

CAHI MONTHLY NEWS



Presidents Corner

Finally, 15 months after the State of Connecticut shut down for two weeks to flatten the curve regarding COVID, it looks like we are closing in on the proverbial light at the end of the tunnel. While we are seemingly nearing the end of the pandemic, it appears that the real estate market that developed during the pandemic will be hanging around with us for a while. The market is different now than before COVID, that is for sure. When you keep hearing Realtors saying “contingency waved” and “for informational purposes only” you know you are in a “buy or walk” market. I continuously hear customers complaining that they agreed to 30K over asking price and they do not have the money to fix these things the inspector is finding.

The market has changed, but our job has not. As a matter of fact, our job has just become more valuable, exponentially. How? Why? Because of the sky rocketing rise in the cost of building materials. The repair or replacement of the components that we report on have become more expensive. That adds another level of value to what we do. A roll of 250 feet of 14-2 Romex wiring was \$40, now \$150. Plywood is soaring past \$60 a sheet. A 2x4 is over \$10. Aluminum, plastic and everything else is more expensive.

We keep doing what we do, no matter what our clients can or can't do with the findings. I have buyers withdrawing from purchase before the inspection is completed. They ask for a discount because they don't need a report. If you don't feel like doing the report, go ahead and give them a discount. But if they change their mind and buy the house, there is not documentation of the findings. Put some type of report together just in case.

On the legislative front, an update on the smoke detector bill, 6600. It re-appeared recently and did pass the house. It still has to pass the senate to become law. If passed it will change the HI standards. The bill as written contains - (6) establish a minimum and uniform standard for a home inspection.

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Meeting Dates!

June 23rd

Presentation By

Escalante Masonry

Patios, Pavers and Stone



July 28th

TBA

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 also broadcast via Zoom.

Meetings are still free to members but RESERVATIONS are a MUST.

Reservations can be made at our CAHI website.

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.

Presidents Message Continued:

The minimum and uniform standard for a home inspection shall include a requirement that a home inspector report on the presence of smoke detection and warning equipment and specify where such equipment is located, the total number of such equipment, whether the home inspector is able to test such equipment, and whether the home inspector is able to verify that such equipment was less than ten years old.

I will keep you posted.

As the state loosens restrictions on indoor events, I am hoping to see more members attend our meetings “live”. There is a value to socializing with others in our profession, telling war stories and comparing notes. You can get a world of knowledge from a simple conversation with a colleague at break or after the meeting, or a brief conversation with the presenter. Get back to normal. Get back to meeting in person.

Stan

“If people only knew the healing power of laughter and joy, many of our fine doctors would be out of business. Joy is one of nature’s greatest medicines. Joy is always healthy. A pleasant state of mind tends to bring abnormal conditions back to normal.

— **Catherine Ponder**

CAHI Scholarship

The CAHI (CT. Association of Home Inspectors) board of directors is pleased to announce the renewal of the CAHI scholarship for the 2021-2022 school year.

You may be considered to receive a \$500 to \$1,000 scholarship awarded by CAHI if you are:

- 1) A high school senior planning on attending a college, university, or trade school.
- 2) A high school graduate planning on attending a college, university or trade school.
- 3) Currently enrolled @ a college, university, or trade school.
- 4) A graduate of a college, university, or trade school planning on pursuing further education.

Eligibility Requirements

- o Applicants must be U.S. citizens.
- o Applicant must be related to a C.A.H.I. member in good standing.
- o Applicants must submit a completed application.

Terms of Scholarship

- o C.A.H.I. awards at least one \$1000 scholarship every year. An up-to-date application is required each year. Awards may be divided between co-recipients. Each recipient can receive up to \$1000 of lifetime total scholarship money. If a partial scholarship is awarded, the recipient may reapply in subsequent years to receive the balance of the \$1000 total.
- o The scholarship award is to be used for tuition, room, books, or other services provided by the institution.

[CLICK HERE FOR MORE INFO AND TO ACCESS ONLINE APPLICATION FORM](#)

Preliminary Buyer Walkthroughs: What You Need to Know

By Stephanie Jaynes

April 1, 2021

While mortgage rates sit at historic lows, not all bodes well for house hunters. Potential buyers nationwide face low housing inventory and subsequently high prices, leaving many to wonder how they'll ever secure their dream homes. And, eager to avoid bidding wars with other hopefuls, buyers' real estate agents suggest that their clients pursue an unconventional time and money-saver: preliminary buyer walkthroughs.

Also known as consultation inspections, buyer consultations, or walk-and-talk inspections, preliminary buyer walkthroughs are not home inspections. Rather, they are 30-minute meetings in which an inspector traverses the property with the potential buyers and calls out visible potential defects with a cursory glance. Since inspectors typically do not provide a report, and there isn't enough time to provide a thorough evaluation, consumers who opt for preliminary buyer walkthroughs must rely on the information the inspector is able to verbally relay during the consultation. By getting a walk-through instead of a home inspection, potential buyers hope to make offers non-contingent on an inspection that will win them the deal.

But are preliminary buyer walkthroughs good for consumers? How about for inspectors? And what liability do home inspectors assume when they act as consultants? In this article, we aim to answer these questions.

Walkthroughs and Consumers

Most home inspectors agree that preliminary buyer walkthroughs are not in consumers' best interests—particularly when they replace home inspections.

Dave Taurinkas, Owner of Reassurance Home Inspection in Minnesota, is an ardent advocate for ceasing consultations nationwide. Taurinkas has spoken to independent arbitrators, real estate agents, and recent home buyers regarding the disadvantages of walk-and-talks. His argument: Many potential home buyers believe that a walkthrough will warn them of any defects that plague the property when it is unlikely that



an inspector will be able to discover and disclose many significant defects in such a short survey. As a result, consumers may unknowingly purchase houses with major deficiencies, only to discover them after moving in.

“A walkthrough consultation is not a home inspection, and it is not a substitute for a home inspection,” said Bruce Barker, 2021 President of the American Society of Home Inspectors (ASHI) and Owner of Dream Home Consultants, LLC in North Carolina. “Home buyers should understand that, when they waive the home inspection, they assume the risk of incurring significant costs to repair defects that might have been discovered during a home inspection.”

Dave Klutch of Harmony Home Inspections, Inc. in Minnesota agrees, stating that preliminary buyer walkthroughs are “watered-down inspection[s]” that serve realtors—not buyers.

Consultations and Inspectors

Many of the home inspectors who perform walk-and-talk inspections do so to maintain relationships with agents. If they were to turn down a consultation, they fear their referring agents might give the job and future inspections to someone else.

However, not all real estate agents view walkthroughs the same way. In fact, Taurinskas knows a realtor who stopped using a home inspector because they did perform a consultation for a client instead of a home inspection. So, depending on the realtor and your relationship, it can work both ways.

Furthermore, some home inspectors have concerns over whether buyer consultations damage the inspection industry at large. Since there is no state or association standard of practice that officially establishes the scope and limitation of the service, and because the findings are so limited, some inspectors suggest that consultation inspections devalue the inspection profession.

“[Preliminary buyer walkthroughs] desecrate our industry that we spent so much time developing over decades to be a respected part of the real estate process,” Taurinskas said.

Taurinskas encourages his fellow home inspectors to contact realtor associations in their areas to impede walk-and-talks on a larger scale. By involving the people who write and revise policies, Taurinskas argues, home inspectors are more likely to create lasting and meaningful change. This past April, his talks with Minnesota Realtors® led to the organization condemning walkthroughs as unethical and misleading.

Offering Alternatives

For inspectors unwilling to or uninterested in performing walk-and-talk inspections, there are alternatives. Klutch’s solution for agents and consumers pressed for time: pre-listing inspections.

Pre-listing inspections are full home inspections that inspectors perform for sellers prior to listing properties for sale. (Hence the term “pre-listing.”) By getting an inspection before potential buyers even see the house, sellers hope to fix or disclose defects ahead of time, thus increasing the likelihood of a faster, more profitable sale.



