News of Interest for and from the Connecticut Association of Home Inspectors, Inc.

CAHI MONTHLY NEWS

May 2019 Volume 12, Issue 05

Presidents Corner

Less is more.

Currently in the process of "re-inventing the wheel" and having a custom reporting program professionally written I have carefully reviewed a number of reporting programs and previous reports generated by commercial programs available. I am fascinated in many instances of the shear length of the reports being generated by fellow professionals in our trade. Fifty pages now seems more the rule rather than the exception. As peers in the industry are aging and retiring the hand written/ typed reports of yesterday are being replaced by home "novellas" complete with page after page of photographs that in many cases rival the poor image quality of the original Polaroid's of yesterday.

A realtor recently shared a page from a 105 page inspection report she had received that, simply stated, was a 1/4 page picture of a toilet that said "satisfactory" ....."What?" .....who does that?.... why would you chose to document it?.... and what home buyer is going to leave with the impression that it has any importance or relevance in the decision process on whether to purchase or not purchase that home?

Other reports promote the inspectors qualifications with 1/2 page symbols as being "Kitchen certified", "Moisture Intrusion certified" etc. blah, blah, blah.

As an inspector how does one begin to review a 50-100 page report prior to sending? What realtors cherish printing that report out? To my knowledge our industry standards of practice are fairly simple and have not evolved to the point that justifies such an exhausting level of reporting or in the case of "recommend further evaluation by a "caulking expert", "window blind expert", "wall paper expert", etc. etc. etc." many of us are becoming lost in the effort to defer and deflect any and all responsibilities yet gladly take a check for our "efforts".

As licensed professionals take some responsibility and make the call.

Best

Dan Kristiansen
President

MONTHLY MEETINGS – Details & Info

CAHI's regular monthly meetings are held at the Best Western 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

INSIDE THIS ISSUE

Meeting Dates!

May 22nd

Foundation Science Repair Training

Connecticut Basement Systems
33 Progress Avenue
Seymour, CT 06483

Meeting: **6pm – 9pm** ***Building 3***

June 26th

Waterproofing and Crawlspaces

Connecticut Basement Systems
33 Progress Avenue
Seymour, CT 06483

Meeting: **6pm – 9pm**

What Home Inspectors Need to Know About Chimneys

by Russ Dimmitt, Chimney Safety Institute of America

Chimneys can be a bit of a mystery. They are not only something that many homeowners never think about but they are dark, dank and oftentimes smelly. For home inspectors, it is important to understand what a chimney is and isn't, what the standard of care is when inspecting a chimney and what sort of defects might commonly be found in chimneys.

A chimney is defined as a vertical or nearly vertical structure that contains one or more flues for conveying the products of combustion to the outside atmosphere. A vent differs from a chimney in that they are only designed to vent the products of combustion from certain gas, oil or pellet-fired appliances. In other words, a chimney can serve as a vent but a vent cannot serve as a chimney. Residential chimneys can be constructed of either masonry or metal.

Masonry chimneys should be constructed according to standards or the code in force at the time of construction. Unfortunately that often is not the case. Metal chimneys are often referred to with terms such as pre-fabs or factory-built. There are two common, basic styles of factory-built chimneys. One type of factory-built chimney uses insulation that is normally double wall. The other type of masonry chimney utilizes air or air in combination with insulation; these may be double or triple wall. Vents are constructed of metal and utilize the similar insulation methods as those found in chimneys. Codes and standards typically defer to the manufacturer's listing of a metal chimney for installation and clearance requirements.

The measuring stick typically used by chimney inspectors is either the IRC (International Residential Code) for one and two family dwellings, or the NFPA 211, published by the National Fire Protection Association for Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances. Manufacturers' listing and installation instructions are used to determine proper installation and condition of factory-built chimneys and vents. IRC and NFPA 211 are similar in many requirements. NFPA 211 includes chapters on maintenance and standards of inspection of existing chimneys which are not found in IRC. The NFPA 211 is considered the Standard of Care regarding inspections. Consult NFPA 211 for exact language and additional explanation. NFPA 211 spells out the scope, degree of access required, circumstances and indications for each level of inspection. NFPA 211 delineates three levels of inspection with each being more intrusive.

Levels of Inspection

A Level One inspection is required during routine cleaning of a chimney flue or, upon direct replacement of an appliance that is similar in all aspects. The degree of access required for a Level One inspection is: all readily accessible portions of the chimney's exterior and interior and accessible portions of the appliance and connection. As part of a Level One, it must be verified that the flue does not contain any obstructions or combustible deposits.

A Level Two inspection is required upon removal of an appliance (whether in a flue or still in use), or replacement of an appliance with a dissimilar one, prior to relining a flue, when there is an operating

malfunction or external event likely to have caused damage to the chimney and upon sale or transfer of a property. The requirements for this level of inspection are all the requirements of a Level One inspection, plus areas within accessible attics, crawl spaces and basements. A Level Two inspection also includes a video scan or other means to do an interior inspection of the flue. As part of a Level Two inspection, proper clearances from combustibles in accessible areas must be verified along with verifying the flues are of a suitable size and material. It will be common for a Level Two inspection to be called for in the course of a home inspectors work.

Level Three inspections require some degree of destruction or disassembly, as hidden portions of the system must be accessed. This level of inspection is not as commonly performed as the first two levels of inspection. Level Three inspections are triggered when there is suspicion of an issue that cannot be properly evaluated with a Level One or Two inspection.

One question many home inspectors have is whether they are required to perform a video scanning of a chimney flue. While the level two inspection calls for an internal inspection of the flue with a video scan system or other means, a video scan is considered the proper way to perform this inspection. Field experience and controlled testing have both shown that various visual inspections with different technologies are inferior to a video scan. Video inspection systems are readily available at a wide range of price points.

Defects

Defects in chimneys fall into four categories:

- Latent defects
- Wear and tear
- Moisture/condensation
- Sudden occurrence

One defect may allow another to happen. For example, an improperly constructed chimney crown, considered a latent defect, would allow water to enter the chimney and accelerate deterioration. It is important to remember that the inspector is only required to follow the prescribed level of inspection and that it is allowable to perform some portion function of the next level of inspection, without performing a full inspection to the next level.

