



Home Inspection – The Basics (5-Hour CE Course)

**Section 2 – Home Inspection Methods (2 Hour)
Part 2 of a 3-part 5-Hour CE Package**

CILB: Gen - Architects: - (H/S/W) ECLB: (B), Inspectors: Reciprocity (Gen) -
Miami-Dade: Engineers: Provider #0003342 – (AOP) - Home Inspectors (Gen)

Goal

- Goal

- ❖ The goal of this course is to increase the understanding of the various inspection methods which are used to determine the condition of the systems and their components.



Inspection Procedure

Inspection Procedure

- The following procedure is a guideline for performing the Home Inspection.
- Photograph the property for the cover page of the report.
- Meet the customer.
 - ❖ Review the contract.
 - ❖ Obtain your customer's signature on the contract.
 - ❖ Lower the air conditioner thermostat.



Signed Contract

- It is very important that the inspector obtain a signed contract prior to beginning the inspection.
- If the contract is signed at the end of the inspection, the homeowner can allege that they signed under duress and that they were not in agreement when they signed. A court of law can throw out that contract and the limitation of liability (the home inspector's protection) is then null and void. The inspector could be on the hook for any damages.

Inspection Procedure (cont'd.)

- In performing a Home Inspection, the generally accepted practice is to follow a particular order.
- The order in which to perform an inspection is:
 - ❖ Exterior*
 - ❖ Garage
 - ❖ Interior
- *We start with the exterior, because most of the information we're going to obtain from the inspection is on the exterior of the building.
- The next slides follow this order and identify relevant questions and observations that should be made by the inspector.



Part 1 - Exterior Inspection

- The following exterior inspection areas will be discussed:
 - ❖ Roof
 - ❖ Front Door
 - ❖ Windows
 - ❖ Siding
 - ❖ Settlement Cracks
 - ❖ Fascia and Soffit
 - ❖ Terrain
 - ❖ Exterior Electrical
 - Electrical Service
 - Electrical Grounding
- ❖ Hose Bibs
- ❖ Air Conditioning
- ❖ Patio Doors/Slabs
- ❖ Terraces
- ❖ Storm Shutters
- ❖ Burglar Bars



Roof Inspection

- The following are the relevant questions about areas involved in the roof inspection.
- What is the type of roof covering?
 - Roll
 - Shingle
 - Tile
- What is the type of architectural appearance?
 - ❖ Gable
 - ❖ Flat
 - ❖ Hip

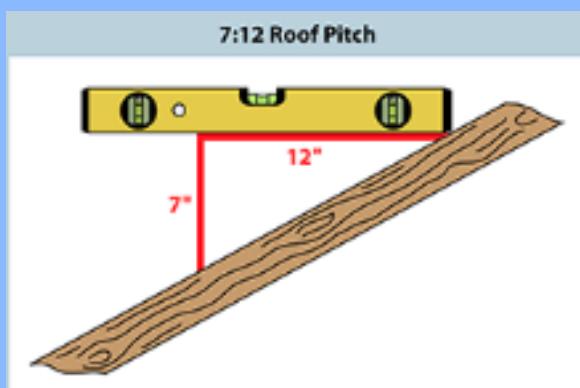


Roof Slope and Materials

- What is the slope or pitch of the roof?
 - ❖ As discussed in Section 1, roofs are categorized as either low slope or steep slope. It is important for the home inspector to measure the slope (or pitch) of the roof to determine what type of material can be applied on the roof surface. Often times in home inspection the wrong material is applied on a low slope roof.
 - ❖ For example, a homeowner may install a tile or shingle roof on a flat roof where it is not allowed. Tile or shingles on a low slope roof, when the wind blows, the weather will get under the edges of the tiles or shingles.
 - ❖ Conversely, if a homeowner installs tar and gravel on a steep slope roof, it will slide off. Tar and gravel is appropriate for a flat roof.

Measuring the Slope

- There are two common ways to measure the roof slope (or pitch):
 - ❖ You can use a ruler and a level to find a level point and measure down from edge of the level with the ruler, or
 - ❖ You can use an inclinometer which gives you a degree or a slope.



Roof Inspection (cont'd.)

- How many penetrations exist and what is the material?
 - ❖ The penetrations can consist of plumbing vents, air vents, and power actuated vents. It is important for the inspector to determine the different types of vents observed on the roof in order to ascertain what is underneath when for the inside inspection.
 - ❖ When a gas vent is observed on the roof, the inspector should determine if the gas vent is installed to the proper height, typically 3 feet above the roof line. If a gas vent is present, then look for a gas appliance. Conversely, if no gas vent is present, and there is a gas appliance, it is a problem.
 - ❖ If an exhaust fan for a kitchen hood is observed on the roof, it should be a goose-necked type of exhaust hood. An exhaust fan for a kitchen/bath fan should be a small exhaust fan, typically referred to as a “Chinese hat”.
 - ❖ All penetrations through a roof deck must be flashed properly. There are guidelines for this flashing. The inspector has to determine if they are flashed properly based on individual experience and knowledge of the roofing trade.

Roof Inspection (cont'd.)

- What deficiencies exist, if any?

- ❖ There are certain deficiencies to look for that are specific to low slope roofs that would decrease the life of the roof:

- Blisters
- bubbles
- fish mouths
- delamination
- deterioration
- exposed nails



- ❖ On a sloped roof, deficiencies to note include exposed nails, cracked shingles, curled shingles, missing shingles, or nails backing out. A curled shingle is sun-dried or baked (like a pepperoni on a pizza).
- ❖ Look for missing flashing.

Front Door Inspection

- The following are the relevant questions about areas involved in the front door inspection.
- What material is the front door made of?
- Metal
- Wood
- Fiberglass
- Metal and glass
- Home inspection forms typically distinguish between the front entry door and the patio door.



