

Food Service IPM



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What is IPM?

- An environmentally sound approach to pest control
- Quality pest control using the least hazardous chemicals and techniques
- Mandatory best management practice for Texas schools
- When, where and what

An IPM Program

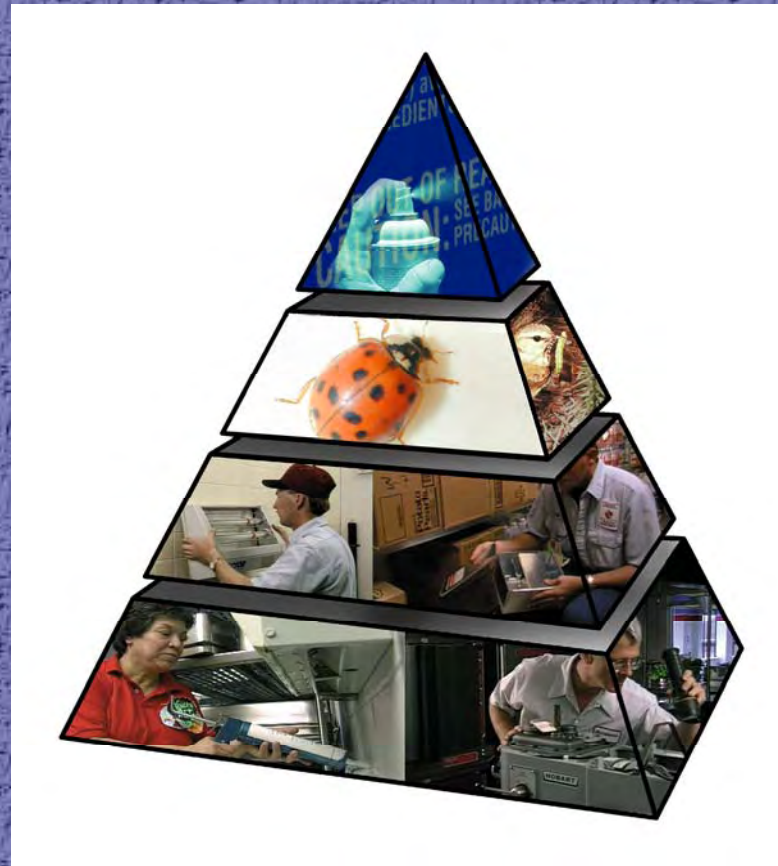
- Identify ways to prevent pest entry
- Deny pest access to food, water and harborage
- Monitor all areas of the kitchen regularly
- Identify the pest accurately
- Then assess the best options to control the pest

Ingredients of an IPM Program



The IPM pyramid

Physical /
Mechanical
controls



Pesticides

Biological
controls

Cultural / Sanitation Practices

What Pests Need to Survive



Pest Prevention Through Design

- **Landscape**
 - **Short grass**
 - **Neatly trimmed hedges**
 - **Paved access ways**
 - **Proper drainage**
 - **Rodents will be discouraged to nest if there is an 18" to 24" strip of space between the building and green areas**

Pest Prevention Through Design

- Floors

- Concrete is most suitable, but watch for cracks
- For wet areas – acid-proof for easy cleaning
- Asphalt or vinyl tiles can be used – watch for cracks or incomplete bonding for pest harborage areas.
- Floor drains every 400 sq ft and sloped with check valves to prevent pests
 - Drain flies, roaches and rats

Pest Prevention Through Design

- **Walls**
 - Pre-cast or poured concrete, concrete block, brick, tile or metal curtain
 - Sealed for easy cleaning
 - Metal curtain walls can be hollow if so, do not punch holes and make sure cracks are well sealed.
 - Cracks and openings are a natural hiding place

Pest Prevention Through Design

- **Windows, Doors and Lighting**
 - The less the better – glass block is best for windows
 - Doors should be metal, tight fitting seams and good door sweeps
 - Outdoor night lights should be high intensity sodium rather than mercury vapor
 - Lights should be located 30' from door ways
 - Crawling and flying pests

