integrated Pest Management (IPM)