



In this module emphasize that cleaning is important. But an essential aspect of Keeping It Clean is that it be cleanable. Many surfaces are tough to clean. And corners and cubbyholes are tough to clean too. You could say that the goal is to keep it clean AND CLEANABLE.

These are steps to reduce household hazards. People are not born knowing that they must brush their teeth to prevent decay, they must learn it. So with household hazards, they must learn how to take care of themselves. Occupants know things about the building and themselves that can be learned nowhere else. Start with the people.

The second step is to keep the household in a certain condition:

- limit moisture related problems,
- limit dust and allergens,
- limit pest borne disease,
- provide local exhaust ventilation and general dilution ventilation to control unavoidable air contaminants,
- provide a comfortable space by limiting hazards like slips, falls, electric shock, drowning and poisons.

Third, limit sources of contaminants like lead, asbestos, combustion fumes, VOCs (Volatile organic compounds) and radon.

Fourth, maintain the house so it continues to provide dry, clean, comfortable and safe conditions.

LEARNING OBJECTIVES

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List three contaminants or allergens that are frequently found in house dust and their health effects.

Describe three ways allergens or contaminants get into house dust.

Identify three strategies to reduce them.



WHY IS CLEAN AND EASILY CLEANABLE IMPORTANT?

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- Reduce exposure to:
 - ◆ Chemical contaminants
 - ◆ Allergens
 - ◆ Pest droppings and urine
 - ◆ Pesticides
 - ◆ Heavy metals such as lead and arsenic
- Reduced harborage for pests



Many of these contaminants are persistent. They simply will not disappear unless they are cleaned.

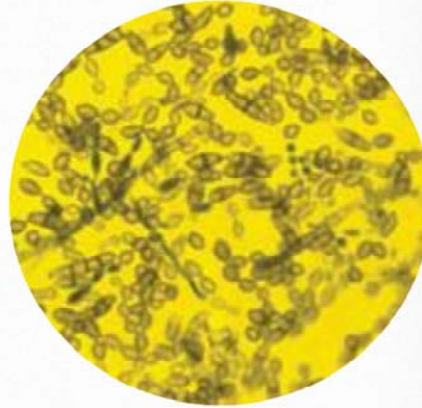
Mention that a house mouse will leave 3000 drops of urine wherever it goes.

- Reduced exposure to:
 - Chemical contaminants
 - Allergens
 - Pest droppings and urine
 - Pesticides and consumer chemicals
 - Heavy metals such as lead and arsenic
- Reduced harborage for pests

ENVIRONMENTAL ALLERGENS

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5.1

- Animals
- Dust Mites
- Molds
- Tree Pollen
- Grass Pollen
- Weed Pollen
- Latex
- Foods
- Stinging Insects
- Medications



Allergens can get into the home from a variety of sources. Therefore, cleaning is important and surfaces need to be cleanable.

The Pediatric Asthma and Allergy Clinic at the Boston Medical Center identifies the following environmental allergens that can be inhaled and tests for them with antigens.

Animals: Dog, Cat, Cockroach, Feather mix (chicken, duck, goose), Gerbil, Guinea pig, Hamster, Horse, Mouse, Parakeet, Rabbit, Rat

Dust Mites: D farinae, D pter., Dust mite mix, House Dust Mix

Molds: Alternaria, Aspergillus, Cladosporium, Epicoccum, Helminthosporium, Penicillium, Mold mix (AHAP)

Tree Pollen: Birch, Oak, Elm, Maple, Ash, Hickory, Tree mix

Grass Pollen: Grass mix (5 Grass Mix, Hollister-Stier)

Weed Pollen: Lamb's quarters, Marsh elder, Plantain, Ragweed, Sagebrush, Yellow dock

Other Allergens: Latex, Foods (aerosolized)

Other: non-inhalant allergens: Foods, Stinging Insects, Medications



*Dust mites in humid
and dry buildings*



Dust mite allergen can cause asthma and triggers asthma attacks. See 2000 Institute of Medicine Report.

WHERE DOES HOUSE DUST COME FROM?

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5.3

Brought-In

Home-Grown

- Lead Dust
- Dust Mites

Resident-Made

- Garbage
- Clutter



About two thirds of the dust in a low rise building is tracked in from outdoors.^[1] The dust can become air borne from people's activities and in fact is found at higher levels nearer to people than in the general room air.^[2] Most house dust contains known contaminants in the form of heavy metals, pesticides and fungal spores^[3,1], therefore controlling dust is a good idea.

BROUGHT IN DUST

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5.3

- Four Steps
 - ◆ Hard Surface Walkways
 - ◆ Outside Grate-Like Mat
 - ◆ Inside Carpet Pad
 - ◆ Hard Surface Floor



Track off systems are crucial to controlling indoor dust. A good track-off system that is kept clean can collect upwards of 80% of the tracked in dirt. A useful residential system consists of four parts:

- Hard surfaced walkways
- A grate-like mat that allows grit to fall through
- A carpet portion to dry and collect fine particles
- An easily damp mopped hard surface floor.

HEALTHY CLEANING

Page 5.3

Don't dry dust or dry sweep

Vacuuming:

- Low-emission vacuum with beater bar
- Very slowly (or use vacuum with dirt finder)

Wet cleaning:

- Use "elbow grease"
- Frequently change water



It is best to avoid dry dusting or sweeping. You should use a damp cloth for dusting and mist the floor for broom sweeping.

When vacuuming, it is best to use a low-emission vacuum that has a beater bar and vacuum slowly.

It is often better to use wet cleaning methods than dry dusting. It is important to use good technique and "elbow grease" when wet cleaning. In fact it may be more important than what type of product you use. Make sure that you do not contaminate the wash water and frequently change the rinse water and cleaning rags.

