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**INSPECTOR
LEGAL & ETHICS
AND**

**STANDARDS OF
PRACTICE REVIEW**

Version 3.0



COURSE MANUAL

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Forward 2025-2027

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Module 1

Statutory And TREC Rules Update



Learning Objectives

After this module you will be able to

- ✓ Understand your responsibility to know and practice according to current rules.
- ✓ Recall statutory and TREC rule changes to the Texas Real Estate License Act and Inspector Act.
- ✓ Describe the Texas Real Estate Inspector Committee (TREIC), related subcommittees, and their authority and responsibilities.
- ✓ Explain when the SOPs apply.
- ✓ Identify circumstances when departure provisions apply.

It is every license holder's responsibility to perform inspections according to the current laws and rules. The two primary laws that govern the standards for and conduct of inspectors in Texas are found in Chapters 1101 and 1102 of the Texas Occupations Code (TOC) Additionally, TREC has adopted and maintains rules specific to the standards for and responsibilities of inspectors.

Chapter 1102 of the TOC gives TREC regulatory authority over the licensing and regulation of inspectors in Texas. While Chapter 1101 of the TOC focuses primarily on the regulation of sales agents and brokers, it also delegates to the Commission the general authority to administer Chapter 1102, relating to inspectors.

Where Are TREC Rules Published?

The rules applicable to inspectors in Texas are detailed in Chapter 535, Subchapter R, of Title 22 of the Texas Administrative Code (TAC). TREC publishes all proposed amendments and adopted rule changes in the Texas Register. Recently adopted or proposed rules are published on the TREC website: <https://www.trec.texas.gov/rules-and-laws>

Key TREC Rule Changes

535.214 Education and Experience Requirements for a License – Texas Practicum (effective 9/1/2024)

As recommended by the Texas Real Estate Inspector Committee (TREIC), the Commission adopted rule amendments to TREC rules 535.209, Examinations; 535.213, Qualifying Real Estate Inspector Instructors and Courses; and 535.214, Education and Experience Requirements for a License.

These changes primarily rearrange existing inspector licensure requirements to clarify that the Texas Practicum is an experience requirement separate from an educational course.

Education providers may still offer the Texas

Practicum but no longer need to submit a course application for it to TREC or issue completion certificates to students. Instead, students will submit the credit request to the agency to obtain credit.

The rule was also updated to include that the applicant must prepare “written” inspection reports for each completed inspection (minimum of five completed and in-person inspections). This change was implemented to emphasize the importance of ensuring students acquire the hands-on experience intended by the practicum.

Additionally, the Texas Practicum Credit Request now has a signature line for the student to sign.

531.18 Consumer Information (effective 11/29/2023)

Legislation passed by the 88th Texas Legislature in 2023 required the Texas Real Estate Commission to update the Consumer Protection Notice

The updated Consumer Protection Notice (CN 1-5) no longer references the real estate inspection recovery fund, which was repealed during the legislative session.

Remember that real estate brokers, sales agents, inspectors, and easement or right-of-way (ERW) agents must provide the Consumer Protection Notice by posting it online and at their place of business. The new form is on the TREC website.

If you link to the form on TREC’s website, you will not have to update your online notice because it is uploaded to the same URL. If you do not link to the form on our website (e.g., you have a PDF version or host the form on your own website), be sure that you are using the updated form.

You are also required to print the new form for posting in your place of business.

TREC Inspector Committee and Subcommittees

Texas Real Estate Inspector Committee (TREIC)

Duties: Provides recommendations to the Commission regarding the licensing education and regulation of inspectors in Texas to promote a high degree of service from the inspection industry and ensure protection of the public.

Members: Nine total members: Six real estate inspector license holders and three public members.

Inspector Education Subcommittee

Duties: The Inspector Education Subcommittee is responsible for reviewing qualifying and continuing education and experience requirements for inspectors licensed in Texas, and providing recommendations for consideration by the full Inspector Committee.

Members: Four total members: Three real estate inspector committee members and one public inspector committee member

Inspector Standards of Practice (SOP) Subcommittee

Duties: The Inspector Standards of Practice Subcommittee is responsible for reviewing the Standards of Practice rules and mandatory report form for inspectors licensed in Texas and providing recommendations for consideration by the full Inspector Committee.

Members: Four total members: Two real estate inspector committee members and two public inspector committee members.

DISCUSSION

1. How can an inspector get involved in the rule-making process?
2. What kind of continuing education is accepted other than approved TREC providers and courses?

Standards of Practice Reminder

Section 1102.058 of the TOC requires the Texas Real Estate Inspector Committee (TREIC) to develop rules relating to standards of practice for real estate inspection. TREC rules 535.227-535.233 establish the minimum requirements.

The Standards of Practice (SOPs) are applicable to all inspectors licensed in Texas when performing a real estate inspection subject to a prospective real estate transaction

TREC Rule 535.227(a) - Scope

When do the SOPs apply? The SOPs apply to an inspection, conducted by an inspector licensed in Texas, for a prospective buyer or seller of a one-to-four family unit that is substantially completed. In other words, the SOPs apply only when an inspection is being performed on a property that is the subject of a real estate transaction.

Effective 3/7/2023, single-system inspections were removed from the list of exemptions. This means that the requirements in 535.223 apply to single system inspections, as well.

When are the SOPs not applicable? In general, the SOPs do not apply to systems or components not listed within the SOPs. They do not apply when the property is not the subject of a real estate transaction and do not apply to cosmetic or aesthetic conditions, including wear and tear from ordinary use.

WHY? Consider This...

A real estate inspection is a limited visual survey and basic performance evaluation of the systems and components of a building using normal controls that provides information regarding the general condition of a property at the time of inspection. It is not intended to be a comprehensive investigation or exploratory probe to determine the cause or effect of deficiencies noted by the inspector.

While the SOPs establish minimum requirements, nothing prohibits an inspector from providing a higher level of inspection than

required by the SOPs, or from inspecting components and systems in addition to those specifically listed under the SOPs. However, inspectors must be competent to inspect and report on systems or items beyond the scope of the SOPs.

TREC Rule 535.227(f) - Departure Provision

This section of the SOPs authorizes an inspector to forgo inspecting a component or system required by the SOPs under certain circumstances. These circumstances include:

- The inspector and the inspector's client agree that the item is not to be inspected;
- The inspector is not qualified to inspect the item;
- The item to be inspected is a common element of multi-family development and is not in physical contact with the unit being inspected; and
- The inspector determines, using reasonable judgment, that
 - conditions exist that prevent the inspection of an item;
 - conditions or materials are hazardous to the health or safety of the inspector; or
 - inspecting the item could cause damage to the property.

If an inspector intends to forgo inspecting a component or system required by the SOPs based on the circumstances listed above, the inspector is required to notify the client at the earliest practical opportunity that the component or system will not be inspected and make the appropriate notation on the Standard Inspection Report Form, including the reason(s) the component or system was not inspected. For example, for safety reasons if an inspector can inspect the attic only from the work platform, the inspector should state that "the attic was inspected from the work platform only for the safety of the inspector" or other similar language.

Routine Departure from the SOPs

An inspector is required to notify a client or prospective client before the inspection if the inspector routinely forgoes inspecting a particular component or system required by the SOPs, and if the inspector has reason to believe that the property includes that component or system.

Discussion

1. Discuss the difference in application of the departure provisions based on whether it is a routine departure or applied to a specific home inspection.
2. Does the fact that optional items are in the SOPs imply that TREC inspectors are qualified to perform inspections on all optional items?
3. What are some reasons an inspector may choose not to walk a roof?

Bonus Question!

Discuss any examples when an inspector does not have to use the standard report form.

Case Study – Notify Before Departing

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. The inspector inspected the plumbing supply, distribution systems and fixtures. As part of the inspection, the inspector was required to visually inspect the plumbing components located inside a plumbing chase adjacent to the shower enclosure.

The interior panel was readily accessible for inspection and could have been opened to reveal pipes, fittings, shower pan and liner. The inspector failed to open the access panel and did not inspect for visible deficiencies.

Analysis: An inspector may depart from the inspection of a component or system required by the standards of practice if in the reasonable judgment of the inspector, the inspector determines that conditions exist that prevent inspection of an item.

However, the inspector was required to notify the client and make an appropriate notation on the inspection report form, stating the reason the component or system was not inspected.

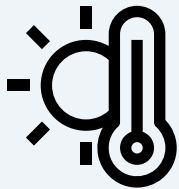
Result: The inspector entered into an agreed order resulting in a formal reprimand and administrative penalty of \$1,100 for a violation of 22 Tex. Admin. Code 535.227(f)(2)(B), failing to make an appropriate notation on the inspection report form, stating the reason a component or system was not inspected (The order also addressed other violations).

Valid Departure? Yes or No

Consider the following scenarios. Does each one represent a valid departure from the SOPs? Why or why not?



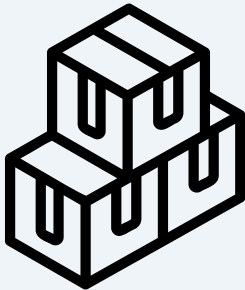
1. An inspector uses his flashlight to peer into a crawlspace (the crawlspace is considered accessible according to the SOPs). As he leans in and points his flashlight, the inspector sees and smells fresh raccoon scat and decides he is not going to inspect the crawlspace.



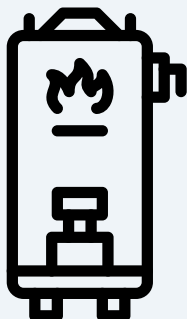
2. It's a typical summer day in August and the temperature of the attic was over 120 degrees. The inspector decides it is too hot and forgoes inspecting the attic.



3. An inspector is hired to do an inspection on a 1960's era one story house. She pulls the ladder from the bed of her truck and unfurls it against the house. When she reaches the level of the roof surface, she can see extensive hail damage and asphalt composite shingles that appear to be aged and at or near the end of their serviceable life. She decides to not walk the roof to prevent further damage. She appropriately stated the limitation in her report.



4. A water heater is located inside a closet with several moving boxes stacked up against the closet door. The inspector declines inspecting the water heater because the closet door could be locked and the moving boxes might be too heavy to move. The inspector departs because the water heater is inaccessible.



5. Let's flip the script – the same inspector in the scenario above attempts to move the moving boxes and they feel empty, so the inspector moves them to the side (although the inspector is not obligated to do so). The closet door is unlocked so the inspector can gain entry to inspect the water heater. He notices that the temperature pressure relief valve shows evidence of corrosion and mineral build up so he decides not to test it.

Module 2

Inspector Duties, Responsibilities, and Ethics



Learning Objectives

After this module you will be able to

- ✓ Distinguish between direct and indirect supervision of an apprentice and real estate inspector.
- ✓ Describe the professional conduct and ethics relating to the duties and responsibilities owed to the client and other inspectors.
- ✓ Recall best practices to enhance inspector-client relationships.
- ✓ Explain inspector independence.
- ✓ Discuss best practices in obtaining client permission.
- ✓ Recall consumer notice requirements.
- ✓ Understand advertising rules for inspectors including inspector DBAs and social media.

Licensed inspectors must demonstrate professional competency before they are eligible to renew a license. This is accomplished by completing the required inspector continuing education (ICE). Inspectors must complete 32 hours of inspector CE, including the 8-hour Inspector Legal &

Ethics and SOP Review course. All inspector CE courses must be completed during the inspector's current license period. An inspector is not eligible to receive more than 16 hours of continuing education credit in one subject.

In addition to the licensing requirements, inspectors must adhere to the minimum standards of competency established by the TREC Standards of Practice (22 TAC 535.227-535.233). If a complaint is filed, and it is discovered that an inspector failed to comply with the SOPs, the inspector could be found to be in violation by performing an inspection in a "Negligent or Incompetent Manner." Module 5 covers TREC Enforcement and disciplinary matters.

Duty to Report Certain Information to TREC

An inspector must report the following to TREC within 30 days:

- Addition or termination of a DBA;
- Changes to company name;
- Changes to contact information;
- New felony conviction; and

- New conviction of misdemeanor involving fraud.

Duties of a Sponsoring Inspector

Only a qualified licensed professional inspector may serve as a sponsor in Texas. The law imposes many duties on sponsoring professional inspectors. These duties are listed in TREC rule 535.226. In summary:

- (a) An apprentice or real estate inspector may only have one sponsoring licensed professional inspector.
- (b) All changes in sponsorship must be reported immediately to the Commission. Also, the party initiating the termination of the sponsorship must provide written notice to the other party to the sponsorship. For example, if the professional inspector terminates the sponsorship, they must notify the apprentice or real estate inspector in writing.

Note: Either the sponsoring inspector or the apprentice/real estate inspector must submit the Termination of Sponsorship notification to the Commission immediately.

- (c) An apprentice inspector or real estate inspector on active status may act for the new sponsoring professional inspector once the Commission has been notified of the change, and any required fee has been submitted. If the apprentice or real estate inspector is on inactive status, the return to active status is subject to the requirements of TREC rule 535.215.
- (d) A professional inspector is responsible for the conduct of a sponsored apprentice inspector. At a minimum, the professional inspector must provide direct supervision of the apprentice apprentice inspector by:

1. accompanying the apprentice inspector during the performance of all inspections or arranging for a real estate inspector to accompany the apprentice; and
2. reviewing all written inspection reports prepared by the apprentice inspector for compliance with the provisions of the SOPs.

(e) A professional inspector is responsible for the conduct of a sponsored real estate inspector. The professional inspector must provide indirect supervision in a manner that protects the public when dealing with the real estate inspector. At a minimum a professional inspector shall provide indirect supervision of the real estate inspector by:

1. communicating with the real estate inspector on a regular basis about the inspections being performed; and
2. regularly reviewing inspection reports prepared by the real estate inspector for compliance with the provisions of the SOPs.

(f) A sponsoring professional inspector may delegate the supervision of an apprentice inspector or real estate inspector to another professional inspector who is qualified to sponsor, but the sponsor remains responsible for the conduct of the sponsored inspector.

The Sponsoring Inspector's Purpose

A professional inspector who chooses to sponsor can serve multiple purposes. A sponsor provides one path for a person to become a licensed real estate inspector or professional inspector. Serving as a sponsoring inspector also provides the opportunity for a professional inspector to expand their inspection business to be a multi-inspector company. Becoming a sponsor can provide professional inspectors assistance, especially when inspecting larger homes. Professional inspectors may sponsor both apprentice inspectors and real estate inspectors;

however, the level of required supervision is different for each as described above.

Direct Supervision

Direct supervision requires the sponsoring inspector to be present on site when an apprentice conducts an inspection. If the sponsoring inspector cannot be present on site, they must arrange for another licensed professional or real estate inspector to be present with the apprentice during the inspection. TREC rules allow a sponsoring professional inspector to delegate supervision of an apprentice to another inspector qualified to be a sponsor, but the sponsoring professional inspector remains responsible for the conduct of the person sponsored. Direct supervision also requires the sponsoring professional inspector to review all written inspection reports prepared by an apprentice to ensure compliance with the SOPs.

Indirect Supervision

In contrast, indirect supervision does not require a sponsoring inspector to be present on site when a licensed real estate inspector conducts an inspection. Sponsoring inspectors must still communicate regularly with the real estate inspector and review the written inspector's reports to confirm they are following the SOPs.

TREC Rule 535.220 - Professional Conduct and Ethics

TREC rule 535.220 details the responsibility that an inspector has as it relates to their duties as an inspector and their client.

TREC rule 535.220(a) states that "The responsibility of those persons who engage in the business of performing independent inspections of improvements in real estate transactions imposes integrity beyond that of a person involved in ordinary commerce. Each inspector must maintain a high standard of professionalism, independence, objectivity and fairness while performing inspections in a real estate transaction. Each inspector license holder must also uphold, maintain, and improve the integrity, reputation, and practice of the home inspection profession."

TREC rule 535.220 also details the responsibility that an inspector has relating to other inspectors. It is understandable that inspectors look for ways to stand out above other inspectors. However, it is a basic principle to understand that inspectors should treat other inspectors as colleagues, and not as competitors. When one inspector looks bad, it can make the entire industry look bad.

TREC rule 55.220(d)(2) states that "The inspector should cooperate with other inspectors to ensure the continued promotion of the high standards of the real estate inspection profession and pledges himself or herself to the continued pursuit of increasing competence, fairness, education and knowledge necessary to achieve the confidence of the public."

An inspector must be objective and fair while performing inspections. Each inspector should strive to uphold the integrity of the home inspection profession in the eyes of the inspector's clients and the public. Inspectors should always place the interests of their client before their own personal interest and always seek to improve their knowledge of the inspection industry.

While discussing this section, let's keep in mind the responsibilities that an inspector has to their client and fellow inspectors.

Subchapter R - Real Estate Inspectors

Section 535.201 - Definitions

Client – a buyer or seller, including a prospective buyer or seller, of real property that is the subject of a real estate transaction conducted under Chapter 1102 TOC and this Subchapter.

Responsibility to the Client

The definition dictates that the duties owed to the client by the inspector are based on the person(s) who are a party to the transaction and have an interest in the property, rather than the person who pays for the inspection.

When inspecting a property, the inspector's primary obligation is to the client. As previously discussed, inspectors are also required to provide certain notices to their clients and explain any limitations regarding how the inspector conducts their inspection.

TREC rules establish guidelines for the inspector-client relationship, which include:

- When an inspector accepts a job, the inspector has a duty to protect and promote the interest of the client and should do so above the interests of the inspector.
- An inspector is prohibited from disclosing inspection results or client information to anyone other than the client, without prior approval from the client.
- The inspector should be constantly striving to increase his or her knowledge regarding new developments in the inspection industry.
- Because the client is likely less knowledgeable and less experienced regarding the systems being inspected, the inspector is entrusted with the client's confidence that the inspector will truthfully report the condition of the property and the property's systems.
- The inspector should act in a manner that ensures independence from outside influences or interests that could compromise or influence how and what the inspector reports to the client regarding the property and its systems.

Responsibility to Other Parties

Access to Property for Persons Other Than the Inspector

An inspector's primary obligation is to the inspector's client. However, when the inspector's client is not the property owner, the inspector must also be mindful of his or her duties to the property owner. Sometimes, a buyer or buyer's agent will need a third party to come by the property and weigh in on something that is outside the scope of the real estate inspection. For example, the buyer may want a pest control company to inspect for termite damage or a professional contractor to provide the buyer an estimate of needed repairs. The buyer or buyer's agent will often schedule these visits to coincide with the home inspection for convenience. An inspector must remember that, although the property owner has granted access to the inspector, this does not mean the inspector may grant access to other parties.

The inspector is at the property to perform an inspection for a client, not to coordinate other professional services. If the inspector permits access to the property to anyone other than the client, then the inspector may be held liable for any damages or actions by anyone that the inspector has granted access to. Only the property owner may grant permission for someone to access the property. Sometimes the property owner may permit the listing agent to act on their behalf to grant permission to access the property. If the inspector permits their client to be onsite at any time during the inspection, the inspector is responsible for the actions of their client. If the client is accompanied by their agent and they would like to stay in the property after the inspection has been completed, the inspector should return the key to the lockbox and have the agent retrieve the key to document the change in responsible parties.

It can be challenging when a client asks their friends and/or family to come view the property during an inspection. This is beyond the scope of the inspector's authority or permission when it comes to granting access to a property.

If the client would like their friends and family to see the property, they should schedule a time with their agent to obtain access from the property owner to do so.

Relationship with Other Inspectors

TREC rule 535.220 requires inspectors to follow guidelines when dealing with other inspectors. These guidelines require an inspector to conduct their business with fairness and integrity and cooperate with other inspectors to promote higher standards within the inspection profession.

Additionally, inspectors have a duty to report any possible violation of the TOC and TREC rules committed by other license holders to TREC. Bad actors in the real estate inspection field not only harm the public, they are harmful to the industry. TREC is a complaint-driven regulatory agency. If an inspector knows of another inspector that is violating the rules, take action. File a complaint.

Inspector Independence

TREC rule 535.220 requires inspectors to conduct their business in a manner that ensures independence from outside influence when performing real estate inspections. Inspector independence is vital to an inspector's ability to present a fair and unbiased opinion regarding all the components inspected.

Maintaining independence is in the best interest of both the inspector and the inspector's clients. When others try to influence an inspector, a client's trust can be compromised. The inspector's client relies on the knowledge and expertise of the inspector to provide a factual and honest assessment of the inspected property. Be aware that an inspector may be influenced by a seller or seller's agent to keep certain deficiencies out of an inspection report, so the property is easier to sell. An inspector may also be influenced by a buyer or buyer's agent to focus on certain items to give the buyer negotiating power before closing on the property.

To ensure inspector independence, TREC rule 535.220 prohibits an inspector from paying another settlement provider (broker, title company, etc.) to be included on a list of inspectors or preferred providers. TREC rule 535.148 prohibits brokers and sales agents from asking an inspector to pay to be included on such a list. The referral from a licensed agent or broker, or any other service provider, should be based on integrity, knowledge, professionalism, and communication skills, not upon how much they are willing to spend to be a "preferred vendor."

Compensation

TREC rule 535.220 prohibits inspectors from receiving a "fee or other valuable consideration, directly or indirectly, for referring services that are not settlement services or other products to the inspector's client without the client's consent." These practices are discussed more fully below.

Inspector Compensation and Referral Fees

Inspectors may violate TREC rule 535.220 if their compensation depends on the closing of a real estate transaction or is tied to future referrals. TREC rule 535.220 addresses restrictions on inspector compensation and the inspector's payment or receipt of referral fees. There are essentially two situations involving inspectors and restrictions regarding referral fees:

- The inspector is the recipient of a referral and pays a fee or other valuable consideration in exchange for receiving future referrals; or
- The inspector refers a person or service to their client and receives a fee in exchange for providing client referrals.

Both situations are directly related to inspector independence and are subject to regulation by TREC.

TREC rule 535.220 prohibits an inspector from inspecting a property if any compensation or future referrals received by the inspector

depend on findings reported in the inspection report or on the closing or settlement of a real estate transaction. The purpose of this prohibition is to protect the public and ensure the inspector is unbiased and is serving the client's best interest. An inspector who fails to identify certain deficiencies when conducting a real estate inspection because the inspector fears they will not get future inspection referrals does not serve the public interest and is a violation of TREC rules. Similarly, when an inspector's payment for a real estate inspection is dependent on the closing of a real estate sale, there is a risk that the inspector may not fully disclose the severity of any deficient conditions in order to ensure that the transaction closes so the inspector can receive payment for the inspection.

TREC rule 535.220 also prohibits an inspector from paying or receiving a fee or other valuable consideration to or from any other "settlement service provider." For the purpose of this prohibition, the term "valuable consideration" includes, but is not limited to, the referral of inspections, inclusion on a list of preferred inspectors, preferred providers, or similar arrangements, or inclusion on lists of inspectors that are contingent on other financial agreements.

In this section, the term "settlement service" means a service provided in connection with a prospective or actual settlement, and "settlement service provider" includes, but is not limited to, any one or more of the following:

- a federally related mortgage loan originator;
- a mortgage broker;
- a lender or other person who provides any service related to the origination, processing or funding of a real estate loan;
- a title service provider;
- an attorney;
- a person who prepares documents, including notarization, delivery, and recordation;

- a person who provides credit report services;
- an appraiser;
- an inspector;
- a settlement agent;
- a person who provides mortgage insurance services;
- a person who provides services involving hazard, flood, or other casualty insurance, homeowner's warranties, or residential service contract;
- a real estate agent or broker; and
- a person who provides any other services for which a settlement service provider requires a borrower or seller to pay.

TREC rule 535.220 allows inspectors to refer "non-settlement" services, such as a home security or pest control company, to their clients. Many of these companies will often pay a referral fee to the inspector for providing names and contact information for the inspector's clients.

TREC rules allow inspectors to accept a fee or other valuable consideration for referring these "non-settlement" services to clients only if the inspector has the client's written consent. From a client's perspective, an inspector's acceptance of referral fees may be viewed as improper influence to write an inspection report in a way that provides business for the service companies who pay referral fees to the inspector.

Requiring an inspector to obtain the client's written permission before accepting the referral fee gives the client adequate notice of the inspector's relationship to the service company, so the client has an opportunity to address any concerns with the inspector. Though many inspectors may obtain this permission by placing notice in the inspection agreement, it is recommended that the

inspector have a separate agreement to ensure that the client understands that their permission is being given to distribute their personal data to a service provider.

Repairs on Inspected Property

When an inspector has performed an inspection for a real estate contract, lease, or exchange of real property, TREC rule 535.220 prohibits the inspector from accepting employment to repair, replace, maintain or upgrade systems or components of property covered in the SOPs for 12 months after the date of the inspection.

This provision only prevents an inspector from accepting employment to repair those homes or systems he or she inspected. It does not prevent an inspector from accepting employment to repair homes or systems the inspector did not inspect.

If more than 12 months have passed since the inspection, this provision does not apply.

Discussion

1. Does direct supervision require the sponsoring inspector to be present on site when an apprentice conducts an inspection?
2. Who can the inspector allow into the home during the inspection?
3. What do inspectors need to remember about real estate agents who have their "preferred" inspector?

Consumer Information

Consumer Protection Notice (TREC CN 1-5)

Inspectors must provide notice to consumers and service recipients regarding the ability to file a complaint with TREC. The Consumer Protection Notice (TREC Form CN 1-5) also includes a statement to alert consumers that inspectors licensed by TREC are required to maintain errors and omissions insurance to cover losses arising from the performance of a real estate inspection in a negligent or incompetent manner. See Appendix C.

3 Places You May Need to Update the Consumer Protection Notice

Your Business Office The Consumer Protection Notice must be displayed in a readily noticeable location in each place of business the broker, inspector, or ERW agent maintains.

Your Business Website The Consumer Protection Notice must be hyperlinked in a readily noticeable location on the homepage of your business website. For real estate brokers, sales agents, and inspectors, the text for the link must be either:

- "Texas Real Estate Commission Consumer Protection Notice" in at least 10-point font.
- "TREC Consumer Protection Notice" in at least 12-point font.

If your hyperlink goes to the TREC website, you may not need to update your link, since the new version of the notice is at the same URL. If you have uploaded the Consumer Protection Notice as a file hosted on your website, you will have to upload the new version of the form. For example, if the URL that is linked on your homepage has your website's URL, you probably have a file hosted on your website.

Your Social Media Profiles If you use social media profiles as part of your inspection business, then it's possible your profile may qualify as a business website. Under the rule, a "business website" means a website on the internet (including social media) that is

accessible to the public, contains information about a license holder's services, and the content is controlled by the license holder. If your social media profile meets this definition, you must also include a link to the Consumer Protection Notice. However, the rule provides some flexibility for social media platforms and allows the required link to be either

- Within your account holder profile
- A separate page or website through a direct link from the social media platform or account holder profile.

Here are examples of acceptable ways to provide the notice on social media:

Use Your Website's URL The easiest way to provide notice is already part of the rules for compliance. Because your business website's homepage must have the hyperlinked notice, you can use that URL in your Intro section on your business Facebook page or in your bio section on platforms like X and Instagram.

Post an Image of the Consumer Protection Notice On an Instagram profile, you can post a story with an image of the notice labeled properly. You can then highlight that story on your profile, effectively "pinning" it in a readily noticeable location on your profile.

Use Link-in-Bio Tools Strategically Some platforms like Instagram do not render clickable hyperlinks in the copy of posts, and only provide the option for one clickable link in your profile's bio. There are a variety of "link-in-bio" tools to create a static link for the bio that leads to the collection of URLs referenced in your posts. If you use a tool like this, pin a link to the Consumer Protection Notice to the top of your listed links so it is always readily noticeable, even as you add more posts.

Advertising Rules for Inspectors: DBAs and More

Are your assumed business names or "doing business as" name (DBAs) on file with TREC? A DBA or assumed business name can be used in advertisements in place of the inspector's name if it is properly registered with the Commission. This is what licensed professional real estate inspectors, real estate inspectors, and apprentice inspectors need to know to be in compliance.

What is an Assumed Business Name or DBA?

An assumed business name or DBA means any name that the license holder uses in business other than the name shown on the inspector's license.

What is an Advertisement?

Advertisements are all communications created or caused to be created by a licensed inspector for the purpose of inducing or attempting to induce a member of the public to use the services of the inspector. An advertisement could include the following types of communications:

- Inspection reports
- Business cards
- Invoices
- Signs
- Brochures
- Email, the internet, and electronic transmissions
- Text messages
- Purchased telephone directory displays
- Advertising by newspaper, radio, and television.
- Social media posts

Are Your Posts and Links Readily Noticeable?

Do what you can to ensure the Consumer Protection Notice is "readily noticeable" for anyone who might be coming to your office, visiting your website, or checking out your social media pages. If it would take someone a magnifying glass to see the notice, several clicks to find it, or is completely missing from these locations to begin with, you should reassess how you provide the notice and make a few simple updates.

Registering or Filing with the Secretary of State is Not a Filing with TREC

Some license holders who file for incorporation with the Secretary of State incorrectly assume that filing for an assumed name certificate brings them into compliance with TREC's requirements. This is not the case. The Real Estate License Act and TREC Rules require the name be registered with TREC.

Do Real Estate and Apprentice Inspectors Need to Register DBAs?

Yes, Section 535.221(c) states: "A licensed professional inspector, real estate inspector or apprentice inspector shall notify the Commission in writing within 30 days after the inspector starts or stops using a name in business other than the name in which the inspector is licensed."

In addition, Section 535.221(b), also states that a real estate inspector's or an apprentice inspector's advertisements must contain (1) the name or assumed name of the person's sponsoring professional inspector; and (2) a statement indicating that the person is sponsored by that professional inspector.

Can a Company File A DBA For All Its Inspectors?

No. Employees of a company must file to be listed under the company they work for if the company's name is different from the name in which the inspector is licensed.

TREC does not issue licenses to inspector businesses entities such as corporations or LLCs. Therefore, one DBA form cannot be submitted to cover each inspector employed by one business.

Since the company presumably owns the use of their business name, any inspector who uses the company name in their advertising, will need to have the company's permission to register the company name as a DBA under their own license (during the term of employment). Upon termination of employment, the inspector should notify the commission within 30 days that they are no longer using that DBA.



In the Spotlight - Posting on Social Media

Social media has become a popular option for inspectors to promote their businesses. There are multiple social media platforms available for inspectors to promote themselves by direct advertising or through educational means by posting things observed on an inspection. Inspectors should keep in mind that social media posts may not violate the privacy of someone's property that is not your own.

