



MONTHLY

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

July 2009

Inside this Issue

Getting Ready For Air Conditioning	3
CPSC – Composite Decks Recalled	5
Performing Revisits	7
A Primer in Roof Sagging	8

Meeting Dates

- Jul 22** *Thermography - Matthew Knights, Flir Systems*
- August** **NO MEETING**
- Sep 23** *Mold, Asbestos & Environmental Abatement - Servpro*

Holiday Inn
201 Washington Ave
North Haven
(203) 239-6700

President's Corner

Woody Dawson

We are into July and we are finally starting to get decent weather, without rain. July and August are usually popular months for vacationing with your family and friends. Hope you all are able to take advantage of it.

There are people that have gone on bus trips to the plumbing museum, log cabins, OMG Inc., and the Jacob Javits show in New York. Most of us have our credit certificates but for those that don't, you have to contact our secretary Barry Small. If you miss meetings, he usually has it made out and on the table, ready to go. That is why for those who do not have them, more than likely, they missed a meeting. Notify Barry by email, phone, etc., and let him know if you do not have your certificates. He does his best to mail them out but, if there is an oversight, it is your responsibility to notify him. He has done a good job and will continue to do a good job with your cooperation and help. You have to notify him because he is the person responsible for making them out. Telling and emailing other people is not going to get your credit certificate. **This is the last time I will inform you of this.** We have a great website and all members are listed with phone numbers and emails, **so please contact Barry.** He is not a mind reader; he is only doing his best.

CAHI has a tradition of giving back to our community here in CT. About three months ago, your Board of Directors and I discussed where we could give back this year. As a group, we felt that reaching out to veterans was a good idea. Consensus also felt that we wanted to help veterans in the process of buying a home, something close to how we are already involved with the general population. I directed Al Dingfelder to take the lead on this based on the fact that he is retired military and a disabled veteran and he has agreed to chair this project. Al has spent quite a bit of time on this project with the return on his efforts being slow but positive.

I gave Al a local point of contact with the VFW, John White in Cheshire, who connected him with the state HQ for that organization. Al contacted an upper level office of Disabled American Veterans, the state's commissioner for Veterans Affairs and other organizations. The bottom line is that things are not simple. Like our own challenge of identifying home buyers, these organizations have a hard time identifying veterans ready to buy a home or how many there might be. Home buyers just do not wear T-shirts identifying who they are. While waiting to set up a way for us to help vets, Al has conducted a free home inspection for a vet as a pilot test showing how we can help.

The veteran was SPC 4 Joseph Quiroga. He was an infantryman assigned to A Company/102 Infantry of the Connecticut National Guard. Shortly after the attack on 9-11, he and his unit were activated to provide security to military posts involved in upcoming deployments. The home that was inspected and he bought is in Bristol where he currently lives. He appreciates the assistance that CAHI provided to him and his family and hopes we can do the same for other veterans.



We hope to get this posted to the state VA and veteran organization sites and setting up a link for veterans visiting those sites to come to our web site looking for services. We could set up a place similar to what we have for the subject of interns and inspectors looking to work together. Tom Hauswirth has also done a great job with our website and Tom is always willing to step forward and help. He will be good assistance on the website. What is needed from the membership, is who is willing to provide services and to what degree. Al says he and some of his interns are willing to provide a large volume of inspections and some members have mentioned they are willing to help. I prefer that more of our members provide a smaller number of assists to demonstrate our group's resolve to help those who have defended our country and to allow more members to meet and help our veterans. Please send your ideas, comments, reservations or commitments to me, Al or the CAHI website. This month, we are having a board of directors meeting and we are also going to discuss, and hopefully vote on, a donation amount for the Stand Down, an event which takes place in September and helps support our needy veterans.

Linda Schwartz RN MSN Dr.PH FAAN is going to be sending me more information on the Stand Down, scheduled for September 18, 2009. For more information, please visit the State of Connecticut Department of Veteran Affairs website at <http://www.ct.gov/ctva/site/default.asp>.

