INSTALLATION DEFECT AND INCIDENT REPORT

Subject Property Address:

[redacted]

Prepared for:

[redacted]

Prepared by:
Paul L. Johnson, Principal
Gryphon Consulting, LLC
2037 Blue River Road
Holiday, FL 34691

June 27, 2023

Table of Contents

I. Executive Summary ..... *- 3 -*

II. Case Background ..... *- 4 -*

Site Overview ..... - 5 -

III. Introduction ..... *- 7 -*

IV. Credentials/Qualifications ..... *- 9 -*

V. Applicable Construction Codes ..... *- 10 -*

Scope ..... - 10 -

1. Construction Codes, Industry Standards: ..... - 10 -

The Investigation ..... - 10 -

Inspection Methods and Equipment ..... - 11 -

Format Conventions ..... - 12 -

VI. Site and General Observations ..... *- 13 -*

Framing & Plumbing ..... - 13 -

Contract ..... - 15 -

VII. Deficiencies ..... *- 16 -*

Framing & Bracket Installation ..... - 16 -

..... - 18 -

Fire Investigation ..... - 25 -

Evidence Investigation ..... - 25 -

Conclusion/Opinions ..... *- 37 -*

VIII. Appendix A – Documents & Materials Considered ..... *- 39 -*

IX. Appendix B – Curriculum Vitae ..... *- 40 -*

I. Executive Summary

- Based on information and belief, [redacted] (Owner, Plaintiff) fiancée [redacted] entered into a Solar Purchase Agreement with [redacted] for the purchase and installation of a rooftop-mounted array of photovoltaic solar energy panels.
- Subsequently, a technician from [redacted] documented existing conditions of the home.
- Based on information and belief technicians from [redacted] installed brackets for solar panels on the roof at Plaintiff's home on the date of the incident.
- Based on information and belief an explosion and resulting house fire occurred at [redacted].
- Fire Chief [redacted] of [redacted] Fire Department responded to the incident from the fire station and arrived on the scene to find smoke and fire showing at the roof and attic area of the home.
- After reporting what he saw at the scene Chief [redacted] was approached by a female resident who stated she was the resident and was inside the home at the time of the explosion.
- Captain [redacted] of the [redacted] State Fire Marshalls Office prepared a document titled "Structure Fire Investigation Report" where he describes meeting with [redacted], noting that Plaintiff stated she entered the home and had walked into the living room when she heard a loud explosion. She went outside, seeing her windows on the front lawn, looked up and saw the fire. Plaintiff further noted that she was in the home about 5 minutes and that she had an electronic thermostat that detects motion, coming on if needed. Plaintiff also told Captain [redacted] that the HVAC system was last serviced sometime in January of 2020.

II. Case Background

Based on information and belief, on November 21, 2019, [redacted] entered into a Solar Purchase Agreement[1] with [redacted], LLC of [redacted] (Defendant), under [redacted] Contractor License number [redacted] for the supply and installation of a solar electric system at [redacted] (Subject Property).

Based on information and belief[2], on November 19, 2019, [redacted] ([redacted] Technician) performed an initial site survey, consisting of photos of the exterior and interior of the home as well as measurements of roof rafter and ridge member sizes and angles of rafters.

Based on information and belief, [redacted] contracted with [redacted] (AST) on or about November 25, 2019, to analyze the existing roof support system, based on site photographs of the Subject Property, produced by [redacted] and to provide specifications for the attachment of L brackets to the roof of the Subject Property.

According to a [redacted] Uniform Construction Code Building Subcode[4] document, marked as [redacted]", Defendant applied for a building and electrical permit for the proposed work at the Subject Property, on January 23, 2020. This document included structural engineering calculations and technical specifications required for the installation of the Panasonic solar panels and "Quick Mount PV" mounting system, with page 11/11 of this document calling out item 4 as 5/16" x 4" long 18-8 SS lag screws to fasten "L Foot" brackets to the roof.

Based on information and belief, the crew, [redacted] (lead installer), [redacted] (installers) began the installation of

[1] Appendix A, Exhibit 01 [redacted] Contract
[2] Appendix A, Exhibit 02 [redacted] Deposition Transcript pg. 45, line 9
[3] Appendix A, Exhibit 03 [redacted] Application pg. 3/11
[4] Appendix A, Exhibit 03 [redacted] Application pg. 11/11

rooftop panel brackets/rails on February 3, 2020, working at and accessing only the exterior of the home.

The conditions at the Subject Property, both of the roof and attic space did not change from the time of the initial inspection performed by [redacted] to the date of installation, by others.

Subsequent to the incident a section of roofing was removed and secured at the Evidence Management Center (EMC)[5] [redacted]. This roof section was examined by me.

Site Overview

The following images depict relevant portions of the site prior to installation (taken during [redacted] initial site survey) and after the explosion/fire incident.

Image 1, Subject Property

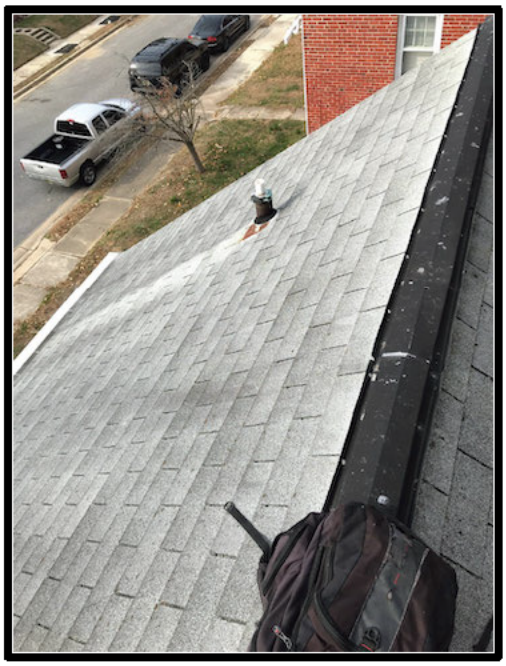


Image 2, roof looking West

[5] Appendix A, Exhibit 04 EMC Sign-in Log 4-24-23

Image 3, roof looking Southeast

III. Introduction

Location map of Subject Property

1. Subject Property (Home/Site) is located in [redacted]

2. According to public record[6], the home was built in 1930, lot 13, block 36. Structure is a wood framed two story structure on a concrete masonry foundation.

3. I have completed a forensic inspection (Investigation) of a removed section of roof framing (evidence), including rafters, sheathing, shingles, flexible gas piping and wiring, in order to properly provide conclusions/opinions, based on observations of the evidence.

4. I was retained by the law firm of [redacted] to provide an opinion of whether any work constituted deviations from industry standard, code violations, improper installation or industry standard of care and provide a written report of findings. My evidence inspection was performed on April 24, 2023, at the EMC facility described above on page 4, line 37, with the following individuals present [redacted], PE, representing Defendant; [redacted] ESQ, representing [redacted]/Plaintiff;

[6] Appendix A, Exhibit 05 EMC Sign-in Log 4-24-23

Paul Johnson, Gryphon Consulting, representing Plaintiff. As the result of additional photographs provided by defendant, a follow up inspection was performed via Facetime with [redacted] of [redacted] on June 23, 2023, where additional images were obtained.

5. I have performed a review of contract/case documents and associated information provided to me. The items reviewed are described in my Appendix A.

6. Gryphon Consulting is being compensated for all services related to this report at the rate of $375.00 per hour, plus expenses as stated in the Retainer Contract for same. My compensation is in no way affected by the outcome of this matter.

IV. Credentials/Qualifications

I am a retired builder having founded and run my own firms for 35 years. Over the course of that time, I was privileged to construct projects with values well in excess of 1 million dollars, provided construction services to the General Services Administration of the Federal Government (GSA), maintained many multi-million-dollar sales years and served as the Owners Representative for a $13.2 million dollar construction/renovation project in Bethesda, MD. I served as a volunteer firefighter, level II in Montgomery County, Maryland from 1977-1986, in that time I learned about the science of fires, general investigation principals and the elements necessary to produce a fire.

I currently operate Gryphon Consulting with services offered as an Owners Representative, Expert Witness and Mentor. I am a currently licensed home builder in South Carolina, authored and self-published the book: "Residential Building & Remodeling" (ISBN 9780578369372), and received a U.S. Patent for the invention of a cabinet installation system.

Please note that while this report, once signed and complete, belongs to the addressee, I alone am qualified to interpret its contents and will remain the sole arbiter for the purpose of explanation. Headings and footers are for convenience only and will have no effect on meaning.

This document and any documents referenced in Appendix A may contain proprietary and/or confidential information and are intended solely for the addressee of this report.

