

CRAWL BOTS FOR HOME INSPECTORS: ARE THEY WORTH THE INVESTMENT? P6

A LETTER FROM THE NEW PRESIDENT P12

WHAT YOU DON'T KNOW ABOUT SMART HOMES PIG

FEBRUARY 2022

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FEATURES				
6	Crawl Bots for Home Inspectors: Are they worth the investment? By Alyssa Cink, Content Marketing Specialist, InspectorPro Insurance			
<i>12</i>	A Letter from the New President By John Wessling			
14	Brief History of Pipes By Tom Feiza, Mr. Fix-It, Inc.			
16	What You Don't Know About Smart Homes By Mark Goodman, Brewer Inspections Services and ASHI Director			
22	ASHI Edge: A New Era of Education By Chris Karczewski, Content Manager			
30	Postcards From the Field			

It's wacky out there.



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To set and promote standards for property inspections and to provide the educational programs needed to achieve excellence in the profession and to meet the needs of our members.

OFFICERS

John Wessling, President St. Louis, MO, 314-520-1103 john@wesslinginspections.com

Lisa Alajajian Giroux, President-Elect Milford, MA, 508-292-2635 homequest1@comcast.net

Bronson Anderson, Treasurer Waynesboro, VA, 540-932-7557 2inspect4u@gmail.com

DIRECTORS

Robert Claus 2022-2024 Naperville, IL, 630-420-9900 robclaus@brickkicker.com

Mark Goodman 2020-2022 Manchester, MO, 636-391-0091 mark@homeinspectstl.com

Robert Guyer 2022-2024 Eagle, ID, 805-501-0733 GuyerInspections@icloud.com

Doug Johnson 2020-2022 Mobile, AL, 251-295-7254 inspectmobile@gmail.com

Scott Johnson 2020-2022 Marietta, GA, 800-285-3001 whpis@me.com

Publisher: James Thomas Editor: Laura Rote Art Director: Juraj Ilavsky

American Society of Home Inspectors, Inc. 932 Lee Street, Suite 101 Des Plaines, IL 60016 Steve Cross, Secretary Ortonville MI, 248-342-4205 crossinspectionservices@gmail.com

Bruce Barker, Immediate Past *President* Cary, NC, 919-322-4491 bruce@dreamhomeconsultants.com

Jeffrey Leighton 2021-2023 Scarborough, ME, 207-650-8653 jeffrey.leighton54@gmail.com

Kyle Rodgers 2021-2023 Siloam Springs, AR, 479-599-9314 kyle@aplus-inspection.com

Vince Tecce 2021-2023 Yardley, PA, 215-527-5710 bioavince@gmail.com

Jim Vaughn 2020-2022 Arlington, VA, 703-675-5452 jim@homeauthority.biz

Questions, Comments and Article Submissions Email: editor@ashi.org

Advertising: Marianne Sackett Phone: 847-954-3187 Email: communications@ashi.org

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ASHI STAFF

Main Phone: 847-759-2820, 8:30 am - 5:00 pm Monday - Friday, CT

EXECUTIVE DIRECTOR

James Thomas, Executive Director 847-954-3182, jamest@ashi.org

REPORTER EDITOR Laura Rote, editor@ashi.org

MEMBERSHIP SERVICES

Susan Lane, Director of Membership 847-954-3185, susanl@ashi.org

Michael Krauszowski, Membership Advancement and Services Administrator 847-954-3175, michaelk@ashi.org

Danielle Rayhart, Membership Service Administrator 847-954-3180, danieller@ashi.org

Rose Stanfa, Membership Service Associate 847-954-3176, roses@ashi.org

EDUCATION AND EVENTS

Edwin Barrera, Director of Education and Curriculum Development 847-954-3188, edwinb@ashi.org

Michelle Santiago, The ASHI School Education Manager 847-954-3198, michelle@theashischool.com

Angela Hall, Instructional Designer 847-954-3194, angelah@ashi.org

Carrie Maddox, *Instructional Designer* 847-954-3191, carriem@ashi.org

Jazz Schools, Educational Administrator 847-954-3181, jazzs@ashi.org

Stefanie Willis, Curriculum — Technical Writer stefaniew@ashi.org

FINANCIAL SERVICES

Tim Buell, Financial Services Director and ASHI President 2018 614-746-7485, timb@ashi.org

Alicia McCray, Financial Services Administrator 847-954-3184, aliciam@ashi.org

STRATEGIC COMMUNICATIONS AND MARKETING

Marianne Sackett, Director of Communications 847-954-3187, mariannes@ashi.org

Juraj Ilavsky, Art Director 847-759-2820, georgei@ashi.org

Chris Karczewski, Content Manager 847-954-3183, chrisk@ashi.org

Rose Buckley, Inspection Connection Podcast Host roseb@ashi.org

Frank Lesh, ASHI Ambassador 847-954-3197, frankl@ashi.org

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Managing Risk CRAWL BOTS FOR HOME INSPECTORS: ARE THEY WORTH THE INVESTMENT?

By Alyssa Cink, Content Marketing Specialist, InspectorPro Insurance

Alyssa Cink is a content marketing specialist 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.

THIS TECHNOLOGY HAS A DECADES-LONG
HISTORY IN OTHER FIELDS, SUCH AS SPACE,
AGRICULTURE, MINING, EMERGENCY
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Note: The Managing Risk column with InspectorPro Insurance provides home inspectors with tips to protect their businesses against insurance claims, craft effective pre-inspection agreements, offer additional inspection services, and use new tools and equipment.

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.

rawl spaces aren't exactly the highlight of a home inspector's day. Stuffy, cramped, and poorly lit, these areas present a significant challenge. In fact, with some inspectors reporting hazards such as animals, exposed wiring, and toxins like mold and sewage, crawl spaces can be more than uncomfortable. They can be dangerous.

It isn't surprising, then, that many home inspectors want to find an easier way to examine these spaces. The crawl space robot has emerged, and, like any new tool, has brought with it a storm of questions. In this article, we address the advantages and disadvantages of using a crawl bot to help you decide if this technology is right for your business. We also offer suggestions for mitigating your risk while using a crawl bot.

WHY HOME INSPECTORS USE CRAWL BOTS

Crawl space robots, also known as crawl bots or crawlers, are remote-operated, unmanned ground vehicles (UGVs) designed to capture photos and videos in otherwise inaccessible crawl spaces. Although newer to the inspection industry, this technology has a decades-long history in other fields, such as space, agriculture, mining, emergency response, and military.

When asked why they use robots to perform crawl space inspections, the home inspectors we interviewed shared the following reasons:

1. THEY WANTED TO PERFORM MORE CRAWL SPACE INSPECTIONS.

Certain limitations—like narrow entrances, dangerous or disease-carrying animals, and signs of airborne toxins may prevent an inspector from personally inspecting crawl spaces. Thus, inspectors may worry about providing an incomplete service.

