



FEBRUARY 2021

REPORTER

INSPECTION NEWS & VIEWS FROM THE AMERICAN SOCIETY OF HOME INSPECTORS, INC.

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DRONE DEBATE PERSPECTIVE FROM HOME INSPECTORS

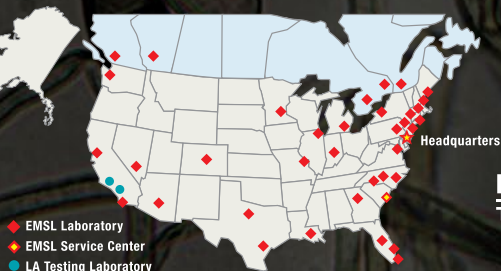
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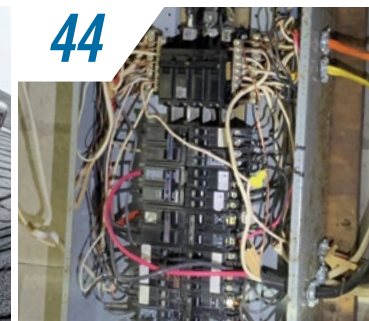
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Managing Risk

LEAD TESTING IN HOME INSPECTIONS

By Aubri Devashrayee, Content Marketing Coordinator,
InspectorPro Insurance



Aubri Devashrayee is the Content Marketing Coordinator for InspectorPro Insurance, which offers ASHI members exclusive benefits through its program InspectorPro with the ASHI Advantage. Through risk management articles in the ASHI Reporter and on the InspectorPro website, InspectorPro helps inspectors protect their livelihood and avoid unnecessary risk. Get peace of mind and better protection with InspectorPro's pre-claims assistance and straightforward coverage. Learn more at www.inspectorproinsurance.com/ashi-advantage.

During the past decade, there has been increased awareness about the dangers of lead-based paint in homes built before 1978. According to The Mayo Clinic, there is no safe blood level for lead. In other words, any trace of lead in the blood is categorized as unsafe. And, the population most at risk is children from ages one to six. With this awareness of the relationship between lead exposure and health risks, many home inspectors have chosen to offer lead testing as an additional service.



Note: The Managing Risk column with InspectorPro Insurance provides home inspectors with tips to protect their businesses against insurance claims and examines best practices for crafting effective pre-inspection agreements.

The opinions expressed in this article are those of the author only and do not necessarily reflect the opinions or views of ASHI. The information contained in the article is general and readers should always independently verify for accuracy, completeness and reliability.

BY DETERMINING IF LEAD IS PRESENT IN A PROPERTY AND WHERE LEAD IS LOCATED, HOME INSPECTORS HELP KEEP HOMEOWNERS SAFE.

WHY INSPECTORS TEST FOR LEAD

When asked why they offer lead testing, the home inspectors we asked said that they began offering the service for one or more of the following reasons:

1. THEY WANTED TO PROTECT CLIENTS FROM POTENTIAL HEALTH RISKS.

According to the Mayo Clinic, the first step that must be taken in preventing lead poisoning is removing “the source of the contamination” and taking steps to reduce its ill effects if it can’t be completely removed. The U.S. Environmental Protection Agency (EPA) says that finding and mitigating lead contamination can help avoid health issues associated with lead poisoning, including learning disabilities, slowed growth, hearing problems, anemia and, in rare cases, seizures, coma and death.

That’s where home inspectors come in. By determining if lead is present in a property and where lead is located, home inspectors help keep homeowners safe.

2. THEIR REGION HAS A HIGH PERCENTAGE OF HOUSING WITH POTENTIAL LEAD RISK.

Properties that were built before 1978 are more likely to have lead-based paint and dust. Therefore, cities, complexes and subdivisions that are older tend to have more demand and need for lead testing.

“If somebody wants to go [into the] business [of testing lead], they have to do it in old places with old buildings,” said Guillermo Velez, a lead inspector in New York.

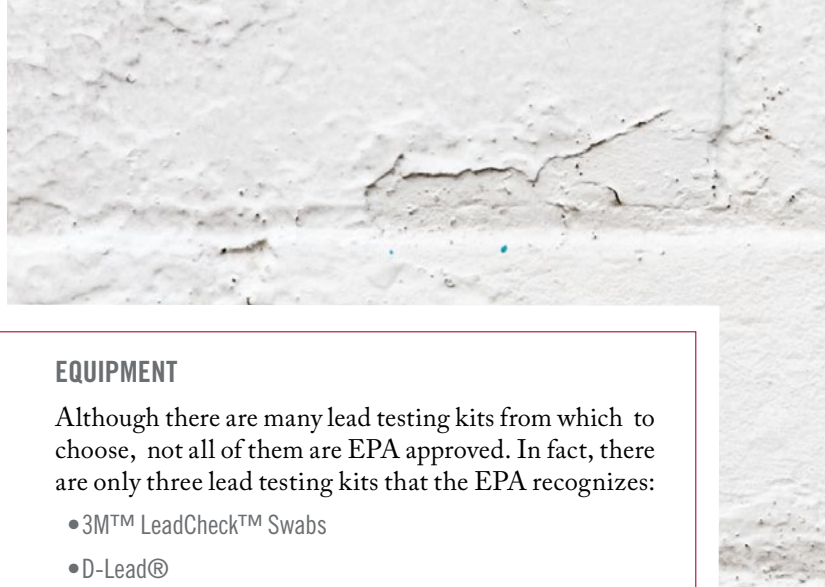
But how can home inspectors determine whether their region is at risk? You can see if your state has a high percentage of housing with potential lead contamination on the United Health Foundation’s map of national housing with lead risk.

However, keep in mind that the overall housing in your state may not be representative of the housing with lead risk in the area you inspect. When Matthew Beatty from Beatty Home Inspection began offering lead testing, he was surprised to find a lack of demand in his region.

“I do a lot of newly constructed homes and homes that have been renovated,” Beatty said.

Because of the lack of interest in his area, Beatty decided to stop offering lead testing.

Beatty and Velez are both in New York, the state with the highest percentage of potential lead risk, but the regions and buildings they inspect are very different. Beatty primarily inspects houses in a growing area with new builds. Conversely, Velez primarily inspects old apartment complexes in the heart of New York City.



INVESTING IN LEAD TESTING

EDUCATION

If you would like to offer lead testing with your home inspections or as an additional service, you must get the appropriate certification, no matter in which state you inspect. To get certified, you must take an approved lead inspection course and pass the test administered. Keep in mind that earning this certification can be expensive. In fact, certification is often the most expensive aspect of offering lead testing.

“The number one [investment] was just [becoming] educated,” Beatty said.

THE EPA ADMINISTERS LEAD INSPECTION COURSES AND TESTS IN THE FOLLOWING STATES:

- Alaska
- Arizona
- Florida
- Idaho
- Montana
- Nevada
- New Mexico
- New York
- South Carolina
- South Dakota
- Wyoming

If you are not in one of the states listed above, your state government has EPA-authorized lead-based paint programs. To see which courses are approved in your state, you can visit the EPA’s Lead-Based Paint Abatement and Evaluation Program Overview.

In our research, we found that, although it varies by state, the cost of certification courses ranges from \$150 to \$575, with renewal courses costing approximately \$150.

“THE NUMBER ONE [INVESTMENT] WAS JUST [BECOMING] EDUCATED,” BEATTY SAID.

EQUIPMENT

Although there are many lead testing kits from which to choose, not all of them are EPA approved. In fact, there are only three lead testing kits that the EPA recognizes:

- 3M™ LeadCheck™ Swabs
- D-Lead®
- State of Massachusetts lead test kit

The pricing for these tests ranges from \$26 to \$141. Cost depends on the brand, how many tests come in a package and the retailer from which you buy them.

In addition to the tests themselves, you will need personal protective equipment (PPE). The Occupational Safety and Health Administration (OSHA) advises the following gear for those working with or around lead:

- Respirators
- Gloves
- Shoe covers
- Coveralls

When dealing with lead hazards, OSHA also recommends wearing goggles or a face shield. However, these PPEs are not as important to your safety as the equipment listed above.

ENDORSEMENTS

An endorsement is a form that either modifies or adds coverage to your insurance policy. Most home inspection insurance policies exclude additional services like lead testing. Thus, the insurance company will not provide coverage for those additional services without an endorsement. So, if you perform lead testing or want defense and indemnity for claims involving lead testing, you have to add coverage to your policy with an endorsement.

Typically, insurers charge a flat, annual fee around \$50 for a lead endorsement. However, some insurance policies offered by other providers may give you lead coverage outright with a sublimit.

Sublimits cap certain risks, usually additional services, defined in your insurance policy, which gives you less coverage per individual service. For example, a home inspector who purchases \$1,000,000/\$1,000,000 in coverage with a \$100,000 sublimit receives only \$100,000 per claim and per policy period for lead-related allegations. So, when choosing your coverage, you must be sure to take sublimits into account.

“BECAUSE I DON'T WANT TO GET ANY LEAD OUTSIDE THE APARTMENT INSIDE, AND INSIDE THE APARTMENT OUTSIDE, [I ALWAYS CHANGE SAFETY GEAR],” VELEZ SAID.

EDUCATION

Steger recommends inspectors begin their education knowing their state's specific stipulations.

“The first thing is to find out whether the state that the inspector's in has any special requirements,” Steger said. “Pennsylvania, for example, requires that anybody who does testing or remediation be licensed in PA by the Department of Environmental Protection.”

Although South Dakota doesn't have any certification requirements, Steve Green of Total Home Inspection, LLC, took a radon measurement class and the National Radon Safety Board's (NRSB) certification exam. According to Green, this helps him provide better service and stand out from competition.

LIMITING YOUR LIABILITY AGAINST LEAD-RELATED CLAIMS

Carrying a lead endorsement is one of the most important things you can do to protect against lead-related claims. However, there are additional risk management techniques you can employ to safeguard your business. Here are some suggestions:

MAKE SURE CLIENTS ARE NOT PRESENT FOR THE LEAD INSPECTION.

While having clients attend inspections can help mitigate risk during some inspections, it is the exact opposite with lead inspections. To keep your clients safe and to avoid possible claims concerning lead exposure, request that your clients **not attend** your lead inspections—even if they are willing to wear the necessary safety equipment.

CHANGE YOUR PPE BETWEEN LEAD INSPECTIONS.

For your own safety, it's imperative that you wear appropriate PPE during lead testing. However, if you neglect to change safety gear in between inspections, you could be spreading lead contamination.

“Because I don't want to get any lead outside the apartment inside, and inside the apartment outside, [I always change safety gear],” Velez said.

Even during an inspection of the same property, you can possibly spread lead contamination from one area to another. Velez has a solution:

“I make sure, from sample to sample, I change my gloves. Because if one windowsill is contaminated and I don't change my gloves, and the next window is clean, the clean window will probably come back positive [for lead],” Velez said.