Images used in this report were taken on the day of inspection, unless specifically stated otherwise.

V. Applicable Construction Codes

Scope

This report addresses if there were defects in construction. Construction defects typically are non-compliance with building codes, design, manufacturer installation recommendations, industry standards, or damaged materials and components. I will define the sources of non-compliance following and elaborate as is necessary throughout this report.

1. Construction Codes, Industry Standards:

The construction code in use is the [redacted] State Uniform Construction Code Act of 1975. For reference purposes in this report, [redacted] has adopted the International Residential Code (IRC) 2018, [redacted] version.

Industry standards as stated herein.

The Investigation

The investigation of evidence was performed on April 24, 2023, and June 23, 2023, at the EMC property, [redacted]

The purpose of the investigation was intended to provide an understanding of the evidence as it relates to scope of the matter at hand.

Investigation was non-invasive, meaning that no components were removed, opened up or taken apart.

No performance testing of the evidence was performed.

Inspection Methods and Equipment

I began my investigation by reviewing fire investigation documents, Plaintiff's filing of their amended complaint, and information provided by [redacted]. During the evidence investigation additional background information was provided by visual observations, physical measurements and 48 images were obtained, some of which are referenced in this report.

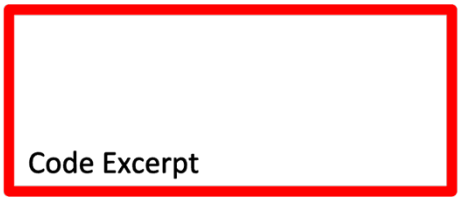
To evaluate measurements, I used the following: Lufkin 25' Shockforce measuring tape, calibrated on 9/30/22.

Images were obtained with my iPhone 14 Pro Max and screenshots of Facetime video.

Format Conventions

To help delineate the various kinds of excerpts and images, I have employed the use of colored frames around code, industry standard, document, and image excerpts under the following convention:

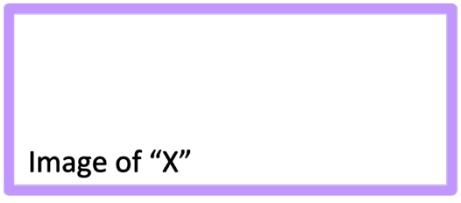
Information within red frames will be used to provide Excerpts from administrative codes, legal statutes, municipal ordinances, and similar documents. Red framing indicates that the enclosed excerpt is from a document that is believed to have legal standing, creating a basis for action independent of any functional, maintenance or operational challenges.



Information within green frames will be used to provide excerpts from industry standards from bodies such as ASTM, AWS, manufacturer installation instructions and the like. Information contained within this surround delineates a standard whose failure may impact codes, warranties, maintenance, operational issues, violate design/plan or specification provisions, or disregard standard engineering and or construction practice.

Information within black frames are excerpts from plans, documents, construction related materials or supplied images provided to Gryphon Consulting for analysis. By inclusion, Gryphon Consulting does not approve of the information from such excerpts. Plans represent the Designers expressed intent and what the approving authorities agreed to when construction was permitted to proceed.

Purple frames surround images obtained by Paul Johnson during the site inspection, as well as miscellaneous documents, and diagrams that have been produced by Gryphon Consulting in the preparation of this report.



VI. Site and General Observations

The following is a summary of my findings and the associated evidence observed. The defects identified relate to relevant building codes, best practices, industry standards and/or the contract documents.

My investigation has revealed, based on evidence and information provided by the [redacted] [redacted] State Fire Marshalls Office (FM), as well as my personal inspection of the evidence, that a lag screw of the type used to fasten L brackets to the roof of the Subject Property partially penetrated a flexible liquid propane gas (gas) line running approximately mid depth of and perpendicular to the roof rafters of the front (South) side of the home. Once penetrated, normal pressure in the system exited through the penetration location and out into the enclosed space of the attic, which attic contained a liquid propane gas fueled furnace. Upon proper mixture of existing air and gas, with an ignition source, an explosion and subsequent fire resulted.

Framing & Plumbing

I observed a section of roof framing from the Subject Property and produced Diagram 1 that defines members known as rafters and ridge beam.

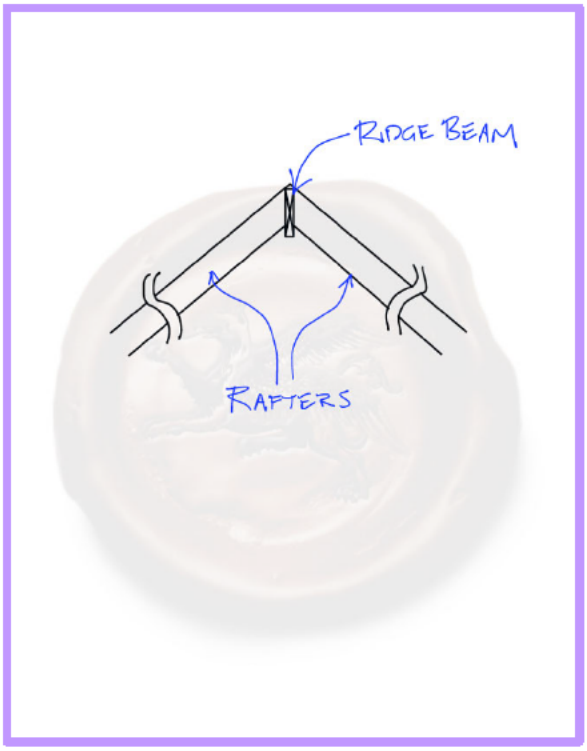


Diagram 1

Later in this report I will annotate images, pointing to the portions of the roof described in Diagram 1.

The framing of this roof comprises of 2" x 6" rafters set on 16" centers with 1" x 6" sheathing and asphalt shingles over felt paper, serving as waterproofing.

Layman's Terms: Framing lumber is what is known as "dimensional" lumber, meaning that its measurements are not true. As an example, a 2" x 6" rafter actually measures 1 ½" x 5 ½" and a 1" x 6" board measures ¾" x 5 ½", when purchased at the time this home today. Framing materials at the time this home was built in 1930 are slightly larger, but still called out by the same size.

I observed flexible gas piping, both in the photographs provided by the FM's office, Defendant, and images I procured during my investigation of the evidence. This gas piping extended from two large supply tanks on the side of the Subject Property via hard and flexible gas piping, into the attic space, providing fuel gas for a furnace, located in the attic. In some locations the roof rafters had been drilled to allow for the gas line to run perpendicular to the length of the rafters.

According to the IRC §2415.7.1., where piping is installed through holes or notches in framing members, and the piping is located less than 1 ½" from the framing member face to which wall ceiling or floor membranes will be attached, there needs to be the code-required shield plates installed. Where the piping passes through the rafters of this roof the distance from the edge of the pipe to the edge of the sheathing is 2", thereby negating the requirement of the shield plates.

Layman's Terms: The edges of the holes drilled for the gas pipe closest to the roof sheathing are 2" away from the sheathing, so there are no shield plates required by code to protect the pipe.

Contract

Contractor: [redacted]

Customer: [redacted]

Terms and Conditions:

Page 4/5, item 2 of the contract[7] states that all work will be completed in a substantial and workmanlike manner, including scope of work, drawings, specifications, estimate and terms and conditions.

Layman's Terms: This provision binds the Defendant to delivering all work of the contract in this way, providing peace of mind to the Plaintiff that no work will be performed that not standard for the industry.

Page 4/5, item 6 of the contract states that Defendant is not responsible for any damage by, an Owners agent, acts of God, earthquake, or other causes beyond the control of Defendant.

Layman's Terms: This means that for reasons other than these that Defendant is responsible.

Page 4/5, item 7 of the contract additionally states that Defendant is not responsible for anything outside of the scope of work of Defendant, directly related to the solar system installation.

Layman's Terms: This means that any item of work within the scope of the Defendants work is their responsibility.

Page 4/5, item 9 of the contract states, in relative part, that Plaintiff represents that there are no conditions preventing Defendant from proceeding with usual construction procedures.

Layman's Terms: This means that Defendant has transferred responsibility to himself/his company for understanding conditions at the Subject Property that may affect his ability to perform the work scope as planned.

[7] Appendix A, Exhibit 06 [redacted] Solar Contract

VII. Deficiencies

This section will detail my findings and the associated defects and responsibilities identified. Typically, as will be shown, the Defendant failed to provide the minimum standard of care, as well as an industry standard installation process.

Framing & Bracket Installation

The roof framing of the Subject Property, as identified in the following images, is the dimensional framing material required by and referred to in the Appendix A, Exhibit 03, [redacted] Engineering Roof Rafters Load Capacity Analysis document. The framing system is within engineering requirements.

