



Best Practices for Pest Prevention and Exclusion Health Care Facilities

Health care facilities have a zero-tolerance level for pests as part of their role in protecting the health of their patients, visitors and staff. Many urban pests can carry pathogens including those responsible for food borne illness. A quality pest management program is essential in protecting individuals from parasites and pest-related pathogens.

Although chemical treatments and mechanical traps can be used to help battle these pests, experts agree that the most successful pest management programs use a combination of techniques aimed at prevention, recognition and suppression. This is often called integrated pest management or IPM. The program requires the services of a qualified pest management firm as well as input and participation from health care staff. It is important to note, pest management does not begin with the pest management firm, it begins as soon as the site is selected and continues each and every day the facilities are in operation. This means cleaning, building maintenance and exclusion play a key role in keeping pests out or becoming established.

Site Selection

When selecting a site for a health care facility, whether it is being built, purchased or leased, it is important to note that the neighboring environment and attached structures can impact future pest problems. Attached structures are more of a concern for health clinics but can be an issue for other types of health care facilities as well. Pest pressures at the site should be considered in determining a site's suitability for the health care facility's location. 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 completed. 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, having recessed windows with flat ledges would be conducive to bird issues and should instead be designed with a 45-degree angled ledge.

There are also some considerations to keep in mind when leasing the building. 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 neighboring 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. It is also important to maintain the building's integrity as long as the building is in use. A requirement of an active pest-proofing program is to stop pest entry. Many pest management professionals offer pest proofing services and should report areas that require pest proofing when gaps in the building defenses are observed.

Keep in mind pests do not require much space to enter a building. When sealing to prevent pests, be sure to target a specific pest and the size opening it can fit through. Although pests like rats and mice may look fairly large, it does not take much space for them to enter a building. Many will enter through the base of a door or at the opening around a pipe or wall juncture. It only takes a small 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 pest proofing chart as a guide when pest proofing the exterior and interior of the building.

Proper Door Seals

Having the proper door seals and keeping doors closed when not in use are key steps in pest prevention as many health care pests can be found outdoors. Gaps around the door itself can allow pests to enter a building so it is important to have pest proofing materials, like door sweeps and guards, to seal openings around the base and sides of doors. Automated doors should also only remain open as long as necessary for patients and visitors 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 door's 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. It is also important to note that health care staff should not be permitted to prop open doors for extended periods of time.



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

Doors to ambulance bays should also be closed when using Air curtains. While air curtains can be used to supplement a tight fitting door especially in areas where pest pressures from flying insects are high, it must be properly installed and maintained. Air curtains are not items that can be simply installed once and then forgotten. Just like an automatic door closure, overtime, they may need re-adjustment. 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 also be set at a 20-degree angle, so the air flows away from the door. The velocity of the air should be 1600 fpm of air when measured three feet from the floor as a test for proper air curtain operation.



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Employees and Patients

In addition to the exclusionary methods listed above, health care staff should be checking for pests hitch-hiking into the facility on patients. Bed bugs and head or body lice have been introduced into facilities on patients. Isolating the patient, patient belongings and other potentially infested items is one of the most important steps in control. Staff should be educated on the identification of bed bugs and lice as well as the proper steps to take in responding to these pests when found in the building. In addition to entering the facility via patients, some pests can hitchhike on employees. Pests like bed bugs and cockroaches have been introduced into facilities on employee belongings. It is important to have designated areas for the storage of employee belongings to help minimize the spread of these pests. These areas should also be inspected and monitored for pest activity.

Monitoring Devices

In addition to the exclusion process, strategically placed pest monitoring and control devices on the exterior of the building are necessary. Key areas for placement include dumpster/ compactor areas, exterior break or eating areas and areas of dense vegetation that are close to the building. Neighboring properties that might have higher pest pressures should also be considered when placing exterior control devices. Pest pressures may be higher on the side of the hospital that borders a shopping center versus the side that borders a residential neighborhood. The last consideration should be the pest's ability to enter the structure. Sides of the structure where doors are more commonly opened and left open will need greater protection and monitoring than exterior walls with no doors or openings.

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 numbers around the exterior which means fewer pests 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 hospitals can be the cluster fly. This pest is a fall invader and will seek cracks and crevices around the exterior of the building, seeking a protected location to spend the winter. The warmth of the building and contrasting colors of the building 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 as well. Water leaks and proper drainage of areas should also be maintained to reduce water access for rodents, birds and other insects. Insects, like mosquitos, breed in standing water. Because of this, it is important to reduce water sources.

Consider the Landscape Design

Hospitals and assisted living facilities take pride in having attractive properties for the enjoyment of residents, staff and visitors. However, certain landscaping materials and plants can be attractive to pests. For example, mulch used for water retention can encourage certain pests like sowbugs, termites, millipedes and earwigs. One inch or larger rock is preferred as a gravel strip. The rock should extend ½-inch deep and at least 2-inches from the structure. Ground covers like ivy can provide harborage for rodents and insects so these should be eliminated as much as possible. It is important to keep in mind that flowering plants can attract bees, wasps and ants so be mindful of where they are planted. It is also recommended that rocks be used for landscaping purposes over mulch for pest prevention while vegetation, trees and shrubs should be trimmed as to not touch the structure.



The recommendation for trees and shrubs is for a 6ft clearance between the branches and the structure

Proper Lighting to Reduce Attraction

In addition to satisfying needs for survival, pests may be attracted to structures because of their light as many insects use light to navigate. To deter insects from entering your building, be mindful that certain types of lights are more attractive to insects than others. In fact, insects are more attracted to lights in the blue spectrum and less attracted to lights in the yellow range. Selecting lights ranging in the yellow spectrum will help reduce the building's attraction to insects. Mercury vapor lights are also a common type of lighting that emits blue range light (450-550 nm). However, mercury vapor lighting should be avoided when possible, especially when lights are mounted directly on the building as this type of lighting can be 112 times more attractive to insects than sodium vapor lights, which are the most preferred for pest prevention (575-600 nm). Currently, 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 to receive the most optimal pest prevention.

Conclusion

The most successful pest management programs use a combination of pest-proofing techniques aimed at prevention, recognition and suppression. Before even selecting the site of your facility, understand the pest risks that can arise from nearby properties. Once the site is selected be sure to fully inspect the property to be sure all exclusion measures have been made. By using the correct lights and ensuring air curtains are functioning properly, you can contribute to long-term pest prevention and the facility's reputation.