Make sure doors close tight



Preventing Pests Entry

- Inspection – identify where they are gaining access
- Pests enter either as volunteers or as captives
 - Good IPM practice
 - Routinely inspect the kitchen/cafeteria area for routes of entry
 - Inspect food products for unwanted guests

Preventing Pests Entry

- **Air curtains for flying insects**
 - Proper width
 - Sufficient air velocity to cover top to bottom of door
- **Inspecting food products**
 - Check incoming supplies, including pallets
 - Reduce cardboard boxes
 - Check powdered products for weevils or other evidence of pests

Monitoring for Pests

- **Systematic survey at regular intervals**
- **Maintains data on pest evidence**
- **Sampling requires numbers of pests**
 - **Locate and identify pest species**
 - **Estimate pest population size**
 - **Investigate causative conditions**
 - **Food, water, shelter, modes of entry, human behavior**

Watching for monitoring devices



Preventing Problems

Sanitation

- **Equipment Cleaning**
 - Basics – wash, rinse and sanitize
 - To be thorough:
 - Entire inside – remove plates
 - Outside, frame, top and bottom of equipment
 - A single crumb and drop of water can sustain a German Roach for up to three weeks

Look inside and clean



Preventing Problems Sanitation

- Housekeeping
 - Essential element removes food and water – what pests need to survive
 - Must include indoors as well as outdoors to be successful
 - Rubbish piles, used equipment storage, dumpsters
 - Maintain an 18” weed & shrub free zone around the outside wall of the campus
 - Remove waste, clean up spillage and trash immediately, keep garbage area clean, lids tight

The Good and the Bad



Preventive Housekeeping Steps

- Keep pests out by carefully inspecting incoming goods, including equipment, pallets and packaging supplies
- Keep building tight – screens, doors auto-closing
- Control trash with frequent pick ups, swapping dumpsters and closing lids
- Prompt disposal of damaged packages of food
- Install Vector control lights in areas of high fly populations

Vector Lights Work



Storage Practices

➤ Three Basic Rules

1. Store it off the floor

- PCO need to be able to see underneath
- If the area is painted white easier to see

2. Keep it away from the wall

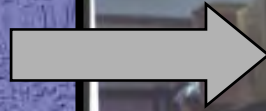
- See behind stored products

3. FIFO – first in, first out

- Invest in Sharpie's date every item you take in, don't guess

Dry Storage Area

Incorrect



Correct



- **Do not store items within cardboard boxes.**
- **Discard leaky or damaged goods.**

Inspection is for Everyone

- How can you help
 - Report suspected harborage sites & water leaks
 - Check doors and windows for proper sealing
 - Check incoming cardboard for pest activity prior to opening
 - Watch ceiling tiles for pest activity
 - Make sure storage rooms are kept clean

Inspection Tips



Ways to Motivate Employees

- Explain about enforcement actions
 - Health Dept., SPCB, others
- Management incentive programs
 - Reward with GC or other small items
- Interdepartmental competition
- Involve key employees in sanitation workshops
- Conduct routine training for all employees

Pests

- Insects are most common and numerous
 - Cockroaches: German, American, Smoky Brown
 - Flies: drain & phorid
- Rodents can contaminate more than they eat
 - Norway rat, roof rat and house mouse

IPM and Roaches

- Contaminate food with droppings, bodies and bacteria
- Seek cover during the day
- Like dark, warm, humid areas
- They are omnivores – not picky eaters
- Highly reproductive
- German roaches most common source of allergies and asthma in U.S.