Latent Defects

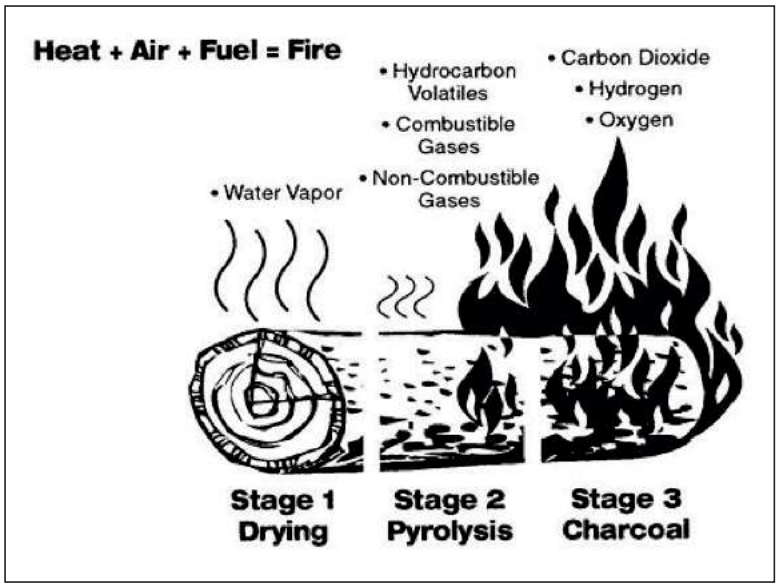
A latent defect would be one that was part of incorrect initial chimney construction. Latent defects are not commonly found in the construction of factory built systems due to quality control in the manufacturing process. There may be latent defects in the installation of factory-built systems, such as improper clearances or improper component usage. In order to be certain a factory-built chimney is properly installed, it is necessary to have the installation instructions in hand. Common latent defects that are found in masonry chimney construction include improper crown, improper clearances, improper materials and poor-quality workmanship.

A proper chimney crown is often lacking on masonry chimneys. In many areas of the country, chimneys are often topped off with a mortar wash that runs from the flue tile to the edge of the brick. This results in moisture damage to the brick or stone chimney structure. The mortar wash allows rain to run down the side of the chimney and be absorbed into the masonry. In addition, these washes often crack and allow water into the flue cavity. If the mortar is placed against the flue tile, as is commonly

done, the lack of room for expansion will cause cracking of both the flue tile and the wash itself.

A properly constructed chimney crown has several features. The crown is poured of concrete rather than mortar. There is a minimum thickness of four inches next to the flue tile and a slope to a minimum thickness of two inches on the outer edge. There is a drip edge in the bottom of the crown to divert water away from the chimney structure. There is a bond break next to the tile allowing for expansion. This gap is filled with silicone sealant or other compressive material. In addition, there is a bond break and flashing under the crown, isolating it from the brick or stone chimney. If one were strong enough, a properly constructed chimney crown could be lifted off the chimney.

Clearances to combustibles are a common issue with masonry chimneys. Internal chimneys should have a minimum clearance of two inches to combustibles and external chimneys should have a minimum clearance of one inch from combustibles. This is often not the case. While less than the required minimum clearances may not cause a fire immediately, a potential hazard still exists. Combustible materials exposed to heat start to pyrolize. Pyrolization is the first step of combustion. The temperatures that start the process of pyrolization are relatively low, in the mid-200 degree range. The more pyrolization that has occurred, the lower the temperature of combustion becomes. Masonry materials absorb heat and continue to conduct that heat to the surrounding materials after the heat source is gone. (See Figure 1, Stages of Combustion.)



(Figure 1: Stages of Combustion)

Wear and Tear

Wear and tear take a myriad of forms, however, inspectors will usually only see deterioration from heat, expansion and contraction, settling and general weathering.

Moisture/Condensation

Many feel that a masonry structure, such as a chimney, are permanent but this is not the case. Water is the number one enemy of masonry. Damage takes two forms: either mortar or brick softening and failing and/or freeze thaw damage. Chimneys that lack a rain cap allow water to enter the chimney

flue. All flue gases contain some level of acid that vary by fuel type. Water entry into the flue make these acids more active and accelerate deterioration. While codes and standards have called for a non-water soluble refractory between tiles since the early 1990s, older chimneys may not have it. Even newer chimneys may have the same mortar used to build the chimney between the tiles. These missing mortar joints allow flue gases to escape and cause chimney deterioration and flammable products to exit the flue. Because water expands when it freezes, any water absorbed by the masonry causes damage when freezing temperatures are reached. Flue tiles and joints will be broken down by this freezing. The brick or stone structure itself will also suffer damage. The first sign often noticed on the structure itself is spalling or delamination of the bricks with the faces popping off.

Water entry in masonry chimneys can occur in several ways, including faulty washes and crowns, bad or incorrectly installed flashings and incorrectly applied waterproofing. Proper waterproofing materials are breathable to allow moisture to escape but not allow entry of more moisture.

One avenue of water entry that is often overlooked is water from inside the chimney. This is most commonly seen when venting gas-fired appliances into a chimney. When burning either natural gas or liquid propane, approximately one gallon of water vapor is produced for every 100,000 BTUs of fuel burned. If the flue gases cool enough in the flue to condense, that condensate either soaks into the flue tiles and joints or the chimney structure and the deterioration starts.

Sudden Occurrences

The most commonly thought of sudden occurrence is a chimney fire (See Figure 2: Chimney Fire). However there can be other thermal events that would fall into this category, as they cause the same sort of damages. Clay flue tiles function well under normal operating temperatures but can fail with sudden temperature changes. Thermal damage is most often seen on flues venting wood-fired appliances but can occur with any fuel. Flue tiles are a ceramic and a dense material. The mechanics of flue tile failure are due to temperature differences between the outer and inner surfaces of the tile.

(Figure 2: Chimney Fire)

Rapid heating of the inner surface causes expansion. While the inner surface is attempting to expand, the outer is relatively cool. This stress between the two surfaces causes a longitudinal crack to occur. The cracks may go other directions but always start longitudinally. This rapid rise in temperature may be caused by a chimney fire which can reach temperatures over 2,000 degrees Fahrenheit. A quick, hot fire can cause the same thermal expansion and crack flue tiles without a chimney fire occurring. When flue tiles are cracked they can no longer contain the products of combustion and are no longer suitable for use.