MAKE BUILDINGS MORE CLEANABLE

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5.4**

- **Dust walk-off systems at entryways**
- **Dust-creating activities away from people.**
- **Smooth, cleanable surfaces**
- **Effective storage space**
- **Flooring that is easy to clean**
- **Vacuums with good filtration and easy to use**



Here is a list of what we can do to make buildings more cleanable.

- Install dust walk-off systems at entryways
- Keep activities which create dust away from people.
- Provide smooth, cleanable surfaces
- Provide effective storage space (to help avoid clutter)
- Choose flooring that is easy to clean
- Use vacuums that have good filtration and can be emptied quickly and thoroughly

CLEANABLE FLOORING

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Hard surface floors show dust more clearly, can be cleaned faster and can be damp mopped. Textile floor coverings are more complicated. They can collect and hold dust, but often turn into “virtual sources” of air borne particles. ^[1,3]

WHAT TO LOOK FOR IN A VACUUM?

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Beater Bar

Vacuum Strength

Filter Type

Dirt Sensor



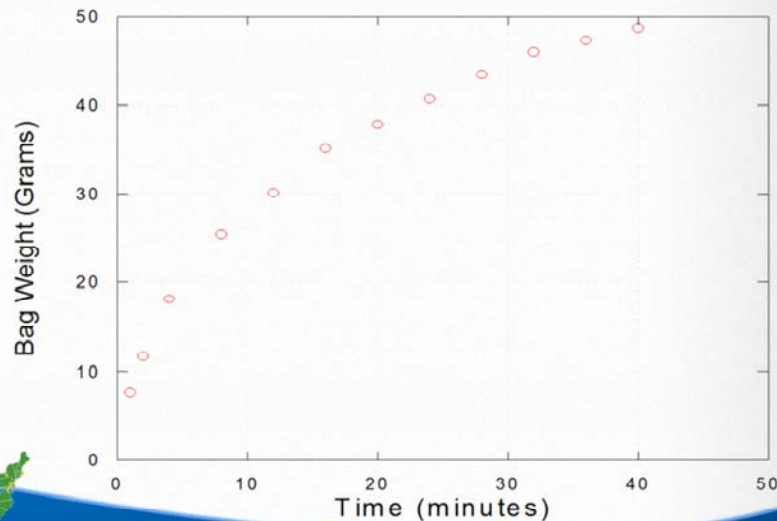
Vacuum cleaners are better than sweeping in terms of lessening the amount of particles they put in the air. This is increasingly the case as improved vacuum filters have become widely available. Central vacuums can have the canister placed in garages or vented to the outdoors so particles that pass through the filters are not released into the house. Vacuums with beater bars do a more thorough job of cleaning.

It is important to know whether you have vacuumed long enough. The vacuum on the right has a sensor that turns from red to green when it has collected some fraction of the dirt.

OLDER CARPETS: DIFFICULT TO CLEAN

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Vacuum dust curve-kasara



This graph shows the weight gain in a vacuum cleaner bag every two minutes as it passes over the same square meter of carpet. The resulting curve is a classic saturation curve. When the bag stops gaining weight all the recoverable dust has been removed from the carpet. The recoverable dust fraction is high for level loop and plush carpet and low for sculptured and shag carpet. ^[1]

Notice that the vacuum recovered 50 grams of dust from one square meter of carpet and that it took over forty minutes to do it. This is the result of not vacuuming quite long enough for an extended period. Once clean it requires far less time to keep it clean. At this loading the carpet is acting as a virtual source of airborne particles. When carpet is clean, it actually lowers airborne particle levels. It is not yet known at what point carpet changes from being a sink to a source.

HOW CLEAN IS CLEAN?

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- Clearance testing for lead
 - ◆ 40 micrograms of lead per square foot on floors
 - ◆ 250 micrograms of lead per square foot on window sills.
- Standards for allergens?
- Standards for dust?



Determining if the house is clean is often difficult because there are very few standards for cleaning.

However, there are standards for lead dust at 40 CFR Section 765. There are also standards for lead in soil.

While not a standard, the federal government established goals to reduce allergens in its Healthy People 2020 program for mice and cockroaches.

PROBLEMATIC CLEANING MEASURES

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5.6**

- Carpet cleaning
- Overuse of anti-microbials
- Sanitizers
- Air fresheners



DUCT CLEANING

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5.6



EPA recommends duct cleaning when:

- Substantial visible mold
- Ducts infested
- Ducts clogged
- Ducts release particles



Cleaning ducts and carpet can sometimes be problematic. Another potential problem is overuse of anti-microbials.

See EPA's "Should You Have the Air Ducts in Your Home Cleaned?"

EPA recommends duct cleaning when:

- Substantial visible mold on hard surface ducts and other ventilation components.
- Ducts infested with rodents or insects.
- Ducts clogged with excessive dust and debris.
- Ducts actually release particles from supply registers.

CLUTTER

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5.7

- What's the problem?
- What do we do to help? Organize home,shelves and storage bins.
- Hoarding? What's the psychological aspect of this?



Clutter can be a problem because it can make it more difficult to keep a house clean and can also provide places for pests to hide. It can also be a source of trips and falls and in more serious situations, hamper escape from the house if there is a fire or some other type of emergency. Clutter can also block ventilation vents. Typical solutions include using shelves and bins for organizing the home.


Hoarding is an excessive acquisition of possessions (and failure to discard them), even if the items are worthless, hazardous or unsanitary. Compulsive hoarding may impair mobility and impede necessary access to or escape from the unit, creating a potential health and safety hazard. Hoarders may need assistance from mental health professionals.