American cockroach

- **Identification:** reddish-brown with yellowish band around pronotal shield; 1 3/8 to 2 1/8 inches
- **Ootheca** black-brown w/o lateral indentations



Smoky Brown

American cockroach

- **Habitat**
 - Primarily outdoors, but can be well-established indoors
 - dark, damp, warm locations
 - floor drains, pipe chases, basements, sewers, storage areas
 - generally found near ground level in food storage and prep areas

Sticky trap proper placement

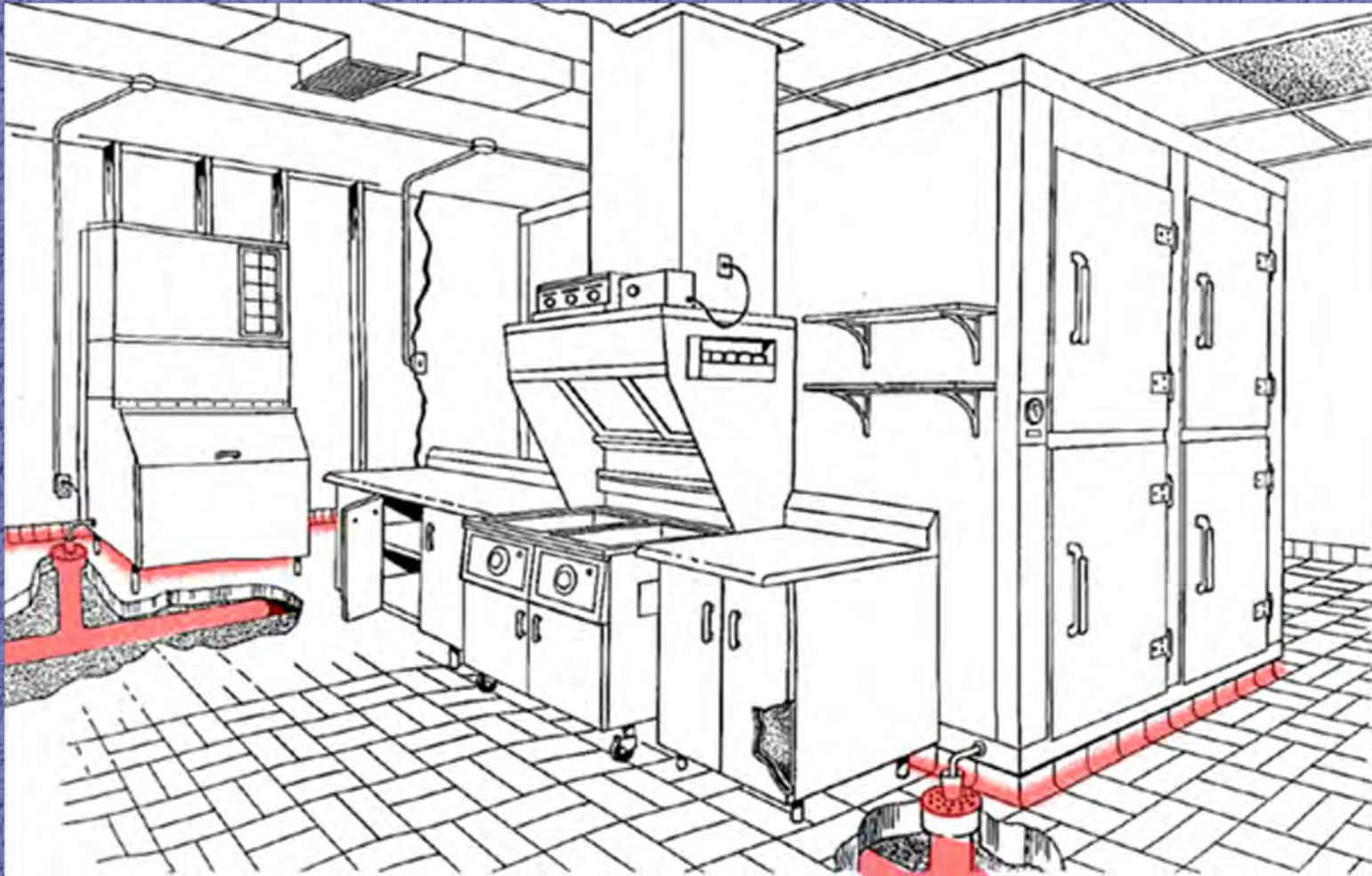


American cockroach

- **Control**
 - Sticky traps to pinpoint activity hot-spots
 - Perimeter treatment and pest-proofing
 - Granular baits outdoors
 - Baits, sprays, dusts indoors