It is important that home inspectors be aware of the standard of care for a chimney inspection. We have listed some of the shortcomings found in chimneys. A great source for inspectors, when they encounter things that they are not comfortable or experienced with, or when they need to have a video inspection performed, is the Chimney Safety Institute of America and a local Certified Chimney Sweep®.

Visit www.csia.org for a list of chimney experts near you and for great homeowner resources.

A bitumen foundation coating **(1)** will help to prevent water from being absorbed into concrete. But it needs a dimple mat **(2)** in front of it to relieve hydrostatic pressure. The dimples create a space between the soil and the concrete, allowing water to drain freely to footing drains.

Effective Foundation Waterproofing

BY JAKE BRUTON

Here in Columbia, Mo., we have a wet climate, averaging more than 40 inches of rainfall per year, which makes water management a critical concern on all our builds. On the new homes my company builds, we typically build slab-on-grade for simplicity with both water management and thermal efficiency. But for additions on existing homes, and particularly hillside homes, foundation waterproofing is unavoidable.

WATERPROOFING WALLS

The foundation waterproofing system we use is not fancy or expensive, but it works extremely well to fend off water problems. We begin by coating the foundation walls with a regular foundation dampproofing—what is called a "tar coating" around here. The guys put on the full suit, roll or spray the coating on, and use chip brushes to make sure it is worked into all the cracks and crevices on the surface of the concrete.

Bitumen-based dampproofing is a standard, traditional material for foundations, and 15 years ago, that's all you would have gotten. Dampproofing materials have changed over the years. Most are now water-based and not as hazardous for workers, but they still perform similarly. The important thing to understand is that, by itself, this material can't hold back pressure-driven water. Under hydrostatic pressure—the weight of water in the soil next to the foundation—water can be forced through the material. This is particularly true as the material ages, especially if cracks develop over time. The material is somewhat elastic but is limited in its crack-bridging capacity.

To prevent water from penetrating, we cover the foundation walls with a plastic dimple mat. This is typically a high-density polyethylene material that we attach to the wall with Tap-Cons and cap off along the top edge with a profiled plastic cap.

The 3/8- to 1/2-inch dimples keep the mat off the wall, creating a void behind it that allows any water that reaches the foundation to drain to the bottom. The water that finds its way past the mat is not under hydrostatic pressure that will drive it through the wall. The dampproofing is there to prevent the free-draining

hen laying down perimeter drains, the author first lays down filter fabric, then embeds the pipe in gravel. Large (1-inch) grave eates plenty of voids through which water can freely move, but the filter fabric needs to be there so soil won't fill up the voids 'er time. Note that the holes in the drainpipe face down to limit the volume of water that accumulates at the footing **(3, 4)**.

ater from being absorbed into the concrete. Plain, old dampproof- g works well in this capacity.

There's no secret here that makes one dimple mat that much tter than another. It's simply the void—the air space behind the at—that provides a clear path all the way down the wall for water drain. There's no way for water to do anything but drain straight the bottom.

ERIMETER DRAINAGE

the bottom of the wall, the dimple mat turns and runs out er the footing where we have a perforated drainpipe. We lay the rimeter drainpipe, with the holes facing down and pitched at ast 1/4 inch per foot, over filter fabric. The fabric sits on a layer of nch clean gravel. We then bury the perimeter drainpipe with ore clean gravel and wrap the filter fabric over the top. We throw ittle more gravel on top of the filter fabric, but this is just to keep the fabric from moving around too much while we backfill.

We install the drainpipe with the holes facing down so t water can be carried away as quickly as possible. As water acc mulates in the gravel around the pipe, we want it to spill into t holes in the pipe as soon as possible. If we oriented the pipe wi the holes facing up, a lot more water would accumulate around t footing before entering the pipe, and we don't want it to accum late to that volume.

Using this system, we have confidence that we can mana any water draining through the soil around the home. Of course, it works in conjunction with good grading as well as with gutters wide overhangs to manage roof runoff. Like every detail on a hom it's all part of a system.

Jake Bruton is the owner of Aarow Building in Columbia, Mo. Follow Aar Building on YouTube, and follow Jake @jakebrutonlive on Instagram.

Carpenter ants

Jeffrey Hahn, Extension entomologist and Stephen Kells, Extension entomologist

Quick facts

- Carpenter ants are very common in Minnesota.
- They can potentially damage homes and other wooden structures.
- The best method for controlling carpenter ants is to deliver insecticide into their nest.
- Because their nests are hidden, it's best to hire a pest management professional (pest control technician) to treat the nest.

Identifying carpenter ants

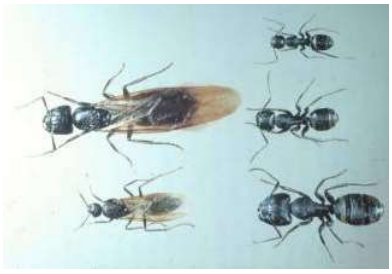
Carpenter ants are among the largest ants in Minnesota. There are several species that may be found infesting homes and other buildings.

How to recognize carpenter ants:

- They have a waist with one node (petiole) and a thorax (area behind the head) that is evenly rounded when viewed from the side.
- Workers are black or red and black.
- Workers usually range in size from 3/8 to 1/2 inch long; one species is only 3/16 inch.
- Even carpenter ant workers of the same species vary in size (major and minor workers).
- Queens and males are larger than workers and have wings. Queens lose their wings once they start a new nest.
- Queens may be as large as one inch long.

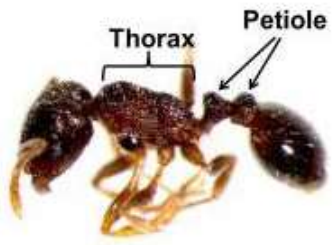
Other ants can be mistaken for carpenter ants. They have one or two nodes and an uneven thorax when viewed in profile. They usually do not infest wood.

Correct identification of the ants is important for control strategies to work effectively.



Left column: winged female (top), winged male. Right column: workers of varying sizes.

Carpenter worker ant



Non-carpenter ant worker with an unevenly shaped thorax and a two segmented petiole.