Inspectors should be cautious to ensure that there is no personal, identifying information in the picture, video or text of the post. Social media posts should not include information such as property addresses, personal pictures, furnishings, vehicle license plates, etc. without the permission of the property owner.

Although the seller may have given permission via the MLS system for pictures and videos to be taken, that does not authorize the use of those pictures to the public.

Posting pictures or videos that may have personal or identifying information on social media may create an unintentional safety concern for a homeowner or their family.

Like they say, "measure twice, cut once"; when it comes to your social media posts, consider checking at least twice (for personal identifying information), before you post.

Module 3

Texas Standard Report Form - Report Writing



Learning Objectives

After this module you will be able to

- ✓ Apply the requirements for completing the Standard Inspection Report.
- ✓ Discover terms and keywords to use to communicate findings in an informative and concise manner.
- ✓ Be aware of terms to avoid when completing an inspection report.
- ✓ Create descriptive and constructive statements to describe deficiencies based on the inspection experience.

Home inspectors communicate with their clients through written reports and verbal discussions.

Communications can be face-to-face, by email, or over the telephone. While the discussions often add to the client's understanding and comfort level, it is the written report that documents the inspection results and can be referenced weeks, months or even years after the inspection.

The written report is the permanent written record of the home inspection.

In Texas, use of the TREC Standard Inspection Report Form REI 7-6 is required. This form is designed to provide consistency in reporting for inspectors and clients. An inspector may reproduce information contained in this form using technology tools, but the information must be reproduced exactly as it appears on the form. TREC rule 535.223 describes acceptable customizations that may be made.

Always refer to the TREC website to ensure the most current form is being used. Appendix B contains the REI 7-6 form.

Instruction Sheet for the Property Inspection Report Form

In addition to this course, TREC developed a resource to provide guidance to an inspector on how to properly check the various boxes on the Property Inspection Report Form. The Instruction Sheet for the Property Inspection Report Form is available on the TREC website.

A change was made to the second page of this form in October 2023 resulting from concerns regarding the checking of the "(I) Inspected

and the (NI) Not Inspected” boxes when the departure provision was used for a certain system. Wording was revised to clarify that even though the SOPs still leave some room for interpretation, enforcement will not be handing out disciplinary actions should an inspector not check both boxes in that scenario. See Appendix A.

The Standard Inspection Report Form REI 7-6

The Texas Standard Inspection Report Form REI 7-6 contains more than just space for reporting the performance of systems and components covered in the Standards of Practice. The first two pages of the report include important information for the inspector and client to understand regarding the inspection, such as:

1. The Client’s and Inspector’s Information;
2. The Purpose of an Inspection;
3. Responsibility of the Inspector;
4. Responsibility of the Client;
5. Report Limitations;
6. Notice Concerning Hazardous Conditions or Deficiencies, and Contractual Agreements; and
7. Additional Information Provided by the Inspector (optional).

In most cases the information in the first two pages should not be changed or altered.

The only exception is when the inspection is performed solely by a professional inspector. In these instances, the line for the name and license number of the sponsoring inspector may be deleted.

If an inspector chooses to provide any additional information, it should be added under “Additional Information Provided by Inspector”, for the protection of the inspector and the client. TREC rule 535.223 contains the requirements and deviations allowed on the Standard Inspection Report Form

The remainder of the report identifies the six systems or components of the inspection:

- I. Structural Systems
- II. Electrical Systems
- III. Heating, Ventilation, and Air Conditioning Systems (HVAC)
- IV. Plumbing Systems
- V. Appliances
- VI. Optional Systems

Completing the Standard Report Form

The top section of the report form identifies four potential findings and defines them as:

- I = Inspected
- NI = Not Inspected
- NP = Not Present
- D = Deficient

For each item, there are four boxes that can be checked directly under the appropriate legend, as well as additional room to include comments.

More than one box for each item may be checked. If multiple boxes are checked, the inspector must also include an explanation for checking multiple boxes in the applicable section of the report form. For example, the “I” box and “D” box may be marked if an item is inspected and a deficiency is observed.

When the “NP” box is checked, a comment may be helpful to explain that a particular component of a system is missing.

If an item is inspected and no deficiencies are observed, checking “I” for Inspected is all that is required. The client is then informed that the system was inspected and there were no observed deficiencies to report.

If an inspector finds an item Deficient, then the inspector will check “D.”

I=Inspected	NI=Not Inspected	NP=Not Present	D=Deficient
I	NI	NP	D

☐
☐
☐
☐

A. Foundations
Type of Foundation(s):
Comments:

It is not necessary to check both "I" and "D," since checking "D" indicates the item was inspected. However, it is not wrong to check both.

If an item is present on the property and is covered under TREC rule 535.227-535.233, then it should be inspected. If an item cannot be inspected because it was buried, hidden, latent or concealed, or for a reason covered by rule 535.227(f) - Standards of Practice General Provisions Departure provisions, then "NI" should be checked, and an explanation is required in the comments section as to what was not inspected and the reason why the system or component was not inspected.

An inspector can check up to four applicable boxes if the inspector deems it appropriate, as stated in Rule 535.223(5).

When multiple boxes are checked, an explanation as to why multiple boxes have been checked must be provided in the "Comments" area of the appropriate section of the report.

The comments section is also used to report the condition and location of the deficient system or component. For example, if there is a cracked commode, the inspector should use the comments section to report the deficiency and identify which bathroom the cracked commode is in.

The comments section may also be used to define the limitations of the inspection of a particular item. For example, when the outside ambient temperature is over 70 degrees, the heat pump system should not be operated.

This section can also be used to break down a system into subsections. For example, in section IV (A) Plumbing Supply, Distribution Systems and Fixtures, under comments, each room that is associated with plumbing could be listed (Kitchen, Bathrooms, Laundry, etc...) and the inspector's observations would be listed under each specific location.

As a reminder, checkboxes cannot be replaced with circles or brackets. The word "Comments:" cannot be moved to another location on the Report Form.

Some of the sections in the REI 7-6 report form simply list the system while other sections require more information.

For example, compare Plumbing Systems in Section IV to Appliances in Section V.

Plumbing Systems requires the inspector to identify and provide the client with additional information about the system, such as location of water meter, main water supply valve, type of supply and drain line materials observed, and static water pressure reading. It is laid out for the inspector within the report form above the word "Comments". This is a broader and more complex system and TREC requires specific information to be reported by the inspector.

Under Appliances, nothing specific about the systems is required to be reported other than the deficiencies observed at the time of the inspection.

Additional information for some systems is required to be included in the report per the SOPs. However, not everything required in the

SOPs is included in the Report Form, meaning the inspector must remember that if it applies, it must be reported. For example:

1. In the foundation section, inspectors are required to report how the crawlspace was viewed, but the report does not specify this.
2. In the cooling section, evaporative coolers are required to be reported as one-or two-speed, but the report does not specify this.
3. In the private water wells section, the proximity of a septic system must be reported, but this is not specified as a line item on the report.
4. In the private sewage disposal systems section, there is a requirement to report the proximity of any known water wells, underground cisterns, water supply lines, bodies of water, sharp slopes or breaks, easement lines, property lines, soil absorption systems, swimming pools, or sprinkler systems. Again, the report does not prompt you to report this.

Did You Know...

A fillable PDF of the Property Inspection Report Form (REI 7-6) is accessible on the TREC website for use by all inspector license holders.

The ability of the fillable areas is limited to two lines but inspectors using the form can always add additional pages to the report for that is needed for more extensive documentation or pictures.

This allowance for additional pages to the inspection report originated from public comment from concerned inspectors who felt they were required to purchase software to be able to complete their report.

Report Writing Tips

Inspecting real property is all about communication and must be concise, yet thorough. Remember, the inspector is there to educate the client as to the condition of the property on the day of the inspection.

The inspection report is what documents the home inspection. The inspector must communicate findings in an informative and clear manner. Information should be conveyed so all readers have a clear understanding of the condition of the property through the comments in the report. The report should provide well-defined explanations and, if necessary, where to seek further evaluation of a system or component.

The client should be able to understand what is contained in the report, such as what the deficiencies are and where they are located.

There are times that the seriousness of the deficiency should be explained in depth, such as when fire, health, or safety deficiencies are present. This sometimes includes advising a client to seek further evaluation by a qualified and/or licensed professional concerning a specific system. When fire, health, safety, or any other deficiency is reported, it should be clearly explained.

The report must be drafted so that a client can make an informed decision even if the client is not present at the property during the inspection. Clear and concise language is key to report writing.



In section 535.228(a), Foundations, the inspector is required to render a written opinion as to the performance of the foundation.

How is an opinion rendered in writing? There are several key concepts to keep in mind, such as:

- 1. Document your professional opinion on the topic.
- 2. Provide evidence to support your opinion.
- 3. Use clear and concise language.
- 4. Address counterarguments.

The inspector’s job is to educate the client by reporting the general condition of the property on the day of the inspection. The inspector is “NOT” there to:

- determine **who** should repair anything;
- determine **when** something should be repaired;
- determine **why** something doesn’t work; or
- determine **how** something should be repaired.

See the RESPONSIBILITY OF THE CLIENT on the Standard Report Form 7-6 page 1.

“While items identified as Deficient (D) in an inspection report DO NOT obligate any party to make repairs or take other actions, in the event that any further evaluations are needed, it is the responsibility of the client to obtain further evaluations and/or cost estimates from qualified service professionals regarding any items reported as Deficient (D). It is recommended that any further evaluations and/or cost estimates take place prior to the expiration of any contractual time limitations, such as option periods.”

It is the client's responsibility to do their due diligence when it comes to deficiencies listed in the report.

The inspector has a responsibility to protect and promote the interest of the client to the best of the inspector’s ability and knowledge, recognizing that the client has placed trust and confidence in the inspector as stated in rule 535.220 (b)(1) of the SOPs. With this in mind, it is a good idea to inform the client as to the appropriate professional needed to further evaluate and repair a system or component when such advice is warranted.

Example of a properly written comment recommending further evaluation

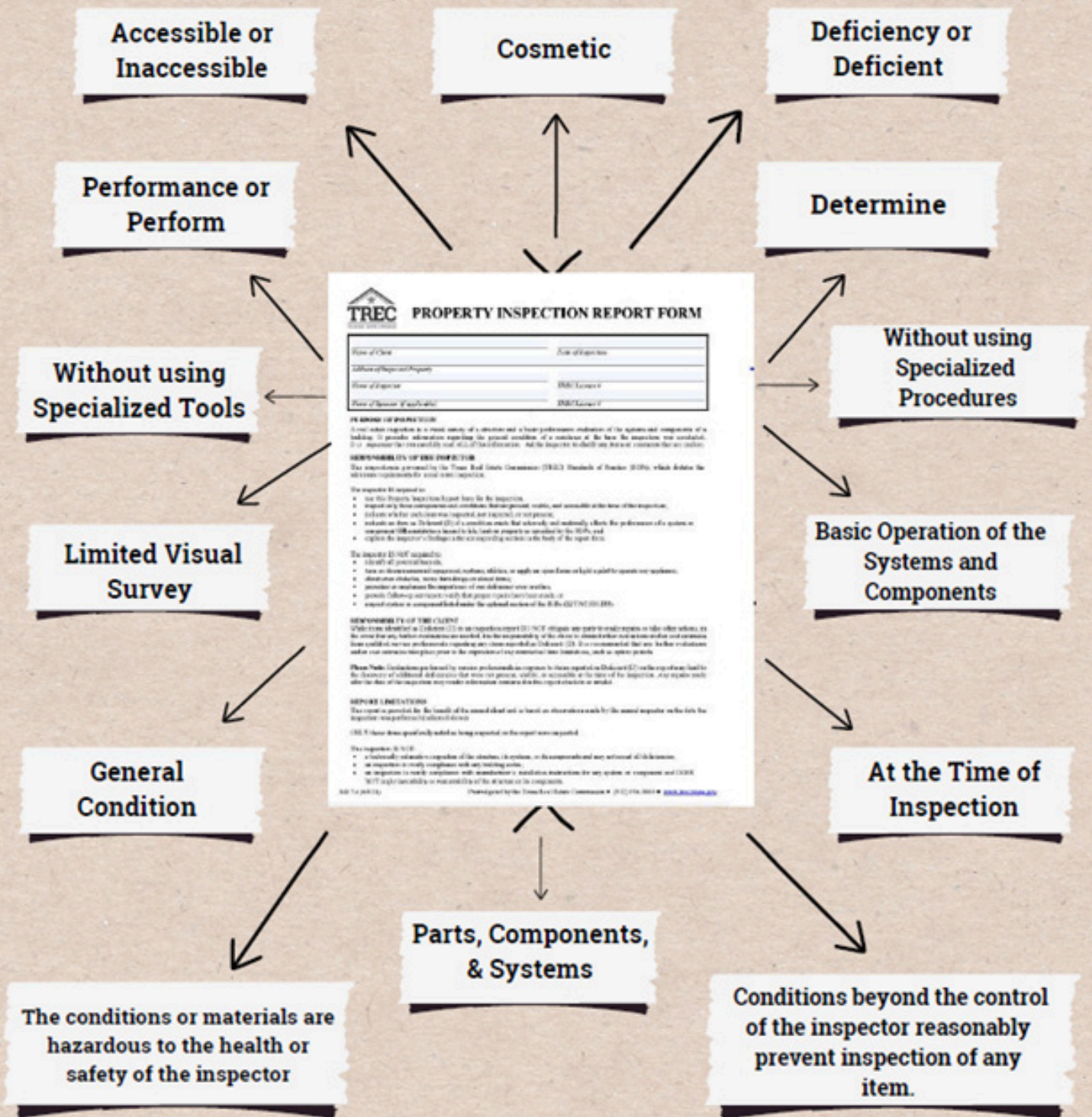
“At the time of the inspection, a leak was detected at the fixture shut off valve under the sink in the hall bathroom. The inspector recommends that a qualified and licensed plumber further evaluate and repair as needed.”

Discussion

What are some reasons that an inspector might recommend another licensed contractor or professional for additional evaluation of a system or component?

Important Keywords

These keywords can be tied directly back to the TREC Standards of Practice



What to Avoid in an Inspection Report

- Using value scales (Example: 1-10 where 1=good and 10=bad)
- Using abbreviations (never use abbreviations)
- Reporting a system or component appears very well maintained or is in excellent condition
- Stating something does not appear to affect the structure
- Suggesting what you would do if it were you
- Guaranteeing or warranting anything
- Stating the anticipated life span of a system or component

DO NOT criticize how things were installed from a "personal" standpoint or "knock" other inspectors or service companies.

Below are examples of practices to reconsider or avoid.

- Deep or exhaustive sighing;
- Use of unnecessarily big words;
- Use of overly technical terms;
- Use of industry jargon;
- Use of imprecise descriptives;
- Use of vague or ambiguous words;
- Laughing in a derogatory manner;
- Exclaiming "Oh, my gosh!", while placing your hand on your forehead;
- Negative sounds or gestures;
- Swearing;
- Editorializing, such as "I don't know if I'd...";
- Asking "Why would you buy this dump?";
- Exclaiming "What a filthy mess!"; or
- Smoking cigarettes, chewing gum, or using chewing tobacco.

Inspector Conduct During an Inspection

Consider this a gentle reminder for inspectors to conduct themselves in a professional manner during the course of an inspection when accompanied by the client, a contractor, another inspector, or ANYONE.

Case Study – Conducting the Inspection with Professionalism

Facts: An inspector conducted an inspection for a buyer that was captured on audio and video recording. The seller filed a complaint against the inspector alleging that her security system showed the inspector going through her personal belongings, and she felt her personal privacy had been invaded. While inspecting the home, the inspector was seen rummaging through the homeowner's dresser, cabinets, nightstands, and searching under the bed in the master bedroom.

Analysis: The inspector must deal with the general public at all times and in all manners in a method conducive to the promotion of professionalism, independence and fairness to the inspector's, the inspector's business and inspection industry. Rummaging through the seller's personal belongings was unprofessional and unjustified.

Result: The inspector was formally reprimanded and ordered to pay an Administrative Penalty of \$500 for a violation of 22 Tex. Admin. Code 535.220(c)(1).

Statement Development

There are two KEY components to a statement:

1. The DEFICIENCY.
2. The LOCATION of the deficiency.

If the same deficiency is present in more than one or two locations the inspector is not required to provide an exhaustive list of locations of the same deficiency.

Note: Optional additions to the statement could be additional information about the deficiency or recommendations that are meaningful to the client.

Examples

- Water stains were observed on the ceiling in the living room. The cause and remedy should be further evaluated and corrected as necessary.
- Water stains were observed on the ceiling of multiple rooms. Recommend the cause and remedy be further evaluated by a qualified contractor and corrected as necessary.
- Water stain was observed on the ceiling in the front bedroom. This area was observed to be damp at the time of the inspection, indicating an active leak. Recommend the cause and remedy be further evaluated by a qualified contractor and corrected as necessary.

Limitations and Disclaimers

A disclaimer is the inspector's statement of limitation. The inspector is telling the client what they can do and what they cannot do during the inspection.

Disclaimer statements of limitations are also used to explain systems and components that were not inspected but are required to be inspected by the SOP and the "NI" box is checked on the REI 7-6 report form. Remember, inspectors must tell the client not only what was not inspected but also why it was not inspected. When inspecting a house, inspectors often encounter many limitations worthy of noting in

the report. Inspectors should hesitate to repeat disclaimers in other sections of the report, as appropriate. This will help to ensure transparency with the client, if there was something the inspector could not inspect and it is a concern for the client, the client will have the opportunity to possibly have the limitations remedied and have that system or component inspected before the option period ends.

Examples

The water was turned off to the home at the time of the inspection.

The water was turned off to the structure at the time of this inspection. The operation of the plumbing fixtures and the orientation of the hot and cold could not be inspected. A visual inspection of the general condition of accessible components was performed.

The window was not accessible at the time of the inspection.

The king size bedframe in front of the window prevented the complete inspection of the window. A limited visual survey of the general condition of the window was performed. This condition limited the inspector's ability to render an accurate opinion as to the performance of the window structure.

Central A/C was not tested due to low outside temperature.

The operation of the cooling system was not checked because the outside ambient temperature is below 60 degrees. If the client has concerns about the condition of the cooling equipment, the inspector recommends hiring a qualified HVAC technician for further evaluation. A limited visual survey will be performed and, if any deficiencies are observed, they will be listed in this section.

The interior has been recently painted.

The interior walls appeared to have been recently patched, repaired and/or painted. This enhancement may limit the inspector's ability to observe all the deficiencies related to the interior walls and some deficiencies may reappear over time.

Case Study: Be Careful What You Write

Facts: The inspector indicated on the inspection report that the “house is wired with aluminum wiring. Acceptance of this condition rests solely with the client. Houses wired with aluminum wiring are known by the insurance industry to have higher risk of electrical fires and insurance rates are usually higher for house with aluminum wiring.” The house was not wired with aluminum wiring but was wired with aluminum service feeder cables.

In the repair summary at the end of the inspection report, the inspector pointed out that there was no antioxidant compound on the exposed feeder aluminum wiring. After receiving the inspection report, the clients exercised their termination option and terminated the contract.

Analysis: Reporting that the house was wired with aluminum wiring along with the additional language included in the report stating that it is known in the insurance industry to have higher rates of electrical fires and insurance rates would cause enough concern for a buyer to want to exercise their termination option.

Once the seller pointed out that the entire home was not wired with aluminum, the inspector realized the mistake but that was after the contract was terminated. Even though the summary at the end of the report correctly stated the issue with the aluminum service feeder cables, the incorrect reporting that the “house was wired with aluminum wiring” was negligence by the inspector.

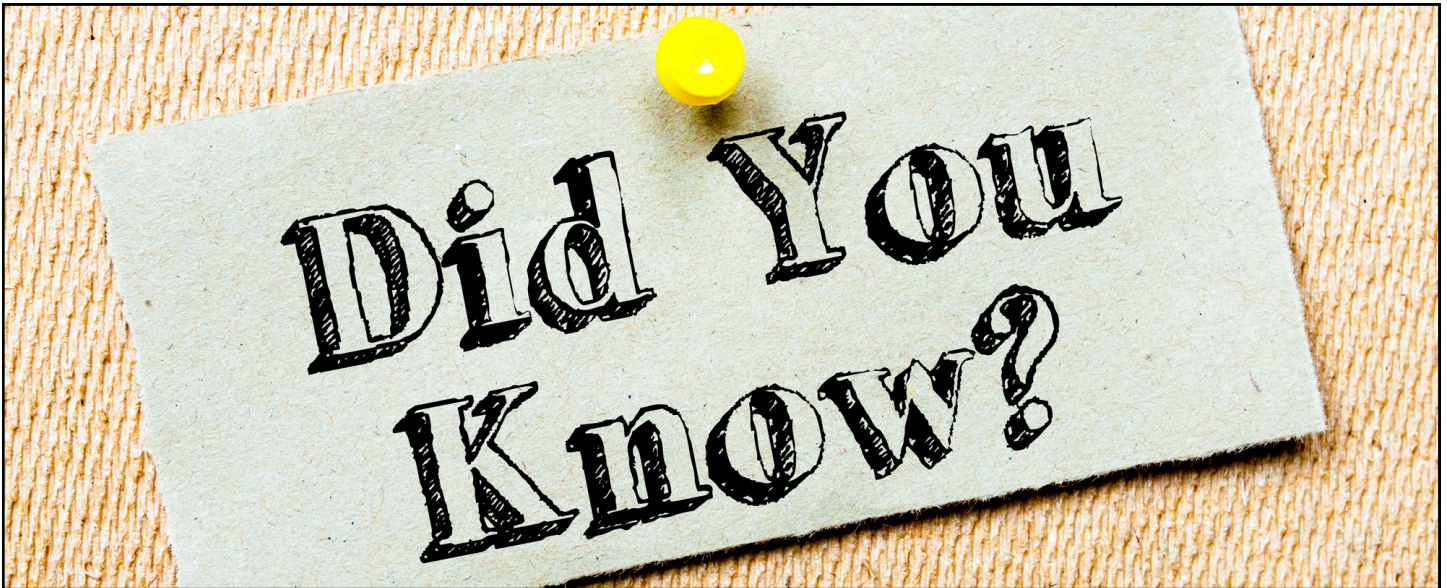
Result: The inspector acknowledged that he was incorrect in stating that the whole house was wired with aluminum wiring. The inspector did call the seller’s agent and apologized for the mistake. The inspector received a reprimand and paid \$500 administrative penalty for a violation of 1102.301, Tex. Occ. Code, by performing an inspection negligently or incompetently.

In conclusion, when writing an inspection report, remember to:

- ✓ Define exactly what is observed at the property on the day of the inspection.
- ✓ Describe the finding in detail using concise yet thorough statements.
- ✓ Recommend further evaluation by a licensed professional or contractor, as warranted.
- ✓ Be clear so that the client or other readers of the report can understand it.
- ✓ Ensure that the information in your report is accurate.

Module 4

Hot Topics



Learning Objectives

After this module you will be able to

- ✓ Recognize the importance of planning for inspector succession.
- ✓ Understand the requirements and relationship between a client and a third party paying for an inspection.
- ✓ Explain the importance of competency regarding the use of inspector tools and devices.
- ✓ Identify other licenses required for inspections beyond the reach of a standard home inspection.

Inspector Succession: What Happens When a Sponsoring Inspector Dies?

Death is a difficult topic, and its aftermath is hard to navigate. What happens to inspectors if their sponsoring inspector passes away? Under TREC rule 535.215, the death of a sponsoring inspector will cause any sponsored inspectors' licenses to become inactive, prohibiting them from performing inspections until they secure new sponsorship.

While this may not be common, instances like this have happened to inspectors and sales agents, alike. TREC'S Licensing Division considers these situations high priority and will quickly processes any changes to sponsorships resulting from the death of a sponsoring inspector. Be sure to notify TREC immediately.

Although it might be unpleasant to think about, sponsoring inspectors should have a plan in place should the unthinkable happen to ensure that those who they sponsor will still be able to protect their livelihood and perform inspections.

Take the time to plan in the event the unexpected does happen. Death is a difficult topic, but having a plan in place protects the consumer and sponsored inspectors.

Recommendations for Effective Succession Planning

Identify and Document Potential Successors: Even though an apprentice or real estate inspector can make their own choice for a

sponsoring inspector, having a list of qualified individuals (within or outside an organization) who can assume the role of sponsoring inspector when necessary, could help the inactive inspector make a speedy decision leading to less downtime that the inspector is on inactive status.

Communicate the Plan: Ensure all stakeholders, including all sponsored inspectors and administrative staff, are aware of the succession plan and understand the process if a transition becomes necessary.

Implementing a comprehensive succession plan not only ensures compliance with Texas regulations but also maintains trust with clients and supports the ongoing success of the inspection business.

Who is My Client When a Third Party is Paying for the Inspection?

When a third party, such as a relative or real estate agent, is paying for an inspection, does this mean the third party is the client? Under TREC rules, the answer is no. Another person paying for the inspection on behalf of the client does not change who the inspector's client is for this transaction. The inspection report should be delivered to the client, regardless of who pays for the inspection.

TREC Rule 535.201(1) (Definitions) - says the inspector's client is the buyer or the seller—including a prospective buyer or seller—of the subject property, and that the inspection is performed for the benefit of the client.

TREC Rule 535.227(a)(1) (Standards of Practice: General Provisions) states these standards of practice apply when a licensed professional inspector or real estate inspector accepts employment to perform a real estate inspection for a prospective buyer or seller of real property.

According to TREC Rule 535.222(a) (Inspection Reports), unless otherwise agreed in writing by the client, the inspector shall:

- Deliver the report to the client within two days of receipt of payment in full for the inspection; or
- If payment in full is received before the scheduled inspection, deliver the report to the client within two days of completion of the inspection.

Inspector Tools and Competency



As new technologies are developed and become more affordable within the inspection industry, some inspectors are turning to these new technologies in order to give more value to the services they provide.

Items such as drones, zip levels, sewer scopes, thermal imaging devices, and many others have started making their way into the inspection world.

These new technologies may give an inspector more insight on the condition of a system within the structure. However, caution should be taken when using any of these when performing an inspection.

According to TREC rule 535.227(a)(4), the inspector must be competent and proficient in these technologies prior to utilizing them for home inspections. For example, using a zip level and reporting that a foundation is in need of repair because it was 2 inches out of level may be inappropriate for several reasons.

First, it is not the inspector's obligation to say that the foundation is in need of repairs. More on that in Module 6, under the Structural Systems SOPs.

Second, just because a house is out of level does not mean that the foundation is failing. The foundations on some houses may have been poured out of level. There may be a moisture issue at a particular location that, once resolved, may eliminate the unlevel condition. Getting the proper training on the zip level system and the engineering practices used with them should be considered in order to gain the competency necessary to utilize such a device for inspection purposes and avoid potential liability issues.

Why Home Inspectors Must Be Competent with Their Tools

Home inspection tools can range from simple hand tools to advanced diagnostic devices. Advanced diagnostic devices would be considered specialized tools and are not required to complete a standard home inspection. Each tool used by an inspector has a specific function that helps them identify potential hazards, inefficiencies, or damages within a property. Some commonly used tools include:

- **Moisture Meters** – Used to detect hidden water damage and leaks.
- **Infrared (Thermal) Cameras** – Help identify insulation deficiencies, electrical issues, and moisture problems.
- **Gas Detectors** – Detect harmful gases such as carbon monoxide and methane.
- **Electrical Testers** – Ensure electrical systems are functioning safely and properly.
- **Drones** – Used for roof inspections in cases where traditional access is unsafe or impossible.

Without proper training and experience, an inspector may misinterpret readings, overlook crucial issues, or report false positives. This can lead to serious consequences for homebuyers, sellers - and the inspector, too.

Liabilities of Incompetence with Inspection Tools

Failing to properly use inspection tools can expose home inspectors to several liabilities, including legal, financial, and reputational risks, not to mention the risk to the inspector's license and livelihood.

1. Misdiagnosed or Missed Issues

If a home inspector misuses a tool and fails to identify a significant problem, the buyer may purchase a property with hidden defects. For example, an inspector who improperly calibrates a moisture meter may fail to detect a water leak behind a wall. Months later, the new homeowner might discover mold growth and structural damage, leading to costly repairs. If the homeowner can prove the inspector was negligent, the inspector may be held liable for damages.

2. False Positives Leading to Unnecessary Expenses

Conversely, misinterpreting tool readings can cause unnecessary alarm. Suppose an inspector incorrectly uses a thermal camera and reports a possible electrical issue that does not actually exist. This could lead to a buyer backing out of a sale or demanding costly, unnecessary repairs. If the seller suffers financial loss due to the inspector's mistake, they may pursue legal action.

3. Legal and Insurance Consequences

Home inspectors in Texas are required to carry Errors & Omissions (E&O) insurance to protect against professional mistakes. However, repeated claims due to incompetence can lead to increased premiums or policy cancellations. Additionally, lawsuits resulting from negligent inspections can lead to significant legal fees and settlements.

4. Damage to Reputation and Business

Word-of-mouth and online reviews significantly impact a home inspector's reputation. If an inspector gains a reputation for providing inaccurate reports due to improper tool usage, real estate agents and homebuyers may avoid hiring them, ultimately damaging their business.

Best Practices for Home Inspectors to Ensure Tool Competency

To minimize risks and liabilities, home inspectors should take the following steps:

- **Obtain Proper Training:** Home inspectors should receive formal training on how to use each tool effectively. Many organizations, such as the International Association of Certified Home Inspectors (InterNACHI) and the American Society of Home Inspectors (ASHI), offer training courses on various inspection tools.
- **Stay Updated with Industry Standards:** Technology evolves rapidly, and new tools emerge frequently. Home inspectors should stay informed about the latest advancements and best practices.
- **Practice Regular Calibration and Maintenance:** Equipment must be calibrated and maintained properly to ensure accurate readings. Inspectors should routinely check their tools and follow manufacturer guidelines.
- **Verify Findings with Multiple Tools:** Using multiple tools to confirm findings can reduce the chances of misdiagnosis. For example, if a moisture meter detects an issue, an inspector can use an infrared camera to verify the presence of moisture.
- **Continuing Education and Certification:** Regularly attending workshops, webinars, and certification programs can help home inspectors sharpen their skills and maintain credibility in the industry.

Home inspectors must be proficient in using their tools to ensure accurate and reliable inspections.

Incompetence with inspection tools can lead to significant financial, legal, and reputational consequences.

By investing in proper training, maintaining equipment, and continuously improving their skills, home inspectors can provide accurate

assessments and protect both their clients and themselves from liability. In an industry where trust and accuracy are paramount, mastering inspection tools is not just a best practice, it is a necessity.