Treatment areas for Americans



German cockroach

- **Most prolific of all cockroaches**
 - 30 to 40 eggs per ootheca
 - 2 month development time
- **Found only indoors**
- **Public health threat**
 - Germ transport
 - Allergen production



Key biology points

- Egg case, nymph, adult stages
- Maximum growth rate at 33° C (91° F), preferred temps 75° to 90° F
- Spend most time in cracks (1 to 4 mm-wide)
- Found mostly in close proximity to food, water and harborage



Sticky card

Proper placement of sticky trap



Next to wall

Example thresholds for German cockroach

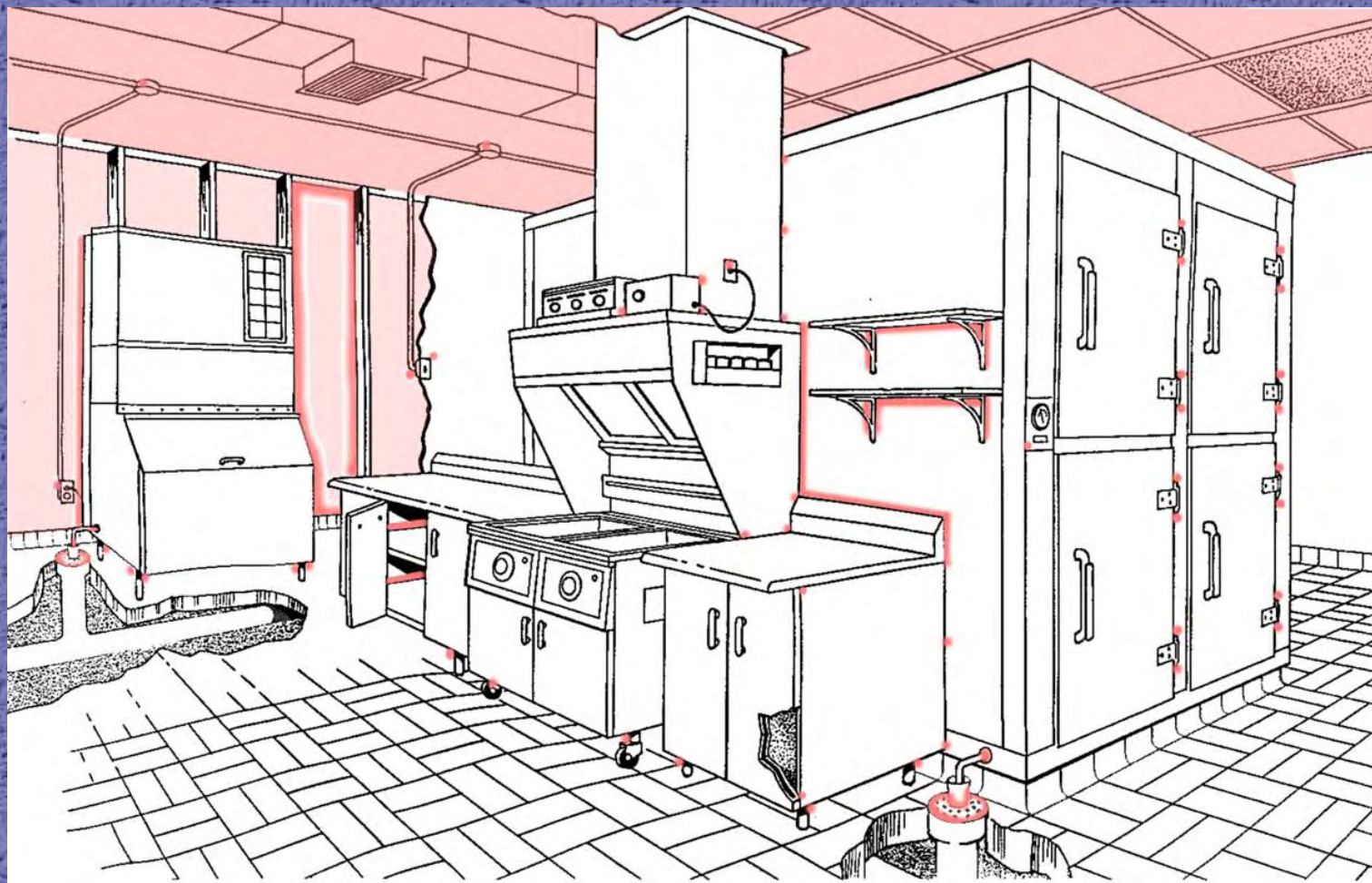


<i>Ave. # cockroaches per zone</i>	<i>Action</i>
<i>0</i>	None
<i>1-2</i>	Bait stations; check sanitation
<i>3-6</i>	Spot treat c&c; add or replace baits; review sanitation
<i>7-15</i>	Thorough bait and c&c application; revisit in two weeks
<i>15+</i>	Close facility; conduct thorough c&c inspection and sanitation improvement; increase baits in infested areas; monitor biweekly

Effective controls

- Caulk and seal harborages
- Eliminate, reduce, separate water and food resources
- Bait and dust harborage areas identified by sticky traps
- Apply residual sprays to harborages