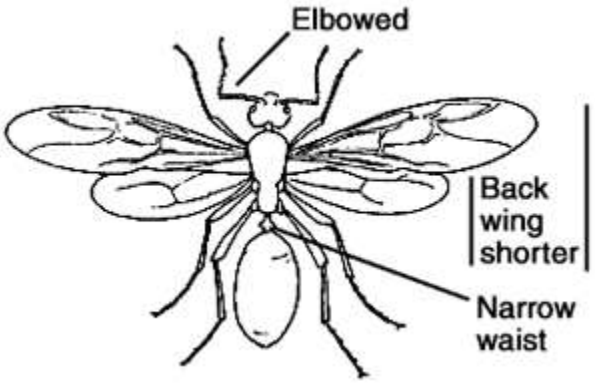
Different species of carpenter ants (males, winged females and workers) are of different sizes

Ant or termite?

Carpenter ants have dark-colored bodies, narrow waists, elbowed (bent) antennae and hind wings that are shorter than front wings (if wings are present).

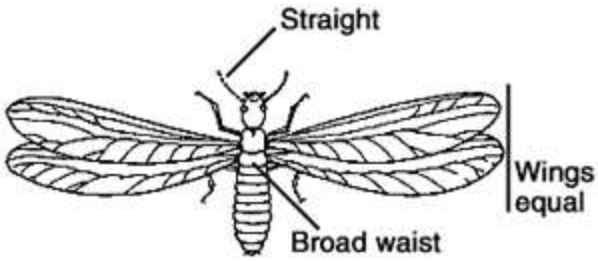
Termites are very uncommon in Minnesota.

- The workers are light-colored, have a broad waist and have straight antennae.
- They avoid light and are rarely seen outside of their colony.
- Winged termites, queens and kings, are dark-colored and have wings of equal length.



Winged carpenter ant

Winged carpenter ant



Winged termite

Winged termite

How to detect carpenter ants

Carpenter ant damage to header board

To locate a nest, observe worker ants between sunset and midnight during spring and summer months.

- Use a flashlight with a red film over the lens or cover part of the flashlight with your hand to follow carpenter ants.
- You can find their nest by setting out sweet foods (like honey) where you find workers.
- During spring carpenter ants look for high protein foods.

Finding coarse sawdust or consistent indoor sightings of large numbers of worker ants (20 or more) is evidence of a nest. Also, large numbers of winged ants indoors (late winter through spring) is evidence of an indoor nest.

Coarse sawdust from carpenter ants

Where to look for them

Possible nesting sites can include:

- Areas where steady moisture is or has been a problem.
- Firewood stored in an attached garage, next to the foundation, along an outside wall, or in a basement.
- Areas around the plumbing or vent entrances.
- Trees with branches overhanging the house.

Sound and moisture detection may be helpful in locating a nest.

- An active colony may make a dry, rustling sound that becomes louder if the colony is disturbed.
- Tap the suspected area and press an ear to the surface to hear any sound.
- Pest management professionals may use a stethoscope to locate a nest.
- They may also use a moisture meter to find areas prone to carpenter ants.

If one nest is found, there may be more nests in a structure.

What They Eat

- Carpenter ants feed on sources of protein and sugar.
- Outdoors, they feed on living and dead insects.
- They feed on a sweet liquid produced by aphids and scale insects, called honeydew.
- Indoors, carpenter ants feed on meats and pet food, as well as syrup, honey, sugar, jelly and other sweets.
- Carpenter ants do not eat wood. They remove wood as they create galleries and tunnels for nesting.

They search for food between sunset and midnight, during spring and summer months. Sometimes workers travel up to 100 yards from a nest in search of food.

Carpenter ants get into houses when they travel back and forth between their main nest and their satellite nests.

Where they live

There are two types of carpenter ant nests: parent colonies and satellite colonies.

- Parent colonies are usually found outdoors in rotting trees, tree roots, tree stumps, and logs or boards lying on or buried in the ground.
- Areas around windows and where wood parts touch the foundation may also be prone to infestation.
- Carpenter ants may also nest in foam insulation.

In homes, they may nest in moist or decayed wood (caused by exposure to water leaks, condensation, or poor air circulation) inside buildings. Typical sites include:

- Behind bathroom tiles.
- Around tubs, sinks, showers and dishwashers.
- Under roofing, in attic beams and under subfloor insulation.
- In hollow spaces such as doors, curtain rods and wall voids.

Parent carpenter ant colonies sometimes establish one or more satellite nests in nearby indoor or outdoor sites. The workers of satellite colonies move frequently between their nest and the parent colony. Satellite nests are typically composed of workers, pupae and mature larvae.

For this reason, satellite nests can be found in relatively dry locations, such as insulation, hollow doors, sound wood, and wall voids (the eggs would dry out in lower humidity).

Carpenter ants during spring

A wingless carpenter ant queen

It is common to find carpenter ants in homes during spring. But it is important to determine whether the ants are coming from outside or inside your home. Their presence is not enough to say that there is a nest in your home.

Finding carpenter ants in your home during late winter or early spring means the ants are coming from a nest in the building. But, if you see activity later in the year, it may be less clear if the nest is in the building

Finding large numbers of winged ants indoors is a sure sign that a nest exists inside your home. But, finding one or just a few winged queens does not mean a nest is present indoors. The queens probably had just mated and entered the home searching for nesting sites. When they land after mating, their wings break off.

Wingless queens found indoors are not an indication of an indoor nest. They are new queens that have recently shed their wings and are still searching for nesting sites.

Carpenter ants during spring

Seeing carpenter ants indoors during winter means that there is an inside nest. Sometimes worker ants are carried in with firewood, but these workers are not able to start nests or cause any damage in homes.

Smooth galleries of carpenter ant damage

When the nest receives enough warmth from sunlight, mild outdoor temperatures or from indoor heat, workers become active at night, searching for moisture, and can be seen around cabinets, sinks, dishwashers, rolled-up towels, bathroom tubs, sink and toilet areas. On a bright sunny day, ants may be seen walking through different areas of the house.

A carpenter ant nest can exist in a house during winter but not be noticed. If the nest is in a place that does not receive sufficient indoor heat or sunshine, such as a north-facing outside wall, the ants will remain dormant until spring.

Prevention and control

To prevent carpenter ant problems indoors, eliminate high moisture conditions.