If you are an assessor, and your checklist asks "Is there excessive clutter in a bedroom?" what is your objective criteria for making that determination? Could be: 1. Is there a slip, trip, fall hazard? 2. Are surfaces cleanable? 3. Are vents blocked? 4. Are there harborages for pests?

CODE REQUIREMENTS
Code requirements related to cleanliness

Page 5.7

305.1	302.1	307.1	503.4
• General	• Sanitation	• Accumulation of rubbish or garbage	• Floor surface



From the International Property Maintenance Code

Review quickly but raise the question about different interpretations of clean and sanitary.

305.1 General.

The interior of a structure and equipment therein shall be maintained in good repair, structurally sound and in a sanitary condition.

Occupants shall keep that part of the structure which they occupy or control in a clean and sanitary condition.

Every owner of a structure containing a rooming house, housekeeping units, a hotel, a dormitory, two or more dwelling units or two or more nonresidential occupancies, shall maintain, in a clean and sanitary condition, the shared or public areas of the structure and exterior property.

302.1 Sanitation.

All exterior property and premises shall be maintained in a clean, safe and sanitary condition.

The occupant shall keep that part of the exterior property which such occupant occupies or controls in a clean and sanitary condition.

307.1 Accumulation of rubbish or garbage. All exterior property and premises, and the interior of every structure, shall be free from any accumulation of rubbish or garbage.

503.4 Floor surface. In other than dwelling units, every toilet room floor shall be maintained to be a smooth, hard, nonabsorbent surface to permit such floor to be easily kept in a clean and sanitary condition.

KEY MESSAGES

- Pesticides, allergens, and general chemicals in the home can cause allergic reactions, asthma and asthma exacerbation, and toxic exposure effects.
- Potential sources of allergens and contaminants in the home come from outdoor and indoor sources.
- Keeping a home clean includes controlling the source, creating smooth and cleanable surfaces, reducing clutter, and using effective cleaning methods.





These are steps to reduce household hazards. People are not born knowing that they must brush their teeth to prevent decay, they must learn it. So with household hazards, they must learn how to take care of themselves. Occupants know things about the building and themselves that can be learned nowhere else. Start with the people.

The second step is to keep the household in a certain condition:

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LEARNING OBJECTIVES

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8.1

EXPLAIN the difference between an injury and an accident.

NAME the 3 most common home injury related causes of death.

NAME five locations to look for safety hazards in the home.

NAME five ways to prevent home injuries.





KEEP IT SAFE

There are many ways to be injured in the home

There are many possible ways to be injured in a house. There are twelve issues illustrated in this section of a house. ^[1]

1. Safety gates help prevent falls down stairs and to keep children away from dangerous areas.
2. Safety latches and locks for cabinets and drawers in kitchens, bathrooms, and other areas help prevent poisonings and other injuries.
3. Door knob covers and door locks help prevent children from entering rooms and other areas with possible dangers.
4. Use anti-scald devices for faucets and shower heads and set the water heater temperature to 120 degrees.
5. Place smoke detectors on every level of the home and near bedrooms to alert residents to fires.
6. Window guards and safety netting help prevent falls from windows, balconies, decks, and landings.
7. Corner and edge bumpers help prevent injuries from falls against sharp edges of furniture and fireplaces.
8. Outlet covers and outlet plates help prevent electrocution.
9. Carbon monoxide (CO) alarm outside bedrooms helps prevent CO poisoning.
10. Cut window blind cords. Use safety tassels and inner cord stops to help prevent children from strangling in blind cord loops.
11. Door stops and door holders help prevent injuries to fingers and hands.
12. Cordless phones make it easier to continuously watch young children, especially when they're in bathtubs, swimming pools, or other potentially dangerous areas.

ARE INJURIES ACCIDENTS?

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8.2

Injuries



Accidents



The key point to remember is that injuries are preventable!

Accidents are events that happen completely by chance, with no planning or deliberate intent.

Injuries are preventable: they do not occur at random.

Accidents are things like being hit by a meteor – you cannot plan for such an event. Injuries are a very human experience. We all take chances because we believe based on past experience, for example, that we will not be injured when using a chair instead of a stepstool or ladder. Ask the class to provide examples of unsafe acts that result in injuries and are not accidents. Being more aware helps prevent actions that lead to injuries.

