

# Pest Prevention

## Indoor Maintenance Practices

By Sewell Simmons

### Introduction

Effective maintenance practices that exclude pests, reduce shelter, and remove sources of food and water form the basis of the best pest prevention practices in school buildings. These include both the planned maintenance activities that avoid damage or deterioration, as well as the unplanned activities that become necessary when defects or vulnerabilities in school facilities become apparent. Inspection of facilities at regular intervals with a continual awareness of potential pest problems is an important key. While inspection involves substantial input and commitment, its value in pest prevention will ultimately lead to lower maintenance costs.

Below are practices that will help managers, staff, and contractors in planning indoor maintenance. Sources listed in the reference section contain many additional suggestions.

### Indoor Maintenance Practices

#### CLASSROOMS, OFFICES, AUDITORIUMS, GYMNASIUMS, AND HALLWAYS:

##### Exclusion

- Maintain smooth floor surfaces free of cracks and holes. Repair cracks and crevices in walls, floors and pavement.
- Keep exterior doors throughout the building closed when not in use.
- Place weather stripping and door sweeps on doors to prevent pest entry.
- Seal openings around potential insect and rodent runways, e.g., electrical conduits, heating, ventilation, and air conditioning (HVAC) ducts and plumbing pipes.

- Change HVAC filters regularly.
- Clean HVAC supply and return vents periodically.
- Caulk permanent bulletin boards, mirrors and other wall fixtures.
- Screen floor drains.

##### Sanitation

- Allow food and beverages only in designated areas.
- Communicate to staff and students the importance of sanitation in pest prevention and how they can help, e.g. removing food or food wrappers from lockers and desks on a daily basis.
- Remove any leftover food items from classrooms (e.g. snack food) or store in sealed containers.
- Remove accumulated debris along wall/floor junctures, on top of equipment, etc.
- Keep food or other perishable products away from walls.
- Collect and remove waste materials daily from all rooms and deposit in a refuse bin, compactor or designated pickup location.
- Promptly dispose of, or recycle, packing and shipping materials, e.g. bags, boxes, and pallets.
- For animal wastes (from classroom pets or laboratory animals), either flush down toilet or place in sealed containers or plastic bags before disposal.

##### Routine cleaning

- Empty and thoroughly clean lockers and desks at least twice per year (e.g. winter break and at the end of each school year).
- In classrooms and offices, thoroughly clean around and under furniture that is rarely moved (e.g. staff desks, bookcases, and filing cabinets) to remove accumulated lint, etc. at least annually.

- Ensure that the inside of vents and ducts are inspected at least every three years and cleaned (when needed) by a certified contractor.
- Remove out-of-date charts or paper notices from walls monthly.
- Maintain walls and windows free of dust, cobwebs, etc.
- Frequently vacuum carpeted areas.
- Maintain clean drains.

##### Moisture management

- Keep areas as dry as possible by removing standing water and water-damaged or wet materials.
- Correct moisture sources (e.g. ventilate areas where condensation frequently forms; repair plumbing, roof leaks, and dripping air conditioners).
- Keep sewer and water lines in good repair.

##### ROOMS AND AREAS WITH EXTENSIVE PLUMBING:

(e.g. bathrooms, rooms with sinks, locker rooms, science laboratories)

##### Exclusion

- Close off unused drains or drainpipe openings.
- Seal gaps around pipes and other wall penetrations.

##### Sanitation

- Clean floor drains, strainers, and grates on a regular basis.

##### Moisture management

- Promptly repair leaks and correct other plumbing problems to deny pests access to water.
- Keep areas dry. Avoid conditions that allow condensation to form. Increase ventilation if necessary.
- Inspect pipes and other sources of water (e.g. climate-control equipment) routinely to guard against leakage.
- Wrap sweating pipes with insulating tape.
- Store paper products or cardboard boxes away from moist areas and avoid direct contact with the floor or the walls.

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### **FOOD PREPARATION AND SERVING AREAS:**

(e.g. main kitchen, dining room, teachers' lounge, snack area, vending machines, and food storage rooms)

#### **Exclusion**

- Seal all permanently installed furniture in kitchens and laboratories at points of attachment, under counter tops, and inside to prevent harborage of pests in the gaps. All built-in cabinets, closets and similar case-ment/millwork must be sealed, leaving no gaps for pests to hide in.

