

EcoWise
IPM Process
for Structural Pest Management

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EcoWise IPM Process for Structural Pest Management

INTRODUCTION

The following is the standard IPM process used by the EcoWise Certified program. The *EcoWise IPM Process* is taken from the *EcoWise Certified Standards for IPM Certification in Structural Pest Management*, a technical document that forms the core of the EcoWise Certified IPM certification program that began in January 2006 in the San Francisco Bay Area and greater Sacramento area. EcoWise Certified is a project of the Association of Bay Area Governments (ABAG), and was founded in partnership with the Bio-Integral Resource Center (BIRC,) the Natural Resources Defense Council (NRDC), and the Sacramento Stormwater Quality Partnership. See www.EcoWiseCertified.org for more information about the certification program and to read the full *Standards*. The *Standards* were developed by BIRC, in collaboration with industry, NGO and government stakeholders, under a grant funded by the California State Water Resources Control Board.

Note that the *EcoWise IPM Process* is written for structural IPM, which involves household pests, such as ants, cockroaches, rats, and mice, that cause problems inside and around structures. The IPM process for landscape pests is somewhat different in detail, although not in general concept.

What is the IPM Process?

This process has been written about widely, and in the integrated pest management community there exists a general consensus about what the process entails.

The IPM process (or IPM approach) is a series of continuous and interrelated steps that helps the pest manager decide how to deal with a pest problem. IPM is a decision-making process that guides pest managers toward efficient, effective, and sustainable pest management that emphasizes pest prevention and non-chemical methods.

The decision to apply treatments for a pest (whether educating building occupants, sealing entry holes, vacuuming up insects, or applying a pesticide) is made after a thorough inspection that gathers information about the pest and about the people and the structure involved. Treatment options are reviewed for appropriateness, and a variety of control strategies are integrated into a written plan of action. After the treatment is applied, the problem is monitored to determine success and if necessary, to fine-tune the treatment process. Records are kept throughout the process to document inspections, decisions, and outcomes.

Why a Written IPM Process?

Having a written IPM process makes communication between the IPM service provider and the customer easier, and prevents misunderstandings about expectations on both sides.

How to Use the *EcoWise IPM Process*

The *EcoWise IPM Process* is the process that an EcoWise Certified IPM Practitioner must follow to manage pests. The value of this document, however, goes beyond the EcoWise Certification program. With slight changes in wording to remove specific references to EcoWise Certified, this document can be used in a number of ways:

- a. Pest control customers can use the *EcoWise IPM Process* to explain to a pest control company the kind of IPM service they want. A “customer” is anyone who wants to be sure they are getting IPM services rather than conventional pest control and could include public agencies, private businesses, hospitals, nursing homes, childcare centers, homeowner associations, or homeowners.
- b. Entities that solicit bids for pest control services can refer to the *EcoWise IPM Process* in RFP, RFQ, and contract documents to clarify the kind of service required by the entity.
- c. Public agencies that use in-house staff for structural pest control can use this document to clarify the IPM process for staff.
- d. IPM service providers can use the *EcoWise IPM Process* to explain their IPM service to customers and can use the language from this document in their service contracts.

Although this document was developed for California, it can be adapted for use in other states. Check the laws in your state that pertain to pesticide application, reporting, and licensing.

FUNDAMENTAL ELEMENTS OF IPM

Pest Prevention.

IPM seeks to suppress pest reproduction and to identify and eliminate potential pest access, shelter/habitat, and availability of food and water. In long-term accounts, regular, periodic monitoring for pests and pest conducive conditions is conducted in order to identify problem areas and prevent small infestations from becoming large ones.

Integrated pest management service providers use practices to prevent pests including, but not limited to:

- a. Customer education
- b. Removal of pest habitat, sources of food and water, and breeding areas
- c. Prevention of access to structures

- d. Management of environmental factors, such as temperature, light, humidity, atmosphere, and air circulation, to prevent pest reproduction and serve as a deterrent to pest infestation.

Integration of Multiple Management Strategies and Tools.

A variety of pest control strategies and tools are integrated into a comprehensive program to manage the pest.

Management strategies may include, but are not limited to, the following:

- a. Providing the customer with information about behaviors, conditions, and policies that allow pests access to the site, food, water, and habitat, so that the customer can understand and participate in the pest management process
- b. Mechanical or physical controls including, but not limited to, traps, vacuuming, steam cleaning, or physical barriers
- c. Horticultural controls including, but not limited to, changing irrigation practices, treatment or removal of plants attracting pests and/or providing access to structures
- d. Biological controls including the use of predators, parasitoids, or pathogens to control the pest
- e. If preventive measures along with the practices in paragraphs 'a' through 'd' directly above are insufficient to prevent or control pests, chemical controls may be used.

