

CAHI MONTHLY NEWS



December 2014 Volume 7, Issue 12

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The glitz and glam of fall is subsiding. We are in our "slow" season. I actually love it! Being slow around the holidays that is. It lets me enjoy them even more! I use the free time to prepare for the holidays, prepare for the tax man, revise my reporting process, assess my equipment status etc. But I also firm up my business relationships as well. All this at my leisure.

As you may know, the state licensing board has begun a review of the state standards. In a recent survey you were asked to respond to, the CAHI membership unanimously supported CAHI being involved in any review of the standards and subsequently any changes that are recommended as a result of the review. The majority of those who responded feel that while the actual items required to be inspected are adequate, other aspects of the SOP are vague or unclear and open to individual interpretation. If changes are to be made they/we would be **against** adding to the scope of the standards, but are willing to consider changes that would better clarify the process. Scott Monforte, Woody Dawson, John McKenzie and I attended the state board meeting on Nov 19th in Hartford. This was passed on to the state licensing board.

The board formed an audit committee with Woody Dawson at the helm and Bill Kievit and our bookkeeper Florence Justino working with him. They scrutinized our finances and I am happy to say that all is order as usual. Our bills are paid and we have money in the bank. We are financially strong and will be able to provide the highest quality of education we can find. Thank you Woody, Bill and Florence for your hard work!

With the holiday season upon us, it is a great time to get away from the stress of our business. Feel the holiday spirit and spread it. Enjoy the tinsel and decorations...stop and smell the aromas coming from the kitchen and enjoy the festive tastes and sights. Try not to get hung up on what to give, focus on why you give. It's a great time to recharge those batteries!

On behalf of the Board of Directors, I wish every one of you and your families the very best during this holiday season, as well as a safe, prosperous and healthy New Year!

I would like to leave you with the following thought:

"Christmas gift suggestions: To your enemy, forgiveness. To an opponent, tolerance. To a friend, your heart. To a customer, service. To all, charity. To every child, a good example. To yourself, respect." -- **Oren Arnold**

MONTHLY MEETING – Details & Info

CAHI's regular monthly meetings are held at the Holiday Inn located at 201 Washington Ave (RT 5), North Haven. Meetings are free to members. Most meetings are on the fourth Wednesday of the month from 7-9pm.

Guests are always welcome! Guests may attend 2 free monthly meetings to experience our presentations, meet our members, and receive a CE attendance certificate.

Joining CAHI may be done at anytime of the year through our Membership Page

Meeting Dates	
Dec	<p>NO MEETING Merry Christmas & Happy Chanukah</p> <p>Regular Meeting Location: (otherwise noted) Best Western 201 Washington Ave. North Haven, CT. (203) 239-6700</p>



Newsletter Article or Guest Speaker

CAHI will pay \$25.00 to any member who provides us with a guest speaker for one of our monthly meetings or for any article that is submitted and used in the monthly newsletter.

Articles must be a PDF or Word document. Articles should pertain to our industry.

We will review articles for content and reserve the right to edit, use and/or refuse them.

WANTED, A FEW GOOD PEOPLE!

CAHI can be a much more powerful organization and can bring so much more to the table if more members became involved with the board. We have ideas to be explored that can benefit us all. However, the effort to make the month to month operation of our organization takes all of our available time as board members. We ask for volunteers to work on committees that will strengthen our organization and move us far beyond any home inspection organization in the northeast.



We are currently seeking an Information Tech savvy website. We are also looking for help with mailings, from your home, with no requirement to attend board meetings. Anyone interested, please contact me or any other board member.

member to operate the back end of our web research, etc that can be done

If you have a story, article, or picture that you would like to share with the other members, or if you would like to get involved in helping our board explore the future of CAHI, let us know. It's your organization, get involved!

Stan Bajerski

Share Your Thoughts and Experiences

As a home inspector, I have seen many unusual things over the years. I am sure all of you have as well. Now that most of us are using photographs in our reports, these unusual items are recorded for posterity. I encourage each and every one of you to consider taking a picture and or an unusual condition that you have come across and write a short article about it. Just a few lines, one page with the picture, and submit it to our newsletter. We really want the membership to become more involved with the organization. Personal stories and encounters are always more interesting to read about.