That concern is exactly why inspectors like Morgan Blau of Roof To Floor Home Inspection in Texas choose to invest in crawl bots. Between him and the bot, he rarely encounters a crawl space he can't access. This allows him to provide more thorough and consistent inspections.

"I try to provide the best service possible, as long as I am safe," Blau said. "With the bot, I can get into more places." Todd Thuss of Integra Inspection Services in Alabama felt a similar motive. In the rare situations where he couldn't enter a crawl space, he wondered about any defects or issues he may have missed by not inspecting it. He hoped a crawl bot would ease these concerns.

"THERE WERE JUST SOME CRAWL SPACES EVEN A SMALL GUY LIKE ME COULDN'T FIT IN," THUSS SAID. "I WAS WORRIED: WHAT COULD I HAVE OVERLOOKED? WHAT LINGERING PROBLEMS WERE BACK THERE I JUST COULDN'T SEE? I DON'T LIKE DISCLAIMING THINGS [WHEN I DON'T HAVE TO]. IT JUST GOES AGAINST THE GRAIN."

2. THEY WANTED TO REDUCE EXPOSURE TO HARM.

Another reason for using a crawl bot is to reduce your direct exposure to uncomfortable and hazardous environments. For example, if wet crawl spaces or dangerous snakes are more common in your inspection region, you may prefer to observe these hazards from a distance without skipping the crawl space altogether.

"In this part of the country, [crawl spaces are] almost always wet and moldy. They're not healthy places," Thuss said. "But it's such a critical place to inspect, and it's really a locus of a lot of the problems that I see."

Thuss also appreciates that he can easily disinfect his bot. Rather than worrying about his personal protective equipment (PPE) spreading crawl space toxins on site or in his home, Thuss minimizes potential harm by cleaning his bot after using it to inspect the space.

3. THEY WANTED A MORE EFFICIENT WAY TO PERFORM CRAWL SPACE INSPECTIONS.

Navigating a crawl space requires lots of multitasking. In addition to documenting observations and looking for safety concerns, you must do so while crawling on hands, knees, or elbows in tight spaces and extreme temperatures.

Thuss wanted a solution that would allow him to reach more of a crawl space, and more comfortably.

"[CRAWL SPACES] CAN BE PHYSICALLY DEMANDING. THE IMPETUS WAS THERE FOR ME TO TRY TO FIND A BETTER WAY," HE SAID. "THE MACHINE ... CAN REALLY COVER SOME GROUND PRETTY QUICKLY."

Crawl bots can also assist in providing higher quality footage with 360-degree view cameras, bright lights, and the ability to take pictures with an uninterrupted video feed. Although an added convenience for some, these features may introduce more issues than advantages for other inspectors.

WHY INSPECTORS CHOOSE NOT TO USE CRAWL BOTS

Crawlers are not ideal for every home inspector. They're a newly emerging technology, and they don't have tried and tested models or years of research to fall back on. For many in the industry, the benefits of using a crawl bot do not outweigh the potential costs.

1. CRAWL BOTS CAN BE EXPENSIVE.

When it comes to crawlers, price is one of the most common reservations inspectors have. That's because high-end bots, much like drones, can be expensive to purchase and replace. This can be particularly true if the inspector rarely uses it.

"I think a crawl bot is worth it for an owner-operator as a market differentiator. But it may not be a useful tool for most inspectors," said Mike Leggett of The BrickKicker in Georgia. "They are expensive, and I could see them being one of those tools that sits in your truck and has a dead battery the day you actually need it."

The average crawler ranges from \$70 to \$100 on the lower end and \$3,000 to \$5,000 on the higher end. Expense largely depends on whether you purchase a base model or a ready-to-ship crawler and how advanced the bot's features are.

For inspectors with a knack for hardware, building from a base model is a great option. By purchasing a pre-made platform and customizing it yourself, you can build to your preferences and save money. Alternatively, ready-toship crawl space bots come ready to use and don't require the technical skills to assemble. For many inspectors, that convenience is worth the hefty price tag.

Footage storage, too, can be expensive. Depending on how long you run your crawler during a given inspection, the video files may be large, and your computer may be unable to store the footage for extended periods of time. Thus, you may need to invest in additional storage solutions, such as external hard drives or cloud storage.

Once recorded and stored, how long should you keep your crawl bot footage? Claims professionals urge home inspectors to keep inspection assets—including videos for a minimum of five years.

2. THE TECHNOLOGY HAS TOO MANY LIMITATIONS.

Another common reservation is that UGV technology is not advanced enough to navigate crawl spaces reliably or to gather the information needed for a thorough report. Inspectors like Gary Youness of House to Home Complete Structure & Property Inspections in Michigan argue that bots are likely to get stuck while attempting to cross obstacles like large pipes, debris, or ledges. Chuck Lambert of Sunrise Inspection Services in California agrees, adding that operating the bot in reverse can exacerbate inspectors' vulnerability to obstructions.

"As the vehicle is moving away from you, everything's fine. But when it starts moving toward you, everything's reversed. A lot of people don't realize that, and that's how they get tangled up with the cables, the wires underneath the building, [and from] crawling over plumbing pipes," Lambert said.

Additionally, bots may lose signal or have limited vantage points, requiring home inspectors to either disclaim the area or crawl the space themselves.

3. INSPECTORS DO A BETTER JOB.

Many inspectors also make the point that crawl bots cannot, and should not, replace an in-person crawl space inspection.

"I like the idea [of crawl bots]. But being able to really look around and poke at stuff makes a world of difference to knowing and understanding what is going on under the house," said David Fields of the Pillar To Post Fields Team in Georgia.

John Wagner of House to Home Inspections in Washington State has similar concerns.

"UNTIL A CRAWL BOT CAN PULL ASIDE INSULATION UNDER THE TOILET, YOU STILL HAVE TO GO DOWN THERE. SO, IT PROBABLY ISN'T WORTH THE INVESTMENT," WAGNER SAID.

LIMITING YOUR LIABILITY

Since crawlers are newer in the inspection industry, there isn't much claims data to definitively indicate best practices. However, based on risk management techniques for other types of claims, we can provide some educated guidance on how to use crawl bots safely.

INSPECT THE CRAWL SPACE YOURSELF WHENEVER FEASIBLE.

Before sending in your crawl bot, scan the area and determine if the terrain will be appropriate, Thuss recommends. And don't allow the bot to replace your presence. Strive to enter the crawl space yourself whenever possible, as the bot could miss important defects.

"You have to be cautious about your own limitations. Because when you're down there [in person], you can see a fairly wide field of view," Thuss explained. "It's not going to be as easy with these machines."

Bots don't possess the ability to hear running water or burning electrical systems. Nor can they smell potential hazards like gas leaks. Plus, Lambert noted, if an expensive crawler gets stuck or the batteries die, it may be challenging to retrieve it. Either way, he would still have to worry about performing the crawl himself. And the likelihood of the bot becoming stuck may increase for inspectors with less experience operating remote-controlled (RC) cars in challenging environments.

