Pest Exclusion in Schools

The First Step in Preventing Infestations

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Integrated Pest Management

- Better and safer school pest management
- Pest “management” – keep populations at acceptable levels
- Pest “control” – eliminate pests completely (zero tolerance)

- **Pest Exclusion – Avoid the problem entirely**
- Exclusion is not useful for every kind of pest.

start with identification

some flying pests arrive
with shipments or items

Indian meal moth
pantry pest

fungus gnat
potted plants

others breed indoors
once introduced

drain fly
drains with debris

ID can help determine reason for entry + possibly entry points

Why do they enter?

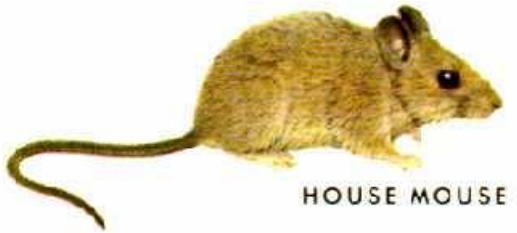
Filth Flies

phorid fly

dark-eyed fruit fly

American cockroach

flesh fly



White-footed mouse

bottle fly

house fly

Norway rat

Attracted to food odors

Why do they enter?

brown marmorated stink bugs

western conifer seed bugs

boxelder bugs

cluster flies

ladybird beetles

elm leaf beetles

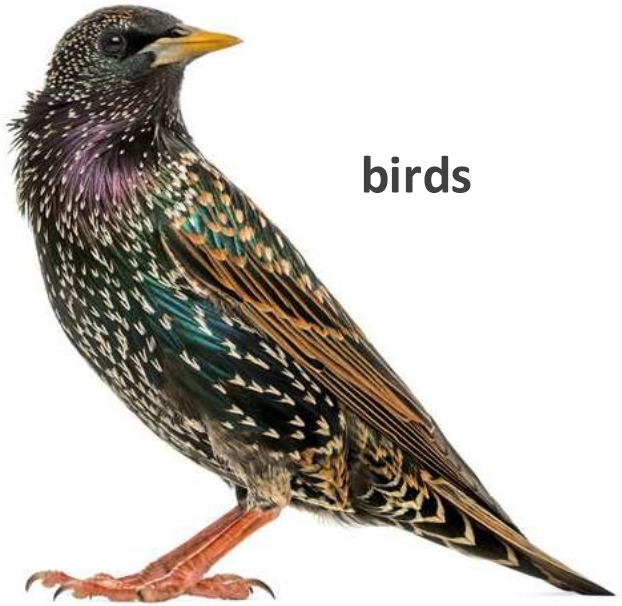
Protection during winter

exploit cracks & crevices around doors, windows...

Why do they enter?

yellowjacket

paper wasp



birds

Protective sites to live

exploit structural voids


Why do they enter?
because they can!
attractive light
propped door
attractive harborage
smelly garbage

Why aren’t pest pros doing exclusion?

What are some of the reasons that pest exclusion may not be used in your company? (Check all that apply)