If there are any products or situations that you would like to have addressed in our newsletter, email me and let me know. I will research and attempt to gather interesting information on the subject for all to read.

A Night At Doctor Energy Savers



Burnham Alpine

Condensing Gas Boiler Stainless Steel Heat Exchanger

High Efficiency Boiler

Compact, Space-Saving Modern Design
Industry Leading Features for Improved System Efficiency
Saves Fuel Costs and Provides Peace of Mind
Free Extended Warranty

The Alpine is one of the most efficient, energy-saving boilers on the market today. Every Alpine boiler is equipped with a number of advanced technologies to constantly monitor boiler performance and match fuel consumption directly to heating demand. The Alpine incorporates outside temperature sensing technology that automatically adjusts the firing rate of the boiler based on the outside air temperature. It also continuously monitors system safety parameters to ensure years of comfortable, safe, reliable operation. Today's Alpine is the peak of performance. In fact, U.S. Boiler Company is so confident in the performance, quality and durability of the Alpine that each Alpine boiler comes with an extended warranty plan* that provides parts and labor for the boiler and all its controls for 5 years FREE!



FREE 5-year parts & limited labor warranty (registration required within 90 days of installation)

Available for use with natural or LP gas

Industry leading **Sage2.1 Boiler Control System** continuously monitors key system parameters

With Touch Screen Display for easy user interface to view all system functions

Fully modulating combustion system that constantly determines precise fuel usage

7 boiler sizes in both wall-hung or free-standing configurations to ensure we have the right appliance for your home

ENERGY STAR Certified – Efficiency tax credits/rebates may apply

Certified to the stringent requirements of the only nationally recognized boiler safety standard –ANSI Z21.13

Extended Boiler Warranty Plans are available and administered by CornerStone United, Inc.

A recent search online regarding concerns for this new product has revealed that it has inherent electronic control component problems that can prove to be costly. Warranties have been voided if the warranty has not been submitted. Also advise your clients to determine if the warranty is transferrable.

Canadian Association of Home & Property Inspectors



November 13, 2014 13:27 ET

Cost of Alberta Home Inspections to Soar

CALGARY, ALBERTA--(Marketwired - Nov. 13, 2014) - A coalition of Alberta Home Inspectors met Saturday Nov 1, 2014 in Red Deer, Alberta to discuss the draft Home Inspection Standard "A770", recently released for public review by the CSA (Canadian Standards Association).

Based on their initial review, Home Inspectors from across the province feel the proposed Standard of Practice will dramatically increase the cost of a Home Inspection and at the same time may actually reduce consumer protection due to anticipated time & cost increases needed to comply with the proposed regulation. This increase in the cost of a Home Inspection means that those that most need an inspection will likely have to opt out of having one. A typical Home Inspection today, ranges in price from \$400 - \$600. The proposed changes could easily put future cost in the range of \$1200 - \$1800 or more.

If adopted, the proposed new Standard oversteps the accepted Standards used throughout North America. It has the potential to negatively impact the Real Estate Industry as a whole. What is unknown is how Home Sellers, Home Buyers and Realtors will react to a Home Inspection that could take 1 to 2 days to complete.

If this proposed Standard is accepted, it could effectively cripple the industry as we know it. Home inspectors from across Alberta urge everyone to give their input.

To **read and comment** on Proposed CSA Standard A770, click this link: <http://publicreview.csa.ca/Home/Details/1368>.

To read the existing 2012 CAHPI Standard of Practice click this link:
http://www.cahpi.ca/images/stories/pdfs/2012_sop_verf-aug_22_final.pdf.

Submitted by John McKenzie

Here is a marketing tool that could be used to provide your client list a useful holiday message. Just fill in your name or your company and email to one and all.

Holiday Home Safety Tips



The winter holidays are a time for celebration, and that means more cooking, home decorating, entertaining, and an increased risk of fire and accidents. [Your Home Inspector](#) recommends that you follow these guidelines to help make your holiday season safer and more enjoyable.