SAFETY-RELATED HOUSING ISSUES

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8.2



Holes big
enough
to trip on



Electrical
wiring
problems



Lack of
alarms

Source: American Housing Survey – 2009



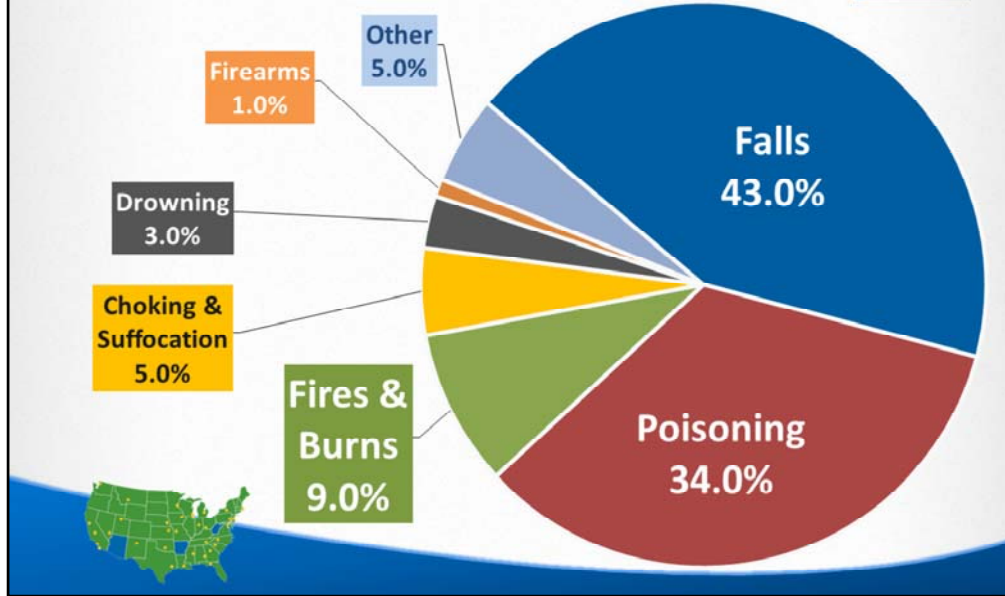
Basic Stats from

- Holes big enough to trip on
 - 1.5% of homes have holes in floors
 - 3.7% in mobile homes
 - 2.1% for residents below poverty level
- Electrical Wiring
 - 1.0% have exposed wiring
 - 1.5% have rooms without electric outlets
 - 8.7% have blown fuses or breakers in last 3 months
- Alarms
 - 27% of homes don't have working CO alarm
 - 11% of homes don't have working smoke alarm

2009 American Housing Survey. See Overview Module for more information.

WHAT ARE THE MOST COMMON CAUSES OF HOME INJURY DEATHS?

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8.2



Here is a graph showing the most common causes of home injury deaths. As you can see falls, poisonings, and fires/burns, are the top three causes of home injury deaths. Falls account for 43% of all deaths, poisoning 34%, and fires 9%.

WHICH AGE GROUPS ARE MOST SUSCEPTIBLE?

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Age Group	Susceptibility
Infants	Choking/suffocation is the highest rate of injury death
Birth – age 14	Nonfatal falls at home
1-14 years old	Highest rate of home injury death is fires and burns
Older adults	Nonfatal falls at home
Adults 80+ years	20 times higher risk for death from injury than younger individuals



Children and older adults (70 and above) tend to be the most susceptible groups for home injuries.

Adults 80+ years of age are at 20 times higher risk of death due to injury (e.g. falls) than younger individuals. When the elderly do survive a fall, they take longer to recover and often do not fully recover.

However, falls are leading cause of nonfatal home injury for children from birth through 14 and for older population.

The highest rate of injury death for 1-14 year olds is fires and burns.

For infants, the highest rate of injury death is choking and suffocation.

Where do kids play?

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8.3



Children on trampoline.

So many children are injured on trampolines that many school districts can no longer get insurance for them. In this slide there are a number of potential problems.

By covering the springs, children are protected from falls in which limbs become caught in the springs.

An open dug well is an attractive nuisance for children.

Refer to case of "Baby Jessica" - Jessica McClure Morales (born March 26, 1986) became famous at the age of 18 months after falling into an unguarded open well in the backyard of a home in Midland, Texas, on October 14, 1987. Between that day and October 16, rescuers worked for 58 hours to free "Baby Jessica" from the eight-inch-wide well casing 22 feet (6.7 metres) below the ground. The story gained worldwide attention (leading to some criticism as a media circus), and later became the subject of a 1989 ABC TV movie.

WHAT DO THEY LAND ON?

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8.4



Soft materials under playground equipment.

But note the potential for moisture and rodent problems with the materials so close the exterior wall. Also, note the sharpened tips of the surrounding fence. The plastic toys may not be entirely stable and may tip. There may be lead in the plastic which will be released as it degrades in the heat and ultraviolet rays of the sun.

Window Safety Guard

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8.5



**Safety
Glass?**



Window guards are easy to install but are window width specific. Typically installed with four screws that are long enough to get into the framing studs of the window opening.

Decals or stickers can be positioned on sliding doors to remind persons of glass windows.

POISONING

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- **82%** of households keep medicines in unlocked drawers or cabinets.
- **69%** of homes with young children store household chemicals in unlocked areas.




Here are some more statistics.^[5]

LABELS

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8.7**

Food, Drugs and Cosmetics	• Food and Drug Administration
Pesticides	• Environmental Protection Agency
Other Products Containing Hazardous Substances	• Consumer Products Safety Commission (CPSC)
Material Safety Data Sheets (MSDS)	• Occupational Safety and Health Administration



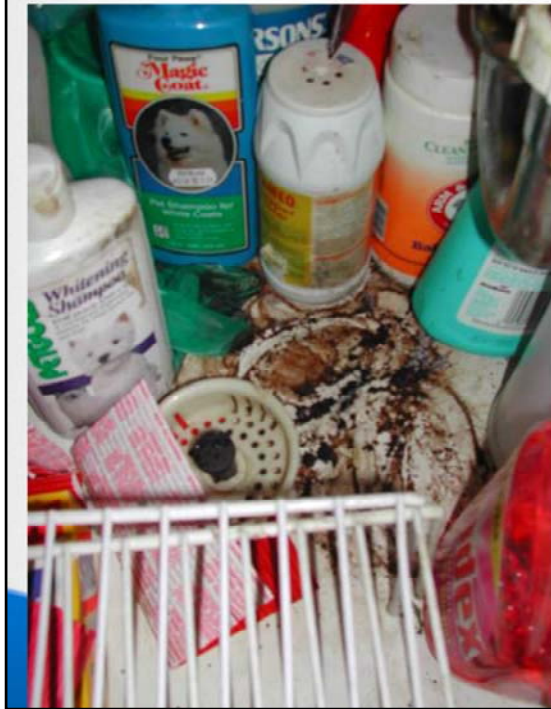
Three agencies regulate labels for consumer products that may contain hazardous substances.