An IPM Partnership Using a Systems Approach

Integrated pest management must take into account and be effectively coordinated with other relevant activities and programs that operate in and around a building. Whenever possible, a pest management perspective should be incorporated in procedures and plans involving cleaning, waste management, food service and handling, storage, repair and alteration, and design and construction. In order to accomplish this, the pest management service provider must form a partnership with the customer to provide education on pest management issues and to gain active cooperation.

THE ECOWISE CERTIFIED IPM PROCESS

EcoWise Certified is an independent, third-party certification program that distinguishes knowledgeable, leading-edge, licensed pest management professionals who practice prevention-based pest control. EcoWise Certified service providers use the following process in solving structural pest problems:

1. **Establish a partnership** between the customer and the IPM service provider that facilitates customer education, participation in problem solving, and feedback; the IPM service provider should take all opportunities to continue communication with the customer and to provide on-going education for the customer. For details on the roles of the customer and service provider in an IPM program, see page 11.
2. **Record a detailed history** of the pest problem(s) from the customer, either on the phone or in person:
 - a. Type of problem(s) and/or pest(s)
 - b. Evidence of problem(s) and/or pest(s)
 - c. Location of problem(s) and/or pest(s)
 - d. Actions already taken by the customer (or prior service provider) and results
 - e. Incidents, actions, weather conditions, etc. that occurred prior to, or around, the time the pest problem was first noticed that might be linked to the pest infestation
3. **Thoroughly inspect the property.** The initial site assessment must be performed by an EcoWise Certified IPM Practitioner. Inspections must, at a minimum, include the following:
 - a. **Identify pest(s);** if the pest is unfamiliar, research and understand the pest's biology and habits and how they impact management of the pest; keep a specimen for reference because mis-identification can result in wasted and ineffective treatments.
 - b. **Prepare a written list/map** of
 - i. Key pest(s) (using both common and Latin names) and locations
 - ii. Number of pests, extent of problem, and/or amount of damage
 - iii. Conditions conducive to pest infestations
 - iv. Habitat modifications required
 - v. Pest-proofing/repairs needed inside and outdoors
4. **Discuss inspection findings with the customer** including pest/problem, location, severity, options for management, and proposed strategies for management.

5. **Provide information to the customer** about IPM, and discuss the IPM service provider-customer relationship that will be necessary to solve a pest problem.

To do that the IPM service provider must:

- a. Discuss the responsibilities of the IPM service provider and the responsibilities of the customer
 - b. Discuss pest tolerance levels and the action levels that trigger treatment; if appropriate, discuss how regulations, aesthetics, budgets, and public health may affect tolerance levels
 - c. Discuss the advantages (if applicable) of higher thresholds relative to pesticide use
 - d. Provide the customer with a list of the non-chemical IPM tools used by the company
 - e. Provide the customer with a list of pesticides that may be used at the customer's site. If a pesticide is not compatible with the EcoWise Certified Pesticide Toolbox (see Appendix A of the EcoWise Certified *Standards* at www.EcoWiseCertified.org) it must be clearly indicated, and advance written approval must be obtained from the customer before use. All pesticides must be applied as described below under "Applying Pesticides, if warranted".
 - f. Discuss the possible outcomes (if known) of the treatment methods, how long they might take to impact the pest, what to expect, estimated cost
 - g. Discuss the emphasis of IPM (e.g., using knowledge of pest biology, monitoring, trapping, baiting, pest exclusion, partnership with the IPM service provider, all of which lead to effective, long-term pest control and minimal pesticide use)
 - h. Discuss calling the EcoWise Certified Program Manager for questions about the EcoWise Certified Program or complaints about EcoWise Certified service providers
6. **Develop a written site-specific IPM Plan** that integrates a number of treatment strategies. In an EcoWise Certified service, the plan must be developed by a Certified IPM Practitioner. The Certified IPM Practitioner must implement the plan, or the Certified IPM Practitioner can directly supervise the implementation of the plan.

The written site-specific plan should be developed to:

- a. Focus on solving pest problems using prevention, other long-term solutions, and lowest risk strategies and products
- b. Select, integrate, and apply appropriate IPM treatments to limit availability of food and habitat, reduce pest reproduction, limit pest access to the structure, and directly suppress the pest
 - i. Choose treatment strategies that are appropriate to the pest and the site and that include an appropriate mix of customer education, physical/mechanical

controls, horticultural controls, biological controls, and when necessary, appropriate chemical controls.