Holiday Lighting

- Use caution with holiday decorations and, whenever possible, choose those made with flame-resistant, flame-retardant and non-combustible materials.
- Keep candles away from decorations and other combustible materials, and do not use candles to decorate Christmas trees.
- Carefully inspect new and previously used light strings, and replace damaged items before plugging lights in. If you have any questions about electrical safety, ask an InterNACHI inspector during your next scheduled inspection. Do not overload extension cords.
- Don't mount lights in any way that can damage the cord's wire insulation. To hold lights in place, string them through hooks or insulated staples--don't use nails or tacks. Never pull or tug lights to remove them.
- Keep children and pets away from light strings and electrical decorations.
- Never use electric lights on a metallic tree. The tree can become charged with electricity from faulty lights, and a person touching a branch could be electrocuted.
- Before using lights outdoors, check labels to be sure they have been certified for outdoor use.
- Make sure all the bulbs work and that there are no frayed wires, broken sockets or loose connections.
- Plug all outdoor electric decorations into circuits with ground-fault circuit interrupters to avoid potential shocks.
- Turn off all lights when you go to bed or leave the house. The lights could short out and start a fire.

Decorations

- Use only non-combustible and flame-resistant materials to trim a tree. Choose tinsel and artificial icicles of plastic and non-leaded metals.
- Never use lighted candles on a tree or near other evergreens. Always use non-flammable holders, and place candles where they will not be knocked down.
- In homes with small children, take special care to avoid decorations that are sharp and breakable, and keep trimmings with small removable parts out of the reach of children.
- Avoid trimmings that resemble candy and food that may tempt a young child to put them in his mouth.

Holiday Entertaining

- Unattended cooking is the leading cause of home fires in the U.S. When cooking for holiday visitors, remember to keep an eye on the range.
- Provide plenty of large, deep ashtrays, and check them frequently. Cigarette butts can smolder in the trash and cause a fire, so completely douse cigarette butts with water before discarding.
- Keep matches and lighters up high, out of sight and reach of children (preferably in a locked cabinet).
- Test your smoke alarms, and let guests know what your fire escape plan is.

Trees

- When purchasing an artificial tree, look for the label "fire-resistant."
- When purchasing a live tree, check for freshness. A fresh tree is green, needles are hard to pull from branches, and when bent between your fingers, needles do not break.
- When setting up a tree at home, place it away from fireplaces, radiators and portable heaters. Place the tree out of the way of traffic and do not block doorways.
- Cut a few inches off the trunk of your tree to expose the fresh wood. This allows for better water absorption and will help to keep your tree from drying out and becoming a fire hazard.
- Be sure to keep the stand filled with water, because heated rooms can dry live trees out rapidly.
- Make sure the base is steady so the tree won't tip over easily.

Fireplaces

- Before lighting any fire, remove all greens, boughs, papers and other decorations from fireplace area. Check to see that the flue is open.
- Use care with "fire salts," which produce colored flames when thrown on wood fires. They contain heavy metals that can cause intense gastrointestinal irritation and vomiting if eaten.
- Do not burn wrapping papers in the fireplace. A flash fire may result as wrappings ignite suddenly and burn intensely.

Toys and Ornaments

- Purchase appropriate toys for the appropriate age. Some toys designed for older children might be dangerous for younger children.
- Electric toys should be UL/FM approved.
- Toys with sharp points, sharp edges, strings, cords, and parts small enough to be swallowed should not be given to small children.
- Place older ornaments and decorations that might be painted with lead paint out of the reach of small children and pets.

Children and Pets

- Poinsettias are known to be poisonous to humans and animals, so keep them well out of reach, or avoid having them.
- Keep decorations at least 6 inches above the child's reach.
- Avoid using tinsel. It can fall on the floor and a curious child or pet may eat it. This can cause anything from mild distress to death.
- Keep any ribbons on gifts and tree ornaments shorter than 7 inches. A child could wrap a longer strand of ribbon around their neck and choke.
- Avoid mittens with strings for children. The string can get tangled around the child's neck and cause them to choke. It is easier to replace a mitten than a child.
- Watch children and pets around space heaters or the fireplace. Do not leave a child or pet unattended.
- Store scissors and any sharp objects that you use to wrap presents out of your child's reach.
- Inspect wrapped gifts for small decorations, such as candy canes, gingerbread men, and mistletoe berries, all of which are choking hazards.