35% We offer but customers don’t want to pay for exclusion

15% Exclusion takes too much time

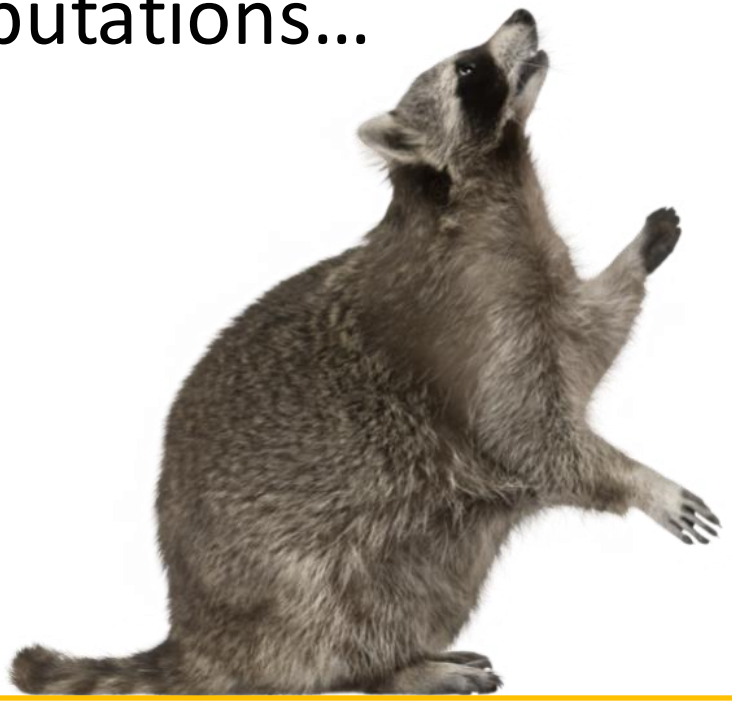
32% Not all technicians have the skills to do exclusion

NO INVESTMENT

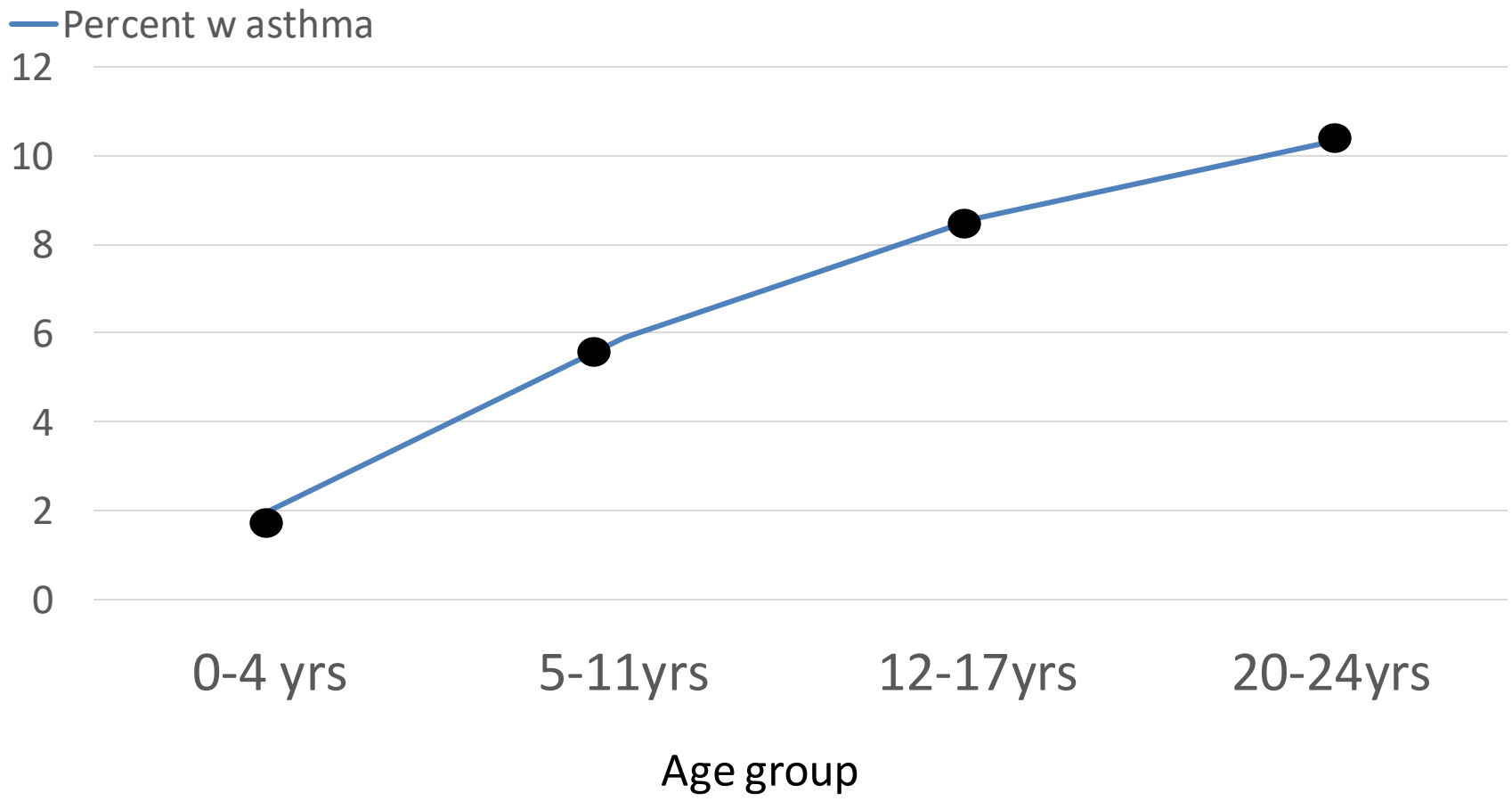
SCOPE/PestCemetery Exclusion Survey, November 2016-March 2017