HELP CLIENTS WITH PROPERTIES WITH HIGH LEAD LEVELS TAKE APPROPRIATE NEXT STEPS.

Lead inspectors are not lead abatement professionals. While some inspectors get certified for both, it is a conflict of interest to be the abatement professional for property you inspected. That's why it's important to have abatement referrals you trust to give to clients.

If you are referring your client to any other inspector or contractor, it is highly recommended that you request that that referral add you as an additional insured to their insurance policy. This ensures that, if you are named in a claim regarding their lead abatement services, their insurance coverage will defend you.

LEAD TESTING AND YOUR HOME INSPECTIONS

Does your region have a high percentage of housing with potential lead risk? Do you feel that you have a duty to your clients to protect them from lead poisoning? Do you inspect a lot of homes built before 1978? If you answered “yes” to any of these questions, you may want to consider offering lead testing.

DOWN THE DRAIN: INSPECTING FOR POTENTIAL WATER DAMAGE AND COMMUNICATING WITH CLIENTS

By Inspect.com



Inspect.com is an online marketplace for the public to connect with qualified inspectors across the country. Get discovered and share your expertise. Add your listing to Inspect.com.

Down the drain is where water needs to go, and one of the most important tasks of home inspectors is to make sure that water is going down the drain.

Water damage can devastate a home. Long before the homeowner sees the damage, bad results may be around the corner, hidden behind walls or in the ceiling. Water damage can invade siding, cement and brick mortar, and it can crumble a home's foundation.

Identifying sources of bad drainage is a key component of inspecting a home. As you go about your inspection, from roof to basement, you may encounter a variety of drainage problems.

One important role of the home inspector is to help clients keep costs down. By identifying places where an ounce of prevention will forestall a large repair bill, the inspection can make a positive impact.

Home inspection clients are typically not experts in water damage, so that's where inspectors' professional expertise makes a difference. Be sure that you know where to look and what to notice as signs of water damage.

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“ DOWNSPOUTS THAT DO NOT DRAIN PROPERLY OR THAT DEPOSIT WATER ON THE GROUND CAN CAUSE POTENTIAL DAMAGE TO THE FOUNDATION BY CREATING POOLED WATER.

INSPECTION TIPS

START AT THE TOP

Follow the flow of rain and melting snow from the roof down to the ground.

Roof debris can impede water flowing to gutters and downspouts. Check for debris and overhanging branches that can scrape the roof in windy weather.

Impeded water flow on the roof can lead to damaged rafters, fascia and eaves. Recommend clearing the roof and provide a referral for a licensed wood-destroying organism (WDO) contractor if you see signs of water damage.

Gutters clogged with debris can prevent the free flow of water. Water can back up and damage eaves, rafters, siding, joists and interior walls. Your client may not notice this backup and potential water damage. Recommend cleaning gutters to prevent future debris collection.

Likewise, leaking gutter seams and rusted gutters can drip on fascia, walls and any structures like porches and stairs underneath. A simple fix will prevent water damage before it takes hold. Recommend repairs or replacement.

Downspouts may look sound to your client, but you may see loose or unsecured spouts, or downspouts that have separated from the gutter. Downspouts that do not drain properly or that deposit water on the ground can cause potential damage to the foundation by creating pooled water. Make sure that downspouts don't create water pools next to the house. Recommend enhanced drainage with pipes that take water farther away from the house.



INDOOR DRAINAGE

Indoor drainage—from plumbing, appliances and HVAC—can hide behind walls and under floors. Getting the water to flow will help you check for problems. Turn on faucets, run showers and run the dishwasher to check for possible leaks from running water.

In the bathroom, toilet cracks and seals can cause leaks that can damage floors and lead to costly repairs. Also, sewage backing up into a flushed toilet is a sure sign of potential sewer or septic drain problems from broken pipes, tree root invasion and clogged pipes.

CHECK FOR THESE SIGNS OF POTENTIALLY PROBLEMATIC DRAINAGE:

- A toilet that appears to be bubbling
- Water that backs up into the sink, bathtub, shower or toilet
- Water that comes out from beneath the toilet
- Slowly draining water from the sink, bathtub, shower or toilet
- A bad odor coming from drains
- Puddles of water on the floor near the sink, bathtub, shower, toilet or laundry area
- Water coming out of a cleanout
- Air conditioner condensation drains that become clogged with buildup from algae, mold, mildew, lime and minerals
- Plumbing and appliances that reveal drainage problems
- Signs of hidden roof leaks on walls, paint, ceiling and carpeting

CALL ATTENTION TO REPAIRS AND REMEDIATION FOR THESE CONDITIONS IN THE INSPECTION REPORT:

- Corroded and leaking pipes
- Rusted and leaking sink overflow or drains
- Slow drainage
- Leaks
- Improper sink P-traps
- Leaking dishwasher gaskets

RECOMMEND IMMEDIATE REPAIRS FOR ANY PLUMBING AND DRAINAGE PROBLEMS. THEY ONLY GET WORSE AND CAN LEAD TO COSTLY REPAIRS.

GROUND LEVEL AND BELOW

Drain problems may hide in crawl spaces and basements. Everything above may seem to be draining okay, but as water flows down, drain problems may be occurring under the house.

Evidence of standing water—from previous or intermittent leaks, or evidenced by white marks on the foundation—is a sign of problematic drainage. Also, under the house, you may discover evidence of water-damaged subflooring.

Recommend that your client monitor the space or contact a licensed drainage contractor to investigate the condition. Repairs to exterior drainage may need to be performed to correct this condition.

Next to the house, high water tables, impervious soil and poor grading can lead to water damage to the home. Any soil that slopes toward the house is a potential problem waiting to happen.

Any soil touching the frame must be graded away. A good rule of thumb is to use a six-foot soil clearance around the entire perimeter of the house. Any ground sloping toward the house needs a strong recommendation for drainage surveillance, improvements or both. Water should be directed away from the foundation to prevent potential building settlement.

Discuss with your client the various remediation techniques that are available, like grading, French drains and sump pumps under the building. Help your client understand how grading to slope land away from the house can prevent costly foundation repairs. Foundation repair can average \$1,000 per foot. Help them understand how poor foundation can lead to settlement of the entire structure.

CLIENT EDUCATION IS YOUR PROFESSIONAL RESPONSIBILITY

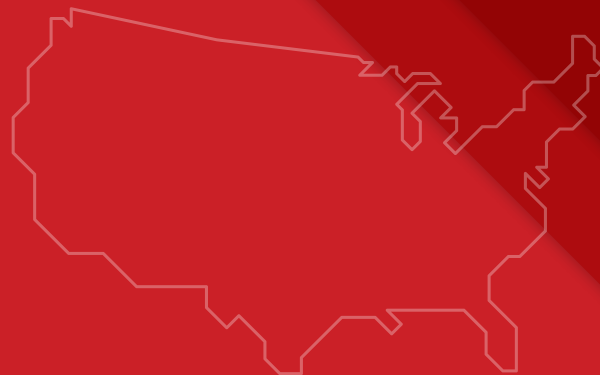
Poor drainage causes many problems. When you detect water damage, educating your client about health and safety issues as well as potential structural jeopardy that can be caused by water damage will help to underscore your professional expertise.

Point out water-damaged wood, mold infections, evidence of standing water, soft floors and leaks around tubs, and then explain the related health concerns and structural threats. Show them how the drainage really protects the foundation system.

When talking about the cost of remediation and repair, help your client understand why this aspect of the home inspection is so important—because it will help keep down long-term costs.

Clients aren't experts. They often don't see what an inspector sees and they don't always understand the consequences of poor drainage until an inspector explains what water could do or is doing. With your guidance, your client might remember your lessons about water damage, even 10 years down the road, and be thankful that they avoided water damage by heeding your advice. This is the value add we give clients as inspectors.

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ELECTRICITY AND SAFETY IN YOUR NEW HOME

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Inspect.com is an online marketplace for the public to connect with qualified inspectors across the country. Get discovered and share your expertise. Add your listing to Inspect.com.

A home inspection is the best way for a homebuyer to protect themselves from unexpected setbacks and costly repairs. Although the home may be freshened with paint and new carpeting, flaws in the electrical system can hide behind the new decor.

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YOUR HOME INSPECTOR'S EXPERTISE CAN KEEP YOU AND YOUR FAMILY FROM HARM.

The electrical system consists of the service, distribution wiring and convenience devices (switches, lights and receptacles) of your home. Your inspector is looking for safe electrical distribution throughout. Any issues with wiring or incorrect usage can result in costly damage to your home and the safety of the people who live there.

The inspection focuses on the flow of electricity from your provider at the service drop through the breakers and wiring to the outlets and switches. Your inspector pays special attention to amperage and any possible overload, correct control of breaker panels and appropriate wiring for safe electrical flow.

Whenever an electrical system is overloaded, the potential for fire lurks behind the walls of the home. Your inspector's independent and unbiased inspection ensures that your new home will be safe from potential electrical hazards.

FROM SUPPLIER TO THE HOME

Your inspector starts tracking the flow of electricity into the home to ensure that all wiring and conduits are in place, the correct size and material are used, and the materials meet current electrical standards.

A typical electrical system brings power from the utility company through a "service drop." The power is run through a meter to measure usage and is distributed to the structure through a weatherproof service entrance box. The box rating (measured in amps) determines the maximum size of the service; a typical 100-amp box will support up to a 100-amp main breaker. The main breaker is designed to shut off power to the whole structure.

Separate distribution breakers to shut off individual circuits are located either at the main electrical service panel or at one or more distribution subpanels. The service sent to the distribution subpanels should not exceed the ratings of the subpanel. Circuit breakers should be labeled to facilitate service or repair, and unused breaker positions should be protected with blanking plates.

All breakers in the system should only have one wire connected to them. More than one wire is a non-approved connection referred to as "double lugging." (Note: Some special breakers allow for more than one wire, but they must be used if more than one wire is connected to a breaker.) All splicing of wires should be made in an approved junction box, and wires properly connected using wire nuts or another approved method.

Most wiring is usually copper, but larger circuits and older homes may also have aluminum conductors. New aluminum wiring work requires an aluminum-oxide paste to be installed at the connections. All wiring below eight feet should be enclosed in approved conduit or protected inside wall and floor cavities behind sheetrock or plywood.

All exterior wiring should be waterproof and protected with ground fault circuit interruption (GFCI) protection. Older "knob-and-tube"-style wiring should not have damaged knobs, tubes, wire or insulation, should not be covered with insulation, and should not be tapped or spliced.

All electrical wiring work should be referred to a licensed electrical contractor for further evaluation and repair.

