INTEGRATED PEST MANAGEMENT PROGRAM

Prepared for:

RIVERSIDE HAGAR #6
3422 RIVERSIDE ROAD
BENTON HARBOR, MI 49022

Designed by:

Rose Pest Solutions
2714 S. 11th Street, Suite B
Niles, MI 49120

A Verifiable Integrated Pest Management Program

For

SCHOOLS

Introduction

Integrated pest management is a system that combines different methods into one program which alters the environment to the point that it will not support a pest population. Such programs maximize effectiveness while minimizing reliance on any one method. Specifically, this reduces both reliance on and exposures to chemical methods.

Administration

The practice of integrated pest management (IPM) requires careful administration. It is important for the building manager and Rose Exterminator Co. to work together to ensure that the IPM program is fully implemented. A pest Sighting Log and regular program reports will be used as part of the communication process.

Rose Exterminator Co. will supply personnel trained in IPM practices and state certified as pesticide applicators. The Rose technician will provide inspection to specified areas, curative and preventative pesticide applications, and written reports including a Trap Catch Log and recommendations detailing the non-chemical methods which may require attention.

Building management will ensure that pest sightings are recorded in the log and that written reports are reviewed after each service. Other responsibilities include correcting sanitation and structural deficiencies, as detailed in the written reports, which may lead to pest problems, and compliance with applicable notification and posting requirements.

Pest Management Strategy and Methods

The strategy of an integrated pest management program involves using several methods to make pest entry unlikely, and other methods to reduce the food, water, and harborage necessary for pest survival, and further methods to eliminate individual pests which may be present. Various combinations of methods and techniques are used against each different pest species. The most preferable methods are those with the most permanent results, the least impact on non-pest species (including humans), and the least cost. Some of the more common methods are listed as follows:

Copyright by Bio-Serv Corporation, 1993

All rights reserved. No part of this article may be reproduced in any form, by any means, without permission in writing from Bio-Serv Corporation.

Reservoir Reduction

Large reservoirs of pests or situations conducive to pests in close proximity to a building tend to increase pest entry. The techniques of reservoir reduction are wide and varied; they may include moving or removing a pest attractive feature such as a dumpster, treating or cutting down a tree which gives rise to large insect populations, or cutting down a weed field which may provide harborage for mice or other pests.

Limit Pest Attraction

Certain aspects of a building may attract pests. Lighting, either exterior or interior, may attract flying insects from great distances; landscaping may cause the perimeter of a building to be attractive to pests. Altering or removing these attractive influences will decrease the number of individual pests that arrive at the building perimeter and, therefore, the number of pests that enter the building.

Exclusion

Many pests enter a building by walking or flying through cracks, holes, and other openings. The use of caulk, mortar, window screen, and similar sealing materials can eliminate or significantly reduce pest entry.

Sanitation

Many infestations cannot occur unless sufficient food and water resources are available. By maintaining adequate levels of sanitation and monitoring sanitation practices, these resources can be kept to minimum.

Harborage Reduction

Several important pests multiply in a direct relationship to available harborage. By reducing the amount of sufficient harborage, these pest populations may be diminished or prevented. Harborage reduction is usually achieved by sealing cracks and crevices, building maintenance, and improved storage practices.

Mechanical Control

For some pests, such as mice, traps are an important control tool as well as a monitoring method. In the appropriate situations, trapping programs will be initiated.

Chemical Control

Repellents and toxicants can be used to drive away or to kill pests when population reduction becomes necessary. All applications will be made by state certified pesticide applicators. All products applied are carefully chosen to maximize efficacy and to minimize hazard. Each application will be made in compliance with all federal and state regulations.

Copyright by Bio-Serv Corporation, 1993

All rights reserved. No part of this article may be reproduced in any form, by any means, without permission in writing from Bio-Serv Corporation.

Pest Biology

To a great degree, pest biology influences the design of pest management strategies. As a guiding principle, the following chart illustrates the relationship of biological characteristics of pests to the preferred pest management method.

Pest Mgmt. Methods\Biological Charact.	Reservoir Reduction	Exclusion	Harborage Reduction	Sanitation	Population Reduction
Outdoor Reservoir	X				
Invades from Outdoors		X			
Harbors Indoors			X		
Eats Indoors				X	
Breeds Indoors					X

The general principles are intended as guidelines and each situation must be judged on its own merits. Most pests possess more than one of the above listed biological characteristics and, hence, may be effectively managed by several different methods.

