

City Colleges of Chicago Integrated Pest Management Plan LEED for Existing Buildings: Operations & Maintenance July, 2015

SECTION 1: SCOPE

This plan provides guidelines for protecting and enhancing the natural diversity of all City Colleges of Chicago (CCC) facilities, while also supporting high-performance building operations and developing synergies between the building and its environmental context. The Integrated Pest Management (IPM) Plan covers the entire building and associated grounds.

SECTION 2: GOALS

To minimize the impact of site management practices on the local ecosystem, and to reduce exposure of occupants, staff and maintenance personnel to potentially hazardous chemical, biological and particle contaminants.

The Plan addresses environmental best practices for:

- Outdoor integrated pest management
- Indoor integrated pest management

SECTION 3: RESPONSIBLE PARTIES

John Sugrue, the Associate Vice Chancellor of Administrative Services with support from Amanda Smith, Facilities Staff Assistant, and John Brophy, Sustainability Manager, is responsible for developing and managing the implementation of the IPM Plan. Contracts with pest and landscape management vendors shall include extensive language describing their role in the building's Plan. Contractors involved with various elements of the Plan shall carry out their tasks according to their contracts, and report all relevant activities to the aforementioned parties. On occasion, several contractors may be engaged simultaneously in various elements of the Plan at the building and grounds. To ensure an effective and coordinated effort, the building staff responsible for overseeing the Plan shall review all proposed activities before implementation.

IPM strategies for the City Colleges of Chicago properties include actions performed by the following contractors:

Function	Company Name	Phone
Pest Control	Rose's Pest Solutions	800-645-7673
Pest Control	Anderson Pest Solutions	866-696-2847
Pest Control	Smithereen Pest Management	312-922-5011
Pest Control	Quality & Excellence Pest Control	708-730-1745

SECTION 4: QUALITY ASSURANCE CONTROL PROCESS

The party(s) responsible shall periodically evaluate the success of the Plan. This evaluation may include producing and providing a report on an annual basis to senior management. Whenever possible, the annual reports shall include an evaluation of the performance, safety, cost and environmental/public health benefits achieved as a result of its implementation.

Prior to implementation, service providers involved in the building's Plan shall submit all proposed pest management activities to the responsible parties, listed in Section 3. Upon reviewing proposed activities, the responsible parties shall determine if they meet the criteria of the Plan and approve or deny action.



The responsible parties, listed in Section 3, shall regularly communicate with all service providers, and conduct regular site inspections and evaluations to ensure that the Plan is in place and functioning as intended. In addition to ongoing quality control measures, The Facilities Management Team will review all practices and products prior to contract renewal (typically annually) to identify opportunities for improvement and expansion of environmentally-friendly practices.

SECTION 5: PERFORMANCE METRIC

This IPM Plan shall govern all components of pest management at the project building and site. The practices identified in this Plan shall be wholly adopted and used in 100 percent of the pest management scenarios at all City Colleges of Chicago facilities.

SECTION 6: IPM STRATEGIES AND PRACTICES

Integrated Methods

Integrated methods that make use of monitoring and non-toxic preventative measures (e.g., site inspection and maintenance, cultural controls, pest inspection and population monitoring) will be used to proactively manage and minimize pest issues. In the event that monitoring activities reveal a need for the use of pest controls, appropriate control options will be evaluated, and the least-toxic option likely to be effective will be employed.

Least-toxic Pesticides

Least-toxic pesticides are defined by the City of San Francisco's Hazard Tier 3 criteria (least hazardous): www.sfenvironment.org/sites/default/files/files/sfe_th_pesticides_reviewed_091313.pdf

Least-toxic pesticide status also applies to any pesticide product, other than rodent bait, that is applied in a self-contained, enclosed bait station placed in an inaccessible location, or applied in a gel that is neither visible nor accessible.

Emergency Conditions

In the event of an emergency, pesticides may be applied on the grounds without complying with the earlier stipulations for use of integrated and least-toxic methods.

Emergencies are defined as any incident in which an infestation of certain pest species occurs that poses a threat to the health of the building and its occupants in which immediate and drastic measures are called for as prescribed by the pest professional.