Front Door Inspection (cont'd.)

- What deficiencies exist, if any?
- Note deficiencies such as:
 - ❖ Rusted
 - ❖ Decaying
 - ❖ Deteriorated
 - ❖ Won't open
 - ❖ Won't close
 - ❖ Photograph every deficiency you see as you go through his process.



Front Door Inspection (cont'd.)

- What type of door is it?
 - ❖ French Door
 - In the past, a French door referred to a door that had 10-15 individually glazed pieces of glass (traditional colonial door). Now, it can refer to a door with a single piece of glass in a wood frame.
 - ❖ Flush
 - A Flush door is a door that is smooth.
 - ❖ Raised panel
 - A raised panel door is a door that has some movement in the door panels. Center panels can provide a variety of raised or recessed profiles.



Window Inspection

- The following are the relevant questions about areas involved in the window inspection.
- It is important to identify not only the window material, but also its operation.
- What material are the windows made of?
 - ❖ Metal
 - ❖ Wood
 - ❖ Single glass
 - ❖ Double glass



Window Inspection (cont'd.)

- What type of operation are the windows?
 - ❖ Single hung – the bottom portion of the glass opens up and down only.
 - ❖ Double hung – the bottom pane opens up and down, and the top pane opens down and up again (mostly used up north).
 - ❖ Horizontal sliding – opens like a sliding class door. These doors are becoming more common due to the egress requirements for new construction of bedrooms or room with a bed. There must be an exit door or a window that someone can escape from. Most common single hung windows (4'x4' or less), when open fully, do not meet the egress requirements.
 - ❖ Awning – contains several top-hinged sections arranged in a vertical series, operated by one or more control devices that swing the bottom edges of the sections outward. They are designed to let air in, while preventing rain from coming in.

Window Inspection (cont'd.)

- What deficiencies exist, if any?
 - ❖ Standards of practice established by the state of Florida require that inspectors check a representative number of windows only, not every window.
 - ❖ Check the operation of the windows.
 - ❖ It is not necessary to check for screens, but windows must be operational.
 - ❖ Any missing levers, windows that don't operate, and windows that are racked at a weird angle because of settlement should be noted on the report.
 - ❖ It is not important for the home inspector to identify if the windows are impact or non-impact. That is a separate inspection that falls under a wind mitigation inspection. If the inspector would like to note it as an additional comment on the report, it can be noted as an impact window.

Siding Inspection

- The following are the relevant questions about areas involved in the siding inspection.
- Siding refers to the outside covering of a building.
- What type of siding is utilized?
- Stucco
- Wood/Cedar shake
- Aluminum
- Vinyl
- Asbestos



Siding Inspection

- What deficiencies if any?

- ❖ Asbestos siding - In some rare instances, asbestos siding may be found, usually on homes built in the early 1940's to late 1950's. If a home inspector suspects a house of that age might have asbestos siding, it is very important that they recommend that an asbestos survey be done. This is outside the purview of the home inspection. Home inspectors don't do environmental inspections. It is very important that we bring it to the attention of the potential buyer if there is a possibility that it exists and have someone follow up on it.
- ❖ Wood siding – Make sure the wood siding is off the ground by a minimum of 2 inches. There cannot be any contact with the ground. A air space is required to make sure that there cannot be any absorption of the moisture from the ground up to the wood.
- ❖ Vinyl siding – Vinyl siding is very rarely seen in Florida, but does exist. The home inspector needs to be able to identify it and note any missing, cracked, or chipped siding.
- ❖ Aluminum siding – note any missing siding.

Siding Inspection

- What deficiencies if any? (continued)
 - ❖ Stucco – deficiencies in stucco include various degrees of cracking. A crack in stucco does not necessarily mean there is a settlement problem.
 - Cracking in south Florida is more commonly due to a workmanship issue. The building codes require that the stucco be applied 5/8 inch thick. Most contractors only apply it in a ¼ inch thickness.
 - The other problem with cracking is that the stucco is the water proofing membrane for the block. Concrete block are not waterproof. So, it is important that the stucco be applied in the proper thickness.
 - The home inspector is not responsible to ascertain the thickness of the stucco, but if we see problems with it we should note it on the report.
 - There are different types of cracking that can occur:
 - Spider cracking – looks like a spider web
 - Horizontal stair cracking – very, very fine cracking that follows the lines of the block. This cracking is not structural in nature, it is basically temperature cracking due to not having sufficient stucco.

Settlement Crack Inspection

- The following are the relevant questions about areas involved in the settlement crack inspection.
- What is the location of the crack?
 - Cracks are identified by location, severity, and size.
 - ❖ The description must provide information sufficient for anybody to find it.
 - ❖ Example:
 - A medium diagonal crack was observed below the master bedroom window on the west side of the building.



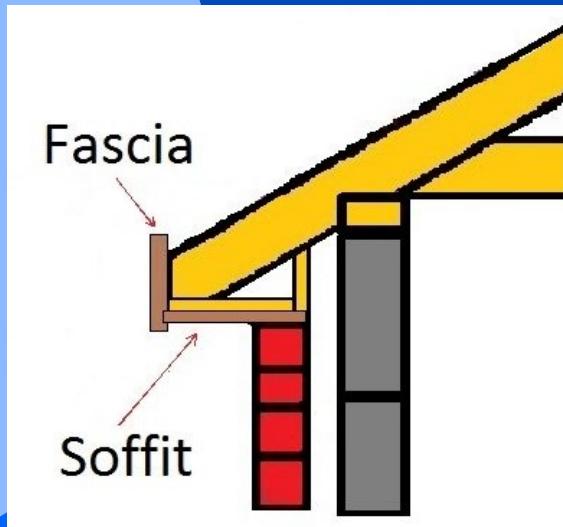
Settlement Crack Inspection (cont'd.)