Common Pests

Pavement Ants

Ants are probably the most prevalent insect pest of schools. With a few notable exceptions, pest ants invade a building from under cement slab floors and through exterior walls. Properly timed exterior perimeter treatments (See App. 1) in conjunction with exclusion techniques are the first line of defense. For colonies still able to penetrate the building or establish indoor colonies, baits can be used. In situations where immediate cessation of ant activity is necessary, crack and crevice, void, and directed contact treatments may be made.

German Cockroaches

Cockroaches are in insidious pest of buildings able to eke out an existence on the slimmest of margins. The presence of cockroaches will be monitored for using sticky traps and visual inspection techniques. Any sightings of cockroaches must be recorded in the Pest Sightings Log. Sanitation and harborage reduction techniques are of vital importance to the success of any preventive or curative procedures. Chemical methods of baiting, crack and crevice, and void treatment techniques where appropriate and prudent, are the most efficient means of population reduction(See App. 1).

Copyright by Bio-Serv Corporation, 1993
All rights reserved. No part of this article may be reproduced in any form, by any means, without permission in writing from Bio-Serv Corporation.

Occasional Invaders

The term *occasional invader* refers to those pests which generally cause little or no damage and cannot complete their life cycle inside a building. These arthropods achieve pest status merely by being present as nuisance pests. Reservoir reduction is utilized by paying attention to landscaping and other exterior situations which may give rise to populations of occasional invaders. Exclusion, through the sealing and caulking of openings in the exterior wall, is vital to the program. Exterior perimeter treatments made on an appropriate schedule are an efficient means of keeping these pests out. Using these methods to reduce the entry of such pests, little or no effort is necessary inside the building.

Overwintering Insects

Certain pests, most notably elmleaf beetles, box elder bugs, and cluster flies, enter a building only to find safe harborage for the winter. Unfortunately, they become active intermittently throughout the season and become nuisance pests. Identifying and screening off their entry points is the most reasonable control method. If void treatments (See App. 1) can be made to the appropriate voids in which they will be harboring before they arrive in the fall, it may be effective. Efforts at control made after these pests have entered building are dubious at best, they include: sealing cracks and crevices from inside the living space, directed contact treatments, and crack and crevice and void treatments (See App. 1)

House Mice

The house mouse, by its ability to enter most any structure and its incessant habit of gnawing things, is an important pest of humans and their buildings. Virtually every control method is in some way employed against this tiny rodent. Included in the program is reservoir reduction, exclusion, harborage reduction, sanitation, and mechanical methods of population reduction. Keeping fields mowed and weeds controlled around the building will reduce the reservoir of outdoor mice. Good building maintenance with close attention paid to gaps under doors and spaces around pipe and utility openings can help keep a significant number of mice from entering the building. If, however, they do gain entry, the population will not build, or not build as fast, if there is little food available and few harborage areas. To eliminate mice that are present, traps, such as glue boards, may be placed in glue board stations or in areas inaccessible to children and non-target organisms. While efficient baits do exist, they should be used sparingly or not at all. If the use of a bait should become necessary, it should be applied in an approved tamper-resistant bait station, secured to prevent pilferage, and serviced weekly until such time as it is no longer necessary and can be removed. Bait stations should never be placed where they are visible and accessible by children. All rodent control devices should be noted on a map of the facility which is kept with other IPM program records.

Copyright by Bio-Serv Corporation, 1993

All rights reserved. No part of this article may be reproduced in any fort, by any means, without permission in writing from Bio-Serv Corporation.

Head Lice

Although head lice are not uncommon in schools, their biology is such that insecticidal treatments, other than medicated shampoo, are not recommended. Standard policies for dealing with head lice are generally quite successful and, even so, any treatments made to classrooms would offer no additional benefits. This program endorses the recommendations of the National Pest Control Association and the National Pediculosis Association. This Company will, however, provide identification and information relevant to sound pediculosis (head louse) control procedures.

Small Flies and Gnats

There are numerous species of flies and gnats which may infest buildings. The vast majority of infestations from these species can be avoided if proper sanitation levels are maintained. Once these pests have found a suitable breeding site(s), it may take multiple intensive inspections to locate them. These inspections, when necessary, require more time, effort, and resources than the inspections already prescribed by this program and will be done on a supplemental basis. The solution to fly problems is to remove or eliminate the breeding sites once they are found. Chemical treatments are only appropriate for knocking down large populations of adult flies, and even then should be used sparingly.

Miscellaneous

Many other pest species exist which may, from time to time, show up in a school building. These include carpenter ants, stinging insects, wood destroying organisms, pest birds, and many others. Because control and management of these pests require inspections, equipment, and procedures exceeding the parameters of this program such problems will be dealt with individually as they arise.