Tight budgets – why make this investment?

- First of all, wildlife should always be humanely removed and excluded.
- Rats and mice damage doors, walls, insulation, plumbing, electric, food, sidewalks, infrastructure. …Reputations…
- Pesticide use is limited in NY schools.
- Rodents and cockroaches transmit diseases.
- CHILDHOOD ASTHMA



National Current Asthma Prevalence by age (2020)



https://www.cdc.gov/asthma/most_recent_national_asthma_data.htm

THIS is why we need to adopt pest exclusion in school buildings

Excluding Pests is Common Sense

- Exclusion is pest prevention - one of the pillars of a successful school IPM program.
- A permanent solution that keeps pests out or eliminates harborage and movement inside a building.
- But it must be done right, and that can be hard to do (skills and tools).

Over 15% of residential and commercial buildings in the US are over 75 yrs. old. (Even more in cities)

This includes school buildings.

Alterations and deterioration give pests access.

Famous, unnamed hotel in NY

Which crawling pests are likely to get inside?

- Ants – Many species, sizes; difficult to stop with exclusion
- Rodents - Mice, rats, chipmunks…
- Cockroaches – Oriental, American, German
- Occasionally or seasonally:
  - Earwigs
  - Centipedes
  - Spiders
  - Ground beetles
  - Sowbugs
  - Millipedes
  - Springtails

What does it take for pests to enter?
Rodent heads are wider than they are tall

Rat Entry Points

gaps > 1/2” tall

openings > 3/4” wide

Insects and other arthropods

- Require much smaller openings than rodents
- Under doors, loose or ripped screens, foundation cracks, stairwells to lower levels, vents, missing bricks, louvers, etc

Mice, insects and other arthropods

- Small crawling animals may use plants as pathways or bridges.
- Many can climb right up the building exterior for access.

So where do you start?

- Outer perimeter inspection for entry points and deficiencies.
- Indoor perimeter on first floor and lower level.

Record your findings on a Field Worksheet and with photos

#	**Structure** (**D**oor, **W**indow, **R**oof, **S**offit, **F**oundation, **E**xterior line, **I**nterior line, **Wa**ll, **Dr**ain)	**Type** (see codes below)	**Size of Gap/Penetration** (not pest proof)	**Within 100ft of Food Zone?**	**Largest Permissible Pest** (**I**nsect, **M**ouse, **R**at)	**Code Value**
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

These notes will help prioritize the repairs

Building Type
Independent (unattached)
Attached

Foundation Type
Concrete Hollow Block
Metal Sheathing over Studs
Poured Concrete; Solid
Brick
Stone

Basement Type
Conventional
Crawl

Door Type
Front
Side
Delivery (St. Level)
Delivery (Sidewalk/Stairs)

