



December 20, 2022

Mr. Matthew Mitchell  
**AIG Claims, Inc**  
17200 West 119<sup>th</sup> Street  
Olathe, KS 66061

Insured:	Harry Silverglide
Address:	15771 Waite Island Drive Fort Myers, Florida 33908
D/O/L:	9/28/2022
Your File No.:	80134492
FCNA File No.:	105783

Dear Mr. Mitchell:

On September 30, 2022, you contacted our office and requested we investigate the property damage reported by Mr. Harry Silverglide. We contacted Mr. Silverglide on October 11, 2022 and scheduled a site investigation of the property located at 15771 Waite Island Drive, Fort Myers, Florida 33908. The site investigation was conducted from approximately 10:46 AM to 3:30 PM on November 4, 2022 and November 28, 2022 approximately 3:00 PM to 5:30 PM. During our site investigation, we were accompanied by the owner, Mr. Silverglide, and his attorney's representative from Buckland and Dang, P.A., Ms. Jakira Colon.

### **SCOPE OF SERVICES**

At your request, we:

1. Performed a visual observation of the area(s) of concern,
2. Provided a verbal report of our findings, and
3. Prepared a written report summarizing the findings.

### **BACKGROUND**

The subject residence was located in flood zone "AE" as classified by Federal Emergency Management Agency (FEMA), and the base flood elevation was 8 feet above the North

American Vertical Datum of 1988 (NAVD88) according to the FEMA Flood Map Service Center.<sup>1</sup>

The subject structure was a two-story, single-family, concrete masonry unit (CMU) residence (Photographs 1 through 4). The exterior of the residence was clad with painted CMU and stucco. The roof was hip and gable in configuration and covered with concrete roof tiles.

According to the applicable property appraiser's website, the residence was built in 2000 and is, therefore, approximately 22 years old. The insured has owned the property for the past 15 years. The applicable property appraiser's website indicated that a re-roofing permit was issued on June 23, 2017, placing the age of the current roof at five (5) years.

It was alleged that on the reported date of loss, the exterior, interior, and roof were damaged by flood and/or wind associated with Hurricane Ian.

The attorney, Ms. Cassidy Dang Buckland (via telephone), and Ms. Colon provided the following additional relevant information:

- The exterior and garage of the residence were inundated with approximately 12 inches and 9 inches of floodwater, respectively during the passage of Hurricane Ian on September 28, 2022 (reported date of loss).
- During the preliminary inspection performed by the attorney with an engineer prior to November 4, 2022 (the date of our first site investigation), interior leaks and staining on the roof decking were noticed.
- The electrical light fixture, fascia boards, pool and patio enclosure screens, pool enclosure framing members, windows, doors, interior ceiling, and roof were damaged by wind associated with Hurricane Ian.
- The above-mentioned damage was first noticed on the reported date of loss.
- No repairs were performed to the exterior, interior, or roof on or after the reported date of loss.

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<sup>1</sup> FEMA Flood Map Service Center,  
<https://msc.fema.gov/portal/search?AddressQuery=246%20Barefoot%20Beach%20Boulevard%2C%20Bonita%20Springs%2C%20Florida%2034134#searchresultsanchor> (accessed October 23, 2022).

## **OBJECTIVE**

The purpose of the site investigation and this report was to provide an opinion on: (a) the cause, origin, duration, and extent of the reported damage to the exterior, interior, and roof, (b) whether this damage was a result of wind or flood associated with Hurricane Ian, and (c) the repairability of the roof.

## **FILE MATERIALS REVIEWED**

For the preparation of this report, we reviewed the documents noted below. Included in this report are highlights of these documents. These highlights are not to be construed as complete summaries of all the information contained within these documents. The findings included at the end of this report are based upon a review of the entire documents, not just the highlights included in this report.

1. Field notes and photographs taken during our site investigation on November 4, 2022 and November 28, 2022.
2. Historical aerial images obtained from the applicable property appraiser's website and Google Earth Pro.
3. First Notice of Loss (FNOL) prepared by AIG Claims, Inc. (author and document date unidentified).

In addition to the above-mentioned documents, we obtained and reviewed weather data from several publicly available resources. A summary of our findings from this review is provided in the next section.

## **WEATHER DATA**

### **Topographic Map Data**

The United States Geological Survey (USGS) topographic maps indicated that the residence elevation was approximately 6.34 feet above NAVD88.<sup>2</sup> Figure 1 displays a portion of a topographic map containing the residence.

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<sup>2</sup> USGS – The National Map, <https://viewer.nationalmap.gov/theme/elevation/> (accessed October 23, 2022).

## Hurricane Ian Impact

According to the Wikipedia online website:<sup>3</sup>

*Hurricane Ian was a large and extremely destructive Category 4 Atlantic hurricane, that was the deadliest hurricane to strike the state of Florida since the 1935 Labor Day hurricane. Ian caused widespread damage across western Cuba and the southeast United States, especially the states of Florida and South Carolina. It was the ninth named storm, fourth hurricane, and second major hurricane of the 2022 Atlantic hurricane season.*

*Ian originated from a tropical wave that moved off the coast of West Africa and then across the central tropical Atlantic towards the Windward Islands. The wave moved into the Caribbean Sea on September 21, bringing gusty winds and heavy rain to Trinidad and Tobago, the ABC islands, and to the northern coast of South America. It became organized as a tropical depression on the morning of September 23, and strengthened into Tropical Storm Ian early the next day while located southeast of Jamaica. It then rapidly intensified into a high-end Category 3 hurricane within a 24-hour period, culminating in a landfall in western Cuba. Heavy rainfall from Ian caused widespread flooding across Cuba, resulting in a nation-wide power outage. Ian lost a minimal amount of strength while over land, and soon restrengthened over the southeastern Gulf of Mexico. Ian became a high-end Category 4 hurricane early on September 28, 2022, as it progressed towards the west coast of Florida, and made landfall just below peak intensity in southwest Florida on Cayo Costa Island, tying with several other storms as the 5th-strongest hurricane on record to make landfall in the contiguous United States. After moving inland, Ian rapidly weakened to a tropical storm before moving back offshore into Atlantic, where it reintensified back to a hurricane before making its final landfall in South Carolina. Ian became extratropical shortly after landfall and gradually weakened before dissipating over southern Virginia late on October 1....*

*Ian caused catastrophic damage with losses estimated to be in excess of \$67 billion. Damage was mostly from flooding, with the cities of Fort Myers Beach and Naples particularly impacted. Millions were left without power in the storm's wake, and numerous inhabitants were forced to take refuge on*

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<sup>3</sup> Wikipedia, [https://en.wikipedia.org/wiki/Hurricane\\_Ian](https://en.wikipedia.org/wiki/Hurricane_Ian) (accessed October 23, 2022).

*their roofs. Sanibel Island and Pine Island were hard hit by storm surge, which caused severe flooding and damaged both the Sanibel Causeway and the bridge to Pine Island.*

#### Recorded Maximum Wind Speed and Precipitation Data

We obtained weather data from September 26, 2022 through October 1, 2022 from the National Oceanic and Atmospheric Administration (NOAA's) National Weather Service (NWS) website of <https://w2.weather.gov/climate/>. The closest weather station to the subject residence was a weather station at Fort Myers Page Field Airport, Florida, approximately 9 miles northeast of the subject residence. The recorded maximum sustained wind speed and wind gusts at this weather station during this period were 44 miles per hour (MPH) and 67 MPH, respectively, on September 28, 2022 (the reported date of loss), and the estimated rainfall at this residence during this period was approximately 5.2 inches (Figure 2). Based on the additional information from this weather station, it should be noted that the instrument measuring the wind speeds at this station reported erroneous or no additional data during the course of Hurricane Ian. Therefore, the recorded wind speeds at this station during the passage of Hurricane Ian cannot be relied upon.

The next closest weather station to the subject residence was a weather station at Fort Myers Southwest Florida International Airport, Florida, approximately 14 miles northeast of the subject residence. The recorded maximum sustained wind speed and wind gusts at this weather station during this period were 78 MPH and 110 MPH, respectively, on September 28, 2022 (the reported date of loss), and the estimated rainfall at this residence during this period was approximately 6.57 inches (Figure 3).

#### USGS River Gauge Data

According to the USGS–National Water Information System's Water Resources online website, the gage height of the nearest USGS stream gage, USGS 02291580 on North Branch Estero River at Estero, Florida, rose from approximately 10.1 feet on September 27, 2022 to approximately 14.3 feet on September 28, 2022 (Figure 4).<sup>4 5</sup> This gage was approximately 13 miles southeast from this residence. It should be noted that this stream

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<sup>4</sup> According to the USGS definitions of Gage Datum and Elevation, <https://waterdata.usgs.gov/wa/nwis/current/?type=datum>: "The terms "datum" and "elevation", such as used in the "Location" or "Gage" paragraphs in USGS publication and on Web pages, refers to the base, or 0.0 foot gage-height (stage), for a gage. The term datum is used when the base gage-height has been surveyed in from known benchmarks or with precision GPS. The term elevation is used when the base gage-height has been determined from less accurate means, such as maps, barometer, etc. (accessed October 23, 2022).

<sup>5</sup> USGS-NWIS: Water Resources, <https://waterdata.usgs.gov> (accessed October 23, 2022)

did not have a direct relevance to the subject residence and/or the waterbody closest to the subject residence. The information for this stream gage is provided here for reference purposes only.