Images of the framing will also provide evidence that the gas piping system was exposed, in full view of Defendants technicians that provided initial inspection of the Subject Property and subsequent installation with hole boring locations within the rafters in compliance with code.

Image 4, entry to attic space

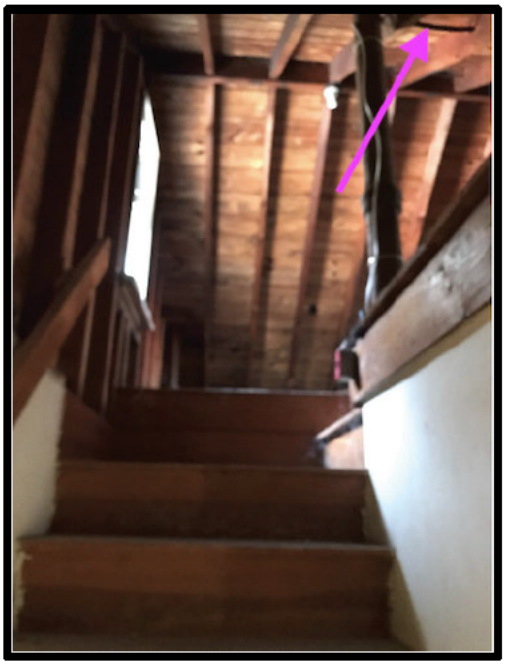


Image 5, stairs to attic, arrow Pointing to flexible gas pipe

The vertical black item at the top right of image 5 is the plumbing vent stack observable in images 11 & 12

Image 6, Technician measuring Angle of rafters. Note flexible Gas line in background

Image 7, Technician measuring angle of rafters. Note flexible gas pipe in background

Image 8, Technician measuring Width of rafter

Image 9, Technician measuring width of ridge

Image 10, Technician photo of roof looking Southeast

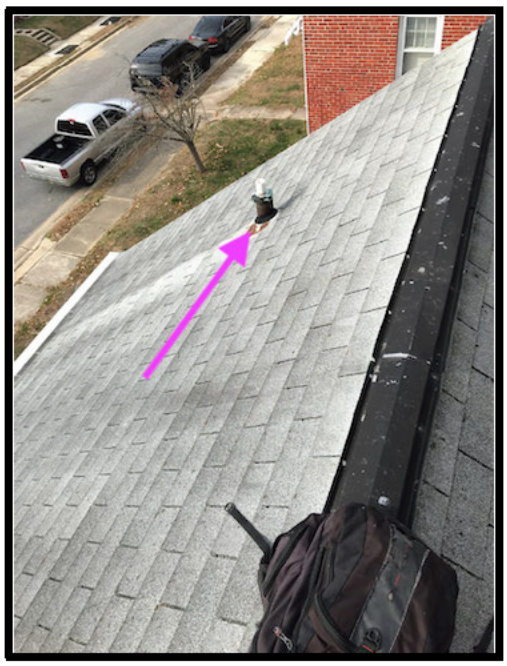


Image 11, Technician photo of roof looking West

Image 12, taken by Defendant Of front of Subject Property On February 3, 2020. Arrow points To vent stack observable in images 5 and 11

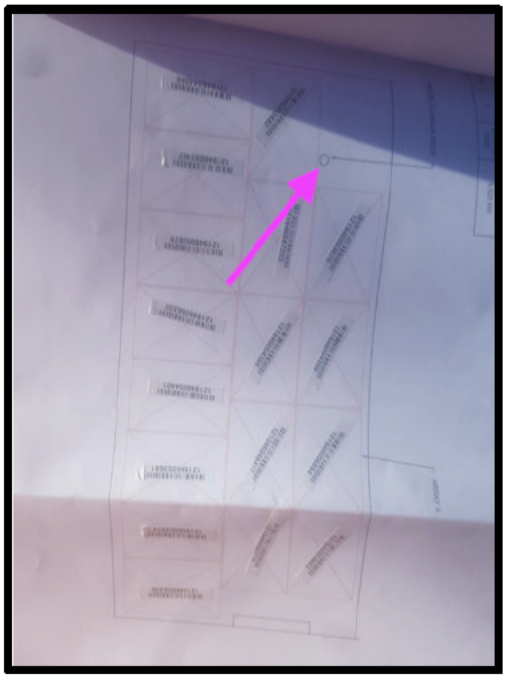


Image 13, layout of solar panel array. Arrow points to plumbing vent stack accounted for in layout.

Image 5 provides a reference point to the long, black flexible gas pipe observable in some of the images obtained of the evidence at the EMC facility on April 24th, 2023, presented later in this report. In Image 5 the flexible black pipe can be seen running in a serpentine fashion up the plumbing vent stack.

Images 5-7 provide evidence that the black flexible gas pipe was exposed and observable to Mr. [redacted] during his initial site inspection on November 19, 2019, and would have been observable to Technicians performing the installation of the brackets and rails on February 3, 2020, should they have properly inspected the attic space prior to installation, as nothing about the existing conditions, relative to the flexible gas pipe, had changed in that time.

Industry standard procedure is that the Technician performing the initial site survey, as well as the Technicians performing the installation, are to verify all aspects of the area of work scope, ensuring their installation does not adversely affect existing conditions.

Since the code (§2415.7.1) does not require piping protection in bored holes 1 ½" or more from the edge of the framing member and the edge of the bored holes containing the gas pipe were 2" from the edge of the framing members (rafters) of the Subject Property, there was no requirement for the installer of the gas line to have installed any shield plates on the exposed roof side of the framing member. This being said, and in light of industry standard and best practices by installers, Technicians working for Defendant had a responsibility to inspect and be aware of the flexible gas line in the attic of the Subject Property.

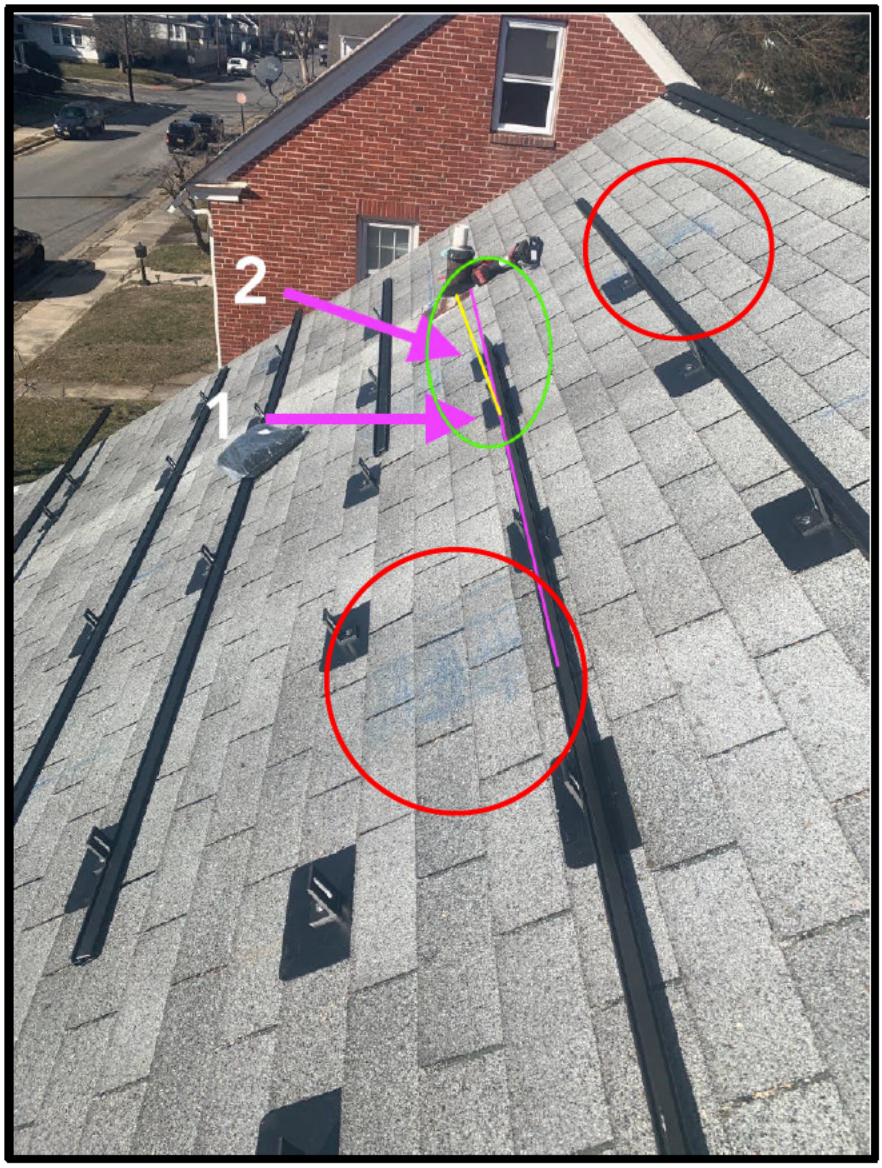


Image 14

Image 14 shows the roof with flashing, L brackets and rails being installed, looking West. Note 1 corresponds to the location of bracket 1 of evidence image 16 and note 2 corresponds to bracket 2 of the same evidence image. There are two lines inside the green oval, annotated over the rail. The pink showing the path of a straight rail and the yellow showing the path of the rail once fastened to L bracket 2.