- ii. Fit treatments to the customer's needs, the site, and the surrounding environment
- c. Apply treatments at the proper time in the pest's life cycle for maximum effectiveness
- d. Monitor, evaluate, and fine-tune the treatment process

The plan should include the following:

- a. The proposed materials and equipment to be used
 - b. The proposed methods for monitoring and detection
 - c. The service schedule for the building or site
 - d. The description of any structural or operational changes to facilitate pest control
7. **Provide the customer with inspection records and recommendations** within a week after each visit.
8. **For on-going accounts, establish a regular, periodic monitoring program**, appropriate to the site, to gather information used to guide the pest management process; subsequent monitoring may be less detailed but should at minimum cover the following:
- a. An evaluation of the success of actions taken by the customer and the IPM service provider
 - b. A check of problem areas
 - c. An inspection for new problems
 - d. Communication to update the customer
 - e. Assessment of customer's satisfaction with treatment

For on-going accounts, a Certified IPM Practitioner must visit the site at least once a year.

9. **Maintain written records** of the pest management process

APPLYING PESTICIDES, if warranted

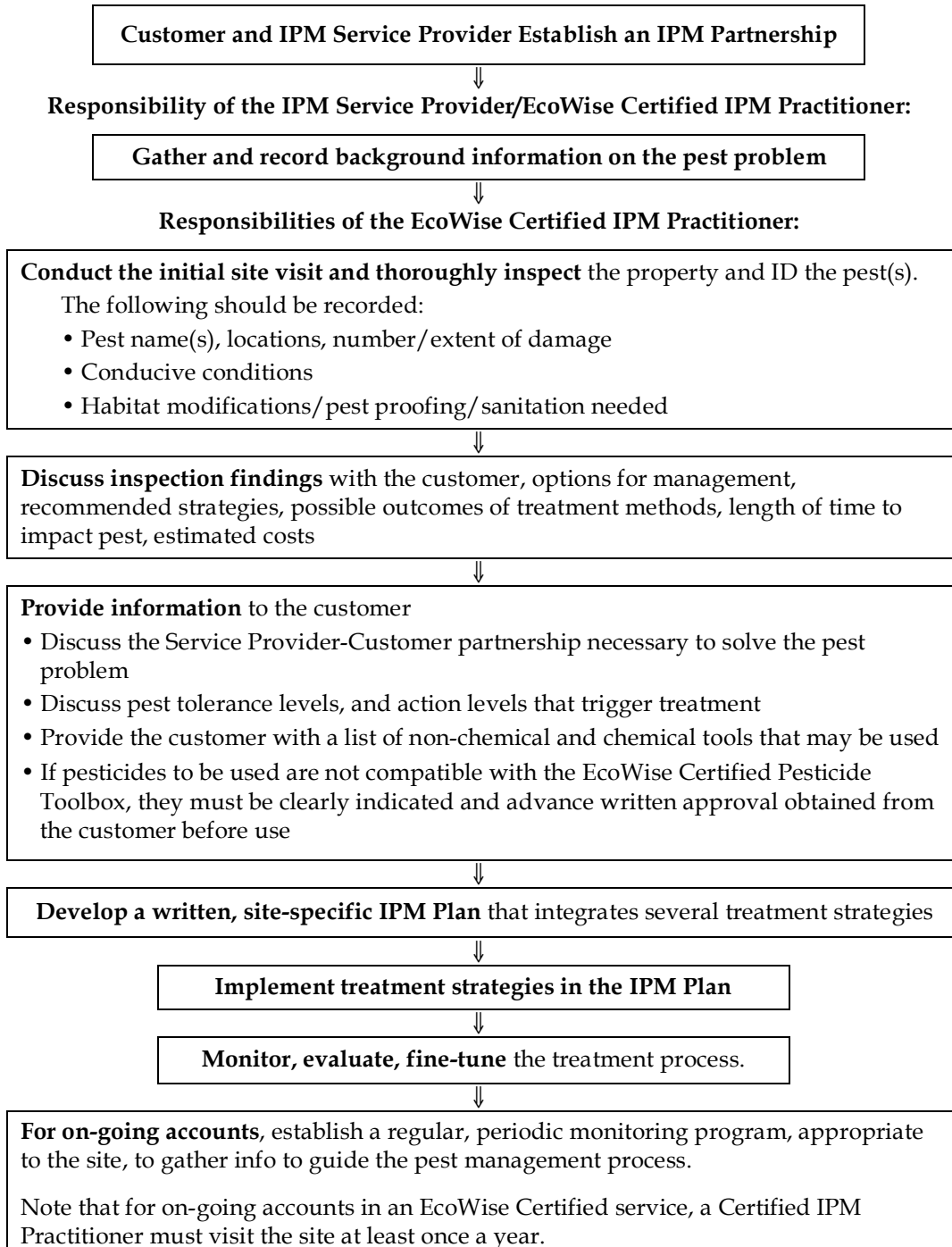
The primary methods of pest management in an IPM program are non-chemical strategies such as sanitation, harborage reduction, and physical, mechanical, cultural, and biological controls. If these strategies are deemed insufficient or unsatisfactory or are not economically viable, chemical control strategies may also be warranted.