The Federal Hazardous Substances Act regulates all consumer products other than:

- Foods, drugs, dietary supplements and cosmetics - regulated by FDA
- Pesticides (fungicide, insecticides, herbicides, rodenticides, etc) - regulated by EPA
- Consumer products – regulated by CPSC

See www.cpsc.gov/BUSINFO/regsumfhsa.pdf and www.cpsc.gov/BUSINFO/pppa/pppa09.pdf

Materials safety data sheets (MSDSs) are not labels. They are separate documents describing the potential hazards to workers. They are required by the Occupational Safety and Health Administration for hazardous chemicals. Some consumer product manufacturers make MSDS available to the public.



What's under the sink?

Warning
Caution
Danger

Do all cleaning product labels have hazard warnings? No, not unless they involve a potential specific hazard. All products are governed by the Federal Hazardous Substances Act that was passed in 1960. This covers household cleaning products that are expected to be stored in the home or garage, but specifically excludes food, drugs and pesticides. These are covered by other legislation.

The signal words ^[6]: **Caution, Warning, Danger** must appear on the main panel of the label with the specific hazard following. Additional information such as "Keep out of reach of Children" is also required.

What products typically have the "Caution" label? Most automatic dishwashing and laundry detergents.

Common warnings are:

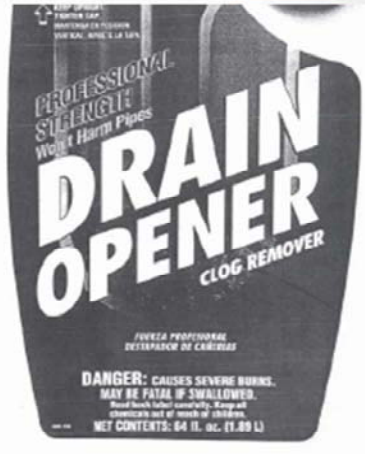
Eye Irritant, Skin Irritant, Harmful if Swallowed. These generally are not expected to cause permanent damage, but an inflammation of the affected area might occur. Caution or Warning also appears on products that are flammable or apt to explode if heated.

What products are likely to have Danger or Poison on the label? Oven cleaners, rust cleaners, clogged-drain openers, or highly flammable products. **Poison** is rarely used, but household lye, antifreeze and some car-care products stored around the house may have this label.

CPSC PRINCIPAL DISPLAY PANEL

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- Signal word
- Affirmative statement of principal hazard
- Statement to read other cautions on another panel if all labeling is not on Principal Display Panel



The Federal Hazardous Substances Act regulates all consumer products other than:

- Foods, drugs, dietary supplements and cosmetics (regulated by FDA)
 - Pesticides (fungicide, insecticides, herbicides, rodenticides, etc) (regulated by EPA)
- See www.cpsc.gov/BUSINFO/regsumfhsa.pdf and www.cpsc.gov/BUSINFO/pppa/pppa09.pdf

The Consumer Product Safety Commission (CPSC) requires consumer products containing hazardous substances to have:

- Principal Display Panel containing:
 - o Signal word – CAUTION is least dangerous, POISON is most dangerous
 - o Affirmative Statement of Principal Hazard
 - o If all labeling not on principal display panel, then read other cautions on another panel.
- Other Label Requirements
 - o Name and place of business of the manufacturer, packer, distributor or seller
 - o Common or usual name or chemical name
 - o Precautionary measures to follow
 - o Instructions for first aid treatment when appropriate
 - o Instructions for handling and storage
 - o “Keep out of the reach of children” or its practical equivalent
 - o Special labeling for certain chemicals
 - Charcoal
 - Art materials
 - Additional items (fireworks, etc)

DANGER

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8.9

“Danger” Signal Word Required if:

- Highly Toxic
- Corrosive
- Extremely Flammable



www.cpsc.gov/BUSINFO/regsumfhsa.pdf and www.cpsc.gov/BUSINFO/pppa/pppa09.pdf

Consumers should avoid products labeled Danger. They should prefer products labeled “Caution”

CORROSIVE V. IRRITANT

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8.9

Understand the difference.



www.cpsc.gov/BUSINFO/regsumfhsa.pdf and www.cpsc.gov/BUSINFO/pppa/pppa09.pdf

Corrosive and irritant are two important words to know. Often consumers can find a product that is labeled irritant instead of corrosive but works equally well. Consumers should avoid corrosives. Many liquid products cause irritation. Avoid products that are corrosive.

The key is that corrosives cause irreversible (permanent) damage. Irritants cause reversible damage. That does not mean irritants are completely safe. Most product will cause irritation to the eye if put in the eye as a liquid.

FLAMMABLE V. COMBUSTIBLE

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8.9

- Flash Point
- Extremely Flammable
- Flammable
- Combustible

**Flammables start fires. Combustibles feed fires.
If you need to choose,
pick a combustible.**



www.cpsc.gov/BUSINFO/regsumfhsa.pdf and www.cpsc.gov/BUSINFO/pppa/pppa09.pdf

Flash Point: Temperature where liquid will support a flame.

Extremely Flammable: Flash Point is 20°F or less

Flammable: Flash point between 20°F and 100°F

Combustible: Flash point between 100°F and 150°F

Flash points are measured by putting a spark or a flame above a liquid as the liquid is warmed. At the flash point, the liquid will release enough vapors that it can support the flame. The lower the flash point, the greater the risk.

An extremely flammable liquid can start a fire under most conditions. Gasoline is extremely flammable. It has a flash point of about -20 degrees F. Flammables require higher temperatures to support combustion but can catch fire on a hot day.