If you're unable to access the crawl space, document that in your report. Cite the reason why you were unable to inspect, and, whenever possible, take a photo to prove it. In case a claim does arise later, you need your report to clearly state what you could or couldn't see on the day of the inspection.

PRACTICE AND PREPARE.

The inspectors we interviewed recommend preparing your equipment ahead of time. Charge and pack extra batteries the night before. If you haven't used many RC or UGV tools in the past, consider practicing in your own, friends', and families' homes until you're familiar with the controls. And, as other inspectors have said, remember that this technology is not perfect. It won't catch everything, and you won't be able to use it for every crawl space.

"IT'S ALL ABOUT ... TRYING TO KEEP THE CLAIMS TO AN AB-SOLUTE MINIMUM AND DOING THE ABSOLUTE BEST JOB. I THINK THIS IS A GREAT EXAM-PLE OF HOW TECHNOLOGY CAN HELP A LITTLE BIT WITH THAT," THUSS SAID. "BUT IT'S LIKE ANY-THING; UNFORTUNATELY, IT'S NOT 100%."

DON'T RELEASE THE FOOTAGE TO CLIENTS.

A crawler can only record what its cameras are facing. As a result, they may provide an incomplete picture of what you're seeing. Without your insight, your client may not be able to contextualize the footage.

Additionally, you're not perfect. Even the best inspectors can make mistakes. If your crawl bot captures an issue you missed, it could be used against you in a court of law. And there's nothing you can put in your pre-inspection agreement to prevent clients from using your own footage against you.

While the footage would be discoverable—or usable—in litigation, you're not required to share the footage unless you're getting sued. Thus, we recommend not releasing the footage to clients unless you're required to as part of a lawsuit.

If you do include the footage in your report, we recommend narrating the footage. This way, your clients will have context to what you're seeing and doing. Also, make sure that you review the video post-inspection. A review will give you a second chance to see something you might have missed.

ADD EQUIPMENT COVERAGE TO YOUR INSURANCE POLICY. Formally known as inland marine coverage or a commercial property floater, equipment coverage insures your

inspection tools and equipment—like your crawl bot. Many equipment insurance policies cover physical loss or damage caused by perils, such as falling objects, fire, sinkhole collapse, vandalism, vehicles, and water damage.

Unlike standard property insurance, equipment coverage protects your tools and equipment regardless of their location. This is important since, rather than housing your bot in an office, you're driving it during inspections.

Often, equipment coverage for home inspectors reimburses you for the actual cash value (not the cost of brand-new items) of your stolen or damaged equipment or tools. Oftentimes, coverage extends to not just items you own but items you lease or rent.

USING BOTS FOR CRAWL SPACE INSPECTIONS

Do you encounter many inaccessible crawl spaces in your area? And do you still want to provide clients with a thorough inspection when the crawl space is inaccessible?

If you answered "yes" to any of these questions, then it may be time for your company to invest in a crawl space robot.

A LETTER FROM THE NEW PRESIDENT

By John Wessling

ASHI Certified Inspector, Instructor for The ASHI School and 2014 President of St. Louis ASHI, ASHI Treasurer 2020, President–Elect 2021, ASHI President 2022

Looking back at my journey to become ASHI President, I can only say—Wow! It seems like only yesterday that I took the leap to be a home inspector.

I remember very well the day when one of my mentors threatened to give me a swift kick and said, "You need to start booking your own inspections. You know this stuff!" At the time I could only think, "Who, me? You have to be kidding. I'm too new to the world of home inspections."

ASHI PRESIDENT

ou see, like many of us, I was transitioning from another profession. I'd spent years working with a commercial/industrial sales background, spending many days and evenings in rail yards and power plants. For several years I worked in the overhead door market. I sold doors ranging from your typical entry door all the way up to the rolling steel doors that are big enough to span three tracks of railroad cars delivering materials used by a local brewery.

So how could I know enough to inspect? What if I missed something? How would I find clients? How would I survive starting my own company? And what about the peaks and valleys of the real estate market? I had all these questions in the back of my mind, but my mentor was right. It was time. I was ready. I haven't looked back since.

So, how did I get started? The answer is somewhat simple working both hard and smart. I went out of my way to accommodate client and agent requests for weekend or after-hour meetings. I attended as many neighborhood events as possible, and I used that vast network of neighborhood groups to my advantage. The more people who knew me, the greater chance for opportunity.

I built skills and a good reputation by volunteering with nonprofits like Rebuilding Together, assisting with their needs as team captain and home evaluator.

This volunteer participation not only allowed me the opportunity to hone my skills as an inspector but also to become a more effective communicator. I had to describe the conditions of the home I was evaluating, both to the owner and the organization. It didn't hurt that along the way I also gained experience looking at turn-of-the-century homes with steam heat and hidden stairs. I soon became a member of my local ASHI Chapter and the Missouri Association of Building Inspectors and Officials. When I showed interest by stepping forward and volunteering, members took me under their wings to broaden my knowledge. It was in this way that I became aware of a wonderful resource called mentoring. Mentorship is a personal development relationship in which a more experienced or knowledgeable person helps to guide a less experienced or less knowledgeable person.

Mentoring is valuable for all of us, regardless of our level of expertise. We can all share knowledge, and we can all always learn something new. When was the last time you shared some wisdom with another inspector?

With my growing involvement I met more home inspectors. The more I met, the more I wanted to meet. It's amazing the wealth of knowledge and camaraderie in the profession. True, many of us are competitors, but the community as a whole is generally friendly and cares about the individual. I have seen this countless times through the assistance given to a sick or injured inspector and in the stories and business experience shared at roundtables and educational events. I encourage each of you to take advantage of the many educational events held throughout our industry.

I mustn't fail to give an essential shout-out to our volunteers. Thank you for your work to support ASHI. Without all your efforts, ASHI would not be the organization it is today.

Please feel free to reach me at wesslingjohn2@gmail.com with any questions.

I look forward to meeting you at upcoming events!

John Wessling President 2022

PS. Thanks Don, Paul, and Dave for the encouragement I needed all those years ago.

SMART INSPECTOR SCIENCE A BRIEF HISTORY OF PIPES

PLUMBING SYSTEMS ARE CERTAINLY AN IMPORTANT PART OF HOME INSPECTIONS.

Have you ever considered how plumbing and water supply systems were developed? Knowing about these changes through the years sheds light on some terms and practices still used today.

PIPES IN ANCIENT HISTORY

Lead was one of the earliest successful pipe materials because it could be shaped into various forms. The word plumbing is derived from the Latin word for lead, plumbum, as lead pipes were developed in the Roman era.

EARLY PLUMBING IN THE US

About 1850, the first piping systems in the US were developed in large East Coast cities to provide water for firefighting. Hollowed-out logs were connected with tapered joints. Some wood pipes were made with staves like those in a wooden barrel.