“[Sellers] can throw [the pre-listing inspection report] on [their] dining room table,” Klutch said. “It shows full disclosure. It reduces realtors haggling over price. Everyone wins.”

A word of caution from the InspectorPro claims team: Pre-listing inspections can be dangerous to home inspectors. If you perform a pre-listing inspection and know (or reasonably believe) that a third party—like a potential home buyer—may rely on your findings, you may have a legal duty to that third-party. To circumvent that liability, talk to your insurance company and your attorney about the protections available in your pre-inspection agreement.

Alternatively, Taurinkas recommends that buyers offer a small amount of earnest money, like \$1,000, and get a full home inspection with the promise to not make any demands based on the findings. Should the property fare well, the buyers can move forward with the purchase. Should the inspection discover excessive defects, they lose the \$1,000 and the inspection fee but get to walk away.

“Why would a seller balk at having a full inspection if no demands are going to be made from that inspection?” Taurinkas said. “[The potential buyers] don’t have to give a reason to back out of the house, [so they don’t have to give an additional disclosure statement].... [Instead,] the seller gets to keep the \$1,000...and put the house back on the market.”

Limiting Liability

At the time of publication, both ASHI and InspectorPro Insurance neither endorsed nor discouraged preliminary buyer walkthroughs. Based on InspectorPro’s claims data, it appears that such consultations do not present a significant risk to inspectors. However, there are things you should do should you choose to perform preliminary buyer walkthroughs that would limit your liability.



1. Determine if there are regulations in your state.

While ASHI and InspectorPro remain neutral regarding walkthrough consultations, your state might have a stronger opinion. Before setting out to perform preliminary walkthroughs, verify whether there are any applicable state regulations.

2. Obtain a signed agreement.

To qualify for insurance coverage, you need an agreement signed prior to entering the property. However, your contract for preliminary buyer walkthroughs should be different than your standard pre-inspection agreement. This contract should explain the limited scope of your consultation. It should also underscore that it isn’t a home inspection, so it’s not in compliance with any state or association standards of practice.

Unlike a full home inspection, it may be appropriate to have one agreement for multiple consultations should the consultations be on the same day and for the same client. If you perform walk-and-talks for multiple clients or over multiple days, you must have separate agreements.

Unsure of how to draft an agreement for your preliminary buyer walkthroughs? In addition to consulting a local attorney, review your insurance policy’s requirements for inspection contracts. Also, ask your broker if your insurance provider has any sample agreements for preliminary buyer walkthroughs available.

3. Do not provide a written report.

When performing a preliminary buyer consultation, never provide a written report. Doing so could give the impression that your clients should rely on the walkthrough as they would an inspection. By sticking to just your verbal comments, you limit the risk of consumers conflating walkthroughs with true home inspections

4. Recommend a full inspection.

In your preliminary buyer consultation's agreement—and at every other opportunity you get—recommend that, should your clients' offer be accepted, they have a full residential home inspection performed. Recommending an inspection does three things:

1. First, it reminds consumers that consultations are not home inspections.
2. Second, it protects potential home buyers from purchasing homes with devastating defects that aren't possible to uncover during a walkthrough.
3. Third, it safeguards your business should a consultation client try to claim that you are responsible for issues they uncovered at the property based on your limited walkthrough.

"I would be reluctant to perform a walkthrough consultation if I knew it was a substitute for a full home inspection," Barker said. "In my opinion, for my company, it is not worth the potential of a dissatisfied client."

Note that, if you provide a full inspection after a consultation inspection, you will need to obtain a separate agreement—signed prior to each service—for both.

Educating buyers to understand the scope and value of a full home inspection protects both your clients and your business.

Conclusion

Should your business provide preliminary buyer walkthroughs? Or should it oppose them? As a home inspector, it's up to your individual discretion. With this article behind you, we hope that your choice is a more informed one.

On the Job



The blue AnchorMate bolt holders **(1)** simplify the placement of anchor bolts and ensure consistency **(2)** that in turn simplifies the alignment of the mudsill later.

Anchoring Mudsill

BY TIM UHLER

Mudsill, or sill plates, makes the transition from concrete work to wood framing and anchors the house to the foundation. When I started coming to the jobsite as a teenager in the early 1990s, we anchored our mudsill with 1/2-inch cast-in-place anchor bolts placed 8 feet on-center. Only a standard washer and nut was required to attach it. That changed for us in the early 2000s, when building codes in our area were updated to meet seismic zone requirements and began to require anchor bolts spaced 60 inches on-center with 3x3x1/4-inch plate washers. Since then, several other options have been recognized in the code, and we've tried them all to figure out what is most efficient for us.

ALTERNATIVES TO ANCHOR BOLTS

The basic prescriptive requirements of R403.1.6 in the 2015 and 2018 International Residential Codes (IRC), call for minimum 1/2-inch-diameter anchor bolts. These bolts must extend 7 inches into the concrete and be spaced no more than 6 feet on-center. In seismic zones, these basic requirements apply with the addition of 3-inch-square plate washers. However, in all cases, the building code also allows for the use of "approved anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch-diameter anchor bolts."

For a number of years, we used Simpson Strong-Tie MASAP mudsill anchors, which qualify as an approved substitution for anchor bolts with 3-inch-square plate washers. These seemed like a good alternative to having to adjust the layout for joists that landed on bolts. They attached easily to panelized concrete forms, and we didn't have to worry about the joist layout. The MASAP is located at the edge of the foundation wall and wraps over the edge of the mudsill. This placement has the advantage that we could set the mudsill right on our snapped layout lines—a welcome change from aligning anchor bolts, which takes time to do accurately. Allowable holes for the anchor bolts in mudsill can't be oversized more than 1/16 inch, and so we often would end up having to move the mudsill slightly to accommodate the anchor bolts, and the mudsill would end up off the line.

With MASAP straps, we used a Hilti powder-actuated tool to secure the mudsill to the concrete on our chalk lines. This held it in place until we nailed off the straps.

Photos by Tim Uhler



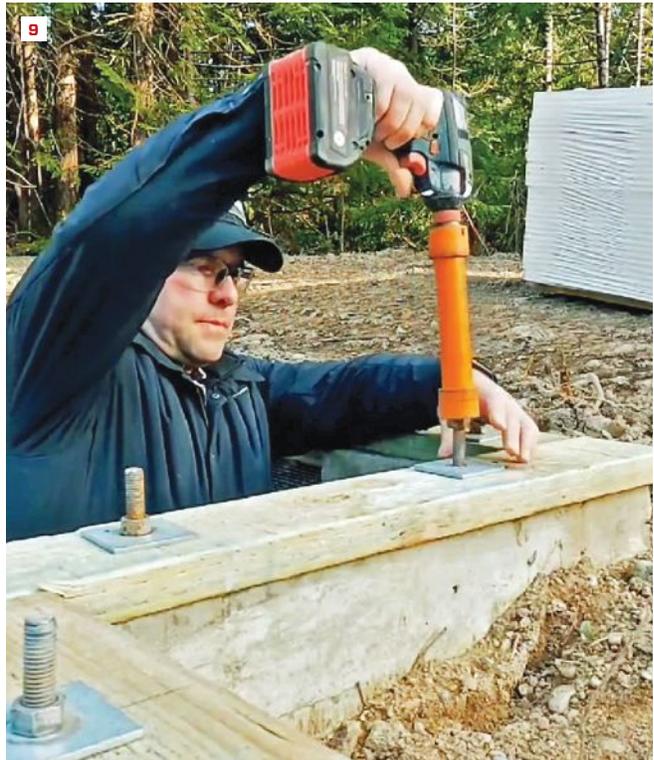
MASAP anchors are code-approved replacements for anchor bolts and 3-inch-square washers. They attach to the edge of the form (3) and wrap over the mudsill (4, 6). Note that these strap anchors secure the mudsill, but they are not a substitute for shear wall hold-downs, such as the threaded bolts used for HDU anchors, that were required on this foundation (5).