In that case, the following guidelines apply (note that these were developed for use in California):

- 1. All pesticides shall be applied according to the label and in compliance with U.S. Federal and California State Laws and Regulations**, including acquiring and maintaining the proper licenses and meeting pesticide reporting requirements.
- 2. Pesticides shall be applied according to need and *not by calendar schedule***. (Note: this does not in any way preclude monitoring or other interactions with the customer that may occur on a regular, calendar basis.)
- 3. Pesticides shall be applied in such a way as to minimize risk** to non-target organisms and the environment, including water quality:
 - a. They shall be applied with a precise application technique, in the smallest area, using the minimum quantity of pesticide necessary to achieve control. A pesticide shall only be applied
 - i. As a directed treatment to a void or other inaccessible area, or to other areas humans would not normally contact;
 - ii. As a spot treatment outdoors;
 - iii. Contained in a bait station; or
 - iv. As a crack and crevice treatment.
 - b. They shall be applied under safe conditions. An applicator, prior to and while applying a pesticide, shall evaluate the equipment to be used, meteorological conditions (including predicted rainfall), the property to be treated and the surrounding properties to determine the likelihood of harm or damage to non-targets. Notwithstanding that substantial drift will be prevented, no pesticide application shall be made or continued when
 - i. There is a reasonable possibility of contaminating bodies or clothing of persons not involved in the application process; or
 - ii. There is a reasonable possibility of damage to, or contamination of, non-target plants, animals, or other public or private property, including water running off or running near a treated area.

- c. Fogging with pesticides in the interior of structures is prohibited where humans live or work. Note that the point-source application of insect growth regulators is not categorized as fogging.
 - d. Perimeter spray treatments around the outside of structures are prohibited. The only exception to this is when the pesticide used is exempt from registration in California [(3 CCR 6147) Title 3 (FAC), Division 6, Chapter 2, Section 6147. Exempted Pesticide Products]. This includes products that meet the above regulation but are registered nevertheless. The above California regulation is more stringent than the U.S. EPA FIFRA 25(b) list.
 - e. Rodenticides are only allowed in secure bait stations. If rodenticides are necessary, they shall be placed in tamper-resistant bait stations that are anchored to the substrate *except* when used for baiting in secure or locked areas, inaccessible voids, or sewer lines.
4. **Pesticides used in an EcoWise Certified IPM Service should be compatible with the EcoWise Certified Pesticide Toolbox** (see Appendix A of the EcoWise Certified *Standards* at www.EcoWiseCertified.org), which is derived from lists developed by other agencies in the Bay Area with IPM programs.

SUMMARY OF THE ECOWISE CERTIFIED IPM PROCESS



CUSTOMER AND SERVICE PROVIDER ROLES IN AN IPM PROGRAM

The customer and the IPM service provider must form a partnership in order for IPM to work. When the customer is a public agency, business, or other formal entity, the customer's role is at least as crucial as the IPM service provider in the success of the overall IPM program. The customer plays an integral role in the development and implementation of the IPM program.