Photo 1. Hollowed-out Log Pipes

Photo 1 shows typical bored logs once used as water mains. Photo 2 shows a water main made of elm logs.

THE LARGER-DIAMETER MAIN TREE TRUNK BECAME KNOWN AS THE WATER MAIN, AND SMALLER LIMBS WERE KNOWN AS BRANCHES—JUST LIKE THEIR CURRENT NAMES IN PLUMBING APPLICATIONS.

Photo 2. Main and Branch Wood Pipes

FIREFIGHTERS FIGHTING EACH OTHER

Firefighters would race to the scene, expose the wooden water main, and connect their hand pumper to a hole bored in the main. Once the firefighters stopped pumping, they plugged the hole with wood—thus the term fireplug. Remnants of wooden water mains are still being discovered today, more than 170 years later.

In cities like Boston and New York, rival groups of amateur fire companies would race to be the first on the scene. Some were so competitive they brawled with each other while the fire was burning.

PLUMBING IN THE 20TH CENTURY

Initially, indoor plumbing was available only to the wealthy. Piping was made of lead, cast iron, brass, or steel. In 1920, only 1% of homes in the US had electricity and indoor plumbing. After codes and standards were developed in the 1930s to '40s, most homes were built with plumbing systems. Similar codes are still in use.

Photo 3. Tub in 1900 Mansion

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Tom Feiza has been a professional home inspector since 1992 and has a degree in engineering. Through HowToOperateYourHome.com, he provides high-quality books and 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 3 shows bathtub plumbing in a mansion built about 1900 in Newport, Rhode Island. The tub was carved from a piece of solid marble. The pipes are either steel or cast iron. Notice the four control valves: This tub was supplied with hot and cold fresh water as well as hot and cold saltwater from the ocean.

Photo 4 shows a sink vanity that served a home built in 1900 in Bath, Maine. Note the beautiful lead drain line and drum trap. The lead supply line to the fixture has now been fitted to "new" steel piping. This sink was not in use when I visited in 2010.

MATERIALS IN TODAY'S PLUMBING

Water piping has evolved from wood, lead, cast iron, and steel to ductile iron, fiber conduit (Orangeburg), concrete, copper, galvanized steel, and even asbestos piping.

TODAY WE ALSO SEE GALVANIZED IRON, PVC, CPVC, ABS, PEX, AND A WHOLE ALPHABET OF OTHER SYN-THETIC MATERIALS. SOME OF THESE MATERIALS HAVE HAD MAJOR ISSUES OVER TIME.

Water Distribution to Home with Crawl Space

Illustration P084C Water Distribution to Home with Crawl Space

THE TAKEAWAY

Residential piping/plumbing varies according to available material, cost, and labor. As home inspectors, we need to be aware of both old and new materials and their various traits/failures. These factors will affect our findings and reporting during an inspection.

To learn more, attend Tom's technical presentations at educational sessions for ASHI chapters and local groups. Tom can also provide his knowledge for your educational event; contact him at Tom@htoyh.com.

Mark Goodman has been a professional home inspector since 2014 and is a Missouri SAVE Inspector. Prior to that, Mark owned and operated a successful general contracting and consulting firm and worked in the building materials and SCUBA diving industries. Mark is also the St. Louis chapter's website and technology chair.

n 1962, The *Jetsons* aired as a comical view of the future with their smart home. In 1966 Americans first viewed *Star Trek*; most of its tech has since become a reality. Since then many TV series and major movie productions have featured futuristic homes, including Tony Stark's mansion in *Iron Man* and the smart home in *I.T.* (2016). Smart homes were once things dreamed up by Hollywood, but today the future has arrived complete with voice assistants and thousands of mainstream smart devices.

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A smart home is defined as "building automation for a home," and such a system will monitor and/or control home attributes such as lighting, climate, entertainment systems, and appliances.

> Now almost every home has smart devices and a myriad of appliances that communicate with the Internet. Even if you don't have a smart home, you likely have a connected home. Some homes may only have a few pieces of smart tech, while others contain a boatload of switches, outlets, sensors, cameras, and other gadgets. Homes with many devices may require a central hub to control, manage, and monitor technology throughout the house. Without a central hub, you likely need numerous apps to operate all of the devices in the home. Some of these systems can even double as a home security system.

> For the professional home inspector, inspecting smart homes can be challenging. These homes are equipped with more state-of-theart smart tech than traditional ones. While it is unlikely you can thoroughly inspect smart home tech on your own right now, it may still be important to learn about this tech and understand popular devices like voice assistants, smart locks, smart switches, smart thermostats, and video doorbells. We should expect an upward trend of smart technology in the home as it becomes even more prevalent. This tech will likely become standard in new construction.

Home Inspector Resources

WHAT IS A SMART HOME?

Wikipedia defines a smart home as "building automation for a home," saying that such a system will monitor and/or control home attributes such as lighting, climate, entertainment systems, and appliances. It may also include home security like access control and alarm systems. When connected with the Internet, home devices are an important constituent of the Internet of Things (IoT)."

A home automation system typically connects controlled devices to a central smart home hub (sometimes called a gateway). The user interface for control of the system can be an app, phone, computer, possibly by a control panel, dashboard, or web interface. The hub is merely a hardware or software device that connects the devices to communicate with the end user.

Smart homes and home automation involves interconnecting a wide range of devices that function with the association of the Internet or a stand-alone local central control system. The smart home may have a mesh network utilizing a communication protocol, creating an efficient and energy-saving home. Smart home systems offer comfort, security, and convenience while allowing the homeowner to control a wide range of devices and appliances. These homes may include access control (door locks, overhead door openers, etc.), security systems, lighting controls, outlets, thermostats, sound systems, irrigation, water supply shut-off valves, and many other systems. Smart home users can access their home control products from mobile devices over the Internet or local controls. Imagine opening the front door and, depending on the time of day, the lights come on, music starts to play, and the news comes on the kitchen TV. Or it's the kid's bedtime, so the lights turn off in their bedroom, closet, and playroom, the sound machine turns on for 45 minutes, the hall lights dim to 10%, and you get an alert if they open the bedroom door. That's a simple version of automation—the possibilities in today's smart home are endless.

If you're wondering how many homes have smart devices, the smart home market is growing at a breakneck pace. The number of Al-centric houses globally is expected to surpass 375 million by 2024. How connected is your home? Look at your router to see how many devices are using the Internet, and that's before you factor in any smart devices.

As a home inspector, you may wonder how smart homes will impact home inspections. I don't think anyone knows the answer yet. Still, it will force the home inspector to evolve as intelligent tech becomes the standard in new home construction and existing homes are retrofitted. Imagine buying a home in 2026 with built-in voice and access controls.

ARE HOME INSPECTORS REQUIRED TO INSPECT SMART HOMES?