- What is the direction of the crack?
 - ❖ Horizontal
 - ❖ Vertical
 - ❖ Diagonal
 - ❖ Combination of the above
- What is the severity of the crack?
 - Levels of severity include:
 - Hairline crack – can cover with pain
 - Fine crack – requires spackling compound
 - Medium crack – thickness of a dime
 - Severe crack – thickness of a nickel
 - ❖ Medium and severe cracks must be reported as a deficiency and referred to a structural engineer, since it might be a foundation problem.



Fascia and Soffit Inspection

- Part of the inspection procedure is to identify the types of fascia and soffits on the building.
 - ❖ The soffit is the underside of the overhang.
 - ❖ The fascia is the vertical portion of the overhang.



Fascia and Soffit Inspection

- The following are the relevant questions about areas involved in the fascia and soffit inspection.
- What type of materials are utilized in the soffit and the fascia?
 - ❖ Stucco (over wire mesh)
 - ❖ Wood
 - ❖ Aluminum
 - ❖ Vinyl siding
 - ❖ You must identify the materials in each. Often there is a wood fascia with a stucco soffit. You might also find a wood fascia with a wood soffit.
- Are there any roof vents present?
 - ❖ In Florida, there are typically roof vents present in the soffit.



Fascia and Soffit Inspection (cont'd.)

- What deficiencies exist, if any? (cont'd.)
 - ❖ Wood – look for deterioration, dry rot, or damaged wood.
 - Wood in a home inspection: As a home inspector, you can't speak to termite damage; you are not licensed to do so. Instead, use the language "damaged wood." Let the licensed termite inspector speak to whether the damage is caused by dry rot, termites, or other infestations.
 - ❖ Look for evidence of roof leaks. Most of the time, if there is a roof leak, we will find it at the edge of the roof. A roof leak might not be visible inside, but it is often visible at the fascia and soffit.
 - ❖ Aluminum or vinyl soffits: Make sure they are intact and not damaged; you cannot see any damage behind it.



Fascia and Soffit Inspection (cont'd.)

- What deficiencies exist, if any? (cont'd.)

- ❖ Look for evidence of roof leaks.

Most of the time, if there is a roof leak, we will find it at the edge of the roof, along the perimeter, especially at the bottom edge of a valley. A roof leak might not be visible inside, but it is often visible at the fascia and soffit. If you see something on the outside, make a note of the location and look for it when you go the attic. Try to determine if it is an actual roof leak, or if the drip edge is tied against it.

- ❖ Look at the drip edge and note the type of material and any damage. The drip edge is the metal portion of the roofing system that comes down over the fascia. Building code requires there to be a $\frac{1}{2}$ inch physical air gap between the drip edge and the fascia. Most of the fascia that are damaged by water are due to the drip edge being tight up against the fascia. There is no requirement for a spacer behind it. But there must be an air gap so that any water that comes off the roof finds the air space and runs straight down without continually wetting the fascia.



Terrain Inspection

- The following are the relevant questions about areas involved in the terrain inspection.
- Does the vegetation (bushes, trees, hedges, etc.) around the property limit your view for the inspection?
 - ❖ It is important for your protection to note if the house is concealed by the vegetation around it, obstructing your view for the inspection.
 - ❖ When the new owner comes in and cuts the hedges down and finds a large crack or other damage, your note reporting the limited view protects you.



Terrain Inspection (cont'd.)

- Is there positive drainage on the site?
- Terminology (used with roofing and terrain):
 - ❖ Positive drainage – water moves the direction wanted
 - ❖ Negative drainage – water moves the opposite direction from what is wanted
- It is important that the water flow away from the house in order to:
 - ❖ preserve the foundation and make sure there is no settlement due to water, and
 - ❖ avoid any subterranean termites that like moisture and high humidity.
- The house should be the high point of the property with everything sloping away (positive drainage). If you are inspecting a property that has one side of the yard higher than the other, and there is negative drainage sloping towards the house, take pictures and note the negative drainage as a deficiency. Always take pictures, even if there is not a deficiency to remind you of what you saw for the inspection report.

Terrain Inspection (cont'd.)

- What is the condition of the walkways?
- Make note of the materials and condition of the sidewalks, patios, driveways, and patio decks.
- Look for:
 - ❖ Any cracks in concrete surfaces.
 - ❖ Pavers which are deteriorating and slipping,
 - ❖ Broken perimeter concrete around the pavers that is causing sliding.
- Try not to park on the driveway if you can. You want to avoid damaging the property or having someone say you damaged it or dripped oil. Park off-site if you can.



Exterior Electrical Inspection

- The following are the relevant questions about areas involved in the exterior electrical inspection.
- Are weatherproof covers installed over outlets?
 - ❖ When walking around the outside of the house, make note of any exterior outlets. All exterior outlets should be protected by weather proof covers.
- Are exterior outlets GFCI?
 - ❖ All exterior outlets should be GFCI.
 - ❖ GFI came into play in the late 1970's. If the outlets are not GCFI due to the age of the house, you can make a recommendation, but it is not a deficiency because they were not required at the time the house was built.

Exterior Electrical Inspection

- Are all exterior fixtures rated for exterior use?
 - ❖ Take note of any exterior fixtures such as floodlights, spotlights, and any fixture on an outside terrace, etc.
 - ❖ All exterior fixtures must be weather proof or moisture proof fixtures.
 - ❖ Example: If you see an aluminum shed with a washer and dryer and a home depot shop light hanging, you need to note the deficiency. That fixture is not rated for exterior use and should not be outside.