We used MASAP straps for nearly 10 years, nailing them off either with a positive placement gun or by hand-nailing. Frankly, this was tedious, and we needed to pin the plates in place with the Hilti to keep them from moving around when we nailed off the anchors. Another disadvantage is that the MASAPs created a gap between the mudsill and the rim joist that bears on top of it. All things considered, we ultimately went back to the anchor bolts, feeling they were cleaner and simpler to use.

MAKING ANCHOR BOLTS WORK

We sometimes sub out our foundation work, but typically we form and pour foundations ourselves. I lay out the location of the bolts prior to placing concrete, and my focus is to eliminate any framing landing on bolts or plate washers. Much of our framing is 24 inches on-center, so the bolt placement is 48 inches on-center and lands between joists or studs. I use Simpson Strong-Tie's AnchorMates to hold the bolts in place. These bolt holders are made

On the Job / Anchoring Mudsill



To align mudsill with anchor bolts, the author places the board against the bolts and marks each one (7), then pulls the board back to his chalk line, measures the distance, and drills the holes (8). Working in a D2 seismic zone, the author is required to use 3-inch-square plate washers on anchor bolts. To save time, he tightens the nuts with an impact ratchet (9), being careful not to overdrive the nuts, as that can crack the concrete around the bolt. The rule is to seat the nut, then tighten it one half-turn.

of nylon plastic and hold up well over time so they more than pay for themselves. (We have been using the same set for the last two years.) Though not required, the bright blue holders also give the inspector something to see, and overall they make for one less thing for us to deal with during the pour.

Aligning the mudsill can be a challenge, but over the years we have worked out some good processes. The most important part is getting the foundation right to begin with. I have outlined our foundation process in a two-part series, “Building Stem Wall Foundations,” Feb/13, and we cover it regularly on LinkedIn at @awesome framers.

To align the mudsill with our chalk lines, we place the sill board next to the anchor bolts, center a square with the bolt, and mark a line across the board. The bolts are not always perfectly vertical,

so you have to eyeball the base of the bolt. When the locations are marked, we slide the board back to the chalk line and measure the distance from the base of the bolt to the edge of the board. We then mark this distance on the board and drill our holes. The largest hole we can drill for a 5/8-inch-diameter bolt is 11/16 inch.

THE CASE FOR DRILLING

A few of us framers on Instagram have been talking about ditching anchor bolts completely and drilling them in after the concrete is poured. There are a few options available that work for this in our seismic zone: Simpson’s Strong-Bolt 2 wedge anchors (or similar from other manufacturers) and Titen HD screw anchors are two that we’ve used. Both are allowed as alternatives to cast-in-place anchor bolts, but there are some caveats.

The idea of drilling after the fact might seem on its face a slower method, but there are some definite advantages:

- Drilling after the fact means we never have to move a framing member or notch it. Many foundation subs don't think about the framing; they just set bolts to the spacing called out on the plans. This means that when we sub out our foundation, we sometimes end up cutting anchor bolts off and drilling for Titans anyway.
- We don't have to even think about laying out bolt locations while forming the foundation.
- Mudsill can be set perfectly on the line and no holes will be oversized since the size of the hole for the anchor is exactly the same size as the anchor.

There are a few cons to drilling after the fact, though:

- The AHJ (authority having jurisdiction) might not allow it as the sole attachment method.
- Even if code allows the anchors on paper, inspection of the length can be an issue. The Strong-Bolt 2 has the length stamped on the end, but Titans don't. Additionally, the Strong-Bolt 2 has a torque requirement for the nut, which the inspector might want to verify.
- You can hit rebar when drilling. Rebar can be time consuming to drill, even if you use my favorite rebar-cutting bit (the Diablo Rebar Demon).
- Even if you don't hit rebar, it's slower to drill 8 inches into the concrete than it is to drill through the mudsill alone.

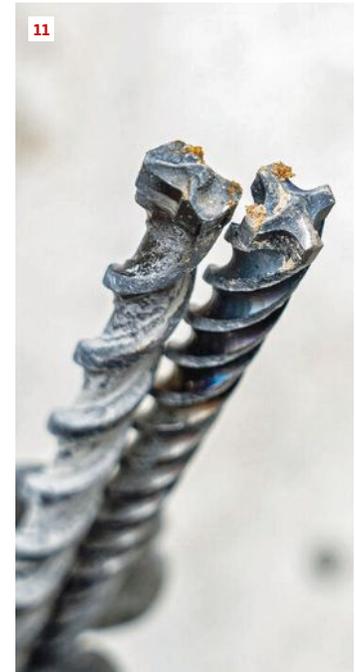
Of course, the big factor is cost:

- A non-galvanized 5/8-in. x 10-in. anchor bolt costs me about \$1.50, or \$15 for 10.
- Ten 5/8-in. x 10-in. Strong-Bolt 2 wedge anchors purchased online run about \$30 (fastenersplus.com).
- Ten 5/8-in. x 10-in. Titans run \$60 online (also from FastenersPlus).

Given this cost, what works best for us are 5/8-inch cast-in-place anchor bolts placed at 48 inches on-center for our crawlspace walls. For garage walls, we use Strong-Bolt 2 wedge anchors. The reason for the difference is that we frame our garage walls on the floor and then drop them into place with the forklift. Trying to get them onto a cast-in-place anchor bolt is a huge hassle when we can oversize our hole only 1/16 inch.

If I built only on slab, I would switch entirely to wedge anchors. Using them would allow us to sheathe all walls before standing them up, and still be able to perfectly land them on the foundation before installing the anchors. That would save us a huge amount of ladder work.

Contributing editor Tim Uhler is a lead carpenter for Pioneer Builders in Port Orchard, Wash. Follow him on Instagram at @awesomeframers or visit his website at awesomeframers.com



Drilling for wedge or screw anchors, such as the Titan HD (12), simplifies both the concrete work and the installation of mudsill. But drill-in anchors depend on your being able to efficiently predrill through concrete and rebar. The author used to use a rebar bit—a small core drill (10). That meant first using a standard concrete bit (11, at left). As soon as he hit rebar, he'd switch to the core bit, and then switch back to the concrete bit as soon as he was clear of the rebar. The process is much faster with the Diablo Rebar Demon (11, at right), which efficiently drills through both concrete and rebar, so there's no need to switch bits.

Defending Home Inspectors for a Living

Interview with Geoff Binney

by Isaac Peck, Editor

As Vice President at OREP, a leading provider of home inspector E&O insurance for over 19 years, I spend a good part of my day speaking with inspectors, poring over claim documents, and sharing risk management advice and information with our home inspector insureds.

So it was especially rewarding to sit down and speak with someone who has been in the trenches defending home inspectors day in and day out for over a decade. Geoff Binney, Managing Partner at Gauntt, Koen, Binney & Kidd, LLP, is an experienced trial attorney in Woodlands, Texas.

Binney specializes in litigation work and has built his practice around construction defect litigation, first-party insurance defense work, and home inspector claim defense cases. Binney has been defending home inspectors for 15 years and it now makes up a significant part of his practice. He shares some valuable advice about home inspector claims and risk management. Enjoy!

Question: How did you get involved with home inspectors?

Binney: I began my career in the Army after graduating from the United States Military Academy at West Point. Once I got out of the Army, I went straight into the FBI and worked as an FBI Special Agent for eight years. It was in the FBI where I really got to hone my skills as an interrogator and witness interviewer. That prepared me very well to be a litigation attorney: being able to ask the right questions, read people, and ferret out the facts is an integral part of my litigation work. I went to night school and got my law degree when I was working at the FBI, and I decided to get out and practice law. I knew I wanted to be in litigation, I just didn't know what area I was going to focus on.

I started working with home inspectors around 2005. I became friends with a home inspector working on a construction defect case. She was connected with the Texas Real Estate Commission (TREC), and she talked to me about representing home inspectors. A husband and wife home inspector team, who was associated with the Texas Professional Real Estate Inspectors Association, was sued and they called me directly. I got them out of the lawsuit pretty quickly and they introduced me to their insurance agent and carrier. I've been working with inspectors ever since and have built up my client list over time.