Universal Notification

City Colleges of Chicago has adopted a universal notification system if a pesticide, other than a least-toxic pesticide as defined above, must be applied on site. This strategy requires each CCC facility and its vendors to notify building occupants at least 72 hours in advance of a pesticide application under normal circumstances and no more than 24 hours after an emergency application through posted signs or other means of reaching 100 percent of occupants. This notification system enables occupants and staff, and especially high-risk occupants such as children, pregnant women and the elderly, to modify their plans based on pesticide use at the building.

Notification must include the following:

- Pesticide product name
- Active ingredient
- Product label signal word (e.g., "caution", "danger")
- Time and location of application
- Contact information for persons seeking more information

Recordkeeping

Recordkeeping is required to demonstrate ongoing compliance with the IPM plan. All applications of pesticides (include least-toxic options) shall be logged. The pesticide application log shall include the following information:

- Universal Notification to Occupants
 - o Date
 - o Time



- o Method
- Pesticide Application Date and Time
- Application Manager
- Location
- Target Pest
- Pesticide Trade Name
- Pesticide Active Ingredient
- EPA Registration Number
- Least-toxic status (Y/N)

Cleaning Practices

In the event that cleaning products are used as a component of IPM, they shall meet LEED-EBOM criteria for sustainable cleaning products.

Animal & Vegetation Pest Control IPM Best Practices

Environmental best practices are incorporated into vendor contracts / SOP language as appropriate regarding the implementation of animal and vegetation pest control IPM.

CHEMICAL STOR	RAGE PRACTICES
Storage Areas	 Storage areas must be dry, frost-free, well-ventilated and secure. Storage areas must be situated away from other buildings, especially residential buildings or areas where food or flammable materials are stored. Storage must be built to resist foreseeable accidents, including leakage and spillage, fires and the weather. Ensure there is no risk of spills polluting ground water and local bodies of water. Floors must be impervious to liquids, anti-slip, chemical-resistant, washable and with a means of diverting spills. Drains must lead to sumps or tanks large enough to contain any foreseeable leaks. Shelving must be appropriate for the size of the containers stored in them. Flammable pesticides must be separated from other pesticides. Consideration must be given to possible reactions between chemicals coming in contact with each other.
Labels	 Make sure all pest control chemicals are clearly labeled and that the manufacturer's instructions for use are kept with them. Chemicals must never be placed in unmarked containers.
Product Information	 Effective first-aid provisions must be available together with data sheets on all the products in the storage room and the chemical safety precautions. Emergency telephone numbers must be listed in a key location in the storage facility. These numbers and other emergency facilities must be checked and updated as necessary.
Signage	Display warning signs without attracting unwanted attention.

CHEMICAL PREPARATION & HANDLING PRACTICES	
Choosing Chemicals	Identify which pesticides and herbicides are being used and the exact problems they are intended to resolve. The more that is known about the problem, the less chance there is of making a mistake. The words organic, natural and biodegradable in this context do not guarantee that they are safe.
Mixing Chemicals	 Accurate measurements must be made during both mixing and application phases. Use the most suitable chemical, in the minimum necessary amount, to achieve the desired results. A safe area must be available for mixing pesticides. This must be done on a concrete pad, with a separate sump or tank to contain any leakage.



Health Precautions	 Operators must be provided with and adequately trained in the use of the necessary equipment and protective clothing. Proper health surveillance must be available to all those working with pesticides and herbicides. Neighbors and others in the area must be warned of the spraying program in advance of and during applications.
Chemical Transport	 Only the appropriate quantity of pesticide and herbicide must be removed from the pesticide store for immediate use. Do not transport chemicals in vehicles used for carrying people or food.