Beyond the Standard Home Inspection: Additional Licenses Possibly Required

A real estate inspection is a limited visual survey and basic performance evaluation of the systems and components of a building using normal controls that provides information regarding the general condition of a property at the time of inspection.

However, certain specialized inspections require licenses beyond a typical home inspector license to ensure compliance with safety regulations and industry standards, typically beyond those that a licensed home inspector can provide.

Some home inspectors possess additional specialized licenses and certifications. An example would be an inspector who is also a master plumber or electrician. Below are several types of additional licenses required for various inspection services in Texas.

Plumbing Inspections – Licensed Plumber Required

A Texas home inspector can note visible plumbing issues, but a licensed plumber must conduct in-depth inspections and repairs. The Texas State Board of Plumbing Examiners (TSBPE) governs plumbing licenses, ensuring that only certified professionals assess issues like pipe leaks, gas line concerns, and sewer system malfunctions.

FAA Drone License – For Aerial Inspections

Many home inspectors use drones to assess roofs, large properties, or inaccessible areas. However, to legally operate a drone for commercial purposes, including home inspections, the inspector must obtain a Remote Pilot Certificate from the Federal Aviation Administration (FAA). This certification ensures drone operators comply with airspace regulations and safety protocols.

Lead-Based Paint Inspections – Lead Inspector/Risk Assessor Certification

Homes built before 1978 may contain lead-based paint, which poses serious health risks. To conduct lead inspections, a professional must be certified by the Environmental Protection Agency (EPA) or the Texas Department of State Health Services (DSHS). These specialists assess potential lead hazards and provide recommendations for mitigation.

Mold Inspections – Licensed Mold Assessor

Mold can be a significant issue in Texas due to humidity levels. To inspect and assess mold problems, a professional must be licensed as a Mold Assessment Consultant or Mold Assessment Technician through the Texas Department of Licensing and Regulation (TDLR). Home inspectors can note signs of mold but cannot legally diagnose or provide remediation recommendations without the proper license.

Termite and Pest Inspections – Licensed Pest Control Technician

Wood-destroying insects like termites can severely damage a home. In Texas, only a licensed Pest Control Technician or a Certified Applicator, certified by the Texas Department of Agriculture (TDA) under the Structural Pest Control Service, can perform termite and pest inspections. Home inspectors can report visible signs of infestation but cannot legally conduct an official wood-destroying insect (WDI) inspection.

Septic System Inspections – Licensed On-Site Sewage Facility (OSSF) Inspector

If a property has a septic system, an On-Site Sewage Facility (OSSF) inspection may be necessary. These inspections require a licensed OSSF inspector approved by the Texas Commission on Environmental Quality (TCEQ). The TCEQ-licensed inspector evaluates system functionality, compliance, and potential failures.

HVAC Inspections – Licensed HVAC Technician

A home inspector can assess basic HVAC system performance, but a licensed HVAC technician must evaluate complex issues like refrigerant levels, electrical components, and efficiency concerns. TDLR oversees HVAC technician licensing.

Electrical Inspections – Licensed Electrician

Home inspectors can check for visible electrical issues, such as outdated panels or faulty wiring. However, only a licensed electrician, certified by the TDLR, can perform in-depth electrical inspections, repairs, and upgrades.

While a standard home inspection provides a visual broad evaluation of a property at the time of the inspection, various specialized inspections require licensed professionals with specific expertise.

Understanding these additional licensing requirements helps homebuyers, sellers, and real estate professionals ensure properties are thoroughly examined by qualified experts.

If a home inspection identifies potential concerns, seeking a specialist with the appropriate credentials is essential for compliance and safety.

Module 5

TREC Enforcement

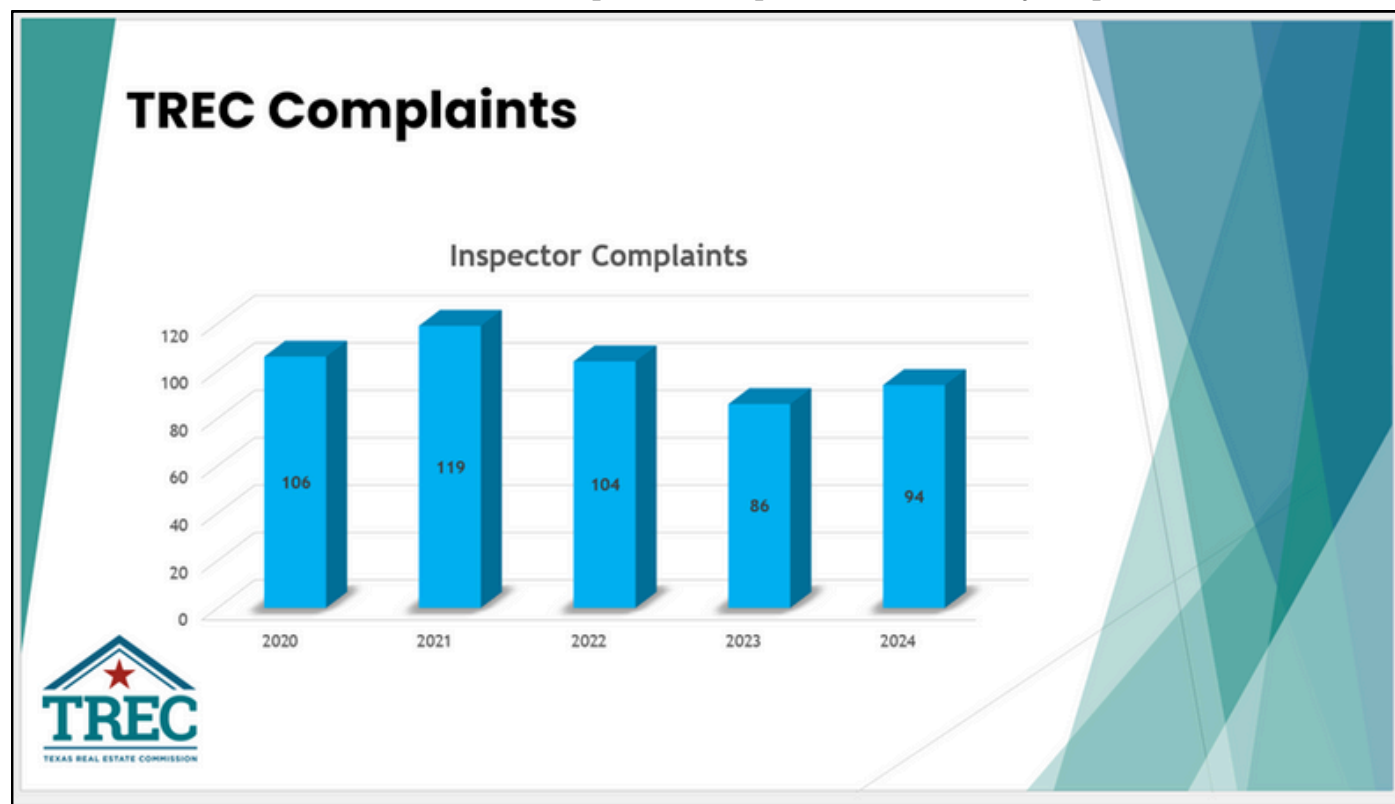


Learning Objectives

After this module you will be able to

- ✓ Describe the complaint process from the perspective of the license holder and TREC.
- ✓ Identify common inspector violations.
- ✓ Understand how to respond to a complaint.
- ✓ Explain best practices to avoid complaints.

The chart below shows the trends of inspector complaints over a five year period.



Who Handles Complaints and Discipline?

The Enforcement Division of the Texas Real Estate Commission protects consumers by enforcing the laws and rules that regulate license holders. The Enforcement Division administers the complaint investigation program, disciplinary enforcement program, and the background check process for applicants and license holders.

The Enforcement Division is comprised of attorneys, legal assistants, investigators, and other administrative staff. In 2024, there were 5,999 cases opened by Enforcement, and complaints against inspectors were very low, compared to real estate license holders. However, there was a 9.3% increase in complaints filed against inspectors in 2024 compared to 2023.

The Complaint Process

Filing a complaint with TREC is the first step in the enforcement process. Anyone can file a complaint, even other license holders.

Complaints must be submitted in writing and signed by the complainant. A complainant should hear back from the Enforcement Division within 30 days about whether it will proceed with opening and investigating the allegations in the complaint. If an investigation is opened, each person against whom the complaint is filed receives a copy of the complaint. Every individual subject to a complaint is required to cooperate with the investigation.

Any inquiry from TREC requires a response within 14 days. Failure to cooperate with the investigation will result in disciplinary action against the license holder. A sponsoring inspector should be prepared to talk about how they supervise their sponsored inspectors, including providing business practices that address the issues that are alleged in the complaint.

Following the investigation, the information collected during the investigation will be turned

over to an attorney for review. If the attorney determines that a violation occurred and there is sufficient evidence to support the violation, discipline will be pursued. Disciplinary action can include formal reprimand, suspension, or revocation of a license, including payment of an administrative penalty.

Additionally, depending on the severity of the violation, an advisory letter might be issued. An advisory letter is a form of informal discipline that will remain a part of the license holder's disciplinary record. A license holder's past complaint and disciplinary history is taken into consideration and can be used against the license holder in any future complaints.

Why Can't TREC Complaints Be Anonymous?

Chapter 1101 of the Texas Occupations Code prohibits the agency from investigating anonymous complaints. The reason behind this prohibition is that complaint respondents (those who have a complaint filed against them) are entitled to due process when it comes to formal disciplinary action taken by the government (TREC) against their license. Complaints filed with TREC can have implications for an individual's license, which is required to conduct inspections in Texas. For most license holders, this means their business and their livelihood.

To ensure each complaint respondent receives due process before any formal discipline is taken against their license, TREC must adhere to certain processes and comply with all applicable laws related to a respondent's opportunity to respond to the allegations against them and have a formal hearing should they so choose.

Complaints can affect an individual's licensure and ability to run their business. In fact, the Enforcement Division must treat each complaint as though it might reach the State Office of Administrative Hearings, or SOAH (pronounced "so-ah"). This is the administrative law court that hears cases from state agencies like TREC, and where respondents have their opportunity to defend themselves.

Not all complaints make it to SOAH; many are closed with an agreed order. In an agreed order, a respondent neither admits nor denies wrongdoing and agrees to comply with TREC's terms, such as paying an administrative fine, taking additional education courses, or even having their license suspended or revoked.

However, all respondents have the right to defend themselves against a complaint and choose to have a hearing before SOAH. This right to a hearing exists for all types of complaints ranging from technical infractions (e.g., advertising issues) to more serious allegations (e.g., fraud or misrepresentation).

In a SOAH hearing, TREC staff attorneys lay out the Commission's case against a license holder to an administrative law judge. The respondent also has a chance to go before the administrative law judge and provide evidence in their defense.

Typically, the administrative law judge will issue a PFD, or a Proposal for Decision, summarizing the findings of fact and conclusions of law from the hearing. PFDs are presented to the nine Commissioners during TREC Meetings. This is yet another opportunity for a respondent to speak in their defense, and for the TREC Enforcement Division staff attorneys to explain evidence and the investigation.

Ultimately, the Commissioners vote on whether to accept the PFD as written, make modifications, or reject it. The Commissioners must remain neutral, and cannot consider factors outside of what is written in a PFD. This is why it is prohibited to contact Commissioners if you are a respondent to an open complaint, as that may result in their recusal from a potential hearing. Importantly, this prohibition goes both ways and Enforcement Division staff are also prohibited from discussing an open complaint with Commissioners.

Think about it this way: When you get a speeding ticket, you have a right to a hearing. The reason that you might potentially go to

court to contest your speeding ticket is to prove that you deserve to keep your license, avoid a fee, or otherwise protect your ability to drive. A complaint filed with TREC works similarly and is taken seriously by staff, not only to protect the consumer, but also to ensure each respondent in a case receives due process.

Common Inspector Violations

The TREC Enforcement Division compiles data on a monthly basis regarding complaints received. The list below shows common complaint categories as of date of publication. Complaints do not always result in disciplinary action.

1. Using the wrong report form.
2. Conducting an inspection with an expired/inactive license.
3. Failure to register a business name (DBA).
4. Engaging in false/misleading advertising.
5. Failure to note in the report the reason a system or a component was not inspected.
6. Failure to report a deficiency.
7. Performing an inspection in a negligent/incompetent manner.
8. Failure to render a written opinion as to the foundation performance.
9. Failure to provide vantage point from which crawlspace was inspected.
10. Failure to report evidence of water penetration.

How Should I Respond to a Complaint Filed Against Me?

- Do not ignore a complaint! Failure to respond could be grounds for disciplinary action.
- Cooperate with the investigation.
- Provide organized records and documents.
- Share any corrective actions made since.
- Cite any applicable Texas Real Estate Commission rules or standards of practice in response and provide the investigator a written chronology/timeline of events.

Tips to Avoid a Complaint

- **Be competent.** Have the necessary education, training, and experience to perform an inspection.
- **Be careful.** Leave the property in the same condition as it was upon arrival.
- **Be clear.** Inspectors are required to explain findings in the corresponding section of the report. Anything incorrect, incomplete, unclear, or confusing is a frequent cause of a consumer filing a complaint.
- **Be kind.** Kindness may help you avoid getting into a complaint situation. The inspection process can be emotional for the consumer.

Module 6

Structural Systems and HVAC SOPs



Structural Systems Learning Objectives:

After this module you will be able to

- ✓ Understand how the definitions in the TREC rules work together.
- ✓ Understand the difference between “Report” and “Report as Deficient.”
- ✓ Explain the inspector’s duty to form an opinion of the foundation and document indicators of adverse performance.
- ✓ Understand the expectations of conducting roof inspections and appropriate drone use.
- ✓ Describe the SOP requirements for inspecting crawlspaces including reporting vantage points, and proper documentation of limitations, or use of the departure provision.

Structural Systems Overview

The information in this section of the course does not break down each component of the Standards of Practice Structural System but rather reviews the most common mistakes and answer the “Do’s and Don’ts” according to the intent of the SOPs.

We will start by exploring some of the definitions outlined in TREC rule 535.227 - Standards of Practice: General Provisions.

Keep in mind that the definitions set the baseline for minimum requirements and how the inspector will inspect and report findings.

Accessibility

According to the definition in 535.227(b), accessible means in the reasonable judgment of the inspector, capable of being approached, entered, or viewed without:

- A. hazard to the inspector;
- B. having to climb over obstacles, moving furnishings or large, heavy, or fragile objects;
- C. using specialized equipment or procedures;
- D. disassembling items other than covers or panels intended to be removed for inspection;
- E. damaging property, permanent construction or building finish; or
- F. using a ladder for portions of the inspection other than the roof or attic space.

Reasonable Judgment

An inspector is required to use “reasonable judgment” when performing inspections. Reasonable describes someone having sound judgement that’s sensible and fair. [Oxford Languages]

Consider this:

Is it reasonable that every roof an inspector encounters is too steep for the inspector to walk the roof?
Is it reasonable for every electrical panel to appear too dangerous for the inspector to remove the dead front?

Answer: No.

Judgment is the ability to make considered decisions or come to sensible conclusions.
[Oxford Languages]

Consider this:

Would it be considered proper judgment for an inspector to decide not to crawl under a floor space if a wild or dangerous animal was found there?

Answer: Yes

Combined, reasonable judgment means a judgment reached in good faith and in the exercise of reasonable care. Reasonable judgement includes considering the consequences of one's decisions, thinking before acting, and making good decisions in a variety of situations.

Reasonable judgment is not intended to be used to provide the inspector with an excuse to omit or bypass certain items required for inspection by the SOPs. The inspector should make all reasonable efforts to provide the consumer with important information about the condition of the home. As professionals, inspectors are expected to use reasonable judgement while performing inspections.

The definition of accessible also states that the inspector must consider whether the systems are "capable of being approached, entered, or viewed" without encountering any of the six conditions below.

A. Hazard to the inspector

Inspectors should use reasonable judgment when considering what is hazardous to the inspector. Nothing in the SOPs require the inspector to take unnecessary risks. There are risks involved in any activity and depending upon conditions, some of the items required for inspection by these standards of practice involve significant risk.

It is reasonable to say that a 9/12 pitch roof may be hazardous for an inspector to inspect by walking on the roof, but it would not be reasonable for an inspector to consider a 4/12 pitch roof to be hazardous to walk as long as the weather is good.

It is reasonable to say that a crawlspace should be entered and inspected from within the crawl space as long as it has the proper clearances, AND if it is dry and free of other hazardous conditions.

If the inspector determines a hazard to be too great to allow the inspection of a part, component or entire system, the inspector should follow the requirements of the Departure Provision which includes making the appropriate notations on the Standard Inspection report form as to why the system(s) or component(s) were not inspected. In this case, inspector safety being the reason.

B. Having to climb over obstacles, moving furnishings or large, heavy, or fragile objects

Inspectors are required to inspect all components as outlined in the SOPs as long as they do not have to climb over obstacles, move furnishings or other large, heavy, or fragile objects.

During an inspection, it is not uncommon to encounter obstructions blocking access to various components of the residence. It is not the responsibility of the inspector to determine the weight of the object, the contents or value of the item.

Is it reasonable to inspect the attic from the pulldown stairs in this picture?



Photo credit: Lee Warren

C. Using specialized equipment or procedures

As outlined in 535.227(a)(3)(C), inspectors are not required to use specialized equipment, including but not limited to: thermal imaging equipment; moisture meters; gas or carbon monoxide detection equipment; environmental testing equipment and devices; elevation determination devices; or ladders capable of reaching surfaces over one story above ground surfaces.

Inspectors **are** required to use reasonable and appropriate tools to satisfy the requirements of the standards of practice.

It is reasonable to say that an inspector should utilize basic tools such as an outlet tester, voltage sensor, flashlight, screwdriver, tape measure, water pressure gauge, temperature testing device, etc., that allows the inspector to perform, test and inspect in a manner that meets the requirements of the SOPs.

D. Disassembling items other than covers or panels intended to be removed for inspection

Inspectors are expected to remove covers or panels from components that were intended to be removed for inspection. It is reasonable to say that the electrical panel cover was intended to be removed for inspection, so the SOPs indicate that the inspector is required to remove the cover as part of the inspection process if it is safe and reasonable to do so.

This may also apply to access panels for bathtub drains, hydrotherapy bathtub pumps and motors, dishwasher pumps, motors, water supply pipes and electrical components, the electrical components of water heaters and central heaters. It is not intended that all junction or appliance boxes be opened or that the interiors of the junction and appliance boxes be inspected. Opening of covers and panels should be made without defacing the property or damaging otherwise sound surfaces.

What is the ethical choice when an inspection panel is painted over and the paint has caused it to stick?

Since the panel is expected to be inspected, but it is covered over with paint, how do you decide how to proceed with the inspection of this item? Do you use a tool to cut around the cover to remove the inspection cover? Do you choose not to inspect the components behind the cover? If the cover can be removed using a simple tool such as a utility knife to carefully cut around the edges of the cover with little to no damage, the inspector may choose to do so. Even though the cover was inadvertently painted over, that is not an excuse to bypass the inspector's responsibilities.

If there is an inspection cover such as a dead front or a random cover on a wall or ceiling that has been caulked or sealed to make it semi-permanent, the caulking should not be cut and/or damaged in any way. The inspector is not expected or required to remove this cover, (nor should the cover be removed) by doing so damage will be done to the caulk.

E. Damaging property, permanent construction or building finish

Rule 535.227(a)(C)(ii)(IV) explains that inspectors should not use any method that employs destructive testing or damage to otherwise sound materials or finishes.

Keep in mind that probing areas that appear to be decayed to determine the extent of the decay should not be construed as causing damage to sound surfaces.

F. Using a ladder for portions of the inspection other than the roof or attic space.

Determining what type or size of ladder to use when performing inspections is up to the inspector.

The decision may depend upon the geographic area in which the inspector provides services and the purpose for which the ladder is used. For some, a 14-foot ladder may be sufficient. Others may require a 17-foot ladder.

Ladders capable of reaching surfaces over one story above ground surfaces are considered specialized equipment. Consequently, a one-story ladder should be considered a reasonable and appropriate tool.

It is reasonable to say that if the SOPs require a component to be inspected, and it is reasonably accessible, the inspector is required to inspect it.

Inspectors may not rely and report on a random sampling of items such as windows, doors, receptacles or switches during an inspection, other than switches and outlets when aluminum branch wires are found.

If in the reasonable judgment of the inspector it can be approached, entered or viewed in a safe manner, it must be inspected according to the SOPs.

If an inspector chooses not to inspect components as outlined in the SOPs, they must follow the rules as stated in the Departure Provision Rule 535.227(f).

Performance

The definition of “performance” is defined in 535.227(b).

Performance–Achievement of an operation, function or configuration relative to accepted industry standard practices with consideration of age and normal wear and tear from ordinary use.

In other words, is it working the way it is supposed to work?

Performance is referred to in several locations throughout the SOPs. It is important for inspectors to understand that they are conducting a performance-based inspection.

As described in TREC rule 535.227, “a real estate inspection is a limited visual survey and basic performance evaluation of the systems and components of a building using normal controls that provides information regarding the general condition of a residence at the time of inspection.”

One way to look at it is:

1. Is it safe?
2. Is it serving its intended purpose?
3. Are there visible indicators that could cause adverse performance?

A performance-based inspection does not require the inspector to determine whether components were properly installed per manufacturer instructions or to assess for compliance with code, listing, testing, or protocol authority.

When applying reasonable judgement to the performance of inspected components, an inspector may take into consideration the age of a component and normal wear and tear from ordinary use.

Understanding the Difference Between “Report” and “Report as Deficient”

The SOPs require an inspector to both “report” and “report as deficient.”

The requirement to “report” helps provide the client important information regarding the inspected property. This also provides the client information about how specific components were inspected. As a reminder, the requirement to report does not require an inspector to report as deficient. However, a report of deficient should include present and visible indications used to render the opinion of adverse performance.

TREC rule 535.228(c) requires an inspector to inspect roof covering materials from the surface of the roof and report the following:

- type of roof coverings;
- vantage point from where the roof was inspected;
- evidence of water penetration; and
- evidence of previous repairs to the roof covering material, flashing details, skylights and other roof penetrations.

While these items must be reported on, they may not need to be reported as deficient. The ability to convey information to the client regarding evidence of previous repairs and moisture penetration allows the client to seek more information from the seller of the property or other professional.

Similar reporting requirements are found in Roof Structures and Attics; Exterior and Interior Walls, Ceilings, Floors and Doors; of the SOPs, as examples.

The SOPs do **not** allow for random sampling or inspecting a representative number of components. You are required to inspect all accessible windows, doors, receptacles, switches, plumbing fixtures, etc.

Foundations

TREC rule 535.228(a)(1)(A) requires an inspector to render a written opinion as to the performance of the foundation.

The SOPs require the inspector to provide a professional opinion regarding the performance of the foundation as part of the inspection.

Many have argued that an inspector should not provide performance opinions on the foundation. However, the Inspector Committee and the Commission deemed that TREC licensed inspectors are more than competent to render a performance opinion on the structural components of the home.

Inspectors do not have any financial interest in the homes they inspect, unlike foundation repair companies that will send out a foundation specialist who may simply be a salesperson for the company.

Documenting the inspector’s opinion of the performance of the foundation requires more than simply checking the “inspected” box on the inspection report. Inspectors may take into consideration the age of the structure, related foundation components, and normal wear and tear from ordinary use when forming a performance opinion.

When an inspector observes that the foundation provides adequate support to the structure, they are still required to list any settlement or movement indicators.

If, in the opinion of the inspector, the foundation is showing signs of adverse performance, the inspector must include that in the report and state what evidence they found that led the inspector to that conclusion.

Though the inspector is not required to provide an exhaustive list of adverse performance indicators, the inspector is required to provide examples of present and visible indicators such as concrete cracks, brick cracks and out of square doors.

When an inspector observes that the foundation provides adequate support to the structure, they are still required to list any settlement or movement indicators.

If, in the opinion of the inspector, the foundation is showing signs of adverse performance, the inspector must include that in the report and state what evidence they found that led the inspector to that conclusion. Though the inspector is not required to provide an exhaustive list of adverse performance indicators, the inspector is required to provide examples of present and visible indicators such as concrete cracks, brick cracks and out of square doors.

When documenting indicators of adverse performance, the inspector may need to reference them in multiple sections of the report. The inspector may choose to recommend that the client have the foundation further evaluated by a structural engineer.

Foundations – In Need of Repair

The Texas Board of Professional Engineers and Land Surveyors regulates licensed engineers in the state. This entity clarified in its Policy Advisory Opinion Request #43 issued in February 2018 that inspectors licensed through the Texas Real Estate Commission are not qualified to determine if a foundation is in need of repair.

The SOPs clearly detail the factors that inspectors are required to report on as deficient as a means to assist an inspector in rendering that opinion.

However, if there are sufficient factors observed that could indicate adverse performance of the foundation, then the inspector should refer a qualified professional for further evaluation.

If an inspector states in a report that the foundation is in need of repair, they may be subject to disciplinary action taken by the Texas Board of Professional Engineers and Land Surveyors.



Photo credit: Shannon Gatewood



Photo credit: Shannon Gatewood

Case Study – Reporting Present and Visible Indicators of Adverse Performance

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. The inspector inspected the foundation at the property and marked the foundation of the home as “Slab”. The inspector failed to mark the foundation as deficient and gave an opinion that the foundation was functional and without immediate need of remediation. The inspector further stated that he observed surface deterioration known as spalling, but that this condition was common in many homes and did not usually represent a structural concern.

The inspector reported cracks in the exterior and interior walls, however he stated that the cracks might not represent a structural failure and may be typical settlement. The inspector also reported that doors in various locations would stick, drag or not latch when operating. However, these deficiencies were reported in other sections of the report and were not reported as possible indicators of adverse performance in the foundation section.

After the buyers purchased the property they noticed visible cracks in the garage floor, they hired a professional engineer to inspect the foundation. The engineer issued a report in which he stated he observed separations and cracks in the drywall, exterior brick veneer and ceiling and other signs which indicated the foundation was not performing. The deficiencies in the foundation listed in the engineer’s report would have been present and visible on the date the inspector inspected the property.

Analysis: Although the inspector identified multiple deficiencies throughout the report, he failed to recognize that these separate deficiencies were related to the performance of the foundation. The inspector failed to properly consider present and visible indicators of adverse performance when rendering a written opinion as to the performance of the foundation.

Result: The inspector was formally reprimanded, the inspector was also required to complete 10 hours of continuing education on the topic of foundations and pay an administrative penalty of \$750 for violation Section 1102.301, Texas Occupations Code, performing a real estate inspection in a negligent or incompetent manner.

Case Study – Evaluating the Performance of a Foundation and Failing to Report Present and Visible Indicators of Adverse Performance

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. The inspector inspected the foundation, did not report any deficiencies, did not report any present and visible indicators of adverse performance, and did not render a written opinion as to the performance of the foundation.

In the walls section of the report, Respondent reported the following: “Slab has signs of minor cracking”, “several cracks in garage walls”, and “West side of structure has minor to medium crack on exterior brick...”. In the ceilings and floors section, Respondent reported the following: “Slight undulating in flooring in kitchen and dining area possibly due to settling which is common for the age of the structure. Also, minor cracking in several areas of the ceiling cause (sic) by settling. These are common signs of major settling.”

Photographs taken on the day of the inspection show significant cracking on the slab foundation. The property also had window and wall separations that were not reported. Based on the inspection report, the buyer purchased the property. After the buyer moved into the property, she noticed the floors were unlevel and items kept rolling off the kitchen counters. The buyer had the foundation evaluated by a foundation repair company. The company determined that the foundation was not performing and was in need of significant repairs.

Analysis: The inspector failed to report wall and window separations and failed to properly consider present and visible indicators of adverse performance, failed to render a written opinion as to the performance of the foundation, and was negligent in failing to check the “deficiency” box.

Result: The inspector was formally reprimanded, the inspector was also required to complete 16 hours of continuing education on the topic of foundations and pay an administrative penalty of \$1,500 for violation Section 1102.301, Texas Occupations Code, performing a real estate inspection in a negligent or incompetent manner; 22 Tex. Admin. Code 535.228(a)(1)(A), by failing to render a written opinion as to the performance of the foundation; and 22 Tex. Admin. Code 535.228(a)(1)(C)(iv), by failing to generally report present and visible indications used to render the opinion of adverse performance, such as window, wall, floor, or ceiling cracks or separations.

Below are pictures of slab and pier and beam foundations with visible indicators of adverse performance. Notice how the beam is sitting on a pipe!



Photo credit: Shannon Gatewood



Photo credit: Shannon Gatewood

Discussion

1. What are common indicators of adverse performance?
2. At what point does a foundation stop performing?
3. What does it mean for a foundation to be performing/not performing?

Roof Inspections

Roof inspections are an essential part of the inspection process. With varied weather conditions in Texas, and an assortment of roofing materials used throughout the state, home inspectors play a critical role in identifying potential roof issues that could affect the safety, comfort, and value of a home.

The SOPs state that the inspector shall inspect the roof covering materials from the surface of the roof [535.228(c)(1)]. The most common method of inspecting the surface of the roof is using a ladder and “walking the roof.” Inspectors

are reasonably required to walk the roof as long as it is safe to do so. If an inspector is not going to walk a roof due to the condition of a roof during a specific inspection or chooses to not walk roofs as a routine business practice, knowledge of the departure provision must be properly followed.

There are several reasons an inspector may feel that they cannot reach the roof, or stay on the roof, safely. If the inspector routinely does not inspect the roof, then they must notify their client at the first contact to ensure that the client is aware and accepts that the inspector does not walk the roof during the course of an

inspection. This information, as with any utilization of the departure provision, should be noted in the report.

If the inspector does not walk the roof, and it could be reasonably determined that the inspector could have safely done so, they may be subject to disciplinary action. Inspecting the roof with a drone, telescoping camera, from the edge of the roof on a ladder, or from the ground with binoculars are not acceptable vantage points to inspect the roof if the roof is reasonably accessible and likely safe to do so. If the inspector gets to the property and determines that the roof cannot be accessed properly due to safety concerns, then they should notify the client and note the reason for the departure in the report.

If there are areas of the roof that could not be inspected, the inspector should note this

information in the report.

For instance, if the house being inspected is a two-story house, and the inspector could access the roof over the first floor but not the second, then that should be noted.

There are some roofs that an upper section could not be accessed from the first without excessive risk or possible damage to the structure.