I really like representing home inspectors. They are decent, hardworking folks who are trying to do the best job they can. Oftentimes they are caught up by homeowners who get buyer's remorse and just want to sue everybody in the transaction. So I especially enjoy being able to defend inspectors against these kinds of frivolous lawsuits. In my daily practice, my caseload varies from 25 to 50 percent home inspector defense, with the balance being construction defect litigation, personal injury, first party insurance defense work, and plaintiff and defense work.

Question: What are the most common home inspection claims you see?

Binney: The most common claims involve some sort of missed leak or water intrusion in the attic or behind walls, and then the mold that they claim it caused. The second most common claim is something wrong with the foundation. They'll claim that the foundation is not level, has cracks in it, etc. We have a lot of movement down here in Texas because the soil is clay. The amount of rain and drought we get here means there's some soil movement and the buyers will often try to blame that on the home inspector. The rest of the claims that I see are a hodge-podge of everything that could go wrong with a home: HVAC issues, sewer pipes leaking, plumbing, electrical, or just a combination of all those things.

Question: How has the legal environment changed for home inspectors over the last 10–15 years?

Binney: The one major change is that once The Texas Real Estate Commission (TREC) required home inspectors to carry liability insurance, the number of lawsuits against home inspectors went up. The interesting thing about that is that TREC is the same commission that licenses Realtors. It's worth noting that Realtors are not required to have insurance, but home inspectors are. The Realtor lobby is much more powerful than home inspectors, so that probably explains it.

Question: What are the two or three top ways a home inspector can avoid claims and/or produce defensible reports?

Binney: The single most important thing a home inspector can do is to have a good inspection agreement that is signed by the client. The agreement should have a limitation of liability, a fair notice clause, and an attorney's fee provision. If inspectors have those items in a signed agreement and they come to me with a potential lawsuit, I can get them out of the case almost every time, almost right away. The fewer of those things that they have, the longer it may take. If it's not signed, I still have a good agreement, but it's harder to prove the plaintiffs knew everything that they were getting into.

The second biggest thing inspectors can do is to take a ton of pictures. It's amazing to me sometimes I see reports with only 10 or 15 pictures. Digital media is very inexpensive. Even if you're not putting all the pictures in the report, if you take a ton of pictures and you save them, it can show that you did go in the attic and there were no water stains on the roof, and so on. If you don't have those pictures, the plaintiff can say you never went in the attic, or you never looked at the roof. I see that a lot.

Another important thing is to make sure that you are consistent with what you write in the report and what you say to the client. If you tell the homeowners, don't worry about the report, I've already talked to you about the major things—that's a really bad thing to say. I've seen some home inspectors tell their clients "if you don't buy this house, I will." Those kinds of statements are an invitation for the client to not read the report. Lots of cases come down to he-said, she-said. These types of things come out in depositions. The plaintiff will say they had a conversation with the inspector that they think tells quite a different story than what is in the report. Most homeowners are going to listen to what you say and if you tell them everything's great, they're not going to read that report. Or

they'll say "I read it, but he told me not to worry about it." As a home inspector, you should always tell the client to rely on the report and not the conversation that you have with them.

Home inspectors should also recommend experts where it's appropriate. I don't like to see a recommendation for a follow-up expert for every area of the home, but if you find some issues with a particular area, like the foundation, and there is evidence of prior repairs, you should recommend a follow-up foundation report. That's your get-out-of-jail-free card if they come back to you with complaints about the foundation.

Lastly, estimating useful life is risky and probably unnecessary. In most cases, it is going outside your scope as a home inspector. Your job is to perform a visual inspection of the property and report what you see and what's wrong with the property. Predicting the lifespan or useful life of a particular home system is going outside your scope and asking for a lawsuit.

Question: How does a contract come into play in avoiding and defending claims?

Binney: First and foremost: have an agreement and get it signed. I've talked to inspectors who say they've been doing it for 30 years and they've never used an inspection agreement. Those people are just lucky. It's just a matter of time before you get sued if you do this long enough. Some home inspectors have the agreement online and they can just email the client a link to sign digitally. That way it's the first step to schedule the inspection and they have the client sign before the inspector even goes out to the house. I'd definitely recommend that.

As far as what's in the agreement, the limitation of liability is probably the most important aspect. It has to be well-written and conspicuous to be enforceable here in Texas. I'm sure state laws vary, but the requirement that the clause be conspicuous means that it's not good enough just to have the language in the agreement. It has to stick out. It has to be readily apparent to the reader. The plaintiff doesn't necessarily have to initial it, but that helps. If you have a one or two page agreement and the limitation of liability is in there as the same font, not bold, not in a different color, then Texas courts are not going to enforce that. It needs to be set apart and it doesn't take all that much. Either all CAPS, bold, a different font, color, a box around it, or something else to make it stick out. If it is conspicuous, it's absolutely going to be enforceable.

If I have a signed contract with a conspicuous limitation of liability in it, I am usually successful at getting the claim dismissed. We will send a letter to the plaintiff denying liability and pointing out that pursuant to the agreement that the client signed, and that we're willing to refund the amount of the inspection fee. We make it clear that if they decline our offer and pursue litigation, we will file a Declaratory Judgement action and pursue an affirmative claim against them. This creates a threat for the plaintiff that they may have to pay our legal fees if they continue down this road. If the plaintiff's attorney explains this to the plaintiff, they now have some skin in the game and it will often make them think twice. It's a really strong out of the gate response. As opposed to just saying "we just don't want to pay it."

Another useful clause is an attorney's fees clause. Something that says: "if you fail to succeed on all claims alleged, you'll have to pay my attorney's fees." Both the limitation of liability and attorney's fees clauses allow us to let the plaintiff know that we will respond by filing a Declaratory Judgement. We would never file for this preemptively, but once the lawsuit is filed, we can seek a Declaratory Judgement, which is basically going before a judge and seeking summary judgement on these very

narrow issues. If the judge rules in your favor on the limitation of liability question, for example, the plaintiff would have to pay your attorney's fees.

In Texas, it always helps to have a Notice Provision in your contract as well. In other words, if the homebuyer finds a defect in the home they have to give the home inspector a notice bringing it to their attention. Failure to give notice to the inspector, and an opportunity for them to inspect it, results in a waiver of all claims. This notice is also required to be conspicuous here in Texas.

Another clause I recommend is one that limits the statute of limitations. State law here in Texas is that tort-based claims have a two-year statute of limitations and contract claims have four years. Therefore, Texas inspectors can limit all claims to one year, except breach of contract claims, which can be limited to two years. The reality is that most claims are going to be filed in under two years and educated plaintiffs will just file the breach of contract claim, but this is still a good way to limit the number of claims you're fighting. Home inspectors in other states can consult their own state laws, but this type of notice provision is likely useful in other jurisdictions as well.

Lastly, I've seen cases where the husband signs the agreement, but his wife or girlfriend doesn't. The plaintiff's attorney will say, "well the wife still has a claim!" So, I added the following into the "Sample Agreement" I created: "The term Client shall include the undersigned representative of the Client, as well as any of Client's past, present and future subsidiaries, divisions, parents, affiliates, assigns, related entities, successors, predecessors, representatives, employees, officers, shareholders, directors, agents, and any other person or entity that benefits from or relies on the Inspection Report."

I've also seen cases where a home inspector signs the contract but the agreement is between the home inspection company and the client, and the plaintiff's lawyers try to exploit that. So, I added this to my Sample Agreement: "The term Inspector shall include the undersigned representative of the Inspector, its past, present and future subsidiaries, divisions, parents, affiliates, related entities, successors, predecessors, representatives, employees, officers, shareholders, directors, agents, and assigns."

Question: Do you have specific disclosures or disclaimers you recommend home inspectors to use?

Binney: Here in Texas, your report must conform with TREC rules. In both the inspection report and the agreement, you want to remind the client that the home inspection is limited to a visual inspection, that you're not moving furniture or unhooking appliances, etc. Even though in Texas, inspectors are not required to report on mold or termites, I like to see them include that this is NOT a termite inspection and NOT a mold inspection and always recommended that you have a follow-up mold report or follow-up termite inspection.

