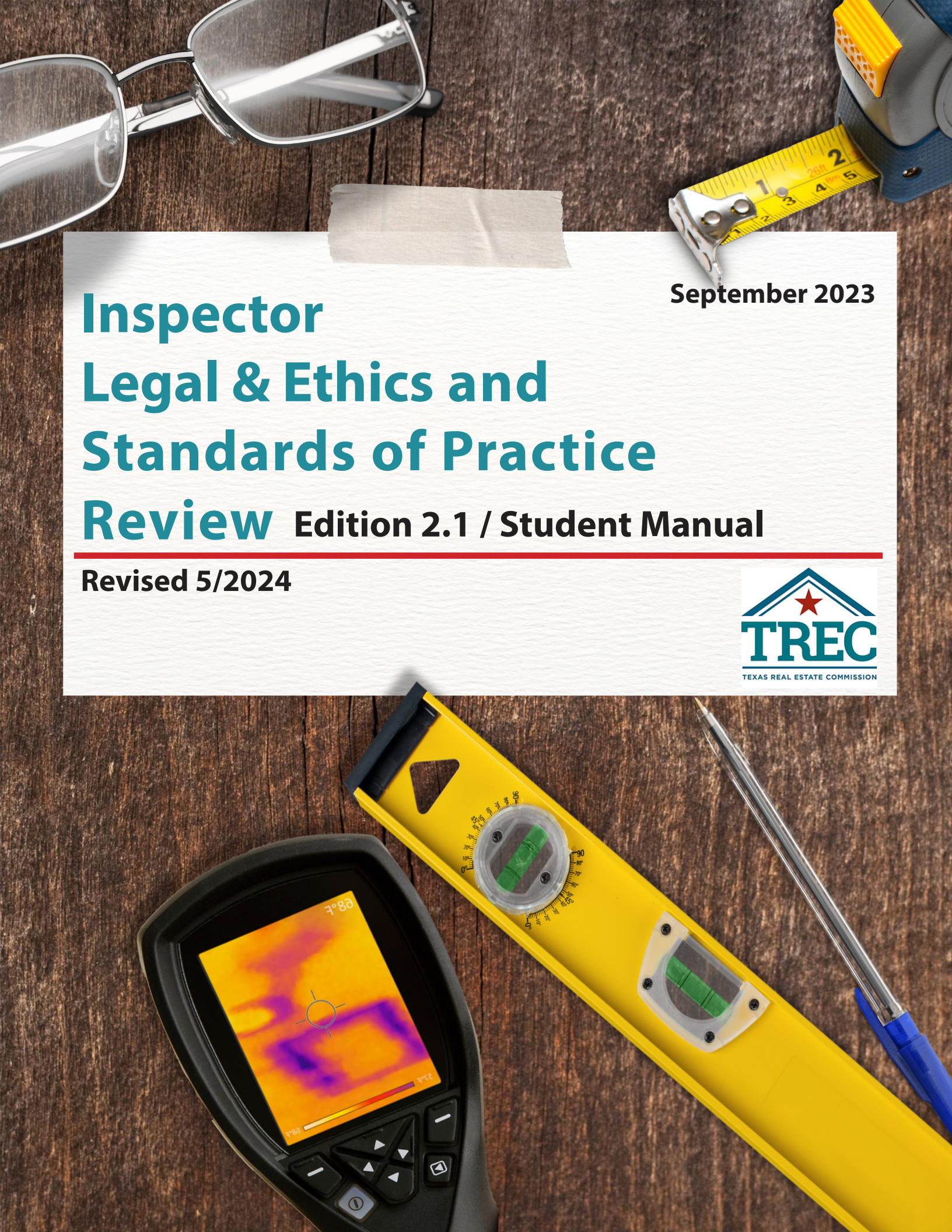

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Module 1

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 Form.
- ► 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.

Overview

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 A contains the REI 7-6 form.