Escutcheon Plate Type
(1) Present and Sealed
(2) Present, Unsealed; allows insects, not rodents
(3) Present, Unsealed; allows insects and rodents
(3) No plate; Sealed to closure
(4) No plate, Foam Fill Around Pipe.
(5) No plate; Open ; allows for insects, but not rodents
(6) No plate Open; allows insects and rodents

Exterior Line Penetration/Type
Roof (**R**)
Foundation (**FD**)
Floor (**FL**)
Ceiling (**C**)
Wall (**W**)
Utility Elect. (**UE**)
Utility Plumb (**UP**)
Utility Gas (**UG**)
Utility (?) (**UU**)

Interior Line Penetration/Type
Floor (**FL**)
Ceiling (**C**)
Wall (Sheetrock Conventional)
Wall Poured Concrete Solid (**W**)
Wall : Concrete Hollow Brick (**CHB**)
Ceiling (Solid Pour)
Ceiling (Suspended)
Ceiling (other)
Utility Elect. (**UE**)
Utility Plumb (**UP**)
Utility Gas (**UG**)
Utility (?) (**UU**)

Babylon Jr, Sr. High School, Babylon, NY

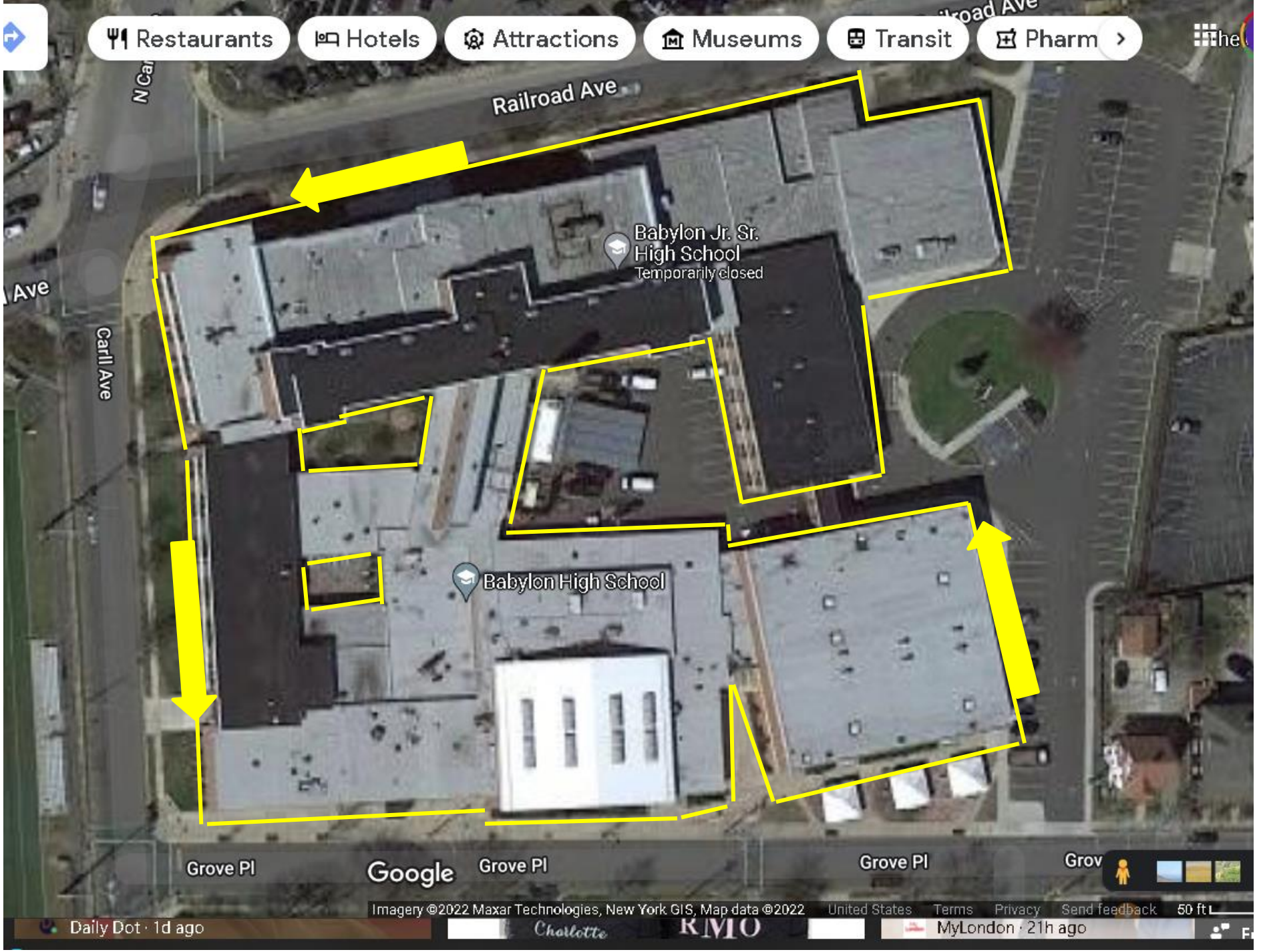
Original built in 1927

Additions thru the years

A thorough perimeter inspection takes time.

Make the investment.

It is worth doing!



What should you look for?

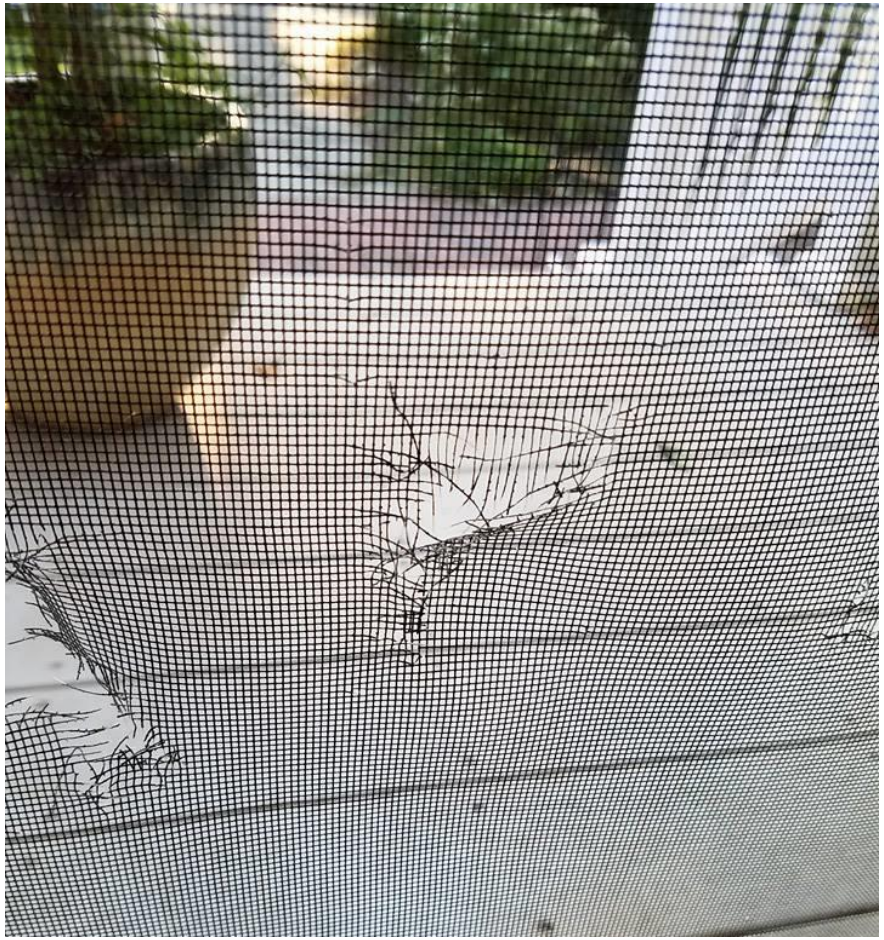
- Gaps under and between doors
- Missing door sweeps
- Decaying wood or metal doors

What should you look for?