Exterior Electrical Inspection

- Are all electrical connections in a covered and secured junction box?
 - ❖ All electrical connections (exterior or interior) must occur inside a junction box. The junction box must be covered and secured to something.
 - ❖ Example: A house has exterior floodlights/spotlights at the corner of the building. The lights were installed by running Romex wire through the attic, drilling a hole out to the soffit, and mounting the light directly to the soffit with the Romex going directly into it.
 - ❖ This is incorrect wiring for electrical code. The proper way is to bring the Romex into a junction box, mount the junction box to the soffit, do the connection in the junction box and mount the lamp to the junction box.



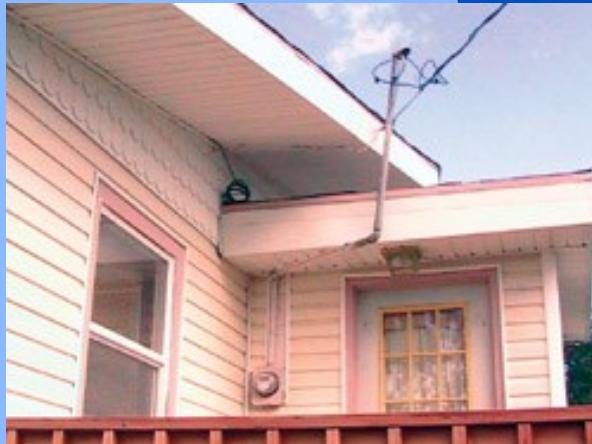
Exterior Electrical Service Inspection

- The following are the relevant questions about areas involved in the exterior electrical inspection.
- Is the electrical service overhead or underground?
- When the service is underground, you won't necessarily see the wires.
 - ❖ When the service is overhead the wires come in from a pole. The wires enter into a mast that must rise a minimum of 2 feet above the roofline. They enter into a weather head that sits on top of the mast.
 - ❖ The mast comes into the electrical meter which monitors the electrical power coming into electrical panel in the house. Newer houses have the electrical panel and disconnect on the exterior adjacent to the meter. This is required by emergency services to be able to kill the power to the house in case of fire.



Exterior Electrical Service Inspection (cont'd.)

- Is the electrical service overhead or underground?
(cont'd.)
 - ❖ There needs to be a drip loop where the wires feed into the weather head. The drip loop is created by having a tension line that attaches to the wires that come from the pole.
 - ❖ The tension line attaches to the mast or to the fascia board creating a loop where any water that comes from that wire can drip down and not come into the weather head.



Exterior Electrical Service (cont'd.)

- What is the condition of the mast, weather head, and tension line?
 - ❖ Make sure there is a drip loop, that the tension wire is in place, and that the weather head is in place.
 - ❖ If the drip loop is not present or the tension wire is missing, the wires will pull straight from the weather head and will fray up against the weather head, which could cause a short circuit or a fire.
 - ❖ Electrical lines must be at least 10 feet above the ground. The drip loop must be at least 8 feet above the ground when it comes to the building. In older neighborhoods, the pole may be far away and the wires that come in may only about 6 feet above the ground. That is way too low.

Exterior Electrical Service (cont'd.)

- What is the condition of the mast, weather head, and tension line? (cont'd.)
 - ❖ Make sure the electrical service does not come directly over a swimming pool (in ground or above ground).
 - ❖ Sometimes the owner will put in an above ground pools without a permit, putting them directly under the electrical service drop from FPL. If that line should sever and fall, it would electrocute any people in the pool.
 - ❖ Similarly, the electrical service drop should not be over aluminum sheds, carports, or aluminum roofs as well.
 - ❖ If there is a garage or other separate structure in the back, any electrical lines coming in from the pole must clear that accessory building by a minimum of 8 feet.

Exterior Electrical Grounding Inspection

- The following are the relevant questions about areas involved in the exterior electrical grounding inspection.
- What is the grounding location?
 - ❖ Grounding occurs on the outside of the building and is required to be at all of the following locations:
 - Cold water pipe - on the hose bib or other water line
 - Two grounding rods – spaced 10 feet apart
 - Foundation steel – not visible
 - ❖ These requirements have changed over time. In the past only grounding at the cold water pipe was required; then it changed to the cold water pipe and one grounding rod; then the cold water pipe and two grounding rods; and then the foundation steel requirement was added. The older the house, the less it will have.

Exterior Electrical Grounding (cont'd.)

- Are the grounding clamps securely attached?
 - It is important to take note of the grounding clamps on the rods and on the water pipe.
Make sure they are secure.
- ❖ Are the grounding rods present and secure?
 - The grounding rod is a metal clamp screwed onto a rod. Since grounding rods occur about six inches off the wall, they can be hit by lawn mowers. Kick it with your foot to make sure the grounding rod is there and that it is secured.



Hose Bib Inspection

- The following are the relevant questions about areas involved in the hose bib inspection.
 - ❖ Every house is required to have hose bibs or hose connections.
 - ❖ Make sure the hose bibs are present.
 - ❖ The city of Miami now requires hose bibs every 12 feet on the exterior for lack of irrigation systems. They want hose bibs or irrigation systems every 12 feet.
 - ❖ In the past one or two hose bibs were required; one in the front and/or one in the back of the house.



Hose Bib Inspection (cont'd.)

- The following are the relevant questions about areas involved in the hose bib inspection.
- Is there adequate pressure / functional flow?
 - ❖ Make sure there is adequate pressure and flow.
- Are there any leaks?
 - ❖ Make sure there is no leaking or that the valve is not missing.
- Are there any other deficiencies?
 - ❖ Newer homes require an anti-syphon device, which is a vacuum breaker adapter at the end of hose bib that allows for only one way flow. Older homes before the late 1980's will typically not have an anti-syphon device.