The Role of the Customer

- 1. The primary responsibility for controlling pests on the customer's property remains with the customer**, even when an IPM service provider has been hired. One of the reasons for this is that the customer controls and manages most of the key assets that are critical for managing pests on a property:
 - The property itself
 - The staff working at the property
 - Contractors bringing in goods to the property (goods such as landscaping materials, foodstuffs, or other products that could contain pests or cause pest problems themselves)
 - Other service vendors or in-house staff who manage sanitation and the landscape, both of which can be frequent sources of pest problems for the structure
- 2. The customer must determine the goals of the IPM program** and communicate these to the IPM service provider. The following are examples of goals:
 - Protect the structure and its contents from undue damage from pests
 - Protect worker health and safety by reducing the use of pesticides in and around buildings
 - Control pests for reasons of sanitation and health
 - Prevent or reduce pesticide run-off into storm drains
 - Meet a particular regulatory standard required by USDA or FDA
 - Ensure that staff are not bothered by nuisance pests at their work stations
- 3. The customer must determine the scope of work**, which includes the categories of pests to be covered, tolerance levels for pests, service frequencies, response times, and payment for service and work beyond the original scope of service.
- 4. The customer must commit key personnel** to administer the IPM program internally. One of these should be an IPM Coordinator.

The IPM Coordinator's responsibilities will include but are not limited to the following:

- Leading the procurement of pest control services, overseeing the contract, and representing the interests of the customer in pest control matters

- Coordinating IPM activities to ensure compliance with the customer's IPM policy
- Acting as primary customer contact for the IPM service provider
- Receiving reports of pest problems at the facility from the customer's staff, and relaying them to the IPM service provider
- Providing IPM expertise for the customer's IPM program
- Educating the customer's employees, or arranging for the contractor to educate the customer's employees about their role in managing pests
- Receiving recommendations and reports from the IPM service provider regarding the presence of pests, and the structural, behavioral, and other modifications that may need to be implemented in various parts of the facility
- Coordinating and overseeing the response to recommendations made by the IPM service provider
- Acting as an internal advocate for IPM

The Role of The IPM Service Provider

1. **Identify pests and conducive conditions** for current or potential pest infestations
2. **Make recommendations** for implementing a comprehensive management plan
3. **Evaluate recommendations in cooperation with the customer**, taking into account the level of involvement the customer desires, the customer's pest tolerance levels, the financial considerations of the customer, and other factors which will influence the final pest management strategy for a particular customer or site
4. **Implement pest management plans** on behalf of, and in cooperation with, the customer by using a wide variety of tactics:
 - Making recommendations for better sanitation and other preventive measures; in some cases, as determined by the contract, the IPM service provider may perform some prevention activities (e.g., trimming vegetation away from a building)
 - Providing informal education to building occupants and other staff on why the structure is experiencing pest problems and how occupants and staff can help prevent problems in the future
 - Monitoring and inspecting for current and potential pest problems
 - Setting up and monitoring mechanical devices to control pests
 - Making recommendations for structural repairs and modifications; in some cases, as determined by the contract, the service provider may make minor repairs (e.g., sealing holes for pest exclusion)
 - Using other tools, such as traps, steam, or a vacuum, to control or manage the target pest, and when necessary, applying least toxic pesticides

REFERENCES & SOURCES

USDA National Organic Program Final Rule (NOP)

Marin Organic Certified Agriculture (MOCA) Certification Program

San Francisco Department of the Environment

Albert Greene, National Capitol Region IPM Program

Albert Greene: Guidelines for Structural Pest Control Operations for Federal buildings operated by the U.S. General Services Administration, National Capital Region

University of California Statewide IPM Project

DEFINITIONS

Integrated pest management (IPM): IPM is a science-based strategy and decision-making process that provides effective, long-term pest control while emphasizing pest prevention and the use of non-chemical pest management practices. At its core, IPM includes the following activities:

- Inspection, monitoring and record-keeping are used to determine if thresholds for acceptable pest levels have been exceeded and to select the location, timing, and type of management strategies needed to successfully manage pests.
- A partnership is formed with the customer to facilitate management of pests.
- Appropriate and site-specific treatments are selected from educational, cultural, manual, mechanical, physical, biological, and chemical strategies. They are used within an integrated program to achieve long-term solutions that minimize hazards to human health and the environment.
- Reduced-risk chemical controls are included in the treatment program when non-chemical methods are insufficient to solve the pest problem in an effective and affordable manner.

Action level: the number of pests or amount of damage that triggers action to manage a pest in order to prevent pest numbers or damage from exceeding the tolerance level

Bait: any combination of a pesticide active ingredient with other inert materials, designed to induce a target pest to ingest or otherwise interact with the combination

Calendar scheduled treatments: treatments that are scheduled on a regular, calendar basis regardless of whether pests are present or their numbers have exceeded the action level

Crack and crevice treatment: application of small amounts of pesticides into cracks and crevices in which pests hide or through which they may enter a building. Such openings commonly occur at expansion joints in a structure, between different elements of construction, and between equipment and floors. These openings may lead to voids such as hollow walls, equipment legs and bases, conduits, motor housings, and junction or switch boxes. These treatments shall not be readily accessible after application.