Home inspectors are not typically required to inspect low voltage systems, speakers, intercoms, security systems, automated or programmable control systems, remote controls, sensors, or smart home automation based on the SOP. However, the rules may vary depending on the state due to licensing, and state standards and will change over time.

If we are not typically required to inspect smart home components, you may ask, then why are we discussing smart homes? Smart devices and homes will inevitably affect home inspections; moreover, it is essential that we understand and can identify these devices so buyers are informed and know what they need to ask sellers. *Common uses for a smart switch can include voice control utilizing speakers like the Amazon Echo, Google Home, or Nest smart speaker.*

UNDERSTANDING COMPONENTS AND System identification

I will try to address the most popular devices; however, there are many we won't discuss.

SWITCHES

Before we discuss identifying smart switches, we must understand them and how they work.

Smart switches come in primarily two forms—wired and wireless. It may be a device that goes over a traditional switch, remote control with an RF transmitter and receiver, hard-wired, or wireless device that replaces a conventional switch or dimmer. Sometimes a magnetic switch will be used as a switch or control. Or there may be a relay tucked into an electrical box behind a light fixture.

Many smart switches or dimmers work just like regular switches with new ways to control your lighting systems within the home. The new ways may include voice control, a dedicated app, dashboard, or tablet connected through your home Wi-Fi network, allowing you to control your switches anywhere. Some switches only dim or turn lights on and off. In contrast, others, like Inovelli switches and dimmers, can do much more—including lighting scene controls, multiple notifications, and even energy usage monitoring. Most require a neutral wire, but some do not.

Common uses for a smart switch can include voice control utilizing speakers like the Amazon Echo, Google Home, or Nest smart speaker. Creation of scene lighting, routines to control lighting and other devices, time-based schedules to turn your lights on or off, or complex event-based automation all utilize many smart devices.

Identifying a smart switch may be as simple as seeing a Wi-Fi or Bluetooth logo engraved in the switch. A blue or green LED can sometimes be an indicator.

When using the switch, you may hear a relay, and there may be a delay or slower response time between turning on the switch and when the light comes on. Beware that if you hear a relay, it may be the switch itself or a microswitch tucked into the electrical box. Of course, one of the most accurate methods to determine what type of switch is present is to remove the switch plate and switch, but that is typically something home inspectors do not do.

OUTLETS

Smart outlets are less complicated to identify than smart switches. Smart outlets come in two forms—a plug-in smart adapter or one that replaces an ordinary outlet. Many of these outlets have a physical on and off switch built in, switching one-half of the duplex outlet. Some have an LED and a micro switch, while others have a push-button on-off switch. Like switches, another device can control smart outlets as part of automation.

Other smart devices you may run across include smart water shut-offs, thermostats, window treatments, 4-in-1 sensors (controls and monitors temperature, light, motion, and humidity), access controls (locks), security systems, sound systems, irrigation, and even smart mirrors and showerheads.

DOES THE SMART HOME HAVE A HUB?

For most people who have smart devices in their home, a dedicated smart-home hub is unnecessary. However, a smart-home hub can serve as the home's nerve center. It works as a proxy for smart devices like lights, outlets, thermostats, and sensors to communicate between the Internet, app, mobile phone, or other devices. It gives you the ability to create automation. A hub can be the difference between needing 15 apps to control everything in the house versus one. Unless all the devices strictly use Wi-Fi or the same communication protocol, each will need its own app without a hub or gateway.

Some manufacturers have proprietary echo systems and make their hubs. For example, if you've decided to use Lutron or Insteon devices, you'll need their hub, and then you'll need another for the other components.

The IoT that connects smart home devices like doorbells, lights, locks, security cameras, and thermostats has made it easy for anyone to install and use these gadgets in their homes. However, you still need some mechanism to control them. Some hubs may utilize a few protocols, but there isn't an all-in-one solution when using different protocols to control all the various smart home devices.

Numerous manufacturers came together in 2019, intending to create a universal smart home communication standard. Connectivity Standards Alliance has rebranded itself and evolved into the standard called Matter.

PROTOCOLS

X10 was developed in 1975 and is the oldest protocol designed for smart home products. It is still in use today, along with more than 15 other protocols.

When looking to create a smart home and implement automation, you should begin with the hub and decide on a primary communication protocol. However, since we are not discussing the creation of a smart home, we will be discussing protocols for information only. The communication protocol is the hub's method of communication used to control your devices. Unlike VHS versus BETA, the war of communication protocols has not been won yet.

Today there are multiple wired and wireless protocols with popular hubs, including Amazon Echo, Samsung SmartThings, Apple HomePod, Hubitat Elevation, Google Nest, Wink, Lutron, RadioRA Insteon Control4, Senled, Eero, and others. There's an impressive roster of thousands of smart home devices available. There are also a few high-end automation ecosystems like Control4. They say, "We connect smart devices to work in unison, delivering a truly intelligent smart home experience that makes life more convenient, safe, and enjoyable." Their individual operating system connects virtually all of the technology in your home and allows for the creation of complex automatons.

THE NEW COMMUNICATION STANDARD

Numerous manufacturers came together in 2019, intending to create a universal smart home communication standard. Connectivity Standards Alliance has rebranded itself and evolved into the standard called Matter. Matter hopes to solve the mishmash of smart home technology that uses incompatible protocols, brands, and devices.

The big-picture objective of Matter is to create a single standard that can unify the range of products and protocols, allowing one smart system to control every smart device in the home focusing on simplicity, interoperability, reliability, and security. But because Matter is still in development, the impact of the standard is unknown. If Amazon, Apple, and Google are onboard, it will likely achieve the consortium of manufacturers' objectives. If the new standard is successful, consumers will no longer need to worry about compatibility issues with smart home devices.

INSPECTING SMART DEVICES

The home inspector will never be able to inspect, test, and ensure the functionality of smart devices entirely. Access to apps, dashboards, and hubs would likely require a password to inspect and test these devices. For example, how often do home inspectors approach a thermostat like a NEST that requires a password to change the temperature, preventing the home inspector from testing the HVAC systems? Imagine the password requirement on steroids.

You can use a traditional key, code, e-key, and even geofencing to unlock smart access controls and locks. Smart locks may have codes that are not provided, preventing testing the full functionality. Without the programming codes, the new homeowner may not be able to change the lock codes after they move in.

Typically home inspectors can only test the basic mechanical features, like turning the light on or off, dimming the lights, and scene lighting, if specialized switches or control devices like an unlocked dashboard are present. We will never be able to test the remote ability by operating devices from an app. The home inspection industry will need to address the standard of practice with the evolution of smart homes.

Home inspectors will not be able to inspect or even determine what automation is present in a house. Since smart homes are generally connected homes, what happens to the home when a seller moves out and disconnects the Internet? The smart home and its high-tech integrations and automation will likely cease to function. If any hubs move with the previous owner, the programming that made things work will no longer exist.