Air Conditioning (A/C) Inspection

- The following are the relevant questions about areas involved in the air conditioning inspection.
- Is there a central A/C system? If so, what type of system is installed?
 - ❖ Some homes may have wall units instead of a central A/C system.
 - ❖ A central A/C system can be either a split system or a package unit:
 - ❖ Split system – contains two separate components; a compressor on the exterior and an air handler inside or in the attic.
 - ❖ Package unit – one unit on the exterior that contains both the compressor and the air handler.
 - ❖ The easiest way to determine which kind of system is installed is if the unit outside has a thin copper pipe coming out of it, it is a split system. If it has big conduits/ducts coming out of it, either 12 x 12 or 12 x 18, it is a package system. The conduit is required for the air flow.

Air Conditioning (A/C) Inspection

- If so, what type of system is installed? (cont'd.)
 - ❖ Obtain the following information from the label:
 - Manufacturer
 - Model # - The model number can indicate the tonnage of the unit.
Example: Rheem model number REAB 036JAZ.
 - Divide the 036 by 12 to indicate a 3 ton unit.
 - Serial #
 - Max and Min breaker size - This is the breaker size in the electrical panel. The max/min breaker size has no correlation to the electrical disconnect.



Air Conditioning (A/C) Inspection

- If so, what type of system is installed? (cont'd.)
 - ❖ The tonnage of the unit can be used to estimate whether the unit is satisfactory for the house that it is servicing.
A general rule of thumb is 400-500 square feet per ton.
 - Example: A 1,500 square foot house would generally need a 3-ton unit. This is only an estimate and will vary based on ceiling height and other factors.
 - ❖ The inspector should also make a comparative analysis between the tonnage of the outside unit to the inside unit to make sure they are compatible.
 - Example: A 5-ton unit outside with a 2-ton unit inside.
 - No moisture will be removed from the house.

Air Conditioning Inspection

- Is the unit securely fastened?
 - ❖ Code requires that the unit be strapped or anchored with angles to a concrete slab. It can't just be placed without anchoring because it will vibrate. If not securely fastened, it will vibrate off the slab.
- Are the refrigerant lines insulated?
 - ❖ The refrigerant lines need to be insulated with black foam insulation.
 - ❖ Missing or sun baked and cracked off black foam would be a deficiency.



Air Conditioning Inspection (cont'd.)

- What is the condition of the electrical disconnect?
 - ❖ The electrical disconnect is where the electrical connection to the A/C unit happens. It is often on the wall itself and should be opened up to make sure it is working properly. Make sure that it is not wired directly to the unit.
 - ❖ The electrical disconnect is important for the A/C unit (and any other 240v appliance) where the technician who is operating the appliance is not in plain view of the electrical panel. It is required for the protection of the technician working on the unit. The technician needs the ability to turn the unit off electrically so as not to run the risk of electrocution while servicing the unit.
 - ❖ Make sure that the cable running from the electrical box on the wall to the unit is a flexible conduit of some sort; either a flexible plastic or flexible Greenfield cable. The flexible cable allows for the transmission of vibration without loosening the connections. A solid metallic conduit would be a deficiency.

Air Conditioning Inspection (cont'd.)

- Where is the condensate discharge?
 - ❖ Look for the condensate discharge somewhere near the A/C unit. Moisture coming from the condensate discharge is a good indication that the A/C unit is working properly.
 - ❖ Moisture should discharge into a drywell (a pit with gravel in it) so that the water does not run along the surface. Newer requirements specify that the discharge should be 1 foot away from the house to avoid any moisture running back to the house.
 - ❖ On older homes, you can make an observation or recommendation that the condensate discharge be extended to so that the discharge is 1 foot away.

Patio Door Inspection

- The following are the relevant questions about areas involved in the patio door inspection.
- What type of patio doors are present?
 - ❖ Horizontal sliding
 - ❖ Swinging
 - ❖ French Doors
- What is the material of the doors?
 - ❖ Wood
 - ❖ Metal
 - ❖ Aluminum and Glass
- As with windows, the inspector can note the presence of impact glass on the report. However, it is not part of the home inspection.



Patio Door Inspection (cont'd.)

- Whenever there are multiple components, Florida guidelines allow the inspector to check only a representative number. This applies to patio doors as well as windows, electrical outlets, etc. It does not apply, however, for life safety issues such as GFCI outlets.
- Check a representative number of patio doors. If there are only two patio doors, it is a good idea to check both. If there are 5 or 6 patio doors, then check 2 or 3.
- Are there any deficiencies?
 - ❖ Note any deficiencies such as:
 - Doors not opening or sliding properly
 - Missing handles
 - Non swinging properly
 - Non locking properly

Patio Slab Inspection

- The following are the relevant questions about areas involved in the patio slab inspection.
- A patio is generally an exterior walking surface that is not covered.
- What is the material of the patio slab/deck?
 - ❖ Concrete deck
 - ❖ Wood deck
 - ❖ Brick pavers
- Is there any settlement?
- Are there any cracks?
- Is there negative drainage that slopes towards the house?
- Is there damaged wood?



Terrace Inspection

- The following are the relevant questions about areas involved in the terrace inspection.
- A terrace is generally an exterior walking surface that is covered.
- What is the material of the terrace structure?
 - ❖ Note the type materials for each component (floor, roof, and column):
 - ❖ Wood (roof, deck, columns, open trellis)
 - ❖ Concrete (columns, floor, beams)
 - ❖ Steel (beams, columns, steel columns encased in wood)
 - ❖ Brick (floor, columns)



Terrace Inspection (cont'd.)