The blue dust inside the red circles provides evidence of blue chalk dust residue, consistent with what would be left from snapping chalk lines, providing alignment for brackets.

Image 15

Image 15 shows the rail extension with brackets 1 & 2 in the same locations described in image 14. It is easier to observe in this image that bracket 2 is significantly lower on the roof than bracket 1, allowing the screw at bracket 1 to avoid penetrating the gas line.

Defendant, in his deposition, page 49, line 21 describes how chalk lines are snapped to provide a location for "mounts", aka L brackets. Based on experience, It is inexplicable though how a stretched chalk line can produce anything other than a straight, not a curved line.

Examining the evidence section removed (image 16), the left side of the section is the West side, and what would have been closest to the plumbing vent stack. What can be observed is that brackets 1 & 2 are only 1 rafter bay apart from one another as can be viewed in images 14 & 15.

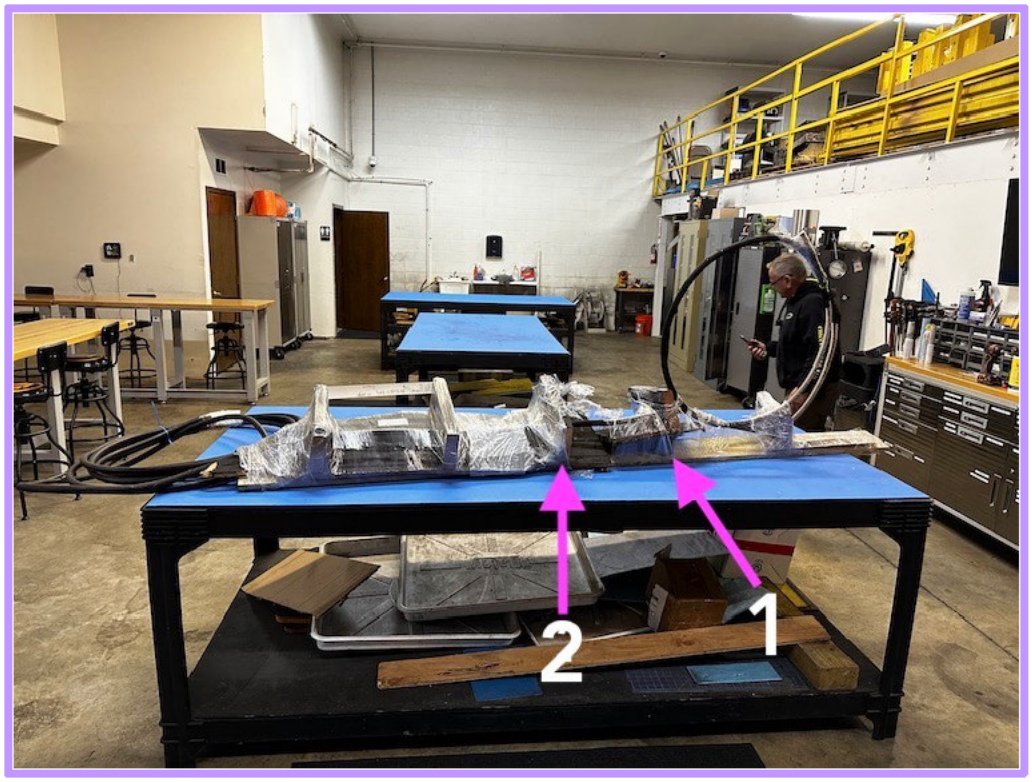


Image 16

There are industry and best standard practices to be followed when fastening items to surfaces, especially ones that the Technician cannot not see behind.

In the case of an installation on a roof, such as that of the Subject Property, it is standard practice that the Technicians involved are provided all documents relative to the installation related to their work scope. In this case example documents would include (see Appendix A, Exhibit 03) the panel array/layout, AST Engineering documents, Iron Ridge Documents, Panasonic documents, XR Family documents and Quick Mount PV documents. Comparing the information from these documents to the existing site conditions and documenting/and or reporting items that may affect the installation to supervisors, prior to moving forward with installation, would be critical to a successful installation.

Using the Subject Property and the Defendants scope of work as an example, the Technician would typically enter the attic space, observe the size and condition of the framing materials (structure) first, documenting any cracks, rot damage, deterioration, or visible water intrusion. The Technician would then document potential hazards that might be affected by the work scope. In the case of the Subject Property, the hazard relative to the installation of the solar panel brackets would have been the flexible gas pipe and electrical wires running through the rafter system.

In observing the location of the gas line and wires and their proximity to the top edge of the rafter, image 17, noting that the top edge of the bored holes are 2" and 1 5/8" from the top of the rafter, respectively, a ¾" thickness of sheathing, the approximate ½" thickness of shingles and felt and ¼" thickness of the L bracket and there is still approximately ½" to 1" of space for the lag screw to penetrate the gas pipe or electrical wires if a 4" bolt is used.

Image 17

In his deposition, page 61, line 22, Defendant accepts responsibility for his employees being responsible for locating the placement of lag screws for the L brackets.

In his deposition, page 79, line 11, Defendant states that he saw the screw that hit the gas line during his site visit with other investigators.

In his deposition, page 80, line 11, Defendant states that he was not familiar with flexible gas pipes, stating "not anything I have ever seen in home construction". This lack of industry knowledge is concerning to me, given that flexible gas piping has been in use in residential construction for over 30 years.

In his deposition, page 81, line 16, Defendant states that a gas line is the only hazard that could ever be observed during a solar installation.

In his deposition, page 90, line 12, Defendant states that during a site survey "we're not there to check gas lines." This attitude, that it's not his job to be on the lookout for potential hazards is troublesome, considering the liability he is responsible for each and every day. This, to me, is a very cavalier attitude.

In his deposition, page 91, line 7, Defendant states that screwing into an electrical line would not be problematic because it would only cause a short circuit, opening a breaker. This statement, in my opinion, demonstrates a clear lack of understanding both of his responsibility to know what he and his Technicians are drilling into and the condition he could potentially leave his customers property in. Should his Technicians also have drilled into or run a screw through electrical wires there could be the potential for not only energizing the bracket and rail system, but also leaving the customer with a break in the system that could take hours and significant expense for an electrician to find. Neither scenario is acceptable.

Fire Investigation

Following the incident, the [redacted] State Fire Marshal, represented by Captain [redacted], investigated, and produced his report[8]. Also produced are 211 photographs, identified as my Appendix A, Exhibit 08.

Captain [redacted] notes in his report that he met with the Plaintiff, recounting her statement that she came home from work, walked in the home, having walked into the living room when she heard a loud explosion. He states that the Plaintiff then went outside and saw her windows on the front lawn and looking up, saw the attic on fire. Captain [redacted] further noted that Plaintiff had a motion detecting thermostat, allowing the HVAC system to turn on, based on motion in the home. Additionally, the Plaintiff noted that the system was serviced in January of 2020.

Captain [redacted] notes that the propane gas supply line was examined and was found to have a severe kink/bend where the line had been put through a hole in a roof rafter.

Captain [redacted] concludes in his investigation that the cause will be considered "Undetermined". I disagree.

Evidence Investigation

During my examination of documents and photos produced by the Defendant, as well as observing and documenting the retrieved roof section (evidence), I was able to compare photos taken by the Fire Marshal with the evidence.

The following images will aid in understanding the role the lag bolt played in the incident.

Image 18 provides an overall view of the section of roof (evidence) that was removed and preserved. I have annotated the image to establish the locations of these elements

[8] Appendix A, Exhibit 07 [redacted] State Fire Marshal Report

relative to their location in the attic prior to and after the explosion and fire, as recorded by the Fire Marshal.