Security

- Use your home burglar alarm system.
- If you plan to travel for the holidays, don't discuss your plans with strangers.
- Have a trusted friend or neighbor to keep an eye on your home.

**YOUR NEIGHBORHOOD INSPECTOR WISHES YOU
A SAFE & JOYOUS HOLIDAY SEASON!**



Ice Dams

An ice dam is a ridge of ice that forms at the edge of a roof and prevents melting snow from draining. As water backs up behind the dam, it can leak through the roof and cause damage to walls, ceilings, insulation and other areas.

How do ice dams form?

Ice dams are formed by an interaction between snow cover, outside temperatures, and heat lost through the roof. Specifically, there must be snow on the roof, warm portions of the upper roof (warmer than 32° F), and cold portions of the lower roof (at freezing or below). Melted snow from the warmer areas will refreeze when it flows down to the colder portions, forming an ice dam.

Although the primary contributor to snow melting is heat loss from the building's interior, solar radiation can also provide sufficient heat to melt snow on a roof. For example, in southern Canada, enough sunlight can be transmitted through 6 inches (150 mm) of snow cover on a clear and sunny day to cause melting at the roof's surface even when the outside temperature is 14° F (-10° C), with an attic temperature of 23° F (-5° C).

Gutters do not cause ice dams to form, contrary to popular belief. Gutters do, however, help concentrate ice from the dam in a vulnerable area, where parts of the house can peel away under the weight of the ice and come crashing to the ground.

Problems Associated with Ice Dams

Ice dams are problematic because they force water to leak from the roof into the building envelope. This may lead to:

- rotted roof decking, exterior and interior walls, and framing;
- respiratory illnesses (allergies, asthma, etc.) caused by mold growth;
- reduced effectiveness of insulation.
- Wet insulation doesn't work well, and chronically wet insulation will not decompress even when it dries. Without working insulation, even more heat will escape to the roof where more snow will melt, causing more ice dams which, in turn, will lead to leaks; and peeling paint. Water from the leak will infiltrate wall cavities and cause paint to peel and blister. This may happen long after the ice dam has melted and thus not appear directly related to the ice dam.



Prevention

- Keep the entire roof cold. This can be accomplished by implementing the following measures:
 - o Install a metal roof. Ice formations may occur on metal roofs, but the design of the roof will not allow the melting water to penetrate the roof's surface. Also, snow and ice are more likely to slide off of a smooth, metal surface than asphalt shingles.
 - o Seal all air leaks in the attic floor, such as those surrounding wire and plumbing penetrations, attic hatches, and ceiling light fixtures leading to the attic from the living space below.
 - o Increase the thickness of insulation on the attic floor, ductwork, and chimneys that pass through the attic.
 - o Move or elevate exhaust systems that terminate just above the roof, where they are likely to melt snow.
 - o A minimum of 3" air space is recommended between the top of insulation and roof sheathing in sloped ceilings.
 - o Remove snow from the roof. This can be accomplished safely using a roof rake from the ground. Be careful not to

harm roofing materials or to dislodge dangerous icicles.

o Create channels in the ice by hosing it with warm water. Because this process intentionally adds water to the roof, this should be done only in emergencies where a great deal of water is already flowing through the roof, and when temperatures are warm enough that the hose water can drain before it freezes.

Prevention and Removal Methods to Avoid

- electric heat cables. These rarely work, they require effort to install, they use electricity, and they can make shingles brittle.

manual removal of the ice dam using shovels, hammers, ice picks, rakes, or whatever destructive items can be found in the shed. The roof can be easily damaged by these efforts, as can the homeowner, when they slip off of the icy roof.

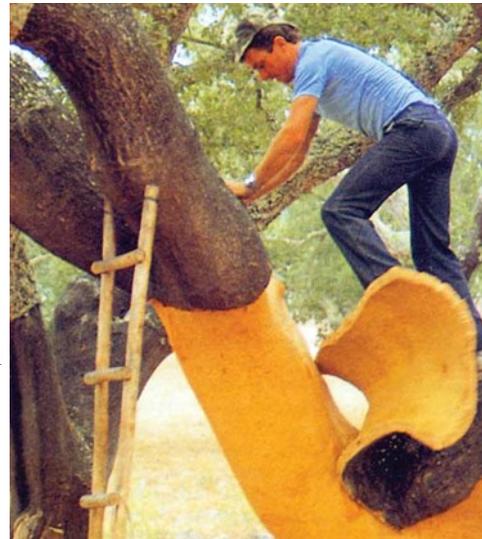
In summary, ice dams are caused by inadequate attic insulation, but homeowners can take certain preventative measures to ensure that they are rare.