- Are there any deficiencies?
 - ❖ Flooring: The issues are similar to a patio for the flooring (settlement, cracks, negative drainage, etc.)
 - ❖ Roofing: The issues are similar to other roofing deficiencies mentioned earlier in this presentation.
 - ❖ Note any additional deficiencies to the terrace, including:
 - Damaged wood
 - Corrosion from water damage at the base of a steel column
 - Rotting wood and corrosion at the base steel columns encased in wood
 - Rusted, damaged, or disconnected connectors for the steel base plate

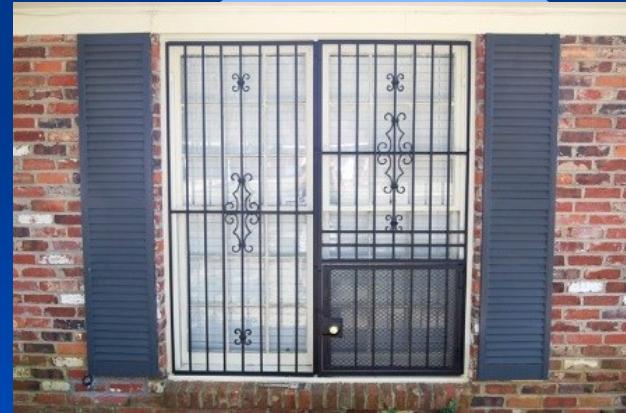
Storm Shutter Inspection

- The following are the relevant questions about areas involved in the storm shutter inspection.
- Although storm shutters are part of a wind mitigation inspection are not part of the home inspection, it is a good idea to note their presence and type.
- What type of opening protection is present?
 - ❖ Panels
 - ❖ Accordion
 - ❖ Roll Down
 - ❖ Plywood
- Note: Home inspectors can do mitigation inspections if they take the 3-hour training, pass an exam, and register with the insurance industry for wind mitigation inspections.



Burglar Bar Inspection

- The following are the relevant questions about areas involved in the shutter inspection.
- Are there any burglar bars present?
 - ❖ If burglar bars are present, there are life safety requirements. Insurance companies may insure or not insure based on burglar bar presence.
 - ❖ Home inspectors are not code inspectors. However, the home inspector must be conscientious regarding life safety issues and notify the buyer of possible life safety issues.
 - ❖ Every bedroom or room that is used for sleeping must have egress (exit) to the outside. If the door has bars on it, it cannot have a double locked deadbolt, it must have a thumb latch. It cannot require a key to get out.



Burglar Bar Inspection (cont'd.)

- Is there an egress panel present that is operable without the use of special tools?
 - ❖ Doors: If a door has bars on it, it cannot have a double locked deadbolt, it must have a thumb latch. It cannot require a key to get out.
 - ❖ Windows: If a window has bars on it, the window must have or be retrofit with an egress panel that must be operable from the inside without special tools.
 - ❖ If appropriate egress panels or not present, it is important to make a note for the buyer.



Part 2 - Garage Inspection

- In this section, the following garage inspection areas will be discussed:
- Water Heater
- Electrical Panel
- Attic Access
- Sheathing
- Insulation
- A/C Ducts
- Garage Door



Water Heater Inspection

- The following are the relevant questions about areas involved in the water heater inspection.
- What type is the water heater?
 - ❖ Gas
 - ❖ Electric
 - ❖ Tankless
- Who is the manufacturer?
- What is the size / capacity?
 - ❖ For tankless systems, make sure that that sticker shows an approved UL listed tank. There should be a rating on the unit indicating the required breaker size. Observe the rating listed on the unit compared to the breakers in the panel, especially if it is a retrofit. Most tankless systems operate on a 60 amp breaker. Some operate on a 40 amp breaker. There should be a dedicated 2-pol breaker that is at least 40 amps.



Water Heater Inspection (cont'd)

- For water heaters with tanks, is there a temperature and pressure relief (TPR) valve installed and is it installed properly?

The TPR must have a discharge tube attached to it. In order to prevent possible scalding of someone nearby, it cannot discharge straight out.

If it is in a garage, the discharge tube must discharge down to, or within 6 inches of the floor, or to the exterior. It may not discharge into a habitable space.

Example: If you have a water heater in an interior laundry room, it must have a discharge pipe that leads to the outside.

The discharge tube for the TPR may not be reduced in size.

Example: If it comes out of the TPR as a 1 inch pipe, the discharge pipe may not be reduced to a $\frac{1}{2}$ inch pipe.

Water Heater Inspection (cont'd.)

- What is the condition of the tank, especially near the bottom?
 - ❖ Check for corrosion, particularly near the bottom of the tank.
 - ❖ Water heaters with tanks have a device called a sacrificial anode tube that is designed to attract minerals from the water to help prevent corrosion.
 - ❖ During long periods of non-use (i.e. seasonal/vacation homes, vacancies, or foreclosures) or if there is a water softener, the sacrificial anode tube may absorb so many minerals that it stops functioning properly. This can result in a hydrogen sulfide (rotten egg) smell when the hot water is run.
 - ❖ To check for this possible problem, turn on the hot water (at various sources) to see if you detect the hydrogen sulfide smell. If so, make a note on the report and advise the buyer that they might need to replace the sacrificial anode tube. Typically, the cost is close to the same as replacing the tank.
 - ❖ Don't jump to conclusions. Other causes might produce similar smells: Chinese drywall or a plumbing vent that has been evaporated.

Water Heater Inspection (cont'd.)

- If gas, refer to the local gas company for further evaluation of lines and equipment.
 - ❖ Gas appliances will have a burner with the off gassing will go through a chimney. Look for the chimney. Make sure the chimney exhausts with no 90 degree bends. An exception to this requirement is when there is a power vent. A power vent has a power actuated fan in the wall that sucks the air out with electric motor, instead of passive venting.
 - ❖ Always refer the inspection of gas appliances to the licensed professional. The local gas company will inspect the gas lines and appliances for free.