Services and Schedules

Regular Service

Every regular service provided by Rose Exterminator Co. will include:

- Review Pest Sighting Log
- Check-in with IPM program contact person
- Inspection of designated areas
- Preventative applications for cockroaches in designated areas

Inspection of sticky traps, glue boards, and other traps or monitoring devices; trap catches are to be recorded

Copyright by Bio-Serv Corporation, 1993
All rights reserved. No part of this article may be reproduced in any form, by any means, without permission in writing from Bio-Serv Corporation.

- **Areas of pest sightings shall receive a thorough inspection and recommendations for solutions, if curative applications of insecticides are necessary they may be performed or scheduled for a more appropriate time**
- **Report back at end of service to contact person detailing what was found upon inspection, what was performed, and what is recommended**
- **Service report with findings and recommendations and trap catch log submitted to contact person to be filed with program documents.**

Supplemental Services

At times, supplemental or emergency services may be necessary. These services will be limited to only those areas and for only those pests which necessitated the service. While every supplemental or emergency service will have service report, there may or may not be a conference directly with contact person at that time.

Service Areas

Kitchens, Break Rooms, Cafeteria

- **Inspection insect monitors and visual inspection**
- **Preventive treatment to appropriate areas for cockroaches (if no cockroach activity noted)**
- **Rodent control devices placed in appropriate locations and serviced**
- **Recommendations for exclusion, harborage reduction, and sanitation improvements if applicable**

Restrooms, Store Rooms, Janitor Closets

- **Inspection**
- **Preventive treatment to appropriate areas for cockroaches (if no cockroach activity noted)**
- **Recommendations for exclusion, harborage reduction, and sanitation improvements**

Mechanical/Boiler Rooms

- **Inspection**
- **Rodent control devices placed in appropriate locations and serviced**
- **Recommendations for exclusion, harborage reduction, and sanitation improvements**

Exterior Perimeter of Building

- **Inspected periodically during warm months**
- **Recommendations for exclusion, reservoir reduction, and sanitation improvements**

Copyright by Bio-Serv Corporation, 1993

All rights reserved. No part of this article may be reproduced in any form, by any means, without permission in writing from Bio-Serv Corporation.

Appendix

Chemical Methods (population reduction)

Application Techniques

All applications shall be made by state certified pesticide applicators with EPA registered products in accordance with labeling and federal and state laws.

Baiting –	**Toxicant is added to food attractant and placed in areas accessible to pests but not where children or non-target organisms may be exposed. May be inside bait container or placed into cracks, crevices, and voids.**
Broadcast Application -	**Sprayable or granular insecticide formulations applied to large areas of turf or floors (sprayables only). This technique results in increased exposure potentials and is only used in controlled circumstances as a last resort.**
Crack and Crevice -	**Small amounts of residual contact insecticides are delivered into cracks and crevices where pest harbor or travel. Cracks and crevices are found at expansion joints, between elements of construction, equipment bases, etc.**
Directed Contact -	**Non-residual insecticides applied directly to the insect pest to achieve a quick knock down and temporary relief. Exposure potential exists only during and shortly after application.**
Exterior Perimeter Treatment -	**Applications made to exterior perimeter aspects of a building are generally used to keep insects from entering. Application sites include foundation walls, perimeter soil, thresholds, window and door casings, pipe and utility entry points, soffits, eaves, and other areas around openings which may not be able to be sealed.**
Space Treatment -	**Non-residual insecticides are applied to air spaces as mists or aerosols of small particle size. This technique will efficiently knock down all exposed stages of insects in the treated area. Care must be taken to vacate treated area until well ventilated.**
Spot Treatment -	**Sprayable contact insecticides applied to small exposed areas. This technique is not often used but may be necessary from time to time. These treatments are not to exceed two (2) square feet per spot.**
Void Treatment -	**Insecticides (primarily inorganic dusts) are injected into void areas for low exposure yet long lasting benefits. Entire crawl spaces, attics, and other areas where maintenance personnel may enter shall not be treated in this manner.**

Appendix 2

Site Description

Account Name: _____

Address: _____

_____

Building Name: _____

Address: _____

_____

Purpose of Building: _____

_____

Neighboring Property:
(may be more than one)

Residential	[ ]	**Industrial**	[ ]
Retail/Commercial	[ ]	**Undeveloped**	[ ]
Agricultural	[ ]		

Building Construction: _____

_____

_____

_____

Pest History

Pest _____

Comments _____

_____

_____

Pest _____

Comments _____

_____

_____

Appendix 3
Trap Catch Log

Client_____

Address_____

Trap #	Date	Date	Date	Date	Date	Date	Date	Pest Being Monitored

B=Blocked **D=Destroyed** **G=Gone**

iii-a