Cork Floor Inspection

While better known for its use as wine stoppers and for bulletin boards, cork is also used for flooring and other building components.

A renewable resource, cork is actually the bark of a species of oak tree, *Quercus suber*, that grows in the thin, dry soils of western Spain and Portugal. The trees are harvested periodically throughout their lifetimes in a sustainable fashion that does not harm the tree or result in deforestation.

To prepare the bark for commercial applications, it is first cut and removed, then dried, cleaned, fumigated and straightened. While most cork winds up in wine bottles, a portion of the material is allocated for use in buildings, such as flooring, seals, gaskets, expansion joints, intumescent strips, and even external cladding.



Unique Advantages of Cork Flooring

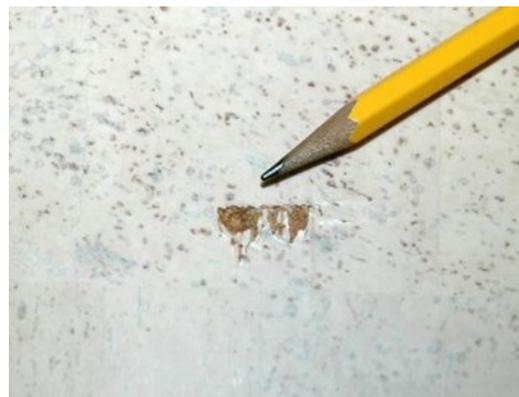
Air pockets allow cork flooring a unique and easy elasticity compared to other materials, which makes it ideal for installation in kitchens, where standing for long periods is common. These air pockets also protect dropped objects from breaking and keep floors at an even temperature, which contributes to a building's overall energy efficiency. Proponents of cork flooring claim that it's also sound-absorbent, anti-vibrational, fire-resistant, anti-static, mildew-resistant, insect-resistant, and anti-microbial.

Some Disadvantages

Despite these strengths, cork is prone to the following defects and forms of misuse:

- moisture damage. If cork flooring gets wet, it will expand, become uneven, and potentially crack, once dried;

- surface damage. Heavy, pointed objects, such as high-heeled footwear or dogs' and cats' claws, can create permanent dents and scratches in cork floors. These impressions cannot be easily sanded away the way they can in wood flooring;



- color fading, typically a yellowing, which will occur when the flooring is exposed to sunlight for prolonged periods of time. Area rugs and large furniture will block light exposure and may create uneven discoloration;

- off-gassing from the binders and adhesives used in cork tiles. Homeowners may purchase solid cork tiles with low-VOC adhesives as a more natural, non-toxic alternative;

- improper use. Due to moisture concerns, only floating-floor cork designs should be used in basement floors. Floating floors may, however, create problems when installed over radiant heating systems, although homeowners may check with the flooring's manufacturer for specific installation restrictions. For instance, bathroom installations may require that the perimeter of the floor be caulked prior to installing the baseboards to avoid moisture penetration; and

- installation defects that represent trip hazards, as well as cosmetic blemishes, such as:

- o bond failure, in which poor adhesion to the subfloor will result in lifting at the joints of the cork tile. The lifted surface can be forced flat under pressure, but this fix is often only temporary;

- o sliding, where the tiles slide out of alignment with each other. This is caused when tiles are laid on wet adhesive, allowing them to move as the installer stands on top of them. Installers should let the adhesive dry before stepping onto the tiles. A rectangular gap known as a window can be created where adjacent tiles slide vertically and horizontally, revealing the underlying subfloor;

- o waves or undulations, which are unsightly and might cause furniture to sit unevenly; and debris beneath the tile, which causes the tile to lift above any object that was not removed from the subfloor before the tile was installed.