Treatment area for Germans

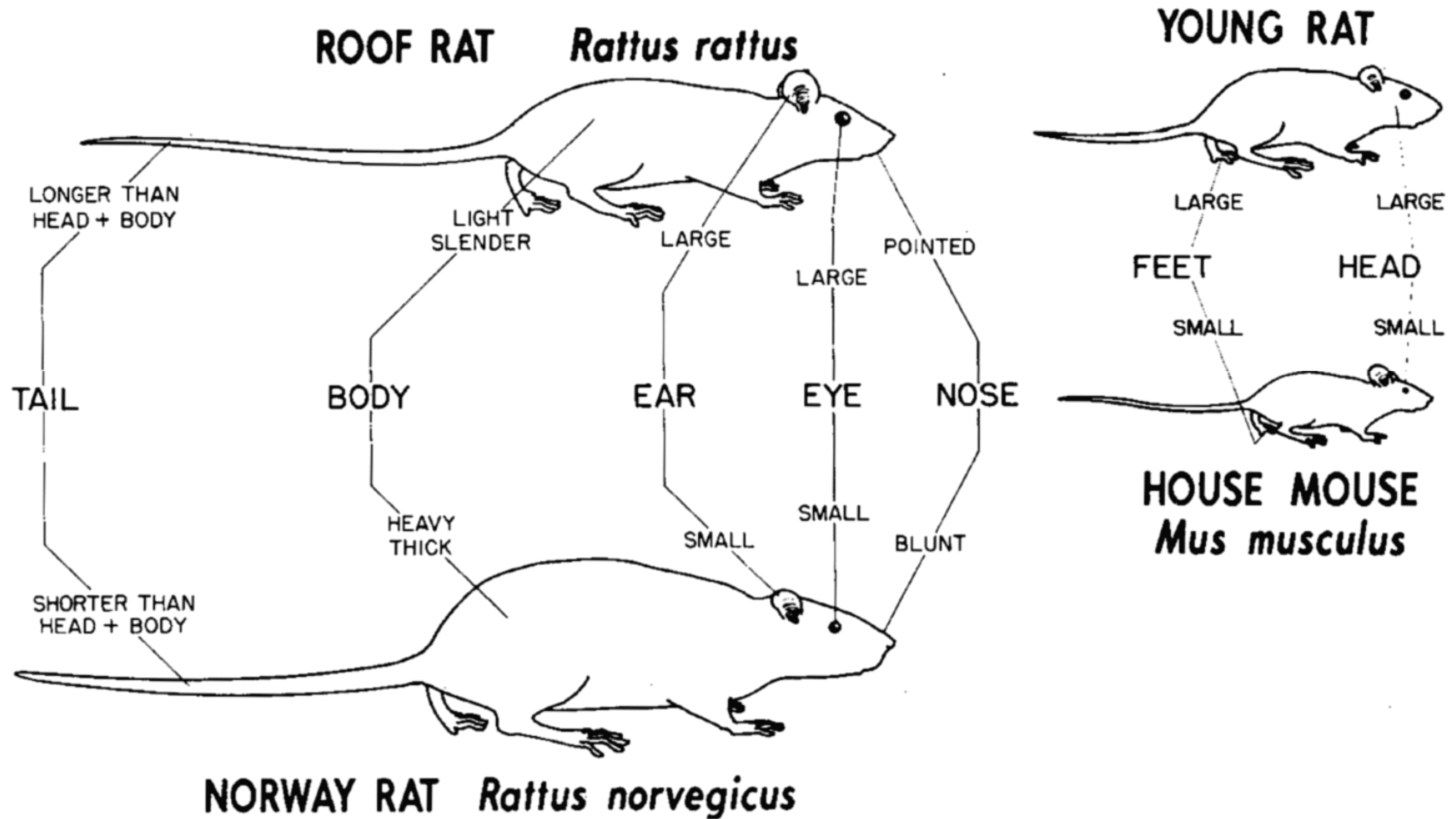


Commensal rodents

- Hazards
 - fire hazard, damage to structures, stored food, and other commodities
 - bites
 - disease transmission, including plague, typhus, leptospirosis, salmonellosis, hantavirus, others



FIELD IDENTIFICATION OF DOMESTIC RODENTS



Can you identify the species?