Other conditions such as rain, ice, solar panels, etc. may prevent some areas of the roof from being inspected. These limitations should be noted in the report.

Module 1 of this course covers the departure provision and appropriate notations that should be made on the Standard Inspection Report Form.

Case Study – Inspecting Roof Covering Materials

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. The inspector inspected the roof and stated that he viewed the roof from the ground with binoculars for safety reasons and that he found the roof to be performing and in satisfactory condition at the time of the inspection.

The buyer discovered a leak in the roof after she moved in, and she hired a roofing company to assess the condition of the roof. The roofing company inspected the roof and found deficiencies in the caulking, exposed nails, damaged shingles and other repair work that would have been present and visible at the time of the inspection.

Analysis: The inspector's failure to walk and inspect the roof from roof level was not reasonable. The property's one-story roof was safely reachable by ladder, the roof has a gentle slope with asphalt shingles and there is no indication he would have caused damage by walking on it. An inspector must conduct a visual inspection of roof covering materials from the surface of the roof. Some areas of the roof may be obscured when viewing from the ground using binoculars and the inspector can miss deficiencies that may be present in the roof covering materials.

Result: The inspector was formally reprimanded and was required to pay an administrative penalty of \$500 for violation Section 1102.301, Texas Occupations Code, performing a real estate inspection in a negligent or incompetent manner.

Can I use a drone to inspect the roof instead of climbing it?"

Many inspectors have gotten into the habit of using a drone to inspect the roof instead of walking the roof. This could be problematic if they are not properly following the departure provisions.

TREC rule 535.228(c)(2) states that an inspector is not required to inspect the roof from the roof level if, in the inspector's reasonable judgment:

- The inspector cannot safely reach or stay on the roof, or
- Significant damage to the roof covering materials may result from walking on the roof.

Frequently, inspectors don't document the basis for their departure on the inspection report. Or maybe the basis for departure is not reasonable, e.g., there is nothing particularly hazardous about the roof.

Inspectors should be mindful that there are some deficiencies in roofing materials that are not discovered unless you walk the roof. Although a drone can look directly down at the surface of the roof, it may not be able to look under eaves or into crevices.

Inspectors are not required to use specialized equipment like drones, but if you do, TREC rule 535.227(a)(4) states you must do so competently.

Additionally, the use of drones for commercial purposes is regulated by the Federal Aviation Administration (FAA) and requires commercial operators who fly for work or business to comply with their guidelines. (See: <https://faadronezone-access.faa.gov/#/>)

The use of unmanned aircraft is also regulated by the Texas Government Code. See Chapter 423 for details on what is permissible and what constitutes an offense:

<http://www.statutes.legis.state.tx.us/Docs/GV/htm/GV.423.htm>

For privacy and surveillance reasons, inspectors should always acquire consent from the homeowner and/or the client before using a drone.

Crawlspaces

Most new construction homes, especially in large cities in Texas will generally be on slab foundations, which means the crawlspaces an inspector encounters will often be older homes that may be in disrepair or present other hazards.

An inspector does not have to enter the crawlspace if they have reason to believe there may be dangerous conditions such as broken glass, animals/reptiles, or health hazards due to a sewage drain leak. However, the SOPs state that the inspector is required to inspect multiple components that will require the inspector to access all areas of the crawlspace [535.228(D)(ii),(vi)].

The SOPs also require the inspector to report the vantage point from which the crawlspace was inspected [535.228(a)(1)(B)(ii)]. Inspectors are NOT required to enter a crawlspace or any area where headroom is less than 18-inches or the access opening is less than 24-inches wide and 18-inches high [535.228(2)(A)].

If the inspector does not perform an inspection of all areas of the crawlspace, the departure provision shall be in effect and the inspector must state the limitations in the report.

Some regions in Texas still have new construction pier and beam homes. Many coastal style homes are built on pilings or piers. The same concepts applicable to crawlspaces also apply to houses on pilings or stilts, including limitation statements regarding obstructed pilings.

An inspector conducting business in areas with expansive clay soils may encounter homes built with pier and beam foundations.

Pier and beam foundations are used for expansive clay soil due to the dramatic swelling

and contracting that can happen when this type of earth is wet and dry. Houston Black Clay is an example of an expansive clay soil.

Interesting fact: Despite the name, "Houston black clay" doesn't actually refer to the city of Houston. Instead, the name comes from Houston County, Texas, which is located east of Waco in what is considered East-Central Texas, not far from Lufkin.

Crawlspace Limitations Must be Noted on the Report

It is required that the inspector must note the vantage point when inspecting the crawlspace of a pier and beam house.

Some crawlspaces may not be properly accessible at the time of the inspection for a multitude of reasons.

If the entire crawlspace is not being inspected, the reason must be included on the report. For instance, if the access point is blocked by storage in a closet or could not be opened without damaging building material or personal property, then it must be noted that the crawlspace was not inspected due to obstruction. It would be good practice to take a picture of the obstruction and put that in the report as well.

If the crawlspace access point is too small, then an inspector should still inspect the crawlspace area from the scuttle point. The report should note the vantage point for the inspection, as well as the departure provision utilized for not accessing the crawlspace under the house.

There may also be a situation where the crawlspace is accessible, however, some areas of the crawlspace could not be accessed due to lack of proper height clearance, metal ducting obstructing the pathway, or excessive moisture under the house.

Again, any limitation of the ability to inspect the entire crawlspace should be noted in the report. Including pictures in the report to assist in documenting the limitation would be a good practice as well.

An example of an inaccessible crawlspace:



Photo credit: Shannon Gatewood

Crawlspace Inspection Robots

Much like the use of an aerial drone for inspecting roofs, using a wheeled or tracked vehicle to inspect a crawlspace does NOT meet the requirements for an inspector to enter a crawlspace and the reasoning must be stated in the report.

It's a bird, it's a plane, it's a crawlspace inspection robot!



Photo credit: Stephenie Huser

The types of crawlspaces a home inspector in Texas may encounter can vary depending factors such as the age of the home, the type of surface the home is built on, and regional climate conditions, and inspectors need to be familiar with the requirements for inspecting crawlspaces as specified in the SOPs.

Standards of Practice: Minimum Inspection Requirements for Structural Systems [535.228]

(a) Foundations.

(1) The inspector shall:

(A) render a written opinion as to the performance of the foundation;

(B) report:

(i) the type of foundations; and

(ii) the vantage point from which the crawl space was inspected;

(C) generally report present and visible indications used to render the opinion of adverse performance, such as:

(i) binding, out-of-square, non-latching doors;

(ii) framing or frieze board separations;

(iii) sloping floors;

(iv) window, wall, floor, or ceiling cracks or separations; and

(v) rotating, buckling, cracking, or deflecting masonry cladding; and

(D) report as Deficient:

(i) deteriorated materials;

(ii) deficiencies in foundation components such as; beams, joists, bridging, blocking, piers, posts, pilings, columns, sills or subfloor;

(iii) deficiencies in retaining walls related to foundation performance;

(iv) exposed or damaged reinforcement;

(v) crawl space ventilation that is not performing; and

(vi) crawl space drainage that is not performing.

(2) The inspector is not required to:

(A) enter a crawl space or any area where headroom is less than 18 inches or the access opening is less than 24 inches wide and 18 inches high;

(B) provide an exhaustive list of indicators of possible adverse performance;

or

(C) inspect retaining walls not related to foundation performance.

(b) Grading and drainage.

(1) The inspector shall report as Deficient:

- (A) drainage around the foundation that is not performing;
- (B) deficiencies in grade levels around the foundation; and
- (C) deficiencies in installed gutter and downspout systems.

(2) The inspector is not required to:

- (A) inspect flatwork or detention/retention ponds (except as related to slope and drainage);
- (B) determine area hydrology or the presence of underground water; or
- (C) determine the efficiency or performance of underground or surface drainage systems.

(c) Roof covering materials.

(1) The inspector shall:

(A) inspect the roof covering materials from the surface of the roof;

(B) report:

- (i) type of roof coverings;
- (ii) vantage point from where the roof was inspected;
- (iii) evidence of water penetration; and
- (iv) evidence of previous repairs to the roof covering material, flashing details, skylights and other roof penetrations; and

(C) report as Deficient deficiencies in:

- (i) fasteners;
- (ii) adhesion;
- (iii) roof covering materials;
- (iv) flashing details;
- (v) skylights; and
- (vi) other roof penetrations.

(2) The inspector is not required to:

(A) inspect the roof from the roof level if, in the inspector's reasonable judgment:

(i) the inspector cannot safely reach or stay on the roof; or

(ii) significant damage to the roof covering materials may result from walking on the roof;

(B) determine:

(i) the remaining life expectancy of the roof covering; or

(ii) the number of layers of roof covering material;

(C) identify latent hail damage;

(D) exhaustively examine all fasteners and adhesion; or

(E) provide an exhaustive list of locations of deficiencies and water penetrations.

(d) Roof structures and attics.

(1) The inspector shall:

(A) report:

(i) the vantage point from which the attic space was inspected;

(ii) approximate average depth of attic insulation; and

(iii) evidence of water penetration; and

(B) report as Deficient:

(i) attic space ventilation that is not performing;

(ii) deflections or depressions in the roof surface as related to adverse performance of the framing and decking; and

(iii) missing insulation; and

(iv) deficiencies in:

(I) installed framing members and decking;

(II) attic access ladders and access openings; and

(III) attic ventilators.

(2) The inspector is not required to:

(A) enter attics or unfinished spaces where openings are less than 22 inches by 30 inches or headroom is less than 30 inches;

(B) operate powered ventilators; or

(C) provide an exhaustive list of locations of deficiencies and water penetrations.

(e) Interior walls, ceilings, floors, and doors.

(1) The inspector shall:

(A) report evidence of water penetration; and

(B) report as Deficient:

(i) deficiencies in the condition and performance of doors and hardware;

(ii) deficiencies related to structural performance or water penetration;

and

(iii) the absence of or deficiencies in fire separation between the garage and the living space and between the garage and its attic.

(2) The inspector is not required to:

(A) report cosmetic damage or the condition of floor, wall, or ceiling coverings; paints, stains, or other surface coatings; cabinets; or countertops;
or

(B) provide an exhaustive list of locations of deficiencies and water penetrations.

(f) Exterior walls, doors, and windows.

(1) The inspector shall:

(A) report evidence of water penetration; and

(B) report as Deficient:

(i) the absence of performing emergency escape and rescue openings in all sleeping rooms;

(ii) an attached garage doorway that is not equipped with self-closing or automatic closing devices;

(iii) a door between the residence and an attached garage that is:

- (I) a solid wood door less than 1-3/8 inches thick;
- (II) a solid honeycomb core steel door less than 1-3/8 inches thick; or
- (III) not a 20-minute fire-rated door;
- (iv) missing or damaged screens;
- (v) deficiencies related to structural performance or water penetration; and
- (vi) deficiencies in:
 - (I) weather stripping, gaskets or other air barrier materials;
 - (II) claddings;
 - (III) water resistant materials and coatings;
 - (IV) flashing details and terminations;
 - (V) the condition and performance of exterior doors, garage doors and hardware; and
 - (VI) the condition and performance of windows and components.

(2) The inspector is not required to:

- (A) report the condition of awnings, blinds, shutters, security devices, or other non-structural systems;
- (B) determine the cosmetic condition of paints, stains, or other surface coatings;
- (C) operate a lock if the key is not available; or
- (D) provide an exhaustive list of locations of deficiencies and water penetrations.

(g) Exterior and interior glazing.

(1) The inspector shall report as Deficient:

- (A) insulated windows that are obviously fogged or display other evidence of broken seals;
- (B) deficiencies in glazing, weather stripping and glazing compound in windows and doors;
- (C) the absence of safety glass in hazardous locations; and
- (D) the absence of fall protection at windows that are located less than 24 inches from the finished floor and greater than 72 inches from the finished grade.

- (2) The inspector is not required to:
 - (A) exhaustively inspect insulated windows for evidence of broken seals;
 - (B) exhaustively inspect glazing for identifying labels; or
 - (C) identify specific locations of damage.

(h) Interior and exterior stairways.

- (1) The inspector shall report as Deficient:
 - (A) spacing between intermediate balusters, spindles, or rails for steps, stairways, guards, and railings that permit passage of an object greater than 4 inches in diameter, except that on the open side of the staircase treads, spheres less than 4-3/8 inches in diameter may pass through the guard rail balusters or spindles; and
 - (B) deficiencies in steps, stairways, landings, guardrails, and handrails.
- (2) The inspector is not required to exhaustively measure every stairway component.

(i) Fireplaces and chimneys.

- (1) The inspector shall report as Deficient:
 - (A) built-up creosote in accessible areas of the firebox and flue;
 - (B) the presence of combustible materials in near proximity to the firebox opening;
 - (C) the absence of fireblocking at the attic penetration of the chimney flue, where accessible; and
 - (D) deficiencies in the:
 - (i) damper;
 - (ii) lintel, hearth, hearth extension, and firebox;
 - (iii) gas fixture installed in the fireplace not associated with the gas distribution system;
 - (iv) circulating fan;
 - (v) combustion air vents; and
 - (vi) chimney structure, termination, coping, crown, caps, and spark arrestor.

- (2) The inspector is not required to:
 - (A) verify the integrity of the flue;
 - (B) perform a chimney smoke test; or
 - (C) determine the adequacy of the draft.

(j) Porches, Balconies, Decks, and Carports.

- (1) The inspector shall:
 - (A) inspect:
 - (i) attached balconies, carports, and porches; and
 - (ii) abutting porches, decks, and balconies that are used for ingress and egress; and
 - (B) report as Deficient:
 - (i) on decks 30 inches or higher above the adjacent grade, spacings between intermediate balusters, spindles, or rails that permit passage of an object greater than four inches in diameter; and
 - (ii) deficiencies in accessible components.
- (2) The inspector is not required to:
 - (A) exhaustively measure every porch, balcony, deck, or attached carport components; or
 - (B) enter any area where headroom is less than 18 inches or the access opening is less than 24 inches wide and 18 inches high.

Heating, Ventilation, Air Conditioning (HVAC) Learning Objectives:

After this module you will be able to

- ✓ Name the most common types of HVAC systems and understand the basics of how they operate.
- ✓ Describe the sequence of events in evaluating the performance of an HVAC system.
- ✓ Determine when HVAC systems can or cannot be inspected based on outside temperatures.
- ✓ Understand the factors that can affect temperature measurements when evaluating the performance of the HVAC.
- ✓ Understand what must be inspected with the ductwork, return air, and filters.

HVAC Overview

When compared to many other systems in the home, the HVAC system is a relatively new development. However, it has become an expectation for most people. The HVAC system can even be considered a critical system in the home that contributes not only to the comfort of those living in the home, but it can also have an impact on the health of those in the home.

Because of the importance of the HVAC system, it is essential that home inspectors are knowledgeable and well trained in order to properly evaluate the operation and proper functioning of the home's HVAC system.

The typical HVAC system has several key components, including:

1. A blower fan to circulate the air through the system and throughout the home,
2. A heater which may be gas, electric, or via heat pump,
3. A cooling system including an evaporator coil and condenser coil, or



possibly an evaporative cooler, and

4. A filtration system to remove dust and other particulates from the air in the home.

If one stopped here like many residential systems do, a more appropriate name for the system might actually be the HAC system. Fortunately, the importance of the V in HVAC has become more and more apparent in recent years, especially since homes are now being built much more airtight in an attempt to make them more energy efficient.

The ventilation aspect, which includes cleaning (filtering) the air and moving it around the home, is an essential part of the HVAC system. As a result, home inspectors should be well versed in the V of HVAC, and not just the heating and cooling aspects.

This section is designed to give the inspector information which will help them be better prepared to inspect the heating, air conditioning, AND ventilation systems of today's home.

HVAC SOP Requirements & Reporting

The SOPs detail the scope of the HVAC portion of the home inspection. It is a common misconception for home inspectors to make opinions on the suitability of the system for the home in areas beyond the SOPs, such as size and

efficiency. Providing these opinions requires advanced training in building science and utilizing equipment beyond what home inspectors are required to own.

It is critical to understand that home inspectors are only required to provide an opinion regarding the operation of the HVAC system and its primary function, creating heat or removing heat (cooling.) This is independent of determining whether it is adequately cooling or heating the home. Put another way, home inspectors should measure the temperature differential between the return air and the supply air to determine if the system is cooling "as intended", but they are not required to determine things such as the SEER rating or if the system is adequately sized for a particular home.

Type of System

This module covers the standard method of inspecting an HVAC system to ensure all aspects of the SOPs are addressed. The first item to report on is the type of HVAC system being inspected. The "type of system" entry is in both the heating and cooling sections of the report form and refers to how the conditioned air is distributed to the living space. On the cooling side (AC) there are two main means of distributing conditioned air: ducted and non-ducted. Ducted is when the air is cooled then blown throughout the home, via a central forced-air system. Ducted split systems are predominant in southern climates. Non-ducted distribution of air may be accomplished through window or through-the-wall units. These have been around for many years, especially for single room air conditioning.

A more recent addition is ductless or mini-split systems. They bring the best features of both methods of distributing conditioned air by avoiding inefficient air duct systems and only conditioning certain rooms rather than the entire home. In recent years, these systems have been upgraded to heat pumps that provide both heating and cooling of the homes. Ducted and non-ducted systems can also be described as split or packaged units.

The Inspection Process

The prudent inspector will assess the condition of all the components of the HVAC system before conducting an operational test. It might not be necessary to worry about the thermostat activating the system if parts of the system are damaged or missing. Damage may occur if an inspector walks into a home and turns on the AC at the thermostat only to discover later that a component of the condenser unit outside is missing or disconnected.



Photo credit: Tucker Pledger

Before operating the heat or A/C, the inspector should have previously walked the exterior and viewed the AC condensing unit, the electrical service, entered the attic, and surveyed the air ducts and air handler. As an inspector does this, they should take note of defects that are listed in the SOPs. This includes a visual inspection of all the components, locations, and access.

System Operation and Performance

After a physical inspection is complete, an inspector should inspect for system operation and performance. Beware of any ambient air temperature limitations that affect either the heating or cooling system performance tests. If limitations exist, they should be noted in the report. When an inspector initiates a demand for heating or cooling using the thermostat, does the unit respond? No response may end the test there. However, the inspector should

look for obvious reasons such as breakers, gas service, etc.

If limitations exist, they should be noted in the report. Evidence of limitations, such as inclement weather conditions, should be documented.

NOTE: While there are some operational limitations on heat pumps that the inspector needs to be aware of, there are NO environmental limitations on operating a standard electric, emergency heat or gas furnace. These can be operated regardless of the outdoor temperature.

In a forced-air system, the air handler fan begins blowing air to all the registers. Within a few minutes, the air at the supply registers should be stabilizing. Depending on the type of system, the time required to get up to optimal performance may be up to ten or fifteen minutes. Many variables can affect the time required for the system to reach equilibrium.

One example is a vacant house on a hot summer day. The ductwork in the attic will be very hot, possibly 160 degrees or more. It will take a while for all that heat to be removed from the ductwork. If an inspector takes the temperature measurements too soon, the hot ductwork can significantly affect the reading, potentially causing the inspector to report the AC as deficient for not reaching at least a 15-degree differential.

Air Conditioning

The purpose of an air conditioner is to “condition” the air in a home. It accomplishes this by cooling and lowering the humidity level in the air. Systems are designed to accomplish both of these as efficiently as possible, but environmental factors may affect how well each one of these is accomplished.

While the design and size of an air conditioning system is beyond the scope of this course, there is some basic information and understanding that can be helpful to know.

There are two types of heat contained in air: sensible heat and latent heat. Some of both of these types of heat must be removed from the air in order for the air to be considered “conditioned.” Sensible heat is the heat we most commonly think about. It is the heat that makes the air warm or hot. Latent heat, as the name implies, is the hidden heat in the air. It is the heat energy contained in the evaporated moisture in the air. As the humidity level in air rises, the amount of latent heat contained in the air also rises.

In order to make a home most comfortable, an A/C system must remove both sensible and latent heat from the air. When a system is designed, the designer takes into account average environmental conditions, the size of the home, etc. A residential A/C system is typically designed with a sensible heat ratio (SHR) of 0.75 to 0.80. This means it is designed so that 75% - 80% of the heat that is removed from the air will be sensible heat (the temperature will drop), while the remaining 20% - 25% will be latent heat (the humidity level will drop).

It is important to understand this because when environmental conditions are different from the average used in the calculations by the designer, the actual SHR will change. Humidity can have a significant impact on how well an air conditioner will cool a home. In areas of Texas that have a fairly low average relative humidity, the HVAC will be designed based on that low average relative humidity.

High humidity can cause that system to work differently than designed. The system will use a lot more of its available energy removing moisture from the air and will have less energy available to lower the temperature of the air. As a result, it may be difficult or impossible to achieve the differential of 15 degrees on that particular day.

The SOPs do not allow inspectors to compensate for humidity or other factors (nor is the average home inspector capable of or equipped to make such compensations). The SOPs require the system to be reported as

deficient if it does not achieve the minimum 15-degree differential. An inspector may want to note on the report that the high humidity levels in the home likely affected the performance of the AC. This will give the client additional information as they consider whether or not to request further additional evaluation of the system by an HVAC technician.

Measuring Temperature Differential

The SOPs state that an inspector shall report as deficient deficiencies in the performance of the cooling system that (I) fails to achieve a 15 degrees Fahrenheit to 22 degrees Fahrenheit temperature differential; or (II) fails to cool adequately as determined by other industry-accepted methods [535.230(b)(1)(B)(ii)]. The SOPs do not specify a required temperature rise or other method of determining if a unit is heating properly.

The most accurate indication of air conditioner performance is the temperature differential across the evaporator coil and the volumetric flowrate of air across that coil. Since inspectors are not required to nor equipped to measure the temperatures or air flow in the plenum, they do the next best thing – measure the temperature at the return air register and a supply air register.

Temperatures will vary among supply registers in the home. Air temperatures at registers are affected by several variables such as the temperature in the attic, air flowrate through each of the ducts, and how well each duct is insulated. Because of these factors, inspectors will obtain the most accurate “reading” of supply air temperature if the register with the lowest temperature is used. This will typically, but not always, be the register nearest the air handler unit. The inspector is not required to, nor should, take an average supply air temperature because the effect of the ductwork should be removed from the equation as much as possible.

Consider this scenario:

Return air temperature – 78 degrees

Supply air temperatures – 63, 65, 67, 65 degrees

Average supply temperature – 65 degrees

Differential using the averaging method – 13 degrees (Deficient)

Differential using only the lowest temperature – 15 degrees (Cooling adequately)

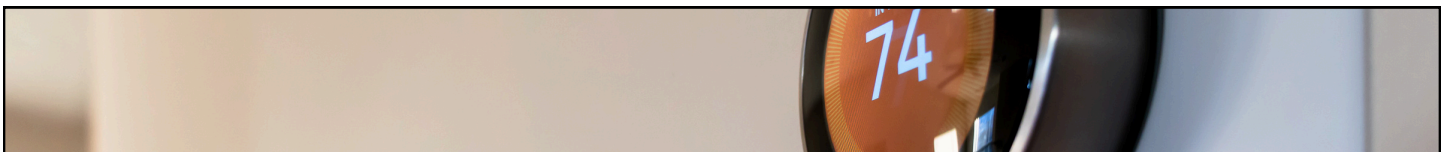
If the temperature at one of the registers reads 63 degrees, then the air conditioner IS producing 63-degree (or even cooler) air. There is no need to consider an average. All the air in the system comes off of the evaporator coil at essentially the same temperature, and it is not going to get any cooler as it travels through the ductwork. It will only get warmer. In summary, the most accurate temperature differential is obtained by using only the lowest temperature reading.

Temperature Differentials in Extreme Weather

Texas can experience extreme temperature variations which can create difficulties for inspectors during less than ideal weather conditions.

How should an inspector handle testing HVAC during the heat of a Texas August?

In vacant homes, the cooling system may be set at a high temperature (80 or above), or the cooling system may be off. In these situations, the indoor temperature may not cool down to a low enough temperature to operate heat, oftentimes limited by the temperature range of the thermostat. This should be noted as a limitation regarding the operation of the heating system.



Hot enough for ya'? The temperature in a vacant house in the Texas heat:



Photo credit: Stephenie Huser

How should an inspector handle testing HVAC in extreme cold?

In vacant homes, the heating system may be set at a low temperature (60 or below) or the heating system may be off or there might not be active gas service for the heating equipment. In these situations, the heating system may not be able to warm the home to a high enough temperature to operate the cooling system. Again, limited by the range of the thermostat.

In these situations, the heating system may not be able to warm the home to a high enough temperature to operate the cooling system. Again, limited by the range of the thermostat. This should also be noted as a limitation.

These two examples are similar in nature, on opposite extremes which pose limitations due to the interior environment of the home due to thermostat settings, improperly working equipment, or lack of utility service.

A departure statement should be included when extreme indoor temperatures prevent operation

of either the cooling or the heating system on the day of the inspection.

There are two types of heat contained in air: sensible heat and latent heat. Some of both of these types of heat must be removed from the air in order for the air to be considered "conditioned." Sensible heat is the heat we most commonly think about. It is the heat that makes the air warm or hot. Latent heat, as the name implies, is the hidden heat in the air. It is the heat energy contained in the evaporated moisture in the air. As the humidity level in air rises, the amount of latent heat contained in the air also rises.

If the temperature at one of the registers reads 63 degrees, then the air conditioner IS producing 63-degree (or even cooler) air. There is no need to consider an average. All the air in the system comes off of the evaporator coil at essentially the same temperature, and it is not going to get any cooler as it travels through the ductwork. It will only get warmer. In summary, the most accurate temperature differential is obtained by using only the lowest temperature reading.

Case Study - Reporting Inadequate Cooling Based on Temperature Differential

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. The inspector inspected two cooling units, each approximately 3.5 tons. The inspector found that the temperature difference between the supply and the return air was only 12°F for the first unit and 14°F for the second unit. The inspector failed to report as deficient inadequate cooling.

The inspector reported that weather conditions during his inspection as “Sunny” and that the outside temperature was 70 to 80 degrees. The inspector did not state in his report whether any conditions were present on the day of the inspection that would have adversely impacted the temperature differential of an otherwise performing unit.

Analysis: A system that is adequately sized and that is working properly, should produce a 15°F to 22°F temperature differential. The Commission determined that absent any other reported factors, the reported temperature differential would suggest inadequate performance. The inspector failed to check the “Deficiency” box, failed to report any factors that may have explained his opinion of performance, and failed to recommend a further evaluation of the system.

Result: The inspector entered into an agreed order resulting in a formal reprimand, an administrative penalty of \$500, and a minimum of 8 hours of continuing education on the topics of heating and cooling systems, for violation of 22 Tex. Admin Code 535.230(b)(1)(B)(iii), failing to report as deficient inadequate cooling as demonstrated by its performance.

Heating

Some homes may use radiant heat or baseboard heating, although this is not common in most parts of Texas. In the heating section of the report form, the inspector is required to report the energy source. Is it merely using electricity to energize heating elements (often referred to as resistance heating) or is it a heat pump?

A heat pump (HP), in its most simplified explanation, operates the air conditioner in reverse, creating the same amount of heat as an electric (resistance) heating system at a lower cost.

A traditional AC system removes heat from the air at the evaporator coil and exhausts it outside at the condenser unit. In heating mode, a heat pump system reverses the flow of refrigerant and removes some heat from the cold air

outside at the condenser unit, adds this heat to the air at the evaporator coil, and discharges the warmed air inside the home.

If the system is a heat pump, it must be reported, and the inspector must test the backup or supplemental heat, also known as the emergency or auxiliary heat. It is possible that the unit is fuel-fired, burning natural gas or propane.

Other types of fuel, although rare in Texas, are oil, coal, wood, and pellets.

Space heaters are not typically inspected because they are not a permanent heat source.

These can also pose safety hazards and should be noted in the report. Examples include portable electric or gas space heaters and fireplaces.

A temperature rise of over 75-80 degrees may indicate insufficient airflow or malfunctioning units when heating, which may be a concern.

Because inspectors are generally limited to measuring temperatures at the registers, some variables must be considered.

Due to the inherent loss of performance in longer air duct segments, registers that are farther away from the unit will have less temperature difference.

This should not factor into the performance opinion of the heating and cooling system as it can skew results. In older systems, with less insulated air ducts, it will be more evident.

Air leaks in the distribution system will also affect the register temperatures. In essence, defects in the distribution components may give a false impression that the heating and cooling system is not performing when it is functioning fine or vice-versa.

Additional Considerations for Heat Pumps

As the name implies, heat pumps are devices that move (pump) heat from one place to another. The relatively cool refrigerant extracts heat from the air and either discharges that heat into the home (heating mode) or to the outside (cooling mode).

A reversing valve is used to change the direction of flow of the refrigerant and thus determines if the system is operating in heating or cooling mode.

Many questions have been raised in the inspector community about the best way to test heat pumps. Some of the questions include:

1. Can you run a heat pump in heat mode in the summertime?
2. Can you test a heat pump in both heating and cooling modes during an inspection?
3. When can you run emergency or auxiliary heat?

How hot is too hot to run a heat pump in heat mode?

The concern is that too high of a pressure can be obtained outside at the condenser unit (which is actually serving as the evaporator when in heat mode), and that this pressure can potentially damage the system.

To help to minimize the risk of damage, most, if not all, manufacturers have installed a high-pressure cutout in their systems that will shut off the system if the pressure gets too high.

Section 535.230(d) of the SOPs states that an inspector is not required to operate heat pumps in the heat pump mode when the outdoor temperature is above 70 degrees.

It has already been mentioned, but it is worth saying again that while an inspector may not be able to test the unit in heat pump mode due to the outside temperature at the time of inspection, they are still required to test the emergency/auxiliary heat mode.

Some units and/or thermostats control this function internally. If an inspector finds this to be the case, they should note the limitation in the report.

Can you run a heat pump system in both heating mode and cooling mode during the inspection?

Most literature says yes, as long as the inspector waits at least five to ten minutes between tests in order to allow pressure to bleed off the system before running it in the other mode.

Are there limitations to when you can operate a heat pump's auxiliary or emergency heat mode?

The answer is NO. Just as with a regular gas or electric heater, the inspector can and should run heat pump systems in auxiliary or emergency heat mode during an inspection.

Case Study – Is it a Heat Pump or a Hot Mess

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. It was 75 degrees Fahrenheit on the day of the inspection. The property had a Central Heating System, and the energy source was Electric. The inspector reported that he did not inspect the heating equipment because the exterior temperature was above 70 degrees Fahrenheit. After the purchase, the buyer discovered the heating system was broken.