### USGS High-Water Mark Data

The USGS deployed storm sensors prior to the hurricane and surveyed high-water marks throughout the flood-affected areas. According to the USGS-Flood Event Viewer's online website, a survey point, FLLEE32761, which was approximately 0.25 miles southeast from the subject residence, documented a high-water mark of 2.49 feet above the local ground (Figure 5).<sup>6</sup> This high-water mark elevation was 8.1 feet NAVD88.

### NOAA Buoy Stream Gage Data

According to the NOAA buoy stream gage data, the nearest coastal gage at Fort Myers, which was about 12 miles northeast of this residence, reached a maximum height of approximately 7.53 feet NAVD88 during Hurricane Ian (Figure 6).<sup>7</sup>

## **OBSERVATIONS**

For the purpose of this report, all directions are given from the perspective of an individual standing in front of the subject structure and looking toward the front of the subject structure. No material testing or destructive testing was performed for the purpose of this report. Observations made during this site inspection followed (but were not limited to) recommendations described in the American Society of Civil Engineers (ASCE) Guidelines for Structural Condition Assessment of Existing Buildings, Standard SEI/ASCE 11-99. During our site investigation, we observed the following relevant conditions:

### Exterior

- The exterior high-water marks along the front side of the residence were approximately 12 inches above the adjacent exterior grade (Photograph 5).
- No abrasion (impact) marks, fractures, or separations were on the piles, boat dock, or boat lift. The floorboards of the dock were not loose, fractured, separated, warped, or missing (Photograph 6).

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<sup>6</sup> USGS-Flood Event Viewer, <https://stn.wim.usgs.gov/FEV/#2022Ian> (accessed October 23, 2022).

<sup>7</sup> NOAA Tides and Currents, <https://tidesandcurrents.noaa.gov/stations.html?type=Water+Levels> (accessed October 23, 2022).

- One (1) exterior electrical light fixture was fallen along the front side of the residence (Photograph 7).
- Approximately three (3) fascia boards along the left side of the residence were loose, fractured, separated, and missing (Photographs 8 and 9).
- Separations up to ½-inch wide and abrasion marks were on the roof deck railing along the left side of the residence (Photographs 10, 11, and 12).
- Approximately fifty-five (55) pool and patio enclosure screens along the rear side of the residence were loose, torn, separated, and/or missing. Nine (9) pool enclosure framing members were bent, twisted, warped, fractured, or separated (Photographs 13 through 16).

## Roof

- Overviews of the roof facets are shown in Photographs 17 through 28. Attachment B of this report shows a roof diagram with the general location of the wind-damaged tiles.
- The concrete roof tiles on the residence were of the “Entegra” brand and were adhesive foam set. The approximately 10-inch-wide by 16½-inch-long by 1½-inch-thick field tiles were installed with an average 13-inch exposure. The approximately 10-inch-wide by 17-inch-long by 1-inch-thick hip/ridge cap tiles were installed with an average 14½-inch exposure. The ridge-cap and hip-cap tiles were mortar set (Photographs 29 through 35).
- Several randomly fractured, scattered, and/or missing field tiles were on the roof, as follows: (facet-quantity of shingles) front-facing-8, right-facing-3, rear-facing-4, and left-facing-3. These included 18 field tiles (Photographs 36 through 44).
- Diagonal and/or radial fractures were in tiles in the field or tiles along the valleys, eaves, rakes, ridges, and hips. Vertical offsets were across several fractures. No abrasion (impact) marks were on the tiles. The fractured (and separated) pieces at several such tiles were in place, moved downslope, or missing from the roof (Photographs 45 and 46).
- Several cracks were in the mortar at the joints between the ridge-cap and hip-cap tiles. No abrasion (impact) marks were on these tiles (Photograph 47).

- The remainder of the tiles were not randomly skewed, flipped, scattered, displaced, or missing.

### Interior

- The high-water marks inside the garage along the front side of the residence were approximately 9 inches above the concrete slab-on-grade of the garage (Photograph 48).
- Delamination, bulges, and separations were on the bottom of the cabinet inside the garage. Dark brown stains, cracks, and/or peeled texture were on the baseboard and the floor adjacent to the garage door and on the exterior surface of the garage door (Photographs 49 through 52).
- Cracks/separations up to 1/8-inch wide were between the floor and baseboard interface of the detached studio, first story entry hallway, and second story of the stairway and sauna of the residence. No discernible stains or cracks were on the ceiling and walls above these cracks/separations (Photographs 53, 54, and 55).
- Cracks up to 1/16-inch wide without discoloration and/or drywall separation were on the ceiling, wall, and/or crown molding of the rear-right closet, master bathroom, and master bedroom of the apartment, first story office, and second story of the front-left bedroom, theatre room, and left stairway to the roof decking area of the residence (Photographs 56, 57, and 58).
- Light brown stains, cracks up to 1/8-inch wide, and/or delamination were in the sealant and/or paint at the interface of the wood-framed windows and interior trim, window stools, and frames of the windows of the first story of the rear-left bedroom, laundry room, left hallway bathroom, and office and second story of the gym, front-left bedroom, theatre room, and rear-left bedroom of the residence. Gaps up to 2 inches long were between the ends of the weather-stripping seals and window (Photographs 59 through 66).
  - No discernible stains or cracks were on the ceiling and walls above these windows.
  - No cracks, fractures, warp, bows, or other forms of distortions were on the window glass panes, window frames, or stucco around the windows.
- Light brown stains, peeled texture, and/or cracks were around the doors and floor



below the doors of the detached studio, the living room of the apartment, the first story of the rear left bedroom, entry/hallway, and living room, and second story of the rear-left bedroom of the residence. No discoloration was on the ceiling and wall above these doors (Photographs 67 through 75).

- No cracks, fractures, warp, bows, or other forms of distortions were on the door frames or stucco around the doors. Black stains, delamination, and suspected fungal decay were on the exterior surface of several doors.
- Dark brown stains and/or suspected fungal decay were on the ceiling and wall of the garage, first story wine room, and second story of the gym, left stairway to the roof decking area, and rear-left bedroom. Light brown stains, vertical streaks, peeled texture, and/or cracks up to 1/8-inch wide were on the ceiling, ceiling-to-crown molding interface, and walls of the living room of the apartment, first story of the game room, kitchen, and entry hallway, and second story sauna. The tiles above and/or upslope of the ceiling and/or wall stains of these rooms were not randomly skewed, flipped, scattered, or missing (Photographs 76 through 104).
- No discernible stains or cracks were on the ceiling, walls, and/or around the windows of the first story of the utility closet and elevator room and the second story of the stairway to the theatre room and living room of the residence (Photographs 105 and 106).

## **ANALYSIS**

### **Flood-Related Damage/Conditions**

According to FEMA's *FEMA P-550 Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations* (2009):

*"Storm surge is water that is pushed toward the shore by the combined force of the lower barometric pressure and the wind-driven waves advancing to the shoreline. This advancing surge combines with the normal tides to create the hurricane storm tide, which in many areas can increase the sea level by as much as 20 to 30 feet. Figure 1-4 is a graphical depiction of how wind-driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with high tides. Because much of the United States' densely populated coastlines lie less than 20 feet above sea level, the danger from*

*storm surge is great. This is particularly true along the Gulf of Mexico where the shape and bathymetry of the Gulf contribute to storm surge levels that can exceed most other areas in the U.S.”*

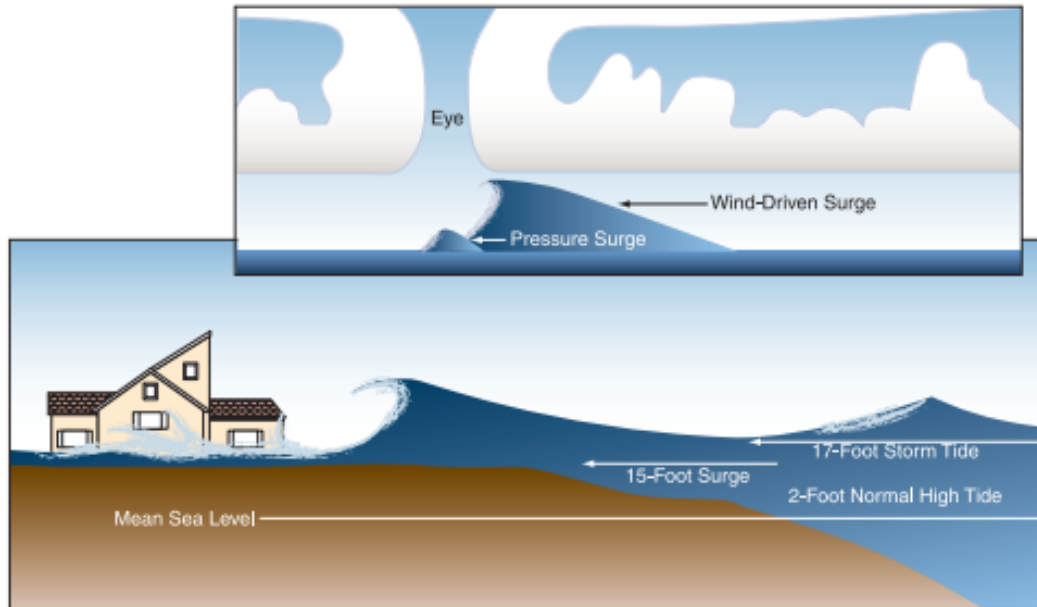


Figure 1-4.  
Graphical depiction of a hurricane moving ashore. In this example, a 15-foot surge added to the normal 2-foot tide creates a total storm tide of 17 feet.