Direct supervision: technicians are directly assigned tasks and presented with treatment protocols produced by a Certified IPM Practitioner; the Certified IPM Practitioner monitors completion of tasks, time needed for completion, tools and materials used, and records kept; the Certified IPM Practitioner must be available to communicate by phone when technician is performing an EcoWise Certified IPM service; the Certified IPM Practitioner must conduct the initial site assessment and, for on-going accounts, must visit the site at least once a year

Directed treatment: use of equipment and techniques to limit pesticide applications to a defined target area

EcoWise Certified IPM Practitioner: any person who has fulfilled the requirements set out in the EcoWise Certified *Standards for IPM Certification in Structural Pest Management* and has passed the certifying exam. They serve as an integral part of an EcoWise Certified IPM service:

- Each operation or branch office offering an EcoWise Certified IPM Service must employ at least one EcoWise Certified IPM Practitioner
- The Certified IPM Practitioner must implement or directly supervise the implementation of the EcoWise Certified IPM service
- The Certified IPM Practitioner must provide the initial site assessment and IPM plan for the customer
- The Certified IPM Practitioner must implement the IPM plan or directly supervise the plan's implementation

EcoWise Certified IPM Service: a pest management service that complies with the EcoWise Certified *Standards for IPM Certification in Structural Pest Management* and is offered by an operation or branch office that has fulfilled the requirements for certification set out in the *Standards*

Fogging: a pesticide application technique in which a pesticide is released as an omni-directional aerosol spray of very fine particles that is designed to optimize coverage of surfaces throughout the treated environment (not to be used in an EcoWise Certified IPM service)

Insect growth regulator (IGR): a compound that can disrupt normal growth and development processes in insects. Currently there are 2 classes of IGRs:

- Juvenile hormone analogs which prolong larval or nymphal stages, prevent or curtail pupation, or create sterile adults
- Chitin synthesis inhibitors which disrupt the normal molting process in insects

Pest(s): a general term that includes problem insects, mites, birds, mammals, weeds, and other organisms. Organisms become "pests" when their numbers are high enough to be damaging, a health risk, or a serious nuisance

Pest conducive conditions: conditions that allow or encourage pests to enter a building and then to remain there

Pest control: mitigating or eliminating pests by a variety of non-chemical and/or chemical techniques

Pest management: see pest control

Pest tolerance level: the number of pests or amount of damage the customer or the site can tolerate as determined by the Certified IPM Practitioner in consultation with the customer; this level may also be determined by laws and regulations

Pesticide: any substance intended to control, destroy, repel, or attract a pest. Pesticides include herbicides, fungicides, insecticides, rodenticides, and even naturally occurring, pest-destroying organisms such as *Bacillus thuringiensis*. Botanical products that contain food-grade ingredients such as clove or mint oil are pesticides.

Perimeter treatment: a treatment of the exterior perimeter of a building where the structure is completely or nearly completely encircled by a continuous pesticide application (not to be used in an EcoWise Certified IPM service except as noted in this document and the *Standards*)

Pheromone: a chemical secreted by an animal that affects other animals of the same species

Space spray: see fogging

Spot treatment: an application of a pesticide to a discrete, relatively small area limited to the immediate vicinity of a clearly identified pest problem, such as the pest itself, an entry point, or a nest. A spot treatment shall be no larger than necessary to be effective, and in any case shall be no larger than 2 feet square.

Standards: the *EcoWise Certified Standards for IPM Certification in Structural Pest Management* (see www.EcoWiseCertified.org)

Tamper-resistant bait station (for rodents): Tamper-resistant bait stations are of durable fabrication and meet the following criteria:

1. Resistant to weather
2. Strong enough to prohibit entry by large non-target species
3. Equipped with a locking lid and/or secured rebaiting hatches
4. Equipped with entrances that readily allow target animals access to baits while denying access to larger non-target species
5. Capable of being anchored easily and securely to resist efforts to move the container or to displace its contents
6. Equipped with an internal structure for securely containing baits
7. Made in such a way as not to be an attractive nuisance
8. Capable of displaying proper precautionary statements in a prominent location

Tolerance level: see Pest tolerance level

Treatment: applications of materials *or* procedures designed to alleviate pest problems

Void: the enclosed, empty space inside hollow elements of equipment or between walls, between ceiling and floor, between floor and cabinet and other similar structural elements