


Session Three of Integrated Pest Management for Multifamily Housing




www.StopPests.org

Find handouts for today's session at:
<http://stoppests.org/go/onlinecourse>

While we wait,
please tell us in the
chat:
What's your
name?
Where are you
from?

Session Three of Integrated Pest Management for Multifamily Housing



www.StopPests.org

- StopPests is a program of the Northeastern IPM Center of Cornell University, funded by HUD's Office of Lead Hazard Control and Healthy Homes.
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Session Three of Integrated Pest Management for Multifamily Housing



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United States Department of Agriculture
National Institute of Food and Agriculture


National Center for
Healthy Housing


Regional
IPM
Centers


IPM


NEMA


CDC
CENTERS FOR DISEASE
CONTROL AND PREVENTION

Session Three - Meet Your Host



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Session One Introduction

- Priority Pests
- Why IPM
- Pesticides & Health



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Session One Introduction

- Priority Pests
- Why IPM
- Pesticides & Health

Session Two Cockroaches

- What they are
- Associated Health Hazards
- What they eat & drink
- Where they live
- Prevention & Control



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Session One Introduction

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Session Three Rodents

- What they are
- Associated Health Hazards
- What they eat & drink
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Session One Introduction

- Priority Pests
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Session Two Cockroaches

Session Three Rodents

Session Four Bed Bugs

- What they are
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- Prevention & Control



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Session Three - Meet Your Trainer



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Any Questions from Session Two
Cockroaches



Homework Review from Session 2

- Does your PMP use cockroach monitors?
- Where? (focus units only, focus & neighbors, all units, common areas)
- How often are the monitors inspected/changed?
- Be ready to report your findings

Poll: Does your PMP use cockroach monitors?

- Yes, in focus units only
- Yes, in focus units & neighboring units
- Yes, in all units
- Yes, in common areas
- No

Select one.

Poll: How often are the monitors inspected/changed?

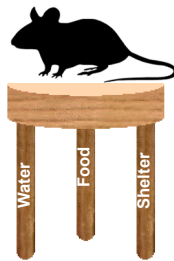
- Weekly
- Monthly
- We're supposed to change them?
- N/A (we don't use)

Select one.

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What All Pests Need

- Food
- Water
- Shelter



Know Your Priority Pests

- **Cockroaches** cause asthma in infants, trigger asthma attacks, and contaminate food
- **Rodents** such as mice and rats carry diseases, bite, destroy property, may cause fires, and may trigger asthma attacks
- **Bed Bugs** and their bites are a nuisance and are expensive to eliminate

Poll: On average, what level of rodent presence have you seen at your properties?

- Indoor mice
- Indoor rats
- Outdoor rats
- Evidence of rodent droppings indoors
- None
- Don't know

Select all that apply.

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What is a Rodent?

Many kinds:

- Rats
- Mice
- Squirrels
- Chipmunks
- Woodchucks
- Mice & Rats are our focus



What is a Rodent?

- Gnaw to create holes and pathways
 - Wood, plastics, hoses, sheetrock, copper, wires, etc.
- Make lots of babies fast
- Most active during the first two hours after dusk
- Travel the same paths nightly, close to walls or items that give them cover



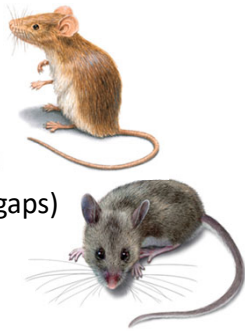
Mice

- Deer Mouse
 - *Peromyscus maniculatus*
- House Mouse
 - *Mus musculus*



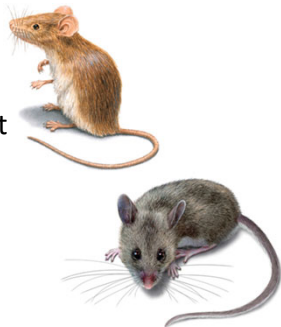
Mice

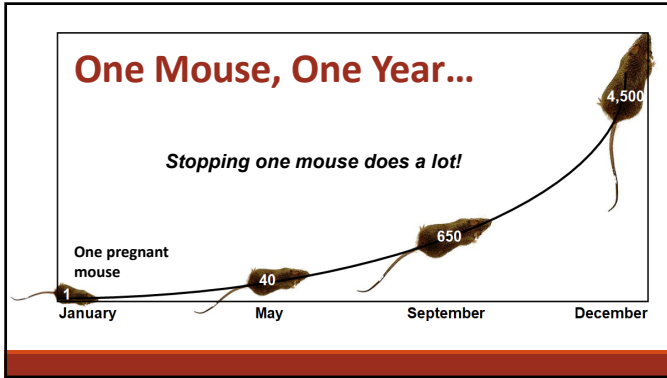
- Mostly indoors
- Travel 10-30 feet from their
- Entry size: dime (close 1/4" gaps)



Mice

- Nibble during the night
- Food: 0.1 oz daily
- Rarely drink





Poll: Which of the following are TRUE statements about mice?