Commensal rodents

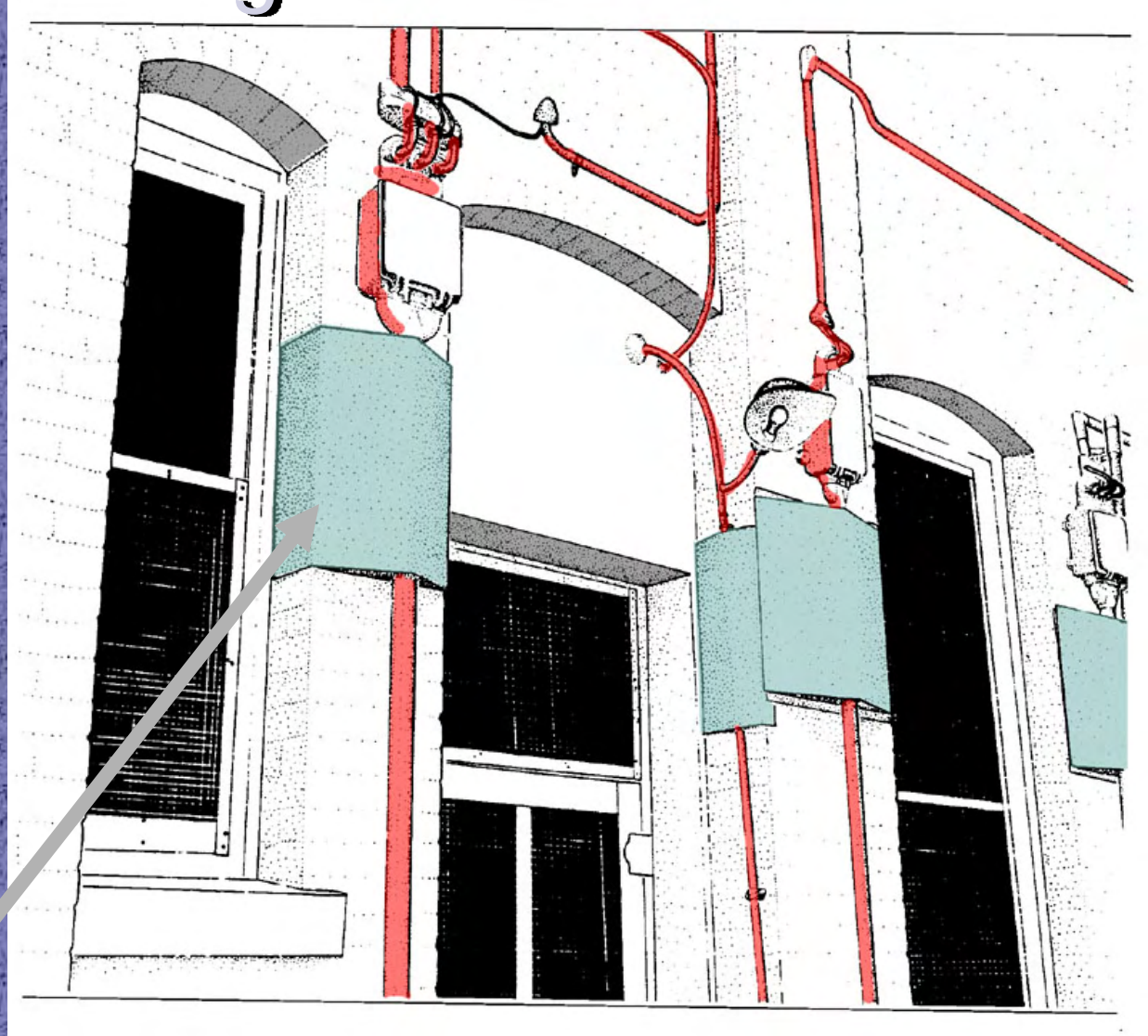
- Rodent-proofing
- Sanitation
- Inspections
- Trapping
- Rodenticides, tracking powders