CHEMICAL APPLICATION PRACTICES In many instances it will be necessary to call on outside expertise to advice on pet-management problems, particularly in the creation of customized integrated pest management problems, which may User require detailed knowledge of the biology and ecology of a particular species. Qualifications If pesticides are required, the IPM specialist shall communicate with the building Chief Engineer to determine the best product and application in accordance with approval requirements. A specialist must supervise and control the preparation and use of chemical applications. Species Time the treatment to coincide with the presence of the pest. Use a selective chemical that has the least effect on non-target species and treat only the area affected. Considerations Users must wear protective clothing and headgear, and change clothing and wash thoroughly with soap and water after applying pest control chemicals. Ensure that anyone handling toxic chemicals never works alone and that the work area is wellventilated. Wear a respirator for outdoor spraying or dusting of organic phosphorus compounds **User Safety** Eating, drinking and smoking must be prohibited when using or handling chemicals Users must be familiar with the effects on the body of the chemicals they are likely to be using, and how the chemicals may enter the body. Users must be aware of the signs and symptoms of acute poisoning related to chemicals they are using. They must stop work if they are feeling ill and seek medical advice. The area of application must be clearly marked, and unnecessary access prevented while spraying is in progress. Building occupants must be informed of any pest-control management systems. When application or **Limited Access** spraying is in progress, they must be warned of this activity and kept away from the area in which it is taking place. Control the reentry of people into the treated area. Equipment must be frequently checked and properly maintained, both for health and safety reasons and Equipment to minimize spray drift. Spraying must not be carried out in unsuitable weather. Anyone operating sprayers must have access Weather/Time to a wind-speed meter and only spray when the wind speed is negligible. Restrictions Hours of work must be controlled so that building occupants are not exposed.



CHEMICAL DISPO	OSAL PRACTICES
Conditions of Disposal	As most pesticides and herbicides are extremely toxic, proper disposal of unused chemicals is paramount to maintaining the health of building occupants and the safety of the environment. Disposal methods will depend on: Quantity of waste for disposal Chemical and biological degradability of the active ingredients Toxic properties Concentration Physical form of the waste Disposal options available
General Guidelines	 Always follow the manufacturer's and/or supplier's instructions even when disposing of empty containers. Landfilling or incinerating pesticides and herbicides is not an environmentally sound option. Segregate pesticide/herbicide wastes from general building wastes.
Containers/Lab els	 Never transfer pesticides to unlabelled or mislabeled containers. Keep the chemicals in clearly labeled containers even when disposing of them. Do not reuse pesticide/herbicide containers. Puncture containers after they have been used to prevent reuse.
Authorization	Use an authorized waste-disposal contractor.Use an authorized disposal site.

BASIC VEGETATION PEST CONTROL PRACTICES	
Maintenance	 Keep the building grounds well-maintained at all times. Maintenance personnel shall apply mulch to plant beds, warding off weeds and other pests.
Plantings	 Plant at the right time and in the right places. Seedlings must not be planted too early, nor located in unsuitable conditions. Avoid monocultures by mixing plant species in planters and gardens.
Manual Controls	 Landscaping shall be hand weeded and chemical control shall be kept to a minimum. This measure prevents human and environmental exposure to hazardous chemicals.
Chemical Controls	 When chemical use is necessary, replace hazardous substances with least-toxic chemicals as defined by the 2007 San Francisco Reduced-Risk Pesticide List
Inspection Schedule and Location	The landscape contractor shall visit the site at regular intervals to monitor and apply pest controls operations.

BASIC ANIMAL PEST CONTROL PRACTICES		
Site/Building Cleanliness	 Keep garbage containers clean, free of odors and covered at all times. Sanitation measures reduce habitat and food sources for pests. Keep areas around garbage containers free of spillage or garbage to prevent the collection of trash or debris on the ground around or underneath the containers. Keep grounds free of high weeds, trash, old equipment and debris, as these conditions create ideal harborage for rodents. 	



Structural Integrity	 Maintain the building exterior in good repair with no holes or openings larger than ¼ inch including, but is not limited to, windows, doors, fans, vents, etc. Structural repairs prevent pests from entering the building. Address any deficiencies in the building exterior with corrective measures, i.e., cementing, screening, caulking, installing stripping on door bases, etc. Maintain door sweeps on all applicable doors to produce a good seal to the ground.
Inspection Schedule and Location	 Visual inspections shall be performed at least 2 times per month, with treatment if necessary. After each visit, the pest contractor shall provide a printed service report that includes written observations, recommendations and details of IPM activities.