Upcoming Events (Watch the CAHI website for special events.)

We are short six people for the Northeastern Log Cabins and OMG Inc. bus trip. We need at least 25 people to sign up for this trip. You can sign up on the CAHI website. There is no set date yet. We will need six more members to sign up to make it feasible to get a small bus. For those that are interested, please sign up now so we don't have to cancel the entire trip.

All members should check the CAHI website to make sure that your email address, telephone number, fax number, cell phone number, etc. is correct on the member list. It is your responsibility to check the website to make sure that your information is correct. Thank you. Contact Tom Hauswirth with any changes. I would recommend you check the website monthly. Tom is always updating the website.

Monthly educational meetings cover topics such as: roofs, siding, chimney repairs, and many others. Throughout the year, we cover all aspects of home inspection, so you gain knowledge and the CEU credits you need. You only have to attend a certain amount of meetings and one or two trips and you will have enough credits. It surprises me, the amount of phone calls that I get from members, at the eleventh hour, who are short of credits. I encourage you, for your own sake, save all certificates for continuing education and file them in a safe place so you can check periodically through the four quarters of the year to make sure that you have enough credits. This is a simple task and takes very little time. This is part of being in business and I am sure you run your business correctly, so **please pay as much attention to the credits you need, or you will not be able to renew your license.**

Your president,
Woody Dawson

CAHI is the largest local independent home inspection association in New England.

Know What You're Inspecting – Getting Ready For Air Conditioning

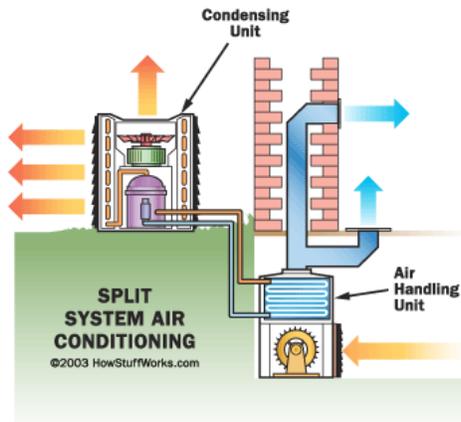
By Stan Bajerski

In no time at all, home inspectors across the state will be evaluating the condition and operation of air conditioning systems. This is a good time to brush up and get prepared for the coming summer.

It still amazes me how little some home inspectors know about air conditioning and how it works. You must know and understand the "refrigeration process" before you can determine how well a system is operating. If you understand how water boils and turns to a vapor when heat is applied, and how the vapor condenses back to a liquid when heat is removed, then you have already begun to understand the refrigeration process. In a nut shell, it extracts heat from one space and dispenses it in another.

The Components

Let's start with a review of the main components that comprise all air conditioning systems. They are the cooling or evaporator coil, circulating fan, condensing coil, condenser fan, compressor, and refrigerant lines.



The cooling or evaporator coil is located on the interior portion of a window unit, in the air handler of a central air unit, or in the plenum of a warm air furnace. This coil, when used in central air systems is also referred to as the A coil because of its inverted V shape. The circulating fan moves air from the space to be conditioned across the evaporator coil and back into the space. In a central air unit, it is located in the air handler. In a warm air system it is located in the furnace.

The condensing unit is located outside and is comprised of the condensing coil, condenser fan and the compressor.



There is a small diameter refrigerant line inside the condensing unit that connects the compressor with the condensing coil. This is the hot gas line. It carries high temperature, high pressure vapor and is extremely hot to the touch. There are two lines that run from the cooling coil inside the home to the condensing unit outside the home. The smaller diameter, un-insulated line is the liquid line. This line carries condensed low pressure liquid from the condensing coil to the cooling coil. It should be body temperature. The larger diameter refrigerant line is the suction line. It is cool to the touch when the system is operating properly. It should be insulated.