You don't want to be the inspector who recommends an expert in every area you've inspected, but don't be afraid to recommend an expert if you see something. Because water penetration is the most prevalent claim that I see, it's really good to have a catch-all phrase in your agreement and inspection report. In Texas, if there's moisture, oftentimes there's mold. Mold can leave a lasting negative stigma on the house. So, anything you can do to tell the homeowners that they need a mold inspection is a good get-out-of-jail-free card. I have two or three cases right now that are mostly mold related.

If you do offer ancillary mold inspections, or termite inspections, or test for radon, or offer any type of upsell test or service, it's a great idea to offer that to the client, and if they decline it, to get them to sign a separate waiver that releases you from any liability and claims around that particular area. Even if you don't have them sign a separate waiver, at a minimum, put that in the email when you send them the report, and put it in the report itself. Note that you had a conversation with the client about the added service and they declined it.

Conclusion

While state law differs with respect to what is and is not enforceable in a home inspector's pre-inspection agreement (see *Sharpening Your Pre-Inspection Agreement*), many of the tips that Binney shares can be used in some form or fashion by home inspectors nationwide.

When faced with a claim or potential claim, home inspectors are advised to seek legal counsel that has experience defending home inspectors. If you currently carry insurance, be sure that your carrier selects counsel that is familiar with home inspectors. If you are using a program written exclusively for inspectors, like OREP's, that will be the case. The difference between the defense you receive can be substantial. With his extensive inspector claim experience, Binney is on the roster of experienced lawyers that represents those insured with OREP's primary carrier in Texas. OREP has been serving home inspectors with comprehensive E&O insurance, risk management, and pre-claims assistance for over 19 years. If you ever need risk management information, advice, or have any insurance questions, visit OREP.org or give us a call at 888-347-5273. Our extended hours are Monday-Friday from 5am-5pm PST.

About the Author

Isaac Peck is the Editor of Working RE magazine and the Vice President of Marketing and Operations at OREP.org, a leading provider of E&O insurance for appraisers, inspectors and other real estate professionals in 50 states. He received his master's degree in accounting at San Diego State University. Reach Isaac at isaac@orep.org or (888) 347-5273. CA License #4116465.

Portable Ladder Safety



Portable Ladder Safety



Falls from portable ladders (step, straight, combination and extension) are one of the leading causes of occupational fatalities and injuries.

- Read and follow all labels/markings on the ladder.
- Avoid electrical hazards! – Look for overhead power lines before handling a ladder. Avoid using a metal ladder near power lines or exposed energized electrical equipment.
- Always inspect the ladder prior to using it. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.

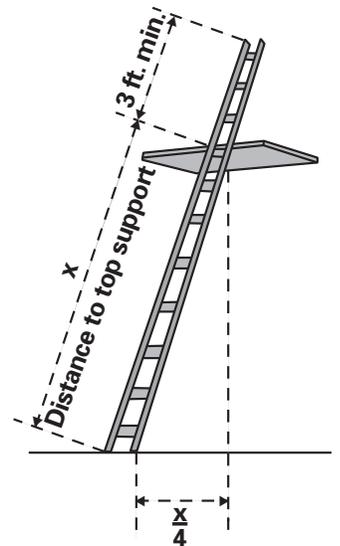


3-Point Contact

- Always maintain a 3-point (two hands and a foot, or two feet and a hand) contact on the ladder when climbing. Keep your body near the middle of the step and always face the ladder while climbing (see diagram).
- Only use ladders and appropriate accessories (ladder levelers, jacks or hooks) for their designed purposes.
- Ladders must be free of any slippery material on the rungs, steps or feet.

- Do not use a self-supporting ladder (e.g., step ladder) as a single ladder or in a partially closed position.
- Do not use the top step/rung of a ladder as a step/rung unless it was designed for that purpose.

- Use a ladder only on a stable and level surface, unless it has been secured (top or bottom) to prevent displacement.
- Do not place a ladder on boxes, barrels or other unstable bases to obtain additional height.
- Do not move or shift a ladder while a person or equipment is on the ladder.
- An extension or straight ladder used to access an elevated surface must extend at least 3 feet above the point of support (see diagram). Do not stand on the three top rungs of a straight, single or extension ladder.



- The proper angle for setting up a ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface (see diagram).
- A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement or a barricade must be erected to keep traffic away from the ladder.
- Be sure that all locks on an extension ladder are properly engaged.
- Do not exceed the maximum load rating of a ladder. Be aware of the ladder's load rating and of the weight it is supporting, including the weight of any tools or equipment.

For more information:

 **Occupational Safety and Health Administration**
U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)

OSHA 3246-10N-05

BY JIM BRADLEY AND CHRIS WEST

A Troubled Tiny House



The cozy structure (1) was part of an HGTV program presenting an idyllic look at the tiny house movement—reality proved otherwise for the first-time homeowners. Here are two inside views: looking toward a raised dining room in the front of the home (2), and in the kitchen looking toward the bathroom beyond (3). Sleep quarters were in a loft above the kitchen.

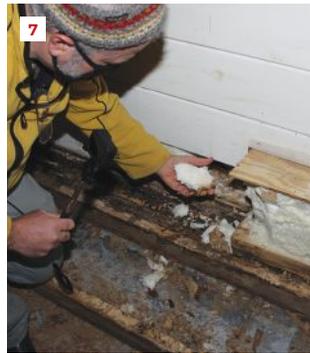


Mushroom blooms thrive at the base of an interior wall (4). The manufacturer did not consider basic building science or changes in climate zone when building the home; it was built in Connecticut (zone 5) and trucked to Vermont (zone 6).

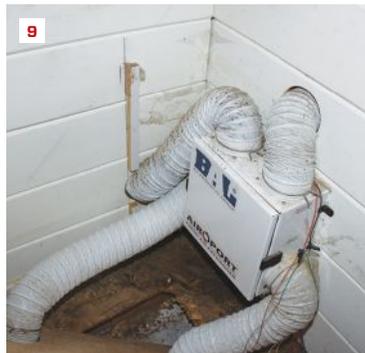
Last December, a young couple contacted us for assistance with their three-year-old tiny house in Burlington, Vt. Mushroom blooms had appeared at the base of the home's interior walls, which led to their discovering that the wood-framed deck built on the lower level of the home's metal trailer had rotted. When we arrived on site, we probed the single-part spray foam at the bottom of the wall near the kitchen cabinets and were able to dig out sopping wet Rockwool batt insulation (installed on the steel deck of the trailer between 2-by sleepers) and open-cell foam in the wall bays, as well as rotted exterior OSB sheathing.

Spartan living. The cozy structure was part of an HGTV program presenting an idyllic, storybook look at the tiny house movement, but the ending proved otherwise for the young homeowners. We felt bad for them. They were a cute couple, recently married, and their first investment in a new home turned out poorly (they purchased the structure from a Connecticut builder for \$70,000, arranged by an HGTV freelance production company). While living "small" with an active outdoor-oriented lifestyle is admirable, the realities of marrying a small wooden structure to a steel trailer without considering basic physics is fraught with danger. Building science principles must be respected whether you're building a mobile home or a traditional structure—or a tiny house in which a young couple will be living with two cats and a dog.

Photos by Chris Murphy, Brianna Welch, and Tim Healey; illustration by Tim Healey



Seams in the sheet-metal bed had not been air-sealed, providing cold, moist air access into the framed floor (5, inset). More critically, warm, moist air from the interior condensed on the metal bed, saturating vapor-open batts; water accumulated in the batts over time, resulting in rotted OSB subfloor and framing (6). The problem was more acute along raised, uninsulated edges (7).



Test holes at walls and ceilings proved dry; moisture hadn't penetrated the open-cell spray foam and condensed on the OSB sheathing as feared (8). A questionable HRV (9) and inadequate heat pump were installed.

TINY HOUSE, BIG PROBLEMS

On our second visit, we determined that the rot found in the floor had migrated 8 to 12 inches up the sides of the walls. We cut test holes higher up in the walls and in ceilings and found them to be mostly dry. Moisture hadn't penetrated the open-cell spray foam and condensed on the interior side of the OSB wall and roof sheathing as feared, though it was probably just a matter of time before this happened due to the absence of an interior vapor-control membrane.