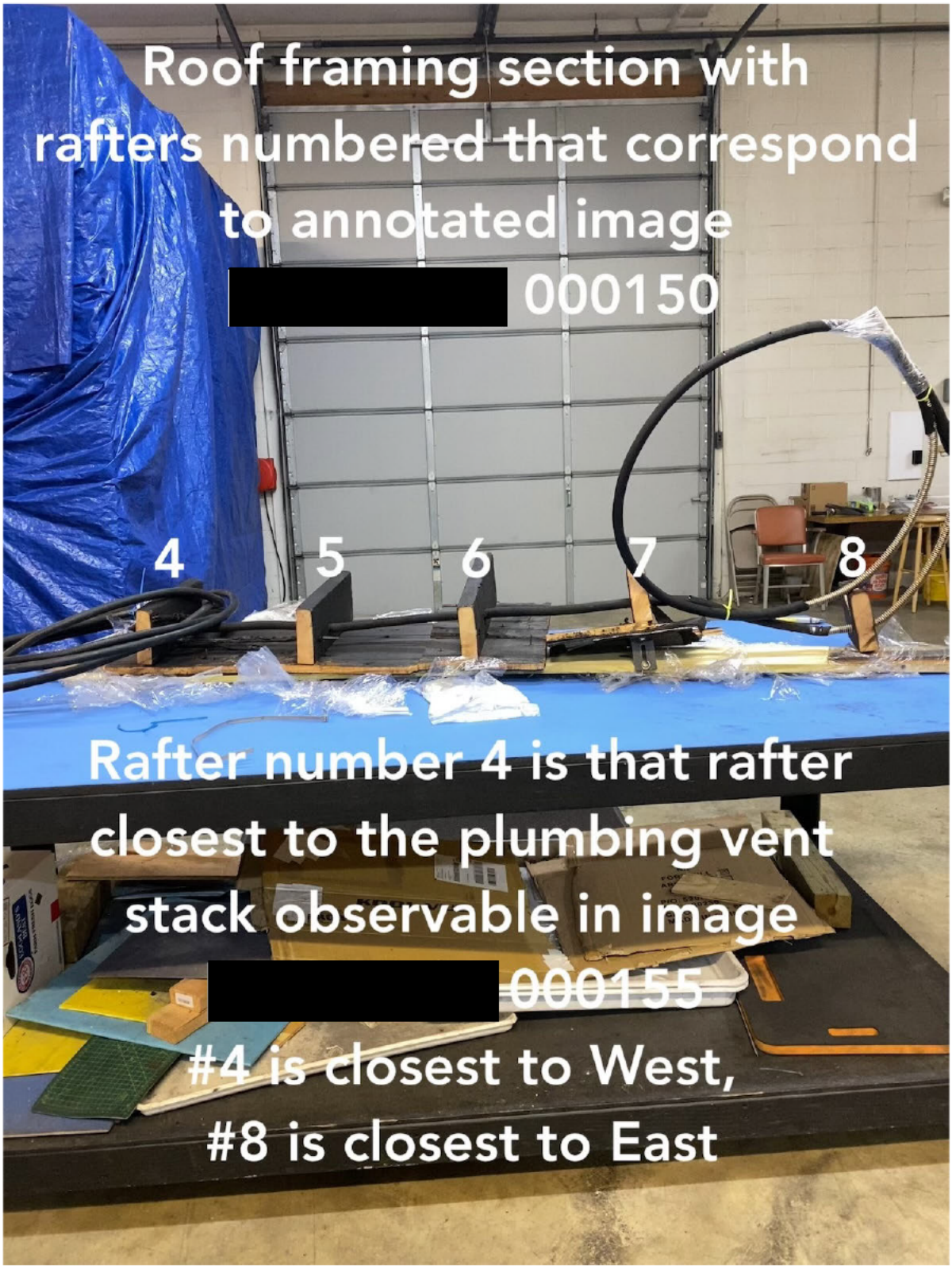


Image 18

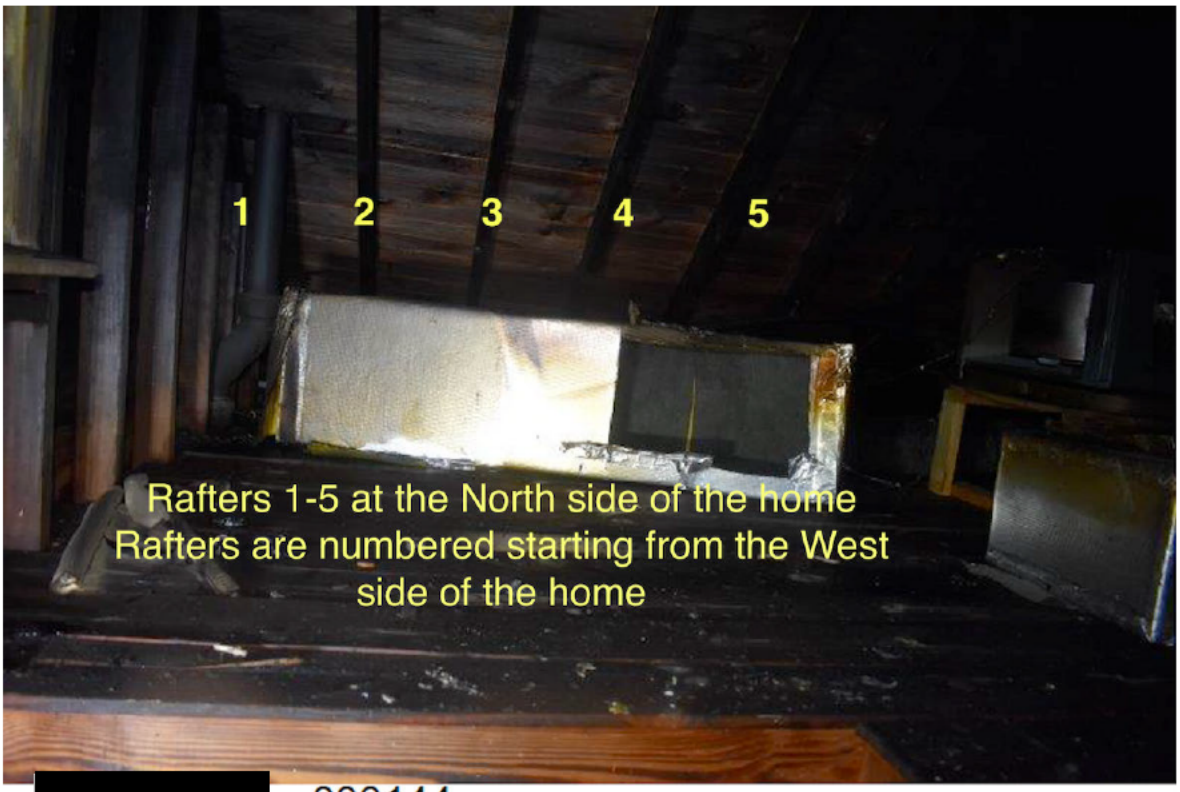


Image 19

Image 20

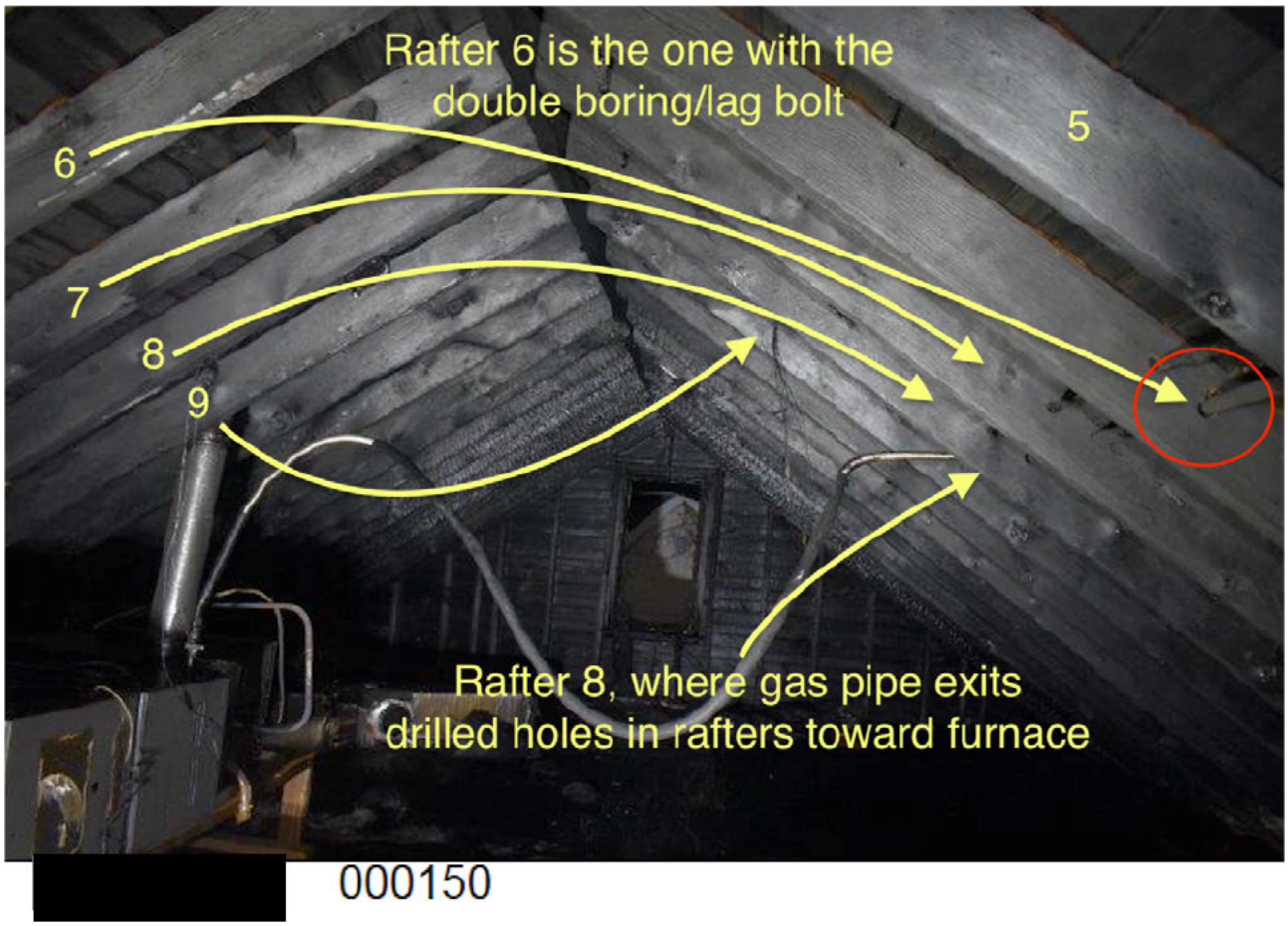


Image 21

Based on Fire Marshall and Defendant photos, as well as the roof section of evidence, I have been able to annotate these photos that I am now calling images 19-21 to establish the location of the gas line relative to the location in the attic, and what evidence, guided by experience, demonstrates is the lag bolt that penetrated the gas line.

Image 19 shows the North side of the attic area and starting from the left (West side) I have numbered the rafters 1-5. Image 19, for me, becomes too dark from rafter 5 to the right, to properly identify any additional rafters.

Image 20 shows the North side of the attic area with the camera having been directed more towards the right (East side) of the attic space and using the duct section, sitting on the attic floor as a benchmark, I continued the numbering of the rafters.

With images 19 & 20 establishing the locations of the various rafters, image 21 provides the overall point of reference, establishing where the rafters are in relation to the