Water flowing around a building or structural element imposes dynamic forces on the building. The magnitude of these forces is a function of flow velocity, structure geometry, and includes frontal contact on the upstream side and drag along the sides of the elements. These forces are referred to as hydrodynamic forces and are created by moving floodwater. Forces generated by moving water associated with a flood event are significant and can cause structural damage to the lower portions of structures or entire structures. Structural damage caused by hydrodynamic forces would be exhibited by bowed or leaning walls, horizontal cracks in the exterior walls, cracks along the corners of exterior walls, or even complete loss of the structure.

In addition, moving floodwater can also include wave forces and carry flood-borne debris that can impose impact loads onto a structure. Damage to the building system or components due to wave forces and/or flood-borne debris can be substantial and is the result of lateral forces imposed by the impact loading from the waves and moving debris.

The high-water marks on the subject residence indicated that the exterior of the residence and the garage were inundated with up to 12 inches and 9 inches respectively of

floodwater associated with Hurricane Ian. Therefore, the building materials within the bottom 9 inches of the garage were affected by the flood event. These materials were not damaged by wind associated with Hurricane Ian. The floodwater did not reach the interior of the remainder of the residence.

Based on the available evidence, the building materials within 12 inches above the exterior grade were affected by the flood event. Therefore, the building materials in the garage were submerged and/or damaged by the flood event and were not damaged by wind associated with Hurricane Ian consisted of the following:

- The interior of the garage, which included the garage door, cabinet, baseboard, and floor.

The integrity of the structure and foundation was not compromised by the flood event associated with Hurricane Ian.

#### Non-Flood-Related Damage/Conditions

The weather data revealed that during Hurricane Ian, the recorded maximum wind gust in the neighborhood of this residence was 110 mph. This magnitude of wind gust was elevated enough to damage exterior lightweight building materials and deficiently installed roofing components.

No abrasion (impact) marks, fractures, or separations were on the piles, boat dock, or boat lift. The floorboards of the dock were not loose, fractured, separated, warped, or missing. The boat dock was not damaged by flood and/or wind associated with Hurricane Ian.

The following building materials were damaged by wind and/or impact from wind-borne debris during the passage of Hurricane Ian and will require an in-kind replacement:

1. One (1) electrical light fixture along the front side of the residence.
2. 55 pool and patio enclosure screens along the rear side of the residence.
3. Nine (9) pool enclosure framing members along the rear side of the residence.
4. Three (3) fascia boards along the left side of the residence.
5. One (1) roof deck railing section along the left side of the residence.

Mortar-set ridge-cap and hip-cap tiles can become loose due to issues related to the original installation, such as improper mixing and application of the mortar at the time of construction, improperly placed mortar, and/or insufficient mortar underneath the tiles. Many roof tile manufacturers require that the tiles be wetted prior to being placed on the roof. If they are not, the tiles can be too dry and may absorb moisture from the mortar. When this occurs, the top portion of the mortar loses water, and the hydration process within the mortar is cut short. As a result, the top portion of the mortar is weakened and becomes susceptible to premature bond failure (cracks). The cracked mortar was a result of one or more of the above-mentioned factors and was not a result of the reported wind event.

Randomly skewed, flipped, scattered, displaced, or missing roof tiles may indicate that the tiles have been affected by wind. Typically, the first tiles that are affected by wind are along the ridges, hips, valleys, rakes, and eaves of the roof (i.e., along the edges of the roof). However, skewed, flipped, scattered, displaced, or missing tiles can also be found in the field and, most commonly, on the windward slopes of the roof. Wind damage to tile roofs includes the tiles being randomly skewed, flipped, missing, or scattered on the roof and surrounding areas. Fractured tiles due to wind are typically randomly scattered on the roof and surrounding areas.

The fractured, scattered, and/or missing tiles coincided with damage due to wind and/or impact from wind-borne debris during Hurricane Ian. Therefore, 18 field tiles were damaged by wind and/or impact from wind-borne debris, as follows: (roof facet-quantity of tiles) front-facing-8, right-facing-3, rear-facing-4, and left-facing-3.

Wind forces do not crack tiles and leave the tile or tile pieces in place. Fractured tiles due to wind are typically randomly scattered on the roof and surrounding areas. The observed fractured and/or cracked-in-place pattern does not coincide with damage caused by wind forces. The condition of roof tiles being fractured and/or cracked-in-place is typically the result of restrained thermal movement and/or other environmental factors that are not storm-related. The fractures/cracks in the fractured and/or cracked-in-place tiles due to the above-mentioned reasons are considered age-related deterioration.

The diagonal and/or radial cracks/fractures in the tiles with vertical offsets across the fractures coincided with a downward force applied at the cracks/fractures. Therefore, these cracks/fractures were a result of foot traffic. The downward displaced or missing pieces of such fractured tiles were a result of additional foot traffic or gravity subsequent to the cracking of the tiles from the foot traffic. These tiles were not damaged as a result

of wind associated with Hurricane Ian.

The remainder of the tiles were not randomly skewed, flipped, scattered, displaced, or missing. The remainder of the roof was not damaged by wind or wind-borne debris associated with Hurricane Ian.

Section 706 Existing Roofing of the Florida Building Code – Existing Building, 7th Edition (2020) (Code), governs the requirements for repair, recovering, or replacement of existing roofs. Regarding roof coverings, Section 706.1.1 reads:

*Not more than 25 percent of the total roof area or roof section of any existing building or structure shall be repaired, replaced, or recovered in any 12-month period unless the entire existing roofing system or roof section is replaced to conform to requirements of this code (25 Percent Rule).*

The residence roof had eighteen (18) roof tiles that were damaged by wind or wind-borne debris associated with Hurricane Ian, which equates to less than 1 percent (%) of the area of the individual roof section or the total roof area. Therefore, repairing the roof is allowed and the roof is not required to be replaced to conform to the requirements of the Code.

### Interior

Information Regarding Moisture Infiltration around Windows and Doors:

With regards to moisture infiltration around windows and doors, *Chapter 10 – Windows, Doors, and Opening Protection* of FEMA's *Local Officials Guide for Coastal Construction (FEMA P-762 / February 2009)* states the following:

- From FEMA P-762 Section 10.2 Window and Door Failure

*Water leakage around windows and doors is also quite common but because the effects of leakage are often subtle, the full effects of leakage are often not readily apparent. Leakage from poor flashing or weather stripping, from improper installation, or from doors or windows being inadequate to resist local conditions can allow water to enter a building's interior — even when the structure of the window or door remains intact.*

- From FEMA P-762 Section 10.5 Window and Door Leakage

*Hurricanes and coastal storms can pose significant problems from water-infiltration due to wind-driven rain. Leakage can occur between the door or window and their frames and between the door/window frames and the walls onto which they are mounted. Coastal storms such as tropical storms and hurricanes generate winds that may approach or exceed the wind speeds observed during design wind events. As such, these winds generate high-wind pressures on the outsides of the buildings, exploiting any vulnerability around doors and windows and allowing water to enter buildings. Further, leakage rates typically increase with greater wind speeds.*

- From FEMA P-762 Section 10.5.1 Code Requirements for Window and Door Leakage

*Proper door and window construction is critical to reducing water infiltration. Section R613.4 of the IRC and Section 1714.5.1 of the IBC require windows and sliding doors to be certified per AAMA/WDMA/CSA 101/I.S.2/A440, Standard/Specification for Windows, Doors, and Unit Skylights. Hinge doors must be certified per ASTM E330, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference. Both standards specify wind-pressure and water-leakage criteria that must be met in order to comply with code requirements.*

*In general, water-leakage tests are conducted at much lower differential pressures (typically 20 percent) than the pressures used to determine the strength of the glazing, window, or door assembly. This implies that some water entry through doors and windows should be anticipated during an event that produces design wind pressures and wind-driven rain.*

With regards to moisture infiltration around doors and windows, Section 11.2 Exterior Doors and Section 11.3 Windows and Skylights of FEMA's Coastal Construction Manual (FEMA P-55 / Volume II / August 2011) states the following:

- From FEMA P-55 Section 11.2.1.4 Water Infiltration

*Heavy rain that accompanies high winds can cause significant wind-driven*

*water infiltration. The magnitude of the problem increases with the wind speed. Leakage can occur between the door and its frame, the frame and the wall, and the threshold and the door. When wind speeds approach 150 mph, some leakage should be anticipated because of the high-wind pressures and numerous opportunities for leakage path development.*

- From FEMA P-55 Section 11.3.1.4 Water Infiltration

*Heavy rain accompanied by high winds can cause wind-driven water infiltration. The magnitude of the problem increases with wind speed. Leakage can occur at the glazing/frame interface, the frame itself, or between the frame and wall. When the basic wind speed is greater than 150 mph, because of the very high design wind pressures and numerous opportunities for leakage path development, some leakage should be anticipated when the design wind speed conditions are approached.*

#### General Information Regarding Duration of Moisture-Related Damage:

The duration of a moisture-related damage can be reasonably assessed from the color of the stain on building materials. For instance, as drywall (gypsum) material is exposed to moisture, the material slowly darkens in color. The longer it is exposed, the darker the stain becomes. Drywall will typically contain only a faint discoloration if it is exposed to a one-time event or over a short period of time. Similarly, the color of the water stains on wood is a good indication of the duration of the exposure of wood to moisture. The darker the wood, the longer the exposure had occurred. Lighter stains indicate exposure to moisture over one or two short-term events, while darker stains indicate exposure to moisture over many events over a long period of time.