INSIDE THE HOME

Once you are in your new home, you'll want to take advantage of all the ways electricity makes modern living comfortable and convenient. Your inspector knows how to seek out and evaluate electrical connection faults that may not be visible to an untrained observer. Your inspector's expertise can keep you and your family safe from potential harm.

Electricity provides power to many conveniences of modern living. A proper system for flow is essential for safety. Your inspection includes searching for potential hazards that you may overlook or that are hidden in the attic space or under the house.

SOME EXAMPLES OF COMMON ELECTRICAL HAZARD FINDINGS:

- Loose or improper connections, such as electrical outlets or switches
- Frayed appliance or extension cords
- Pinched or pierced wire insulation, which could occur from, for example, a chair leg sitting on an extension cord
- Cracked wire insulation caused by heat, age, corrosion or bending
- Overheated wires or cords
- Damaged electrical appliances
- Electrical wire that has been chewed by rodents

Pay attention to any recommendation for the electrical system in your report. Shortcomings are dangerous to your home and the people who live there. A safe electrical system prevents fire damage to the home and electrical shocks to residents.

EVALUATING YOUR HOME INSPECTION REPORT

Your inspection report will advise you of any concerns with the electrical system in the new home. Consider asking the seller to address immediate threats as part of your offer. Depending on market conditions, you may be able to negotiate concerns in your final offer.

If you do purchase the home, be sure to follow up on any suggestions for remediation or repairs. You don't want to lose your new home through neglect.

Address any electrical overloads, improper grounding or unsafe wiring immediately. Never use extension cords as permanent wiring or install wiring under rugs and carpeting. Regularly check smoke and carbon monoxide detectors for proper operation. Immediately repair damaged outlets, switches and lights. Because a professional home inspection provides an unbiased report, you can make informed decisions about the cost of repairs, whether to negotiate the price or to withdraw an offer.

If you are considering buying a home, be sure to engage a professional home inspector to give you an honest evaluation of the current state of the property.



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REPORTER

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SMART INSPECTOR SCIENCE

PLUMBING VENT FLASHING

PLUMBING VENTS THROUGH THE ROOF OFTEN ALLOW LEAKS BECAUSE OF FLASHING DEFECTS AND IMPROPER INSTALLATION. LET'S LOOK AT SOME TYPICAL SITUATIONS.

OVERALL DRAINAGE, WASTE AND VENT SYSTEM

Every home requires a plumbing vent though the roof as part of its drainage, waste and vent system (Illustration P016). Air flows into the vent pipe, allowing fixtures to drain. No vent—no drain, just like blocking the top of a vertical drinking straw.

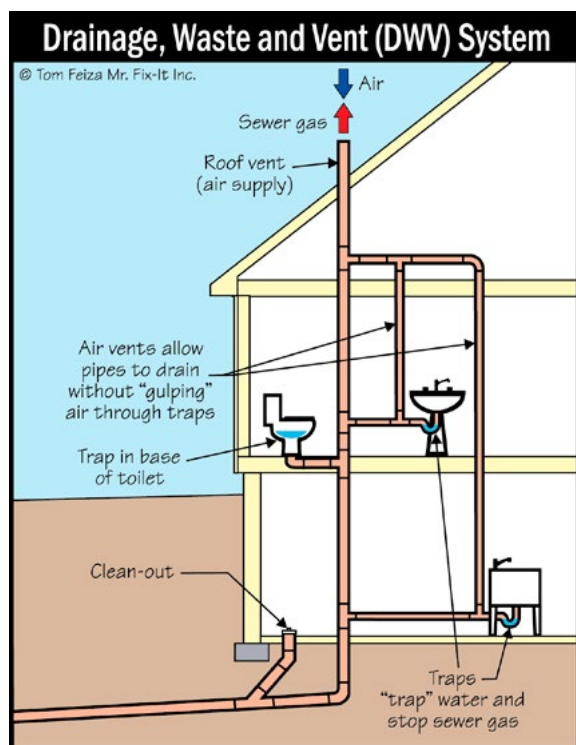


Illustration P016C. Drainage, Waste and Vent (DWV) System

Flashing around the vent prevents leaks through the roof (Illustration R012). This flashing is sealed to the vent pipe. An integral metal or vinyl pan is tucked under the upper shingles and laid over the lower shingles to shed water. Many variations in materials and types exist among homes, but the principles are the same. The flashing allows movement between the pipe and the roof shingles with no leaks.

CRACKS AND GAPS IN THE FLASHING

This typical modern vinyl flashing is woven into the shingles and lies on top of the lower shingles (Photo 1). The problem—cracks in the vinyl edge around the white PVC vent pipe—is a defect that needs to be noted because this will leak.

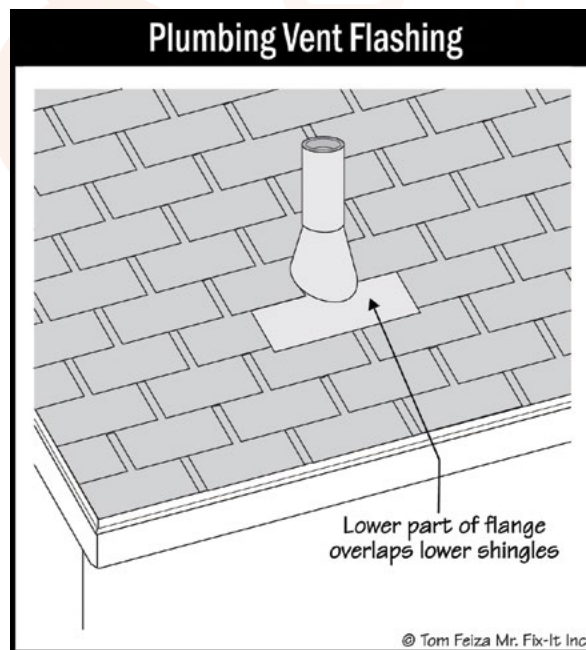


Illustration R012. Plumbing Vent Flashing



Photo 1. Cracked vinyl flashing

TAR-COATED FLASHING

The amateurish repair attempt in Photo 2 used a tar or butyl coating over leaking vinyl. The lower edge of flashing should lie over the shingles below the vent. Instead, the lower edge is sealed to the shingles with tar and this will cause a leak. Defect. Defect. Defect.

SHORT CAST IRON PIPE

Now look at Photo 3. Where is the vent pipe—dropped into the attic? Technically, vinyl vent flashing can't be used for a cast iron pipe; most standards want to see lead flashing in this situation. At least the flashing is woven into the shingles properly. Your inspection must identify the "short" cast iron vent caused by pipe movement. Try to look in the attic below the vent; why did the heavy pipe drop?

Tom Feiza has been a professional home inspector since 1992 and has a degree in engineering. Through HowToOperateYourHome.com (htoyh.com), he provides high-quality marketing materials that help professional home inspectors educate their customers. Copyright © 2021 by Tom Feiza, Mr. Fix-It, Inc. Reproduced with permission.

By Tom Feiza, Mr. Fix-It, Inc.
HowToOperateYourHome.com



Photo 2. Tar-coated flashing



Photo 3. Short cast iron

THE TAKEAWAY

Penetrations through a roof cause leaks, and this includes plumbing vents. Try to get a good look at all vent flashings. Tar coating indicates a leak. Flashings should be woven properly into the shingles. The lower edge of the flashing should lie over the lower shingle to shed water.

TO LEARN MORE, ATTEND TOM'S TECHNICAL PRESENTATIONS AT EDUCATIONAL SESSIONS FOR ASHI CHAPTERS.

Tom can also provide his knowledge for your educational event; contact him at Tom@HTOYH.com.

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REPORTER

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THANK YOU!

MOBILE HOMES: EXPAND YOUR INSPECTION

By Inspect.com



Inspect.com is an online marketplace for the public to connect with qualified inspectors across the country. Get discovered and share your expertise. Add your listing to Inspect.com.

The opinions expressed in this article are those of the authors only and do not necessarily reflect the opinions or views of ASHI. The information contained in the article is general and readers should always independently verify for accuracy, completeness and reliability.

Mobile homes have special considerations that home inspectors can learn about to expand their expertise and their business.

By the time a home inspector visits a client's mobile home, the home will be in place, ready for a move-in or a sale. But mobile homes, also called manufactured homes, carry with them a history, starting with the factory where they were built to be moved to a permanent site. A mobile home that is ready for inspection may have been pulled by a truck for hundreds or thousands of miles before arriving at its installation site. And after it arrived at its destination, a special tractor was used to maneuver around tight angles and into position and set the home in place.

Because of the need to transport them, mobile homes are lightweight, have unique electrical and plumbing systems, and have roofing that can glide with ease under a freeway overpass. Because of these factory and moving constraints, a mobile home inspection requires a keen eye for safety for both systems and structure.

To learn how a mobile home is delivered to a site, check out this video link (<https://youtu.be/Bza3tFy8VpU>) featuring Franco Perez from Franco Mobile Homes.

Mobile homes are tightly regulated under the U.S. Government Housing and Urban Development (HUD) guidelines outlined in Title 24:

(www.ecfr.gov/cgi-bin/text-idx?SID=a2c5655a37054c584f7d-d6a0ed240fb8&node=pt24.5.3285&rgn=div5).

These guidelines originated in the State of California's Title 25 guidelines:

([https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I1D6C3650EBF91E09DB-1FA8A2A044D67&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I1D6C3650EBF91E09DB-1FA8A2A044D67&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default))).

For example, in California, every mobile home must be certified to prove there are no health or safety defects.

Information in California's MOBILEHOME PARK INSPECTION BOOKLET is a gold standard guide to inspection points for home inspectors anywhere. (Source: <https://www.hcd.ca.gov/building-standards/manufactured-modular-factory-built/docs/hcdmp200.pdf>)

A "health and safety inspection" is a necessary component of a manufactured home sale to determine the safe condition of the home.