Analysis: The 'exterior temperature exception' only applies when the heating equipment consists of a heat pump. In this case, the fact that the exterior temperature was above 70 degrees Fahrenheit did not absolve the inspector of his duty to inspect the heating system because the heating equipment was electric.

Result: The inspector entered into an agreed order for a formal reprimand, a disciplinary action, and was required to pay a \$2,000 administrative fine and complete additional continuing education for violating 22 Tex. Admin. Code 535.230(a)(2)(B), failing to operate and report deficiencies in the performance of heating elements for an electric unit.

Checking Performance of Ductwork

It is important to visually inspect the ductwork in the attic or crawlspace as thoroughly as possible. One way to evaluate the performance of the ductwork is to check the temperature at every supply register in the home while running either the heat or air conditioning. A large temperature difference at one register compared to the other registers may indicate a problem with the duct supplying that register.

Environmental factors in the attic or crawl space will have the biggest effect on ductwork performance where the biggest temperature difference between the air in the ductwork and the air surrounding the ductwork exists.

Checking the temperature at all ducts when running the air conditioning during the summer, or while running the heat during the winter will help identify things such as poorly insulated ductwork.

The lack of warmer or cooler air at an individual register may indicate a defect in that section of the distribution system that needs further evaluation.

Another factor to consider regarding ductwork is the condition of the ducting in the attic and/or crawlspace.

Inspectors should inspect the insulation on the ducting, proximity to hazards such as roofing nails, support of the ducting in the attic or crawl space, and report any kinks, sags, or damage that may affect airflow.

It is important to note that an inspector will very rarely be able to see all of the ductwork in a home due to multiple factors such as blown-in fiberglass insulation covering some portions or the ductwork being ran through chases and between floors.

The inspector should document these limitations with pictures or by adding comments to the report.

See the next
page for
examples of
deficiencies in
ductwork



Examples of Deficiencies in Ductwork

Below are four real-world examples of common ductwork deficiencies found in attics.

🔍 What stands out to you in each photo?

🔧 As a home inspector, how often do you come across ductwork issues?

🌀 What types of problems do you see most frequently?



Photo credit: Mike Morgan



Photo credit: Mike Morgan



Photo credit: Tom Langley



Photo credit: Shannon Gatewood

Return Air

Section 535.230(c)(1)(F) of the SOPs states that the inspector is required to report as deficient “deficiencies in the location of return air openings.” While it is beyond the scope of this course to discuss the design of duct systems, some basic rules of thumb and things to consider may be helpful to the inspector in determining if return air openings are properly located. The return air vent register should be coming from proper locations.

If doors to some rooms are not properly undercut, meaning that the door essentially sits on the floor when it is closed, then airflow to and from those rooms will be restricted. If adequate air cannot be pulled from the room, then adequate conditioned air cannot be blown into the room. In some cases, openings are cut above the doors to improve air flow through the home.

Consider an improperly located return air opening that has likely been encountered by many home inspectors.

The home has been remodeled and/or the air handler unit has been relocated, and the only return air opening is located in a bedroom.

The HVAC system will not perform well when the door to that room is closed because the air cannot properly circulate. A situation such as this should be noted as deficient in the report. In summary, the inspector should look at the system as a whole and make sure that the return air system makes logical sense.

Filters

The same SOP section cited in the previous section also states that the inspector is required to report as deficient “deficiencies in filters.” In performing an inspection of the filter, the inspector should look at both the filter and the filter housing. The filter housing shouldn’t have any defects that prevent it from properly holding the filter in place, and it should have a door/cover on it that seals adequately to prevent

air from being pulled in and bypassing the filter. The inspector should also ensure that the filter is properly sized, that it is properly installed, and that it is reasonably clean.

So What Is The “V” in HVAC?

It is interesting that “ventilation” is only mentioned one time in the SOPs in reference to heating, ventilation, and air conditioning systems and what inspectors are not required to perform.

So, what is it? Ventilating or ventilation (the V in HVAC) is the process of exchanging or replacing air in any space to provide high indoor air quality which involves temperature control, oxygen replenishment, and removal of moisture, odors, smoke, heat, dust, airborne bacteria, carbon dioxide, and other gases. Ventilation removes unpleasant smells and excessive moisture, introduces outside air, keeps interior air circulating, and prevents stagnation of the interior air.

Ventilation includes both the exchange of air to the outside as well as circulation of air within the home. It is one of the most important factors for maintaining acceptable indoor air quality in homes.

High humidity will affect HVAC performance. The AC system in the picture below was working very well until the home's windows were left open on a humid day. When the cold supply air mixed with warm humid air the room air cooled down to the dew point and condensed.



Photo credit:
Shannon Gatewood

Case Study – Look for Reasonable Access or Get Caught in a Tight Spot.

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. The inspector inspected the property's Duct Systems, Chases and Vents. Respondent did not report any deficiencies or mark the system as "Deficient." The buyer advised that, after they purchased the property, they learned that the entire duct system in the attic needed to be replaced. The buyer contacted the inspector and provided photographs taken from inside the attic which showed damage to the flexible ductwork, including ducts with ripped and torn vapor barriers and exposed fiberglass insulation.

The inspector reported in the Roof Structures and Attic section of his inspection report that he inspected the attic from the ladder and the attic lacked a continuous walkway or safe passage to the mechanical equipment. However, the report included photographs taken from inside the attic which showed wooden planks laid out over the joists creating a walkway that would have allowed inspection of the flexible ductwork from close proximity.

The Buyer stated that the attic does have wooden planks and a continuous walkway to the ductwork, which the HVAC repair company used to conduct their inspection and repairs. These planks were present during the inspector's inspection and could have been used to safely access the equipment to conduct an inspection from close proximity.

Additionally, the buyer advised there are 2 entrances to access the attic. The interior entrance was used by the inspector to view the attic. The second entrance can be accessed from the outside with a ladder. The second hatch's opening is approximately 4 feet by 4 feet. Buyer further advised that there is a walkway inside the attic by this entrance.

Analysis: The inspector must visually inspect accessible systems or components from near proximity to the systems and components, and from the interior of the attic. The Inspector's attempt to depart was improper and unreasonable. The evidence showed that the ductwork was accessible to the inspector. There was a safe pathway made by the wooden planks leading to the back of the attic that would have allowed the inspector to enter the attic and inspect the ductwork from near proximity.

Result: The Inspector entered into an agreed order resulting in a formal reprimand, a \$750 Administrative Penalty, and was ordered to complete 8 hours in attic related continuing education courses.

Discussion

1. What factors affect the performance of the HVAC system?
2. How do you incorporate these factors into the report?

Standards of Practice: Minimum Inspection Requirements for HVAC Systems [535.230]

(a) Heating equipment.

(1) General requirements. The inspector shall:

(A) report:

(i) the type of heating systems; and

(ii) the energy sources; and

(B) report as Deficient:

(i) inoperative units;

(ii) deficiencies in the thermostats;

(iii) inappropriate location;

(iv) the lack of protection from physical damage;

(v) burners, burner ignition devices or heating elements, switches, and thermostats that are not a minimum of 18 inches above the lowest garage floor elevation, unless the unit is listed for garage floor installation;

(vi) the absence of an opening that would allow access to equipment for inspection, service, repair or replacement without removing permanent construction or building finish;

(vii) when applicable; a floored passageway and service platform that would allow access for equipment inspection, service, repair or replacement; and

(viii) deficiencies in mounting and performance of window and wall units.

(2) Requirements for electric units. The inspector shall report deficiencies in:

(A) performance of heat pumps;

(B) performance of heating elements; and

(C) condition of conductors; and

(3) Requirements for gas units. The inspector shall report as Deficient:

- (A) gas leaks in the heating equipment not associated with the gas distribution system;
- (B) flame impingement, uplifting flame, improper flame color, or excessive scale buildup; and
- (C) deficiencies in:
 - (i) combustion, and dilution air; and (ii) the vent pipe, draft hood, draft, proximity to combustibles, and vent termination point and clearances.

(b) Cooling equipment.

(1) Requirements for cooling units other than evaporative coolers.

- (A) the inspector shall:
 - (i) report the type of systems;
 - (ii) measure and report the temperature difference between the supply air and the returned air or report industry-accepted method used to determine performance; and
 - (iii) generally report extraneous factors or conditions, present on the day of the inspection, that would adversely impact the temperature differential of an otherwise performing unit; and
- (B) the inspector shall report as Deficient:
 - (i) inoperative units;
 - (ii) deficiencies in the performance of the cooling system that:
 - (I) fails to achieve a 15 degrees Fahrenheit to 22 degrees Fahrenheit temperature differential; or
 - (II) fails to cool adequately as determined by other industry-accepted methods;
 - (iii) the absence of an opening that would allow access to equipment for inspection, service, repair or replacement without removing permanent construction or building finish;

- (iv) when applicable; a floored passageway and service platform that would allow access for equipment inspection, service, repair or replacement;
- (v) noticeable vibration of blowers or fans;
- (vi) water in the auxiliary/secondary drain pan;
- (vii) a primary drain pipe that discharges in a sewer vent;
- (viii) missing or deficient refrigerant pipe insulation;
- (ix) dirty coils, where accessible;
- (x) condensing units lacking adequate clearances or air circulation or that has deficiencies in the fins, location, levelness, or elevation above grade surfaces; and
- (xi) deficiencies in:
 - (I) the condensate drain and auxiliary/secondary pan and drain system;
 - (II) mounting and performance of window or wall units; and (III) thermostats.

(2) Requirements for evaporative coolers.

(A) the inspector shall report:

- (i) type of systems; and
- (ii) the type of water supply line; and

(B) the inspector shall report as Deficient:

- (i) inoperative units;
- (ii) inadequate access and clearances;
- (iii) deficiencies in performance or mounting;
- (iv) missing or damaged components;
- (v) the presence of active water leaks; and
- (vi) the absence of backflow prevention.

(c) Duct systems, chases, and vents.

(1) the inspector shall report as Deficient:

- (A) damaged duct systems or improper material;
- (B) damaged or missing duct insulation;
- (C) the absence of air flow at accessible supply registers;
- (D) the presence of gas piping and sewer vents concealed in ducts, plenums and chases;
- (E) ducts or plenums in contact with earth; and
- (F) deficiencies in:
 - (i) filters;
 - (ii) grills or registers; and
 - (iii) the location of return air openings.

(d) For heating, ventilation, and air conditioning systems inspected under this section, the inspector is not required to perform the following actions:

- (1) program digital thermostats or controls;
- (2) inspect:
 - (A) for pressure of the system refrigerant, type of refrigerant, or refrigerant leaks;
 - (B) winterized or decommissioned equipment; or
 - (C) duct fans, humidifiers, dehumidifiers, air purifiers, motorized dampers, electronic air filters, multi-stage controllers, sequencers, heat reclaimers, wood burning stoves, boilers, oil-fired units, supplemental heating appliances, de-icing provisions, or reversing valves;
- (3) operate:
 - (A) setback features on thermostats or controls;
 - (B) radiant heaters, steam heat systems, or unvented gas-fired heating appliances; or
 - (C) cooling or heating systems when weather conditions or other circumstances may cause equipment damage, including:

(i) cooling equipment when the outdoor temperature is less than 60 degrees Fahrenheit; and

(ii) heat pumps, in the heat pump mode, when the outdoor temperature is above 70 degrees Fahrenheit;

(4) verify:

(A) compatibility of components;

(B) tonnage and manufacturer match of indoor coils and outside coils or condensing units;

(C) the accuracy of thermostats; or

(D) the integrity of the heat exchanger; or

(5) determine:

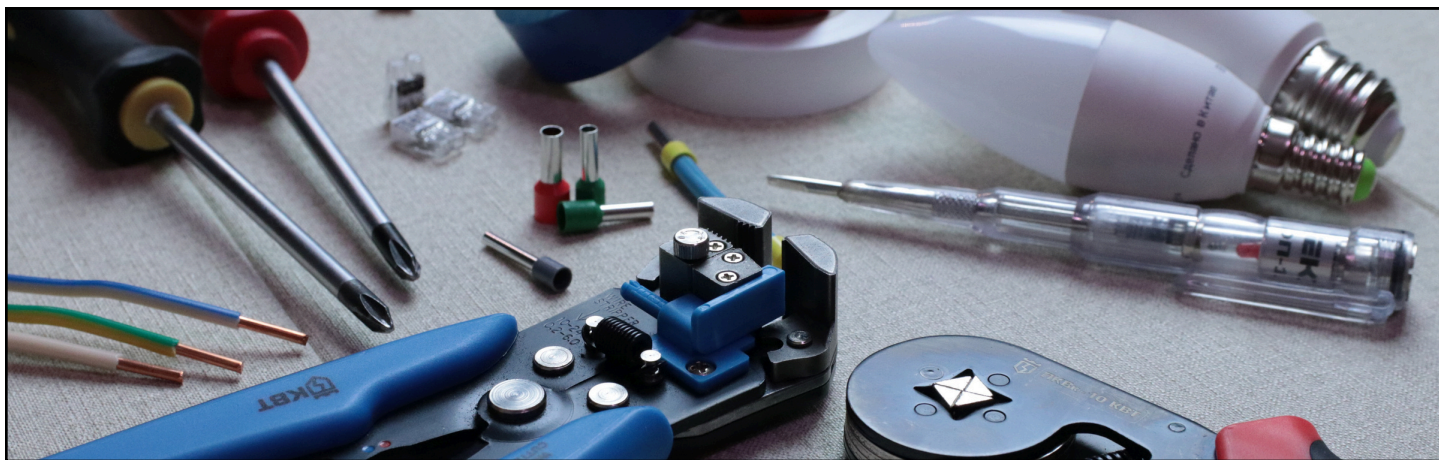
(A) sizing, efficiency, or adequacy of the system;

(B) balanced air flow of the conditioned air to the various parts of the building; or

(C) types of materials contained in insulation.

Module 7

Electrical Systems and Appliances SOP's



Electrical Systems Learning Objectives:

After this module you will be able to

- ✓ Explain the basics and differences of grounding vs. bonding.
- ✓ Understand the requirements for testing GFCI's.
- ✓ Recognize when and how to test for proper AFCI protection.
- ✓ Describe the basics of wire and breaker sizing for A/C condenser units.

Electrical Overview

Less than a century ago, many people still relied on candles and kerosene lanterns to light their homes. Then came the miracle of electricity that brought us electric lights. For years, electric light was a luxury for some people but a dream for most. Many people considered themselves lucky to finally have one or two electric lights to light their homes.

Today, electricity has become something that we cannot live without. It keeps people warm during the winter, helps us cook and store food, heats water for health and sanitation, is essential for medical care, and is necessary for our all-important internet.

The electrical demands of the modern home have grown significantly in the last half century, but the electrical systems of many homes have not kept up. As a result, while electricity is one of the most critical systems in the home, it is also the ONE system that is responsible for the most injuries and fatalities in the home.

While plumbing, foundations, roofs, and HVAC systems are essential parts of a properly functioning home, they don't have nearly the potential electricity has to injure, kill or cause fires. Therefore, there are three critical things home inspectors should know concerning electricity:

1. How electricity works.
2. How to competently inspect a home's electrical system.
3. Warning signs and potentially dangerous components that could make a home's electrical system hazardous.

Lives may depend on the inspection and the inspection report.

This module does not cover electrical theory, nor how a home's electrical system is designed. It is not an all-inclusive review of potentially dangerous electrical issues. However, this module highlights several topics that should be understood by every home inspector.

A later section of this module covers appliances. These modern conveniences would not be possible were it not for electricity. While appliances are not as critical to the proper functioning of a home as electricity is, appliances are modern conveniences that many have grown to depend on. When inspecting the functionality of an appliance, there are also safety issues that an inspector is required to inspect and report.

Main Panels vs. Sub Panels

A main panel, also known as a service panel or distribution panel, is the primary electrical distribution point for a building or structure. It typically contains the main breaker or fuses that control the power supply to the entire building. The main panel is usually located near the electrical meter and is connected to the utility power source from the meter.

A sub-panel, also known as a subsidiary panel or feeder panel, is a secondary electrical distribution point that is connected to the main panel and gets its power from another panel. A sub-panel is typically used to distribute power to specific areas of a building or structure and can be located in a different area from the main panel.

Here are some factors that can help you distinguish between a main panel and a sub-panel:

1. **Location:** A main panel is usually located near the electrical meter, while a sub-panel may be located in a different area of the building or structure, and sometimes in a different building altogether. The main panel usually houses the main breaker, which acts as the first means of disconnect for the electrical system.
2. **Size:** A main panel is typically larger than a sub-panel, as it is designed to distribute power to the entire building. A sub-panel is usually smaller and is designed to distribute power to a specific area or portion of the building.

3. **Grounding and bonding:** The main panel is usually the point of connection for the grounding and bonding system of the building, while a sub-panel is connected to the main panel's grounding and bonding system. The exception is when the sub-panel is located in a different building; in which case, the sub-panel would need its own source of grounding.

When it comes to inspecting a main panel and a sub-panel the inspection is the same except for two key elements.

1. The neutrals and grounds must be isolated in a sub-panel and;
2. The bonding screw and/or bonding strap must be removed from the neutral busbar in a sub-panel.



Photo credit: Tom Langley

Grounding and Bonding

There is a lot of confusion about grounding and bonding, and the purpose of each. Inspectors refer to grounded receptacles, ungrounded receptacles, ground rods, bonding, etc.

Sometimes, the words "grounding" and "bonding" are used interchangeably, but despite their physical similarities, they mean different things, and serve different purposes. Grounding and bonding are two essential concepts in electrical systems that are often confused with each other. While both grounding and bonding involve the connection of electrical equipment and systems, they serve different purposes and are important for different reasons.

What is Grounding?

Grounding is the process of connecting electrical equipment or systems to the earth, creating an alternative path for electric current to flow into the ground if there is a fault or surge in the system. Grounding is essential to protect people and property from electrical hazards, such as electric shocks or fires caused by lightning strikes or other electrical faults. When an electrical system is grounded, excess electrical energy is safely discharged into the earth, reducing the risk of injury or damage.

There are different types of grounding systems that can be used depending on the needs of the electrical system. Some common types of grounding systems include:

Single-point grounding: This type of grounding system involves connecting all electrical equipment and systems to a single grounding point. This is the most common type of grounding system and is suitable for most small to medium-sized electrical systems.

Multiple-point grounding: This type of grounding system involves connecting different parts of an electrical system to different grounding points. Multiple-point grounding is used in large electrical systems where a single grounding point may not be sufficient.

Equipment grounding: This type of grounding system involves connecting metal equipment cases or enclosures to the ground to prevent electrical shocks or arcing. Equipment grounding is essential to protect people from electrical hazards.

What is Bonding?

Bonding is the process of connecting all metal components in an electrical system to ensure that they are at the same electrical potential. When all metal components in an electrical system are bonded, the risk of electrical arcing or sparking is minimized.

Within the home's electrical system, bonding creates a path for ground-fault current to travel back to the panel to clear the fault. Put another way, bonding provides a path for current to flow in order to trip a breaker if there is faulty or damaged equipment connected to the outlet. This has been called grounding for many years. Most electricians and home inspectors call it grounding, but it is NOT grounding.

Bonding is achieved by using what many call the ground wire, the bare wire in a three-wire system. The term that the electrical industry and National Electrical Code (NEC) uses for this wire is the "grounded non-current carrying conductor." This wire provides a low-impedance (resistance) path for fault current to flow back to the panel and cause an overcurrent device (breaker) to trip, thus clearing the high voltage and potential electrocution hazard.

Bonding is also achieved by connecting all metal components in an electrical system with a bonding conductor, also known as a bonding jumper. This conductor is typically made of copper or another conductive material and is connected to the grounding system of the electrical system.

Grounding and bonding are two critical concepts in electrical systems that serve different purposes.

Grounding protects people and property from electrical hazards, while bonding minimizes the risk of electrical shock.

It is important to understand the difference between these two concepts and ensure that both grounding and bonding are properly implemented in electrical systems to ensure safety and efficiency.

Grounding vs. Bonding – A Summary

Grounding refers to the process of connecting electrical equipment or systems to the earth, creating an alternative path for electric current to flow into the ground if there is a fault or surge in the system. The purpose of grounding is to protect people and property from electrical hazards, such as electric shocks or fires caused by lightning strikes or other electrical faults.

Bonding is the process of connecting all metal components in an electrical system to ensure that they are at the same electrical potential. The purpose of bonding is to prevent electrical shocks and minimize the risk of electrical arcing or sparks in the event of a fault or surge in the system.

Grounding connects a home's electrical system to the earth. It is designed to dissipate voltage spikes that occur during normal operation. These spikes can be caused by surges on the transmission lines, lightning strikes, etc. Grounding is designed to protect electrical equipment in the home.

Bonding connects electrical equipment and other metallic parts in the home. Its purpose is two-fold: to keep equipment at the same voltage, and to provide a path for fault current to flow and clear the fault. Bonding is designed to protect people from electrocution due to a fault on electrical equipment in the home.

One More Important Note

In the home, electrical receptacles can be "grounded" without a Grounding Electrode Conductor (GEC), or a ground rod installed. This can be achieved by replacing non-grounded receptacles with a GFCI receptacle on each circuit. On the other hand, even with a Grounding Electrode Conductor (GEC) and ground rod properly installed, all receptacles can still be ungrounded (or "open ground"). For example, if an older home has a new electrical service (meter, panel, ground rod, etc.) installed, but the branch wiring is still an older, two-wire system, then every receptacle in that home will still have an open ground. Ground rods have NOTHING to do with receptacles being grounded.

Grounding	Bonding
Connects equipment to the earth	Connects metallic parts together
Principle component – Grounding Electrode System	Principle component – Grounded Non-Current Carrying Conductor
Dissipates voltage spikes into the ground	Maintains components of the electrical system at the same voltage
Functions principally during normal operation of the system	Functions principally when there is a fault or a problem with the system
Protects equipment	Protects people

Discussion

1. Discuss the difference between grounding and bonding.
2. Discuss the components of a home's grounding system and the bonding system.

Ground-Fault Circuit Interrupter (GFCI) Devices

TREC SOPs state that the inspector shall report

1. deficiencies in the operation of installed ground-fault circuit interrupter devices.

the failure of operation of ground-fault

2. circuit interrupter protection devices.

Item 1 is from the "Service entrance and panels" section of the standards; it is referring to testing GFCI breakers.

Item 2 is from the section covering "Branch circuits, connected devices, and fixtures" section; it is referring to GFCI-protected receptacles.

Taking these two statements together, it is clear that all GFCI devices must be tested and reported as deficient if they are not operating correctly.

Some deficiencies in the operation of GFCI breakers and/or receptacles include:

1. failure to trip;
2. failure to reset; and
3. failure to lose power when tripped.

The first two of these examples are often caused by the failure of the device. The third example is often caused by a receptacle having been miswired.

NOTE: Modern GFCI receptacles are designed so they cannot be reset if they are miswired (i.e. if the wire supplying power to the receptacle is connected to the "load" side rather than to the "line" side of the receptacle). This is a safety feature that is now required on GFCI receptacles in order to prevent the receptacle from becoming energized if it has been miswired.

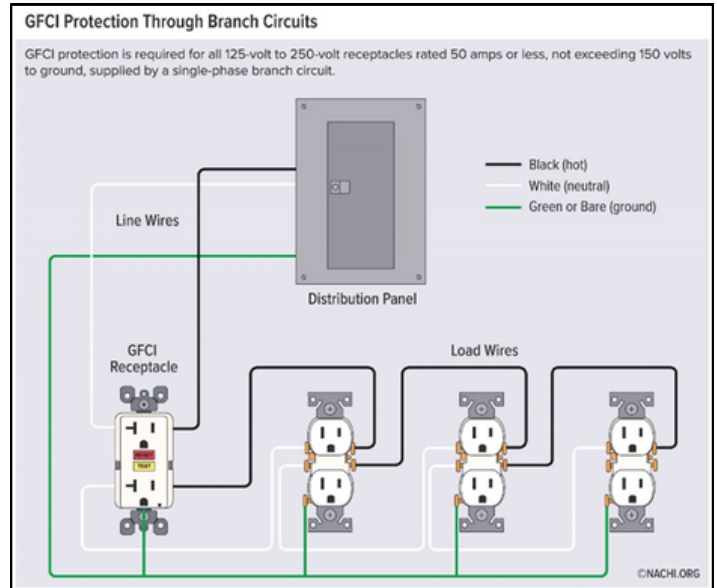


Photo credit: InterNACHI

Testing GFCI Devices

Before you test a GFCI or AFCI device, it is highly recommended to know where and how to reset it. Never has there been more claims of irreplaceable once-in-a-lifetime African game meat than in a freezer on a GFCI that was not reset. If you cannot locate or access the reset button, you may want to disclaim testing and explain your reasoning in the report.

What is the proper way to test GFCIs? Is it using the built-in test button, or is it using an external GFCI tester such as a three-light tester? Most manufacturers recommend testing GFCI device with the built-in test function on the device.

Often inspectors will encounter several receptacles that have been "daisy-chained" together. In a "daisy-chain" only the first receptacle in the chain is a GFCI receptacle, and it protects all other receptacles downstream. In this situation, the inspector should verify that each "protected" receptacle is actually protected by plugging a GFCI test device into each of the protected receptacles, pushing the test button, and ensuring that the GFCI-protected receptacle actually trips.

Inspectors should know that external GFCI test devices cannot be used to test a GFCI receptacle with an open ground because these test devices utilize the ground wire on the receptacle with

with an open ground because these test devices utilize the ground wire on the receptacle in order to simulate a ground fault; therefore, without a ground wire connected to the receptacle, these test devices are useless to test the functionality of the GFCI. In the case of GFCI receptacles with open grounds, the built-in test button must be used to test the receptacle.

Consider a fairly common situation that we see in older homes. This situation would normally include one or two GFCI-protected receptacles along with some non-GFCI-protected receptacles in a location that requires GFCI protection (such as along a kitchen countertop). The non-GFCI-protected receptacles may be daisy-chained to the GFCI-protected receptacle. The inspector must determine if the non-GFCI-protected receptacles lose power when the GFCI that may be protecting them is tripped.

Where are GFCI-protected receptacles required?

Per the SOPs, inspectors should note the absence of GFCI-protected receptacles in the following locations:

- bathrooms;
- garages and accessory buildings;
- outdoors;
- crawlspaces;
- basements;
- kitchen countertops;
- receptacles that are located within six feet of the outside edge of a sink, shower or bathtub;
- laundry area receptacles;
- indoor damp and wet locations;
- kitchen dishwashers; and
- electrically heated floors.

Discussion

Discuss best practices for testing GFCI devices.

Testing Arc-Fault Circuit Interrupter (AFCI) Devices

The SOPs state that the inspector is required to report deficiencies in "the operation of installed ... arc-fault circuit interrupter devices."

The SOPs also state that the inspector is not required to test arc-fault circuit interrupter devices when the property is occupied or damage to personal property may result, in the inspector's reasonable judgment.

Looking at these statements together, we can see that the inspector is only required to test AFCI devices in unoccupied homes.

To test each AFCI device, the inspector simply pushes the test button on the device and ensures that the device trips.

If the inspector chooses not to test the AFCI device, it is important to note on the inspection report that the AFCI devices were not tested along with the reason why they were not tested.

Where are AFCI-protected receptacles required?

Per the SOPs, inspectors should note the absence of AFCI-protected receptacles in the following locations:

- kitchens;
- family rooms;
- dining rooms;
- living rooms;
- parlors;
- libraries;
- dens;

- closets;
- hallways; and
- laundry areas.

Note that the SOPs apply to ALL receptacles-GFCI or AFCI-regardless of voltage.

Case Study – Using “Reasonable and Appropriate Tools.”

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. After the buyer moved into the property, he noticed the 220-volt dryer outlet did not have power. This deficiency was not reported in the inspection report. The inspector stated that he did not test the 220-volt dryer outlet because testing would require “specialized equipment.”

Analysis: Although the standards of practice do not require that an inspector use “specialized equipment.” The standards of practice do require that an inspector use “reasonable and appropriate tools to satisfy the requirements of the standards of practice.” In this case, the inspector was required to report deficiencies in receptacles.

In this case, the inspector could not simply disregard the requirement to test the 220-volt dryer outlet. He was required to use a “reasonable and appropriate tool” that would allow him to determine the presence of power. Power outlet testers can vary in price, some can be very basic and relatively inexpensive, while others can be more sophisticated and cost several hundred dollars. The inspector can but is not required to use more “specialized” equipment. Nevertheless, the inspector is still required to comply with the standards of practice, and this can be accomplished by using a basic Power Outlet Tester, so long as the tester is capable of determining the presence of power in a 250-volt outlet.

Note: Consistent with this decision, the Texas Administrative Code Section 535.229(b) Branch circuits, connected devices, and fixtures. was amended as follows: “(1) The inspector shall: (C) report as Deficient: (viii) deficiencies in 250-volt receptacles by determining the presence of power.” (Effective February 1, 2022).

Result: The inspector entered into an agreed order resulting in a formal reprimand and administrative penalty of \$500 for violation of Section 1102.301, Texas Occupations Code, by performing a real estate inspection in a negligent or incompetent manner.

Air Conditioner Condenser Unit Breakers and Wire Sizing

Inspectors are required to understand the sizing of breakers, known as an Over Current Protective Device (OCPD) and the size of the wire supplying the air conditioning condenser. It is important to know that the wire and breaker sizes typically used for the air conditioning condenser do not follow the same rules as the wire and breaker sizes normally used in other applications as shown in the table below.

This table shows typical breaker and wire sizes.

Breaker or Fuse (amps)	Min. Copper Wire Size (AWG)
15	14
20	12
30	10
40	8
55	6
70	4

Why does the A/C condenser unit use different rules?

Any device containing a motor will have a higher current when it is initially starting up than when it is running at steady state. This starting current can briefly rise to as high as eight times the steady-state current of the motor. The effect of this can be seen when the lights in a home dim briefly when large motors such as the air conditioner compressor and sometimes the refrigerator compressor initially come on.

This occurs because the high initial current running through these large motors causes a brief drop in the voltage on the home's overall electrical system.

To prevent a breaker from possibly tripping each time the air conditioner starts up, larger breakers are used which can handle this brief

amount of higher current.

Since the current remains high only briefly, smaller wire sizes that don't necessarily match the breaker size as shown in the table above are allowed to be connected to the breaker. Since the current remains high for a very short time, the wire is not in danger of overheating under normal operating conditions.