In contrast, combustibles need more than a hot day to catch fire. They need to be heated about 100 F or they need to be sprayed into the air. A spray will increase the surface area of the liquid releasing more vapor. This makes it burn at lower temperatures.

As a general rule, flammables start fires and combustibles feed fires. Avoid flammables.

STORING HAZARDOUS MATERIALS

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8.10

- Well labeled bottles
- Easy to identify
- Store hazardous materials in secure location



Anything kept in a bottle should be correctly labeled. Hazardous materials should be kept in secure locations.

In 1971, Mr. Yuk was created by the Pittsburgh Poison Center at Children's Hospital of Pittsburgh. Since then, Mr. Yuk has been used to educate children and adults about poison prevention and to promote poison center awareness. In addition, Mr. Yuk has raised awareness that poison centers are available 24 hours-a-day, every day of the year to assist in the management of poisoning emergencies.^[7]



What about bug spray?



Bug spray.

When applying insect repellents to children, read all directions first. Do not apply over cuts, wounds, or irritated skin. Do not apply to eyes, mouth, hands, or directly on the face. Also use just enough to cover exposed skin or clothing, but do not use under clothing.

ARTS & CRAFT MATERIALS

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8.11



Many art materials contain hazardous materials. For a given need, there are often nontoxic alternatives that accomplish the same purpose. Products bearing the labels “AP approved product” or “CP certified product” have been reviewed by a special program of the Arts and Crafts Materials Institute and do not present toxicity concerns. ^[8]

FIRES AND BURNS

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8.11



- House fires
- Water heater temperature



- A residential fire claims a life every three hours.
- Fires are the 3rd leading cause of fatal home injury in the US.
- An estimated 365,500 residential building fires are reported to U.S. fire departments each year and cause an estimated 2,560 deaths, 13,000 injuries, and \$7.4 billion in property loss.
- Cooking is the leading cause of residential building fires (45 percent). Nearly all residential building cooking fires are small, confined fires (94 percent).
- Residential building fires occur most frequently in the early evening hours, peaking during the dinner hours from 5 to 8 p.m., when cooking fires are high.
 - Forty-seven percent of nonconfined residential building fires extend beyond the room of origin. The leading causes of these larger fires are electrical malfunctions (16 percent), unintentional or careless actions (16 percent), intentional (12 percent), and open flame (11 percent).
- Smoke alarms were not present in 22 percent of the larger, nonconfined fires in occupied residential buildings.

Fire prevention tips:

- Never leave food unattended on a stove.
- Keep cooking areas free of flammable objects
- Avoid wearing clothes with long, loose-fitting sleeves when cooking.
- Never smoke in bed or leave burning cigarettes unattended.

- Do not empty smoldering ashes in a trash can, and keep ashtrays away from upholstered furniture and curtains.
- Never place portable space heaters near flammable materials
- Keep all matches and lighters out of reach of children.
 - Install smoke alarms on every floor of the home
- Use long-life smoke alarms with lithium-powered batteries. If long-life alarms are not available, use regular alarms, and replace the batteries annually.
- Test all smoke alarms every month to ensure they work properly.
- Devise a family fire escape plan and practice it every 6 months.
- If possible, install or retrofit fire sprinklers into home.

Sources: Adapted from recommendations of the U.S. Consumer Product Safety Commission, the U.S. Fire Administration, the National Fire Protection Agency, and CDC.)



- Smoke Alarm
- CO Alarm
- Fire Extinguishers



Placing and maintaining a smoke and fire detector.

Smoke and fire alarms are needed to sound an alarm. Place them where hot air from a potential fire will collect so they will sound the alarm at the beginning of a fire, when moments are precious.

Regulations vary on whether the alarms must be hard-wired, battery powered or both.

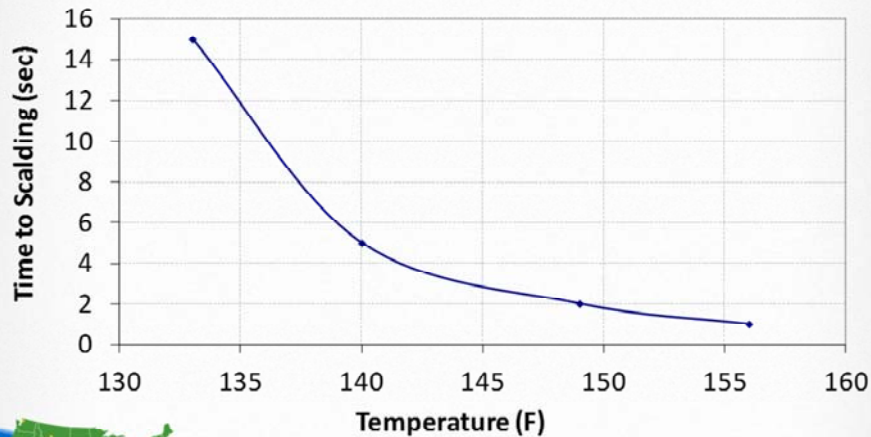
In this photo, a smoke and fire alarm are placed next to a CO alarm in the hallway outside of frequently-occupied bedroom. Although the alarm is probably being placed too close to a corner where there may not be good airflow. They need to follow manufacturer's instructions.

During the review, these devices should be tested by pressing the TEST button. A common cause of failure is weak or missing batteries, which should be replaced routinely.

SCALDING

To avoid risk of scalding:
Hot water should be less than 120° F

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8.13



Hot water must be warm enough to make soaps effective and kill most environmental bacteria, like Legionella.

Study published in 2003 concluded that: Washing clothing and bedding in cold or warm water with detergent or detergent plus bleach removed most allergen and a significant ($P < .05$) portion of live mites. Repeated washing is required to further reduce mite levels.