INSPECTION TIPS

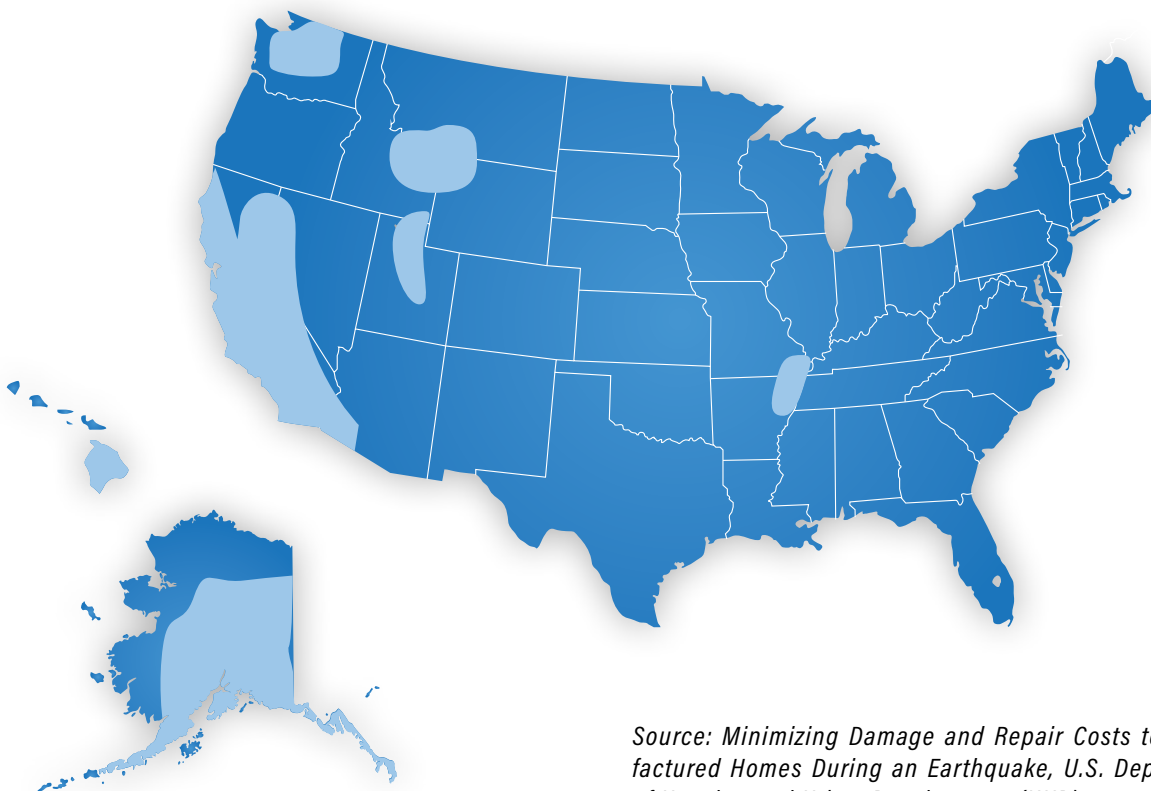
Transportation Damage

Brand new mobile homes can suffer damage from transportation. Warping and leaks are two main issues that result from improper transportation. Check that walls and flooring are true. Doublecheck for any signs of water damage from leaks.

No Permanent Foundation

Mobile homes do not have a permanent foundation. Piers and jacks are used to support the home. Supporting earthquake bracing or tie-downs are used to ensure the home stays properly positioned on the jacks.

Mobile homes are especially prone to earthquake damage. Homes in earthquake areas need additional earthquake stabilization.



Source: *Minimizing Damage and Repair Costs to Manufactured Homes During an Earthquake*, U.S. Department of Housing and Urban Development (HUD).

Secure tie-downs for mobile homes can prevent the home from jumping off the piers or jacks. But in earthquake territory, an additional earthquake resistant bracing system (ERBS) helps stabilize the home against both vertical and horizontal movement.

Electrical

Because the frame of the house is metal, the house can suddenly become electrically charged. The mobile home has a four-wire bonded electrical system that ensures that if there's any kind of stray electricity in any part of the home, it takes that power directly to ground.

Home inspection checklist:

- Electrical panel not properly protected from weather or not rated for outdoor use, rusted, corroded, unsafe: fire and shock risks
- Flickering lights: due to use of aluminum wiring, do-it-yourself or amateur wiring or other defects
- Improper connection to site, service entry, support, clearance over roofs
- Loss of electrical power in or along one side or in one half of the home
- Do-it-yourself wiring, exposed splices, bad or no GFCI, lamp cord wiring
- Blocked access panel
- Abandoned fixtures or boxes left open to weather
- Loose, falling fittings and lights and fixtures inside and out
- GFCI missing at baths, kitchens, outside, or mis wired
- Exterior electrical receptacles mis wired, incompletely installed, missing weatherproof covers
- Exposed wiring without conduit installed (including sub-area)
- Three-prong outlets at dryers (a four-prong plug is required)
- Electrical outdoors must be watertight

Plumbing

Because mobile homes are designed to be lightweight, plumbing materials are usually made of plastic or soft metals. These materials are lighter and more affordable than standard metal. Often, the pipes are smaller and not as securely placed. You may see pipes laying under cabinets.

Some older mobile homes may still have polybutylene plumbing. This soft material is prone to leaks. Recommend replacing polybutylene pipes to avoid expensive pipe leak repairs.

Pipes may not be strapped, especially in older homes. You may see supply pipes running through cabinets or floor joists without strapping.

Also, the venting system can be modest and vent under sinks instead of being routed outside the structure.

Note any drainage cleanout access. Some mobile homes have none.

Porches, Stairs and Freestanding Attachments

Most mobile homes rest above ground on the support structure, so access to the home is by stairs up to the doors. Be aware of any trip hazards like uneven rises, or stair widths. All stairways should have rails for support.

Most importantly, screen rooms, additions, alterations, porches and stairs need to be completely freestanding. Because of the lightweight construction, mobile homes cannot support attached or bolted additions. They will drag down the mobile home. If your client is considering additions or alterations, inform them that modifications need to be independently self-supporting.

Water Heater

According to HUD's Homeowners' Center, all manufactured homes must have water heaters with a non-adjustable temperature and a pressure-relief valve. The water heater installed must comply with the local building codes of the state in which it is located and must be owned by the homeowner. Standard water heaters are generally not HUD-approved because of the square intake vent at the base, which is not completely sealed.

Mobile home water heaters look different. Mobile home water heaters have the cold water inlet connection on the side and the hot water outlet connection on top. They have a securing strap kit to stabilize the tank.

Gas-powered mobile home water heaters have interchangeable gas and propane orifices so that the water heater can be converted from natural gas to propane gas operation.

Continued on page 26.

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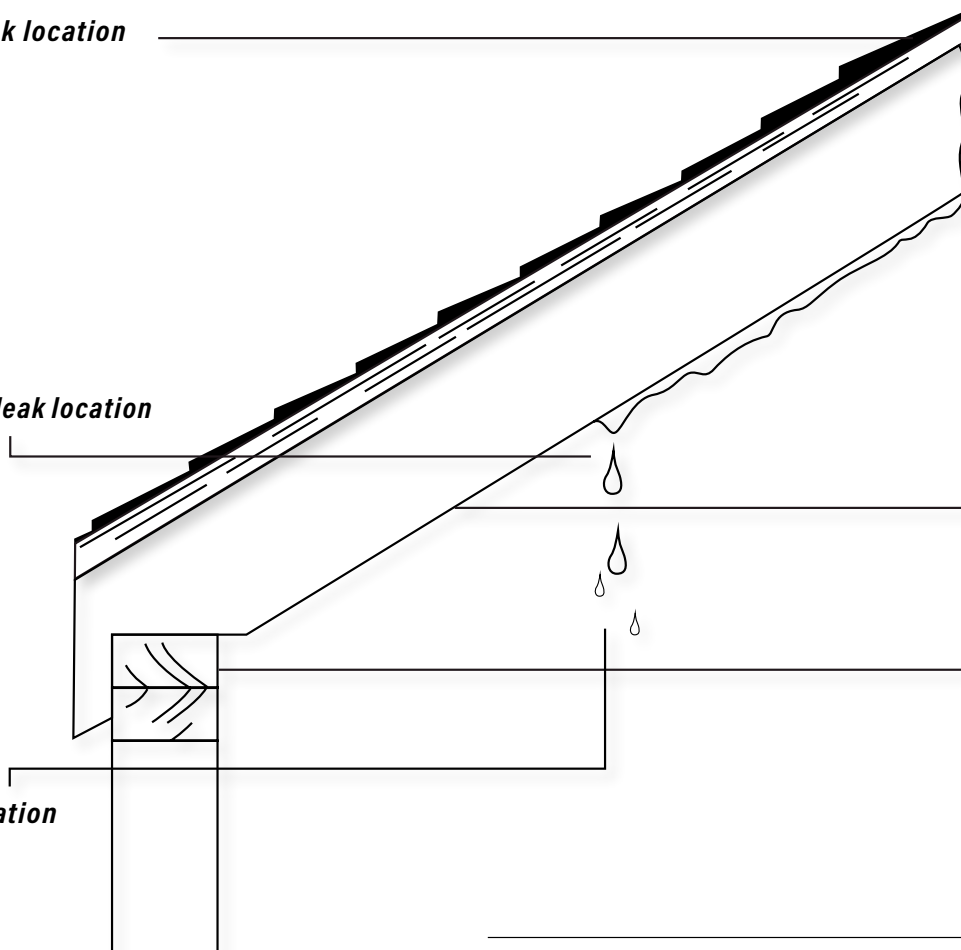
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Actual leak location**Apparent leak location****Wet insulation****Mobile Home Roof**

Because mobile homes are transported, they often have a low pitch or flat roof. Because of this, the roof is prone to leaks. As an inspector, you know how tricky. Locating roof leaks can be. (Source of diagram: <https://www.dummies.com/home-garden/exterior/roofing/how-to-find-a-leak-in-a-roof/>).

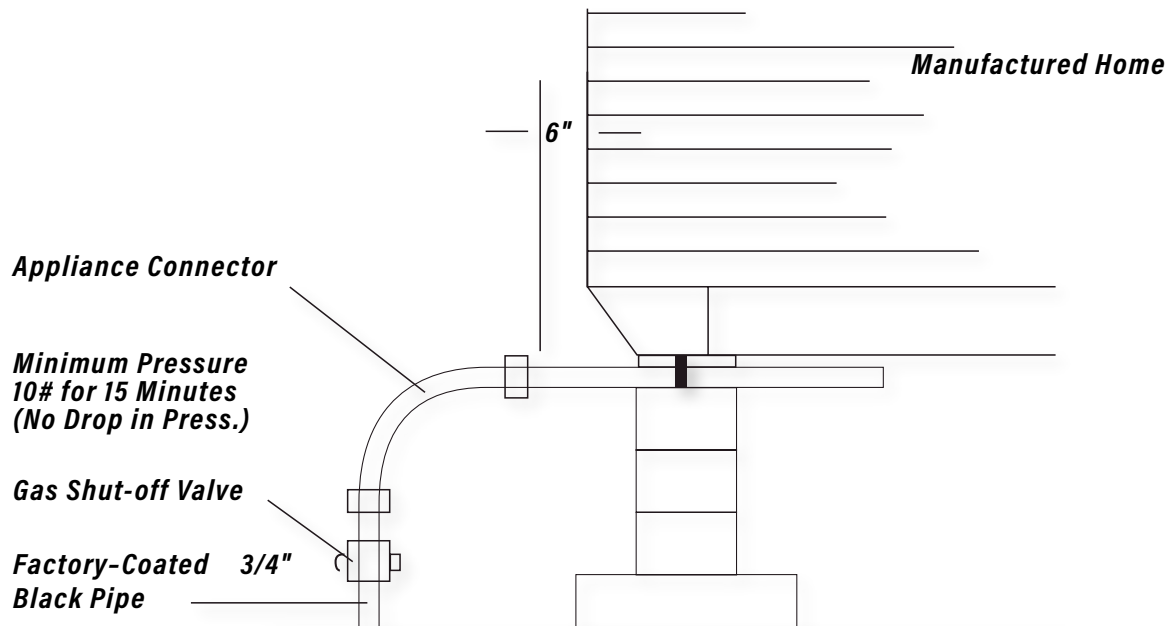
Check for signs of leaks:

- Water behind wall siding
- Water on ceiling insulation and wood
- Mold and mildew in the attic space
- Wet carpet
- Mold on ceiling or walls appearing as dark spots
- Water spots on ceiling
- Peeling wallpaper or paint
- Sagging or bowing of ceiling, walls, gutters, siding

Gas Connection

Mobile homes are highly flammable, so special consideration is mandated for gas connections to mobile homes. The gas line must connect outside the home with flexible connection tubing. All appliances must have a valve above the floor and directly adjacent to the appliance in the same room. A shutoff valve that disconnects the gas supply shall be located in the home. A shutoff valve at an LP tank is acceptable.