1. Get most of their water from their food
2. Make asthma worse in sensitive people
3. Can squeeze through a ¼ inch gap
4. Will be easily stopped by foam sealants

Select all that apply.

Rats

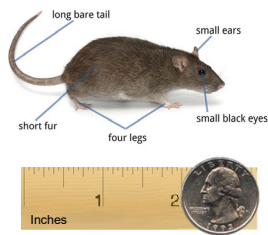
- Roof Rat
 - *Rattus rattus*
- Norway Rat
 - *Rattus norvegicus*

Norway Rat



Rats

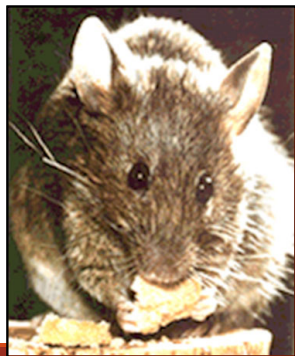
- Live mostly outdoors
- Entry size: Quarter or a ½ inch crack
- Very smart, cautious, and afraid of new things
- Need ~1 ounces of water every day
- Require 0.5–2.5 ounces of food each day



Rodents are Health Hazards

Rodents and their waste:

- Cause or aggravate asthma and allergies
- Can carry infectious diseases



Rodents are Health Hazards

Rodents and their waste:

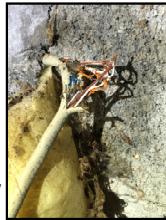
- Cause or aggravate asthma and allergies
- Can carry infectious diseases
- Bite



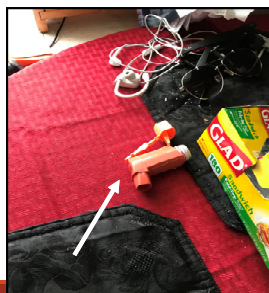
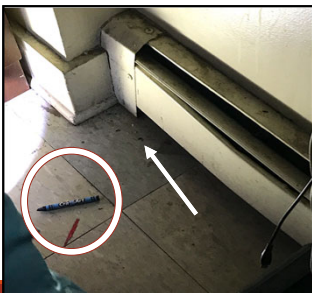
Rodents are Health Hazards

Rodents and their waste:

- Cause or aggravate asthma and allergies
- Can carry infectious diseases
- Bite
- Contaminate and damage food
- Are unwelcome where we work and play
- Chew wires and create fire hazards



The Asthma Connection



Rodents Violate Housing Program and Codes

According to HUD's Real Estate Assessment Center (aka REAC) the observation of any of the following is defined as an infestation:

- Droppings or chewable holes
- One or more live rats or mice
- Other insects or vermin observed



Where Mice Nest

- Walls
- Beneath refrigerators & stoves
- Inside stoves
- Cabinets, closets
- Couches & chairs
- Stored cardboard boxes
- Ceiling



Mouse nest in a hat

Where Rats Live

- Exterior burrows, usually associated with trash
- Prefer to live close to food and water
- Will travel up to 450 feet from burrow



- In high-rise buildings, rats will infest dropped ceilings, wall voids and basements
- And crawl spaces if food trash collects along the exterior
- Food scraps left in a trash compactor chute will also attract them