Solid wood, interior plywood, exterior plywood, and oriented-strand board were tested by researchers (not at the subject residence) for continuous and cyclical moisture exposure over a 40-week period. The tests included 13 wet-dry cycles.<sup>8</sup> Moisture content and dimensional changes were documented. The researchers concluded that wood discolors slowly and requires continuous moisture exposure of two to five months to develop a dark color and six to eight months to develop a black color.

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<sup>8</sup> Ralph E. Moon and Alicia Moon, "Swelling Proof," Claims Management Magazine, February 2013, <http://claims-management.theclm.org/home/article/Evidence-for-continuous-and-repeated-water-exposure>.

### Cause, Origin, and Duration Assessment:

The absence of cracks, fractures, warp, bows, or other forms of distortions on the window glass panes, window frames, doors, and stucco around the windows and door indicated that these windows and doors were not damaged by wind associated with Hurricane Ian.

The cracks in the sealant and/or paint at the interface of the windows and interior trim and the light to dark brown stains, peeled paint, delamination, and/or suspected fungal decay on the window stools, window frames, and doors indicated that moisture had repeatedly affected these windows and door for more than six months prior to the date of our site investigation (prior to the reported date of loss). The causes of the moisture-related damage to the windows of the first story of the rear-left bedroom, laundry room, left hallway bathroom, and office and second story of the gym, front-left bedroom, theatre room, and rear-left bedroom and doors of the detached studio, living room of the apartment, first story of the rear left bedroom, entry/hallway, and living room, and second story rear-left bedroom of the residence were age-related deterioration and deferred maintenance. The damage was exacerbated by wind-driven rain during Hurricane Ian.

The absence of discoloration on the ceiling and walls of the detached studio, first story entry hallway, and second story of stairway and sauna, and along the cracks/separations of the rear-right closet, master bathroom, and master bedroom of the apartment, first story office, and second story of the front-left bedroom, theatre room, and left stairway to the roof decking area of the residence indicated that the reported damage to the floor-to-baseboard interface, ceiling, wall, and/or crown molding in these areas was not a result of moisture intrusion from the roof.

The cracks/separations between the floor-to-baseboard interface in the detached studio, first story entry hallway, and second story of stairway and sauna were a result of minor differential foundation movement. Additional subsurface investigations (which are beyond the scope of our current investigation) will be required to determine the specific cause(s) of the differential foundation movement.

The cracks/separations on the walls, ceilings, and/or at the interface of the crown molding-to-ceiling in the rear-right closet, master bathroom, and master bedroom of the apartment, first story office, and second story of the front-left bedroom, theatre room, and left stairway to the roof decking area were a result of the relative movement between the building materials as a response to the normal changes in ambient temperature and humidity (shrinkage cracks). The cracks/separations were cosmetic in nature and did not affect the structural integrity of the residence.



No discernible stains or cracks were on the ceiling, walls, and/or around the windows of the first story of the utility closet and elevator room and the second story of the stairway to the theatre room and living room. No evidence of moisture-related damage to the first story of the utility closet and elevator room and the second story of the stairway to the theatre room and living room was observed during our site investigation.

Due to the non-destructive nature of the investigation, the exact cause and origin of the damage to the garage, living room of the apartment, first story of the game room, kitchen, wine room, and hallway entry, and second story of gym, sauna, left stairway to the roof decking, and rear-left bedroom of the residence could not be determined. Based on the available evidence and our experience in investigating moisture intrusion through roofs, it is our opinion that the cause of ceiling and/or wall stains was a non-storm-related breach (age-related deterioration and/or construction deficiency) in the roofing underlayment above and/or upslope of the ceiling and/or wall stains. The damage was exacerbated by wind-driven rain during Hurricane Ian.

The light brown stains on the ceilings and/or walls of the living room of the apartment, first story of the game room, kitchen, and entry hallway, and second story sauna indicated that moisture had affected these ceilings from one or two events.

The dark brown stains and/or apparent fungal decay on the ceilings and/or walls of the garage, first story wine room, and second story of the gym, left stairway to the roof decking area, and rear-left bedroom indicated that moisture had repeatedly affected these areas for more than six months prior to the date of our site investigation.

Based on the available evidence and due to the time elapsed since the reported date of loss, the exact timeframe of the moisture-related damage in relation to the reported date of loss could not be determined.

## **CONCLUSIONS**

Based on our investigation and analysis, and to a reasonable degree of engineering certainty, and consideration of ASTM E2713-18, the following are our opinions and conclusions:

### **General**

1. The exterior of the residence and the garage were inundated with up to 12 inches and 9 inches respectively of floodwater associated with Hurricane Ian. The floodwater did not reach the interior of the residence.

2. The building materials within 12 inches above the exterior grade were affected by the flood event associated with Hurricane Ian. The building materials in the garage were submerged and/or damaged by the flood event and were not damaged by wind associated with Hurricane Ian:
  - a. The interior of the garage, which included the garage door, cabinet, baseboard, and floor.
3. The integrity of the structure and foundation was not compromised by the flood event associated with Hurricane Ian.

#### Storm-Related

1. The following building materials were damaged by wind and/or impact from wind-borne debris during the passage of Hurricane Ian and will require an in-kind replacement:
  - a. One (1) electrical light fixture along the front side of the residence.
  - b. 55 pool and patio enclosure screens along the rear side of the residence.
  - c. Nine (9) pool enclosure framing members along the rear side of the residence.
  - d. Three (3) fascia boards along the left side of the residence.
  - e. One (1) roof deck railing section along the left side of the residence.
2. Eighteen (18) field tiles were damaged by impact from wind-borne debris associated with Hurricane Ian (See Attachment B). The remainder of the roof tiles were not damaged by wind forces and/or impact from wind-borne debris associated with Hurricane Ian.
3. The residence roof had eighteen (18) roof tiles that were damaged by wind or wind-borne debris associated with Hurricane Ian, which equates to less than 1 percent (%) of the area of the individual roof section or the total roof area. Therefore, repairing the roof is allowed and the roof is not required to be replaced to conform to the requirements of the Code.
4. The causes of the moisture-related damage to the windows of the first story of the rear-left bedroom, laundry room, left hallway bathroom, and office and second

story of the gym, front-left bedroom, theatre room, and rear-left bedroom and doors of the detached studio, living room of the apartment, first story of the rear left bedroom, entry/hallway, and living room, and second story rear-left bedroom of the residence were age-related deterioration and deferred maintenance. The damage was exacerbated by wind-driven rain during Hurricane Ian. Moisture had repeatedly affected these materials for more than six months prior to the date of our site investigation (prior to the reported date of loss).

#### Non-Storm Related

1. The boat dock was not damaged by flood and/or wind associated with Hurricane Ian.
2. The other causes of the damage to the roof tiles were age-related deterioration and/or foot traffic.
3. The cracks/separations between the floor-to-baseboard interface in the detached studio, first story entry hallway, and second story of stairway and sauna were a result of minor differential foundation movement. Additional subsurface investigations (which are beyond the scope of our current investigation) will be required to determine the specific cause(s) of the differential foundation movement.
4. The cracks/separations on the walls, ceilings, and/or at the interface of the crown molding-to-ceiling in the rear-right closet, master bathroom, and master bedroom of the apartment, first story office, and second story of the front-left bedroom, theatre room, and left stairway to the roof decking area were a result of the relative movement between the building materials as a response to the normal changes in ambient temperature and humidity (shrinkage cracks).
5. The cracks/separations were cosmetic in nature and did not affect the structural integrity of the residence.
6. No evidence of moisture-related damage to the first story of the utility closet and elevator room and the second story of the stairway to the theatre room and living room was observed during our site investigation.
7. The cause of ceiling and/or wall stains in the garage, living room of the apartment, first story of the game room, kitchen, wine room, and hallway entry, and second story of the gym, sauna, left stairway to the roof decking, and rear-left bedroom of

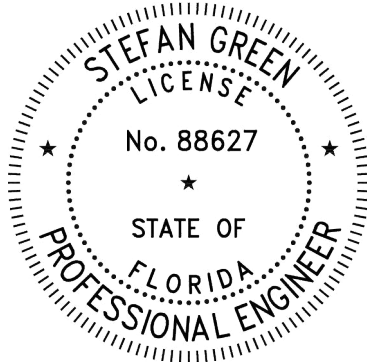
the residence was a non-storm-related breach (age-related deterioration and/or construction deficiency) in the roofing underlayment above and/or upslope of the ceiling stains. The damage was exacerbated by wind-driven rain during Hurricane Ian.

8. Moisture had affected the ceilings and/or walls of the living room of the apartment, first story of the game room, kitchen, and entry hallway, and second story sauna from one or two events.
9. Moisture had repeatedly affected the ceilings and/or walls of the garage, first story wine room, and second story of the gym, left stairway to the roof decking area, and rear-left bedroom for more than six months prior to the date of our site investigation.
10. Based on the available evidence and due to the time elapsed since the reported date of loss, the exact timeframe of the moisture-related damage in relation to the reported date of loss could not be determined.

We reserve the right to supplement or amend the findings and/or opinions of this report should new information become available.

Respectfully submitted,

*Forensic Consultants of North America, LLC*



This item has been electronically signed and sealed on the date shown adjacent to this block, using a digital signature.

Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.