How rodents gain access



Preventing rodents access

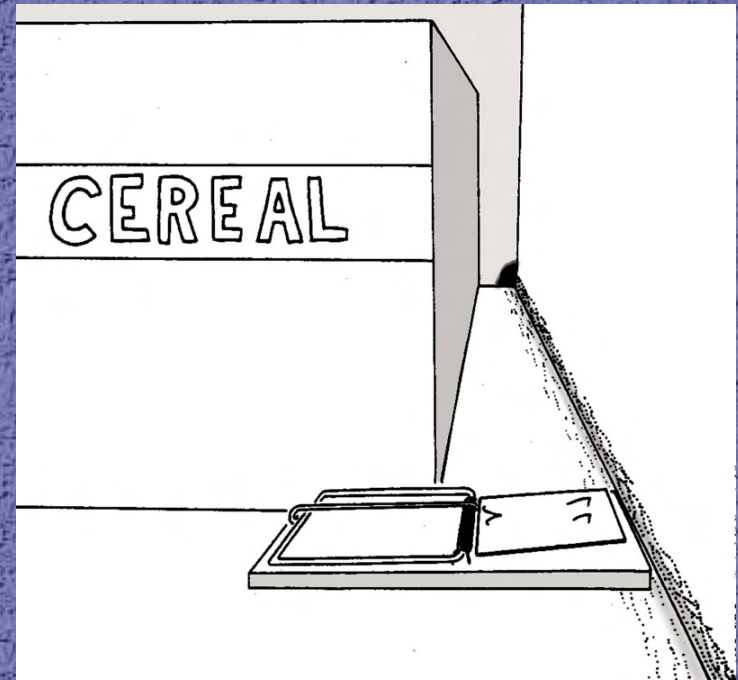
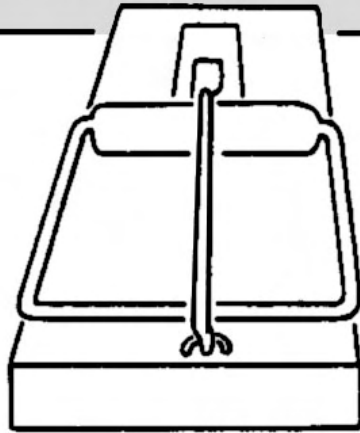