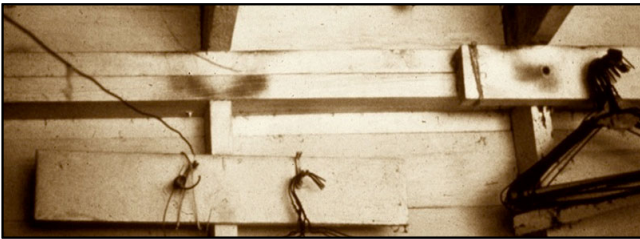
Where Rats Live



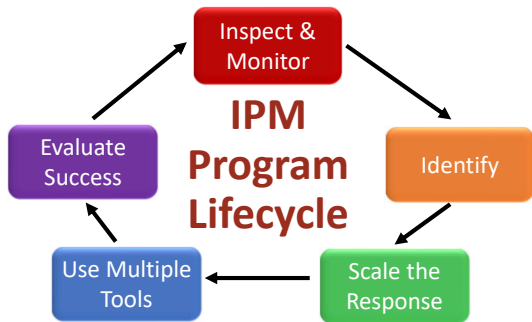
Rodent urine stain in dropped ceiling



Where Rats Live



IPM Program Lifecycle



Inspect & Monitor

Inspect &
Monitor

Thorough Inspection – Look Under and Behind



Thorough Inspection – Look Under and Behind



Thorough Inspection – Remote Sensing Monitors



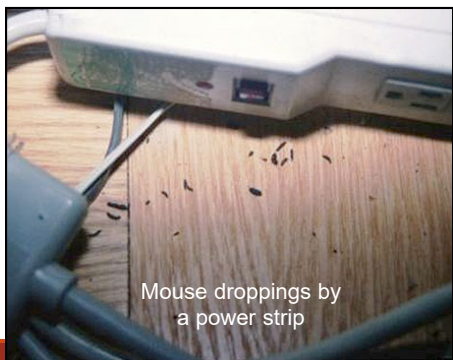
Photo credit: PMP Magazine

Signs of Rodents

- Droppings
- Dog or cat alerts
- Rub marks
- Indicator pests
- Smell
- Sightings
- Noise
- Gnaw marks
- Holes
- Nests



Droppings & Urine Stains



Mouse droppings by a power strip

Holes and Rub Marks



Sebum and Urine Stains



Not-So Obvious Signs...



Mice in Stoves



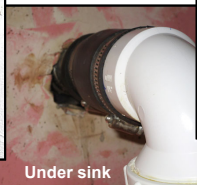
Rat Burrows



Photo credit Jayne Windham

Inspect

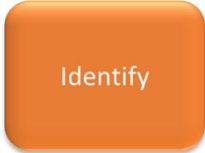
- Using a flashlight, look for evidence where rodents would find food, water, or a hiding spot: up, down, behind, and under
- Think like a rodent – look in hidden areas



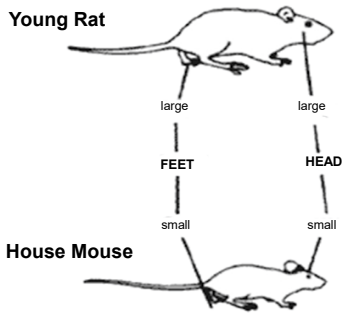
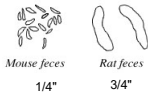
Identify

Check the evidence:

- Is it a mouse?
- A rat?
- What kind?



Mouse or Rat?





Poll: Which of the following are TRUE statements about Norway rats?

1. Live mostly outdoors in burrows
2. Live near food sources
3. Can squeeze through an opening the size of a quarter
4. Will be easily stopped by foam sealants

Select all that apply.

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Scale the Response

How many rodents do we have?



Use Multiple Tools

- Sanitation
- Exclusion
- Non-Chemical Solutions
 - Traps
- Targeted Chemical Use
 - Rodenticides
 - Only by Licensed Professionals



Sanitation

- Eliminate hiding spots
- Eliminate access to food and water



Eliminate Harborage

- Eliminate hiding spots
- Eliminate access to food and water



Don't Simply Relocate the Problem

An effort to hide the contents from the mice



Food Can Be Found Under The Hood

Abundant mouse feces below the stove burner plate



Eliminate Access to Food & Water

Recycling
Trash
Dumpsters



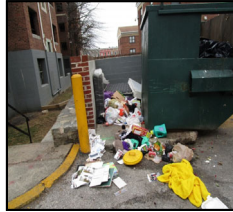
Trash & Recycling = Food to a Pest



- ✓ Wash recyclable containers
- ✓ Metal bins when practical
- ✓ Line bins with garbage bags
- ✓ Wash bins with detergent
- ✓ Tight fitting lids
- ✓ Frequent pick-up

About Dumpsters

- Tightly covered
- Monitored
- Empty dumpsters regularly



About Dumpsters

- Free of holes
- Placed on concrete
- Screen drain holes





Cleaning up after rodents is critical to human health

- Mouse urine and droppings trigger asthma and allergies.
- They also carry disease-causing pathogens.