#### **Sanitation**

- Allow food and beverages only in limited, designated areas.
- Store food in containers that are inaccessible to pests. Containers must have tight lids and be made of plastic, glass, or metal.
- Store and seal food waste (from preparation and serving areas) in plastic bags before removal. Waste should be removed at the end of each day.
- Keep indoor garbage in lined, covered containers and empty daily.
- Drain containers with liquid food residues (e.g. milk cartons or juice boxes) before discarding.
- Properly dry and store mops and mop buckets (i.e. hang mops upside down, empty buckets and rinse with clean water).
- Keep vending machines clean inside and out.
- Clean spills and repair leaks promptly in trash/recycling rooms, compactors and dumpsters.
- Regularly clean surfaces in food preparation and serving areas of any grease deposits.
- Use disposable wiping cloths or launder daily.
- Thoroughly clean around and under appliances and furnishings that are rarely moved (e.g. refrigerators, freezers, and shelf units) to remove accumulated grease, dust, etc. at least monthly.
- Clean food-contaminated dishes, utensils, and surfaces by the end of each day.

- Clean floors and vacuum carpets daily in areas where food is served, and at least weekly in other areas.
- In food service areas, remove drain covers and clean drains weekly (e.g. with a long-handled brush and cleaning solution). In other areas, such as drains under refrigeration units, clean drains monthly.
- Keep floor and sink drain traps full of water.

### **RECEIVING AREAS:**

#### **Exclusion**

- Maintain an inspection procedure for all receivables, and establish procedures for rejecting carriers with goods that show evidence of pest contamination or infestation.
- Maintain delivery truck floors and walls in good condition; damaged areas can provide harborage for insects and rodents.
- Close and secure dock doors when not in use.

#### **Sanitation**

- Keep the area beneath dock levelers clean.
- Do not stack materials against walls in receiving areas.
- If supplies are uncased in the receiving area, take empty cartons and cases to the trash disposal or recycling area immediately.
- Place received goods on clean shelves or mobile storage carts.

### **STORAGE AREAS:**

#### **Sanitation**

- Clean all spills immediately.
- Maintain clean shelves and ledges.
- Promptly remove contaminated or infested merchandise from the area and facility.

#### **Harborage reduction**

- Minimize clutter in storerooms and classroom storage areas.
- Store products on pallets or open shelving.
- Avoid the use of cardboard boxes and potential nesting materials, such as packing, in food storage areas for extended periods of time.

- Use metal shelving for storage. Metal is preferable to wood for shelving because it is easier to clean and does not absorb spilled materials.
- Ensure that there is no evidence of broken or exposed product(s) in stacks.
- Look for signs of insects or rodents near supporting posts of shelving or on overhead beams.
- Quickly dispose of all products spoiled by damage, insects, rodents, or other causes to remove potential pest breeding places.
- Rotate stored products on a "first in, first out" basis to reduce potential for pest harborage and reproduction.
- Maintain space for inspection (at least 6 inches) around bulk-stored products. Do not permit direct contact of bulk-stored products with walls or floors; this allows room for inspection and reduces pest harborage.
- Keep pallets at least 18 inches away from the walls.
- Store potential pest food items used in classrooms (e.g. beans, plant seeds, pet food and bedding, decorative corn, gourds) in refrigerator or in pest-proof containers (glass or metal containers with pest-proof lids are best).
- Store food products (except those to be used immediately) in refrigerators or pest-proof containers, not in cardboard boxes.
- Wash empty food/beverage containers with soapy water before storage to remove food residue.

### **REFERENCES**

Integrated Pest Management Kit for Building Managers. Massachusetts Department of Food and Agriculture, Pesticide Bureau, 100 Cambridge Street, Boston, Mass. 02202. <http://www.pestinfo.ca/documents/IPMkitforbuildingmanagers.pdf>

IPM Institute of North America, Inc. Part I. IPM Standards for School Buildings, [http://www.ipminstitute.org/school\\_buildings.htm](http://www.ipminstitute.org/school_buildings.htm)

IPM Institute of North America, Inc. Part II. IPM Standards for School Grounds, [http://www.ipminstitute.org/school\\_grounds.htm](http://www.ipminstitute.org/school_grounds.htm)

Responsible Pest Management: Best Practices and Alternatives, <http://www.pestinfo.ca/main/ns/9/doc/5>

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Rodent-Proof Construction and Exclusion Methods. Internet Center for Wildlife Damage Management. <http://icwdm.org/handbook/rodents/RodentExclusion.asp>

U.S. EPA, Pest Control in the School Environment: Adopting Integrated Pest Management. <http://www.epa.gov/pesticides/ipm/brochure/>

Wisconsin's School Integrated Pest Management Manual, Section I: Essential Elements of IPM. <http://ipcm.wisc.edu/programs/school/sec1.htm>



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