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 (SOPs). The first two pages of the report include important information for the inspector and client to understand regarding the inspection, such as:

- The Client's and Inspector's Information;
- The Purpose of an Inspection;
- Responsibility of the Inspector;
- Responsibility of the Client;
- Report Limitations;
- Notice Concerning Hazardous Conditions or Deficiencies, and Contractual Agreements; and
- 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

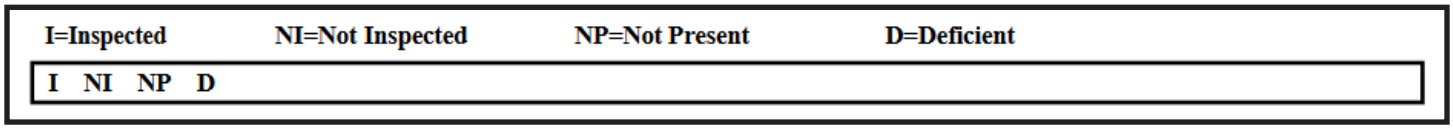
II. Electrical Systems

III. Heating, Ventilation, and Air Conditioning Systems (HVAC)

IV. Plumbing Systems

V. Appliances

VI. Optional Systems



Completing the Standard Report Form

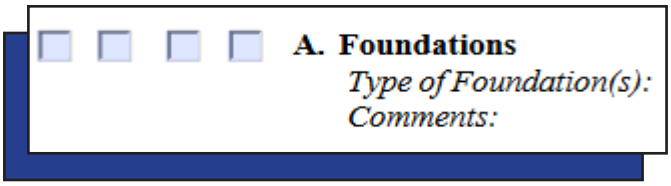
The top section of the report form identifies four potential findings and defines them as:

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." 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 systems 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 breakdown 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. It is laid out for the inspector within the report form above the word "Comment". 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 Texas Standards of Practice (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 crawl space 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.

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

> *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

Accessible or Inaccessible

Cosmetic

Deficiency or Deficient

Performance or Perform

Determine

Without using Specialized Tools


TREC PROPERTY INSPECTION REPORT FORM

Without using Specialized Procedures

Limited Visual Survey

Basic Operation of the Systems and Components

General Condition

At the Time of Inspection

Parts, Components, & Systems

The conditions or materials are hazardous to the health or safety of the inspector

Conditions beyond the control of the inspector reasonably prevent inspection of any item.

ADDITIONAL KEY WORDS AND PHRASES

ARE ANY OF THESE WORDS OVERUSED OR ABUSED?

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 warrantying anything
- Stating the anticipated life span of a system or component

Inspector Conduct During an Inspection

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

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

Below are examples of inappropriate conduct or behavior.

- 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.

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 the 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.
- A 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 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 anti-oxidant 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.

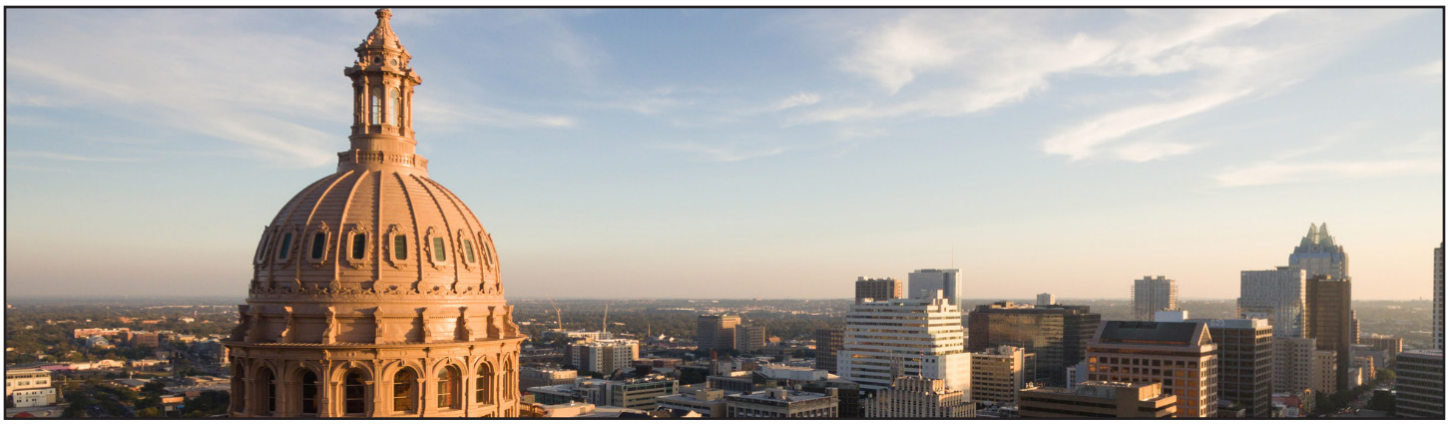
Result: The inspector acknowledged that he was incorrect in stating that the whole house was wired with aluminum wiring. The inspector did call the seller's agent and apologized for the mistake. The inspector received a reprimand and paid $500 administrative penalty for a violation of 1102.301, Tex. 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 2