Cork floors are available in glued and glueless forms. Glued floors are made up of tiles that are glued down to the subfloor. They are more appropriate for bathrooms because of the protection offered by their polyurethane coating and the absence of the fiberboard core on glueless planks that can be damaged in wet environments. Glueless cork floors, similar to laminate flooring, are fused to a high-density fiberboard core to form planks that can be snapped together. These are suitable for below-grade applications, such as in basements. Cork flooring products range in thickness from 3/16- to 7/16-inch and tend to have natural color variations but can be purchased in light, medium or dark tones.

Tips for Homeowners

Inspectors can pass on the following care and maintenance tips to their clients:

- Keep the floor surface free from dirt and grit through regular mopping with a well-wrung mop. Clean up spills quickly and never use harsh, abrasive cleaners.

- Place entrance mats at doors in order to prevent dirt and moisture from being tracked in and onto the floor. If the mat gets wet, however, remove it from the floor.

- Furnishings and floor coverings should be moved periodically, and heavy curtains or window shades can be used to prevent discoloration and fading caused by intense sunlight through the windows.

- Place furniture rests beneath furniture legs to protect the floor from indentations.

Periodically apply urethane or polish to eliminate small scratches.

In summary, cork flooring, when installed and maintained properly, is a unique alternative to conventional flooring materials, such as wood and vinyl.



Home Winterization

Winterization is the process of preparing a home for the harsh conditions of winter. It is usually performed in the fall before snow and excessive cold have arrived. Winterization protects against damage due to bursting water pipes, and from heat loss due to openings in the building envelope. Inspectors should know how winterization works and be able to pass this information on to their clients

Plumbing System

Water damage caused by bursting pipes during cold weather can be devastating. A ruptured pipe will release water and not stop until someone shuts off the water. If no one is home to do this, an enormous quantity of water can flood a house and cause thousands of dollars' worth of damage. Even during very small ruptures or ruptures that are stopped quickly, water leakage can result in mold and property damage. Broken water pipes can be costly to repair.

- All exposed water pipes in cold areas, such as attics, garages, and crawlspaces, should be insulated. Foam or fiberglass insulation can be purchased at most hardware stores. Insulation should cover the entirety of a pipe.
- Plastic is more tolerant of cold expansion than copper or steel. Houses in colder climates might benefit from the exclusive use of approved plastic plumbing.
- Water supply for exterior pipes should be shut off from inside the house and then drained.
- Sprinkler systems are particularly vulnerable to cracking due to cold-weather expansion. In addition to turning them, it helps to purge the system of any remaining water with compressed air.

Homeowners should be aware that much of the plumbing system travels through areas that are significantly colder than the rest of the house. Because it is impossible to monitor the temperature of every portion of the plumbing system, indoor air temperature should be kept high enough throughout the winter to keep pipes in any unheated places from freezing.

Leaks in the Building Envelope

Leaky window frames, door frames, and electrical outlets can allow warm air to escape into the outdoors.

- Windows that leak will allow cold air into the home. Feeling for drafts with a hand or watching for horizontal smoke from an incense stick are a few easy ways to inspect for leaks. They can be repaired with tape or caulk. On a breezy day, a homeowner can walk through the house and find far more leaks than they knew existed. Leaks are most likely in areas where a seam exists between two or more building materials.

Insulation

- Because hot air rises into the attic, a disproportionately larger amount of heat is lost there than in other parts of the house. Like a winter hat that keeps a head warm, adequate attic insulation will prevent warm indoor air from escaping. Attic insulation should be 12 inches thick in cold climates.

Storm doors and windows should be installed to insulate the house and protect against bad weather.

Heating Systems

The heating system is used most during the winter so it's a good idea to make sure that it works before it's desperately needed. The following inspection and maintenance tips can be of some help to homeowners:

- Test the furnace by raising the temperature on the thermostat. If it does not respond to the adjustment quickly it might be broken.
- Replace the air filter if it's dirty.

If the furnace is equipped with an oil or propane tank, the tank should be full.



Cooling Systems

- Use a hose to remove leaves and other debris from the outdoor condensing unit, if the home is equipped with one. Protect the unit with a breathable waterproof cover to prevent rusting and freezing of its components.
- Remove and store window air conditioners when they are no longer needed. Cold air can damage their components and enter the house through openings between the air conditioner and the windowpane. Ceiling fans can be reversed in order to warm air trapped beneath the ceiling to recirculate. A fan has been reversed if it spins clockwise.