Higher water temperatures can cause scalding. If it is above 120 degrees F, it can cause scalds and burns especially in a bathtub where a child could have longer exposures.

The 2006 International Residential Code requires the use of water mixing devices on showers and bathtubs. These devices blend hot and cold water to keep the temperature less than 120 degrees F.

CHOKING AND SUFFOCATION

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8.14



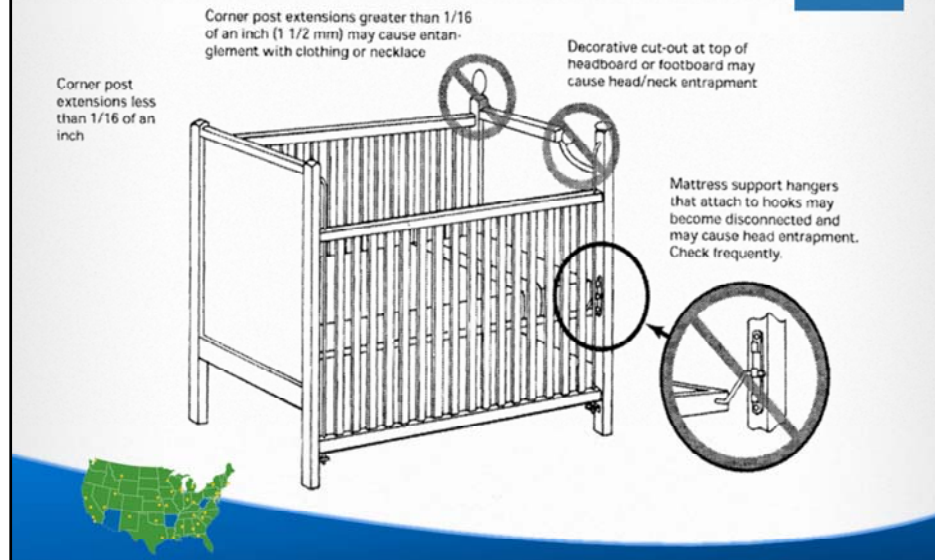
Choke hazard on railing

To prevent falls, uprights on railings should be close enough to prevent a six inch diameter sphere from passing through. The uprights on this railing are close enough together to prevent a child's head fitting through it. However, the railing with horizontal bars has one opening wide enough to crawl through and another that is wide enough to get a head through, and also narrow enough to create a choke hazard.

Children should be properly supervised while in outdoor play areas.

CRIB SAFETY

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The CPSC issued new crib standards in 2011. Some of the new mandatory rules for cribs include: (1) stopping the manufacture and sale of dangerous, traditional drop-side cribs; (2) strengthening mattress supports and crib slats; (3) requiring crib hardware to be more durable; and (4) making safety testing more rigorous.

To prevent suffocation, never place pillows or thick quilts in a baby's sleep environment. Also, make sure there are no gaps larger than two fingers between the sides of the crib and the mattress.

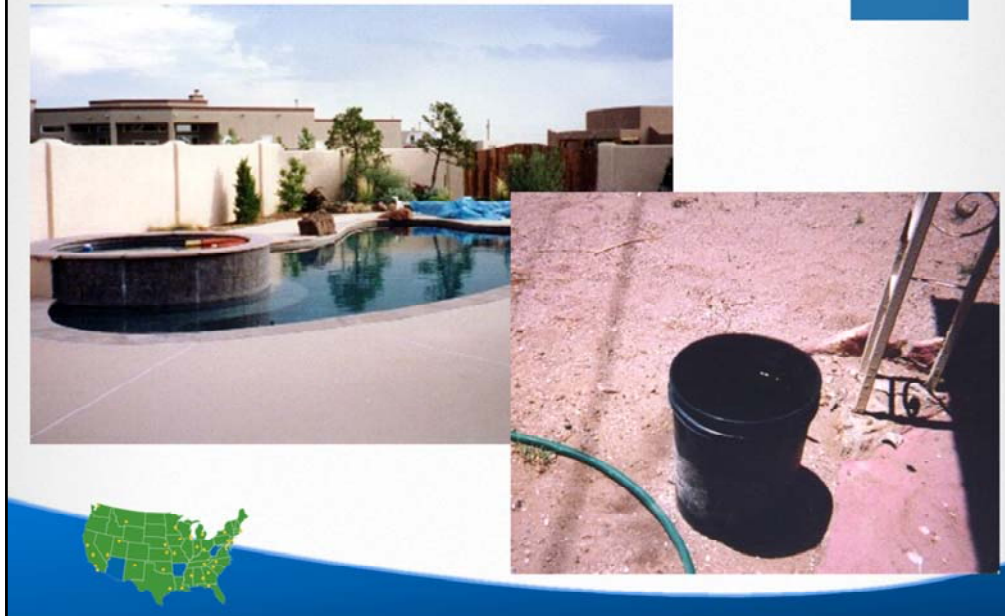
Proper assembly of cribs is paramount - Follow the instructions provided and make sure that every part is installed correctly. If you are not sure, call the manufacturer for assistance.

Do not use broken or modified cribs. Infants can strangle to death if their bodies pass through gaps between loose components or broken slats while their heads remain entrapped.

Set up play yards properly according to manufacturers' directions. Only use the mattress pad provided with the play yard; do not add extra padding. Never place a crib near a window with blind, curtain cords or baby monitor cords; babies can strangle on cords.

DROWNING

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Hazards in the yard – bucket, swimming pools and plants.

Drowning hazards found in yards include swimming and wading pools, wells, streams, and ponds.