To properly determine the required wire and breaker sizes, there are some terms which the inspector should be familiar with regarding the air conditioner condensing unit. These terms are Minimum Circuit Ampacity (MCA), Minimum Fuse/Breaker, and Maximum Fuse/Breaker.

The numbers associated with these terms can be found on the condenser unit's data plate. Understanding the meaning of these terms will help the inspector to properly determine if the wire size and the OCPD are correctly sized for the condenser unit. Slightly different terms may be used on some systems, but it is normally easy to locate these three numbers on the label from just about any condenser unit.

Below is an example of an air condenser unit's data plate.



Photo credit: Mike Morgan

According to this label, the minimum fuse or breaker size for this condenser unit is 40 amps, and the maximum size is 45 amps.

It is the inspector's responsibility to ensure the circuit breaker for the condenser unit is between 40 and 45 amps.

Let's assume that when the inspector checks the panel, the inspector finds that the breaker is sized properly at 40 amps. Using the normal wire sizing guidelines, one would expect #8 or larger wire to be connected to a 40-amp breaker.

Reading the label on this condenser unit, the Minimum Circuit Ampacity (MCA) is listed at 28 amps. This indicates that the wire must be rated to handle at least 28 amps. The next common break size is 30 amps.

Thus, the smallest common wire size that can handle 30 amps is #10 wire; therefore, #10 wire is the minimum size wire that can supply this condenser unit.

If an inspector does not understand this concept and doesn't know how to interpret the numbers on the condenser unit label, then they may assume that #10 wire must be protected by a circuit breaker no larger than 30 amps.

The numbers in the previous table do not necessarily apply to air conditioning condenser units. It is important to understand this concept.

Understanding the various numbers on the label on the condenser unit will tell the inspector that #10 wire can be connected to the 40-amp breaker for this air conditioning unit.

Every system is different, and this is just one example using one system and one label. Understanding this concept can help the inspector determine if a deficiency exists.

Incorrectly reporting this as a deficiency could cause a homeowner to consult with an electrician to correct the wiring to the condenser unit. In the end, the electrician would tell the homeowner that there is no problem with the wire size being used.

Inspecting Smoke Alarms and Carbon Monoxide Alarms

The inspector is required to determine if smoke alarms are present in the following locations:

1. in each sleeping room;
2. outside each separate sleeping area in the immediate vicinity of the sleeping rooms; and
3. in the living space of each story of the dwelling.

The inspector should verify that each smoke alarm is functional by pushing the built-in test button on each smoke alarm.

The inspector is not required to determine if the smoke alarms are interconnected, how effective they are, or if they are suitable for the hearing impaired.

The inspector is not required to test smoke or carbon monoxide alarms if they are monitored by an alarm company.

If the inspector chooses not to test a smoke alarm, it is important to note on the inspection report that the smoke alarm was not tested along with the reason why it was not tested.

The inspector is required to determine if carbon monoxide alarms are present outside each separate sleeping area in the immediate vicinity of the sleeping rooms when either of the following conditions exist:

1. fuel fired appliances are installed in the dwelling; or
2. an attached garage with an opening into the dwelling unit.

Just like with smoke alarms, if the inspector chooses not to test a carbon monoxide alarm, it is important to note on the inspection report that the alarm was not tested along with the reason why it was not tested.

Case Study – Don't Forget to Check for Smoke Alarms and GFCI Protection

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. The inspector inspected the electrical system and smoke alarms. The inspector failed to check all of the receptacles on the kitchen countertop for open ground and failed to report there were sleeping areas without smoke detectors.

During a subsequent inspection, another inspector found the kitchen had partial Ground/ARC fault circuit interrupt safety protection. Additionally, the subsequent inspection provided photographs showing the bedrooms did not have smoke detectors, while Respondent's inspection report did not mention the absence of smoke detectors.

Analysis: The inspector is required to determine if smoke alarms are present in each sleeping room. The inspector is required to report deficiencies in the operation of installed ground-fault circuit interrupter devices. And the failure of operation of ground-fault circuit interrupter protection devices.

Result: The inspector was formally reprimanded, the inspector was also required to complete 8 hours of continuing education on the topic of Report Writing and pay an administrative penalty of \$3,200 for violation of the following Sections of the Texas Administrative Code: 535.229(b)(1)(C)(i)(VI) by failing to report as deficient the absence of ground-fault circuit interrupter protection in all receptacles that serve kitchen countertops; 22 Tex. Admin. Code 535.229(b)(1)(C)(xii)(I) by failing to report as deficient the absence of smoke alarms in each sleeping room.

NOTE: The inspector also failed to report the static water pressure, the visible materials used for the water supply lines and drain lines, and the absence of backflow device on exterior hose bibs; and failed to report the location of the gas meter (the "Gas Distribution Systems and Gas Appliances" section was entirely missing from Respondent's inspection report). Additional violations; 535.221(c), 535.223, 535.231(a)(1)(A)(iii), 535.231(a)(1)(A)(iv), 535.231(a)(1)(B)(v)(III), 535.231(d)(1)(A)].

Case Study – A Quick Sample is a Shortcut to Discipline

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. The inspector inspected the electrical system and reported no deficiencies in Branch Circuits, Connected Devices, and Fixtures. The inspector's report included the following comment: "The sample of switches and outlets tested appeared to be serviceable at the time of inspection."

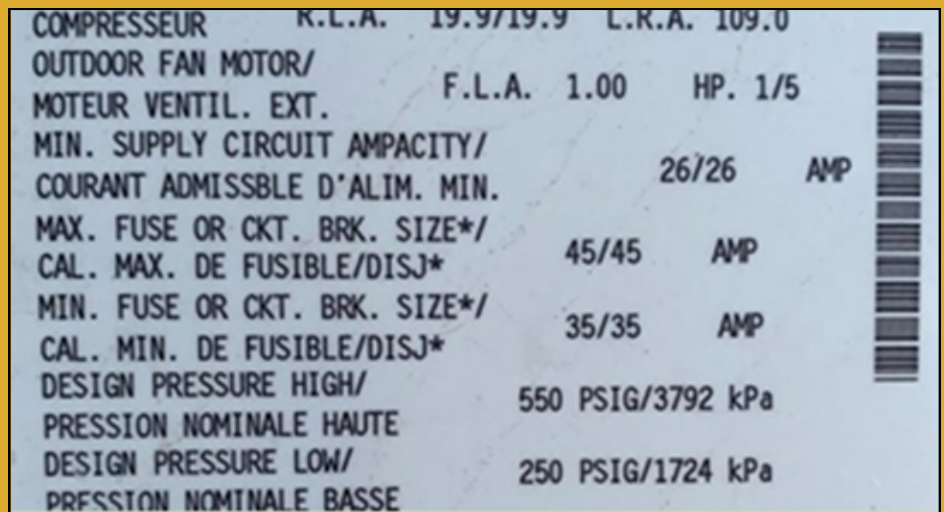
During the final walkthrough, the buyer noted several deficiencies that were not reported by the inspector. After moving in, the buyer commissioned a second inspection. The second inspector noted multiple deficiencies related to the electrical system, including improper wiring in wet areas, unsecured wiring, missing covers, and fixtures connected with extension cords.

Analysis: The inspector should report wiring that is loose, exposed to damage, heat, or moisture, and should report other improper connections, such as the use of extension cords that may be attached to walls, floors, or ceilings.

Result: The inspector entered into an agreed order resulting in a formal reprimand and administrative penalty of \$1500 for violation of Section 1102.301, Texas Occupations Code, by performing a real estate inspection in a negligent or incompetent manner.

Discussion

1. Discuss best practices regarding inspecting smoke and carbon monoxide alarms, including things that may be "beyond the scope" that may be important to note in an inspection report.
2. What is the proper method to use for testing GFCI receptacles?
3. Discuss the limitations of using various testing devices such as the 3-light tester out tester used by many home inspectors.
4. Discuss various tools that inspectors could use to inspect a home's electrical system.
5. Discuss the proper way to test 250-volt receptacles.
6. Determine the minimum/maximum wire size and the minimum/maximum breaker size for the condenser unit whose specs are shown in the photo.



COMPRESSEUR	R.L.A.	19.9/19.9	L.R.A.	109.0
OUTDOOR FAN MOTOR/ MOTEUR VENTIL. EXT.	F.L.A.	1.00	HP.	1/5
MIN. SUPPLY CIRCUIT AMPACITY/ COURANT ADMISSIBLE D'ALIM. MIN.			26/26	AMP
MAX. FUSE OR CKT. BRK. SIZE*/ CAL. MAX. DE FUSIBLE/DISJ*		45/45		AMP
MIN. FUSE OR CKT. BRK. SIZE*/ CAL. MIN. DE FUSIBLE/DISJ*		35/35		AMP
DESIGN PRESSURE HIGH/ PRESSION NOMINALE HAUTE		550 PSIG/3792 kPa		
DESIGN PRESSURE LOW/ PRESSION NOMINALE BASSE		250 PSIG/1724 kPa		

Photo credit: Mike Morgan

Standards of Practice: Minimum Inspection Requirements for Electrical Systems
[535.229]

(a) Service entrance and panels.

(1) The inspector shall report as Deficient:

- (A) a drop, weatherhead or mast that is not securely fastened to the building;
- (B) the absence of or deficiencies in the grounding electrode system;
- (C) missing or damaged dead fronts or covers plates;
- (D) conductors not protected from the edges of electrical cabinets, gutters, or cutout boxes;
- (E) electrical cabinets and panel boards not appropriate for their location; such as a clothes closet, bathrooms or where they are exposed to physical damage;
- (F) electrical cabinets and panel boards that are not accessible or do not have a minimum of 36-inches of clearance in front of them;
- (G) deficiencies in:
 - (i) electrical cabinets, gutters, cutout boxes, and panel boards;
 - (ii) the insulation of the service entrance conductors, drip loop, separation of conductors at weatherheads, and clearances;
 - (iii) the compatibility of overcurrent devices and conductors;
 - (iv) the overcurrent device and circuit for labeled and listed 250 volt appliances;
 - (v) bonding and grounding;
 - (vi) conductors; and
 - (vii) the operation of installed ground-fault or arc-fault circuit interrupter devices; and
- (H) the absence of:
 - (i) trip ties on 250 volt overcurrent devices or multi-wire branch circuit;
 - (ii) appropriate connections;
 - (iii) anti-oxidants on aluminum conductor terminations; and
 - (iv) main disconnecting means.

- (2) The inspector is not required to:
- (A) determine present or future sufficiency of service capacity amperage, voltage, or the capacity of the electrical system;
 - (B) conduct voltage drop calculations;
 - (C) determine the accuracy of overcurrent device labeling;
 - (D) remove covers where hazardous as judged by the inspector;
 - (E) verify the effectiveness of overcurrent devices; or
 - (F) operate overcurrent devices.

(b) Branch circuits, connected devices, and fixtures.

- (1) The inspector shall:
- (A) manually test the installed and accessible smoke and carbon monoxide alarms;
 - (B) report the type of branch circuit conductors; and (C) report as Deficient:
 - (i) the absence of ground-fault circuit interrupter protection in all:
 - (I) bathroom receptacles;
 - (II) garage and accessory building receptacles;
 - (III) outdoor receptacles;
 - (IV) crawl space receptacles and lighting outlets;
 - (V) basement receptacles;
 - (VI) receptacles that serve kitchen countertops;
 - (VII) receptacles that are located within six feet of the outside edge of a sink, shower, or bathtub;
 - (VIII) laundry area receptacles;
 - (IX) indoor damp and wet location receptacles;
 - (X) kitchen dishwasher receptacle; and
 - (XI) electrically heated floors;

- (ii) the absence of arc-fault protection in the following locations:
 - (I) kitchens;
 - (II) family rooms;
 - (III) dining rooms;
 - (IV) living rooms;
 - (V) parlors;
 - (VI) libraries;
 - (VII) dens;
 - (VIII) bedrooms;
 - (IX) sunrooms;
 - (X) recreation rooms;
 - (XI) closets;
 - (XII) hallways; and
 - (XIII) laundry area;
- (iii) the failure of operation of ground-fault circuit interrupter protection devices;
- (iv) missing or damaged receptacle, switch or junction box covers;
- (v) the absence of:
 - (I) equipment disconnects; and
 - (II) appropriate connections, such as copper/aluminum approved devices, if branch circuit aluminum conductors are discovered in the main or sub-panel based on a random sampling of accessible receptacles and switches;
- (vi) receptacles less than five and a half feet above the floor that are not tamper resistant;

- (vii) deficiencies in 125 volt receptacles by determining the:
 - (I) presence of power;
 - (II) correct polarity; and
 - (III) presence of grounding;
- (viii) deficiencies in 250 volt receptacles by determining the presence of power;
- (ix) deficiencies in
 - (I) switches;
 - (II) bonding or grounding;
 - (III) wiring, wiring terminations, junction boxes, devices, and fixtures, including improper location;
 - (IV) doorbell and chime components; and
 - (V) smoke and carbon monoxide alarms;
- (x) improper use of extension cords;
- (xi) deficiencies in or absences of conduit, where applicable;
- (xii) the absence of smoke alarms:
 - (I) in each sleeping room;
 - (II) outside each separate sleeping area in the immediate vicinity of the sleeping rooms; and
 - (III) in the living space of each story of the dwelling; and
- (xiii) the absence of carbon monoxide alarms outside each separate sleeping area in the immediate vicinity of the sleeping rooms when either of the following conditions exist:
 - (I) fuel fired appliance are installed in the dwelling; or
 - (II) an attached garage with an opening into the dwelling unit.

(2) The inspector is not required to:

- (A) inspect low voltage wiring;
- (B) disassemble mechanical appliances;
- (C) verify the effectiveness of smoke alarms;
- (D) verify interconnectivity of smoke alarms;
- (E) activate smoke or carbon monoxide alarms that are or may be monitored or require the use of codes;
- (F) verify that smoke alarms are suitable for the hearing-impaired;
- (G) remove the covers of junction, fixture, receptacle or switch boxes unless specifically required by these standards; or
- (H) test arc-fault circuit interrupter devices when the property is occupied or damage to personal property may result, in the inspector's reasonable judgment.

Appliances Learning Objectives:

After this module you will be able to

- ✓ Recognize deficiencies in dryer exhaust vents and how to properly report them on the standard inspection form.
- ✓ Identify how to inspect for proper backflow prevention on dishwashers.
- ✓ Summarize how to properly inspect the safety features on a garage door operator.

Appliances Overview

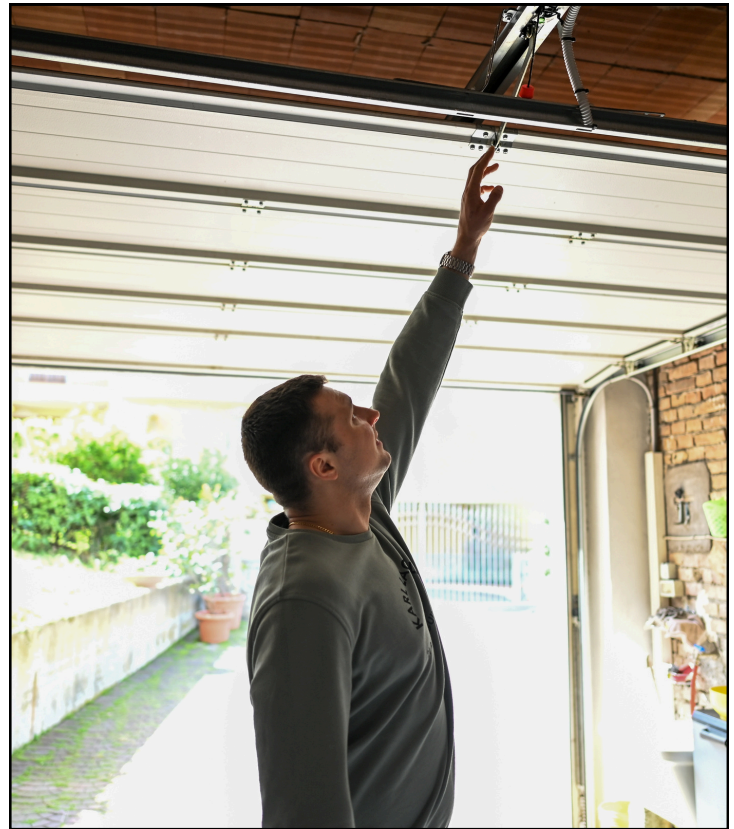
The Texas Standards of Practice (SOPs) for home inspectors require that inspectors report on the performance and condition of certain appliances. These typically include dishwashers, food waste disposers, range hood and exhaust fans, ranges and ovens, bathroom exhaust vents and heaters, garage door openers, and dryer exhaust systems. Inspectors must operate each appliance using normal controls and report any deficiencies observed during the inspection. However, the Appliances SOPs do not require testing of appliances that are permanently installed or built-in. Those are covered under the Optional Systems SOPs.

Dryer Exhaust Systems

Inspecting the dryer exhaust vent may seem like a small component to the inspection process, but overlooked deficiencies can mean huge safety concerns go undocumented during the home inspection. Lint build-up is extremely combustible and can be a fire hazard if dryer ducts are not maintained and cleaned. When inspecting dryer exhaust vents, there are several key components to observe and report upon.

Missing or damaged components, including the absence of a dryer vent system when provisions are present for a dryer. Look for signs of disconnection, crushing, or damage to the duct, especially behind the dryer and in hidden areas.

Dryer exhaust vents should terminate to the exterior of the building. Not crawlspaces or attics.



The exhaust vent hood should not have a screen or grate covering the vent. This restricts lint from exiting the exhaust vent. This will allow for lint accumulation in the dryer vent creating a fire hazard. Observe the vent hood for accumulated lint.

Dryer exhaust vent materials should be rigid metal with a smooth interior. Flexible connections are allowed for the transition piece from the dryer to the vent, but should be no more than 8' in length.

According to the SOPs, inspectors must report deficiencies such as:

- (1) missing or damaged components;
- (2) the absence of a dryer exhaust system when provisions are present for a dryer;
- (3) ducts that do not terminate to the outside of the building;
- (4) screened terminations; and
- (5) ducts that are not made of metal with a smooth interior finish.

Examples of Dryer Exhaust System Deficiency Statements

Improper Termination "The dryer exhaust duct terminates in the attic (or crawlspace) rather than extending to the exterior of the home. This is a safety concern due to potential moisture and lint buildup, which may lead to fungal growth or a fire hazard. Recommend correction by a qualified contractor."



Photo credit: Stephenie Huser



Photo credit: Shannon Gatewood

Excessive Lint Accumulation "Significant lint buildup was observed in the dryer exhaust duct, which may impede airflow and poses a fire risk. Cleaning and further evaluation by a qualified HVAC or appliance technician is recommended."



Photo credit: Stephenie Huser



Photo credit: Shannon Gatewood



Photo credit: Lee Warren

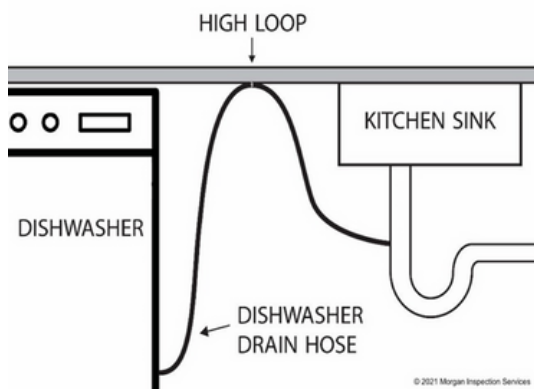
Dishwasher Backflow Prevention

The process of liquid flowing in the direction opposite of what is intended is called backflow. Backflow prevention in dishwashers is important to prevent dirty water from flowing backwards from the sink or garbage disposal and back into the dishwasher and causing water damage to the kitchen floors and cabinetry.

Current building standards require certain features on all dishwashers to prevent contaminated water from backflowing into the dishwasher. First, all dishwashers must have a backflow preventer installed by the factory when the dishwasher is manufactured. Second, even with this safeguard in place, an additional means of backflow prevention is required when the dishwasher is installed in the home. The two most commonly used types of backflow prevention used when the dishwasher is installed are "high loops" and "air gaps." High loops are the most common.

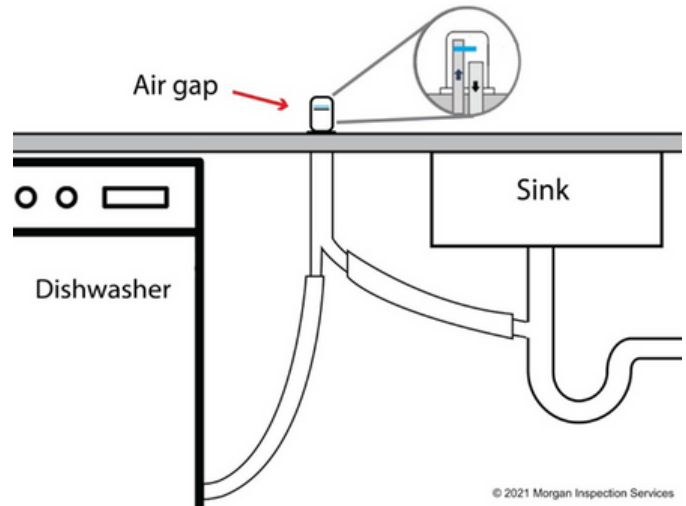
High Loop

A high loop is created by elevating the dishwasher drain hose to form a loop underneath the kitchen sink in order to prevent dirty water in the sink or garbage disposal from being sucked or siphoned back into the dishwasher - commonly referred to as backflow. A high loop accomplishes this by keeping some air in the upper part of the drain hose. This air should break the siphon if dirty water tries to flow backward from the sink or disposal toward the dishwasher through the dishwasher drain hose.



Air Gap

A less commonly used device, but one with which inspectors should be familiar, is the air gap. An air gap is a device that is mounted on the kitchen countertop near the sink and is also designed to prevent backflow to the dishwasher if the sink drain or disposal becomes clogged.



An air gap is connected to the sink and to the dishwasher with two separate hoses. The two hoses are never connected to each other. Inside the air gap, there are two tubes: one comes from the dishwasher, and the other goes to the sink's drain. The fact that the two hoses are separated by air (an air gap), makes air gaps very effective in preventing backflow into the dishwasher.

Testing Garage Door Operator Safety Features

There are three main safety features that should be inspected on a garage door operator:

1. an infrared sensor to reverse the door if something crosses the path of the door while it is closing;
2. an auto reversing mechanism to reverse the door if the door contacts something while it is closing; and
3. a safety release to allow the door to be quickly released from the operator should someone or something become trapped under a door that fails to reverse automatically.

Prior to operating the garage door operator, it is recommended that the garage door, itself, be inspected. By inspecting the door first, the inspector can likely avoid damaging the door or operator if there is a problem with the door, or if a lock happens to be engaged.

Some items that should be inspected on the door include:

1. door panels and stabilizers;
2. hinges, rollers, and rails;
3. springs and cables;
4. locking mechanism if present; and
5. other components.

Next, the inspector should ensure that each of the three safety features is present and functional.

It is recommended to inspect the safety release first. This will allow the inspector to operate the door manually and ensure that there is no binding or other issues prior to using the garage door operator.

Safety release

The inspector should ensure that a working safety release is present and functional. To test this, the rope should be pulled to disengage the door from the operator. With the door disengaged, it should easily move up and down manually.

Testing the infrared sensor

This is as simple as pushing the button to close the door and then, while it is closing, interrupting the infrared beam to ensure that the door stops closing and begins reversing. It is also important to ensure that the sensors are installed within six inches of the garage floor.

This sensor is higher than six inches. Consider how you would document this on the report.



Photo credit: Shannon Gatewood

Testing the auto-reversing feature

Most manufacturers recommend that the auto-reversing feature be tested by placing a solid object such as a brick or 2x4 on the ground under the center of the door and then pushing the button to close the door. The door should reverse as soon as it makes contact with the object. Be aware that if the auto reversing function is broken, testing this feature could cause damage to the door.

The absence of any of these safety features should be reported as a deficiency.

Discussion

1. What common issues do you encounter when inspecting dryer exhaust systems?
2. Discuss how cross connections or backflow can occur with dishwashers and food waste disposers. What items should an inspector look for regarding these two appliances to ensure that cross connections do not occur?
3. How should a dishwasher be inspected?
4. Discuss the proper way to test a garage door operator auto-reversing feature. Discuss the risks associated with testing the auto-reversing feature.

Standards of Practice: Minimum Inspection Requirements for Appliances [535.232]

(a) Dishwashers. The inspector shall report as Deficient:

- (1) inoperative units;
- (2) deficiencies in performance or mounting;
- (3) rusted, missing or damaged components;
- (4) the presence of visible active water leaks; and
- (5) the absence of visible backflow prevention.

(b) Food waste disposers. The inspector shall report as Deficient:

- (1) inoperative units;
- (2) deficiencies in performance or mounting;
- (3) missing or damaged components; and
- (4) the presence of visible active water leaks.

(c) Range hoods and exhaust systems. The inspector shall report as Deficient:

- (1) inoperative units;
- (2) deficiencies in performance or mounting;
- (3) missing or damaged components;
- (4) ducts that do not terminate outside the building, if the unit is not of a re-circulating type or configuration; and
- (5) improper duct material.

(d) Electric or gas ranges, cooktops, and ovens. The inspector shall report as Deficient:

- (1) inoperative units;
- (2) missing or damaged components;
- (3) combustible material within thirty inches above the cook top burners;
- (4) absence of an anti-tip device, if applicable;
- (5) gas leaks in the gas range, cooktops and ovens not associated with the gas distribution system; and
- (6) deficiencies in:
 - (A) thermostat accuracy (within 25 degrees Fahrenheit at a setting of 350 degrees Fahrenheit); and
 - (B) mounting and performance.

(e) Microwave ovens. The inspector shall inspect built-in units and report as Deficient:

- (1) inoperative units;
- (2) deficiencies in performance or mounting; and
- (3) missing or damaged components.

(f) Mechanical exhaust systems and bathroom heaters. The inspector shall report as Deficient:

- (1) the lack of mechanical ventilation in a bathroom if no operable window is present;
- (2) inoperative units;
- (3) deficiencies in performance or mounting;
- (4) missing or damaged components;
- (5) ducts that do not terminate outside the building; and
- (6) a gas heater that is not vented to the exterior of the building unless the unit is listed as an unvented type.

(g) Garage door operators. The inspector shall report as Deficient:

- (1) inoperative units;
- (2) deficiencies in performance or mounting;
- (3) missing or damaged components;
- (4) installed photoelectric sensors located more than six inches above the garage floor;
- (5) deficiencies in performance or absence of auto reversing mechanisms and manual detachment device; and
- (6) door locks or side ropes that have not been removed or disabled.

(h) Dryer exhaust systems. The inspector shall report as Deficient:

- (1) missing or damaged components;
- (2) the absence of a dryer exhaust system when provisions are present for a dryer;
- (3) ducts that do not terminate to the outside of the building;
- (4) screened terminations; and
- (5) ducts that are not made of metal with a smooth interior finish.

(i) General provisions. The inspector is not required to:

- (1) operate or determine the condition of other auxiliary components of inspected items;
- (2) test for microwave oven radiation leaks;
- (3) inspect self-cleaning functions;
- (4) disassemble appliances;
- (5) determine the adequacy of venting systems;
- (6) determine proper routing and lengths of duct systems;
- (7) operate or determine the condition of clothes washer, clothes dryer, or refrigerator; or
- (8) operate or determine the condition of other built in appliances, except as provided for under §535.233(h), of this title.

Module 8

Plumbing and Optional Systems SOP's



Plumbing Systems Learning Objectives:

After this module you will be able to

- ✓ Understand the basic considerations and fundamental principles of inspecting plumbing systems.
- ✓ Identify typical locations of active plumbing leaks.
- ✓ Understand the potential problems of cast iron pipes
- ✓ Recognize the purpose of water pressure reducing valve and devices.
- ✓ Understand water heater concerns that inspectors should be aware of.
- ✓ Recognize and identify components of gas distribution systems.

Plumbing Overview

Home inspectors play a vital role in assessing plumbing systems consistent with the SOPs. Inspectors can identify visible defects and potential issues that may impact a home's safety and functionality. This not only protects the client's investment but also reinforces the integrity of the inspection profession.

Plumbing Inspection Considerations

While performing an inspection, the inspector must test all accessible fixtures within the home. Some of these tests may take more time to conduct in order to be effective.

For instance, if an inspector chooses to use a specialized tool such as a shower pan tester, then it will take time to fill the shower pan up to the top of the pan tester.

The inspector may also fill the hydro-massage therapy equipment unit in order to test the motor. This takes a bit of time to complete.

If the inspector is in another area of the house while either of these are occurring, then there is a risk that the units may overflow and cause damage to the property.

An inspector should take caution to ensure that damage does not occur to the property as a result of these tests, or any other tests that are performed.

If an inspector turns on the fixtures and leaves the area to inspect other areas, it may be considered negligent if damage were to occur.

If an item fails under testing and the inspector notices it as it happens, then it may have been an unknown deficiency that failed under testing.

However, if the damage to the property, as a result of any deficiency, was excessive due to the fact that the inspector was not observing the fixture when it occurred, then the inspector may be liable for those damages and subject to a violation.

Inspectors should not be negligent when inspecting items within the house and should do so from reasonable proximity to those fixtures.

When inspecting plumbing areas, the inspector should also look at the adjacent rooms to verify that there are no signs of damage to those areas such as closets, adjacent bedrooms, and exterior walls. If those areas in question are obstructed by storage or other items, then that should be noted in the report.

If there is a removeable access panel that appears to allow the inspection of plumbing connections within a wall, then that access panel should be removed and the area inspected, unless building finish damage could occur by its removal. Again, if this is the case, then it should be noted in the report.

Plumbing Inspection Fundamentals

Always look for leaks before turning on the hot and cold water. Then look again after running the water and testing the drain.

Check for any visible damage, corrosion, leaks, or cracks in the fixtures, pipes, and valves.

- Test the fixtures: Run water in 2 fixtures operated simultaneously in the sinks, bathtub, and/or shower to check for proper drainage, water flow rate, and pressure. Flush the toilets and check for proper operation.
- Check the pipes: Look for any signs of leakage or corrosion in the pipes, particularly near joints and connections. Check for any condensation on pipes, which may indicate a lack of insulation.

- Check the backflow prevention device: Make sure that the backflow prevention device is installed and functioning properly to prevent contaminated water from entering the potable water supply.

It is important to report any issues found during the inspection so these can be addressed in order to prevent further damage and ensure the proper functioning of the plumbing system.