The Process

If you were to place a pot of water on a flame, water in its liquid form will absorb the heat from the flame. In the process, the water molecules expand. If enough heat is applied, eventually the molecules expand so much that the liquid turns into a vapor. For water, this happens at 212 degrees Fahrenheit. Take that vapor and remove the heat or condense the vapor, the molecules tighten up and go back to a liquid state. The refrigeration or "cooling process" as we will call it for the rest of the article is based on the evaporation and condensation of refrigerants.

Refrigerants are compounds that boil at temperatures must lower than 212 degrees Fahrenheit. R 22, for instance, most commonly used in air conditioning systems for many years, boils off at -41.5 degrees.

When released from an upright canister in temperatures above -41.5 degrees, it will boil off immediately and turn into a vapor. When released in temperatures below -41.5 degrees it will be in a liquid form. The compound freezes at -256 degrees.

The refrigeration/air conditioning system is comprised of components that will help boil and condense refrigerant to remove heat from the air in a conditioned space and release it somewhere else.

Liquid refrigerant is introduced into the cooling coil by a metering device. A capillary tube or thermostatic expansion valve are the most common. The cap tube is a constant meter, the expansion valve is adjustable and is used most with refrigeration. The refrigerant is forced through a small orifice and sprayed into the coil. As the refrigerant enters the coil, it absorbs the heat from the room air being drawn across the coil and boils off. The refrigerant, now a low pressure gas packed with the heat from the room air, is drawn back to the compressor through the suction line, the larger diameter pipe that runs from inside the home to the outside condensing unit. The compressor is the motor located in the outdoor condensing unit. The compressor uses pistons and valves to raise the low pressure gas to a high pressure gas.

This high pressure vapor is pumped through the hot gas line from the compressor to the condensing coil which is part of the exterior condensing unit. Here in the condensing coil, the outside air, which is cooler than the high pressure, high temperature refrigerant gas, is drawn across the coil by the condenser fan, removing the heat absorbed from the conditioned space, releasing it into the atmosphere and condensing the hot gas to a liquid. Put your hand over the condensing fan when a system is in operation. You should feel warmer air. The liquid refrigerant is now pumped back to the cooling coil to complete the cycle and begin a new one.

What To Look For

When inspecting an air conditioning system, I first do a physical evaluation of the equipment. I check the visible duct work for damage, rust and air leaks. I inspect the plenum on a warm air furnace and the drip pan under an air handler for evidence of leakage or blockage in the condensate lines, among other things. I inspect the condition of the condensing unit noting units that are out of level, condensing coils that are dirty, suction lines that are missing insulation, open electrical boxes, open or loose wire connections etc.

A bit trickier is determining how well the system is operating. I first check the temperature drop across the evaporator coil. Ideally, this should be done at the coil itself.

However, for our purposes, it can be done by measuring the temperature difference between the room temperature and the air coming out of the supply duct. A

temperature difference (TD) of 15 to 20 degrees is desirable.

Lower TD's can indicate older, worn compressors, dirty coils, low refrigerant charges among other things. Higher TD's can indicate dirty filters, improper coil size, poor air circulation, etc. Determining the cause of improper temperature differences is best left to an expert.

I also examine the suction line to determine if it is sweating. Condensation should be present and will usually be an indication that the refrigerant charge is full and there is adequate air flow. A frozen line spells trouble. A dry line can again be caused by several conditions. This is always a sign there is a need for a service call.

The sizing of a system is a complicated process and is often miscalculated. It relies heavily upon window area, location of windows, amount of insulation, orientation of the home, overhangs, tree lines, interior heat loads, etc. Of course, we are not required to determine the capacity of a system or its ability to cool a house efficiently or properly. However, you should keep the following in mind to have a better grasp of the refrigeration process.

We all know that a byproduct of air conditioning is dehumidification. When a coil or system is undersized, it will remove moisture from the air but will not have the capacity to cool the area. A classic example of this would be a common dehumidifier.