Satatutory & Rules Update – SOPs and Departure



Learning Objectives

After this module you will be able to:

- Understand your responsibility to know and practice according to current rules.
- Recall statutory changes to the Texas Real Estate License Act and Inspector Act.
- Explain when the SOPs apply.
- Recall circumstances when departure provisions apply.
- Demonstrate understanding of how the Standard Inspection Report Form is used.

Overview

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 (Texas Occupations Code) 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.

TREC Rules Publication

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 Effective February 1, 2022

As a reminder, effective February 1, 2022, changes were made to the TREC rules that affected inspectors, including the Standard Report Form (TREC Form REI 7-6) and several components of the Standards of Practice.

§535.223 Standard Inspection Report Form REI 7-6 *(effective 2/01/2022)*

The rule and the new form clarify the requirement that when an inspector uses computer software or other means to produce an inspection report that the resulting report must comply with current reporting requirements.

The TREC Property Inspection Report form should be the first report the client sees. A software that has the software's branded version of the report first, and the standard report form at the end of the report or included as a hyperlink within the software's report is not compliant with TREC rules.

§535.227 Standards of Practice: General Provisions *(effective 2/01/2022)*

The rule requires an inspector to use all reasonable and appropriate tools necessary to comply with the requirements of the Standards of Practice. The rule also specifies that if an inspector provides services beyond the scope of the Standards of Practice as part of a real estate inspection, that inspector must be competent to provide those services. Additionally, the rule clarifies that an inspector cannot perform an inspection for a client until they have notified the client of any systems or components the inspector does not routinely inspect that are otherwise required by the Standards of Practice. Finally, the rule includes a new definition for "gas distribution system" to conform to changes made by proposed amendments to §535.231, Standards of Practice: Minimum Inspection Requirements for Plumbing Systems.

§535.228 Standards of Practice: Minimum Inspection Requirements for Structural Systems *(effective 2/01/2022)*

This rule change updates requirements for garage doors to better reflect current building code requirements and clarify reporting requirements for gas fixtures and appliances listed under this section to conform to changes made by amendments to §535.331, Standards of Practice: Minimum Inspection Requirements for Plumbing Systems.

§535.229 Standards of Practice: Minimum Inspection Requirements for Electrical Systems (effective 2/01/2022)

The changes update the requirements for electrical systems to better reflect current building code requirements.

§535.230 Standards of Practice: Minimum Inspection Requirements for Heating, Ventilation, and Air Conditioning Systems *(effective 2/01/2022)*

The revisions clarify what an inspector is required to do and report when determining if a HVAC system is functioning properly. The rule change also clarifies reporting requirements for gas fixtures and appliances listed under this section to conform to changes made in §535.231, Standards of Practice: Minimum Inspection Requirements for Plumbing Systems.

§535.231 Standards of Practice: Minimum Inspection Requirements for Plumbing Systems *(effective 2/1/2022)*

This rule change requires an inspector to report the material used for water supply lines, water drain lines, and the gas distribution system. This rule specifies that certain items are required to be reported only when visible. The inspector is required to report water pressure exceeding 80 PSI. The rule change also moves the requirements related the inspection of a gas distribution system that is currently contained in various other sections of the Standards of Practice to a new subsection (d) of this section and clarifies reporting requirements for gas fixtures and appliance listed under this section to conform to the new subsection (d).

§535.232 Standards of Practice: Minimum Inspection Requirements for Appliances *(effective 2/01/2022)*

This change moves the general exception to the requirements of this section to the end of the rule to mirror other sections of the Standards of Practice. It also updates the requirements for bathroom ventilation to better reflect current building code requirements, specifies that certain items are required to be reported only when visible and clarifies the reporting requirements for gas fixtures and appliance listed under this section to conform to changes made by proposed amendments to §535.231, Standards of Practice: Minimum Inspection Requirements for Plumbing Systems.