There are several typical locations for plumbing leaks:

- Tub and shower valve handles and spouts may leak through wall openings.
- Drain connections at tubs and showers may leak only after continued water flow and use.
- Walls immediately adjacent to showers may have signs of water damage or wet conditions.
- Commodes may not exhibit leaks until flushed several times. Look between the tank and the bowl and at the floor. Use a mirror if necessary.

Another consideration is the age of the fixtures and fittings.

- Are they original to the house?
- Have previous repairs been made properly?
- If it is a new fixture, has it been installed correctly?

★ Slow down and take time to find these leaks.

★ Avoid complacency.

★ Sometimes it takes a while before the leak is apparent.

Plumbing Leaks

Plumbing leaks can be problematic to areas beyond the plumbing component.

Water from plumbing leaks can cause damage to wall, flooring, and other components away from the actual plumbing fixture.

When inspecting plumbing features, it is important to inspect the walls and areas near and/or adjacent.

Wet flooring, baseboards, walls, ceilings, etc. can be indications of plumbing leaks that are not visible (behind walls, etc.) See the picture below.



Photo credit: Lee Warren

The picture below shows an example of testing a shower pan.



Photo credit: Tom Langley

Cast Iron Pipes

Under the Plumbing Systems section of the Property Inspection Report Form, inspectors are required to note the type of plumbing material used. Cast iron pipes, commonly used in older homes, are prone to corrosion and rust over time, which can lead to leaks, blockages, and reduced water flow. As the pipes deteriorate internally, they may cause slow drainage and foul odors, and moisture penetration under the structure.

Tree root intrusion is another common issue with cast iron drain lines, especially if the underground lines have weakened joints or cracks. Inspectors need to be aware of these potential problems because they could result in non-latent deficiencies that should be noted on the inspection form. Additionally, inspectors may recommend further evaluation by a licensed plumber.

Case Study: Cast Iron Pipes

Facts: A professional inspector was hired by a buyer to perform a property inspection. Respondent inspected the plumbing and failed to report any deficiencies.

After the buyer moved into the property a plumber was called to inspect for a leak. The plumber found that about 10 feet of a cast iron pipe located in the crawlspace was rotted. At least 5 feet of rotted piping was visible upon entering the crawlspace. Respondent failed to report deficiencies in the cast iron pipes.

Analysis: When inspecting sewer pipes, the inspector should pay particular attention to cast iron pipes. With time, cast iron pipes tend to split and rot.

The respondent should pay close attention to the overall condition of all accessible cast iron pipes. Cast iron piping will often leak at small pinholes. The pinhole leaks will often scab over with rust and stop leaking. You might also notice blisters or splits. Frequently, the rust, rotting or splits will be on the top of the pipe, so depending on your point of view, it may not be readily visible. The inspector may want to check the top side of horizontal cast iron piping systems. You may want to use a mirror, a camera, or feel with your hand. It's not unusual to find a small split running parallel to the length of the pipe.

Result: The Respondent was ordered to pay an administrative penalty of \$700 for a violation of 22 Tex. Admin. Code 535.231(a)(1)(B)(v)(I); failure to report deficiencies in water supply pipes and waste pipes. Also, 535.221(c); and 535.223.

Water Pressure Reducing Valves - 535.231(a)

High water pressure can have a number of negative effects on a home's plumbing system. The most common issues caused by high water pressure are leaks and burst pipes, which can result in costly repairs and water damage.

When water pressure exceeds 80 psi, it can put a significant amount of stress on pipes and fittings. This can cause them to become loose or to develop leaks. These leaks can be small at first, but if left unchecked, they can quickly become bigger and more serious. High water pressure can also cause pipes to burst, which can result in significant water damage to a home.

Another problem caused by high water pressure is that it can wear out appliances and fixtures more quickly. High water pressure can cause faucets and valves to leak, and it can also damage washing machines, dishwashers, and other appliances that rely on water. This can lead to costly repairs or replacements.

High water pressure can also cause problems with a tankless water heater. When water pressure is too high, it can cause the water heater to work harder than it needs to, which can lead to a shorter lifespan for the appliance. Additionally, high water pressure can cause the water heater to make loud noises, which can be both annoying and concerning.

In order to prevent these problems, it is important to check the water pressure during the inspection.

If it is too high, a pressure reducing valve needs to be installed on the homeowner's side of the meter. If this is not present at the time of the inspection it should be noted in the report as a deficiency.

If the pressure reducing valve is installed at the meter and the pressure is too high, a deficiency should be noted and a licensed plumber recommended.

Make sure that an expansion tank is installed at the water heater.

In addition to these preventative measures, it is also important to make sure that all the plumbing fixtures, appliances and pipes in the home are in good condition and properly installed. This will help to ensure that they can withstand normal water pressure and will also help to reduce the risk of leaks and burst pipes.

Overall, high water pressure can be a serious problem for the plumbing of a home. By taking your time and thoroughly inspecting the plumbing system, the inspector and the inspection report can help to prevent costly repairs and water damage. It will also help ensure that the home's plumbing is working properly.

Expansion Devices

Expansion tanks are an important component of a water heater system when a pressure regulator or other device is installed on the supply line after the water meter. The pressure reducing valve creates a closed loop on the water supply by continuously monitoring and adjusting the pressure in the system.

The valve works by reducing the incoming water pressure to the setpoint, which is determined by the user. If the incoming water pressure exceeds the setpoint, the valve restricts the flow of water, thereby reducing the pressure. This process is repeated continuously, keeping the water pressure within a defined range, creating a closed loop system. This closed loop helps to maintain consistent water pressure and prevent over-pressure or under-pressure conditions, ensuring that the water supply system operates smoothly and efficiently.

An expansion tank is a small tank connected to the water heater that helps to regulate pressure. As water is heated, it expands.

With a pressure-reducing valve installed, the water supply system is a closed system. Without an expansion tank, there is nowhere for the additional water volume to go, and a rupture or damage to the system is possible.

The expansion tank works by allowing the increased volume of water to be absorbed into the tank, instead of being forced back into the water supply lines and causing damage. When the water cools, the pressure in the system decreases, and the water is drawn back into the water heater.

It is important to properly size the expansion tank to match the size of your water heater. This will ensure that it can effectively absorb the increased volume of water. An undersized expansion tank will not be able to handle the increased volume, and an oversized tank will be unnecessarily large and expensive.

When an inspector finds that a water pressure reducing valve or device is in use, the inspector must verify that an expansion device such as an expansion tank is also installed, according to the SOPs [See rule 535.231(a)(1)(B)(iv)]. The size of an expansion tank or device can be determined from a chart that includes the size of the water heater. The air pressure inside the tank should be set to the same pressure as the incoming water pressure. It can be measured at the top of the tank similar to testing tire pressure. It is also possible for expansion devices to fail and become waterlogged.

The picture below is an example of an expansion tank at the water heater.



Photo credit: Tom Langley

Sink Drain Vents and Air Admittance Valves

An air admittance valve (AAV) is a plumbing device that allows air into a plumbing system to balance the pressure but prevents sewer gases from escaping into the building. They are used in venting systems for plumbing fixtures such as sinks, toilets, and showers.

AAVs are commonly used in situations where there is no access for a traditional vent pipe or where it is not practical to run a vent pipe to and through the roof.

They are installed on the vent for the drain line of a fixture and automatically open when the fixture is draining, allowing air to be drawn in to balance the pressure in the plumbing system. When the fixture is not in use, the valve closes to prevent sewer gases from escaping into the building.

Advantages of using an AAV include:

- **Ease of installation:** AAVs are easy to install and can be done without major plumbing work.
- **Space-saving:** AAVs take up less space than traditional vent pipes, making them a good option in tight spaces.
- **Cost-effective:** AAVs are less expensive than traditional vent pipes and can save money on installation costs.

It is important to note that AAVs may not be allowed in certain building and plumbing codes, and their use may be restricted in certain areas. It is always best to check local regulations.

These mechanical devices are installed past the sink drain trap and extend towards the countertop of the sink cabinet. When AAV's are installed on the plumbing vent stacks in the attic, they must be a minimum of 6 inches above the insulation. The inspector should identify AAV's as an item to be monitored for possible future replacement. If a sewer gas odor is observed, the inspector should recommend replacement.

Below is an example of a sink drain and an air admittance valve. The diagram shows the valve closed and the valve open.



Photo credit: Tom Langley

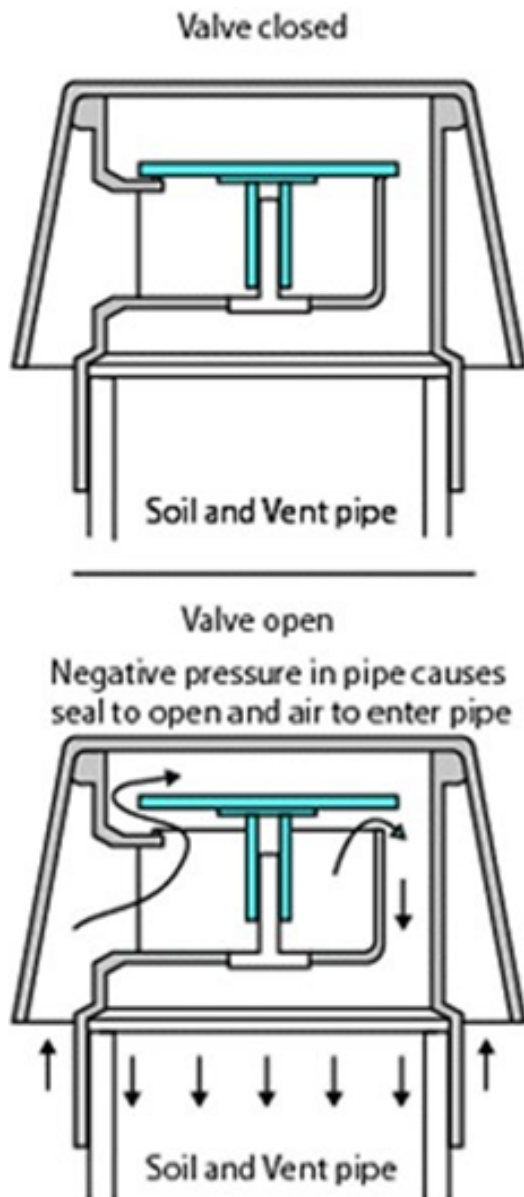


Photo credit: Brian Murphy

Plumbing Access Panels

Inspection access panels provide easy access to concealed plumbing components such as valves and supply and drain lines. Access panels are often found in closets or cabinets near showers, tubs, and sinks. Removing these covers is important to gain a visual examination of the plumbing components within the wall.

Plumbing access panels are considered inspection panels and should be removed during the course of the home inspection. If these panels are not accessed, the departure provision should be utilized and a statement made as to why the access panel was not removed.

Case Study: Should You Inspect a Plumbing Access Panel or Can You Depart?

Facts: An inspector performed an inspection for a buyer and failed to report deficiencies in the plumbing. After moving into the property, the buyer found a leak in the shower pan that was seeping into the plumbing chase. The plumbing chase was adjacent to the shower enclosure. When the plumbing chase was opened the wallboard was wet and damaged from the floor up to about 12 inches.

As part of the inspection, the inspector was required to visually inspect plumbing components located inside a plumbing chase adjacent to the shower enclosure. This interior panel was the type that was readily accessible and opened to reveal pipes, fittings, shower pan and liner. The inspector failed to open the access panel and did not inspect for visible deficiencies. In response to the complaint, the inspector stated that the "access panel couldn't be opened at the time. It was painted shut."

Analysis: The Commission found that this was an improper departure. The inspector did not notify the client of such departure and did not make an appropriate notation in the report form stating the reason why the system or component was not inspected. In addition, the Commission found that under the circumstances, the inspector could have used a simple utility knife to carefully cut through the overpaint located within the grooves of the access panel. When done carefully, this does not damage the wall or other finished surfaces, the inspector simply removing incidental overpaint. This type of panel was designed to give access for inspection purposes and was not designed to be permanently shut. It should have been inspected.

Result: The inspector was found to have acted negligently in violation of Section 1102.301, Texas Occupations Code; and that he failed to make an appropriate notation on the inspection report form, stating the reason a component or system was not inspected, in violation of 22 Tex. Admin. Code 535.227(f)(2)(B), (The inspector also failed to register a DBA with the Commission). The inspector was formally reprimanded and was ordered to pay an Administrative Penalty of \$1,100.

Related Note: An inspector can use their reasonable judgment if it appears the homeowner used other more permanent materials to cover up an access panel and the cover cannot be opened without causing damage. In this situation, the inspector will need to comply with the requirements of the departure provision.

Gas Distribution Systems

The Gas Distribution Systems was added as a new section to the Plumbing System Rule 535.231(d) and is included as a new section under section (VI.) Plumbing Systems on the Property Inspection Report form (REI 7-6) approved by the Commission for mandatory use on February 1, 2022.

The report form requires the inspector to identify the location of the gas meter and identify the type of gas distribution piping material. The overview of the Plumbing System SOPs at the end of this chapter provides the details of what the inspector shall report, report as deficient, and what the inspector is not required to do when evaluating the gas distribution system during an inspection.

The picture below is a large gas meter.



Photo credit: Tom Langley

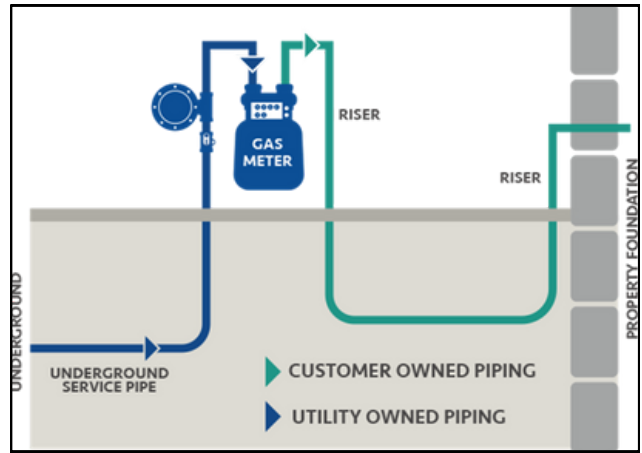


Photo credit: Tom Langley

Gas Piping Systems and Gas Pressure Regulators

Gas piping systems are used to distribute natural gas or propane to buildings and other structures for heating, cooking, and other uses. These systems consist of a network of pipes that transport the gas from the main supply line to individual appliances and fixtures. Inspectors should know how to identify the different types of gas piping. The pipes are typically made of steel, copper, or plastic, and are connected to the gas main using fittings, valves, and other components. Corrugated stainless steel tubing (CSST) has become a common gas pipe to find in homes today, and inspectors are required to report as deficient the lack of visible bonding on gas distribution system, including corrugated stainless-steel tubing (CSST) as stated in Rule 535.231(d)(B)(v)(vi).

Gas pressure regulators are an important part of gas piping systems. These devices are used to control the flow and pressure of the gas as it moves through the pipes. The regulator reduces the pressure of the gas from the main supply line to a safe and stable level that is appropriate for use in the building or structure.

This is important to ensure that appliances and fixtures are not damaged by excessive pressure, and to ensure the safety of the occupants.

When a gas pressure regulator is installed, it should be installed in a horizontal position for proper operation. It should not be installed at a vertical gas pipe.

When gas pressure regulators are installed in foamed or unvented attic areas, they must have a separate gas vent tube from the valve bleed fitting that terminates outside.

There are two main types of gas pressure regulators: first stage and second stage. First stage regulators are typically located at the point where the gas main connects to the building, and are used to reduce the pressure from the main supply line to a level that is safe for use in the building. Second stage regulators are typically located at the point where the gas piping enters the building, and are used to further reduce the pressure to a level that is appropriate for individual appliances and fixtures.

Regulators are prone to leaks and should always be checked for leaks.

Gas pressure regulators are typically designed to maintain a stable and consistent pressure, even under varying demand conditions. They are often equipped with safety features, such as overpressure protection, to ensure that the gas pressure does not exceed the safe limit.

Inspectors should refer to Rule 535.227(b)(7)(A) & (B) for the point of delivery and Rule 535.231(d)(1)(B)(iv) and (v)(III) for gas distribution systems. Although the flex line is part of the appliance, under the current SOPs, deficiencies should be reported under the gas distribution system in the "Plumbing" section of the REI 7-6 report form.

In summary, gas piping systems are used to distribute natural gas or propane to buildings and other structures and gas pressure regulators are an important part of these systems, controlling the flow and pressure of the gas as it moves through the pipes, ensuring the safety of the occupants and appliances.

Gas Leak Detection

One of the most important safety aspects of a home inspection is checking for gas leaks, which can be both dangerous and costly if not addressed.

Gas leaks can be dangerous and potentially fatal. Leaks in the gas distribution system should always be reported as a deficiency and flagged as a safety concern.

Testing for gas leaks does not require the use of a gas detection device or leak detection bubbles, but inspectors who have lost their sense of smell and are unable to detect gas leaks in this traditional method, may want to consider use of specialized equipment such as a gas detector.

The picture below is an example of a combustible gas leak detector testing gas line connections.

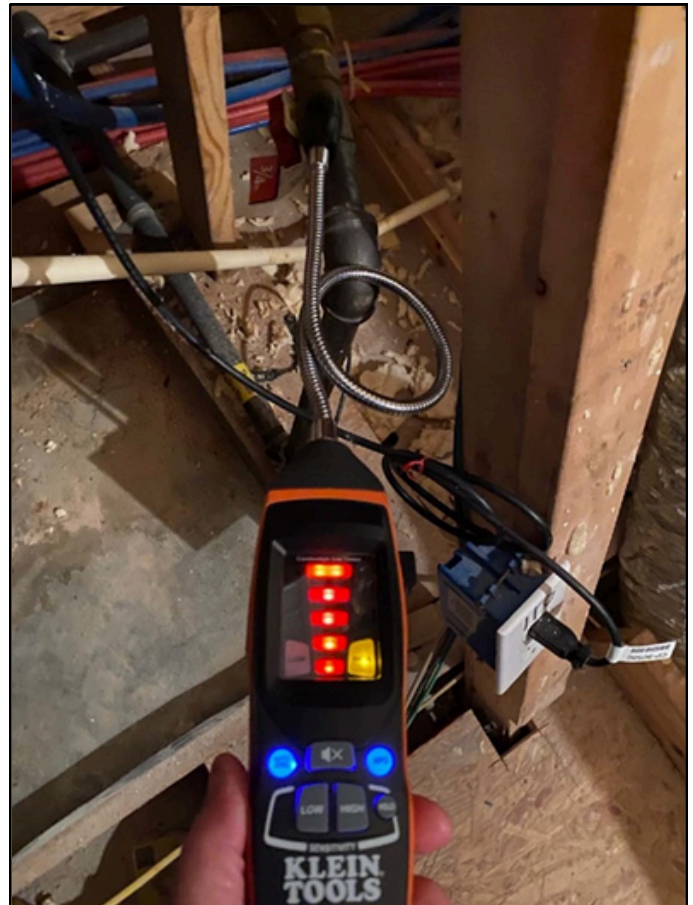


Photo credit: Tom Langley

Case Study – A TREC Inspection Does Not Include an Optional “Gas Line Leak Test”

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. As an optional part of his inspection. The inspector performed a gas line leak test. The inspector represented to the client that his TREC license allowed him to perform a gas line leak test so long as the system was not pressurized.

According to the inspector his method for inspecting gas supply lines for leaks was to turn off all pilot lights in gas appliances inside the house for approximately 30 minutes and check the gas meter for movement that would indicate leaks in the supply system. The inspector’s test did not detect leaks in the gas supply system.

After moving into the home, the buyer learned that there was a gas leak in one of the gas lines. It was determined that the leak was caused by a roofing nail penetrating the gas line when the roof was installed for the previous owner before the sale. The roofing company acknowledged responsibility for damaging the gas pipe and paid for the repairs.

Analysis: According to the Texas Plumbing Board, to be effective, a gas line leak test requires pressurization and only a licensed plumber can perform a gas line leak test. The inspector was negligent in performing the inspection and failed to report the damage to the gas line.

Result: The inspector refunded the entire inspection fee of \$895.10, back to the buyer and agreed to cease to perform gas line leak tests. The inspector entered into an agreed order resulting in a formal reprimand and administrative penalty of \$1,100 for a violation of Section 1102.301, Texas Occupations Code, by performing a real estate inspection in a negligent or incompetent manner (The order also addressed an advertising violation).

Recommending Further Evaluations

When recommending a client seek further evaluation of plumbing items by a licensed plumber, be clear when discussing these items with your client.

For example, a shower pan testing by a plumbing contractor typically includes the removal of the shower drain cover and insertion of a test ball below the level of the shower pan.

Remember the inspector is there to educate the client. If a test is done differently, it may not have the same end results.

Water Heater Safety / Water Heater Relief Valve Installation

A temperature pressure relief valve, or TPR valve, is an important safety feature on a water heater.

Its purpose is to release excess pressure and heat that may build up in the tank, preventing the possibility of a dangerous explosion. Rule 535.231(b)(1)(A)(ii)(XII) of the SOP states the inspector shall report as deficient a temperature and pressure relief valve that failed to operate, when tested manually.

The inspection and possible testing of the water heater temperature pressure relief valve is necessary because of the possible impact of time on this safety device.

The TPR valve is located on the top or side of the water heater (at the top 6 inches of the tank), and is required to be connected to a drainpipe that leads outside of the house in most cases. In normal operation, the valve remains closed, allowing water to heat up and maintain the desired temperature. However, if the temperature or pressure inside the tank becomes too high, the valve will open, releasing hot water and steam through the pipe to the outside.

It is important to note that the TPR valve is not a replacement for regular maintenance of a water heater. It is always recommended to follow the manufacturer's instructions for maintenance and to have a professional licensed plumber inspect and service the water heater regularly.

It is also important to know that TPR valves can get clogged with minerals or debris, which can prevent it from functioning properly.

If an inspector notices that the valve is leaking or discharging water, it is very possible due to thermal expansion or a foreign material. It is a sign that the valve may be in need of replacement and should be inspected and serviced by a licensed professional plumber.

In summary, the TPR valve is an important safety feature on a water heater that prevents dangerous explosions by releasing excess pressure and heat. It is important that the client knows the location of the TPR valve and to have it inspected and serviced by a licensed professional plumber regularly, and also to be aware of signs that the valve may be clogged.

The inspector has the authority to report to the client that further evaluation of the TPR valve is advised or that it should be replaced and properly installed by a licensed professional plumber.

Discussion

1. Should an inspector test the TPR valve on a water heater?
2. What effects can foundation damage and repairs have on drain piping beneath a home?
3. How can drain piping damage be detected?

Standards of Practice: Minimum Inspection Requirements for Plumbing Systems [535.231]

(a) Plumbing systems.

(1) The inspector shall:

(A) report:

- (i) location of water meter;
- (ii) location of homeowners main water supply shutoff valve; and
- (iii) static water pressure;
- (iv) visible material used for water supply lines and drain lines;

(B) report as Deficient:

- (i) the presence of active leaks;
- (ii) water pressure exceeding 80 PSI;
- (iii) the lack of a pressure reducing valve when the water pressure exceeds 80 PSI;
- (iv) the lack of a visible expansion tank when a pressure reducing valve, check valve, or backflow preventer is in place at the water supply line/system;
- (v) the absence of:
 - (I) fixture shutoff valves;
 - (II) dielectric unions, when applicable;
 - (III) back-flow devices, anti-siphon devices, or air gaps at the flow end of fixtures; and
- (vi) deficiencies in:
 - (I) water supply pipes and waste pipes;
 - (II) the installation and termination of the vent system;
 - (III) the performance of fixtures and faucets not connected to an appliance;
 - (IV) water supply, as determined by viewing functional flow in two fixtures operated simultaneously;
 - (V) fixture drain performance;
 - (VI) orientation of hot and cold faucets;
 - (VII) installed mechanical drain stops;
 - (VIII) commodes, fixtures, showers, tubs, and enclosures; and
 - (IX) the condition of the gas distribution system.

(2) The inspector is not required to:

(A) operate any main, branch, or shut-off valves;

(B) operate or inspect sump pumps or waste ejector pumps;

(C) verify the performance of:

(i) the bathtub overflow;

(ii) clothes washing machine drains or hose bibbs; or

(iii) floor drains;

(D) inspect:

(i) any system that has been winterized, shut down or otherwise secured;

(ii) circulating pumps, free-standing appliances, solar water heating systems, water-conditioning equipment, filter systems, water mains, private water supply systems, water wells, pressure tanks, sprinkler systems, swimming pools, or fire sprinkler systems;

(iii) inaccessible gas supply system components for leaks;

(iv) for sewer clean-outs; or

(v) for the presence or performance of private sewage disposal systems;
or

(E) determine:

(i) quality, potability, or volume of the water supply; or

(ii) effectiveness of backflow or anti-siphon devices.

(b) Water heaters.

(1) General Requirements.

(A) The inspector shall:

(i) report:

(I) the energy source;

(II) the capacity of the units;

(ii) report as Deficient:

(I) inoperative units;

(II) leaking or corroded fittings or tanks;

(III) damaged or missing components;

(IV) the absence of a cold water shutoff valve;

(V) if applicable, the absence of a pan or a pan drain system that does not terminate over a waste receptor or to the exterior of the building above the ground surface;

(VI) inappropriate locations;

(VII) the lack of protection from physical damage;

(VIII) burners, burner ignition devices or heating elements, switches, or thermostats that are not a minimum of 18 inches above the lowest garage floor elevation, unless the unit is listed for garage floor installation;

(IX) the absence of an opening that would allow access to equipment for inspection, service, repair or replacement without removing permanent construction or building finish;

(X) when applicable; a floored passageway and service platform that would allow access for equipment inspection, service, repair or replacement;

(XI) the absence of or visible deficiencies in the temperature and pressure relief valve and discharge piping; and

(XII) a temperature and pressure relief valve that failed to operate, when tested manually.

(B) The inspector is not required to:

(i) verify the effectiveness of the temperature and pressure relief valve, discharge piping, or pan drain pipes;

(ii) operate the temperature and pressure relief valve if the operation of the valve may, in the inspector's reasonable judgment, cause damage to persons or property; or

(iii) determine the efficiency or adequacy of the unit.

(2) Requirements for electric units. The inspector shall report as Deficient deficiencies in:

- (A) performance of heating elements; and
- (B) condition of conductors; and

(3) Requirements for gas units. The inspector shall report as Deficient:

- (A) gas leaks in water heater not associated with the gas distribution system;
- (B) flame impingement, uplifting flame, improper flame color, or excessive scale build-up; and
- (C) deficiencies in:
 - (i) combustion and dilution air; and
 - (ii) vent pipe, draft hood, draft, proximity to combustibles, and vent termination point and clearances.

(c) Hydro-massage therapy equipment.

(1) The inspector shall report as Deficient:

- (A) inoperative units;
- (B) the presence of active leaks;
- (C) deficiencies in components and performance;
- (D) missing and damaged components;
- (E) the absence of an opening that would allow access to equipment for inspection, service, repair or replacement without removing permanent construction or building finish; and
- (F) the absence or failure of operation of ground-fault circuit interrupter protection devices.

(2) The inspector is not required to determine the adequacy of self-draining features of circulation systems.

(d) Gas distribution systems.

(1) The inspector shall:

(A) report:

- (i) location of gas meter; and
- (ii) visible material used for gas distribution system;

(B) report as Deficient:

- (i) noticeable gas leaks;
- (ii) the absence of a gas shutoff valve within six feet of the appliance;
- (iii) the absence of a gas appliance connector or one that exceeds six feet in length;
- (iv) gas appliance connectors that are concealed within or extended through walls, floors, partitions, ceilings or appliance housings;
- (v) deficiencies in:
 - (I) gas shutoff valves;
 - (II) access to a gas shutoff valves that prohibits full operation;
 - (III) gas appliance connector materials; and
 - (IV) the condition and type of gas distribution lines and fittings;
- (vi) lack of visible bonding on gas distribution system, including corrugated stainless steel tubing (CSST); and
- (vii) lack of visible sediment traps.

(2) Specific limitation for gas lines. The inspector is not required to:

- (A) inspect sacrificial anode bonding or for its existence;
- (B) pressurize or test gas system, drip legs or shutoff valves;
- (C) operate gas line shutoff valves; or
- (D) light or ignite pilot flames.

Optional Systems Learning Objectives:

After this module you will be able to

- ✓ Name the five Optional Systems listed in the SOPs.
- ✓ Recall best practices to inspect each of the five Optional Systems.
- ✓ Understand that inspection of the optional systems is voluntary and why an inspector may decide to inspect or not inspect them.
- ✓ Discuss types of systems and topics related to inspecting private sewage disposal.

Optional Systems Overview

Optional Systems include six categories TREC has identified and deemed necessary and important enough to set a standard protocol to ensure the public is protected and inspectors understand what the minimum inspection level is and what is expected of them.

An inspector is not required to inspect optional systems. In fact, some home inspectors don't inspect any of them. Informal surveys indicate that a small number of inspectors perform all six optional systems inspections. An average number of inspectors perform two or three optional systems inspections, with the most common ones being irrigation, outbuildings, and pools/spa/hot tubs in that order.

As inspectors became more competitive, the optional system inspections were regarded as a way to stand out and increase the inspector's bottom line. This was also the beginning of inspection packages as a marketing strategy. When an inspector decides they want to offer one or more of these optional inspections, they must be trained and competent to do so. The general provisions in TREC rule 535.227 also apply to optional systems. Questions may arise when other regulatory entities in Texas issue occupational licenses in a field closely related to those listed in optional systems.

It is the responsibility of the inspector to ensure they are competent in and have the proper



licensing as required to perform any testing or inspection of items in the Optional System Section, or otherwise not covered by the SOPs, such as mold testing, lead paint, asbestos, or Wood-Destroying Insect (WDI) inspections.

Landscape Irrigation Systems

The inspector is required to operate ALL zones manually. This requires a basic knowledge of multiple manufacturers with equipment spanning decades.

Three key components to look for and note as deficient if not found:

- Rain sensor;
- Backflow device; and
- Isolation (shutoff) valve.

If the isolation valve is off or either of the backflow shutoff valves are in the off position, the system will not operate. General limitations do not require the inspector to turn these on, but they are not restricted from doing so. Unlike turning on indoor water that may leak inside the

home, turning on irrigation has little potential to cause damage since its purpose is to dispense water.

Report as deficient:

- A zone that does not respond;
- Surface water leaks;
- Unsecured controller; and
- Broken or damaged water emission device (pop-up, static or rotating spray head.)

