



Best Practices for Pest Prevention and Exclusion Property Management

Property managers may be involved in managing residential or commercial sites. The pest pressures can be quite different in these two different categories. In residential sites, there tends to be a wider range of sanitation levels from one unit to the next. Some tenants will maintain homes in pristine condition while others are candidates for the television show, *The Hoarders*. Both the level of sanitation and clutter can have a great impact on pest problems. Residential properties will generally have greater and wider spread pest pressures than office buildings or industrial sites. This does not mean that an office building is immune from pests but when there are issues, they are most often associated with food service, rest rooms and sometimes health clubs within the building.

Although chemical treatments and mechanical traps can be used to help battle these pests, experts agree that the most successful pest management programs will use a combination of techniques aimed at prevention, recognition and suppression. This is often called integrated pest management or IPM. The program requires not only the services of a qualified pest management firm but input and participation from property management staff. Pest management does not begin with the pest management firm. Pest management begins when the site is selected and continues as part of the facilities operation each and every day. Cleaning, building maintenance and exclusion will play a key role in keeping pests out and the establishment of pest infestations.

Site Selection

The neighboring environment and attached structures can impact future pest problems and should be contemplated before the structure is even built, purchased or leased. If the building is a quarter of a mile from a landfill or horse stable, you can expect problems with birds, flies and rodents. At the very least, designing the building with those pest pressures in mind should be understood. If problems with pigeons are expected because there is a neighboring landfill, designing signage, and reduction of protective roosting sites can be useful in preventing bird problems in the future. For example, a building with recessed windows and flat window ledges are more prone to bird roosting problems. Ledges should be designed at a forty five degree angle instead.

There are some considerations regarding the leasing of buildings. If the building is old with deteriorating infrastructure, cosmetic redesigns to hide these issues will not prevent pests. Major renovations may be required to prevent structural flaws from allowing pests to prosper. This is especially important when the structure is attached to neighboring businesses and residences. A poorly sealed building will allow their pests to be your pests. There should also be the expectation that pest defense costs will be higher for structures where pest pressures are greater.

Exclusion Methods

Selecting the right building is an important part of exclusion. A well designed and constructed building will help prevent pest entry. Maintaining the buildings integrity is required as long as the building is in use. An active program of pest proofing to stop pest entry is required. Many pest management professionals offer pest proofing services and should report areas which require pest proofing when gaps in the building defenses are observed.

Pests do not require much space to enter a building. When sealing to prevent pests, keep in mind the target pest and the size opening it can fit through. Although pests like rats and mice may look fairly large, they do not require much space to enter through at the base of a door or at the opening around a pipe/wall juncture. It only takes a gap, the size of a quarter inch for a mouse to enter a building. If they can get their heads through the opening, their bodies will compress to fit. Use the following chart as a guide in pest proofing the exterior and interior of the building.

PEST PROOFING EXCLUSION CHART

 NORWAY RAT 1/2" OPENING	 FERAL PIGEON 2" OPENING	 ENGLISH HOUSE SPARROW 3/4" OPENING
 HOUSE FLY 5/64" OPENING	 HOUSE MOUSE 1/4" OPENING	 ADULT GERMAN COCKROACH 1/16" OPENING

Seal Doors Properly

Having the proper door seals and keeping doors closed when not in use are key steps in pest prevention. Many pests can be found outdoors. Gaps around the door itself can allow pests to enter and pest proofing materials like door sweeps and guards should be used to seal openings around the base and sides of doors. Automated doors should remain open only as long as necessary for people to enter and exit. A general rule is for the door to remain open for six seconds, after the pedestrian passes through the range of the electronic door sensor. The proper functioning of the doors sensor should be checked regularly to make sure it is operating properly. Doors that are staying open too long or even worse, sticking open will allow pests like flies, and rodents to enter the building. Residents and tenant staff should not be permitted to prop open doors for extended periods of time since this will negate any pest proofing measures.

Air Curtains

Air curtains can be used to supplement a tight fitting door especially in areas where pest pressures from flying insects are high. The air curtain must be properly installed and maintained. Air curtains are not something that can be simply installed once and then forgotten. Just like an automatic door closure, overtime, they may need readjustment. A poorly functioning air curtain can be worse than no air curtain at all. If improperly installed or adjusted, they may suck insects into the building versus keeping them out. The blade to the air curtain should be set at a 20° angle, so the air flows away from the door. The velocity of the air should be 1600fpm of air when measured three feet from the floor as a test for proper air curtain operation.



Air curtains may be suitable for delivery docks and doors in office buildings when there is a high volume of deliveries

Monitoring Devices

Strategically placed pest monitoring and control devices are necessary on the exterior of the building as part of the exclusion process. Key areas for placement include dumpster/compactor areas, exterior break or eating areas and areas of dense vegetation which are close to the building. Neighboring properties which might have higher pest pressures should also be part of the equipment placement consideration. Pest pressures may be higher on the side of a building which borders a food processing plant versus the side which borders a school. The last consideration should be the pest's ability to enter the structure. Sides of the structure where doors are more commonly opened will need greater protection and monitoring than exterior walls with no doors or openings.