Without the proper information, the devices throughout the house can be challenging to reprogram, and the automation is simply gone. If voice control was present when the previous owner took their Echo, all the automation is again gone, as it is connected to that person's Amazon and Echo accounts. Then a smart home may no longer be a smart home with a few minor exceptions. In fact, the new homeowner who thought they purchased a smart home has likely purchased a dumb home with smart devices until the new homeowner spends a considerable amount of time and money to put it back together.

SECURITY RISKS AND THREATS

Smart homes and connected homes present security issues as individual devices may not be secure. Many experts believe people shouldn't be thinking about what happens if they're hacked, but when.

Suppose the smart home network is not secure and on a different Wi-Fi network from the primary one (i.e., primary Wi-Fi and guest networks). In that case, your data could be vulnerable, and hackers could watch the usage patterns of devices within the home to determine when no one is home and even control some of the tech devices throughout the house. The new homeowner who thought they purchased a smart home has likely purchased a dumb home with smart devices until the new homeowner spends a considerable amount of time and money to put it back together.

ADVISING CLIENTS

New homeowners may not be able to access or utilize smart home devices and the devices' advanced features without the correct information. I suggest you provide the client with a list of questions like the following, or recommend they consult a smart home company to review the equipment and setup prior to the seller vacating the home.

- What devices are used in the home?
- Do you have a hub or hubs, and if so, what type, and will you be leaving it?
- Do any of the smart devices require monthly fees?
- Do I need passcodes to reprogram them, and will they be reset to the factory default settings?
- Are the devices wireless or hard-wired?
- Can you provide a list of the devices and where they are located?

DISCLAIMERS

Every home inspector has a slew of disclaimers when writing reports. Most attorneys recommend home inspectors disclaim things outside of the inspection's scope, components that you cannot fully test, and areas of the home that are inaccessible.

Home inspectors should also advise their clients to seek further review by the appropriate professional of any component or system you disclaim. Here is a sample of disclaimer you may want to use when inspecting a home with smart and connected devices if you don't have one already. Keep in mind this is just a suggestion, and I am not offering legal advice.

Smart and connected devices are not included as part of our inspection. These systems may include but not be limited to access control, audio systems and controls, specialized lighting controls and outlets, security systems and cameras, home automation, and other smart/connected devices. These systems may cease to function if some equipment is removed and without detailed information about the smart and connected devices throughout the home. We recommend review of these systems by a contractor specializing in smart connect homes and automation.

ASHI EDGE: A NEW ERA OF EDUCATION

By Chris Karczewski, Content Manager

n December 2021, the American Society of Home Inspectors (ASHI) launched its all-new online education platform: the ASHI Edge. The momentous endeavor was headed by ASHI's Director of Education Edwin Barrera and his skillful team in the education department.

With this new platform ASHI can provide top-level education opportunities to members and the home inspection profession to offer even more engaging and effective learning.

OUT WITH THE OLD

Before the ASHI Edge, the ASHI Online Learning Center (commonly referred to as the AOLC) was the hub for ASHI's online education for members to earn Continuing Education credits and stay on top of emerging trends in home inspection. When the AOLC first launched, it was a valuable option for members who could not attend as many live conferences and events as they wished while still allowing them to access the most crucial aspect of those events—education.

The AOLC served the association faithfully for years. However, between the launch of ASHI's updated website in the summer of 2020 and the continued global pandemic, there was a clear need for an updated platform that would allow ASHI to provide more comprehensive education backed by a new focus on the principles of adult learning. The 100+ most popular and highest rated courses from the AOLC have been migrated to the ASHI Edge.

IN WITH THE NEW

The ASHI Edge is more than just an updated platform to host educational courses. There are plenty of new features that provide a greater degree of accessibility and convenience to your educational experience. To start, accessing the ASHI Edge is a breeze with the new single sign-on feature, which allows you to quickly move between ASHI's main website and your ASHI Edge educational profile. Just like the AOLC before it, the ASHI Edge will continue to offer Continuing Education credits toward the association's requirements as well as state licensing requirements.

MY LEARNING DASHBOARD

The Learning Dashboard will be your central hub for your online education in the ASHI Edge. The Learning Dashboard will keep track of all of your current courses as well as your progress on them so you can easily pick up where you left off. In addition, the Learning Dashboard will allow you to access your course history to review courses you have completed and keep you in the loop on new or featured courses available and any related ASHI news.

COURSE CATALOG

The Course Catalog in the ASHI Edge helps you find the courses you're looking for effortlessly. Take advantage of the various filters in the search menu that match the specific topics you wish to learn about or fulfill state requirements for your licensing. Each course in the catalog will have the user ratings, CE credit amounts, and price, though most offerings will be free for ASHI members. To learn more about the course before you start, you'll also find even more details and information written by the course instructors as well as a brief preview for a better sense of the content.

When you take one of the new courses, you will quickly understand that these courses provide enhanced content delivery with focused video content, knowledge checks, and varied interactions

NEW COURSES

At the launch of the ASHI Edge, the education department debuted two new courses that will give you the first taste of what to expect from the future of ASHI education. The all-new courses, "Exterior: Wall Coverings" and "Inspecting Roofs," were designed and developed by ASHI's instructional designers. These courses utilized the various engagement and interactive tools and methods found in sound instructional design practices that the ASHI Edge platform has the capability to host. More courses are currently in development, and you can expect to see courses added to the catalog regularly.

A NEW LEARNING EXPERIENCE

The goal of the ASHI Edge is to improve the quality of education ASHI offers in the hopes that you receive greater comprehension and retention of the information found in the courses. They will be spearheaded by ASHI's education department, specifically the aforementioned instructional designers, as they lead the course creation for our new platform. When you take one of the new courses, you will quickly understand that these courses provide enhanced content delivery with focused video content, knowledge checks, and varied interactions.

These course features will facilitate greater engagement and active learning to promote knowledge retention and recall. In practice, this means you won't just be staring at the screen while a video plays. You will be applying the knowledge presented in real-time and have real-world scenarios and examples to bring the lessons' principles to life. Additionally, the instructional designers will keep working closely with known home inspection professionals and experts like Mike Casey, Shannon Cory, Scott Patterson, ASHI school instructors like Scott Johnson, and other subject matter experts. We believe this will ensure the highest quality educational content in each course.

FINAL NOTE

There is a lot to be excited about the ASHI Edge, and we are proud to present the new platform and courses to the membership. If you haven't done so yet, we encourage you to access the ASHI Edge for yourself and take the new courses for a spin. ASHI has always committed itself to being a leader in education within the home inspection profession, and the launch of the ASHI Edge is a testament to that commitment. We invite you to join us as ASHI's educational opportunities continue to grow and evolve for years to come!

THE AMERICAN SOCIETY OF HOME INSPECTORS (ASHI) WOULD LIKE TO EXTEND OUR GRATITUDE AND APPRECIATION TO OUR 2021-2022 AFFILIATE MEMBERS FOR THEIR CONTINUED SUPPORT AND THE POSITIVE IMPACT THEY PROVIDE THE ASHI COMMUNITY!