This requires the inspector to walk each zone as it is operating, observing the heads and looking for underground leaks that will eventually surface.

An inspector is not required to provide an opinion on effective coverage, other than a pipe break that lowers the pressure in one zone relative to the pressure in other zones. In this case, the inspector should note the zone pressure that is drastically not like the others as needing further evaluation.

Inspectors are not required to determine if the rain sensor functions. But if the system overall does not respond in the manual mode with the sensor in the active position and it has rained recently, it can be inferred as operational by switching to inactive and, as a result, the system starts operating.

Swimming Pools, Spas, Hot Tubs, and Equipment

Swimming pool inspections are not regulated by any other Texas occupational license. Like septic inspections, association training and certifications are the most common route to ensure minimum competency. The challenge in this field is the diversity of systems that make it virtually impossible to be well-versed in all possible installations. Adding to the challenge, new systems are introduced every year. What does an inspector do when performing an inspection, and they find that the equipment is WIFI controlled on a smart

device? If it hasn't happened yet, it will.

An inspector should report the type of construction. Common construction types include concrete, vinyl liner, and fiberglass. Note what may seem obvious, such as in-ground or above ground.

The Virginia Graeme Baker Pool and Spa Safety Act changed the way we look at pools. The Act highlighted entrapment hazards among other safety needs.

Entrapment hazards are most common in older pools usually (not always) indicated by the presence of a single main drain. Dangers can include hair entrapment, limb entrapment, mechanical entrapment (bathing suit or necklace), and body entrapment. Any of these can hold a person underwater. Risks associated with pool and spa drains make adequate training a necessity.

Leaks in equipment or piping are also examples of defects. It is not uncommon to observe a leak in the seal between the water pump and motor. Electrical items to consider include bonding of motors, such as blower motors and GFCI protection, and any dedicated panels.

Safety barriers is a term referring to whatever is used to completely surround the pool to control access. They do not eliminate the risk but add a layer of protection, especially for children.

Most people think of fences, but they actually include structures that act as part of the perimeter. Gates must be self-closing & self-latching, and fences have size and construction characteristics that make the pool more difficult to access by animals and unaccompanied children. If the residence is part of the barrier and has doors that open directly to the pool area, they have requirements such as door alarms, self-latching locks, and locks beyond the reach of children.

Defects in the physical structure, such as cracks in the pool structure, damaged tiles, coping, decking, and much more, are listed in the SOPs.

Unlike the irrigation system, the SOPs do not specifically require the inspector to operate the system in the manual mode, but it is implied with the requirement to note defects in motors & pumps. The SOPs also state that the operation of valves is not required, however, valves may be the only way to evaluate water features. Most filters have a selector that diverts the water from the pump in multiple directions, through the filter, backwash, even empty the pool.

As a reminder, filter media has a life expectancy that may be unknown.

Training is a must in the area of advanced sanitizing technology, such as chlorine (salt) generators, ultraviolet germicidal light, ozone systems, and old fashion chemical dispensers. Additional considerations include rain gutter discharge locations and the proximity of the home, which can cause problems in controlling water quality.

Case Study – Better Pool Inspection When the Water is Still

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. As an optional part of his inspection, the inspector performed a pool inspection. The inspector provided a report to the buyer that failed to note as “Deficient” deficiencies in the surface of the swimming pool.

After the buyer moved into the property, the buyer informed the inspector that portions of the plaster surface of the gunite pool were deteriorated. The buyer’s pool surface repairman determined that the pool surface deterioration had been present for years and was present on the day of the inspection.

Analysis: The evidence showed that once the pump was turned off and the water was still, the surface of the pool was visible, and the bare spots were very noticeable. Although the inspector conducted a visual inspection, the inspection was done negligently. The buyer had to bear the cost for replastering the surface of the pool.

Result: The inspector entered into an agreed order resulting in a formal reprimand, 16 hours of pool inspection continuing education, and an administrative penalty of \$1,000 for a violation of Section 1102.301, Texas Occupations Code, by performing a real estate inspection in a negligent or incompetent manner.

Outbuildings

Inspections for outbuildings are performed according to the same structural, electrical, HVAC and plumbing standards used on the principal building. Examples of outbuildings include storage buildings, workshops, and exterior adult dwelling units (ADUs.)

The SOPs require the inspector to check for GFCI in grade level UNFINISHED accessory

building(s) used for storage or a work area, boathouses and boat hosts.

Private Water Wells

It may seem simple to inspect private water well systems. The equipment is basic: a hole drilled in the ground; a pump dropped down the hole suspended by the electrical service and piping for the water; and on-demand water being pumped up to the surface and being stored in an

an above-ground tank or delivered to its point of use. A simple system, yes, but critical to a properly functioning home that may depend on that well system as its only source of water.

A deficient system can deprive a household of adequate water. It can also be quite expensive to repair. A contaminated well can sicken people in the home. To help protect the client and avoid these scenarios, the inspector should ensure two things:

- The well system is capable of delivering sufficient water to the home; and
- The water delivered to the home is safe to use and consume.

To ensure that the system is capable of delivering sufficient water, the inspector should evaluate the proper operation of equipment such as the pump, storage tank, pressure switch, and piping. While the inspector is not required to test the water for contamination, the inspector should either arrange to have the water tested or should recommend to the client that the water be tested for contaminants, such as coliform bacteria.

As in all systems in the home, the inspector should be properly trained prior to inspecting private well systems. While TREC does not specify what training is required in order to qualify oneself to inspect well systems, it is incumbent on the inspector to ensure that he or she is sufficiently trained prior to inspecting private water wells as part of a home inspection.

Private Sewage Disposal

Private sewage disposal systems, also referred to as on-site sewer facilities (OSSF), are an emerging field for inspectors. Oddly, they are regulated by TCEQ in all areas except inspections. Private sewage disposal system inspections such as septic systems can be performed by home inspectors but require additional training. Most inspectors who

perform these inspections are certified by a national trade association that provides training on the protocols of a proper inspection. Periodic continuing education is often required to ensure that inspectors keep up with industry innovations. They also provide an accreditation to show consumers they are competent to comply with known industry standards.

While the current SOPs do not require inspectors to excavate or uncover lids, it is important to locate the tank and the drain field. The septic system location is important to determine proximity to known water wells, underground cisterns, water supply lines, bodies of water, sharp slopes or breaks, easement lines, property lines, soil absorption systems, swimming pools, or sprinkler systems. These components often have required set-backs from a septic system or septic drain field.

Most Common Types of Systems

Aerobic

Aerobic systems use an aerobic process (oxygen introduction) to treat wastewater, breaking down organic material and pathogens more efficiently than conventional systems. These systems create a higher quality effluent that can be dispersed above grade, usually using sprinklers.

Gravity Flow (or Conventional)

This is the most basic and common type of sewage disposal system, consisting of a septic tank for primary treatment and a drainfield (or leach field) for secondary treatment and wastewater dispersal into the soil.

LPD (Low Pressure Dosing)

An alternative to conventional septic systems is a Low Pressure Dosing (LPD). LPD systems utilize a pump and a dosing tank to distribute wastewater evenly across a drain field. This type of system can be especially beneficial in challenging soil or terrain conditions.

Septic Issues That May Be Discovered Visually

1. Foul Odors—Unpleasant odors can be an indication of an overloaded system and are a major red flag.

2. Slow Draining Fixtures can be an indication of an underperforming septic.
3. Standing Water in the Yard—Standing water in the yard can be an indication the absorption rate for the drainfield is not adequate. Overloading the drainfield with excessive water usage can lead to saturation. When the soil becomes oversaturated, it cannot effectively treat and disperse effluent, resulting in backups and foul odors.
4. Standing water near the tank can be an indication the system is undersized or underperforming.
5. Aerobic and LPD equipment and components that are not performing.
6. Greener grass in areas of the yard— Oftentimes, exceptionally greener grass can be an indication the system is not performing adequately. Effluent can be seeping out and not percolating through the soil.
7. Gurgling noises in the plumbing can be an indication of poor ventilation in the tank.
8. Take note of trees or large shrubbery near the tank and the drainfield. These roots can penetrate the tank and drainfield causing damage.
9. Observe vehicle traffic. Is there vehicle traffic over the drainfield? Vehicles can compact a drainfield and create blockage and compromise the functionality of the system.

Lack of regulation in many rural areas and aging older septic systems pose concerns regarding functionality. Systems that have not been properly maintained are prone to failure. Inadequate and failing systems can create health concerns.

It is a good idea to ask if septic plans are available. This will assist in verifying tank

and drainfield location. However, sometimes homeowners may be unaware of the exact location of the septic tank and/or drain field and also may not have easy access to the septic plans.

Septic Inspections can present a challenge to the inspector for several reasons. For example, the system can be below grade and its components are not easily visible (with the exception of aerobic equipment). Also, due to the design of a septic system, often the visibility of components is limited unless the tank is emptied.

While private sewage disposal system inspections can be performed by home inspectors, they do require additional training and/or certification to properly be inspected and follow known industry standards.

Other Built-in Appliances

The inspection of other built-in appliances not listed under the Appliance SOPs was added to this section of the SOPs effective February 1, 2022.

Examples of other built-in appliances not listed in the Appliance section of the SOPs may include appliances such as backyard patio kitchens or ancillary prep kitchens designed for caterers or for religious food preparation.

Clients or homeowners may think because a built-in appliance is present, that it will be inspected. To avoid any misunderstanding with the client or homeowner regarding what is inspected, it should be communicated (ideally in writing) if other built-in appliances will or will not be inspected.

In conclusion, an inspector is not required to inspect the components or systems described under this section.

Also, if an inspector agrees to inspect a component or system described under this section, the general provisions under 535.227 of this title and the provisions and requirements of this section applicable to that component or system apply.

Standards of Practice: Minimum Inspection Requirements for Optional Systems [535.233]

(a) An inspector is not required to inspect the components or systems described under this section.

(b) If an inspector agrees to inspect a component or system described under this section, the general provisions under §535.227 of this title and the provisions and requirements of this section applicable to that component or system apply.

(c) Landscape irrigation (sprinkler) systems.

(1) The inspector shall:

(A) manually operate all zones or stations on the system through the controller;

(B) report as Deficient:

(i) the absence of a rain or moisture sensor,

(ii) inoperative zone valves;

(iii) surface water leaks;

(iv) the absence of a backflow prevention device;

(v) the absence of shutoff valves between the water meter and backflow device;

(vi) deficiencies in the performance and mounting of the controller;

(vii) missing or damaged components; and

(viii) deficiencies in the performance of the water emission devices; such as, sprayer heads, rotary sprinkler heads, bubblers or drip lines.

(2) The inspector is not required to inspect:

(A) for effective coverage of the irrigation system;

(B) the automatic function of the controller;

(C) the effectiveness of the sensors; such as, rain, moisture, wind, flow or freeze sensors;

(D) sizing and effectiveness of backflow prevention device; or

(E) report on the performance of an underground zone.

(d) Swimming pools, spas, hot tubs, and equipment.

(1) The inspector shall:

(A) report the type of construction;

(B) report as Deficient:

(i) the presence of a single blockable main drain (potential entrapment hazard);

(ii) a pump motor, blower, or other electrical equipment that lacks bonding;

(iii) the absence of or deficiencies in safety barriers;

(iv) water leaks in above-ground pipes and equipment;

(v) the absence or failure in performance of ground-fault circuit interrupter protection devices; and

(vi) deficiencies in:

(I) surfaces;

(II) tiles, coping, and decks;

(III) slides, steps, diving boards, handrails, and other equipment;

(IV) drains, skimmers, and valves;

(V) filters, gauges, pumps, motors, controls, and sweeps;

(VI) lighting fixtures; and

(VII) the pool heater that these standards of practice require to be reported for the heating system.

(2) The inspector is not required to:

- (A) disassemble filters or dismantle or otherwise open any components or lines;
- (B) operate valves;
- (C) uncover or excavate any lines or concealed components of the system;
- (D) fill the pool, spa, or hot tub with water;
- (E) inspect any system that has been winterized, shut down, or otherwise secured;
- (F) determine the presence of sub-surface water tables;
- (G) determine the effectiveness of entrapment covers;
- (H) determine the presence of pool shell or sub-surface leaks; or
- (I) inspect ancillary equipment such as computer controls, covers, chlorinators or other chemical dispensers, or water ionization devices or conditioners other than required by this section.

(e) Outbuildings.

- (1) The inspector shall report as Deficient the absence or failure in performance of ground-fault circuit interrupter protection devices in grade-level portions of unfinished accessory buildings used for storage or work areas, boathouses, and boat hoists; and
- (2) The inspector shall report as Deficient deficiencies in the structural, electrical, plumbing, heating, ventilation, and cooling systems that these standards of practice require to be reported for the principal building.

(f) Private water wells.

- (1) The inspector shall:
 - (A) operate at least two fixtures simultaneously;
 - (B) recommend or arrange to have performed coliform testing;
 - (C) report:
 - (i) the type of pump and storage equipment;
 - (ii) the proximity of any known septic system; and

(D) report as Deficient deficiencies in:

- (i) water pressure and flow and performance of pressure switches;
- (ii) the condition of accessible equipment and components; and
- (iii) the well head, including improper site drainage and clearances.

(2) The inspector is not required to:

- (A) open, uncover, or remove the pump, heads, screens, lines, or other components of the system;
- (B) determine the reliability of the water supply or source; or
- (C) locate or verify underground water leaks.

(g) Private sewage disposal systems.

(1) The inspector shall:

(A) report:

- (i) the type of system;
- (ii) the location of the drain or distribution field; and
- (iii) the proximity of any known water wells, underground cisterns, water supply lines, bodies of water, sharp slopes or breaks, easement lines, property lines, soil absorption systems, swimming pools, or sprinkler systems; and

(B) report as Deficient:

- (i) visual or olfactory evidence of effluent seepage or flow at the surface of the ground;
- (ii) inoperative aerators or dosing pumps; and
- (iii) deficiencies in:
 - (I) accessible components;
 - (II) functional flow;
 - (III) site drainage and clearances around or adjacent to the system; and
 - (IV) the aerobic discharge system.

(2) The inspector is not required to:

- (A) excavate or uncover the system or its components;
- (B) determine the size, adequacy, or efficiency of the system; or
- (C) determine the type of construction used.

(h) Other built-in appliances.

The inspector shall report deficiencies in condition or operation of other built-in appliances not listed under §535.232 of this title.

Appendices



- 120 Appendix A – Property Inspection Report Form Instructions
- 122 Appendix B - Property Inspection Report Form
- 128 Appendix C – Consumer Protection Notice (Form CN 1-5)
- 129 Appendix D – Helpful Links



PROPERTY INSPECTION REPORT FORM

INSTRUCTIONS

This document is designed to provide guidance to an inspector on how to properly check the various boxes on the Property Inspection Report Form.

Per TREC rule (22 Tex. Admin. Code §535.223):

An inspector is required to check the appropriate box for every item on the Property Inspection Report Form, to indicate whether that item was:

- (I) Inspected;
- (NI) Not Inspected;
- (NP) Not Present; or
- (D) Deficient

In addition to checking the appropriate boxes, an inspector **MUST** explain the inspector's findings for each item under the corresponding section of the form.

WHEN IS A PARTICULAR BOX APPROPRIATE?

(I) Inspected – This box should be checked when any portion of a component or system is inspected.

(NI) Not Inspected – This box should be checked when a component or system:

- is present but is not inspected
- should be present but is not and as a result could not be inspected; or
- when a system or component is present but cannot be fully inspected due to existing conditions or limitations.

(NP) Not Present – This box should be checked when a component or system is not present in the dwelling.

(D) Deficient – This box **must be checked** when a component or system exhibits a “Deficiency” as defined by the Standards of Practice (22 Tex. Admin. Code §535.227 – 535.233):

Deficiency - In the reasonable judgment of the inspector, a condition that:

- adversely and materially affects the performance of a system, or component; or
- constitutes a hazard to life, limb, or property as specified by these standards of practice.



PROPERTY INSPECTION REPORT FORM

INSTRUCTIONS

CAN AN INSPECTOR CHECK MULTIPLE BOXES FOR A PARTICULAR COMPONENT OR SYSTEM?

YES. An inspector may check more than one box for a particular system or component. The inspector **MUST** provide an explanation for why multiple boxes were checked. For example:

“(I) Inspected” and “(D) Deficient” - Both boxes should be checked any time a component or system is inspected and exhibits a deficiency.

“(NP) Not Present” and “(NI) Not Inspected” - Both boxes should be checked anytime a component or system should be present, but is not, and was not inspected as a result.

NOTE: An inspector may also need to check **“(D) Deficient”** if absence of component or system results in a deficiency.

“(NI) Not Inspected” and “(D) Deficient” - Both boxes should be checked any time a component or system is present but is not inspected because of the judgment of the inspector and the reason it was not inspected meets the definition of a deficiency.

“(I) Inspected” and “(NI) Not Inspected” - Both boxes **may** be checked when a component or system is only partially inspected. **If the** inspector checks both boxes, the inspector must explain what portions were inspected and not inspected, and why.

NOTE: An inspector may also need to check **“(D) Deficiency”** if the reason both boxes are checked results in a definition of a deficiency.

DO I NEED TO USE THE PROPERTY INSPECTION REPORT FORM WHEN CONDUCTING A SINGLE ITEM INSPECTION?

YES. If the inspection is conducted for a real estate transaction, or potential real estate transaction, you must use the Property Inspection Report Form for any inspection, including a single item inspection.

When doing a single item inspection, simply fill out the form as required for the items you did inspect and check **“(NI) Not Inspected”** for those items you did not inspect. Explain that the item was not inspected because you conducted a single item inspection of the property. **Do not delete any required sections from the report.**

DO I NEED TO USE THE PROPERTY INSPECTION REPORT FORM FOR REINSPECTIONS?

NO. The Property Inspection Report Form is not required when an inspector reinspects the property that was the subject of the original inspection and for same client.

PROPERTY INSPECTION REPORT FORM

<i>Name of Client</i>	<i>Date of Inspection</i>
<i>Address of Inspected Property</i>	
<i>Name of Inspector</i>	<i>TREC License #</i>
<i>Name of Sponsor (if applicable)</i>	<i>TREC License #</i>

PURPOSE OF INSPECTION

A real estate inspection is a visual survey of a structure and a basic performance evaluation of the systems and components of a building. It provides information regarding the general condition of a residence at the time the inspection was conducted. *It is important* that you carefully read ALL of this information. Ask the inspector to clarify any items or comments that are unclear.

RESPONSIBILITY OF THE INSPECTOR

This inspection is governed by the Texas Real Estate Commission (TREC) Standards of Practice (SOPs), which dictates the minimum requirements for a real estate inspection.

The inspector IS required to:

- use this Property Inspection Report form for the inspection;
- inspect only those components and conditions that are present, visible, and accessible at the time of the inspection;
- indicate whether each item was inspected, not inspected, or not present;
- indicate an item as Deficient (D) if a condition exists that adversely and materially affects the performance of a system or component **OR** constitutes a hazard to life, limb or property as specified by the SOPs; and
- explain the inspector's findings in the corresponding section in the body of the report form.

The inspector IS NOT required to:

- identify all potential hazards;
- turn on decommissioned equipment, systems, utilities, or apply an open flame or light a pilot to operate any appliance;
- climb over obstacles, move furnishings or stored items;
- prioritize or emphasize the importance of one deficiency over another;
- provide follow-up services to verify that proper repairs have been made; or
- inspect system or component listed under the optional section of the SOPs (22 TAC 535.233).

RESPONSIBILITY OF THE CLIENT

While items identified as Deficient (D) in an inspection report DO NOT obligate any party to make repairs or take other actions, in the event that any further evaluations are needed, it is the responsibility of the client to obtain further evaluations and/or cost estimates from qualified service professionals regarding any items reported as Deficient (D). It is recommended that any further evaluations and/or cost estimates take place prior to the expiration of any contractual time limitations, such as option periods.

Please Note: Evaluations performed by service professionals in response to items reported as Deficient (D) on the report may lead to the discovery of additional deficiencies that were not present, visible, or accessible at the time of the inspection. Any repairs made after the date of the inspection may render information contained in this report obsolete or invalid.

REPORT LIMITATIONS

This report is provided for the benefit of the named client and is based on observations made by the named inspector on the date the inspection was performed (indicated above).

ONLY those items specifically noted as being inspected on the report were inspected.

This inspection IS NOT:

- a technically exhaustive inspection of the structure, its systems, or its components and may not reveal all deficiencies;
- an inspection to verify compliance with any building codes;
- an inspection to verify compliance with manufacturer's installation instructions for any system or component and DOES NOT imply insurability or warrantability of the structure or its components.

NOTICE CONCERNING HAZARDOUS CONDITIONS, DEFICIENCIES, AND CONTRACTUAL AGREEMENTS

Conditions may be present in your home that did not violate building codes or common practices in effect when the home was constructed but are considered hazardous by today's standards. Such conditions that were part of the home prior to the adoption of any current codes prohibiting them may not be required to be updated to meet current code requirements. However, if it can be reasonably determined that they are present at the time of the inspection, the potential for injury or property loss from these conditions is significant enough to require inspectors to report them as Deficient (D). Examples of such hazardous conditions include:

- malfunctioning, improperly installed, or missing ground fault circuit protection (GFCI) devices and arc-fault (AFCI) devices;
- ordinary glass in locations where modern construction techniques call for safety glass;
- malfunctioning or lack of fire safety features such as smoke alarms, fire-rated doors in certain locations, and functional emergency escape and rescue openings in bedrooms;
- malfunctioning carbon monoxide alarms;
- excessive spacing between balusters on stairways and porches;
- improperly installed appliances;
- improperly installed or defective safety devices;
- lack of electrical bonding and grounding; and
- lack of bonding on gas piping, including corrugated stainless steel tubing (CSST).

Please Note: items identified as Deficient (D) in an inspection report DO NOT obligate any party to make repairs or take other actions. The decision to correct a hazard or any deficiency identified in an inspection report is left up to the parties to the contract for the sale or purchase of the home.

This property inspection report may include an inspection agreement (contract), addenda, and other information related to property conditions.

INFORMATION INCLUDED UNDER "ADDITIONAL INFORMATION PROVIDED BY INSPECTOR", OR PROVIDED AS AN ATTACHMENT WITH THE STANDARD FORM, IS NOT REQUIRED BY THE COMMISSION AND MAY CONTAIN CONTRACTUAL TERMS BETWEEN THE INSPECTOR AND YOU, AS THE CLIENT. THE COMMISSION DOES NOT REGULATE CONTRACTUAL TERMS BETWEEN PARTIES. IF YOU DO NOT UNDERSTAND THE EFFECT OF ANY CONTRACTUAL TERM CONTAINED IN THIS SECTION OR ANY ATTACHMENTS, CONSULT AN ATTORNEY.

ADDITIONAL INFORMATION PROVIDED BY INSPECTOR

Page 2 of ____

Report Identification: _____

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
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I. STRUCTURAL SYSTEMS

☐ ☐ ☐ ☐

A. Foundations

Type of Foundation(s):

Comments:

☐ ☐ ☐ ☐

B. Grading and Drainage

Comments:

☐ ☐ ☐ ☐

C. Roof Covering Materials

Types of Roof Covering:

Viewed From:

Comments:

☐ ☐ ☐ ☐

D. Roof Structures and Attics

Viewed From:

Approximate Average Depth of Insulation:

Comments:

☐ ☐ ☐ ☐

E. Walls (Interior and Exterior)

Comments:

☐ ☐ ☐ ☐

F. Ceilings and Floors

Comments:

☐ ☐ ☐ ☐

G. Doors (Interior and Exterior)

Comments:

☐ ☐ ☐ ☐

H. Windows

Comments:

☐ ☐ ☐ ☐

I. Stairways (Interior and Exterior)

Comments:

☐ ☐ ☐ ☐

J. Fireplaces and Chimneys

Comments:

☐ ☐ ☐ ☐

K. Porches, Balconies, Decks, and Carports

Comments:

☐ ☐ ☐ ☐

L. Other

Comments:

Page 3 of ____

Report Identification: _____

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
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II. ELECTRICAL SYSTEMS

☐ ☐ ☐ ☐ **A. Service Entrance and Panels**

Comments:

☐ ☐ ☐ ☐ **B. Branch Circuits, Connected Devices, and Fixtures**

Type of Wiring:

Comments:

☐ ☐ ☐ ☐ **C. Other**

Comments:

III. HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS

☐ ☐ ☐ ☐ **A. Heating Equipment**

Type of Systems:

Energy Sources:

Comments:

☐ ☐ ☐ ☐ **B. Cooling Equipment**

Type of Systems:

Comments:

☐ ☐ ☐ ☐ **C. Duct Systems, Chases, and Vents**

Comments:

☐ ☐ ☐ ☐ **D. Other**

Comments:

IV. PLUMBING SYSTEMS

☐ ☐ ☐ ☐ **A. Plumbing Supply, Distribution Systems and Fixtures**

Location of water meter:

Location of main water supply valve:

Static water pressure reading:

Type of supply piping material:

Comments:

☐ ☐ ☐ ☐ **B. Drains, Wastes, and Vents**

Type of drain piping material:

Comments:

☐ ☐ ☐ ☐ **C. Water Heating Equipment**

Energy Sources:

Capacity:

Comments:

Page 4 of ____

Report Identification: _____

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
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☐ ☐ ☐ ☐ **D. Hydro-Massage Therapy Equipment**
Comments:

☐ ☐ ☐ ☐ **E. Gas Distribution Systems and Gas Appliances**
Location of gas meter:
Type of gas distribution piping material:
Comments:

☐ ☐ ☐ ☐ **F. Other**
Comments:

V. APPLIANCES

☐ ☐ ☐ ☐ **A. Dishwashers**
Comments:

☐ ☐ ☐ ☐ **B. Food Waste Disposers**
Comments:

☐ ☐ ☐ ☐ **C. Range Hood and Exhaust Systems**
Comments:

☐ ☐ ☐ ☐ **D. Ranges, Cooktops, and Ovens**
Comments:

☐ ☐ ☐ ☐ **E. Microwave Ovens**
Comments:

☐ ☐ ☐ ☐ **F. Mechanical Exhaust Vents and Bathroom Heaters**
Comments:

☐ ☐ ☐ ☐ **G. Garage Door Operators**
Comments:

☐ ☐ ☐ ☐ **H. Dryer Exhaust Systems**
Comments:

☐ ☐ ☐ ☐ **I. Other**
Comments:

Page 5 of ____

Report Identification: _____

I=Inspected

NI=Not Inspected

NP=Not Present

D=Deficient

I	NI	NP	D
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VI. OPTIONAL SYSTEMS

☐ ☐ ☐ ☐ **A. Landscape Irrigation (Sprinkler) Systems**

Comments:

☐ ☐ ☐ ☐ **B. Swimming Pools, Spas, Hot Tubs, and Equipment**

Type of Construction:

Comments:

☐ ☐ ☐ ☐ **C. Outbuildings**

Comments:

☐ ☐ ☐ ☐ **D. Private Water Wells** (A coliform analysis is recommended.)

Type of Pump:

Type of Storage Equipment:

Comments:

☐ ☐ ☐ ☐ **E. Private Sewage Disposal Systems**

Type of System:

Location of Drain Field:

Comments:

☐ ☐ ☐ ☐ **F. Other Built-in Appliances**

Comments:

☐ ☐ ☐ ☐ **G. Other**

Comments:

Page 6 of ____

**THE TEXAS REAL ESTATE COMMISSION (TREC) REGULATES
REAL ESTATE BROKERS AND SALES AGENTS, REAL ESTATE INSPECTORS,
EASEMENT AND RIGHT-OF-WAY AGENTS,
AND TIMESHARE INTEREST PROVIDERS**

**YOU CAN FIND MORE INFORMATION AND
CHECK THE STATUS OF A LICENSE HOLDER AT
WWW.TREC.TEXAS.GOV**

**YOU CAN SEND A COMPLAINT AGAINST A LICENSE HOLDER TO TREC
A COMPLAINT FORM IS AVAILABLE ON THE TREC WEBSITE**

**TREC ADMINISTERS THE REAL ESTATE RECOVERY TRUST ACCOUNT WHICH MAY BE
USED TO SATISFY A CIVIL COURT JUDGMENT AGAINST A BROKER, SALES AGENT, OR
EASEMENT OR RIGHT-OF-WAY AGENT, IF CERTAIN REQUIREMENTS ARE MET.**

**REAL ESTATE INSPECTORS ARE REQUIRED TO MAINTAIN ERRORS AND OMISSIONS
INSURANCE TO COVER LOSSES ARISING FROM THE PERFORMANCE OF A REAL ESTATE
INSPECTION IN A NEGLIGENT OR INCOMPETENT MANNER.**

**PLEASE NOTE: INSPECTORS MAY LIMIT LIABILITY THROUGH PROVISIONS IN THE CONTRACT
OR INSPECTION AGREEMENT BETWEEN THE INSPECTOR AND THEIR CLIENTS. PLEASE BE
SURE TO READ ANY CONTRACT OR AGREEMENT CAREFULLY. IF YOU DO NOT UNDERSTAND
ANY TERMS OR PROVISIONS, CONSULT AN ATTORNEY.**

**IF YOU HAVE QUESTIONS OR ISSUES ABOUT THE ACTIVITIES OF
A LICENSE HOLDER, THE COMPLAINT PROCESS, OR THE
RECOVERY TRUST ACCOUNT, PLEASE VISIT THE WEBSITE OR CONTACT TREC AT**



TEXAS REAL ESTATE COMMISSION

P.O. BOX 12188

AUSTIN, TEXAS 78711-2188

(512) 936-3000

CN 1-5

Helpful Links

Inspector Rules (including SOPs)

<https://www.trec.texas.gov/agency-information/rules-and-laws/trec-rules#sectionchapter.r>

Pocket SOP

<https://www.trec.texas.gov/forms/inspector-sop-printable-version>

Online Pocket SOP



Texas Real Estate Inspector Committee

<https://www.trec.texas.gov/about-commission/inspector-committee>

Property Inspection Report (Standard Report Form)

<https://www.trec.texas.gov/forms/inspection-report-form>

Consumer Protection Notice

<https://www.trec.texas.gov/forms/consumer-protection-notice>

Disciplinary Actions

<https://www.trec.texas.gov/apps/disciplinary-actions/?page=1>

FAQ's

<https://www.trec.texas.gov/public/frequently-asked-questions>

TREC News and Articles

<https://www.trec.texas.gov/news-articles>

Commission & Committee Meeting Schedules

<https://www.trec.texas.gov/apps/meetings/>