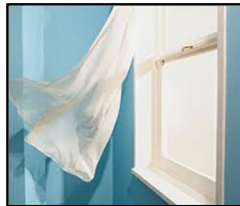
Take precautions before and during clean up of rodent-infested areas

- Prevent exposure to urine and droppings
 - You may need to clean, trap, and clean again.
- Trap rodents for one week
- Seal up any entry ways



Prevent Exposure to Urine and Dropping

- Trap rodents for one week
- Seal up any entry ways
- Ventilate (open doors and windows)



CDC Recommendations for Cleaning Mouse Urine and Droppings

- Trap rodents for one week
- Seal up any entry ways
- Ventilate (open doors and windows)
- Wear PPE



Do Not Sweep or Vacuum

- Disinfect first - Don't stir up dust by vacuuming or sweeping



CDC Recommendations for Cleaning Mouse Urine and Droppings

- Disinfect first - Don't stir up by vacuuming or sweeping
- Spray the nest, urine, and droppings with disinfectant or a mixture of bleach and water
 - One part bleach to 10 parts water
 - Let soak 5 minutes
 - Follow the label for commercial disinfectant



CDC Recommendations for Cleaning Mouse Urine and Droppings

- Wear PPE
- Spray the nest, urine, and droppings with disinfectant or a mixture of bleach and water
 - One part bleach to 10 parts water
 - Let soak 5 minutes
 - Follow the label for commercial disinfectant
- Use paper towels to pick up the urine and droppings
- Dispose of waste in sealed bag



Non-Chemical Solutions: Exclusion

Got rats?

- Trap first, then seal





Exclusion

Eliminate pest access in plumbing systems:

- Sill cocks
- Utility lines
- Sewer lines
- Other openings



Exclusion: Find the Gaps

HVAC Components

- Piping
- Duct work
- Wires
- Conduits

Intersections with floors, walls, or ceilings



Exclusion: Find the Gaps



Exclusion

Repairing holes, cracks and gaps...



Stuff it

- Start on the outside of the building and work in

Use the best Caulks and Sealants You Can Afford



Copper Mesh

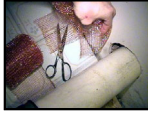
- Woven copper cloth - difficult for rodents to chew through.
- Stuff in gaps around pipe, ductwork and wiring penetrations
- Use in openings smaller than 2".
- Repair larger openings with standard building materials.
- Won't rust or stain brick, siding, or stucco



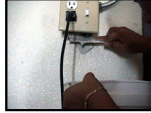
Can be cut with scissors, yet it will cut up mouth parts of animals that attempt to chew through it.

Exclusion

Repairing holes, cracks and gaps...



Stuff it



Seal it



Check it often

- Start on the outside of the building and work in
- Use appropriate materials
- Check repairs over time

Door Sweep Construction Detail



Pest Control Door Sweep

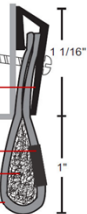
ALUMINUM RETAINER, METAL END GUARD, EPDM RUBBER WEATHERSEAL, XCLUDER MESH

Aluminum Retainer

Metal End Guard

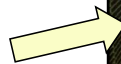
Xcluder® Mesh

EPDM Rubber Weatherseal



Exclusion

Having a Good (but messy) Day

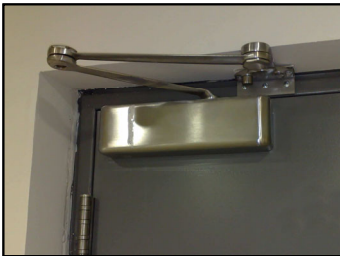


Exclusion: Repair These

- Broken windows, screens, vent covers or holes in exterior walls
- Doors and windows that do not completely close



Exclusion: Install These



- Automatic door closers
 - Frequently used, tend to be left open
 - Food or trash is present
- Screens
 - Air intake and exhaust vents for HVAC systems
 - Doors, hatches, skylights

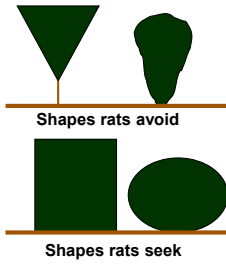
Poll: Is exclusion part of your IPM treatment?

- Yes, The PMP includes this service
- Yes, PMP directs our staff what to seal
- Yes, our staff regularly looks for entry points
- No, exclusion is not part of our treatment
- I don't know

Select one.