When a coil or system is oversized, it will cool a space quickly, leaving the air humid. This is the theory behind coolers used in flower shops where cooler temperatures and high humidity are needed. Properly sized and functioning air conditioning systems should cycle on and off. In other words, under conditions that they are designed for, they should reach the set temperature and shut off and restart when the temperature rises, just like heating systems. If you are aware of what is going on around you, you may notice that unit runs continuously during your inspection even though the space is not exceptionally cool. This could indicate an excessively high heat load, older compressor, dirty coils, low refrigerant. If it's an average summer day, and the system is not cycling, it is not functioning properly. Keep in mind that high humidity can cause the system to expend more energy on moisture removal.

I use the above mentioned items to help me determine the operation and condition of a central air conditioning system. They help me determine whether or not the system is in need of service currently.

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE RELEASE

May 13, 2009

Release #09-217

Firm's Recall Hotline: (888) 325-1184

CPSC Recall Hotline: (800) 638-2772

CPSC Media Contact: (301) 504-7908

Composite Decks Recalled by Louisiana-Pacific; Decks Can Deteriorate and Break, Posing Fall Hazard

WASHINGTON, D.C. - The U.S. Consumer Product Safety Commission, in cooperation with the firm named below, today announced a voluntary recall of the following consumer product. Consumers should stop using recalled products immediately unless otherwise instructed.

Name of Product: Composite Decks

Units: About 48 million linear feet (decks vary in size)

Manufacturer: Louisiana-Pacific (LP) Corp., of Nashville, Tenn.

Hazard: The recalled decking can prematurely deteriorate and unexpectedly break. Consumers can fall through broken decking and suffer serious injuries.

Incidents/Injuries: LP has received 37 reports of composite decks breaking, resulting in 14 injuries, including a broken wrist, sprained ankle, minor lacerations and bruises.

Description: The recall includes outdoor deck board and railings sold under the brand names LP WeatherBest®, ABTCo., and Veranda®. They are composite products that look similar to natural wood and were sold in various colors including Tuscan Walnut/Chestnut, Driftwood Grey/Greystone, Pacific Cedar and Western Redwood. Veranda decking products were manufactured by multiple firms; only products manufactured by LP are included in this recall.

Sold at: The Home Depot (Veranda® brand) and building product dealers (LP WeatherBest® and ABTCo. brands) nationwide from January 2005 to August 2008 for between \$1.50 and \$2.25 per linear foot.

Manufactured in: United States

Remedy: Consumers with the recalled decking should immediately contact LP for a free inspection. If the decking is affected by premature deterioration, LP will arrange for a free replacement.

Consumer Contact: For additional information, contact LP toll-free at (888) 325-1184 between 6 a.m. and 5 p.m. PT Monday through Friday, or visit the firm's Web site at www.deckingnotice.com



Photo of installed decking

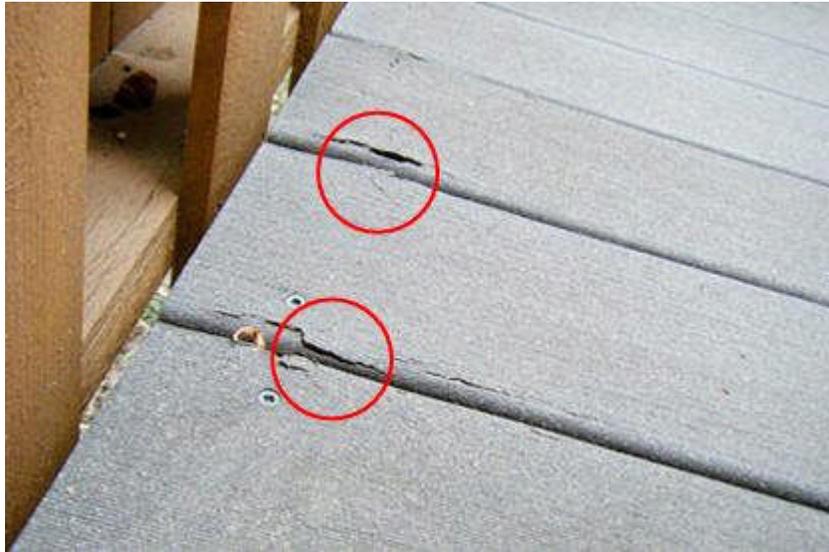


Photo indicating damaged decking



Tuscan Walnut/
Chestnut Driftwood Grey/
Greystone Pacific Cedar Western Redwood

CPSC is still interested in receiving incident or injury reports that are either directly related to this product recall or involve a different hazard with the same product. Please tell us about it by visiting <https://www.cpsc.gov/cgibin/incident.aspx>