Chimneys and Fireplaces

- The chimney should be inspected for nesting animals trying to escape the cold. Squirrels and raccoons have been known to enter chimneys for this reason.
- The damper should open and close with ease. Smoke should rise up the chimney when the damper is open. If it doesn't, this means that there is an obstruction in the chimney that must be cleared before the fireplace can be used.
- A chimney-cleaning service professional should clean the chimney if it has not been cleaned for several years.
- The damper should be closed when the fireplace is not in use. An open damper might not be as obvious to the homeowner as an open window, but it can allow a significant amount of warm air to escape.
- Glass doors can be installed in fireplaces and wood stoves to provide an extra layer of insulation.

Roofs

- If debris is left in gutters, it can get wet and freeze, permitting the formation of ice dams that prevent water from draining. This added weight has the potential to cause damage to gutters. Also, trapped water in the gutter can enter the house and lead to the growth of mold. For these reasons, leaves, pine needles, and all other debris must be cleared from gutters. This can be done by hand or with a hose.
- Missing shingles should be replaced.

Landscape

- Patio furniture should be covered.

If there is a deck, it might need an extra coat of sealer.

Adequate winterization is especially crucial for homes that are left unoccupied during the winter. This sometimes happens when homeowners who own multiple properties leave one home vacant for months at a time while they occupy their summer homes. Foreclosed homes are sometimes left unoccupied, as well. The heat may be shut off in vacant homes in order to save money. Such homes must be winterized in order to prevent catastrophic building damage.

In addition to the information above, the following measures can be taken to prepare an unoccupied home for the winter:

- Winterize toilets by emptying them completely. Antifreeze can be poured into toilets and other plumbing fixtures.
- Winterize faucets by opening them and leaving them open.
- Water tanks and pumps need to be drained completely.
- Drain all water from indoor and outdoor plumbing.
- Unplug all non-essential electrical appliances, especially the refrigerator. If no electrical appliances are needed, electricity can be shut off at the main breaker.

In summary, home winterization is a collection of preventative measures designed to protect homes against damage caused by cold temperatures. These measures should be performed in the fall, before it gets cold enough for damage to occur. Indoor plumbing is probably the most critical area to consider when preparing a home for winter, although other systems should not be ignored.

Hantavirus Danger in Homes

Hantavirus is the name commonly applied to the pathogen that causes the rare yet potentially deadly disease known as hantavirus cardiopulmonary syndrome (HPS).

HPS is actually caused by several forms of this virus which, collectively, account for just a fraction of all hantaviruses, most of which are not a threat to humans. For the purposes of this article, "hantavirus" refers only to the forms of that virus that can cause HPS.

This virus is transmitted through rodent feces, urine and saliva, and the primary mode of human contact with hantavirus is through inhalation. Crawlspace and vacated houses are areas where rodent infestations are likely. Inspectors should be knowledgeable about the hantavirus so they can protect themselves and their clients.

Symptoms of HPS

Although researchers are not certain as to how long the virus' incubation period may last, it is generally believed to last up to five weeks. Symptoms of HPS will follow this period.

Early symptoms of HPS almost always include muscle aches, fever and fatigue. Sufferers may also experience nausea, chills, dizziness, diarrhea, abdominal pain and headaches. Four to 10 days after these symptoms first appear, infected persons will find it hard to breathe as their lungs begin to fill with fluid.

Coughing and shortness of breath are common respiratory symptoms of the later stages of infection.

There is no known cure, vaccine or treatment that specifically targets HPS. However, if the symptoms are recognized early, patients may benefit from oxygen therapy. If the symptoms of HPS are recognized late, it is less likely that medical intervention will be helpful. The hantavirus kills roughly 30% to 40% of those who become infected.

Places Where the Hantavirus is Likely to be Encountered

Public health officials believe that crawlspaces are the most likely locations that the hantavirus may be encountered. This is partly due to the fact that rodents are attracted to areas that are undisturbed by humans. Also, crawlspaces are generally dark places that lack ultraviolet (UV) radiation, which can rapidly inactivate the hantavirus. The virus will be less likely to be dangerous in areas of the house that receive sunlight through windows. Open windows will also allow contaminants to vent from the home.