Landscaping

- Plant choices that resist pests naturally
- Plant maintenance



Another Kind of "No Pest Strip"

- Rodents do not like open spaces
- Break up large areas of cover with wide stone/gravel walkways
- Keep foliage away (at least 3ft) from buildings
- Trim overhanging tree branches



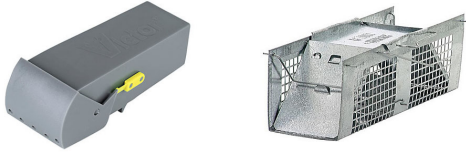
Non-Chemical Solutions: Traps

- Effective & Re-usable



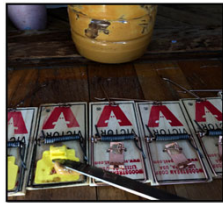
Non-Chemical Solutions: Traps

- Effective & Re-usable
- Live traps?



Non-Chemical Solutions: Traps

- Effective & Re-usable



Bait with food or nesting materials

Non-Chemical Solutions: Traps

- Effective & Re-usable
- Placement is key



Photo credit NYS IPM

Non-Chemical Solutions: Traps

- Effective & Re-usable
- Placement is key
- Bait & set many traps
 - 6 traps for each mouse
- May set immediately
- More effective if left unset and re-baited for a day or two



Bait with food or nesting materials

How to Trap Rats

- Place many traps
- Bait with **familiar food** and leave UNSET until rats are readily feeding
- Bait & set all traps simultaneously



Image credit: animalatticpest.com

About Glue Boards...



Adults won't "stick" around.



Juvenile catch indicates nest is nearby

About Ultrasonic Repellants...

Just don't.



About Mouse Repellants...

Just don't.



About Tracking Powders...

Just don't.

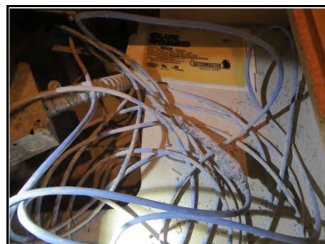
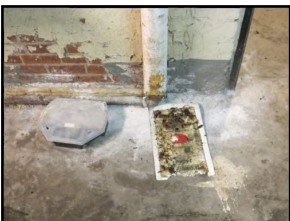


Figure 4. Excessive tracking powder use in a void. Mouse droppings are visible as texture under powder to the right of the image.

Targeted Chemical Use by PMP

- Ideally, sanitation first
- Inspect before treatment
- Exclusion & traps next
- Only licensed individuals should apply pesticides

Rodenticides Alone Won't Work



Rodenticides (Pesticides) Can Harm Humans

- Risk from exposure may outweigh the benefit
- Possible harm to pets and wildlife
- Some populations are especially vulnerable or sensitive to pesticides

Rodenticide Misuse

- Rodenticides are designed to kill mammals
- Rodenticide poisonings reported in US*:
 - 2002 – 20,507
 - 2018 – 9,029



*Poison Control Center

Targeted Chemical Use - Baits



- The label is the law
- Tamper-resistant stations
- Read the label on both the station and the bait
- Bait station should be:
 - Secured
 - Locked
 - Labeled
- If rodents are inside, consider using traps



Bait Stations Must be Maintained



What's That Smell?

Where did you *think* they'd go to die?



A False Sense of Security?



A False Sense of Security?



(bait boxes have little or no effect on any rodents already inside...)

Rodenticides?

Please chat!

Almost all approaches to pest management have pros and cons.

- What are some of the “pros” of using rodenticides?

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Rodenticides?

Please chat!

Almost all approaches to pest management have pros and cons.

- What are some of the “cons” of using rodenticides?

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Resident Mice: Cleanout

Prevent resident mice from escaping

- Surround stove with a ring of glue boards
- Remove the sides of stove
- Any escaping mice are caught on glue boards

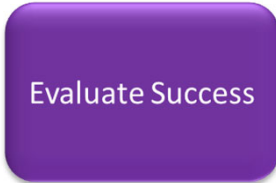


Rat Prevention and Control: Dry Ice

- Suffocates rather than poisons
- Used only in outdoor burrows
- Not approved in all states
- Requires caution when handling



Evaluate Success



Recordkeeping

- Identify:
 - Rat or Mouse
- Location & Date
- How Many
- Obvious food source
- Note Action Taken
- Follow-up