We have affiliates who are here and ready to help you with your home inspection business. Below is an alphabetical listing, but we encourage you to go to the Affiliate Listing on the ASHI site for a more detailed description of who they are and what they do. After logging in to ashi.org, the Affiliate Listing can be found under the members tab.

SO NEXT TIME YOU NEED HELP WITH YOUR BUSINESS, REACH OUT TO ONE OF OUR AFFILIATES!

3D Inspection System — Reporting Software	KritterCap — Pest Control	
Airthings America Inc . — Radon/Mold/Asbestos/ Water Testing/Tools/Technology	Leviton — Tools/Technology	
America's Call Center – Call Centers	Majordomo — Repair Estimates McKissock 100% Education — Education Monroe Infrared Technology Inc. — Tools/Technology	
American Home Inspectors Training — Education		
Building Inspection Services — Referral Programs		
Carson Dunlop & Associates, Ltd. — Education/	Norman-Spencer Agency LLC – Insurance	
Complete Protection Home Warranty - Home Warranty	OKEP Insurance Services - Insurance	
complete riotection nome warranty — nome warranty	raim-iech Home inspection Software — Reporting Software	
Dell Technologies — Tools/Technology	Porch / Inspection Support Network — Repair Estimates	
Ecosense — Radon/Mold/Asbestos/Water Testing	PriorityLab — Radon/Mold/Asbestos/Water Testing	
EMSL Analytical, Inc. — Radon/Mold/Asbestos/Water Testing	Professional Home Inspection Institute – Education	
Examination Board of Professional Home Inspector — Education	Radalink — Radon/Mold/Asbestos/Water Testing	
Ferret Tools — Tools/Technology	Radon Courses at Kansas State University — Radon/Mold Asbestos/Water Testing/Education RadonAway — Radon/Mold/Asbestos/Water Repair Pricer — Repair Estimates	
GEM Marketing — Marketing		
Get Water Answers — Radon/Mold/Asbestos/Water Testing Consultant		
Home Inspector Pro — Reporting Software		
HomeTeam Inspection Service — Franchise	Residential Warranty Services — Home Warranty	
How to Operate Your Home, Mr. Fix-It Inc. — Education	RTCA - Radon Testing Corp of America — Radon/Mold/Asbestos/ Water Testing	
Inspector Services Group — Reporting Software/Radon/Mold/ Asbestos/Water Testing	Sedgwick – Referral Programs	
InspectorCameras — Tools/Technology	Sekady — Referral Programs	
	SunRadon — Radon/Mold/Asbestos/Water Testing	

InspectorPro Insurance - Insurance

INSPECTIONWORLD 2022 ORLANDO FLORIDA

ASHI was looking forward to returning to an in-person conference in 2022. Unfortunately, with the onset of the new Omicron variant coupled with the ongoing Delta variant, ASHI was forced to cancel the in-person conference, InspectionWorld 2022, January 16-19, 2022, in Orlando.

The ASHI Board of Directors would like to thank the following exhibitors who were planning on sharing their expertise with you. We appreciate them all!

America's Call Center			
Building Inspection Service, Inc			
Complete Protection Home Warranty			
Ecosense			
EMSL Analytical, Inc.			
Examination Board of Professional Home Inspectors			
GEM Marketing			
Home Inspector Pro			
How to Operate Your Home			
InspectorCameras.com			
InspectorPro Insurance			
Inspector Services Group			
Monroe Infrared Technology Inc.			
OREP Insurance Services			
Palm-Tech Home Inspection Software			
Porch / Inspection Sup <mark>port Network</mark>			
PriorityLab			
RadonAway			
Repair Pricer			
Residential Warranty Services			
RTCA - Radon Testing corp of America			
SunRadon			

IW'22 Exhibitors

Digilatics Elite MGA Femto-Tech, Inc. Gastite **Guardian Financial** Homebase Radon Scheduling Systems Inspectify InspectionGo Inspector Call Center Inspector Empire Builder Joe Ferry the Home Inspector Lawyer Johnson Probe **Oasis Scientific Inc. Property Inspect ScribeWare** U.S. Department of Housing and Urban Development

ASHI CHAPTER NEWS & EVENTS

NNEC-ASHI WINTER EDUCATIONAL SEMINAR

WEDNESDAY, 16 MARCH 2022

8:30 AM Registration and morning refreshments

9 AM TO 4 PM Educational Seminar and Lunch

BRISTOL-PLYMOUTH REGIONAL TECH SCHOOL PURITAN CONFERENCE & EVENT CENTER 245 HOOKSETT RD MANCHESTER NH

245 HOOKSETT RD MANCHESTER NH

STANDARDS OF PRACTICE (SOP)AND CODE OF ETHICS

The presentation will review the SOP, a core requirement for license renewal and at the same time will share the years of experience by viewing the numerous "repetitive type problems" that home inspectors encounter daily. The standards list each system to be observed, identified and reported on but not the knowledge behind them. Such problems are learned through continuing education, training, experience and discussion with fellow inspectors.

A code of ethics by professional organizations, government authorities and the public as an expectation on honesty, objectivity, integrity and the performance of duty without the conflict of interest. He will provide the required annual review needed for professional competence and training.

EDUCATIONAL CREDITS: MA-5, NH-5 AND ASHI-6

PRESENTED BY BOB MULLOY MA ASSOC HOME INSP TRAINEE PROGRAM

IT HELPS US TO KNOW YOU ARE COMING!

NNEC MEMBERS FREE NON-MEMBERS \$125 Reservation required by wednesday, 9 March 2022

TELEPHONE KAREN AT (781) 789 7040 OR NNEC.ASHI.2016@GMAIL.COM

ST. LOUIS ASHI SPRING SEMINAR 2022

FRIDAY, MAR. 11, 2022. 8:00 AM - 5:00 PM

ST. LOUIS REALTORS CONFERENCE CENTER 12777 OLIVE BLVD., CREVE COEUR, MO 63141

SATURDAY BONUS DAY OF EDUCATION -To be announced

EDUCATION SESSIONS: FLAT ROOFS/PARAPET WALLS AND ISSUES WITH FLAT ROOFS (2 CES) OLD PLUMBING (2 CES) UNIQUE ROOFING MATERIALS (4 CES)

ASHI OHIO CHAPTER EVENTS

FEBRUARY 26, 2022

VIRTUAL

DAY 1 OF THE OHIO CHAPTER ANNUAL INSPECTION EXPO

SPEAKERS AND SUBJECT MATTER COMING SOON (8 ASHI/STATE CES)

MARCH 5, 2022

VIRTUAL

DAY 2 OF THE OHIO CHAPTER ANNUAL INSPECTION EXPO

SPEAKERS AND SUBJECT MATTER COMING SOON (6 ASHI/STATE CES)

VISIT THE OHIO CHAPTER OF ASHI WEBSITE AT OHIOASHI.ORG

FOR MORE INFORMATION ABOUT TIMES AND FEES FOR THESE EVENTS,

EMAIL OHIOASHI@YAHOO.COM, OR

CALL 614-907-5406.