SPECIES-SPECIF	SPECIES-SPECIFIC ANIMAL CONTROL STRATEGIES	
Ants	 In areas where ants are present, wipe the areas down with soapy water in order to prevent the formation of major scent trails. If there already is an established trail, wipe backwards from the food source to the entrance of the trail. Block all entry points to the building – ants will give up trying to find a way through after 1-2 days. Temporary blockades can be made using: sticky substances such as petroleum jelly, chili powder, or cinnamon, Always keep opened foodstuffs in sealed containers or store them in the refrigerator or freezer. Clean out kitchen cabinets, drawers and shelves to remove crumbs and stains. Keep sinks and worktops clean and dry. Baits are best put in the path of an ant trail and then removed after the ant activity stops, before they lure ants from another colony to the area. Prune branches close to the building and removed fences or anything that might create a bridge for the ants to cross. 	
Aphids	 Manage sap-sucking pest mites and whiteflies by releasing predatory mites, ladybugs and lacewings onto the grounds several times over a period of weeks. Consider using parasitic wasps to control scales on trees, shrubs and flowers If it is difficult to obtain supplies of beneficial insects for release into the garden, then it is possible to purchase a branded lure that simulates the scent of aphids and attracts ladybugs and lacewings to the area 	
Bed Bugs	 If a bed bug infestation is detected, the most effective course of action is to enlist professional help to inspect the entire building for the presence of bed bugs and treat the affected areas. Refer to Bed Bug sighting action plan for action protocol for addressing building occupant health and safety 	
Caterpillars	Bacterial insecticides derived from natural ingredients are available to control caterpillars.	



Cockroaches	 Cockroaches contaminate food with their excrement and secrete and unpleasant odor that can permeate the indoor environment. There are five main species of cockroaches and effective control depends on identifying them correctly. Integrated pest management measures for controlling cockroaches include effective hygiene and exclusion practices, sticky traps lined with pheromones, and insect growth regulators. All food handling areas should be cleaned frequently. Cockroach control is best done by a professional on a contract basis, through the application of least-toxic pesticides. Control is necessary on a regular basis because of the mobility, reproduction, longevity, and behavior of cockroaches. Ensure that you know what pesticides are being used by the professional contractor and do not assume they are using an environmentally appropriate chemical.
Dust Mites	 Fabrics, bedding and carpets attract and generate dust and dust mites. To keep dust mites at bay, keep building well-ventilated and dry.
Flies	 Flies reproduce more readily in waste and manure, which is where control should begin. In warm weather conditions, the reproduction cycle – from egg, to larva, to pupa, to adult winged fly – requires approximately one week. Collection of waste and residues should be carried out at least twice a week. Keep refuse areas clean to avoid providing flies with breeding grounds Ensure dustbin lids fit tightly and the interiors of bins are cleaned regularly to keep surfaces free of food material. Use fine mesh window and door screens as a barrier against entry by any flying insect. Ultra-violet (UV) fly killing equipment is very effective so long as it is situated correctly. UV equipment disguised as uplighters in dining and lobby areas are discreet and highly effective because they attract and eliminate flies quickly and silently. In food preparation areas, UV equipment should only be used once all possible precautions have been taken to keep flying insects out. Position the UV equipment close to an entry point, at right angles to the nearest competing light source such as a window. In many catering establishments, poorly-situated UV equipment poses a greater food hygiene hazard than lacking pest repellants altogether. This is because when placed next to the food preparation area, they draw flies to the food which they are likely to contaminate before being killed.
Mosquitoes	 The best control method for mosquitoes is to eradicate their habitat. Because they like moisture and lay their eggs in standing water, it is important not to leave flower pots, buckets, plastic sheeting or other open containers outside collecting water. Ensure that any rainwater collectors are fitted with lids. Clear debris from gutters and drains to ensure there is no standing water after rain and drain unused pools or fountains so that the water cannot become stagnant. Drain or fill depressions, mud flats, and other areas that might hold water. Repair leaking taps and air-conditioning units so that puddles cannot form and ensure that septic tanks and sewage systems are properly maintained and in good working order. Avoid over-irrigating lawns and gardens, and keep weeds and grass (where the insects rest) well-clipped. If you have a pond or lake on the building grounds, fill it with mosquito-eating fish such as top-feeding minnows or goldfish – they will eat the mosquito larvae before they mature into adults. Some buildings have successfully reduced the number of mosquitoes and other insects by attracting bats to their property. A simply-built bat house will usually accommodate up to 100 bats.