Homes that have not been occupied for long periods of time are more likely to experience heavy rodent infestation and hantavirus contamination, among other viruses and bacteria. Foreclosures, in particular, are problem areas. Inspectors should take special precautions when entering vacated homes, or areas in homes that are not adequately ventilated or exposed to sunlight.

The hantavirus can be transmitted to humans in the following ways:

- When fresh rodent droppings and urine that contains the hantavirus are disturbed, the virus will become airborne and can be more easily transmitted to humans. The majority of transmissions occur due to inhaled aerosolized droplets that are contaminated with hantavirus.
- Touching the nose or mouth after touching anything contaminated by infected rodents can lead to contamination and human infection.
- Eating food contaminated by infected rodents can transmit the virus.
- Although extremely rare, the virus can be transmitted through a bite from an infected rodent.

The hantavirus cannot be transmitted from infected humans to other humans, or to any other non-rodent animals.



If inspectors must enter a rodent-infested area of a house, they should wear personal protective equipment. The primary mode of transmission for hantavirus is through inhalation, so a respirator is necessary. The Centers for Disease Control (CDC) states that a half-face respirator is adequate, although other sources say that a full-face respirator (covering the eyes, nose and mouth) is required. To be safe, it is a good idea to wear goggles to prevent contaminated dust from coming into contact with the eyes if only a half-face respirator is being used.

The following are specific instructions from the CDC concerning appropriate respirators for hantavirus exposure:

[W]ear either a half-face, tight-seal, negative-pressure respirator, or a positive-pressure, powered air-purifying respirator (PAPR) equipped with N-100 or P-100 filters (formerly designated as high-efficiency particulate air filters [HEPA]). Negative-pressure respirators are not protective if facial hair interferes with the face-piece to face seal because a proper fit cannot be assured.

Rodents that Carry Hantavirus

Four species of mice and rats have been confirmed as carriers of the hantavirus. The CDC offers the following information to identify them:

- 1) The **deer mouse** is a deceptively cute animal, with big eyes and big ears. Its head and body are normally about 2 to 3 inches long, and the tail adds another 2 to 3 inches in length. You may see it in a variety of colors, from gray to reddish-brown, depending on its age. The underbelly is always white, and the tail has sharply defined white sides. The deer mouse is found almost everywhere in North America. Usually, the deer mouse likes woodlands, but also turns up in desert areas.
- 2) The **cotton rat**, which you'll find in the southeastern United States (and way down into Central and South America), has a bigger body than the deer mouse—the head and body are about 5 to 7 inches, and another 3 to 4 inches for the tail. The hair is longer and coarser, of a grayish-brown color, even grayish-black. The cotton rat prefers overgrown areas with shrubs and tall grasses.
- 3) The **rice rat** is slightly smaller than the cotton rat, having a head and body 5 to 6 inches long, plus a very long, 4- to 7-inch tail. Rice rats sport short, soft, grayish-brown fur on top, and gray or tawny underbellies. Their feet are whitish. As you might expect from the name, this rat likes marshy areas and is semiaquatic. It's found in the southeastern United States and in Central America.
- 4) The **white-footed mouse** is hard to distinguish from the deer mouse. The head and body together are about 4 inches long. Note that its tail is normally shorter than its body (about 2 to 4 inches long). Topside, its fur ranges from pale brown to reddish-brown, while its underside and feet are white. The white-footed mouse is found throughout southern New England, the Mid-Atlantic and southern states, the midwestern and western states, and Mexico. It prefers wooded and brushy areas, although sometimes it will live in more open ground.

Although the virus can appear anywhere in the United States, it is more prevalent West of the Mississippi. Males and Caucasians are also somewhat more likely to contract HPS than females and other races, although it is likely that this occurrence is due to factors that are not gender- or ethnicity-specific, but are probably more attributable to occupational exposure and the higher frequency of Caucasians in the western United States.

It is possible that the virus can be carried by other species of rodents that have yet to be identified.

In summary, hantavirus should be taken seriously by every inspector because this virus is encountered in homes more than in any other location. The disease that it causes, HPS, has no cure, and very few people know enough about it to protect themselves from infection.

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