ALL OHIO INSPECTORS ARE INVITED.

GARDEN STATE CHAPTER SUPPORTS LOCAL CHILDREN'S HOSPITAL

For more than 20 years, the Garden State Chapter has collected toys and funds to support the Children's Specialized Hospital in Mountainside, New Jersey. Gifts are provided to the patients and young family members by the hospital with help of community donations.

This year, due to virtual meetings, the Garden State Chapter collected funds during its recent meeting in lieu of gifts. The group was proud to provide a donation of \$1,500 to the hospital's holiday fund. This donation was made in memory of Past Chapter President and Past ASHI National Director Ken Salvo. Ken was a friend to so many of us and most of us remember his amazing skills as a musician. While Ken was a member of the Garden State Chapter, he was always very involved in ensuring the donations were collected and delivered to the hospital.

Pictured making the donation are David Turner, treasurer; the CSH representative; Diana Moore, affiliate member committee chair; and Ernie Borsellino, past president.

FEBRUARY 2022 • www.ASHI.org 29

FEBRUARY ANNIVERSARIES

FIVE YEARS

Michael Akin J. Kevin Bartik Hurlbert Home Inspection. LLC

Matt I. Beatty Beatty Home Inspection Inc.

William Bisek Inspect It First Andover

Perry Brown Applied Ethics Home Inspection, LLC

Michael F. Chapman Chapman Home Inspection

Devin Childers HERO Home Inspection Services

James Cotter **CTR Home Inspections**

Mark W. Cummins

Billy Davis MHI

Charles E. Delarm Safeguard Home Inspections, LLC

Giovanni DeNigris DeNigris Home Inspections & Co, LLC

Matthew W. Deveaux Pillar to Post Home Inspectors

James Hale Journey Inspections

Dr. Terry J. Holder, Ph.D. Residence Doctor Home Inspection, LLC

LeRoy Holm Tri-State Home Inspections LLC

Brian Jackson Jackson Inspections, LLC

Ara Jones **AKJones Enterprises LLC DBA** WIN Cranberry

William Koehnlein **BPG Inspection, LLC**

Anthony Mangini Commercial & Home Inspection Services

James M. McCaffrey H.I. LYNX Home **Inspection Services**

Joel Mizrahi Metropolitan Home Inspection Co.

David Moench Moss Home Inspection Ben Morehead Old Towne Inspection, LLC

Joseph Ray Mosley John Murray

Rayner Lea, LLC DBA Housemaster of Bull Run

Ron Niemann Hawkeye Inspections

Richie Onega Onega Building Services

Robert Ormerod WIN Home Inspection -Gainesville, VA

Walter A. Paulson Juniper Home Services, LLC

Jared Piotrowski Green Home Inspection

Michael Raborn Candid Home Inspections

Antonio Ramos **BPG Inspection LLC**

Brad Romer **R3 Home Inspections LLC**

Mark Rudy **MRI Property Inspection Services**

Frank Sirianni **Right Way Home Inspection Plus**

Gordon W. Stephens Zsako Home Inspections

Don Torchia Basement to Roof Home Inspections

Scot Tully Building Specs of VA, Inc.

Jason Vaughn Peaks and Gables, LLC

Tony Wilhelm HOME PRO Inspectors LLC Barry Wilkins

Glacier Home Inspections

Henry Williams Home Team Inspection Service of Peachtree city

Cody Wojasinski

FIFTEEN YEARS

Robert A. Allender

Home Inspections

Winfield Burnum

Darryl E. Chandler

Ron Gerome

Mike Lauby

Neil W. Morris

Scott Spindler

TEN YEARS

Steve Anderson

Jason David

Patrick Erb

Dave Johnson

Chris Lucke

John Medina

Garv Otten

BPG Inspection LLC

J & K Property Inspections

Jerrod Turnbow

BPG Inspection LLC

Darryl Willoughby

Pillar to Post Professional

Kingsway Home Inspections

Focused Property Inspections

Signature Home Inspection

Sunland Home Inspection

WIN Home Inspection - Sandy

ProChek Home Inspections, LLC

Residential Inspector of America

A Buyer's Choice Home Inspections

South Metro Home Inspections LLC

Erb Home Inspection Service

Missouri Property Inspections

RSK Anderson Inspections

DBA Nat'l Property Insp.

Kenneth Lloyd Advanced Building Inspections

Don Randazzo

Charles Roskovensky Housebusters Home &

Paul L. Signore Inspection Services, Inc.

Delaware Valley, Inc.

Professional Bldg Inspection Services, LLC

TWENTY-FIVE YEARS

Bob Haley

Bill Loden

James J. Logan Extreme Inspections

Robert W. Wood Homerun Inspection Service, LLC

Timothy Bunch Secure Start Inspections, Inc.

Norman B. Ellis Stellar Inspections, Inc. Ron Self

R.G. Self Home Inspection Service

THIRTY YEARS **Carlos** Ceballos

Jules Falcone

Inspection Pros

CE Home Inspections, LLC Maurice Drummey

FORTY-FIVE YEARS

G.C. Housing Evaluation

Steve Gorman Maso **Dixon Home Inspection** Services, Inc.

Rob Hopkin **ProTec Inspection Services**

Inspection Services, LLC

Environmental Inspection

Signore Building

John Spoehr HomePro Systems of

William Stephens

Real Estate Inspection Services

Insight Home Inspection, LLC

TWENTY YEARS

Postcards from the Field

If you leave the toilet seat up one more time ...

SH

I didn't know the place had a rooftop pool.

James Richards

Temple Terrace, FL

Wayne Robbins Pro-Tech Consultants Home Inspections Cambridge, MA

About 3.5" left uncut. At least he was consistent.

All natural gutter/plant holder.

Cambridge, MA

Boston Home Inspectors Boston, MA

NEW POSTCARDS EMAIL! Please send your name, city, state, photos, headings & captions to: **postcards@ashi.org** Note: By sending in your postcard(s), you are expressly granting ASHI the right to us the postcard and your name with it in the ASHI *REPORTER* and in other publications ASHI may select.

RE-INSPECTION AGREEMENT Inspection Date & Time: 01/27/2020 at 08:00 AM Inspection Address: 425 Wester Venue, Sedona, AZ 86338 lisclose to you the visible and a Client Name: John and Kate Hill the time and date of the in e included systems. T Inspection Fee: \$965.00 sa a basis for the The purpose of this inspection is to ide condition of the major sustems as they p e various c The report pertains to readily accessible an of the Arizona Board of Technical Registration The home is not specifically inspected for compli items in storage, etc. are mot mot vernmental codes or regulations. aterials analysis, includin Formaldehyde.

Pre-inspection protection

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