Stefan Green, P.E.  
Florida License 88627

Attachments: Figures, Roof Diagram, and Photographs

***ATTACHMENTS***

***ATTACHMENT A: FIGURES***

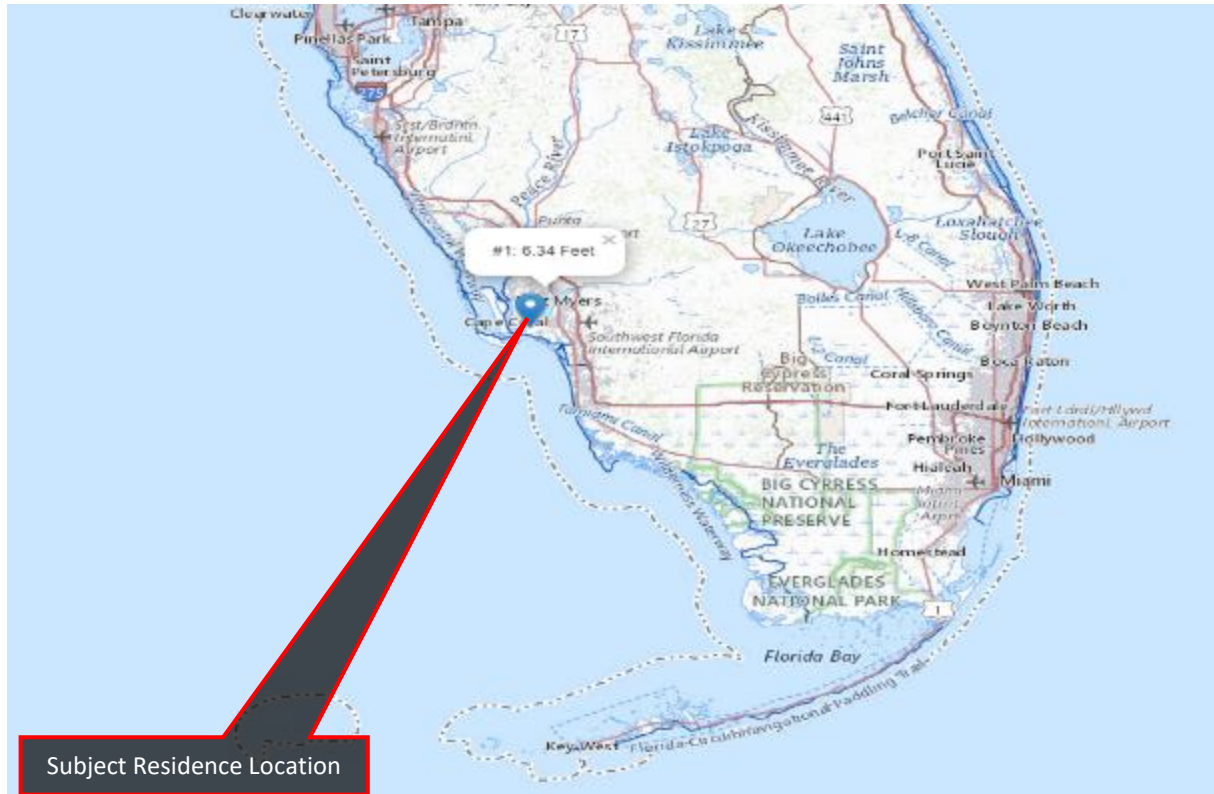


Figure 1: Topographic map of the referenced residence.

CF6FMY

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: FORT MYERS  
MONTH: SEPTEMBER  
YEAR: 2022  
LATITUDE: 26 34 N  
LONGITUDE: 81 52 W

TEMPERATURE IN F:										:PCPN:	SNOW:	WIND	:SUNSHINE:		SKY	:PK WND				
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18		
										12Z	AVG	MX	2MIN							
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR		
1	92	77	85	2	0	20	T	0.0	0	3.8	16	220	M	M	2 3		24	230		
2	91	76	84	1	0	19	0.04	0.0	0	5.7	22	280	M	M	2 13		26	280		
3	94	76	85	2	0	20	0.27	0.0	0	4.6	25	130	M	M	1 138		38	130		
4	96	76	86	3	0	21	0.00	0.0	0	5.4	12	110	M	M	2 3		17	90		
5	96	79	88	5	0	23	0.11	0.0	0	3.5	22	120	M	M	2 138		28	130		
6	95	79	87	4	0	22	0.00	0.0	0	3.3	15	320	M	M	1 3		20	320		
7	96	73	85	2	0	20	3.12	0.0	0	5.3	33	30	M	M	3 123		47	40		
8	89	74	82	-1	0	17	1.08	0.0	0	4.1	20	280	M	M	3 13		27	280		
9	91	74	83	0	0	18	0.64	0.0	0	5.5	28	250	M	M	2 13		37	240		
10	93	77	85	3	0	20	T	0.0	0	5.0	20	330	M	M	1 13		28	220		
11	94	78	86	4	0	21	0.00	0.0	0	5.2	13	260	M	M	2 3		18	220		
12	92	77	85	3	0	20	0.07	0.0	0	3.4	21	110	M	M	2 3		28	110		
13	90	75	83	1	0	18	1.00	0.0	0	3.7	20	220	M	M	2 13		34	210		
14	88	74	81	-1	0	16	0.19	0.0	0	3.7	23	90	M	M	1 13		33	110		
15	88	76	82	0	0	17	0.01	0.0	0	3.5	14	40	M	M	2 3		20	360		
16	88	74	81	-1	0	16	1.26	0.0	0	4.8	14	140	M	M	4 123		20	140		
17	90	74	82	0	0	17	2.70	0.0	0	6.9	17	120	M	M	7 123		25	120		
18	90	73	82	0	0	17	T	0.0	0	3.6	13	290	M	M	3 13		15	300		
19	91	76	84	2	0	19	0.00	0.0	0	4.4	18	130	M	M	2		25	120		
20	94	76	85	3	0	20	0.78	0.0	0	3.9	13	150	M	M	2 13		19	170		
21	92	77	85	3	0	20	T	0.0	0	5.9	15	20	M	M	1 3		19	290		
22	92	77	85	3	0	20	T	0.0	0	5.1	13	90	M	M	2 3		17	90		
23	95	76	86	4	0	21	0.00	0.0	0	4.9	17	350	M	M	2		23	350		
24	92	78	85	3	0	20	0.00	0.0	0	8.5	16	70	M	M	4		24	120		
25	94	77	86	4	0	21	T	0.0	0	4.3	16	90	M	M	3 3		21	110		
26	92	76	84	2	0	19	T	0.0	0	4.9	14	110	M	M	2 3		20	110		
27	78	75	77	-4	0	12	2.65	0.0	0	11.3	24	70	M	M	7 1		34	60		
28	82	72	77	-4	0	12	2.53	0.0	0	22.2	44	120	M	M	8 13		67	110		
29	87	68	78	-3	0	13	0.00	0.0	0	M	M	M	M	M	M		M	M		
30	M	M	M	M	M	M	0.00	0.0	0	M	M	M	M	M	M		M	M		
SM 2642 2190					0 539		16.45	0.0	156.4				M	75						
AV 91.1		75.5												5.6	FASTST	M	M	3	MAX(MPH)	
										MISC ---->		44 120		67 110						

Figure 2: Recorded maximum wind speed and precipitation data.



Figure 3: Recorded maximum wind speed and precipitation data.