§535.233 Standards of Practice: Minimum Inspection Requirements for Optional Systems *(effective 2/1/2022)*

The rule change adds an optional reporting requirement for built-in appliances, specifies that an inspector is not required to report on the performance of an underground zone of a sprinkler system, and clarifies that a private sewage system is not limited to a septic system.

Additional Key TREC Rule Changes

§535.223 Standard Inspection Report Form *(effective 3/7/2023)*

Single-system inspections were removed from the list of exemptions. This means that the requirements in §535.223 apply to those inspections.

§535.223 Standard Inspection Report Form *(effective 3/7/2023)*

When multiple boxes are checked for a particular item on the Property Inspection Report Form (REI 7-6), the inspector must also include an explanation as to the reason for checking multiple boxes in the applicable section of the report form.

Inspector Termination Form *(effective 11/7/2022)*

The Notice of Apprentice/Real Estate Inspector Termination Form (REI-TS-0) is to be used by inspectors to terminate an apprentice or real estate inspector relationship. The form also includes a line for the sponsoring inspector to fill in the inspector's DBA, so TREC staff can remove that information from the terminated inspector's records.

§535.222 Inspection Reports *(effective date 05/16/2023)*

§535.222(a)(2) states that inspectors shall "deliver the report to the client within two days of receipt of the payment for the inspection…" The amendment to this rule addresses the situation where payment is received prior to the scheduled inspection and requires the report to be delivered to the client within two days of the completion of the inspection.

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

Overview

Section 1102.058 of the TOC requires the Texas Real Estate Inspector Committee (Inspector Committee) 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. This will be discussed further in Module 4 – Hot Topics.

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 a multifamily 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.

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.

EXERCISE: Match the departure from the SOPs with the inspector's reason.

Departure	Reason
Not walking the roof and using a drone to inspect a roof	The inspector is not required to operate the temperature and pressure relief valve if the operation of the valve in the inspector's reasonable judgement, cause damage to person or property.
Not testing a T&P valve on a water heater	The 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 the roof.
Not removing the electrical service panel cover	The inspector is not required to remove the cover where hazardous as judged by the inspector
Not entering the crawl spaces	The inspector is not required to enter attics or unfinished spaces where openings are less than 22 inches by 30 inches and headroom is less than 30 inches
Not entering attics	The inspector is not required to 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

DISCUSSION

- Discuss any examples when an inspector does not have to use the standard report form.
- Discuss the difference in application of the departure provisions based on whether it is a routine departure or applied to a specific home inspection.
- Does the fact that optional items are in the SOPs imply that TREC inspectors are qualified to perform inspections on all optional items?
- What are some reasons an inspector may choose not to walk a roof?

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).

Module 3

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.
- Recall consumer notice requirements.
- Describe examples of compliant advertising.
- Describe the duties and responsibilities owed to the client.
- Recall best practices to enhance inspector-client relationships.
- Explain inspector independence.
- Discuss best practices in obtaining client permission.

Overview

Licensed inspectors must continue to 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."

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; and
- New felony conviction
- New conviction of misdemeanor involving fraud.

Duties of a Sponsoring Inspector: What You Need to Know

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 inspector or real estate inspector may only be sponsored by a single licensed professional inspector.

(b) A change in sponsorship must be reported to the Commission immediately. If the sponsorship ended because the professional inspector terminated the sponsorship, the professional inspector must immediately notify the apprentice or real estate inspector in writing. If the sponsorship ended because the apprentice inspector or real estate inspector terminated the sponsorship, the apprentice inspector or real estate inspector must immediately notify the professional inspector in writing.

Note: Either the sponsoring inspector, or the apprentice/real estate inspector must submit the Termination of Sponsorship form 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 §535.226.

(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 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 inspection reports prepared by an apprentice to ensure the apprentice is following the Texas 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 inspector's reports on a regular basis.

Consumer Information

Consumer Protection Notice (Form ID CN 1-5)

Inspectors must provide notice to consumers and service recipients regarding the ability to file a complaint with TREC and the availability of the Inspector Recovery Fund. 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 B.