- Replace moisture-damaged wood.
- Prevent moisture from wood or lumber that is stored in a garage or near the house by elevating it to allow air circulation.
- Store firewood as far away from buildings as possible.
- Remove tree and shrub stumps and roots.
- Trim branches that overhang the home, so branches don't touch the house (including roof and eaves).
- Prune branches that touch electrical lines. Carpenter ants can travel from branches to lines and use them to get into buildings.

Branches touching a building allow easy access to ants

Indoor control of carpenter ants

The best way to control carpenter ants is to locate and destroy the nest, replace damaged or decayed wood and eliminate moisture problems, if they exist.

Eliminating a carpenter ant nest can be difficult because of the hidden nature of the nest. Carpenter ant control is usually best done by an experienced pest management professional. They have the experience, equipment and a wider array of products to more effectively control a carpenter ant problem.

You can help by telling the pest management professional about when, where and how many ants you've seen.

There can be more than one nest in a building, but only treat nests that have been discovered.

Indoor treatment with dust or liquid pesticides

Spraying foraging workers is not effective. It may temporarily reduce the number of ants you see. However, this will not eliminate a nest because:

- Ants carry very little insecticide back to their nests.
- Most ants forage outside and do not come in contact with the insecticides.
- Only a relatively small percentage of a colony's population is out foraging at any given time.

Nests are often hidden in wall voids, ceilings, subfloors, attics or hollow doors. It is sometimes necessary for a professional pest management applicator to drill small (about 1/8 inch) holes and apply an insecticidal dust into the nest area. This is not practical nor recommended for you to do this yourself.

Determine the nest's location as specifically as possible. Control should not be applied randomly through the home.

If the nest is exposed (for instance due to remodeling or reroofing), you can use a liquid or aerosol ready-to-use insecticide.

- Common products include cyfluthrin, cypermethrin, deltamethrin or permethrin.
- The more of the colony that is exposed, the better your chance of destroying it.
- Be prepared to find a carpenter ant colony and have a product ready at the start of construction.
- Once the nest is exposed, that portion of the colony will try to relocate to protect themselves.

Indoor treatment with baits

- If you can't find the nest, you may be able to control it with a bait (a food source combined with a slow-acting poison).
- Ants need to eat the bait and return to the nest.

- Baits are effective because ants share their food with others in the nest. If enough bait is moved into a nest, it will be destroyed.
- Carpenter ants have complex food preferences and baits may not attract ants long enough to be successful.

Baits available for ant control are liquid or gel and commonly contain:

- Avermectin
- Borax
- Spinosad
- Thiamethoxam

The keys to successful baiting are placement and monitoring.

- Place the bait only in areas where activity has been seen or is strongly suspected.
- Monitor the bait over 24 hours for feeding activity.
- Bait that is ignored should be cleaned up and substituted with another.
- If bait is consumed, place more.
- Be patient—baits can take weeks or months to achieve control.
- Never apply insecticides on or around baits because this will prevent feeding

> **CAUTION:** Mention of a pesticide or use of a pesticide label is for educational purposes only. Always follow the pesticide label directions attached to the pesticide container you are using. Remember, the label is the law.

Outdoor control of carpenter ants

Often, carpenter ant nests found indoors are satellite nests that can be traced back to a parent colony outdoors.

Carpenter ant nest in a tree stump

Look for nests in:

- Trees
- Stumps
- Roots
- Fence posts
- Landscape timbers
- Other wood structures

Try removing the wood with the parent colony. When that is not possible, contact a professional to treat the carpenter ant nest.

Trim branches that overhang buildings or electrical wiring to avoid giving carpenter ants easy access to your home.

Control in trees

Carpenter ants nest in trees in one of two situations:

- In rotted, decayed wood.
- In the center heartwood section of a tree.

Parts of a tree can rot or become weak because of insects, disease or drought. Carpenter ants use knots, cracks, holes and old insect tunnels to find entry in to these areas.

- The ants do not harm the tree and only take advantage of preexisting soft, weak wood to establish their colony.
- Control is not necessary for the tree's health.

Control of carpenter ants in trees is important if there are indications that ants are entering homes from colonies in trees. Contact a pest management professional if control is necessary.

> **CAUTION:** Mention of a pesticide or use of a pesticide label is for educational purposes only. Always follow the pesticide label directions attached to the pesticide container you are using. Remember, the label is the law.

What to expect from a pest management service

In most cases, it is desirable for a pest management professional to treat carpenter ants. Pest management professionals are experienced in inspecting properties, locating nests, baiting techniques and correct application of pesticides. So, they can more effectively and quickly control carpenter ants.

They also have access to specialized equipment and insecticides and know how to correctly use them.

Pest management professionals may also offer services such as sealing or screening holes and crevices to help prevent further carpenter ant activity in homes.

HIGH PERFORMANCE

Air-Sealing a Masonry Party Wall

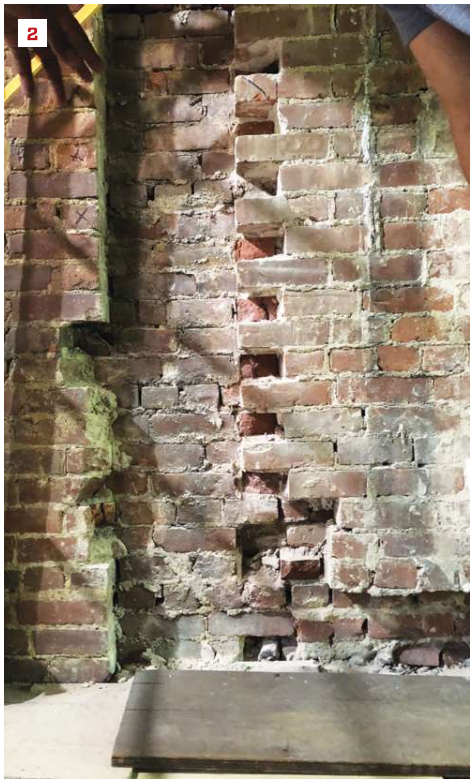
A masonry parge and fluid-applied membrane are the keys to performance

BY ED MAY

I'm a Passive House consultant working in New York City. These days, my partner, John Mitchell, and I spend a lot of our time focusing on Passive House renovations of existing brownstone townhouses. We currently have seven or eight similar townhouse projects underway in various stages of completion, consulting with various general contractors, where a brownstone is being gut-renovated and extended and the project goals include Passive House certification. Our role includes detailed energy and building performance modeling, as well as a lot of on-site design, advising, inspection, crew education, and quality assurance.