section of roof where the flexible gas pipe runs through the rafters, the same section of roof preserved as evidence, shown in image 18. Additionally, image 21 provides the best (in my opinion) vantage point of Fire Marshal images obtained at the scene, showing rafter and location where a lag bolt that Defendants tradesmen installed, penetrated the gas line. This is corroborated by the ability to still observe the bolt through the bracket and into the gas line when observing the roof section evidence in images 25 – 28. The location of the lag bolt is within the red circle of image 21.

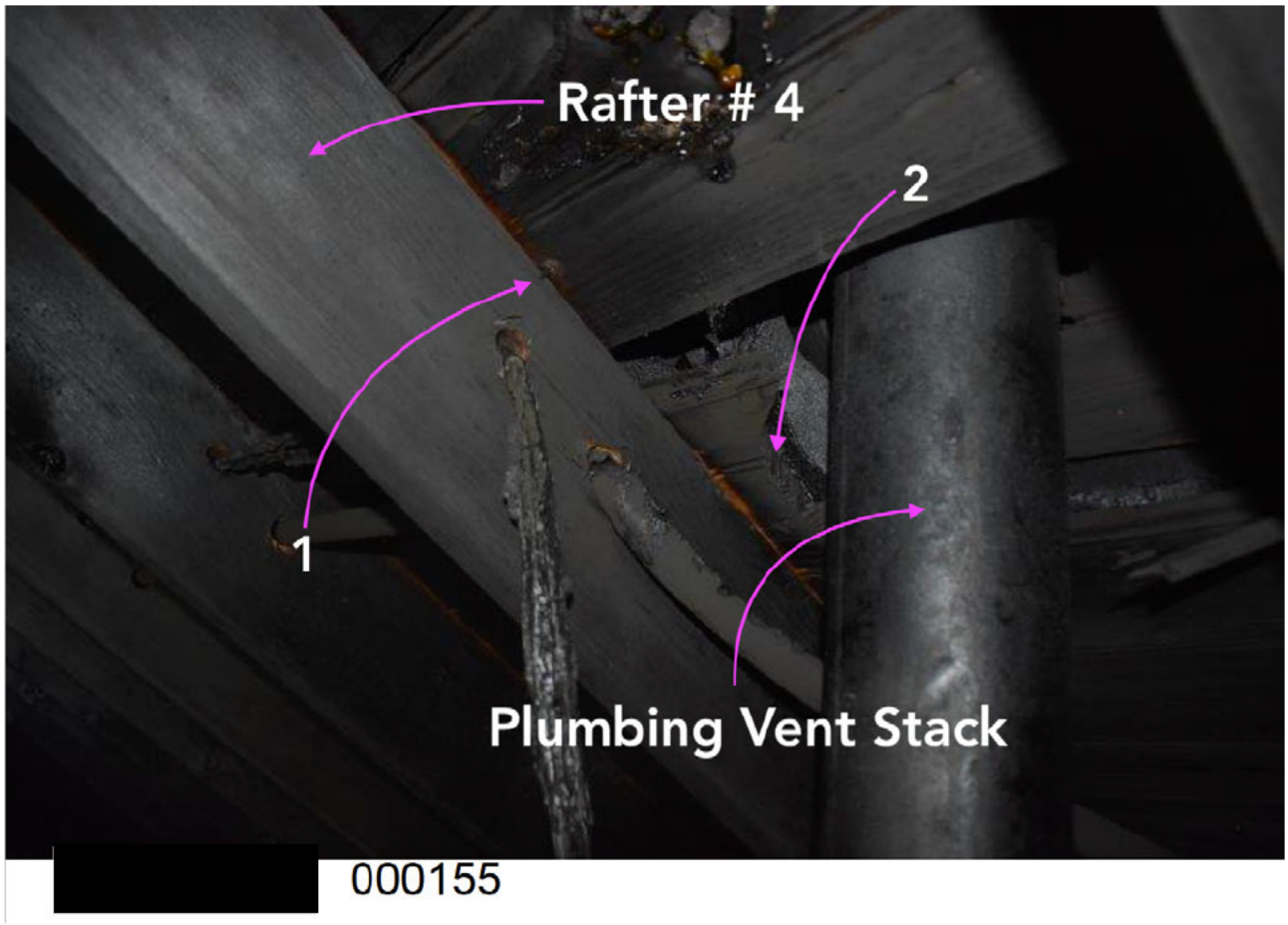


Image 22

[redacted] 000155 (Image 22), is an image of the attic space looking South near the plumbing vent stack as it was after the explosion and fire, produced by the Fire Marshall during his investigation. Rafter #4 was to the East of the plumbing vent stack.

Arrows 1 & 2 of image 23 point to the same item's observable in image 22 of the roof section in the evidence facility as a point of reference. The pointed end of a roofing nail is evident at arrow 1 and the circular edge cut-out of the roof sheathing is evident at arrow 2.