Send the link for this page to a friend! The U.S. Consumer Product Safety Commission is charged with protecting the public from unreasonable risks of serious injury or death from thousands of types of consumer products under the agency's jurisdiction. The CPSC is committed to protecting consumers and families from products that pose a fire, electrical, chemical, or mechanical hazard. The CPSC's work to ensure the safety of consumer products - such as toys, cribs, power tools, cigarette lighters, and household chemicals - contributed significantly to the decline in the rate of deaths and injuries associated with consumer products over the past 30 years.

To report a dangerous product or a product-related injury, call CPSC's Hotline at (800) 638-2772 or CPSC's teletypewriter at (800) 638-8270. To join a CPSC e-mail subscription list, please go to <https://www.cpsc.gov/cpsclist.aspx>.

Consumers can obtain recall and general safety information by logging on to CPSC's Web site at www.cpsc.gov

Performing Revisits

by Graham Clarke, Vice President of Engineering

Submitted by Barry Small

We like revisits because they help to put people in the right place on the mean scale.

The "mean scale:"

The mean scale is our in-house term that means:

It is easiest for people to be mean in writing.
It is harder for people to be mean on the phone.
It is hardest to be mean face-to-face.

Corollary: it is easy to be mean in writing, on the phone and face-to-face, when speaking about someone else.

Revisit basics

When you go out on a revisit, there are a number of things we recommend:

- Take your report
- Have your inspection report with you, although you may not want to refer to it directly. This is a strategic decision. Do not, however, rely on your memory of what is in your report. There may be an opportunity for you to present the report, resolve the issue and create a happy ending. You may also want to refer to your report privately to refresh your memory, clarify details, etc.
- Take another inspector
- If you did not perform the inspection, take the inspector who did, with you. There are several reasons for doing this, but two that are fundamental.
- You will have no knowledge of what site conditions were during the inspection. The inspector may recall a crowded bookshelf along a wall that is now exposed. The bookshelf would not have been documented in the report as a limitation because the inspector would have assumed it was staying with the home.

The client will find it more difficult to accuse the inspector of inappropriate behavior if the inspector is standing there. It helps keep people honest, and keeps them at the right end of the mean scale.

If you did the inspection, take another inspector from your firm or a colleague from your association chapter, for example. Again, there are several benefits to having someone else with you, but the biggest is that they are not emotionally involved.

You are fact finding

Do not act defensively or aggressively. Your role is to help solve a problem. Your focus is not on the blame, at least not at this stage. Ask lots of questions. You may even repeat the standard list of questions that you asked on the telephone. The answers are often surprisingly different. This can be helpful later on in the resolution process.

You may also want to create more questions based on the initial answers you received.

You may offer steps to solve the problem. But don't discuss responsibility for the problem.

Photos

Take photographs to document the situation. Some courts will not accept digital photos because they are so easy to alter. A 35mm camera may be better.

No fancy tools

Do not use tools that you don't use during a home inspection. If you use fancy devices at the revisit, you may be asked why you didn't use them during the home inspection.

Contractors should attend

We mentioned earlier that if it was a contractor who found the problem, it is wise to have the contractor attend the revisit. You might ask when they discovered the problem. If it was after work began, ask why their original quote did not mention this problem. If it should have been apparent to an inspector who is a generalist, it should have been apparent to a contractor who is a specialist.

In most cases, the problem will have been discovered part way through the project. Try to have the contractor admit the uncertainty and unpredictability rather than challenging the contractor's responses directly.