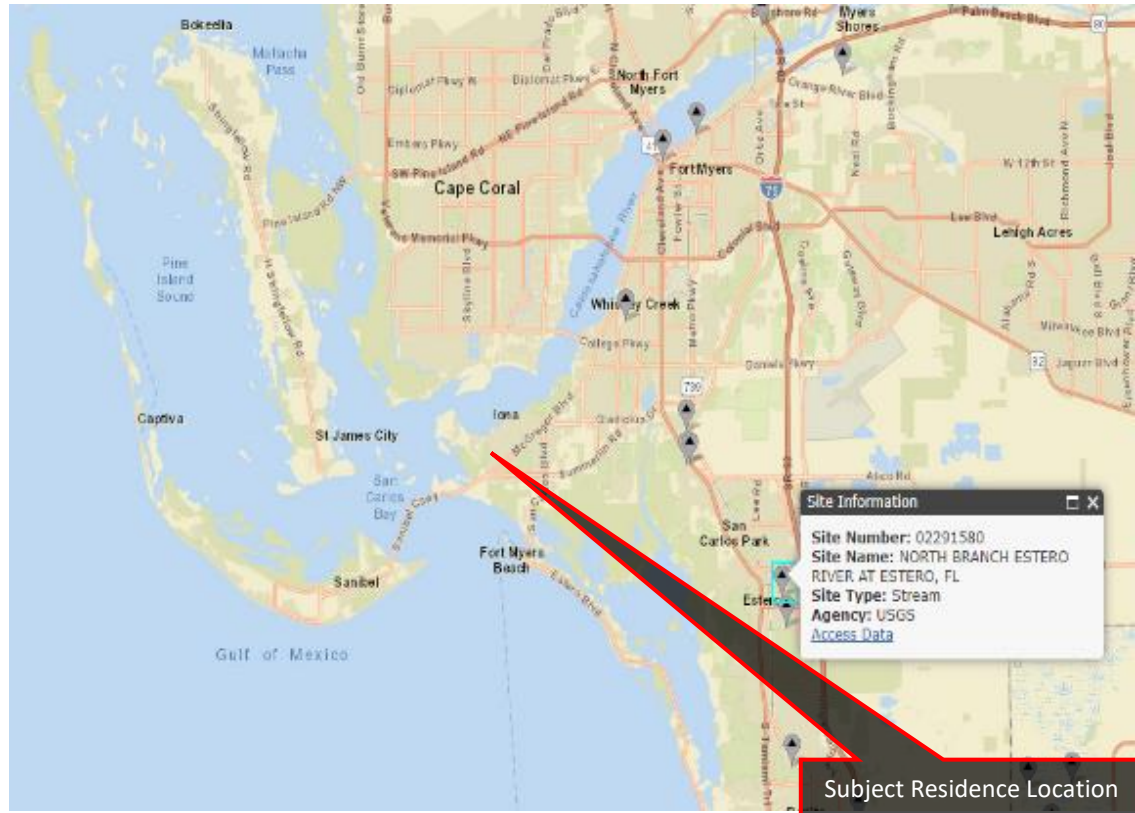
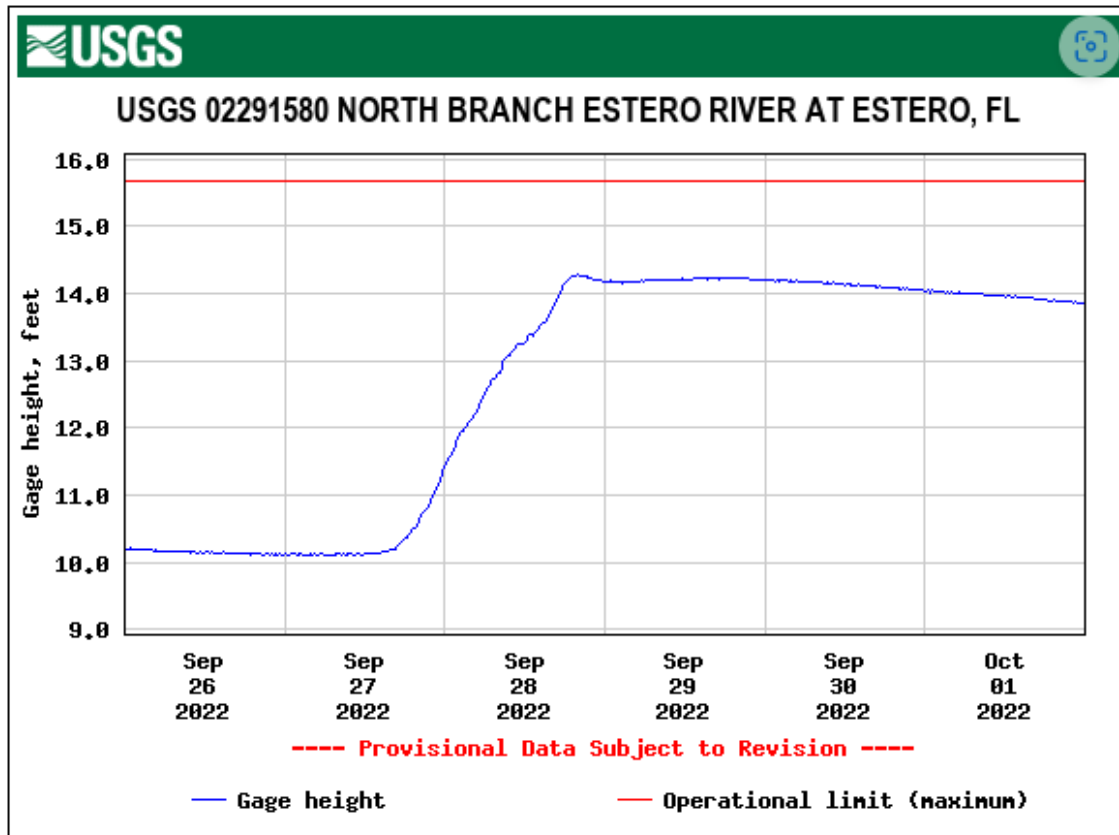


Figure 4: USGS river gauge data and location of gage from the subject residence.

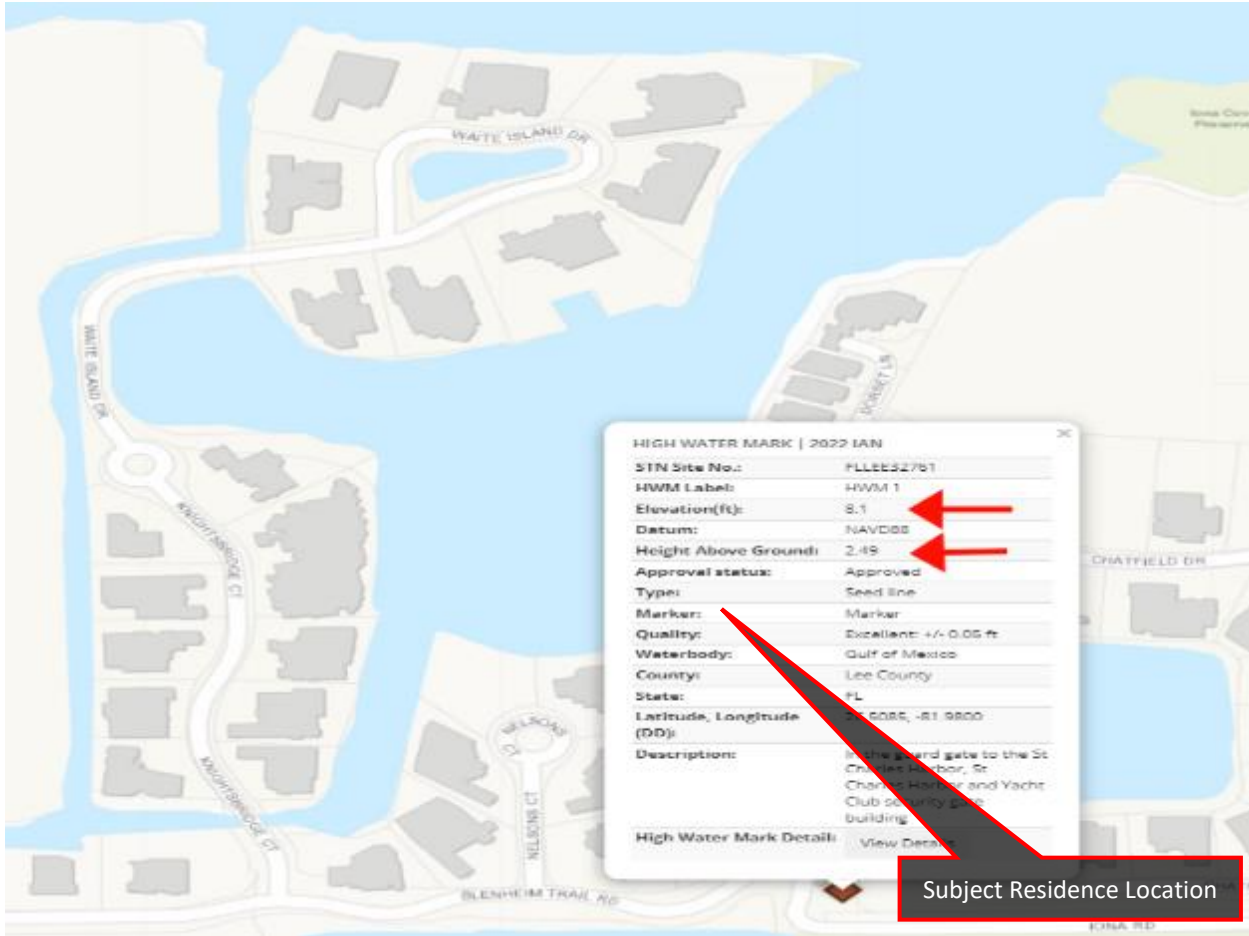


Figure 5: USGS high-water mark data close to the subject residence.

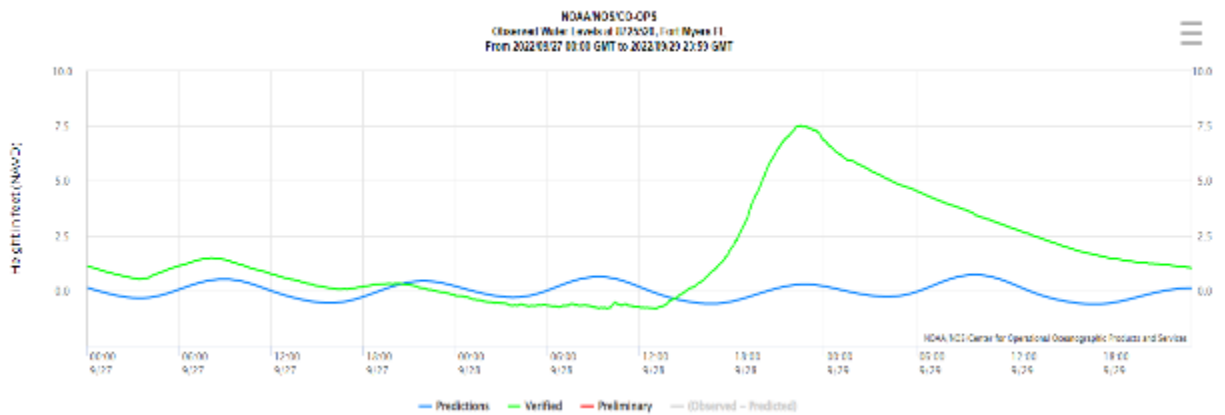


Figure 6: NOAA buoy stream gage data close to the subject residence.