Find this log at StopPests.org

FOCUS UNIT TRACKING LOG							
Name/Address of Property: _____							
The IPM team identifies areas or units of focus and coordinates IPM efforts. This sheet unites pest control, housing, and maintenance record-keeping systems. Keep it in the front of the IPM log.							
Date	Unit / Location	Name of Staff Member / Technician	Pest Level	Repairs Needed	Recent or Current Focus (tick)	Housekeeping / Lease Compliance	
			Note any pests and circle the level of infestation. Include your PMP.	Mark under number or problem description	Check when completed	Yes or No	Action taken (e.g., meet with tenant, pest rotation method)
			Type of Pest:				
			Light Moderate Heavy				C F P
			Type of Pest:				C F P
			Light Moderate Heavy				C F P
			Type of Pest:				C F P
			Light Moderate Heavy				C F P
			Type of Pest:				C F P
			Light Moderate Heavy				C F P

Resident Control

- Clean up spilled food right away
- Wash dishes and cooking utensils soon after use
- Keep outside cooking areas/grills clean
- No pet-food or water bowls out overnight
- Thick plastic/metal garbage can with a tight lid
- Keep compost bins away



Resident Education

- Signs of mice
- How to report



Find this document at stoppests.org

IPM Practice

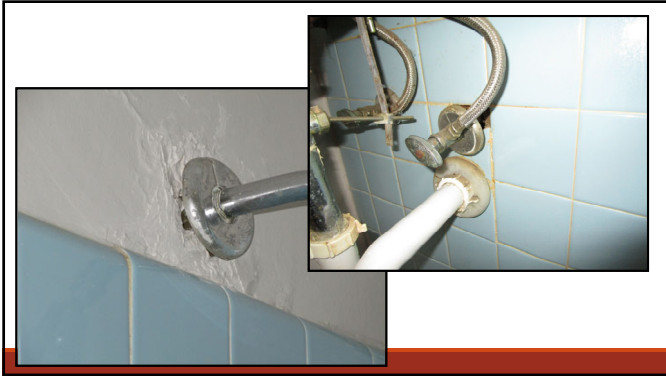
Please chat!
Examine each photo, then tell us:

- What's the problem here?
- How would you fix it?
- Who is responsible?











The sealant:

- Blocks the entry of pests that can damage the house and its contents
- Contains no pesticides

BLOCK OUT PESTS
PESTBLOCK INSULATING FOAM SEALANT

PESTBLOCK Insulating Foam Sealant blocks insects and rodents from entering the home by sealing gaps, cracks and holes which allow pest entry.

SPECIALLY FORMULATED

PESTBLOCK Insulating Foam Sealant is a 100% water-based, non-toxic, and non-flammable foam that expands to fill gaps and cracks up to 1/2" wide. It is available in a 100% water-based, non-toxic, and non-flammable foam that expands to fill gaps and cracks up to 1/2" wide.

The sealant:

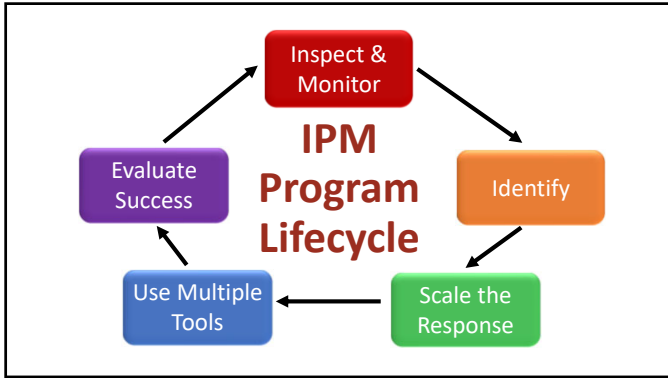
- Blocks the entry of insects that can damage the house and its contents.
- Contains no pesticides.
- Forms a long-lasting, mold and mildew resistant seal.
- Reduces the need for insecticides.
- Helps to reduce the number of insects that enter the home by sealing entry points.

RISK

PESTBLOCK Insulating Foam Sealant is available in 100% water-based, non-toxic, and non-flammable foam that expands to fill gaps and cracks up to 1/2" wide.

REACTIVE PESTS CONTROLLED

- Fleas
- Ants
- Bees
- Cockroaches
- Other insects
- Mice
- Other rodents



STOP Pests in housing
www.StopPests.org

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What we learned...

Homework for Session 3

- Find an especially good or egregious example of rodent management on your property
- Take a good photo
- Send photos to your instructor at **JWindham@LivableHousing.com** by end of day **May 10, 2022**
- Be prepared to discuss the photo