(Source of diagram on P27: Weld County, Colorado, MOBILE & MANUFACTURED HOME INSTALLATION REQUIREMENTS. https://www.weldgov.com/UserFiles/Servers/Server_6/File/Departments/Building/Building%20Permits/Construction%20Handouts%20&%20More%20Information/Residential/Manufactured%20Installation%20Requirements.pdf)



Adequate Combustion Air

Water heaters and furnaces need oxygen in the air to properly function. Mobile homes often house these appliances in small, closed spaces. Without adequate fresh air ventilation, the appliance will operate inadequately with increased maintenance costs. More importantly, for safety, inadequate combustion air can build up dangerous levels of carbon monoxide.

Mobile home water heaters are specifically designed to need less air. Check that the appliances are stamped for mobile home use. Also, check to ensure that all vents and louvers are not blocked.

A View from the Real Estate Agent Side

Mobile home real estate agents expect home inspectors to be familiar with the differences between mobile homes and single-family dwellings.

For example, Franco Perez advises home inspectors:

As a dealer or agent, we want to obtain lots of information from the inspection report, to be able to portray what is important to our client. The easier it is for our agents to identify what is a priority and what isn't, the more we'd love to work with that inspector. Our job as a dealer or agent is to make sure that our clients are protected and taken care of in the best possible way.

There are specific areas that can help improve mobile home inspections. In a typical health and safety inspection, a thorough report is constructed, containing several pages of any issues found. It's necessary to make sure the report is as clear and specific as possible. This could be done by adding multiple images, with added annotations such as arrows or circles of the issue. Some inspectors have even offered a video footage walkthrough to explain each issue.

Overall, a mobile home inspection report should be very detailed and organized in a way that can be easily understood.

Your Inspection Is Essential

Health and safety are prime requirements for mobile home transactions. Your knowledge and expertise will help sellers and buyers rest assured that the home is safe for loved ones. Knowing the special considerations for manufactured homes will ensure that your home inspection is thorough and meets the needs of the structure.

Resources for more information:

CA Housing & Community Development Title 25 (<https://www.hcd.ca.gov/manufactured-mobile-home/mobile-home-parks/laws-and-regulations.shtml>)

CA healthy home definitions (pp. 2-4) (https://nchh.org/resource-library/HH_Codes_CA_9-9-07.pdf)

Rights of CA mobile home park residents (<https://www.hcd.ca.gov/manufactured-mobile-home/mobile-home-ombudsman/mobilehome-resident-rights.shtml>)



INSPECTION DURING A PANDEMIC: INSIGHTS FROM HOME INSPECTORS

With several months of the coronavirus pandemic behind us and yet still more ahead, the ASHI Reporter invited home inspectors to reflect on this time that has brought both unique challenges and opportunities for growth. This article is a compilation of the messages received from ASHI members that demonstrate the insights and strategies they've developed during the pandemic.

MITCHELL ALLEN

Inspect-It 1st Property Inspection, East Meadow, NY

www.inspectit1st.com/east-meadow-ny/

What new business strategies or insights have you learned and applied to your home inspection business?

I took an online course for CDC certification, and promoted that I am trained in doing a proper and safe inspection. I also created multiple automated emails to all parties involved, communicating suggested practices noted by the CDC for a safe inspection.

What are you doing differently in response to the destabilization the pandemic has had on your business?

Frankly, it has helped me grow and I had a great year, as many inspectors were not willing to work. I was and it helped me gain new business relationships.

What do you look forward to seeing done differently as a new normal emerges?

Not enough people follow the rules and there is very bad misinformation on what the rules truly are. One message is needed from the state, down through the system to the agents, inspectors, buyers and sellers.

What kind of encouragement has helped you most during this time?

I understand how to be safe and do a good job while ensuring that my client is protected. I have been told many times by agents and buyers that they greatly appreciate the extra work I do to meet these new measures.

What insights would you like to share with new and seasoned home inspectors?

In a competitive world, any honest leverage you use that improves your business is a sound way to grow. Most inspectors grow by being number two and waiting until number one isn't available. This was one time that number two became number 1.



TODD GOURLEY

Reveal360 Inspection Services LLC, Northern CO

www.reveal360is.com

What new business strategies or insights have you learned and applied to your home inspection business?

The pandemic has required Reveal360 to be informed and make adjustments based on our governor's mandates, restrictions and recommendations. Thanks to timely email updates from local real estate associations, adjusting was easier since all parties in the real estate business are in the same predicaments.

What are you doing differently in response to the destabilization the pandemic has had on your business?

I do not believe I would use "destabilizing" to describe the changes I experienced in 2020. Reveal360 has had an incredible year, but so has Northern Colorado real estate. It appears that big-city dwellers have moved to Northern Colorado in droves, buying homes sight unseen. Our inspection services have provided buyers with a thorough assessment of what they are buying. I have increased the number of photos and descriptions in my reports to help buyers understand what they are buying and the current condition.

Reveal360 no longer provides in-person walk-throughs, but instead offers a one-hour discussion of the report to the client. Once the report is delivered to their email, I contact them to set up a one-hour virtual walk-through and go over the report with them. They have it up on their computer and I have it up on mine.

What do you look forward to seeing done differently as a new normal emerges?

Reveal360 would like to incorporate video walkthroughs by uploading a video of an in-person walkthrough, but I am still researching any possible liability concerns.

What kind of encouragement has helped you most during this time?

Clients understand the limitations and appreciate the options I have offered them in order to achieve the same level understanding of the report and their potential purchase; their appreciation has provided encouragement to me.

What insights would you like to share with new and seasoned home inspectors?

In recent months, I have been contacted by individuals who want to get into the home inspection business. It appears, from those who called, they think this business is easy and where one can make a lot of money. Colorado is a state that does not require licensing, so I encourage them to do their research, expand their knowledge base and embrace the business model of quality and excellent communication. The pandemic requires a higher level of service, in my opinion.



JAMESON MALGERI

Another Level Inspection LLC, Gloucester, MA

www.anotherlevelinspection.com

What new business strategies or insights have you learned and applied to your home inspection business?

I think the pandemic has helped me realize the control and responsibility home inspectors have over each transaction. I have changed procedures many times during this time period, but I feel the insight I have gained is that the home inspector is really in charge of his service. It's our job to communicate and control everything that happens on inspection day to make sure all involved are safe.

What are you doing differently in response to the destabilization the pandemic has had on your business?

I am trying to gain market share. I have been very conservative when it comes to safety, but communication and process are noticeable now more than ever. If you can adapt in a way that continues to impress your clients, you can gain respect in the market.

What do you look forward to seeing done differently as a new normal emerges?

One issue that has been an ongoing battle is getting people to agree to your safety standards when everyone has their own interpretation of what is safe. It's a never-ending battle that I hope will change with a vaccine and more education.

What kind of encouragement has helped you most during this time?

I think staying positive has been really important during these times. It's interesting, but every time I seem to get overwhelmed, I have received communication from other inspectors. Staying in touch and discussing what other inspectors have been doing has really helped me keep my sanity, and I am really grateful to be connected with so many amazing ASHI members.

What insights would you like to share with new and seasoned home inspectors?

My advice would be to not compromise on safety. It seems like daily I am being asked to allow this exception or that, if those compromises aren't safe, and I say no. We really need to protect people from us and themselves, all while staying safe. Make your expectations clear or walk away if they cannot be met.



BARRY MARTINDALE

Martindale Home Inspections LLC, Harrison, AR

www.martindaleinspections.com

During this pandemic, I posted on my Google business page that when I inspect an occupied home, I wear an approved mask and nitrile gloves for everyone's safety. Business hasn't slowed down a bit in my area. Boone County, Arkansas, is approximately 30,000 people. I am a one-man shop and have done 138 inspections this year. Been in business since 2012.

I attribute the hot real estate market to low interest rates and the stimulus funds from the federal government. Prospective buyers now have some capital to put down on a home.

TOM NIEHAUS

Wise Choice Inspections, Byron, IL

www.TomInspections.com

I find my mode of operation to be absolutely safe:

1. Ask if seller has symptoms. (If so, walk away.)
2. I work alone, buyers are not welcome until I'm finished. At that time (with masks), I will give them a walkthrough. Again, be sure buyers have no symptoms.
3. Agents are discouraged to attend (common in my area anyway); if they must be there, sit in a corner or in their car. Again, no symptoms.

2020 was my best year. I enjoyed working with real estate agents and buyers, and I am looking forward to 2021.

MATTHEW STEGER

WIN Home Inspection, Elizabethtown, Lancaster, PA

<https://elizabethtown.wini.com/>

In March, our governor determined that real estate was a non-essential industry (thereby stating that having a home was not essential); therefore, the home inspection industry in PA was shut down for over two months. Once we were allowed to start up again, I followed ASHI's safety protocols and generally had no clients at home inspections until about August or so. I would call or FaceTime the client at the end of the inspection to give them a verbal summary and then send the report a short time later. It seems just about all clients and real estate agents had no problem with this policy since it allowed the home transaction to continue.

In August, we started allowing buyers to attend inspections again, but it was for the last 30 minutes and up to no more than three people total (inspector, client and real estate agent). This policy follows what our state and county real estate associations have been using for COVID standards.

I'VE BEEN INSPECTING HOMES FOR MORE THAN 18 YEARS NOW AND WHENEVER THE DAY COMES AGAIN, IT WILL BE A LITTLE ODD HAVING BUYERS AND REAL ESTATE AGENTS FOLLOW US AROUND FOR THE ENTIRE INSPECTION AGAIN. I'VE GOTTEN SO USED TO INSPECTING BY MYSELF IN PEACE AND QUIET.