***ATTACHMENT B: ROOF DIAGRAM***





***ATTACHMENT C: PHOTOGRAPHS***



Photograph #1 – North (front) elevation.



Photograph #2 – West (right) elevation.





Photograph #3 – South (rear) elevation.



Photograph #4 – East (left) elevation.





Photograph #5 – The exterior high-water marks along the front side of the residence were approximately 12-inches above the adjacent exterior grade.



Photograph #6 – No abrasion (impact) marks, fractures, or separations were on the piles, boat dock, or boat lift. The floorboards of the dock were not loose, fractured, separated, warped, or missing.



Photograph #7 – This exterior electrical light fixture was fallen along the front side of the residence.



Photograph #8 – Approximately three (3) fascia boards along the left side of the residence were loose, fractured, separated, and missing.





Photograph #9 – Approximately three (3) fascia boards along the left side of the residence were loose, fractured, separated, and missing.



Photograph #10 – Separations up to ½-inch wide and abrasion marks were on one (1) section of the roof deck railing along the left side of the residence.



Photograph #11 – Separations up to ½-inch wide were on this section of the roof deck railing along the left side of the residence.



Photograph #12 – Abrasion marks were on the roof deck railing along the left side of the residence.





Photograph #13 – Approximately fifty-five (55) pool and patio enclosure screens along the rear side of the residence were loose, torn, separated, and/or missing (representative condition).



Photograph #14 – The patio enclosure screens along the rear side of the residence were loose, torn, separated, and/or missing (representative condition).



Photograph #15 – Approximately nine (9) pool enclosure framing members were bent, twisted, warped, fractured, or separated (representative condition).



Photograph #16 – Approximately nine (9) pool enclosure framing members were bent, twisted, warped, fractured, or separated (representative condition).





Photograph #17 – Overview of the roof facets.



Photograph #18 – Overview of the roof facets.



Photograph #19 – Overview of the roof facets.



Photograph #20 – Overview of the roof facets.





Photograph #21 – Overview of the roof facets.



Photograph #22 – Overview of the roof facets.



Photograph #23 – Overview of the roof facets.



Photograph #24 – Overview of the roof facets.





Photograph #25 – Overview of the roof facets.



Photograph #26 – Overview of the roof facets.



Photograph #27 – Overview of the roof facets.

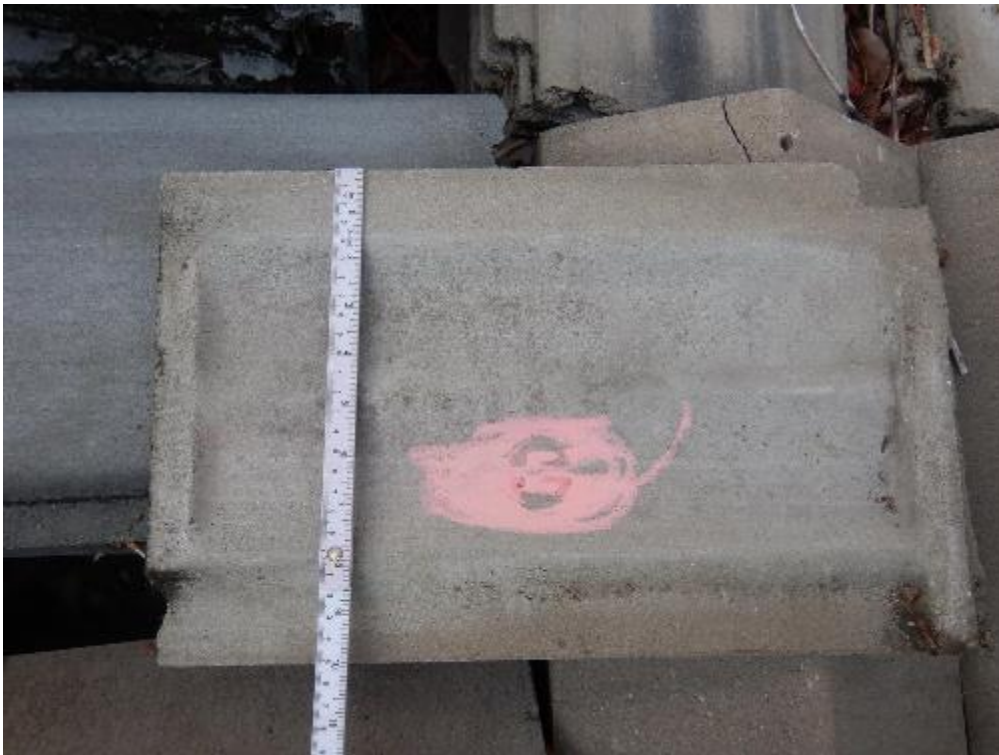


Photograph #28 – Overview of the roof facets.





Photograph #29 – The concrete roof tiles were of the “Entegra” brand and were adhesive foam set.



Photograph #30 – The concrete roof tiles were of the “Entegra” brand and were approximately 10 inches wide.



Photograph #31 – The approximately 16½-inch-long field tiles were installed with an average 13-inch exposure.



Photograph #32 – The field tiles were approximately 1½ inches thick.





Photograph #33 – The hip/ridge cap tiles were 10-inch-wide.



Photograph #34 – The approximately 17-inch-long hip/ridge-cap tiles were installed with an average 14½-inch exposure.



Photograph #35 – The hip/ridge cap tiles were approximately 1 inch thick.



Photograph #36 – One (1) randomly fractured, scattered, and/or missing tile was on the front-facing facet.





Photograph #37 – Two (2) randomly fractured, scattered, and/or missing tiles were on the front-facing facet.



Photograph #38 – Two (2) randomly fractured, scattered, and/or missing tiles were on the front-facing facet.



Photograph #39 – Three (3) randomly fractured, scattered, and/or missing tiles were on the front-facing facet.



Photograph #40 – Three (3) randomly fractured, scattered, and/or missing tiles were on the right-facing facet.



Photograph #41 – One (1) randomly fractured, scattered, and/or missing tile was on the rear-facing facet.



Photograph #42 – Three (3) randomly fractured, scattered, and/or missing tiles were on the rear-facing facet.





Photograph #43 – Three (3) randomly fractured, scattered, and/or missing tiles were on the left-facing facet.



Photograph #44 – A randomly fractured tile was on the front-facing facet (representative condition).



Photograph #45 – Diagonal fractures were in several field tiles (representative condition shown here). No abrasion (impact) marks were on the tiles.



Photograph #46 – Radial fractures were in several field tiles (representative condition shown here). No abrasion (impact) marks were on the tile.



Photograph #47 – Several cracks were in the mortar at the joints between the ridge-cap and hip-cap tiles.



Photograph #48 – The high-water marks inside the garage along the front side of the residence were approximately 9 inches above the concrete slab-on-grade of the garage.





Photograph #49 – Delamination, bulges, and separations were on the bottom of the cabinet inside the garage. A close-up view is shown in the next photograph.



Photograph #50 – Delamination, bulges, and separations were on the bottom of the cabinet inside the garage.



Photograph #51 – Dark brown stains, cracks, and/or peeled texture were on the baseboard and the floor adjacent to the garage door.



Photograph #52 – Dark brown stains and cracks were on the exterior surface of the garage door.





Photograph #53 – Cracks/separations up to 1/8-inch wide were between the floor and baseboard interface of the detached studio of the residence (representative condition shown here).



Photograph #54 – Cracks/separations up to 1/8-inch wide were between the floor and baseboard interface of the detached studio of the residence (representative condition shown here).



Photograph #55 – No discernible stains or cracks were on the ceiling and walls of the detached studio.



Photograph #56 – Cracks up to 1/16-inch wide without discoloration were on the first story hallway ceiling (representative condition shown here).



Photograph #57 – Cracks up to 1/16-inch wide were on the first story hallway ceiling (representative condition).



Photograph #58 – Drywall separations were on the second story sauna ceiling (representative condition).



Photograph #59 – Light brown stains and cracks up to 1/8-inch wide were in the sealant and/or paint at the interface of the wood-framed windows and interior trim of the laundry room window (representative).



Photograph #60 – Light brown stains and cracks up to 1/8-inch wide were in the sealant and/or paint at the interface of the wood-framed windows and interior trim of the laundry room window (representative).



Photograph #61 – No discernible stains or cracks were on the ceiling and walls above the laundry room window (representative condition shown here).



Photograph #62 – No cracks, fractures, warp, bows, or other forms of distortions were on the window glass panes, window frames, or stucco around the laundry room window (representative condition).





Photograph #63 – Light brown stains, cracks, and/or delamination were on the window stools and frames. Gaps, up to 2 inches long, were between the ends of the weather stripping seals and window frames of the second story gym window (representative condition shown here).



Photograph #64 – Light brown stains and cracks were around the second story gym window (representative condition shown here).



Photograph #65 – Gaps up to 2 inches long were between the ends of the weather stripping seals and frames of the second story gym window (representative condition shown here).



Photograph #66 – Light brown stains, cracks, and/or delamination were around the second story gym window frames (representative condition shown here).



Photograph #67 – Light brown stains, peeled texture, and/or cracks were around the door and floor below the first story living room door. No discoloration was on the ceiling and wall above this door (representative condition shown here).



Photograph #68 – Light brown stains, peeled texture, and/or cracks were around the door and floor below the first story living room door (representative condition shown here).