- Unused or forgotten stairwells
- Piles of leaves or debris along foundation
- Standing water

What should you look for?

- Torn or loose screens



What should you look for?

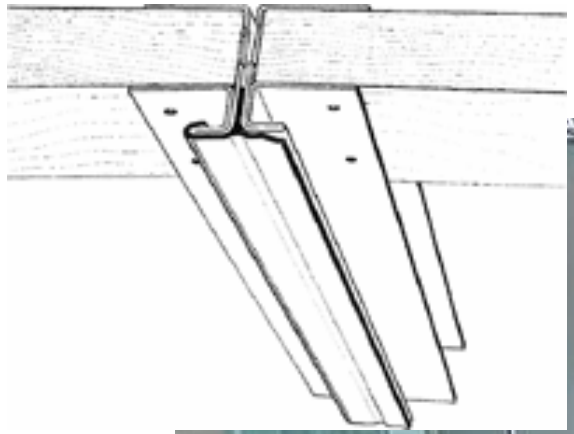
- Missing bricks
- Damaged mortar
- Cracks

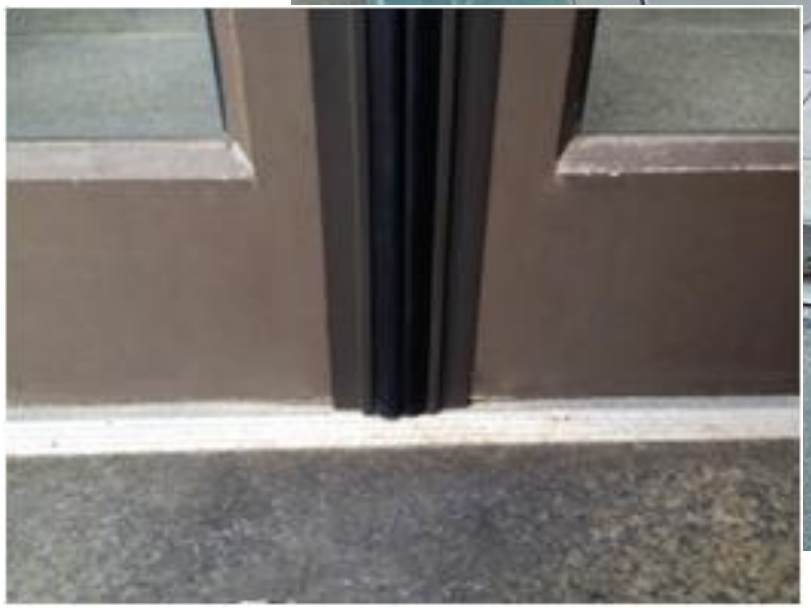
Look for tracks in the snow and rub marks

Weep holes give access to mice

Weep hole cover picture from www.wildlifexteam.com

Astragal space





If rodents can get in, they will get in.

No rodenticide can solve this problem.

Door sweeps that work.
Not vinyl flaps.

- Brush-style
- Thicker is better

Rodent resistant

- Stainless steel fiber fill

Rodent proof

Openings that allow access need to be repaired permanently.

What materials should you have?

- Temporary exclusion is OK if you plan to follow up.
- Focus on materials that offer permanent exclusion.