Rat guards

Placing the rat trap

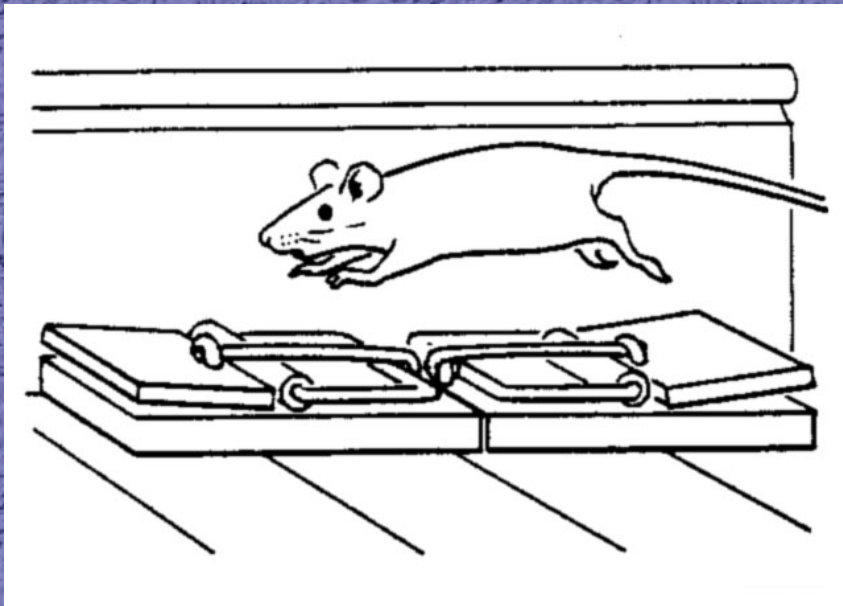
- Trapping tips

Proper placement

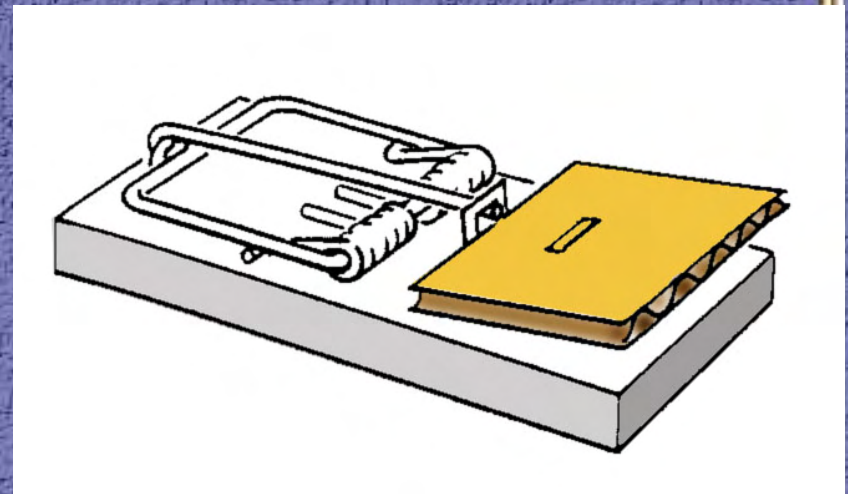


Rodents

- Trapping tips



Pairing traps



Expanded trigger

How rats move about