Photograph #69 – Light brown stains and/or cracks were on the door frame and floor below the first story living room door (representative condition shown here).



Photograph #70 – No cracks, fractures, warp, bows, or other forms of distortions were on the first story living room door frames or stucco around the doors (representative condition shown here).



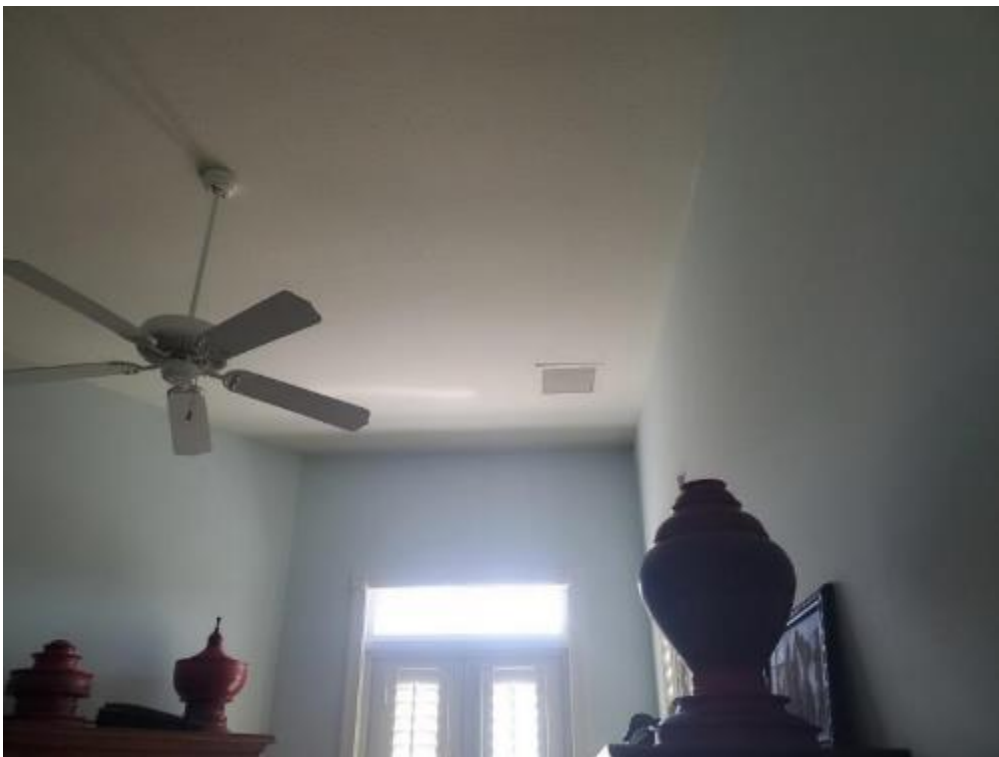
Photograph #71 – Light brown stains, peeled texture, and/or cracks were around the door and floor below the second story rear-left bedroom door (representative condition shown here).



Photograph #72 – Light brown stains, peeled texture, and/or cracks were around the door and floor below the second story rear-left bedroom door (representative condition shown here).



Photograph #73 – Peeled texture and/or cracks were around the second story rear-left bedroom door (representative condition shown here).



Photograph #74 – No discoloration was on the ceiling and wall above the second story rear-left bedroom door (representative condition shown here).



Photograph #75 – Black stains, delamination, and fungal decay were on the exterior surface of the second story rear-left bedroom door (representative condition shown here).



Photograph #76 – Dark brown stains were on the ceiling, wall, and around the door frame of the garage.





Photograph #77 – Dark brown stains were on the ceiling, wall, and around the door frame of the garage.



Photograph #78 – The tiles above and/or upslope of the garage ceiling and wall stains were not randomly skewed, flipped, scattered, or missing.



Photograph #79 – Light brown stains, vertical streaks, and/or cracks up to 1/8-inch wide were on the ceiling, ceiling-to-crown molding interface, and walls of the apartment living room.



Photograph #80 – Light brown stains, vertical streaks, and/or cracks up to 1/8-inch wide were on the ceiling, ceiling-to-crown molding interface, and walls of the apartment living room.



Photograph #81 – The tiles above and/or upslope of the apartment living room ceiling and wall stains were not randomly skewed, flipped, scattered, or missing.



Photograph #82 – Light brown stains, vertical streaks, and/or cracks up to 1/8-inch wide were on the ceiling and wall of the first story game room.



Photograph #83 – Light brown stains and vertical streaks were on the wall of the first story game room.



Photograph #84 – Light brown stains and/or cracks up to 1/8-inch wide were on the ceiling and wall of the first story game room.





Photograph #85 – The tiles above and/or upslope of the first story game room ceiling and wall stains were not randomly skewed, flipped, scattered, or missing.



Photograph #86 – Light brown stains and peeled texture were on the first story kitchen ceiling.



Photograph #87 – Light brown stains and peeled texture were on the first story kitchen ceiling.



Photograph #88 – The tiles above and/or upslope of the first story kitchen ceiling stains were not randomly skewed, flipped, scattered, or missing.



Photograph #89 – Dark brown stains were on the first story wine room ceiling.

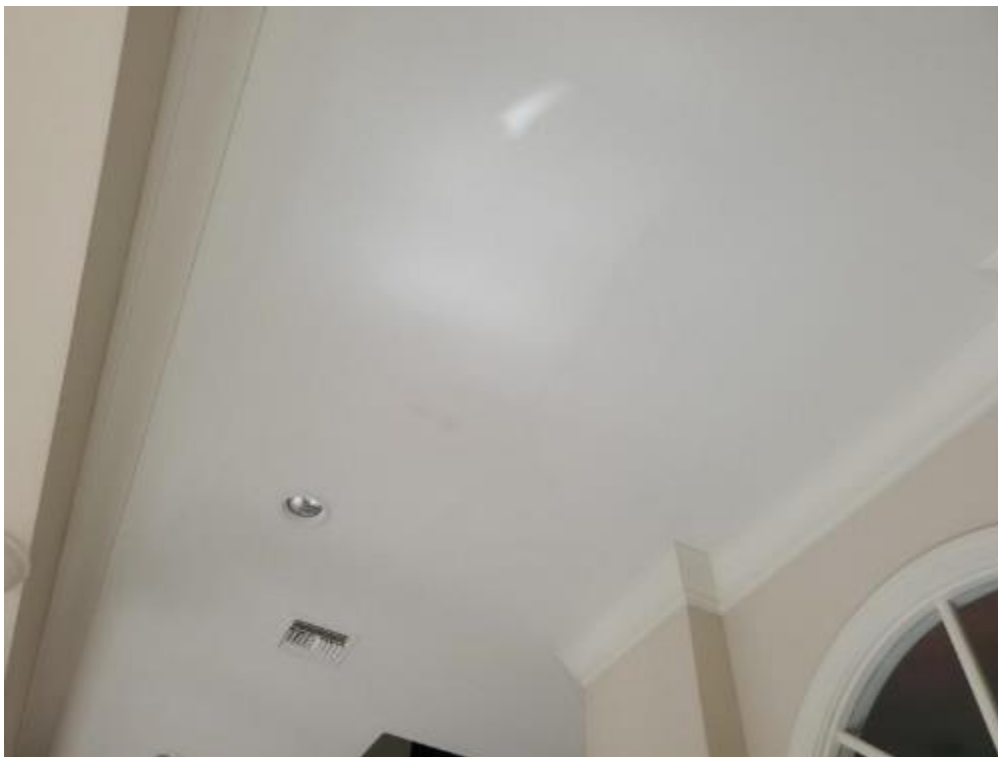


Photograph #90 – Dark brown stains were on the first story wine room ceiling.





Photograph #91 – Light brown stains were on the first story entry hallway ceiling.



Photograph #92 – Light brown stains were on the first story entry hallway ceiling.





Photograph #93 – The tiles above and/or upslope of the first story entry hallway ceiling stains were not randomly skewed, flipped, scattered, or missing.



Photograph #94 – Dark brown stains were on the ceiling and wall of the second story gym.



Photograph #95 – Dark brown stains were on the ceiling and wall of the second story gym.



Photograph #96 – The tiles above and/or upslope of the second story gym ceiling and wall stains were not randomly skewed, flipped, scattered, or missing.



Photograph #97 – Light brown stains, peeled texture, and separations were on the ceiling and wall of the second story sauna.



Photograph #98 – Light brown stains, peeled texture, and separations were on the ceiling and wall of the second story sauna.





Photograph #99 – The tiles above and/or upslope of the second story sauna ceiling and wall stains were not randomly skewed, flipped, scattered, or missing.



Photograph #100 – Dark brown stains and fungal decay were on the ceiling and wall of the second story left stairway to the roof decking area.





Photograph #101 – Dark brown stains and fungal decay were on the ceiling and wall of the second story left stairway to the roof decking area.



Photograph #102 – Dark brown stains and fungal decay were on the second story rear left bedroom ceiling.



Photograph #103 – Dark brown stains and fungal decay were on the second story rear left bedroom ceiling.



Photograph #104 – The tiles above and/or upslope of the second story rear-left bedroom ceiling stains were not randomly skewed, flipped, scattered, or missing.



Photograph #105 – No discernible stains or cracks were on the ceiling and walls of the first story utility closet (representative condition shown here).



Photograph #106 – No discernible stains or cracks were on the ceiling, walls, and around the windows of the second story living room (representative condition shown here).