	 To prevent mosquitoes from coming indoors, fit fine-mesh screens to porches, doors and windows. If these measures are insufficient, area repellents such as citronella candles, coils or sprays will repel mosquitoes from porches, patios and other unscreened outdoor areas, although they only work well when the air is still.
Fabric/Clothing Moths	 Moth larvae feed on a wide variety of natural and synthetic materials. They can be found in kitchens, food storage areas, clothing, carpets, blankets and upholstery. Fabrics should be washed and then put in bags and placed in a freezer. When taken out to thaw, shake the fabrics vigorously to remove dead larvae. Clean the areas where fabrics have been stored with vinegar and water. Store fabrics in cedar chests or closets. Place cedar chips or blocks or lavender sachets in drawers. For acute moth problems, re-usable traps can be baited with a controlled-release pheromone system to lure moths into the trap and disrupt their mating cycle. Mothballs not only have an unpleasant odor, but they are also poisonous; avoid them if possible. Insect foggers are not recommended as they can pose a health threat and are not always effective.
Pantry Moths	 Clean affected areas by vacuuming all surfaces, walls, shelves, cabinets and floors. Scrub hard surfaces rigorously with hot water and detergent, especially in corners and around the edges of removable shelves. Clean all surfaces that come into contact with food. Rinse the affected areas with white vinegar, either in a spray or by wiping with a cloth. Throw away all grain-based food items as well as nuts, raisins, flour and tea, even if it is in sealed containers. Remaining food items and containers should be thoroughly cleaned with a detergent and water solution and wiped down with a vinegar rinse before being put back. Use air-tight containers made of hard plastic, glass or metal and not plastic bags. Kill any moths with a fly swatter or moth traps. After a severe infestation, freezing any new grain products and storing grain products in refrigerators or freezers can prevent re-infestation. Peppermint gum, bay leaves, peppercorns and cloves may also help deter pantry moths.



Rodents	 Rodent control should start with a survey to determine the source of the problem and the conditions that encourage the infestation. Following the survey, implement a program to kill the rodents, removing their sources of food and water, eliminating their place of refuge and making it rodent-proof, and educating and obtaining the cooperation of employees. If the food supply is removed before you eradicate them, the rodents will migrate to other areas, making elimination more difficult. Openings in building foundations and walls should be closed or screened with wire mesh that has holes not more than 1.25 cm (0.5 in) wide. Where pipes enter masonry, force heavy hardware cloth or steel wool into the opening, then fill it with concrete. Continuous surveillance is necessary, and places where rodents have been gnawing to gain entry to a building should be sealed with metal flashing. Doors are particularly vulnerable to rodent entry so ensure that external doors and windows close tightly with no gaps at the bottom. Materials stored in the open, in sheds or in building should be stacked at least 30 cm (1 ft.) above the ground. Stringent waste disposal practices should be observed – secure all waste in closed containers and not just plastic bags. Wash dustbin areas regularly. Make sure composting bins are designed to prevent rodents from entering. Traditional mouse and rat traps, or snap traps, kill instantly. If trapping efforts fail, it is usually due to too few traps being used. Bait should be sticky to ensure that the mouse triggers the trap mechanism even if it only lightly touches the bait. Mice prefer peanut butter or chocolate to cheese. Bacon, oatmeal or apples can also be used as bait. An alternative to snap traps is a battery-operated trap that generates a high-voltage once the rat or mouse is inside. The design is relative safe and can be used in areas where children, pets or wild
Slugs and Snails	 There are various non-chemical solutions to eliminate slugs and snails, including putting salt or sharp shingle around vulnerable plants, drowning them in beer or simply throwing them over a fence. Elemental copper bands also repel snails and slugs.
Wasps and Hornets	 A simple trap can be made by putting beer or a solution of jam or honey and water in an open jar around the grounds. If this does not work, there are branded traps available containing specially formulated attractant baits.