Image 23

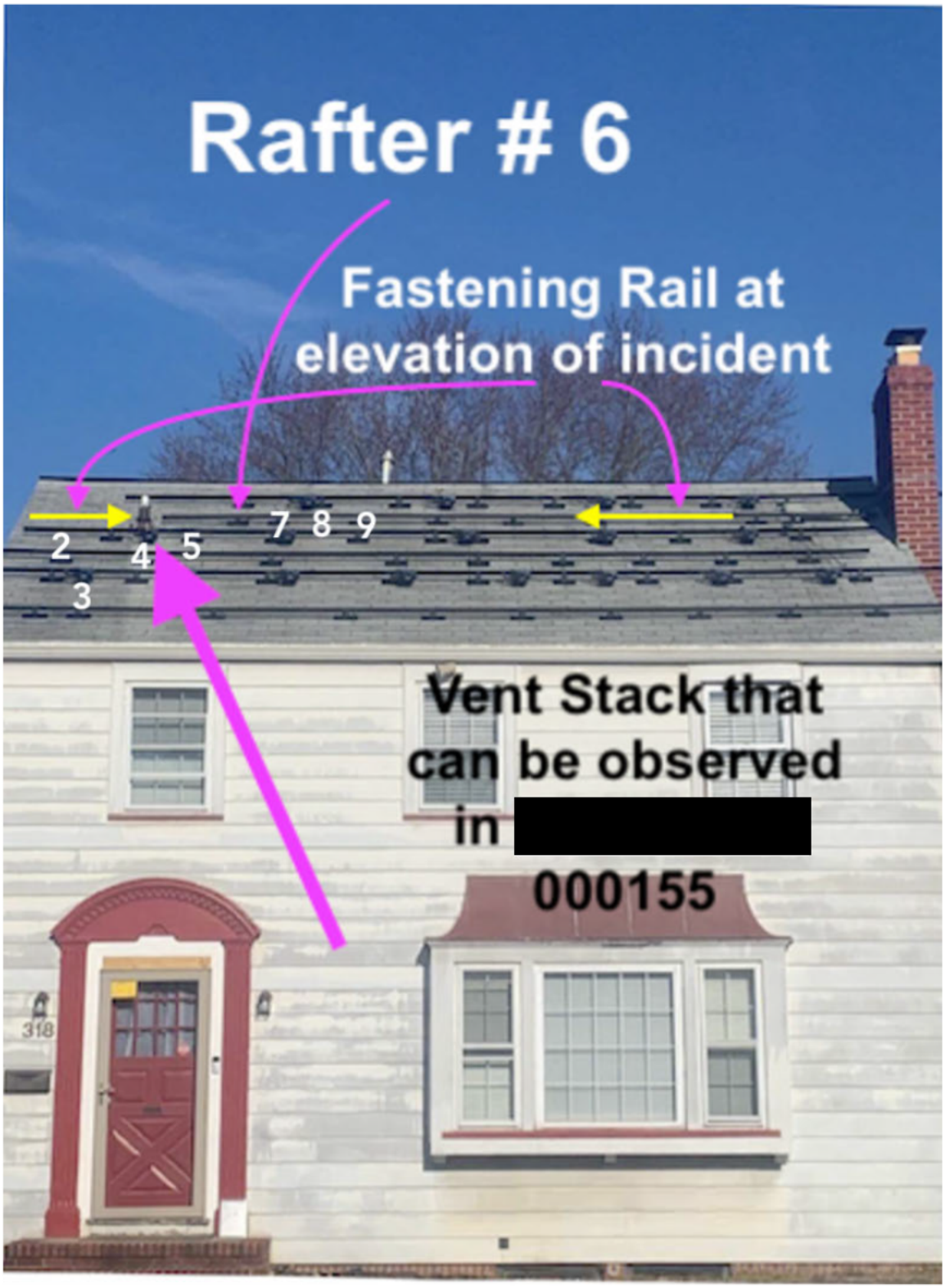


Image 24

Image 24 is an image provided by the Defendant, taken by tradesmen on the day of installation. I have numbered the rafters as they correspond to the rafters in images 19 – 21. The yellow arrows identify the horizontal location of the rail, relative to the horizontal location of the gas line, perpendicular to the rafters.

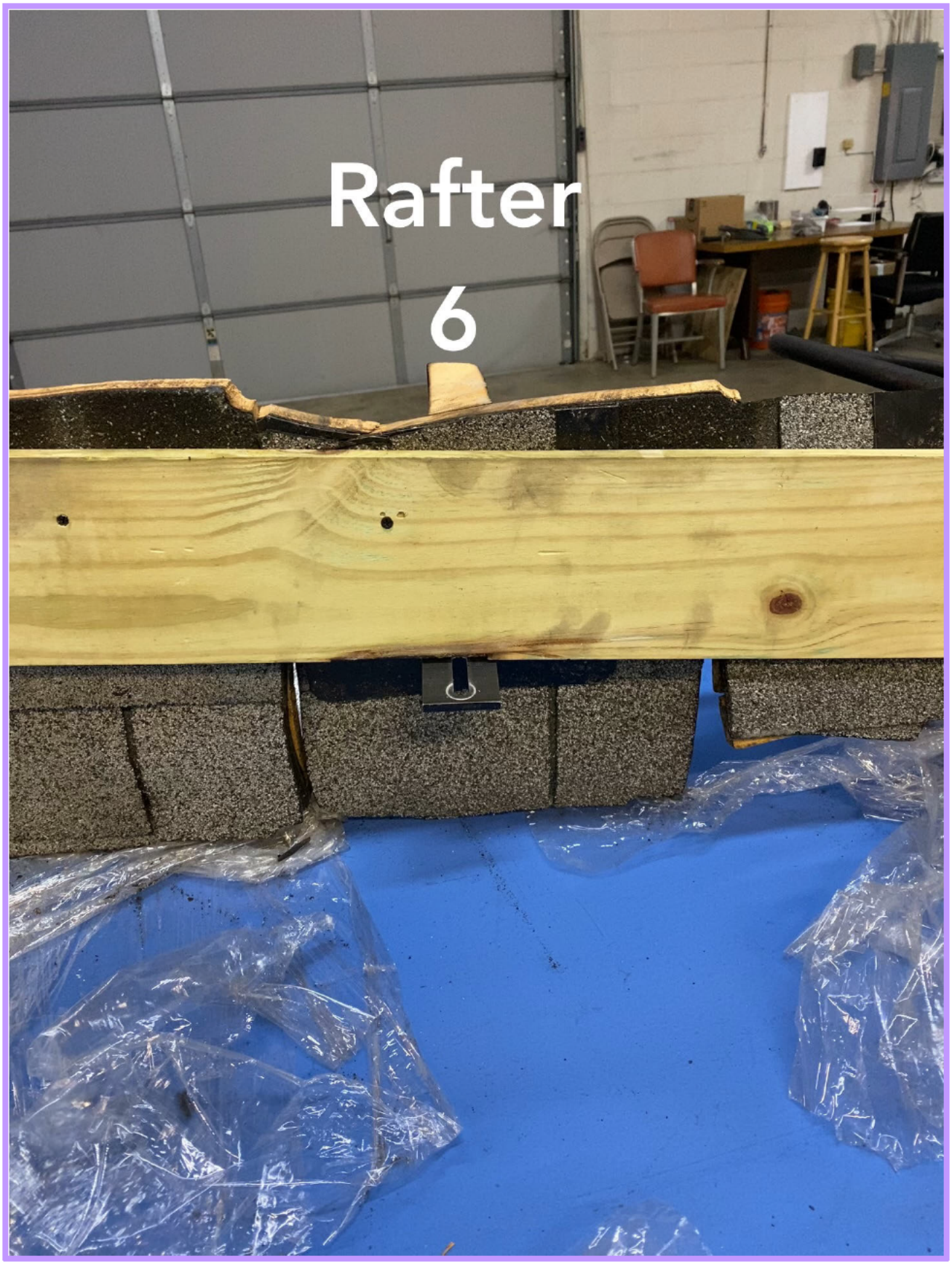


Image 25

The installation bracket can be observed at the center of the image.

Image 26

Image 26 is of rafter #6 as viewed from the East side. In this image the following can be observed: Arrows 1 -3 point to evidence of lag bolt penetrations where 3 attempts were made at locating the rafter prior to the 4th attempt engaging the rafter.

Image 27

Image 27 shows the same East side of rafter #6 with the lag bolt visible in the double bored opening for the gas pipe.

Image 28

This image shows the lag bolt when viewing rafter #6 from the West side.

Having worked as a carpenter for a good portion of my career, understanding how layout is performed and how, without having performed what is known as an indexing of the framing layout, attempting to run the lag bolt into the rafter, when you "think" you know where a rafter is located and you proceed to drill, not being directly over the framing member will cause the screw to only hit the roof sheathing. When this happens, the installer will notice that the torque and rpm's of the drill driver do not change and the drill motor does not load up, signaling that he is not into the framing. When drilling into a solid member, such as a 2 x 8, the drill motor will, what is known as "bog down", signifying to the operator that the fastener has in fact run into solid material.

.

Conclusion/Opinions

- It is my opinion that the Defendant does not possess a basic knowledge of construction, the trades, and the work his Technicians produce and the potential impact on other trades work.

- It is my opinion that the Defendant, at the time of the incident, did not possess a basic knowledge of the importance of having a policies and procedures manual established and in use, ensuring a complete circuit of information to travel from the initial site survey to the actual installers in the field.

- It is my opinion that the Defendant, through his Technicians, should have known that the flexible gas pipe was not only in the attic, but that its proximity to the location the L brackets were being installed, relative to the length of lag bolts specified, could create the incident that eventually occurred.