Electrical Panel Inspection

- The following are the relevant questions about areas involved in the electrical panel inspection.
- The very first thing you should do before inspecting the electrical panel is to make sure there is no excess current at the panel. Use a non-contact voltage detector (tic tracer) to make sure there is no current where it shouldn't be. It is also a good idea to carry one with you in the attic.
- What is the location of the electrical panel?
- What is the main entrance conductor size?
- What is the material of the main conductor?
 - ❖ Copper
 - ❖ Aluminum
 - ❖ Copper clad aluminum



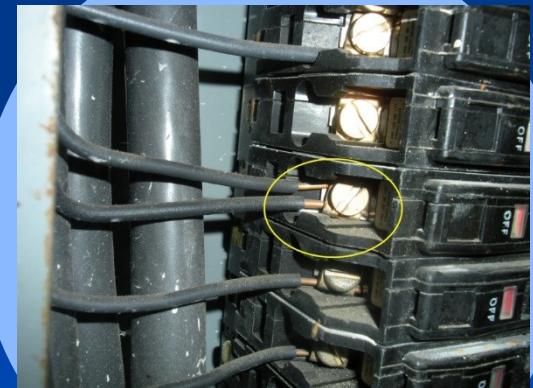
Electrical Panel Inspection (cont'd.)

- To inspect the electrical panel, follow the following steps:
- Open the panel cover.
- Take a photo of the panel schedule (labeling of the panel).
If it is not labeled, note the deficiency.
- Determine if there are circuit breakers or plug type fuses.
 - ❖ If there are plug type fuses, stop inspection of the panel.
It is not advisable to open up a plug type fuse panel.
There is a high risk of electrocution to the inspector.
 - ❖ If it has circuit breakers, take an inventory of the panel. Note how many 2-pol breakers (220a) and single pol breakers (60a, 50a, 40a, and 30a).
You will compare the appliance requirements with this breaker inventory.
- Make sure there are no openings that do not have breaker covers.
Breaker covers are important to prevent someone from poking something into the panel.



Electrical Panel Inspection (cont'd.)

- Open the panel box to check for double wiring and hazardous conditions.
 - ❖ Note the type of the conductor (wire):
 - Aluminum
 - Copper
 - Copper clad aluminum
 - ❖ Look at the breakers where the wires are attached to determine if there is any double wiring. Double wiring refers to the servicing two circuits with one breaker.
 - There should only be one wire under each screw.
 - There should not be any wire nuts where one wire is coming out, and another is wired to it.



Electrical Panel Inspection (cont'd.)

- ❖ Look for discoloration under the breaker (indicating heating) to determine if the breaker has previously arced or sparked before.
- ❖ Take a temperature reading to see if all the breakers are an even temperature throughout. The circuit breakers are heat-sensitive devices and they trip based on heat generated by friction of electrical current. So if a breaker is about to go bad, it will be hotter than the rest. Note that there is a breaker that is about to fail and refer it to an electrician.
- ❖ Look for grounding and neutral wires to be on their appropriate bus bars. Make sure they are not mixed.

Additional Electrical Equipment

- What do you do if you see electrical equipment that you are not familiar with?
 - ❖ You may see:
 - custom electrical panels,
 - electrical generator connections,
 - electric car charging station, or
 - other unique configurations or specialized equipment.
 - ❖ Ask the owner what it is and let them operate it if needed so that you can determine if it appears to be operating correctly.
 - ❖ If you see something you are not familiar with, always note the information and refer the buyer to the appropriate licensed professional.



Attic Access Inspection

- There is a lot of information that can be obtained from inside the attic inspection, including the condition of the following:
 - ❖ Roof Sheathing
 - ❖ Insulation
 - ❖ A/C Ducts
 - ❖ Plumbing
 - ❖ Air Handler in Split A/C systems
- The following are the relevant questions about areas involved in the attic access inspection.
- What is the location of the scuttle hole?
- What type of roof framing exists?
 - ❖ Trusses
 - ❖ Conventional framing



Attic - Sheathing Inspection

- The following are the relevant questions about sheathing located in the attic:
- What type of sheathing is present?
 - ❖ Plywood
 - ❖ Oriented Strand Board (OSB) – wood chips oriented in the same direction that is made into plywood (outlawed in Dade county)
 - ❖ Tongue and groove (T&G) - (on homes built in 1950's and early 1960's)
 - ❖ Wood planks
 - ❖ Gypsum board - 2' x 4' sheet made out of drywall (on homes built in the 1940's-1954 when wood was at a premium). Gypsum has brown craft paper on the underside and can be mistaken for plywood from the bottom. The craft paper does not have a wood grain, whereas plywood has a wood grain.
 - ❖ The inspector only needs to identify the type of sheathing, not the thickness or method of attachment.

Attic - Insulation Inspection

- The following are the relevant questions about insulation located in the attic:

- ❖ Is there any insulation present?

Lack of insulation would be a deficiency. Any deficiency for insulation in Florida we would refer it to be compliant with the Florida Model Energy code that dictates what insulation needs to be in place.

- ❖ What type of insulation is present? Fiberglass, cellulose, or foam.

- ❖ How is the insulation applied? Loose fill, batt, sheets, or blown in.

- ❖ How thick is the insulation?

Insulation gets its insulation value by the thickness because it entraps the air. The thinner the insulation, the less the insulating values.

Fiberglass should be 6 in. deep and is easy to blow in insulation.

Cellulose is a paper product that is blown in. It compresses over time and can become as little as 1 ½ in. thick. When the insulating value is diminished it should be noted as a deficiency.