Thinking on your feet

As evidence unfolds; you will need to ask follow-up questions. This requires mental agility and focus. Emotions get in the way. This is another reason that two

people should attend the revisit. Two heads are better than one, especially since the inspector who did the inspection will tend to justify or rationalize their original position. It is simply human nature.

When you have collected information on site, advise the client what the next steps will be. Give them a date and time you will get back to them, and then get back to them sooner.

By Graham Clarke, Vice President of Engineering
With permission of
Robert Dunlop, President
Carson, Dunlop & Associates, Ltd
www.carsondunlop.com

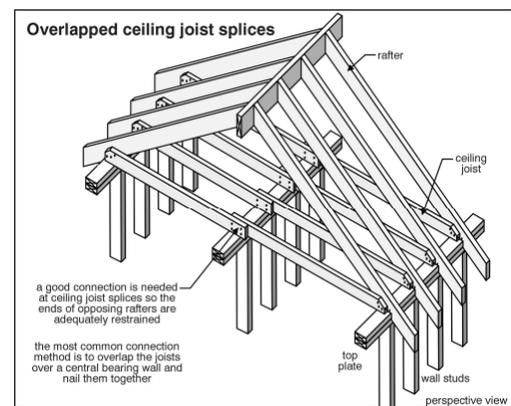
A Primer in Roof Sagging

by Dwight Uffer, BSCE

Many homeowners never notice the ridge of their homes sagging or deflecting. They walk past these obvious defects in the structure of their home every day until the day comes when they would like to sell their home. That's when the horrible home inspector comes to inspect the home for the soon to be occupants. Most buyers and some inspectors do not notice sags in the ridge of a home unless the inspector or prospective buyer actually walks the roof on a multi - story home or perceives the problem from past experience from the ground. I have observed many homes with sagging ridge boards and what I hear from the owner of the property or his agent is that the "dip" in the roof or sag is related to a big snow storm that occurred last year or the "Big One" back in 2004.

Well, that is a fairly good reply however in 99% of the cases, it is entirely wrong!

We have to look a bit further and look at how the structure was framed. Most residential roof framing is comprised of rafters, which are the sloped members of the roof system are fastened to, and the ceiling joists or collar ties, which are the horizontal components. When you visit the attic area of a structure, the rafters are the members that are seen above you and the ceiling joist are the members that are below you. These structural members form a triangle with two sloped sides and one flat side. Some attic structures have what is called collar ties which provide additional support to the triangle. The triangle is a very important shape as no matter what direction that you apply a load or external pressure to one of the members, the other two remaining members will provide support.

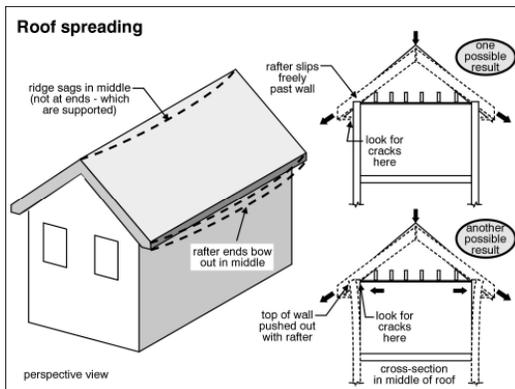


Typical Roof Configuration (Fig. 1)

Example: When roof rafters are used to support the weight of the roof along with the weight of winter snows in the northern climate, they push against the opposing rafters at the ridge board as well as exerting a thrust load (outward) against the supporting outside walls. (fig.1) The ceiling joists support both the weight of the ceiling as well as resist outward horizontal thrust of the rafters and the top plate of the wall from moving outward. If collar ties are in place, they add additional roof rafter support by preventing "spread" of the rafters. The restraint provided by the ceiling rafters at one side of the structure is countered by the outward thrust of the roof rafter and restraint of the ceiling joist at the opposite end.