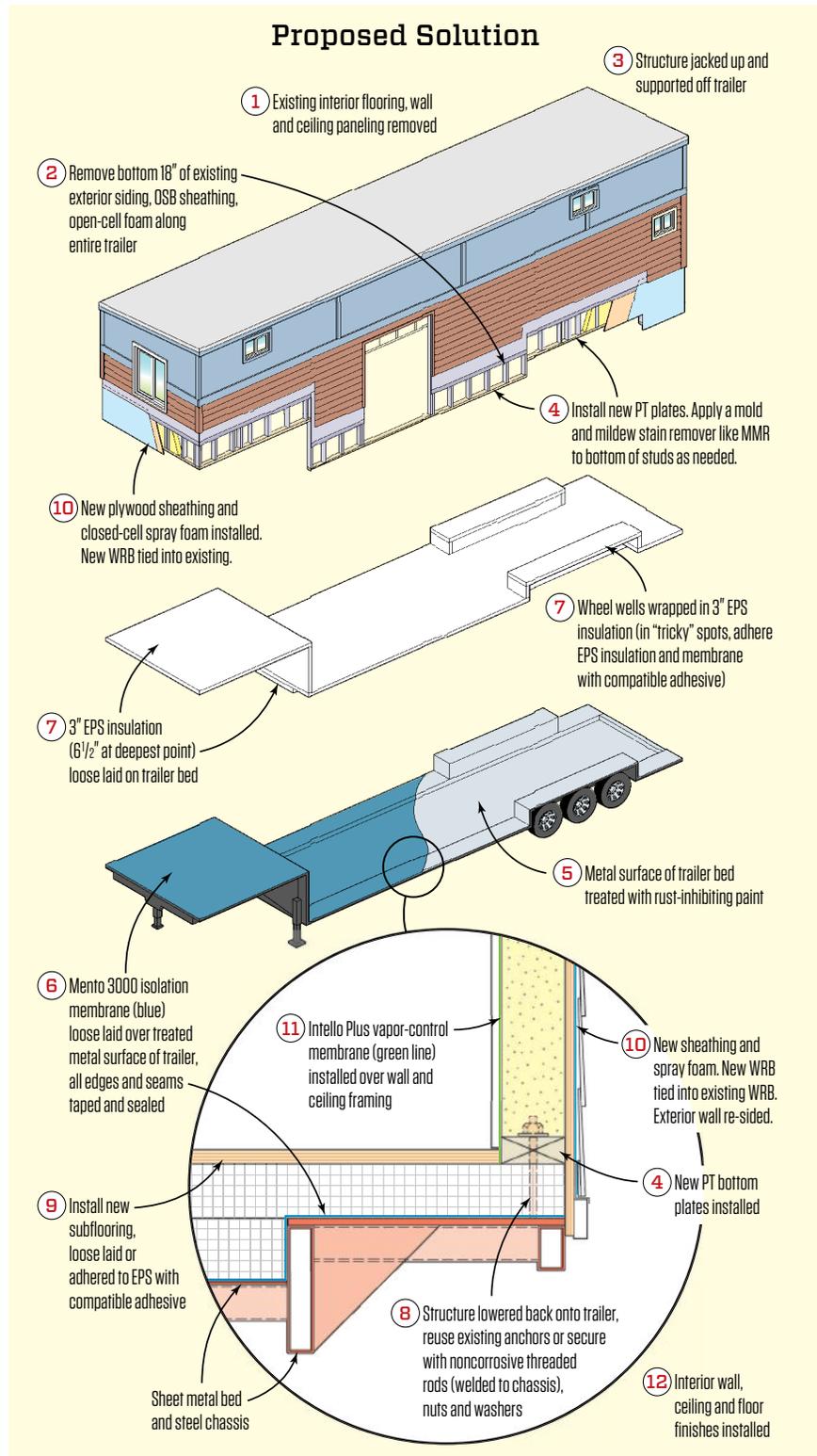
The main culprits leading to the floor damage were cold, moist air infiltrating the framed floor through seams in the sheet-metal bed that had not been air-sealed and, more critically, warm, moist air from the interior condensing on the inside surface of the trailer's sheet-metal bed and saturating the vapor-open Rockwool batt insulation on top of the metal between sleepers. With a lack of drying potential, water accumulated in the batts over three years of use, resulting in a rotted OSB deck, waterlogged 2-by sleepers, and a rusty sheet-metal bed. The problem was more acute around the plate-metal wheel wells and along the raised, uninsulated edges of the trailer where OSB subflooring was laid over the steel bed.

The first condensing layer. When designing a building's insulation envelope for a cold climate, you have to keep condensation in mind. During the freezing months, the inside moisture is higher than the outside moisture. Water vapor moves from high concentrations to low concentrations, similar to the way heat moves from hot to cold. Air with a high concentration of moisture will move through walls, ceilings, and floors to spaces with a lower concentration of moisture to try to reach equilibrium. In this case, the tiny home's builder did not take the high condensation potential of the metal trailer into account (with particularly bad consequences for the floor).

To prevent condensation on the first cold, solid surface of an assembly (walls, floors, and ceilings), one needs to use either all rigid insulation or a mixture of rigid and fluffy insulation that keeps the first solid surface in the assembly warm—above the dew point. The floor was insulated with Rockwool batts, which qualifies as a fluffy insulation. It is vapor open, meaning that water vapor can move through it. The first cold surface in the floor is the metal floor of the trailer and the sides of the studs. The water vapor in the air of the tiny house condensed on these surfaces and became liquid water. Then it couldn't evaporate; instead, it wicked up into the floor and walls, leading to the extreme level of rot evidenced by the mushroom blooms.

Build for the intended climate. It is worth noting

Troubleshooting / A Troubled Tiny House



that the vapor-open insulation package installed here (without a proper vapor-control membrane) is also wrong for climate zone 5, which is where the builder who built the home lives and works. Regardless of whether the tiny house was shipped to Northern Vermont's climate zone 6 or a milder location in climate zones 3 or 4, the structure, as constructed, would have performed poorly over time. With all forms of transportable structures, you need to build to the climate in which they're going to be placed.

Possible solution. Included in our forensic report were plans to remediate the damage and shut down the conditions that allowed rot and mushroom blooms to occur (see illustration, left). We recommended first removing the interior finishes and the bottom 18 inches of the home, followed by decoupling the wood-framed structure from the metal trailer and isolating the metal from the living space with structurally rated low-permeable EPS rigid insulation. To repair the lower portion of the tiny house, we suggested removing the rotted bottom sills and any compromised wall studs and applying a mold and mildew stain remover to affected areas as needed. The final step would be to lower the structure back onto the trailer and reattach it, using the existing anchors if possible or, the more likely scenario, securing it with non-corrosive threaded rods (welded to the trailer's chassis), nuts, and washers.

For the HVAC system, a questionable air exchanger unit and inadequate heat pump had been installed by the builder. We recommended installing a more robust HVR unit and heat pump that would work efficiently in the cold Vermont winters.

In the end, we estimated that including interior finishes, it would cost roughly \$45,000 to repair this troubled tiny house.

Jim Bradley is a BPI-certified home-performance contractor, builder, and remodeler based in Vermont. He is currently a project developer and manager for Hayward Design Build, in Colchester, Vt.

Chris West is a PHIUS/PHI Certified Passive House consultant/trainer and owner of Eco Houses of Vermont, a building science consultancy specializing in Passive House design for single family, multifamily, and commercial projects.

Crawl Space Safety

Checklist of Unsafe Crawl Space Conditions

For the interactive article with links, click [HERE](#) for the online version

This article lists potentially dangerous or un-healthy conditions that should be evaluated by an inspector or worker who is expected to enter, inspect, or work in a crawl space anywhere in a building. The crawl space shown in our page top photo was in our opinion not a readily accessible area. This decision is made by the inspector on the scene, not by anyone else.