- It is my opinion, based on observing the photos that were taken the day of bracket and rail installation by Defendants Technicians, and observing the lack of professional care that was employed to maintain a straight line of the L brackets (this report images 14 & 15), that the chalk lines that were used to have established centers of rafters were off both vertically and horizontally, causing the screw to miss the rafter, penetrating the gas pipe at rafter #6.

- It is my opinion, based on photos produced by Defendants Technician, [redacted] State Fire Marshal and my personal observations, that the location of the original installation of the flexible gas pipe was within the code requirements.

- It is my opinion that the actions of the Defendant, [redacted] Solar Engineering and its agents, servants, and/or employees were well below industry standards and were the direct cause of the explosion and subsequent fire at [redacted] on February 3rd, 2020.

I hold these opinions to a reasonable degree of construction certainty, for which I am prepared testify under oath. Should contradictory evidence be presented to me, I reserve the right to add, alter or amend my opinions as expressed in this report.

Paul L. Johnson, Principal, Gryphon Consulting

Expert Witness

VIII. Appendix A – Documents & Materials Considered

The following items/documents are contained within a Gryphon Consulting owned DropBox folder titled "Appendix A"

1. 01 [redacted] Contract
2. 02 [redacted] Deposition Transcript
3. 03 [redacted] UCC Application
4. 04 EMC Sign-in Log 4-24-23
5. 05 [redacted] Public Records
6. 06 [redacted] Solar Contract
7. 07 [redacted] State Fire Marshal Report
8. 08 [redacted] State FM Photos

IX. Appendix B – Curriculum Vitae

Paul L. Johnson

Construction - Expert Witness & Owner's Representative

Paul@GryphonConsulting.us
727-403-8773

Gryphon Consulting, LLC
2037 Blue River Road
Holiday, Florida 34691
www.GryphonConsulting.us

An expert witness, owner's representative, and consultant on matters related to residential and light commercial new construction and renovation projects. Award-winning construction professional with 35 years of hands-on experience. Founder/operator of two successful construction firms. Experience includes all aspects of residential construction, new builds and remodeling, light commercial construction and tenant buildout -- multiple new builds, over 60 whole home remodels, more than 500 kitchen remodels, almost 400 master bath remodels, numerous tenant fit out projects, restaurants, and a historic landmark complete renovation. Extensive consulting experience as an owner's representative. Patented inventor of cabinet installation assembly. Author of the book *Residential Construction & Remodeling: Straight Talk About the Industry & Process.*

Areas of expertise include, but are not limited to:

- Construction Defects
- Cabinetry/Trim Defects
- Interior Finish Defects
- Exterior Finish Defects
- Water Intrusion Issues
- Window & Door Defects
- Framing Defects
- Tile & Stone Defects
- ADA, IRC and IBC Codes
- Design Process
- Critical Path Scheduling

Professional Experience

Gryphon Consulting, Greater Tampa, FL area
Founder and President, 2021-Present

- Expert witness and owner's representative. Consulting on matters related to high-end, high-value residential new construction and renovation projects. Provide expert witnesses services to both plaintiff and defense counsel and insurance companies.

Paul L. Johnson Interiors, Inc., Greenville, SC
Founder & President, 2012-2021

- Served some of the area's most well-known and high-profile residents with high-end whole home remodels, wine cellars, custom kitchens and custom master suites/baths.

Nice Contracting Consulting Management, Inc., Washington, DC area
Founder & President, 1986-2012

- Licensed in Maryland 1986-2012
- First million-dollar revenue year 1991
- First Fortune 500 Client (Telco) 1995
- Company record (The Rouse Company) for fastest build-out of mall restaurant with no disruption to adjacent tenants; build-out time 31 calendar days 1996
- GSA qualified contractor 1998
- Performance and payment bond qualified 1998
- Complete demolition of 1,600sf ranch style home down to first floor deck and construction of 4500sf home, while maintaining a fully operational dental office in basement 1998-99
- First five million-dollar sales year 1999
- In 2006 shifted focus to smaller high-end custom projects and consulting
- Extensive consulting experience as an owner's representative - provided advice on which design professional, contractor, etc. to hire, and also monitored progress along the way, reviewed changes, monitored schedule, etc.
- Representative for Fourth Presbyterian Church Bethesda, MD for $13.2 million-dollar construction/renovation project
- Complete remodeling of kitchen for contest winner of HGTV Design On-A-Dime TV program through the Rachel Ray Show. Completed total custom kitchen renovation in 7 days.

- Earned Contractor of the Year award from NARI (National Association of the Remodeling Industry) in 2010 for "Kitchen Remodel over $150,000" and second place for "Interior Remodel over $500,000"
- Remodeled homes for some of the nation's most recognized public figures

Independent Order of Foresters (Now, Foresters Financial)
Sales Representative, 1983-1986

- Became licensed California, straight commission Insurance Agent
- Earned company-wide sales awards each year

Solar Energy Sales, Palm Springs, CA
Installer's Helper, 1983-1984

- Installed solar hot water systems for pools, spas and commercial hot water needs

Harvey Construction, Washington, DC
Laborer and Carpenter Apprentice, 1982-1983

- Received on-the-job training
- Performed various framing, interior/exterior trim carpentry duties, installation of windows and doors, concrete forming and other commercial carpentry services
- Promoted three times

RT Estabrook Cabinetry, Silver Spring, MD
Cabinetmaker's Helper/Apprentice, 1981-1982

- Custom cabinet fabrication/installation

United States Army National Guard
Maryland Army National Guard Soldier, PFC 1980-1983

- Enlisted Soldier with 11-C M.O.S. (Military Occupational Specialty), 41mm mortar, mechanized infantry
- Earned Soldier of the Day with competition from 5,000 other soldiers, during Advanced Infantry Training at Ft. Benning, GA
- Promoted to Squad Leader
- Graduated having earned expert marksman in rifle, pistol and grenade launcher
- Received Honorable discharge 1983

Superior Carpet Shop, Washington, DC
Warehouseman, Installer's Helper/Apprentice, 1980-1981

- Prepared material orders in warehouse for installers
- Prepared carpet sections according to drawings for installers
- Prepared rooms/areas for installers

JH Lawrence Construction, NASA, Goddard Space Flight Center, Greenbelt, MD
Union Carpenter's Apprentice, 1979

- Beginners carpentry apprentice work performing various kinds of commercial carpentry, doing tenant build-out and general upfit type work

Education

Paint Branch High School, Burtonsville, MD

- Maryland High School Diploma

Montgomery County Maryland Fire/Rescue Academy

- Firefighter 1 & 11
- EMT
- Auto Extrication

Licenses, Certifications & Certificates[1]

- Licensed Unlimited Home Builder, South Carolina. Current
- Licensed Commercial General Contractor, South Carolina. Expired 2022
- Licensed Home Improvement Contractor, Maryland. Expired 2012
- Licensed Home Improvement Contractor, District of Columbia. Expired 2012
- Licensed Home Improvement Contractor, Virginia. Expired 2012
- Appraisal Institute certified Residential Appraiser. Expired 2003
- American Society of Home Inspectors (ASHI) certified Home Inspector. Expired 2002

Publication

Residential Building & Remodeling, Paul L. Johnson, Author
First published 2014

Patent

US Patent # 8146873 for Cabinet Installation Assembly

Professional Organizations & Societies

- Rotary International, Greenville, SC Paul Harris Fellow 2013-2018
- American Institute of Architects, Allied Member 40715206, Current
- American Bar Association, Associate Member 05730621, Current
- National Association of the Remodeling Industry (NARI), 2006-2011
- National Kitchen & Bath Association (NKBA), 2006-2011
- American Society of Home Inspectors, 2002-2006
- Associated Builders & Contractors, Washington, DC Chapter, 1992-1996

Emergency Medical & Fire Department Experience

Hillandale Volunteer Fire Department, Montgomery County, MD
Firefighter II/EMT 1977-1983; 1986-1987

[1] South Carolina License number is 49135; South Carolina Commercial General Contractor License number is 123067; Maryland Home Improvement License number was 28200; Virginia Contractor's License number was VA2705035760; District of Columbia Home Improvement Contractors License number was 66003911. No known registration information for ASHI and Appraisal Institute.

Honors & Awards

- Contractor Of the Year (COtY) for Kitchen Renovation over $150,000, NARI, 2010
- COtY for Remodel over $500,000, second place, NARI, 2010
- Best of Houzz 7 consecutive years, 2014-2020
- Recommended by Houzz Community 2015
- Houzz Influencer 2015
- Rouse Company, Columbia, MD, fastest build-out of mall space as well as no disruption to adjacent tenants, best in company history, 1996