Attic - A/C Duct Inspection

- The following are the relevant questions about A/C ducts located in the attic:
- What type of A/C ducts are present?
 - ❖ Fiberglass (rigid board)
 - ❖ Fiberglass (flexible)
 - ❖ Metal (wrapped with insulation, rectangular, or round)
- What deficiencies are present?
 - ❖ Duct leak. If you open the scuttle hole to the attic and it is cool in the attic, there may be a duct leak. Cold air may be blowing into the attic space. You can determine duct leaks with a thermal imaging camera as well. This should be noted.
 - ❖ Ducts torn apart.
 - ❖ Metal ducts where the insulation is unravelling.

Attic - Plumbing Inspection

- The following are the relevant questions about plumbing lines located in the attic:
- What type of plumbing pipes are present?
- Plumbing waste lines come through the attic and out the roof (plumbing vents).
- Note the type of waste line piping: cast iron or PVC piping.
- Supply lines that run through the attic.
- Note the type of supply line piping: copper or galvanized piping.

Attic – Air Handler Inspection

- The following are the relevant questions about an air handler for a split A/C system that is located in the attic. This is no longer allowed, but will exist in older homes.
- Does the air handler have a drip pan underneath it?
- There must be a drip pan.
- The drip pan must be equipped with a float switch installed that will turn the unit off if the drip pan gets full.
- Note any stains or moisture around it. Look for leaks or condensation.
- Document with notes and pictures.

Garage Door Inspection

- The following are the relevant questions about areas involved in the garage door inspection.
- What material is the garage door? Aluminum, metal, wood, or fiberglass.
- What is the condition of the garage door?
- Document any deficiencies.
- Is it a rated hurricane impact door?
- Note whether the garage door is a rated impact door. Older doors will have only 3 anchor bolts and 3 panel braces for the whole door. Wind resistant doors will have 7 anchor bolts and 1 brace on each panel.
- Wind resistant doors will not have any glass panels.
- Is there an automatic garage door opener?
- Is it operating?
- Is there a safety reverse stop?
- A safety reverse stop is required. There must be a photocell on either side of the garage door. Once the photocell is tripped, the garage door will stop going down and reverse direction. Use something like a 2' x 4' to trip the photocell to test its operation.

Part 3 - Interior Inspection

- In this section, the following interior inspection areas will be discussed:

- ❖ Kitchen
- ❖ Electrical
- ❖ Windows and Doors
- ❖ Air Conditioning
- ❖ Bathrooms



- Mold: If you see black and you think it is mold, you can't call it mold. Use the terms "discolored and damaged" drywall and refer to a professional mold inspector.

Kitchen Inspection

- The following are the relevant questions about areas involved in the kitchen inspection.
- Check all the outlets to make sure they are GFI.
- Check the water temperature at the sink with the infrared thermometer.
- Is there a functional flow of water?
- Is there adequate drainage?
- Check under the sink.
- Any leaks noted? Check with water flowing.
- Is there a P-trap installed? There must not be flexible piping.
- Check the garbage disposal connection. Does the garbage disposal hose from the dishwasher go up, not down, when it discharges the garbage disposal?
- Any electrical hazards noted?

Kitchen Inspection (cont'd.)

- Check under the sink.
- Any leaks noted?
- Is there a P-trap installed?
- Any electrical hazards noted?



Electrical Inspection

- The following are the relevant questions about areas involved in the electrical inspection.
- It is a good idea to use an arc fault circuit interrupter (AFCI) tester that measures the difference in resistance in electrical current.
- Check representative number of outlets.
- Check all required GFCI locations.
 - ❖ Within 4' of water source
 - ❖ Garage outlets
 - ❖ Exterior outlets
 - ❖ Bathroom outlets
- You must check all required arc fault outlet locations.
- Check smoke detectors and carbon monoxide detectors. Smoke detectors are required inside and outside of every bedroom.

Doors and Windows Inspection

- The following are the relevant questions about areas involved in the doors and windows inspection.
- Check representative number of doors and windows.
- Check window perimeter for water infiltration.
- Check representative number of cabinet / vanity doors and drawers.

Air Conditioning Inspection

- The following are the relevant questions about areas involved in the air conditioning inspection.
- Check temperature at diffusers and check temperature at return to determine adequate cooling. Adequate cooling is considered to be a difference in temperature of between 12-20 degrees.
 - Example: if the air coming in is 100 degrees, adequate cooling is 80-88 degrees.
- Check condensate discharge at the A/C closet. .
- Obtain heat strip information from label on AHU. Check the size and verify requirements on electrical panel. Take a picture of the label.

Bathroom Inspection

- The following are the relevant questions about areas involved in the bathroom inspection.
- Flush toilet.
- Determine if toilet requires a new wax seal. Rock the toilet to see if it moves. Movement may indicate that a new seal is required.
- Check for leaks.
- Check for functional flow at all fixtures.
- Check for adequate drainage.
- There is no requirement to check the shutoff valves during the interior plumbing inspection. Testing it might cause them to fail.

Bathroom Inspection (cont'd.)

- Check for P traps under sinks
- Check for electrical hazards under vanities.
- Check for loose tile around tub enclosure.
- Check for missing grout at wall or shower floor tile.
- Check for slope of window sill. It should slope towards the tub/tile.
- Glass windows in the shower/tub must be tempered glass.
- Push on the tile in the shower/bath. If it is spongy or if grout is missing, there might be water damage behind the tile.



If you find evidence of water leaks. Check the adjacent room for signs of damage. Refer to a plumber.

Section 2 – Home Inspection Methods

QUESTIONS?



Section 2 – Home Inspection Methods

Thank you for participating in this course.

We hope you found the information interesting and useful.

Section 2 – Home Inspection Methods

Class Break - 10 Minutes