Crawl Space Safety for Home Inspectors

Is the crawl space safely accessible, or accessible at all?

A number of conditions besides the old saw “accessibility” or size of the crawl space opening should be considered carefully by the home inspector, electrical inspector, or anyone who is deciding if it is safe to enter an crawl area anywhere in a building.



This article provides a list of some safety and health considerations that the building or home inspector or anyone else should evaluate before deciding to enter a crawl space.

Separately at CRAWL SPACE ACCESS we describe codes & standards for accessing building crawl spaces and we describe methods used to enter or inspect crawl areas that are not accessible by normal means of an available hatch or opening or that lack adequate safe space for entry.

- **Is there standing water in the crawl area?**

If the crawl space has areas of puddles or standing water or even if the soil surface is simply wet there is risk of electrical shock (if wiring or electrical devices are present).

There may also be a chemical contamination risk, especially in older buildings where pesticides may have been applied in the crawl area.

- **Are there or were there previously wet areas** in the crawl space?

Is there evidence of previous wetting or burst sewer piping or sewage backups or spills?

- **Watch out** for sewage backups & spills in the crawl area. Entering sewage-contaminated areas, even if currently dry, is unsafe unless you are wearing proper protective gear.

Hazards include both wet sewage pathogens and even airborne or dust-borne dry pathogens.

Our photo (right) illustrates a crawl area that is hazardous: we see toilet paper around an abandoned sewer line access or cleanout (now capped off) and we see a newer PVC waste line overhead. Consider the sewage pathogen risks to workers who capped the old waste line and installed the new one.



The sewage-contaminated soil surface debris should have been removed, the area sanitized, and it may have made sense to install new clean plastic ground cover in this area.

- **Is there excessive debris** in the crawl area? Nails, splinters, and possibly rodents may be in the debris in our photo at left.

- **Are there wet crawl area floors** or other surfaces? Crawling exposes a lot of body surface to the ground or other surfaces and limits movement. There maybe shock hazards or chemical hazards even if there is not actual standing water.



Beware also of evidence of structural collapse when looking at a flooded or very wet crawl space. Piers are undermined, foundations may be collapsing.

- **Are there chemical odors** in the crawl space?

If so there is an increased risk of chemical contaminants that could be hazardous. You should not enter such an area without proper protective clothing, respirator, etc.

- **Is there evidence of asbestos** insulation, especially disturbed, damaged, or deteriorated asbestos insulation?

Do not enter such an area without protective equipment; take care that you do not track hazardous materials out of the crawlspace and into other building areas.

Often we find a crawl area in which the asbestos pipe insulation is not just hanging (photo at left) but has fallen onto the crawl space floor.



- **Is there evidence of mold contamination** such as areas of wood, paper, or other material covered with mold or mold-suspect material. Do not enter such an area without the required PROTECTIVE GEAR for ENTERING CRAWL SPACES

- **Watch out:** for crawl space mold hazards we provide separate warning information at CRAWLSPACE MOLD ADVICE.

Do not enter such an area without protective gear and appropriate training.



- **Is there evidence of rodents or snakes or insect pests** in the crawl space? Rodent hazards include bacterial and viral and respiratory illness; there is the obvious risk of snake bites in a confined space, and more than once we've been run out of a crawl space by bees or hornets.

But since you're unlikely to be able to move rapidly to make an emergency retreat from threatening pests, crawl areas are riskier than some other building areas.

Evidence of pests may also suggest risk of improperly applied and unsafe exposure to pesticides.



- **Is there sufficient space for safe access** to enter and move safely in the crawl area. Review the OSHA regulations on entering confined spaces. The inspector or worker should decide if s/he a building area is safely accessible.

Do not enter a confined space if you are working alone at a property. If circumstances mean you cannot avoid such an entry, be sure you carry:

- A working cell phone that will function in the space
- A spare flashlight
- Appropriate protective gear
- A camera to use for documenting conditions - it's easier than dragging along clipboards and pens.

- **Is there wet or falling or rodent-infested fiberglass insulation** in the crawl area? If so there is a high risk of mold or rodent contaminants that could present a fungal, bacterial, or viral airborne hazard.

Do not enter such an area without proper protective gear.

See MOLD in FIBERGLASS INSULATION

- **Is there evidence of risk of structural collapse** or even structural movement in or over the crawl area?

Look closely at columns, posts, piers, girders, joists, and perimeter foundations.

It is easy to become pinned or even crushed if you enter an unstable structure.



Examples of Crawl Space Safety Gear for Entering Crawl Spaces & Mold Contaminated Areas

These crawl space safety suggestions are not an exhaustive inventory of all safety procedures nor gear should be used when entering a crawl space. Additional protective equipment and

even accompaniment, breathing apparatus, and rescue gear may be required according to building structure, safety, and other conditions.

- **Assistant or accomplice:** do not enter an unsafe or confined space alone - station an assistant at the entry and maintain contact.
- **Battery operated flash light and spare flash light.** A spare light is important if the crawl area is large and you could be far from the entry - to avoid being trapped in darkness if your first light fails.



Watch out: Dragging an extension cord and trouble light into a crawl area, powered by plugging the extension cord into a wall receptacle is dangerous unless the cord is protected by GFCI and AFCI devices.

- **Cell phone or two way radio** - to summon help in an emergency
- **Eye protection** - in dusty areas full coverage eye protection or goggles are most secure; in low-dust areas eye protection such as the safety glasses in our photo below have the advantage of less tendency to fog up in humid work areas.
- **Gloves** - to protect hands especially if you need to crawl. The very thick welder's glove on our mock-up photo's right hand offers the good dry-area protection but makes it almost impossible to handle a camera or other equipment. For wet areas we wear heavy rubber padded gloves.
- **Knee pads** - we like the gel-type knee pads shown in our mock-up photo - they make crawling easy on the knees, and their thickness keeps the legs and knees up off of damp surfaces.
- **Protective clothing** - jump suit, tyvek suit (shown in our photo), padded clothing
- **Respirator**, with cartridges rated for both organic chemicals and fine particulates - a HEPA filter and charcoal filter or other special filters may be required. Do not rely on a simple paper dust mask.
- **Head protection** - depending on space this may be a hard hat or if that is impractical because of limited space, a soft padded hat may be useful.

Watch out: for protruding nails or other sharp objects that can poke right through a soft hat like the one we show at left. need a mold inspection is a good get-out-of-jail-free card. I have two or three cases right now that are mostly mold related.

STRUCTURE



Roof Collapse Averted A simple framing error almost led to a total building failure

BY DARREN TRACY, P.E.

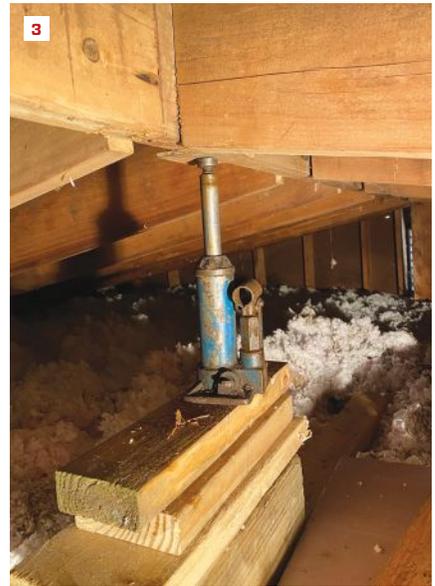
We recently replaced the EPDM (rubber) roof membrane on a single-family home with a shallow pitched roof. At 30 years old, it had lived a good life and served the house well. Our roofing subcontractor suggested we install asphalt shingles instead of rubber. I was not a fan of this idea because of the shallow roof pitch (2:12; this is the minimum required by many shingle manufacturers), until I saw the price differential.