TREC rules require inspectors to post the notice in a readily noticeable location in each place of business maintained by the inspector (TREC rule §535.220). If an inspector has a business website, they are also required to post a link to the notice on the website. The link must be in a readily noticeable place on the homepage of the website and must be labeled as follows:

- "Texas Real Estate Commission Consumer Protection Notice" in at least a I0-point font; or
- "TREC Protection Notice" in at least a 12-point font.

Section 1102.364 (TOC) also allows additional methods to provide the required notice to consumers about the Inspector Recovery Fund if an inspector does not have a place of business or a business website.

No place of business? No website?

There are three other ways in which the inspector can provide notice, which may be included:

- on a written contract for the inspector's services;
- on a brochure that the inspector distributes; or
- on an invoice or receipt for the inspector's services.

Advertising

There are a number of different ways that inspectors can advertise their business and services, and there are a number of different target markets inspectors can focus on to achieve the highest impact for their advertising dollar. However, guidelines must be followed by inspectors when they advertise their services.

TREC rule §535.221 details guidelines for inspector advertising. Advertisements include 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. These include but are not limited to the following types of communication:

- inspection reports;
- business cards, invoices;
- signs, brochures;
- email;
- websites, including pop-ups and chat features;
- electronic transmissions;
- text messages;
- purchased telephone directory display; and
- advertising by newspaper, radio, and television.

Additionally, TREC rule §535.44 prohibits an inspector from using the TREC seal or logo in any advertisement or on the inspector's website. *An advertisement for a professional inspector must include:*

- the license holder's name or assumed business name; and
- license number

An advertisement for a real estate or apprentice inspector must include:

- license holder's name or assumed business name;
- license number;
- name or assumed name of the sponsoring professional inspector; and
- statement indicating the person is sponsored by a professional inspector.

Website Advertising

An inspector's website must display the license number of each inspector whose name appears on the website. License number(s) must at least be on a single prominent page, such as an "About Us" page. For social networking purposes, it is sufficient for the inspector's license number to be on the main or profile page.

The Commission may reprimand, suspend, or revoke the license of a person who is found to have engaged in false or misleading advertising or has failed to comply with provisions of this section.

Ethics

Inspectors must have "integrity beyond that of a person involved in ordinary commerce." An inspector must conduct their business with a high standard of professionalism, while maintaining independence from any outside influence. 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 TREC rule that defines the client.

Subchapter R - Real Estate Inspectors

§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, an 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. They do not have the ability to enforce the rules all over the state of Texas. If one 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.

Inspector Duties and Disciplinary Action

A licensed inspector is expected to maintain a high standard of professionalism, independence, objectivity, and fairness while performing inspections in a real estate transaction. The inspector is also expected to uphold, maintain, and improve the integrity, reputation, and practice of the home inspection profession. The inspector should protect and promote the interest of the client to the best of the inspector's ability and knowledge, recognizing that the client has placed their trust and confidence in the inspector (22 Tex. Admin. Code §535.220).

TREC is responsible for enforcing Chapter 1102, Texas Occupations Code, including ensuring that consumers of real estate inspection services are protected from negligent or incompetent inspections performed by inspectors. (See Tex. Occ. Code §1101.151, and §1102.301). TREC is authorized to impose administrative penalties, to issue reprimands, and to suspend, probate, or revoke a license. (See Tex. Occ. Code §§1102.401, 1102.403, and 22 Tex. Admin. Code §535.219).

In general, Section 535.227 of the Standards of Practice, allows inspectors to use "reasonable judgment" in determining a deficiency. Inspectors are also allowed some discretion in reporting their observations regarding the condition of the property and can provide other useful information to their client. The inspector works for the client and the report is prepared with the client's interests in mind. Accordingly, the client relies on the inspector's knowledge and expertise. On occasion, a client will find issues with the inspection of an item, the non-reporting of a deficiency, or with other information contained in the report.
Frequently, the client will act on a belief that the inspector acted improperly or performed the inspection negligently and will file a complaint against the inspector. Although most complaints filed with the Commission come from the inspector's own client, anyone can file a complaint alleging a violation.