SAVE THE DATE



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March 12, Friday

**100 Most
Commonly Missed
Electrical Defects**

Shannon Cory

**ASHI Standard
Deck Inspection**

Bruce Barker

March 13, Saturday

**How to Identify
Major Exterior
Water Problems**

Reuben Saltzman

**Home Inspection
Methodology and
Learning From
Mistakes**

Miki Mertz

March 20, Saturday

**Major Foundation
Failures-Strategies
for Diagnosis**

Mark Cramer

**Electrical Panel
Inspections**

Mike Casey

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DRONE DEBATE: PERSPECTIVES FROM HOME INSPECTORS

DRONE DEBATE

In October 2020, the ASHI Reporter featured the article "Drones: Another Tool in Your Kit" by Rick Bunzel, about the use of unmanned aircraft systems (UAS), more commonly known as drones. The topic generated a buzz, as many home inspectors have viewpoints about drones and why they do or do not incorporate them into their home inspection toolkit. So, in the interest of collecting and sharing stories from the field, we asked ASHI members to share their perspectives on the use of drones in home inspection and here's what they said—pros, cons, and relatively neutral.

MITCHELL ALLEN

**Inspect-It 1st Property Inspection
East Meadow, NY**

www.inspectit1st.com/east-meadow-ny/

Drones simply do not make sense in our business. They have risk for damage and loss. They do not work well in the rain, windy areas or cold (battery issues). I fully understand the benefit of seeing the roof better, especially high roofs that can't be easily and safely seen from a ladder. I use a camera stick (the Wonderpole) and a Wi-Fi camera. It takes much better pictures than any drone can, it works in all weather conditions, no extra insurance (or license) is needed and the total cost for it was less than \$600. It's a no brainer. Unfortunately, too many inspectors feel that they need to impress their buyers with gadgets to prove their ticket. "Do a thorough job" has been my way to grow...not with toys.

ROB AMARAL

**MKC Associates, LLC, Greater Boston area,
Eastern and Central MA**

www.mkchomeinspection.com

A well-trained drone operator onsite is a great idea to tap into. We've done it with excellent results and it can add very much to the entire process. As drones get both smarter and smaller, we'll see a huge increase in this type of service.

**STEVE BYRNE**

**Unlimited Home Inspection Inc.
Staten Island, NY**

www.siinspector.com

Drones are an essential tool in my home inspection business. I wanted to say they are essential in the inspection business, but that is a matter of opinion. First and foremost, they must be used legally and responsibly. That means Federal Aviation Administration (FAA) certification because it is being operated commercially and FAA permission when flying in controlled airspace. Absent either of those conditions, drones should not be used; they are not toys and there is the potential for significant liability.

When operating the drone for inspections, I typically take approximately 24 photos of the roof. The drone gets pictures that could not possibly be captured otherwise on unwalkable roofs, high chimneys, etc. Photos are high-resolution, and by zooming in, you can see cracks in shingles, granule loss and other defects. All this in 10 minutes or less. It takes me that long just to set up a ladder. Undoubtedly safer and faster, but what am I missing out on? Not much. The only thing missed is the how the roof feels under my feet. But as I have said before, it's a visual inspection, not a "walk on it and see how it feels" inspection. If a roof deck is so spongy that it feels soft underfoot, there is an excellent chance that I will get clues to that fact while I'm in the attic. Then I'll confirm with a moisture meter.

The anti-drone rhetoric I typically hear ("If you don't walk every roof, you're a [fill in the blank]") seems to be more from a sense of bravado than from any logical point of view. The main limitation of the drone is weather. Rain, snow or winds of 20 mph keep me grounded. Typically, in those cases, I will fly the drone the day before or the day after the inspection. I get permission from the seller first and when I write my report, I include a note stating that the roof coverings were inspected separately. I have heard stories of neighbors complaining and even calling the police, but that has not been my experience. On the contrary, people are interested in the drone and enjoy watching it fly.

I have done several inspections in controlled air space and on each occasion, I requested and received FAA authorization for the operation. After requesting authorization for individual inspections several times, the FAA explained how to request blanket area and area-wide authorization. This gives the operator authorization to operate in controlled airspace for up to two years. Surprisingly, the FAA has been very responsive through their Drone Zone at www.faadronzone.faa.gov.

The last thing I will add about drones is that people love them—Real estate agents, kids, clients, sellers and buyers. It adds to the credibility of the home inspector as a licensed professional who is taking things seriously and it will likely bring you more business.

The opinions expressed in this article are those of the authors only and do not necessarily reflect the opinions or views of ASHI. The information contained in the article is general and readers should always independently verify for accuracy, completeness and reliability.

LARRY DAVIS

Nora James Inspection, St. Louis, MO

larryjdavis65@gmail.com

I am carpenter by trade, and I prefer walking a roof if possible (weather permitting), as I feel I can see imperfections and feel them by walking it better than using a drone. The drone does have a place in this business, but currently I prefer to walk the roofs.

RICK AND LISA DEBOLT

R&L Home Inspections, CO

www.RLHomeInspections.com

I have looked into drones as a business addition; however, I just do not see any revenue boost or enhanced inspection advantages of having to purchase a drone. It's another tool to drag along in your inspection vehicle that will take training and practice. Wind is your enemy and always unpredictable. Government involvement and new liability issues will need to be addressed or covered by additional insurance. Someone will have to convince me it is a revenue-producing tool. Nice toy!

Now, the one positive is that you can take great aerial views of the home and property and that enhances a nice-looking report, but who pays for that time and how much? I might be wrong, but my tool bag is already full of "verification tools" that are not used daily.

I have a ferret camera and a 30-foot pole that I can use for hard-to-reach roofs or roofs that are too steep to walk on. Plus, the fact is, the entire kit was less than 200 bucks. Training was less than a couple of hours. That's my two cents.

IMANI R. FOWLER

**Inspections Group Midwest, Inc.
Cincinnati, OH**

imanirfowler@gmail.com

A drone can be a helpful tool; however, this specialized equipment requires skilled operation to be a true asset to the inspection. You get what you pay for, just like other assessments (sewer, infrared, etc.). You must have good equipment and experience—that is not to be taken lightly.

MATT FRIESZ

The Properly Inspected Team, Tampa Bay area, FL

www.properlyinspected.com

I don't like not getting on a roof to inspect it. However, just yesterday, the seller demanded that I do not walk on his metal roof. He was at the home during the inspection, keeping a close eye on me. So, I was thankful that I had my drone in my truck. The buyers were pulling up as I was flying the drone and were very intrigued. I let them know that the seller said not to walk the roof. The drone came through in a pinch.

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**TODD GOURLEY****Reveal360 Inspection Services LLC
Northern Colorado**

www.reveal360is.com

I am a certified drone pilot and view the use of a drone as a highly technical tool. I find using a drone increases the perceived quality of my inspection service. I personally would hate to tell a client that I do not have roof condition information because I couldn't walk on a roof. My drone camera sees everything I need just as if I were walking on the roof. What I can verify with a drone: roof condition, presence or absence of flashing details, condition of roof penetrations, presence or absence of adequate attic or roof ventilation, and an overall scenic view of the new neighborhood. When I use the drone, the report cover photos are spectacular! Thank you for this opportunity to share.

DALE GUNTER**Capital Property Inspection Service, LLC
Fairfield Bay, Arkansas**

www.capitalpropertyinspectionservice.com

Here's why Capital Property Inspection Service, LLC uses DJI Mavic Air Drones for all roof inspections:

- Safety.
- Roof slopes greater than 5V:12H are not a limiting factor to roof inspections.
- Moisture on a metal roof is not a limiting factor to roof inspections.
- Preserve the integrity of a roof covering that is fragile due to being well into its normal service life.
- Some roofing materials such as clay tile cannot be walked on without damage to the tile.
- Some roofing materials are simply secured to nailer strips and not a solid plywood deck.
- The 12-ft. maximum roof height in the ASHI Standard of Practice is not a limiting factor regarding drone use.
- Drone photos provide a permanent record of the roof inspection that cannot be provided by inspection with binoculars.
- Retained drone photos provide clients with documentation regarding roof condition at the time the house was purchased in the case of insurance claims disputes regarding previous damage.

Note: Use of a drone to conduct roof inspections as part of the home inspection constitutes a commercial use of the drone and requires an FAA Part 107 UAS Commercial Pilots License.

ROGER S. HERDT**Herd Home Inspections, Florence, South Carolina**

www.herdthomeinspections.com

Based on shared experiences, I feel that drones are an invasive and dangerous addition to our profession.

An inspector in our area was using a drone (he is no longer in business), lost control and the drone impacted an S series Mercedes, causing damage to paint. His insurance provider refused coverage because he was in a flight path for a regional airport and they claimed it was an illegal operation. He had to pay for a full repainting of the car (Mercedes will not do "touch-ups") and more than \$20,000 in legal fees.

A local "videographer" using a drone to do a real estate online presentation happened to catch a woman in an undressed state in a nearby house and is still trying to resolve those legal issues, including criminal charges.

I will not be using a drone and would caution anyone who does to be fully certified, carefully follow all restrictive regulations and pray a lot. New technologies are not always an unqualified improvement.

**MICHAEL HESTERBERG****Building Inspections LLC
Kentucky and Ohio**

www.buildinginspectionsllc.com

I have included a drone in our practice for several years now. We have seven drones in our fleet and employ a full-time FAA part 107 drone pilot. We have done approximately 900 roof flights for inspections. We have developed a standard protocol for flights and our pilot has become experienced to know what kinds of pictures we need. I decided to transition to drones for roof inspections after several of our inspectors in the area were injured by roof falls.

The ASHI Standard of Practice only requires that we inspect the roof and disclose to the client how this was done. We are not required to do a full roof assessment, only an inspection of the visual issues of the roof. This does not include releasing shingles to determine how they are fastened, etc. We are not required to mount the roof. The dangers of mounting a roof basically occur when mounting and dismounting a roof. Also, roof pitch can be deceiving and, once on the roof, due to surface conditions, the roof can be slick and dangerous. Without fall protection, this is a dangerous proposition.

I have heard many arguments that you cannot do a thorough inspection of a roof without walking on the roof. I would argue, with experience, that I can actually do a better and more thorough inspection using a drone than walking on the roof. Yes, I do not lift shingle tabs and I do not feel the roof sheathing. However, I do inspect the sheathing from below in the attic and sometimes from the gutter edge. For example, if shingles are fastened down, this can manifest in other ways, for example, creasing. I am still able to see crazing, cracking, pitting, loss of granules, etc.