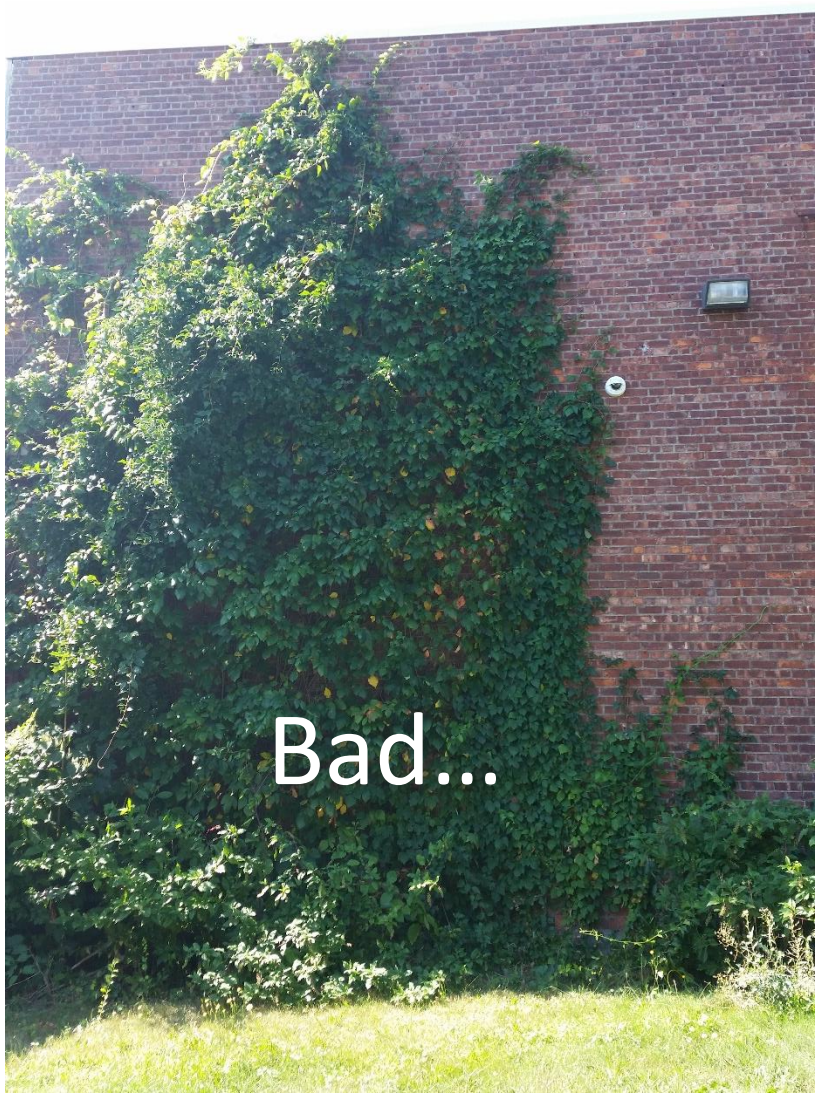
Temporary materials
Steel, copper wool
Expanding foam
Caulk

Permanent materials
Sealants
Concrete (or filler)
Escutcheon plates
Wood, building materials
Hardware cloth, screens

Hardware cloth keeps rodents and birds out

Outside: Use sealants, not foam or caulk

Keep the perimeter landscape tidy!



Plastic Curtains

reduce bird & insect entry
allow ease of access by staff

CanvaPro

Air Curtains

- flying pests pulled indoors by negative air pressure
- building design can alter airflow patterns
- air curtains can limit the pull from negative air
- installation costs can be high if no electrical outlet

Interior exclusion

- Caulk gaps to eliminate harborage.
- Seal wall openings to prevent movement between rooms and among units.
- Baseboards, light and electric plates, pipe chases, cable wire holes, behind and under cabinets.
- Good for ants, bed bugs, cockroaches, mice, silverfish, centipedes, etc.