Like all extensive renovations, a Passive House brownstone renovation is complicated work with many intricate and interesting problems to solve. One of those problems is how to deal with the party wall between the dwelling that's being renovated and its adjacent neighbors. We're typically shooting to comply with the EnerPHit Passive House standard, which calls for a total building airtightness of 1.0 ACH50; to hit that mark, that party wall needs to be made as airtight as possible.

In a city like New York with an older building stock, townhouses with true shared party walls are an enormous market, and a real challenge for builders seeking to improve the airtightness on their projects. These shared party walls are typically built of brick masonry, and have pockets for timber joists from both sides. This unsealed wall can lead to a variety of troubles for homeowners,



fore the masonry parge and air-sealing fluid membrane can be applied, masonry needs to be repaired as necessary. ›ove, a chimney flue **(1)** and other irregular surfaces **(2)** will have to be filled before the wall can be coated. Penetrations ›m new and existing structural carrying members **(3)** also need to be filled and smoothed prior to air-sealing.

owing air and cooking odors, pests such as mice and insects, as ell as noise and other unwanted contaminants to pass between ighboring homes.

Most projects start with demolition: The party walls are stripped ck to bare masonry. There are exceptions; sometimes we are asked preserve existing plaster, which can be quite airtight and may ve aesthetic value or historical significance. In those cases, we ay have to work around the old material, and bridge or connect to somehow. But in general, we pull everything off the walls until can see existing old bricks and mortar.

At this point, we need to repair any missing or damaged ma- nry as directed by an experienced structural engineer. These are etty old walls that we're working on, and most of them have seen tter days. At the very least, you're going to need to repoint certain rtions of the wall. Some of the masonry may have water or fire mage. Earlier renovations may have been done in a way that re- ires repair now.

Then, once the masonry itself is in good shape, we recommend ull parge coat using a lime mortar, to create a flat and level sur- e for later air-sealing work. This allows the masons to even out y irregular surfaces from the masonry and fill small voids or gaps ere necessary.

Once the wall field is prepared and any joist replacement has been completed, a liquid-applied airtightness material is installed over the parge. This material can be any of a number of products, but we typically recommend Sto Gold Coat or Sto EmeraldCoat. These water-based acrylic coatings, typically used for exterior waterproofing under EIFS applications, are vapor permeable but airtight, and can be rolled on or spray applied. This material is installed over the field of the wall and is applied roughly around the timber joists.

We apply a minimum of two coats at 12-mil wet thickness, and sometimes as many as three coats if the substrate is very irregular. Some installers have taken to adding a small amount of different colored pigments to the material before application in order to clearly show where the various coats have been, and have not been, applied, as an aid in inspection.

Sometimes we have clients who push back on the masonry parge step, and want to apply the fluid-applied membrane to the bare brick and mortar without parging first. Occasionally, we've let that happen, but recently, I've become more of a stickler for the parge coat. It's vitally important in order to get that nice, flat masonry surface. Without the parge coat, there are significant voids and gaps, and the Sto fluid is hard to apply on a rough, variable surface like that. It's just like painting: Surface preparation is key. It's boring, nobody

me mortar parge **(4)** is the first layer to be applied to the brick masonry after rough repair is completed. Next, the parge is ted with up to three coats of fluid-applied, vapor-open airtight sealing membrane **(5)**. The final result is a fully membrane-ted wall **(6)**, ready for blower-door testing to verify airtightness levels.

s to do it, and it's invisible in the end, so nobody likes to spend ney on it. But it's important to prepare the surface properly to ive these additional coats.

While it is possible to air-seal around the joist-to-masonry-wall nection with tapes, sealants, or other products, the new genera- of spray-applied flexible airtightness materials seem to provide ore cost-effective and thorough seal at this joint. Products such artel's Blowerproof or Pro-Clima's Visconn (see photo, page 43) an ideal solution to this joint, because they can span over small s and maintain elasticity and integrity at this connection over long term. The spray application also helps to speed up the allation of the product on these irregular and oddly shaped nections.

Once the field and the joints have been sealed, the last step is to nect this party wall airtight layer to the front and back walls of row house. These front and rear walls are typically exposed to outdoors, and as a result will feature insulation and other layers inct from those of the party walls. Most common in high-per-nance retrofits are interior side air/vapor control membranes, in particular, one of the new generation of "smart" vapor con- membranes which has a variable permeability depending on ambient relative humidity. In that case, we like to seal the air/vapor control membrane robustly to the party wall by extending the membrane onto the party wall 8 to 12 inches and using a per- manently elastic sealant such as Pro-Clima's Contega-HF to bond the plastic sheet to the masonry layer. A termination bar or tape layer is also used to keep the plastic membrane in place and avoid any curling or damage during construction.

At this point, any insulation can be installed on the party wal as desired. Many clients will elect to add some insulation to this wall to reduce unwanted sound from the neighbors. Additionally to reduce the thermal bridging from the masonry party wall at the front and rear, it is recommended to install insulation 3 feet along the wall at the front and back. Beyond that zone, insulation is not required for energy or thermal comfort.

Finally, we try to test our airtightness application with an inter- im blower-door test while we can still get to and fix the airtightness layers. Even the most careful air-sealing can still miss gaps in un- expected locations, and the blower-door test is the only good way to verify that everything has been installed correctly and is working as expected, and to point to any areas that need further attention.

Architect Ed May is a member in bldgtyp llc, a consulting firm based in New York City.

DPH Marks Drinking Water Week; Issues Awards to Four CT Water Systems for Exceptional Service

National Drinking Water Week Emphasizes the Preservation of Clean, Safe Drinking Water

The Connecticut Department of Public Health (DPH) today is marking National Drinking Water Week by issuing four merit awards to Public Water Systems in Connecticut and their staff who have demonstrated exceptional service and dedication to ensuring safe drinking water in the state. National Drinking Water Week runs this week across the country and emphasizes the importance of preserving the nation's supply of clean, safe drinking water as essential to human health.