When walking on a roof, I would argue, unless this is a lower-pitch roof (that is, 6/12 in. and less), you will not be able to safely walk every surface of that roof. When I walked on the roof in the past, I only did a visual from a distance on many areas of the roof, not walking up and down the complete roof surface. With a drone, I see all the surfaces. I am also able to thoroughly inspect roofs that you cannot walk (e.g., slate, mission tile, wood shakes). I do not have to disclaim this as "limited visual inspection using binoculars" or words to that effect and I have seen major defect issues that would have been missed.

Also, the issue with doing a visual inspection using your eyes is the issue of reflectivity. Shingles, by design, are reflective surfaces. That means that, at an angle of about 30 degrees, which is the approximate angle at which you observe much of the roof, this is the maximum reflectivity for a surface. Also, looking directly down on a roof, in any kind of sunlight, creates an element of reflectivity, obscuring your view. At 90 degrees, that is the least amount of reflectivity effect you will have and a drone can see all of the surfaces of a roof at a 90-degree angle. The digital camera also sees in near infrared, giving you an additional light spectrum that your eyes will not see. When the digital camera converts to a digital picture, we will see defects your eye did not notice. As a Level II thermographer, I learned the science of light and this has been invaluable in understanding this concept.

We have gone to great lengths to determine the best optics and drone equipment to maximize the effectiveness of the drone. We use the DJI Mavic Air 2 as our main workhorse, which gives us a 48 megapixel camera. It's stunning the detail I get using this camera. I can zoom in on the surface with great clarity and see much of what I need to see in order to do a good inspection. What I gain in being able to see the whole roof far outweighs anything lost by not walking on the roof. Also, there is no danger to people. Once I see a defect,

in essence, I am done and recommend a qualified roofer. I also can inspect roofs after snow and during ice conditions.

Finally, having been a HAAG-certified residential and commercial roof inspector, I know what you need to see in order to properly inspect a roof surface and the drone never disappoints. The last pictures we take are a high-up view, about 100 feet, and the front beauty shot. The high-up pictures have enabled me to see overall defects in the roof that walking on the roof would not allow me to see (e.g., racking, venting patterns). I have made many defect calls just from that one shot.

My son and I started a company last year, The Drone Hangar, and dedicated that to helping home inspectors, by consulting on what is the best equipment and optics, as well as the best financing and insurance options. In addition, we offer the FAA part 107 training course to get you legal, and we will consult before you buy. We presented at InspectionWorld® in New Orleans in January 2020, and helped many inspectors transition into this safe and effective way to inspect roofs. Our biggest advocates at the conference were inspectors' spouses because of their concerns for the safety of inspectors we are not paid enough to risk life and limb just to inspect a roof; however, we are required to inspect the roof. It can be done safely and very effectively.

A final note: I have also used a drone to inspect the exterior of large homes to get up close and personal to the exterior elements of the home. I can see things you cannot, just by being close. I also used the drone once on the interior of a large 12,000 sq ft home with three-story ceilings. It worked.

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DALE KOPP**Home Inspections By Kopp, Plainfield, IL**

www.homeinspectionsbykopp.com

The following are my reasons for not using a drone on a home inspection:

1. Liability—personal injury or property damage
2. Expense—purchase, the maintenance of the equipment and the training
3. Invasion of privacy
4. Legal aspects—obtaining a license, FAA Certification

ED LAMPL**Ed Lampl Home Inspection, Pittsburgh, PA**

www.homeplusisus.com

Using a drone is a lot better than using binoculars—there is nothing like walking on a roof. I have used a drone for many years—before drones were popular. It takes many years walking on a roof, touching the shingles before you will develop the visual ability to recognize most common issues when using a drone.

A few examples:

- shingles no longer bonding
- small nail pops
- ventilation issues
- deteriorated plumbing stack boots
- ice or water guard improperly installed or not installed
- flashing issues—no flashing or flashing pulling away from the building
- chimney crown issues

I have found drones most useful to view roofing systems with materials you cannot walk on (slate, terra cotta, etc.) and extremely dangerous steep roofs.

It's important to follow local and federal laws. The FAA requires you to be a remote pilot. I have been stopped by the police, I have had neighbors call the police and I have had to produce my license multiple times. My recommendation is if the inspector decides to use a drone, be law-compliant. If you do not have a remote pilot license and make a mistake, such as missing something on preflight inspection as an example (battery not fully clipped in, damage propeller etc.), your insurance may not cover you.

JAMESON MALGERI**Another Level Inspection LLC, Gloucester, MA**

www.anotherlevelinspection.com

I think to understand my perspective on this issue, you need to know more about my experience with drones. I invested in a drone as a home inspector years ago and have a lot of experience with them. I have passed the part 107 exam and have a license with the FAA. I have also had it long enough to go through the recertification process. I am connected in the drone community, have flown numerous drones of different levels and have done work as a drone pilot outside of home inspections. I was even asked to do a test prep course for people looking to be drone pilots at a local college.

With all my experience with drones, I know that a ton of factors come into play: wind, weather, technical problems, safety concerns, charging batteries, getting airport clearances and a million other things. I have made it past all of these problems and really feel well-equipped to do them all. At this point, I use and will continue to use drones because I am fully invested.

I can honestly say that I would not recommend to my peers getting into adding drones to their businesses. There are a couple of primary reasons for this, but ultimately the bad outweighs the good in my mind. First thing is, things will go wrong. It may be your first flight or your 100th, but you are going to experience problems, some of them serious concerns. Second, you will be very distracted by them. Between worrying about what could go wrong or the focus it takes to utilize it and think of all of the safety concerns, it's very consuming. Once you have a problem, you think of that issue every time you take off and it adds up. Last, there will be times you will disappoint. Sure, everyone is amazed when you use the drone, but there are times it's not safe to use and once everyone has an expectation, it can have a reverse effect.

Let me be clear: You will gain information from the drone and find problems you couldn't otherwise, but it will seldom be the case, especially if you walk roofs. People also think they will be hard to learn, but most high-end drones are simple to use out of the box and learning will take very little time. Learning how to properly follow the rules and get flight authority will take much more time to figure out. People are really dazzled by it and drones are so affordable even for high quality.

My advice ultimately is to not get into it. It's a ton of time, lots of learning and, in the end, you will be apprehensive to use it. There are so many things we could do to find more as home inspectors, I don't think this is a good thing to focus on learning. If you have a particularly impressive property to inspect, consider subcontracting a licensed drone operator—many do inspection work all the time on their own—and you could have them on site to direct their focus.

**BARRY MARTINDALE****Martindale Home Inspections LLC
Harrison, AR**

www.martindaleinspections.com

I do use a drone from time to time. I use one on multi-story homes that would be impossible otherwise. I also use a Wi-Fi camera on a telepole for other hard to-reach areas. Make sure your drone is registered with the FAA.



BOBBY MAYBERRY

RPM Home Inspect, LLC, Fairfax VA

www.rpmhomeinspect.com

I have a drone and use it when I need to. The problem in northern Virginia is that you are so restricted where you can fly, it is not worth buying one. If the FAA would restrict the flying height to 100 feet, then we could fly it everywhere.

TOM NIEHAUS

Wise Choice Inspections, Byron, IL

www.TomInspections.com

I have a drone, but I'm not a good enough pilot to use it regularly. I will only use it on commercial inspections or three-story or higher buildings. I do have a 24-foot telescopic painter's pole that I modified to use with a monopole that attaches to my Wi-Fi camera. I can adjust it to several angles to look down flues.

SCOTT PATTERSON

Trace Inspections, LLC, Nashville, Tennessee

www.traceinspections.com

We started using a drone about four months ago. Prior to the drone, I had already decided to limit roof access to low-slope or flat roofs. I used an EyeStick pole and camera that worked well, but it was not always the easiest thing to maneuver around a home. I also used binoculars and my ladder at the eaves. Most of the roofs in our area are over a 6/12 pitch, so they are fairly steep, which also can make it easier to see everything from the ground. I had the chance to buy a drone at a good price to see if I would even like it. I also took the FAA part 107 exam and passed, so now I could fly a drone for the business. It is not a difficult exam; some online studying worked for me.

The first few times with the drone were nerve-wracking, but then, on about the third or fourth flight, I started to figure it out. Now, it is easy, as long as the weather cooperates. I have a small Mavic Mini that weighs in at a hefty 249 grams. That is a little under 9 ounces or about the size of a medium- to large-sized apple. While small, it does an amazing job and takes 12 mfp photos and 1080 p video, but it struggles a little in strong winds. But for less than \$500, you can get a great little drone that works just right for what we do as home inspectors. The larger drones do better in stronger winds, but also tend to have shorter battery life. Our Mavic Mini has about a 30-minute flight time with each battery. We have three batteries, so that is more than enough time. One battery change can usually get us through two or three homes. It takes about three to five minutes to set up the drone and then about five minutes to look at the roof on a typical home. Much quicker than setting up a ladder and walking a roof.

I feel that drones will continue to serve a growing need and purpose in our profession—not only do they make our job a little easier, they make it safer by reducing the risk we take when we get on a roof. For as long as I can recall, every year it seems that we have a couple home inspectors who have accidents with ladders and roofs; some are severely injured and some do not make it back home. Hopefully, the use of drones will help change this in our profession.

RICK SAYERS

Informed Inspection, Inc. Trenton (near Gainesville), Florida

www.informedinspection.com

Recently, I did a ride-along in Jacksonville, FL, with the director of training from a firm with eight inspectors. Watching him do an effective roof inspection on a two-story home convinced me I can improve my service to my customers by incorporating a drone into my process. All eight inspectors are licensed drone pilots. The drone was a Mavic Pro and the pictures were outstanding. No more high roofs for me, too old to risk working high up. I'm now training to use my new Mavic Pro.

JASON A. SOBOL

Pheasant Hill Home Inspections, Inc. Framingham, Massachusetts

www.pheasanthillhi.com

Favor them or not, drones are the best new tool to hit our business in a long time.

Drones are here and here to stay. But I would guess that fewer than 25% of home inspectors nationwide have and use a drone as one more tool in their tool bag. Those of us currently using drones know that drones not only add value to our business, but help distinguish us from our competition. Real estate agents and clients feel the "coolness" when the drone comes out and see it as a nice surprise addition to the inspection. That sizzle will not last as drones start literally popping up everywhere and become more widespread in our industry. The "safety and liability" argument against the use of drones fails poorly when compared to the safety and liability of walking a roof. Can an inspector inspect 95% of roofs from the ground, on a ladder and from upper floors? Sure. Then keep the drone in the trunk. But how about inspecting the chimney crown? Not so easy. Then take it out of the trunk. You can go from making the call during an inspection to having it in the air in four to six minutes.

Those who might argue that the use of a drone exceeds the ASHI Standard of Practice also probably have no use for an infrared camera. It's totally your call and your business.

Get out in front of the curve. The investment (both in getting up to speed as a pilot in command and FAA part 107 certified) is really quite reasonable. The investment in a decent aircraft can start at much less than \$1,000. Drone liability will add a little to your annual premium.