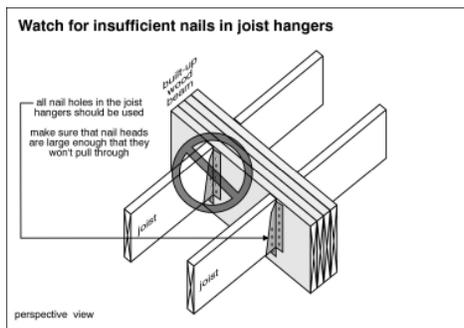
If the ceiling joists are too long, they will be compromised by numerous components. Ceiling joists are commonly lapped over a wall or girder which is structurally supported by a foundation

or masonry piers. If the ceiling joists are not adequately "lapped" and positively fastened to each other, they will tend to pull apart. The separation of the ceiling joists allows the top plate of the exterior wall to move outward. This outward movement of the roof rafter causes the rafter to pull on the ridge board and cause it to drop. If the room has drywall applied, it will crack, usually near where the ceiling joists are pulling apart. (fig. 2)



Roof Spreading (Fig. 2)

If the ceiling joists are "buted" and not properly "lapped" in most cases they are not securely fastened. These members will tend to show separations between the metal plates or hangers and the beam. It will also be obvious that the shanks of the nails fastening the ceiling joist to the beam will be exposed.



(Fig. 3)

In some cases the ceiling joists are not installed parallel to the rafters. When this is the case, the rafter thrust becomes resisted by the drywall or plaster ceiling and possibly the roof deck. These components are not intended to provide the required resistance to rafter thrust and will show signs of structural distress. Evidence of distress will be cracking of the ceiling and side walls along with lifting or buckling of the roof deck. This condition is most common in Ranch style homes with a "Hip" roof configuration as this type of roof all four corners tend to slope in a downward slope.

Collar ties are another roof framing component that will help in curtailing rafter spread. These components are normally installed at mid-attic height and help in resisting the thrusting and spread of roof rafters. These components, if installed too close to the attic ridge do not perform as intended and become less effective. Collar ties installed within 1/3 of the rise of the roof become ineffective to rafter spread. Many attics that we have inspected have rafter ties removed to make room for storage of personal items and additional head room.

Another concern with ridge sag is deterioration of the bottom plate or sill plate. Compression of deteriorated sill plates or wall framing will tend to allow the exterior wall of a structure to deflect outward under load which will result in a sagging ridge board. This is true with homes that have a wood destroying insect problem or in areas in which water infiltration under the bottom plate is occurring and wood decay is prevalent.

In order to determine if the concern over sagging has occurred recently, we would have to examine the condition of the cracking and separations. If you examine the edges of the cracks and they are sharp and clean, it would indicate that they are recent occurrences. If the cracks appear to have been painted or patched previously or the cracks have rounded edges or are dirty, it would tend to indicate that they are not recent. Shiny nail shanks in fasteners indicate recent movement, whereas rusted or corroded fasteners would indicate old movement.

When looking at the exterior of the structure, when the wall is pushed outward, the rows of shingles will show an outward sweep (horizontal bow) with the wall. However, if the shingles are still in a straight line, the roof was bowed outward prior to the shingles being installed. If the shingles exhibit an uneven exposure, that is, the shingle appears wider at the sides of the roof than at the center in one or more rows, the roof was bowed outward and sagged prior to the shingles being installed.

Industry studies show that a relatively short term of weight of snow and ice (up to four months) does not cause a permanent deflection without splitting some rafters. Studies also show that the amount of sag from creep is increased by the variation of moisture content in the wood framing as well as high stress in the wooden member. The variation in the moisture content of the wood is increased by inadequate attic ventilation. High stress is caused by under-sized rafters.

1. Dietz, Albert GH., Dwelling House Construction, fifth edition, 1991 MIT Press, Cambridge , MA



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		They have served as our primary leaders and in other capacities since 1992.	The Licensing Board meetings are held at 9:30 am, Department of Consumer Protection Room 117 165 Capitol Avenue. Hartford
		Please thank them for their service when you have the chance.	<i>The public is always welcome.</i>

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