Drinking water is a precious public health resource that is often taken for granted. There are over 2,500 public drinking water systems in Connecticut which provide safe drinking water to approximately 2,900,000 Connecticut residents and visitors on a daily basis. Approximately 75% of state residents rely on a public drinking water system.

"Congratulations to our awardees and to the entities they represent. On behalf of DPH, thank you for your outstanding service protecting public health to assure safe drinking water for everyone in our state" shared Lori J. Mathieu, Public Health Section Chief, DPH Drinking Water Section.

DPH's Drinking Water Section is responsible for the administration of state and federal drinking water regulations and is dedicated to assuring the quality and adequacy of the state's public drinking water sources. DPH provides technical assistance, education and regulatory enforcement. This year's four merit awards, provided annually, for exceptional service and dedication to ensuring the safety of CT's drinking water are as follows:

- Educational Public Health Drinking Water Merit Award: Scott Bonett, Senior Associate at Hazen & Sawyer:
- The Certified Operator Public Health Drinking Water Merit Award: The City of Groton Utilities:
- The Small Community Public Health Drinking Water Merit Award: The Town of Haddam:
- The Small Community Public Health Drinking Water Merit Award: The Woodland Summit Community Water Association of Tolland:

For more information about public water systems and drinking water, please visit https://portal.ct.gov/DPH/Drinking-Water/DWS/Drinking-Water-Section

BY DAVE COYNE

Drip edge installed tight to the fascia was directing water behind the gutters **(1, 2)**, causing saturation and major damage in the house walls **(3)**. To fix the problem, the author first had to strip away and replace the siding and sheathing.

What a Long, Strange Drip It's Been

A few years ago, my company was called to look at a modest, pre-fab ranch-style house with a water-intrusion problem. The homeowner suspected a roof leak. Inside the house, water was staining ceilings and walls and running down windows, and there was a smell of mildew. A few years earlier, another contractor had reshingled the roof (over existing shingles), installed replacement windows, and re-sided the house exterior with vinyl siding.

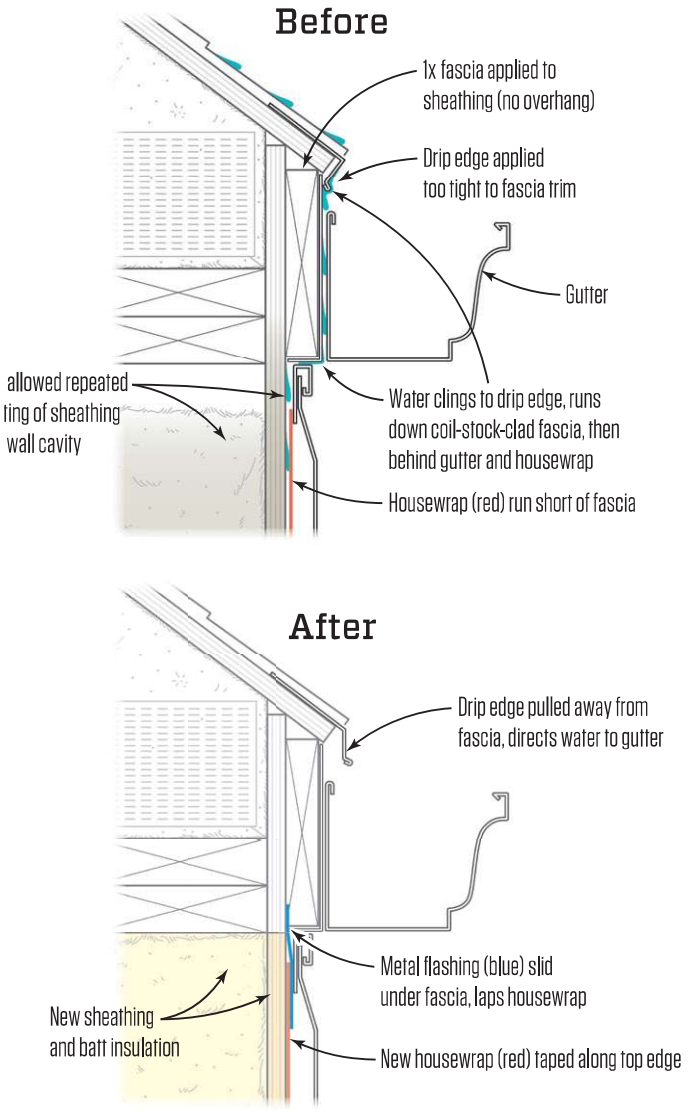
What we found when we inspected the roof was not a roof leak. Instead, the trouble had begun with the installation of the drip edge and gutters. One simple oversight started the entire problem: The drip edge was applied too tight to the fascia trim. I couldn't even fit a fingernail between the drip edge and the fascia board. That meant that the water would run straight down off the roof, wrap around the drip edge and onto the coil-wrapped fascia, and run down behind the gutter instead of falling into the gutter where it was supposed to go.

But that was just the beginning of the trouble. There was no roof overhang on this house. And when the water reached the bottom of the fascia, which was applied tight to the house walls, it would seep back to the sheathing.

There was no flashing installed that could direct the water back out away from the house or down onto the housewrap, which had been cut so it butted up against the bottom edge of the one-by fascia rather than running up behind it. Once the water reached the crucial seam where fascia met sheathing, it dripped down behind the housewrap.

Water soaked the sheathing. Over the years, the water rotted the sheathing in multiple places. When we removed the sheathing, we found rot around all the windows below the eaves, and some even on the gable-end windows. Housewrap on the walls stopped short of the windows, and wasn't integrated into any kind of tape or flashing. The window trim was installed in a way that let water penetrate to the sheathing and the window openings.

Water had soaked the insulation at the bottom of the wall, creating a habitat for ants and the insects that feed on them. In many places, even the framing



author installed a working drainage plane using tape-
led housewrap to keep the house walls dry, flashing below
fascia trim and pulling the roof drip edge away from the
to direct rainwater into the gutters.

was saturated and rotted, blackened by rot to the poin
that it looked as if it had been burned.