Did I mention they're also fun? As with anything, if you don't know how to use it comfortably and safely, don't mess with it. And don't try it with an \$89 model.

On the other hand, please disregard everything you just read. I don't recommend anyone else becoming a drone pilot—it keeps the rest of us as the trendsetters. Just my two cents.

Continued on Page 46.



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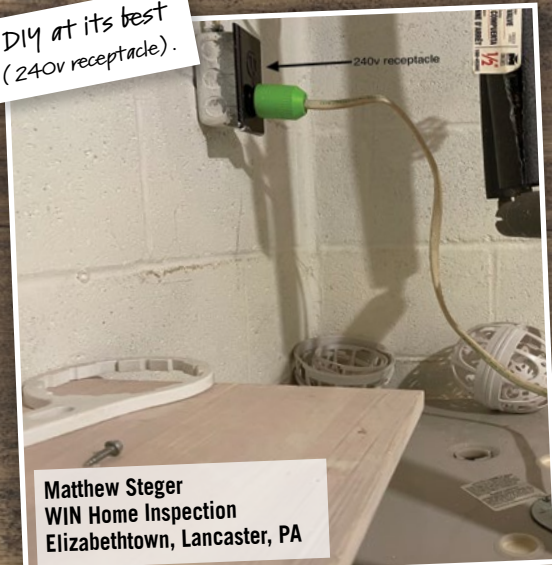
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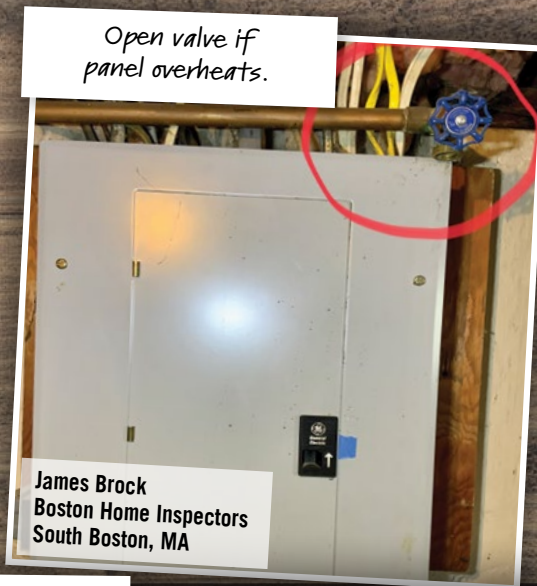
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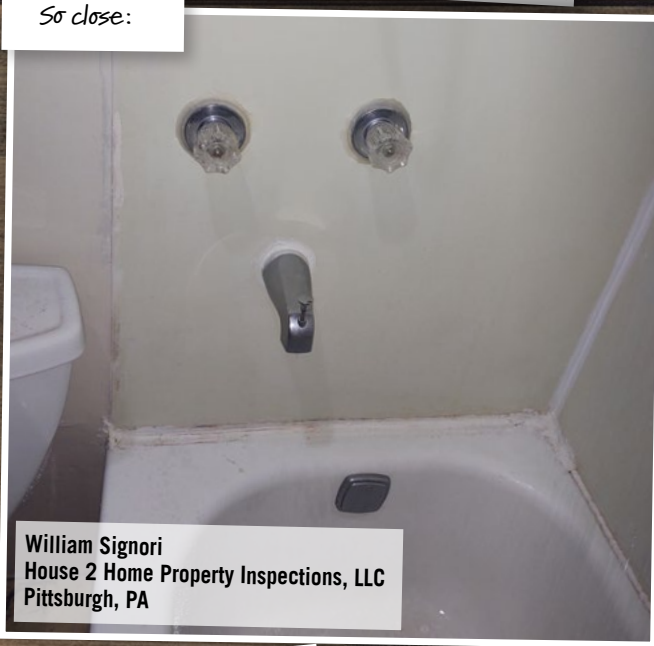
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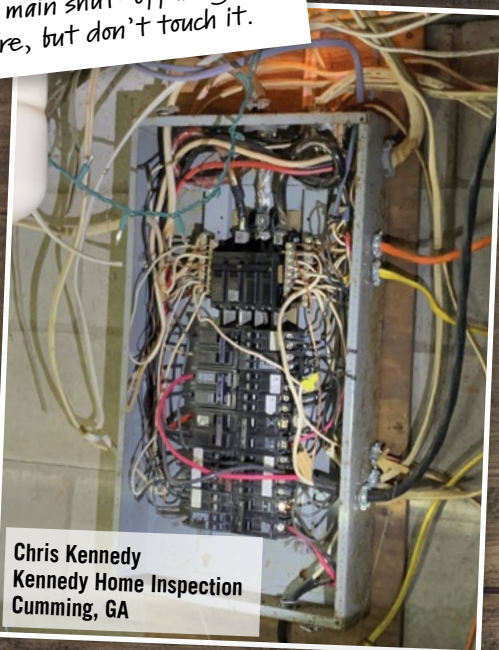
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Chris Kennedy
Kennedy Home Inspection
Cumming, GA

The agent said, "Look, they even have a fire pit in the cellar."



Brent Booker
Dovetail Home Inspection
Charlton, MA

Really, it's just upside down.



James Brock
Boston Home Inspectors
South Boston, MA

Must have been quite a party!



James Brock
Boston Home Inspectors
South Boston, MA

Manually activated "ceiling fan."



Stephen P. Tyler
STAT Home Inspections
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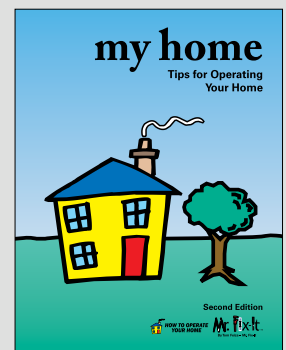
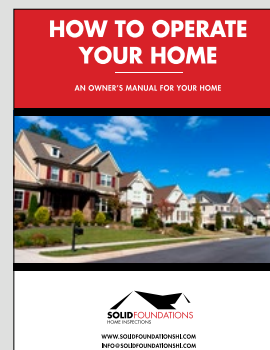
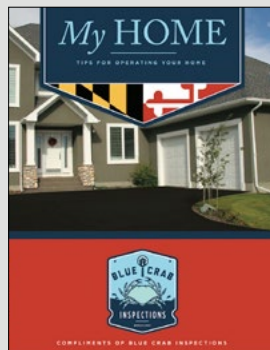
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Continued from Page 39.

**MATTHEW STEGER****WIN Home Inspection,
Elizabethtown and Lancaster, PA**<https://elizabethtown.wini.com/>

I have been using a drone in my inspections since around 2015. When FAA regulations related to licensing came about, I registered my drone and took the exam to get my FAA part 107 license. I follow FAA regulations, including getting clearance (approval) using LAANC, before flying in controlled airspace. Approaching 50 years old and inspecting homes for nearly 20 years, it's not as easy for me to climb a ladder two stories now. Having a drone for roof inspections helps keep me safe and my feet on the ground, yet it allows me to see and inspect the roof. The drone also gets me closer to areas of the home that are well above grade that I couldn't easily see from the ground, a lower roof or even windows such as upper siding and trim. I agree that walking a roof is sometimes the best way to inspect it, but in many cases (e.g., three-story roofs, flat roofs, steep roofs of any height, wet or dew-covered roofs), trying to walk a roof is not always safe. I feel a drone gets me to where I need to take photos or videos to document a roof's condition.

JERRY SWEANY**Maui360 Inspections LLC, Kihei, HI**www.maui360inspections.com

I think drone usage is very helpful for safety. I wish we could all use them without a commercial license. Those who are using without a license have an unfair advantage on those who have not been able to acquire one. Many inspectors are misinformed about the license needed for all drones, regardless of size, for a professional inspection where you get paid for your services.

**TODD THUSS,****Integra Inspection Services, LLC,
Madison, AL**www.integrainspect.com

I do favor having a drone in my toolkit. One of Integra's taglines is "Every Roof, Every Time," crafted to set myself apart from local inspectors who view roofs from the ground only.

My first preference is to walk the roof. But sometimes it's just plain unsafe or would require dealing with my heavy extension ladders. I usually can tell from pictures of the home whether I'll be able to safely access the roof or not. If not, I bring the drone. Surprisingly, the drone winds up getting used just three or four times a year.

The drone usage is costly. It takes time to prepare it, unpack and pack it up, and review the footage. Just flying it brings additional stress from fear of getting it caught in a tree, damaging property or ticking off a nosy neighbor. Because of this additional overhead, I often wind up pushing myself to walk roofs that I have no business climbing safely. I am convinced I really should be using the drone more.

Even with an optical zoom and 4K resolution, the drone is just not the same as being on the roof. Often, I can't see small defects such as exposed nail heads or small flashing problems until I review the footage at home with a big monitor. Even then, it's easy to miss things. However, the drone has permitted me to find gross defects such as missing shingles in places that would be impossible to see from the ground.

So, yes, I'm glad to have this ability, even if as a last resort.

Patrick Woodward**Truss Home Inspection Services LLC,
Fredericksburg, VA**www.trusshomeinspect.com

I have been using a drone since June and it has saved me more times than I would like to admit. Now, I don't just fly a drone for every home, I fly a drone on roofs I could otherwise not walk. I always will walk portions of the roof that I can and fly the portions that I cannot. With the drone, you must go in all attics and walk all portions of the roof that you can.

Stuart Zwang**Home Raters Inc., Highland Park, IL**www.homeraters.com

I read the article about drones in the October 2020 issue of the *ASHI Reporter*. I want to agree that drones are super sexy. On the other hand, I have been playing (and "playing" is indeed the correct word) with drones for about 10 years.

The first thing I discovered is that, at the time, they were expensive. I wasted (and again, "wasted" is the correct word) about \$4,000. This included all the equipment, cases, batteries, chargers, parts, etc. I discovered that the equipment was unreliable. I spent more money on repairs and time chasing down fallen equipment and finding service.

Then I discovered that you could not use the equipment in high winds, rainstorms, etc.

Over 95% of the houses that I viewed did not even require the use of drones.

There were places such as a two-story flat roof, without a roof scuttle, which would seem to invite the use of a drone. The problem is that there is no substitute for "boots on the ground" (or "on a roof," in this case). A drone cannot tell you that there are soft spots on the roof deck or vapor blisters in the membrane. It cannot get you the information you need on the A/C if there is a compressor on the roof.

By the way, in the two-story without a roof hatch, I simply call it a design defect, suggest adding a Bilco hatch or an exterior built-in ladder and let the purchaser know that I gave it the good old college try.

Again, I think that the concept of a drone is great. Unfortunately, the practical aspect of a drone is almost nil.



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