Employees

Pests can also be brought into a building or residence on employee or residents' personal belongings. Bed bugs and German cockroaches are the two most common hitch-hiking

pests that can arrive in a building on items from brief cases to furniture. Office buildings may experience more introductions versus established populations of pests like bed bugs but an ongoing monitoring program is advised. Residences are more likely to have bed bug introductions turn into infestations. In either case, the quicker the problem is recognized and the pest management firm called the better. These pests are not only good at hitchhiking on people but also can move from one unit to the next. It is easier and less expensive to treat one office or one apartment versus twelve.

Minimize Pest Attractions Outdoors

In addition to pest proofing the structure to deny pest entry, we want to make the exterior of the structure as unattractive and uninhabitable to pests as possible. Because we cannot keep all doors closed at all times, pests will still have the opportunity to enter the building when doors are opened for people and deliveries. Making the exterior less desirable to pests can mean fewer pests around the exterior, which then can make their way indoors.

Reduce Food, Water & Shelter

All animal pests need food, water and shelter for survival. Included in the shelter category are preferred temperatures. Pests, like insects, are cold blooded and cannot regulate their body temperature. They will seek warmer and cooler temperatures as appropriate to maintain a favorable body temperature. This means warmth in the winter and cooler air in the summer. A common pest of office buildings can be the cluster fly. This is a fall invader which will seek cracks and crevices around the exterior of the building. They enter buildings in the fall, seeking a protected location to spend the winter. The warmth of the building and contrasting colors of the exterior walls help attract these pests to the site. Food and garbage odors, water and favorable indoor temperatures can all provide attractants for pests. Pest proofing to seal the structure helps reduce air leaks which may signal to pests a more favorable temperature indoors. Keeping lids closed on dumpsters and trash receptacles is important for reducing access and odor plumes from these areas. Water leaks and proper drainage of areas should be maintained to reduce access to water by rodents, birds and other insects. Insects like mosquitoes breed in standing water. Reducing water sources can help reduce mosquitoes and other pests.

Consider the Landscape Design

Landscaping is another important consideration. Attractively landscaped properties can provide enjoyment for residents, workers and visitors. However, certain landscaping materials and plants can be attractive to pests. For example, mulch used for water retention and weed barriers can encourage certain pests like sowbugs, termites, millipedes and earwigs. One inch or larger rock is preferred as a gravel barrier around structure. The rock should extend at least 2' away from the structure and be ½" deep. Ground covers like ivy can provide harborage for rodents and insects. Flowering plants can attract bees, wasps and ants. Select plants which are less conducive to pests as much as possible. Keep vegetation trimmed back and do not allow tree or shrub branches to touch the structure. The recommendation for trees and shrub plantings is for a six foot clearance between the branches and the structure for pest prevention.



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Proper Lighting to Reduce Attraction

In addition to satisfying needs for survival, pests may be attracted to structures due to light. Many insects use light to navigate and can be attracted by lights for this reason. Certain types of lights are more attractive to insects than others. Insects are more attracted to lights in the blue spectrum and less attracted to lights in the yellow range. Selecting lights towards the yellowish spectrum will help reduce the buildings attraction to insects. Mercury vapor lights are a common type of lighting which emits light more in the blue range (450-550 nm). Mercury vapor lighting should be avoided when possible, especially when lights are mounted directly on the building. High pressure sodium vapor lights are preferred (575-600 nm). Mercury vapor lighting can be 112 times more attractive to insects than sodium vapor

lights. Many facilities are switching to LED lights because of energy savings. When selecting LED lights, look for lighting in the same spectrum as sodium vapor lights. Reducing insect attraction can also reduce spiders and spider webbing around lights. Spiders often build webs near lights because the lights provide an easy meal.

Reducing Survival Indoors

The same basic needs which may attract pests to the exterior of our structures, contribute to survival indoors. We aim to reduce available food, water and shelter indoors to prevent pest reproduction and development.

Bed Bugs

Prompt recognition of bed bugs arriving into a facility is essential to control. An office setting is a less desirable environment for bed bugs since they are nocturnal and need a fair amount of undisturbed feeding time. They will and modify their nocturnal preference but we do see less established infestations in offices. Unfortunately, assisted living facilities, staff residences and patient family residences are not as free from bed bug issues and bed bugs do become established at these sites.

Flies

Small flies like fruit flies need moist organic material for development. Removal of the breeding source is essential for controlling these pests. Larger filth flies are not commonly breeding indoors. Typically these flies are coming in from the exterior and exclusion and reduction of attractions is key to their management. Cluster flies are one of the fall invading insects which enter buildings in search for a warm place to spend the winter. They often will orient towards the tallest building in an area, and a large office building, or apartment building may be that site. Typically these flies enter the building at the upper floors in cracks around window frames, roof flashing or other structural openings. They enter the building in late summer and early fall and may appear in office light fixtures or window sills over the winter when there are periods of thaw. Exclusion is the best defense against cluster flies.