This is a rental property. My wife and I became landlords by default. We own a small construction company, and we needed a place for our employees to work so we did not have to lay them off between jobs. We saved and scraped together enough money to

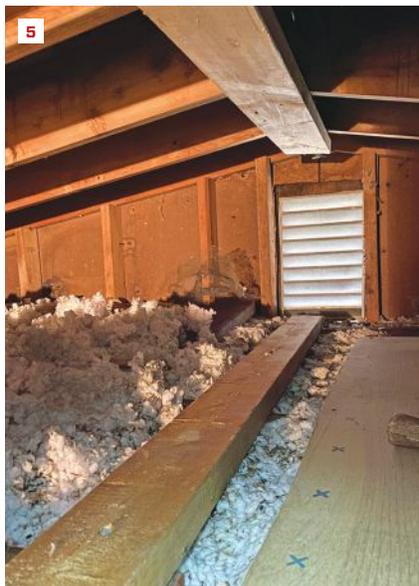
buy a cheap fixer upper. Because we are on a tight budget, we proceeded with the shingle installation, installing an ice and water barrier membrane on the entire roof for added protection.

When the old rubber roof membrane and protection board were removed, I noticed undulations in the roof plane. These are visible in the inset photo above. Much of the plywood sheathing was loose and needed refastening as well. No sheathing clips were used when this home was constructed, probably in the 1960s or 70s. I also noticed a slight dip in one part of the ridge. It wasn't significant and a layperson may not have noticed it, but a carpenter tends to notice these things as a natural response to years on the job trying to make items plumb, level, and square.

Photos by Darren Tracy



One sign that something was wrong was a slight dip in part of the ridge that was visible from the exterior when the roofing was stripped. Inside the attic, the problem was much more apparent: One ridge board had dropped approximately 1 3/4 inches (1). Along the ridge board, some of the rafters had pulled away (2). Remediation began with jacking the ridge board back in place (3).

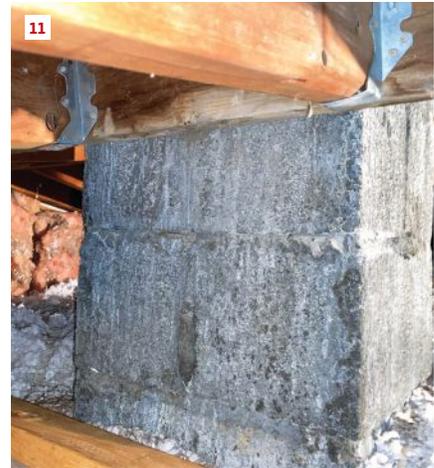


Initially, the author cut temporary support blocks from 2x4s and posted them down to a center bearing wall (in line with the center girder supporting the first floor) (4). The final solution was to build a short wall, starting with top and bottom plates (5), then jacking the top plate up as much as possible to push up any rafters that had dropped down (6), before infilling with short studs.

ROOF COLLAPSE AVERTED



The framed wall that supports the rafters (7) is put together with screws—installing those proved much easier than trying to swing a hammer or use nail guns in the tight attic space. For good measure, the author shimmed any remaining gaps between the rafters and the ridge board (8).



Rafters abutting a header at the block chimney had dropped (9). We jacked those individually (10) and attached the rafters to the header with joist hangers (11).

INVESTIGATING THE PROBLEM

I decided to take a closer look in the attic, so I got as skinny as I could and shimmied my way into the shallow attic space. It was a good thing that I did! To my astonishment, the ridge board had dropped in some locations, and many of the rafters were pulling away from it.

If photos 1 and 2 (on the previous page) don't get your attention as a builder, engineer, or landlord, nothing will. The roof was in imminent danger of collapse had it been loaded with shingle bundles. Almost certainly, the roof would have collapsed during the upcoming

winter season, especially considering that snow tends to stay on a shingle roof versus sliding off a rubber roof. In fact, snow sliding off the rubber roof may have saved this roof from previously collapsing. The ground snow load in this area is 50 pounds per square foot.

Some of my consulting work as a licensed professional engineer includes inspecting structural concerns flagged by a home inspector during the property sale process. Occasionally, I will see this type of problem. What is particularly interesting about this project is how close the roof was to collapse, not to mention that I (and my wife) own the building.

ANCILLARY WORK



Where sheathing was completely loose and needed to be replaced, we took the opportunity to add cellulose insulation (photo, top left). Note: This end of the house has a cathedral ceiling with insulation between the rafters. It was designed, in fact, with a ridge beam. The exterior walls in this area did not spread.

A good way to work with small quantities of bagged cellulose, in lieu of renting a blowing machine, is to place cellulose clumps in a plastic bin. Fluff the cellulose by mixing with a large drill and masonry mixing beater (photo, top right). Transport the fluffed cellulose to the roof in the plastic bin. Have a couple of bins handy so one person can be placing the insulation on the roof while another person mixes. It works great.

We also increased soffit ventilation where we had access (photo, above). The existing ventilation consisted of 1-inch-diameter holes drilled in the plywood soffit with perforated vinyl soffit below. This was inadequate. For this roof, code requires 1 square foot of ventilation for every 150 square feet of roof area, per IRC R806.2. We proceeded with some chain-saw carpentry and cut large openings in the plywood soffit. —D.T.

THE CAUSE

The ridge board dropped and the rafters pulled away because the exterior walls moved outward. The lateral forces induced by the roof load on the exterior walls were greater than the structure could withstand.

Even though the structure has rafter ties (ceiling joists) installed appropriately to resist lateral forces (see “Raising Ceiling Joists,” Jan/19, for more detail about rafter ties), the lateral loads were too great for the structure to withstand. Because a roof with a pitch less than 3:12 provides too much lateral force on the exterior walls, the IRC stipulates that the structure shall be designed as a ridge beam versus a ridge board (R802.4.4).

The difference between a ridge beam and a ridge board is that a ridge beam is designed as a structural member to carry roof loads, whereas a ridge board is a spacer and facilitates rafter installation. It also functions as a nailer for the roof sheathing. Many old houses I have worked on have no ridge board at all. The apexes of the rafters simply abut one another.

THE SOLUTION

This is what we did to solve the problem: We jacked the ridge board back up in place with a 2-ton hydraulic jack. In this case, there was a first-floor partition directly below the ridge, so we blocked up from the partition wall and jacked the ridge board back in place.

A good boss shouldn't ask their employees to do anything they wouldn't do, so I was the good boss and crawled into the small attic space. Our employee, Brett, worked the ground, cutting lumber to length and feeding it up to me in the attic. To make the space as workable as practical, I placed 2-by-8-foot sheets of 1/4-inch lauan on top of the attic insulation and ceiling joists to provide “crawl space.”

The first-floor partition that supported the new framing was directly above the center beam in the basement. I ran some quick calculations and found that the existing beam and footings were capable of handling the roof load from our newly created load path.

In summary, we converted a ridge-board design to a quasi-ridge-beam design with a framed wall functioning in place of the beam. Although the repairs are not perfect in terms of aesthetics, they are functional and work for me. Had this been a project for a paying customer, I may have made it prettier. With some measure of irony, one of the most dangerous structures this engineer has ever inspected has been his own property. Thankfully, disaster was averted.

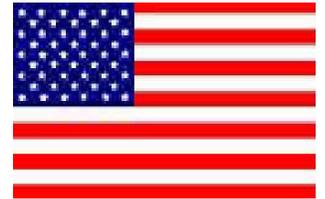
Darren Tracy, P.E., owns West Branch Engineering, a consulting firm, and West Branch Inc., a construction firm, in Saratoga Springs, N.Y.

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Director	Al Dingfelder 203-376-8452	Woody Dawson	Vacant	Inspector
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Director	Woody Dawson 203-710-1795	David Hetzel	Vacant	Public Member
Director	Mike Drouin 860-384-2741	Richard Kobylenski	Vacant	Public Member
		Scott Monforte	<p><i>The Licensing Board meetings are held at 9:30 am Dept of Consumer Protection 165 Capitol Avenue. Hartford</i></p> <p>The public is always welcome.</p>	
		Joseph Pelliccio		
		Pete Petrino		
		Dwight Uffer		
		Dan Kristiansen		
		They have served as our primary leaders and in other capacities since 1992.		
		Please thank them for their service when you have a chance.		

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