In an ideal world, of course, this house would hav
had a roof overhang, and that would have helped. I
would also have been a really good idea, when first
trimming the fascia along the eaves, to have made a
additional one-inch bend in the bottom edge of the
wrap so that it returned to lie flat against the sheathin
(a common trim treatment that we've all seen plent
of times). But even without those obvious touches, thi
house would have been OK if the roof-to-wall connec
tion had been well flashed, the walls had been properl
wrapped, and the windows had been properly flashe
and sealed.

In this case, our scope of work didn't include reroof
ing or replacing the drip edge. We did go around th
house and pull and bend the lower edge of the drip edge
away from the fascia as much as the material woul
allow, to facilitate dripping into the gutter instead o
behind it.

But our main project was to remove all the sidin
and sheathing, repair rot (including reframing win
dows), replace the bug- and mold-infested insulation
resheathe the building, construct a working drainag
plane, and flash all the windows correctly into the
housewrap.

To manage water that might still make its way from
the roof edge back to the house wall, we added a piec
of metal flashing extending behind the fascia to direc
water out onto the housewrap if it managed to make it
way back to the wall. We extended the housewrap up at
the top of the wall, high enough that it fell behind thi
piece of flashing.

Now the house is tight and dry. But had the roofers ini
tially left a half inch of space between the bottom flang
of the drip edge and the fascia, the homeowner migh
have been spared this ordeal and a significant expense.

Of course, the drip-edge detail is not the only facto
in the damage here. The previous contractor did man
things wrong, and if you look at the number of circum
stances that had to align in order to create this mucl
damage, the lack of a roof overhang is certainly one o
them. If the house had an overhang, things probabl
would not have gotten this bad. The fascia itself coul
have been damaged, if it were a wood fascia, but th
water couldn't have traveled back to the house as easily
and the major damage to the wall below would mos
likely have been avoided.

Dave Coyne owns and manages Home & Hearth Remodeling and Restoration, based in West Springfield, Mass.

United States
CONSUMER PRODUCT SAFETY
COMMISSION

Viessmann Recalls Boilers Due to Carbon Monoxide Hazard

Name of product:
Vitodens boilers

Hazard:
The boiler heat exchanger back plate can corrode and leak flue gases, allowing the boiler to emit excessive amounts of carbon monoxide, posing a CO poisoning hazard to consumers.

Remedy:
Repair

Recall date:
April 25, 2019

Units:
About 2,900 (in addition, about 1,400 were sold in Canada)

Recalled Viessmann Vitodens 200-W wall mount boiler

Description:
This recall involves the Vitodens 200-W and Vitodens 222-F series boilers used for space or domestic water heating. There are five affected models in a specific serial number range. The Vitodens 200-W is a wall hung unit, housed in a white metal box about 38 inches high and 18 inches wide. The Vitodens 222-F is a floor mounted unit, housed in a white metal box about 68 inches tall and 24 inches wide. The name “Vitodens” is printed on the label on the outside of the boiler box. The product name and model number can be found on the left side of the boiler cover. The serial number can be found on the underside of the wall mounted boiler and on the center section on the floor mount model.

PRODUCTS	MODEL	PART NUMBER	SERIAL NUMBER RANGE
Vitodens 200-W	B2HB 19	7538092	7538092**401003**107 to 7538092**701038**106
	B2HB 26	7538093	7538092**401002**107 to 7538092**701177**109
	B2HB 35	7538094	7538092**401003**101 to 7538092**701446**103
Vitodens 222-F	B2TB 19	7542250	7542250**401001**100 to 7542250**401210**106
	B2TB 35	7542251	7542251**401001**107 to 7542251**701257**105

Remedy:
Consumers with recalled boilers should immediately contact the installer or distributor from whom they purchased the boiler or Viessmann to schedule a free in-home safety inspection and repair. Consumers who continue the use of the boilers while awaiting repair, should have a working carbon monoxide alarm installed outside of sleeping areas in the home.

Incidents/Injuries:
None reported

Sold At:
Viessmann Authorized Dealers from September 2014 through October 2018 for between $2,700 and $4,200.

Manufacturer(s):
Viessmann Werke GmbH & Co KG, of Germany

Importer(s):
Viessmann Manufacturing Company (U.S.) Inc., of Warwick, R.I.

Distributor(s):
Viessmann Manufacturing Company (U.S.) Inc., of Warwick, R.I.

Manufactured In:
Germany

Recall number:
19-111

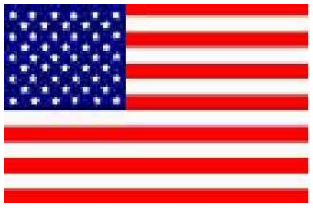
Contact CAHI c/o

James Enowitch
34-3 Shunpike Rd. #236
Cromwell, CT 06416

Email: info@ctinspectors.com

Web: www.ctinspectors.com

Articles published in CAHI Monthly are the sole opinion of the author. CAHI does not endorse or state a position for or against the content of said articles.



CAHI Executive Board		CAHI Presidents	CT Home Inspection Licensing Board	
President	Dan Kristiansen 203-257-0912	William Kievit	William Stanley, Chairman (Cheshire)	Inspector
Vice President	Woody Dawson 203-710-1795	Stanley Bajerski	Richard Kobylenski (Coventry)	Inspector
Treasurer	Bill Kievit 860-919-4960	Bernie Caliendo	Lawrence Willette (Tolland)	Inspector
Secretary	James Enowitch 860-989-0068 (Acting Secretary)	Robert Dattilo	Bruce Schaefer (Woodbridge)	Inspector
Director	Scott Monforte 203-877-4774	Woody Dawson	***Vacant***	Inspector
Director	Al Dingfelder 203-376-8452	Michael DeLugan	***Vacant***	Public Member
Director	Kevin Morey 860-488-8148	David Hetzel	***Vacant***	Public Member
Committee Member	Mike Drouin 860-384-2741	Richard Kobylenski	***Vacant***	Public Member
		Scott Monforte		
		Joseph Pelliccio		
		Pete Petrino		
		Dwight Uffer		
		They have served as our primary leaders and in other capacities since 1992.		
		Please thank them for their service when you have a chance.		

The Licensing Board meetings are held at 9:30 am Dept of Consumer Protection 165 Capitol Avenue. Hartford

The public is always welcome.

Published by: Larry Ruddy
Larryhp@cox.net