Exclusion works with other bldg. services

- Weatherization and energy conservation
  - Repairs that restrict heat loss from a building can be pest exclusion
  - Efficient and sealed windows and doors, weather stripping
  - Intact roof and eaves prevent pests
- Fireproofing
  - Firestop sealants stop the movement of pests, too

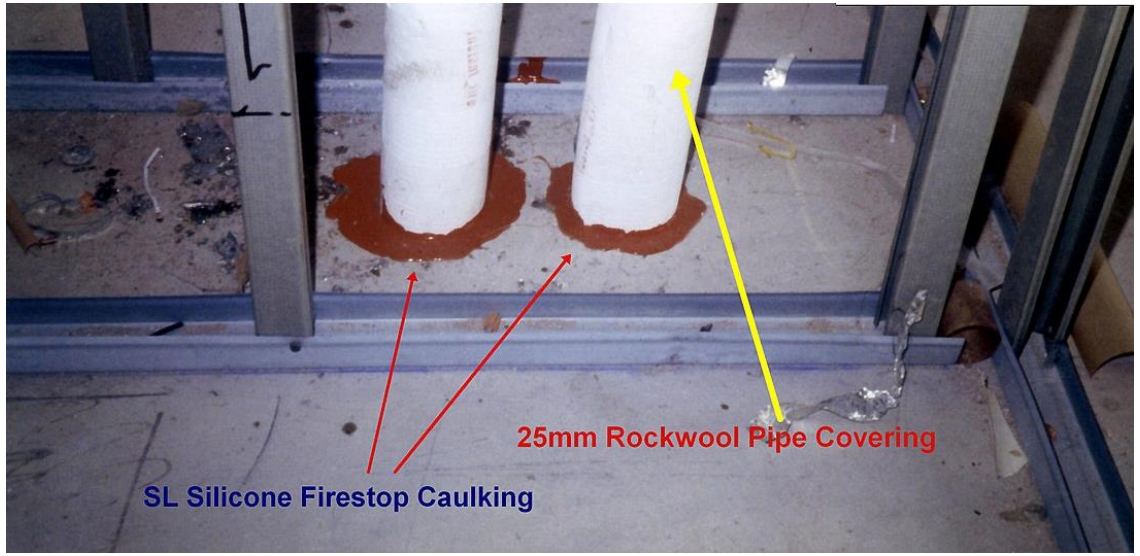


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Image Credits:

Indian meal moth: https://readypest.com/pests-indian-meal-moths.html
Fungus gnat: https://insectlab.russell.wisc.edu/2020/12/28/fungus-gnats-tiny-flies-around-your-houseplants/
Drain fly: http://en.wikipedia.org/wiki/File:Clogmia_Albipunctata_or_moth_fly.jpg
Yellowjacket: https://www.flapest.com/pest-info/bees-wasps-and-hornets/yellowjacket/
Paper wasp: https://www.westernexterminator.com/wasps/types-of-wasps/
European Starling: www.pestworld.org/pest-guide/birds/european-starlings/
Boxelder Bug: www.bigbugs.com
Ladybird beetle: www.wildlifeinsight.com/Insight/?p=1900
WCSB: http://picasaweb.google.com/107595387761034666575
BMSB: www.ipm.iastate.edu/ipm/hortnews/2010/11-17/stinkbug.html
Elm leaf beetle: https://www.catseyepest.com/pest-library/pantry-pests/beetles/elm-leaf-beetle
Drain fly: http://en.wikipedia.org/wiki/File:Clogmia_Albipunctata_or_moth_fly.jpg
Dark-eyed Fruit Fly: http://commons.wikimedia.org/wiki/File:Drosophila_repleta_lateral.jpg
Phorid fly: www.networx.com/article/common-flies-in-north-america
Bottle fly: www.diptera.info/photogallery.php?photo_id=3442
Flesh fly: www.biosurvey.ou.edu/okwild/misc/fleshfly.html

New York State Integrated Pest Management Program

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Visit our Pest Exclusion page

- SCOPE – Scientific Coalition on Pest Exclusion
- https://nysipm.cornell.edu/community/homes-and-other-buildings/scientific-coalition-pest-exclusion/

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For more information, visit:

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