Each license holder who is the subject of a jurisdictional complaint is given a copy of the complaint and an opportunity to respond to the allegations made in the complaint. Sometimes an investigator may be assigned to investigate the complaint. The investigator may determine that additional information is needed and can conduct phone interviews with witnesses. After the investigation is completed, an enforcement staff attorney reviews the available evidence and determines whether there has been a violation and whether disciplinary action is appropriate.

Here are some tips that may help you avoid a potential complaint and possible disciplinary action:

- Take some time to answer your client's questions and review your report for completeness and errors. The inspector should be mindful that sometimes a client may not fully understand the scope or limitations of a particular inspection and may not fully grasp the significance of some technical issues or items reported by the inspector. When performing an inspection, not only is it important for the inspector to comply with the SOPs, but the inspector should take a moment to consider how the report is written, whether the report makes it clear what are the reported deficiencies versus other informational comments. Does the information in your report help the client understand the present condition of the home to make an educated decision or perhaps obtain further evaluations?
- If a complaint is filed against you and the Commission requests your response, do not ignore it. The Real Estate License Act, Sections 1101.652(a)(4) and (a-1)(2), requires you to provide information or other documents requested by the Commission in connection with a real estate transaction or the Commission's investigation of a complaint. Failure to timely provide a full and complete response could constitute a violation of these sections and form an independent basis for the initiation of disciplinary proceedings against you.
- Use the current report form: One of the most common and easily avoidable violations is when an inspector uses a report form that is out of date (The current form to be used is REI 7-6). It is the responsibility of the inspector to make sure the inspection report is reported on the "Standard Inspection Report Form." If an inspector uses computer software or other means to produce an inspection report, the inspector must reproduce the text of the standard form verbatim and the spacing, borders and placement of text must be identical to the standard form.
- Check the correct box: The inspector must check the Deficient (D) box 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 TREC Standards of Practice [See Section 535.227(b)(5), "Deficiency"]. Failure to check the correct box could lead to disciplinary action.
- Unlicensed Activity: Continuing to perform inspections at a time when your license is expired or inactive can have serious consequences. Although, TREC notifies license holders of the need to renew their license prior to the expiration, some license holders fail to renew their license in a timely manner. Also, be mindful that if your sponsor's license expires, the sponsored inspector's license will go into inactive status. A license holder is able check the status of their license by simply visiting TREC's website.

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?

Module 4
Hot Topics

Learning Objectives:

After this module you will be able to:

- Recognize issues for inspectors and consumers associated with simplified or "walk-through" inspections.
- Identify boxes to check on the Property Inspection Form REI 7-6 based upon specific scenarios.
- Consider inspection situations that could result in causing harm or creating deficiencies and how to avoid them.
- Explain the difference between inspection panels and service panels and what is required for inspection in the SOPs.
- Understand the value of using thermal imaging during an inspection.

What Inspectors Should Know About Simplified "Walk-Through" Inspections

A home inspection is a vital part of the homebuying process. It is an opportunity for buyers to get a comprehensive evaluation of the property's condition before they commit to purchasing it. The inspection can help buyers identify any major issues with the property.

In a seller's market, buyers may be tempted to waive an inspection entirely, or hire an inspector to do a simplified walk-through inspection of the subject property to identify issues while the buyers take notes.

In a buyer's market, sellers might think of getting a similar inspection that will make their listing stand out by disclosing information up front, so buyers will know what to expect.

Inspectors should be cautious when it comes to performing a partial, or abbreviated inspection of any type. Inspectors are required to follow TREC's Real Estate Inspector Standards of Practice (SOPs) and report their findings to their client on the mandatory inspection report form REI 7-6 .

These requirements are in place to provide information to consumers on the general condition of a residence, as well as point out any important safety concerns. Walk-through inspections do not typically follow these requirements and as such, inspectors who perform walkthrough inspections can face disciplinary actions by the Texas Real Estate Commission for conducting them in an improper manner.

Challenges of Walk-Through Home Inspections

- Limited Time: A walk-through inspection is usually limited in time, which means the inspector may not be able to identify every issue with the property.
- Limited Access: The inspector may not have access to certain areas of the property, such as crawl spaces or attics, which could mean that issues in those areas go unnoticed.
- False Sense of Security: The buyer may feel a false sense of security if the inspection does not identify any major issues with the property. This could lead to costly repairs or unexpected problems down the road.
- Incomplete Assessment: A walk-through inspection may not provide a comprehensive assessment of the property's condition. It may only identify major issues, leaving smaller problems undiscovered.