Even a bucket of water is a drowning hazard to a toddler, who can tip into the bucket, but can not get out. Pools should be fenced, with a gate children cannot enter. Swimmers should be supervised by a responsible adult.

Many plants are poisonous and should not be found in yards with small children. Occupants should learn which of their outdoor and indoor plants are poisonous and teach their children to not put plants in their mouths.



Trigger locks and secured storage

Store ammunition separate from weapon



Trigger lock.

Firearms should be unloaded, locked, and in secure storage. Trigger locks are inexpensive and easy to use. Ammunition should be kept in separate locked storage.

IPMC SECTIONS RELATED TO SAFETY

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8.16

304.10

- Stairways, decks, porches and balconies

304.13

- Window, skylight and door frames

304.18

- Building security

304.18.2

- Windows

305.2

- Structural members



You don't need to go over these sections in detail. The key is to highlight the general requirements that things be maintained and in good repair.

304.10 Stairways, decks, porches and balconies. Every exterior stairway, deck, porch and balcony, and all appurtenances attached thereto, shall be maintained structurally sound, in good repair, with proper anchorage and capable of supporting the imposed loads.

304.13 Window, skylight and door frames. Every window, skylight, door and frame shall be kept in sound condition, good repair and weather tight.

304.18 Building security. Doors, windows or hatchways for dwelling units, room units or housekeeping units shall be provided with devices designed to provide security for the occupants and property within.

304.18.2 Windows. Operable windows located in whole or in part within 6 feet (1828 mm) above ground level or a walking surface below that provide access to a dwelling unit, rooming unit or housekeeping unit that is rented, leased or let shall be equipped with a windowsash locking devices.

305.2 Structural members. All structural members shall be maintained structurally sound, and be capable of supporting the imposed loads.

IPMC SECTIONS RELATED TO SAFETY

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8.16

305.4

- Stairs and walking surfaces

305.5

- Handrails and guards

306.1

- General

402.2

- Common halls and stairways



You don't need to go over these sections in detail. The key is to highlight the general requirements that things be maintained and in good repair.

305.4 Stairs and walking surfaces. Every stair, ramp, landing, balcony, porch, deck or other walking surface shall be maintained in sound condition and good repair.

305.5 Handrails and guards. Every handrail and guard shall be firmly fastened and capable of supporting normally imposed loads and shall be maintained in good condition.

306.1 General. Every exterior and interior flight of stairs having more than four risers shall have a handrail on one side of the stair and every open portion of a stair, landing, balcony, porch, deck, ramp or other walking surface which is more than 30 inches above the floor or grade below shall have guards. Handrails shall not be less than 30 inches high or more than 42 inches high measured vertically above the nosing of the tread or above the finished floor of the landing or walking surfaces. Guards shall not be less than 30 inches high above the floor of the landing, balcony, porch, deck, or ramp or other walking surface.

402.2 Common halls and stairways. Every common hall and stairway in residential occupancies, other than in one- and two family dwellings, shall be lighted at all times with at least a 60-watt standard incandescent light bulb for each 200 square feet of floor area or equivalent illumination, provided that the spacing between lights shall not be greater than 30 feet.

IPMC SECTIONS RELATED TO SAFETY

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8.16

604.2

- Service

604.3

- Electrical system hazards

605.2

- Receptacles

605.3

- Lighting fixtures



You don't need to go over these sections in detail. The key is to highlight the general requirements that things be maintained and in good repair.

604.2 Service. The size and usage of appliances and equipment shall serve as a basis for determining the need for additional facilities in accordance with the ICC *Electrical Code*. Dwelling units shall be served by a three-wire, 120/240 volt, singlephase electrical service having a rating of not less than 60 amperes.

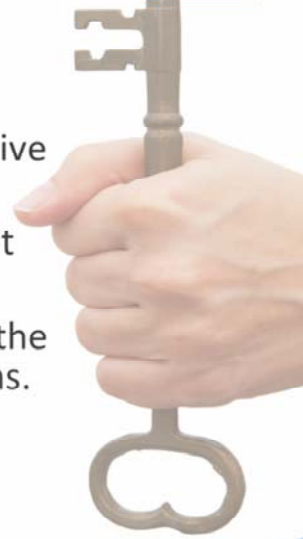
604.3 Electrical system hazards. Where it is found that the electrical system in a structure constitutes a hazard to the occupants or the structure by reason of inadequate service, improper fusing, insufficient receptacle and lighting outlets, improper wiring or installation, deterioration or damage, or for similar reasons, the code official shall require the defects to be corrected to eliminate the hazard.

605.2 Receptacles. Every habitable space in a dwelling shall contain at least two separate and remote receptacle outlets. Every laundry area shall contain at least one grounded-type receptacle or a receptacle with a ground fault circuit interrupter. Every bathroom shall contain at least one receptacle. Any new bathroom receptacle outlet shall have ground fault circuit interrupter protection.

605.3 Lighting fixtures. Every public hall, interior stairway, toilet room, kitchen, bathroom, laundry room, boiler room and furnace room shall contain at least one electric lighting fixture.

KEY MESSAGES

- Injuries are not accidents. They are preventable.
- There are many simple and inexpensive ways to prevent home injuries.
- Children and older adults are more at risk for injuries in the home.
- Falls, poisoning, and fires/burns are the most common causes of injury deaths.



LEARNING OBJECTIVES

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5.8

List three contaminants or allergens that are frequently found in house dust and their health effects.

Describe three ways allergens or contaminants get into house dust.

Identify three strategies to reduce them.



LEARNING OBJECTIVES

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8.17

EXPLAIN the difference between an injury and an accident.

NAME the 3 most common home injury related causes of death.

NAME five locations to look for safety hazards in the home.

NAME five ways to prevent home injuries.