A walk-through inspection can be a valuable tool for buyers to determine if they want to make an offer on a property, but it is important to remember that it has limitations. Buyers should not rely solely on a walk-through inspection to make their decision about purchasing a property. It is important to get a comprehensive and thorough inspection from a licensed TREC inspector, who has the time to properly inspect and access all areas of the property and can provide a detailed assessment of the property's condition. Overall, a walk-through inspection can provide valuable information to buyers on the front end, but it should be considered as just one part of the overall home-buying and inspection process.

The Standards of Practice apply when an inspector who is licensed by TREC accepts employment to perform any type of real estate inspection for a prospective buyer or seller of real property that is substantially completed.

Which Box Should I Check? Correctly Completing the REI 7-6

The focus of this section is to clarify situations in which certain checkboxes must be checked and provide some guidelines to create a measure of consistency among inspectors. Most importantly, these suggested best practices can make the report easier to read and understand for the client.

Let's start with some general guidelines.

Inspected – The (I) box should be checked any time the item is present and when any portion of that item is inspected. The only time the (I) box does not need to be checked is when the (D) box is checked, or when the (NP) box is checked due to the system not being installed at the home. Example: A home with no fireplace. (It is acceptable to have both the (I) box and the (D) box checked at the same time, but it is not required)

Not Inspected – The (NI) box should be checked when the item is present and part or all of the system could not be inspected in compliance with the SOPs. When the (NI) box is selected, a comment must be included in the report stating what was not inspected and the reason why it was not inspected.

In most cases, if an item is not present, it is only necessary to check the (NP) box. There is no need to check the (NI) box when the item is not present. The (NI) box should only be checked when an item is present but is not inspected.

Deficiency – The (D) box should be checked whenever a deficiency, as defined in the Standards of Practice is observed. Anytime the (D) box is selected, one or more comments describing the deficiency must be included in the report under the word "Comments."

Let's look at a few examples an inspector may encounter:

Example 1

An inspector is inspecting a house and is unable to access the attic because the home does not have an attic access, or the attic access is blocked. The inspector is still able to partially inspect the roof structure and attic by walking on the roof and inspecting some of the roof structural and attic components that are visible from the exterior inspection. In this situation, in the section 1-D "Roof Structure and Attics" section of the report, the (I) box should be checked since a portion of the roof structure and attic was inspected. The (NI) box should also be checked since the interior of the attic area was not inspected. The report should include a comment stating what was not inspected and the reason why it was not inspected. The (D) box would also be checked if a deficiency was noted in the roof structure and attic during the exterior inspection.

Example 2

An inspector is inspecting a home which has an oven that the inspector can inspect, but the cooktop is missing. In this case, both the (I) box and the (NP) box could be checked. The reason for the (NP) box to be checked in this scenario is that cooktops are specifically mentioned in section 5-D of the report "Ranges, Cooktops, and Ovens." A comment explaining that the cooktop is not installed at the time of the inspection is now required. If deficiencies were found, the (D) box would also be checked, along with comments

explaining the deficiencies that were observed. Let's look at the same situation in a different way. Suppose there is no power to the oven. Additionally, the inspector observes that a control knob is missing, and that the handle on the oven door is broken. In this situation, all four checkboxes could be checked. The (I) box because the oven was inspected, the (NI) box due to no power, the (NP) box due to the cooktop not being installed, and the (D) box due to the deficiencies observed on the oven.

Example 3

An inspection is performed when the outside temperature is 40°. The inspector can visually inspect the condenser unit outside and the other parts of the air conditioning system on the interior of the home, but due to the low temperature, the air conditioner is not tested. In this situation, the (I) box and the (NI) box could both be checked since the air conditioning components were visually inspected, but the system was operated. Again, as in the examples above, the (D) box should be checked if deficiencies are noted.

Example 4

Another situation that might be encountered is when a component is missing from a system in the home. Perhaps the homeowner has removed the burner elements for the cooktop of a range. In this situation, (NP) does not apply because the system is still present in the home. The inspector should check the (D) box at a minimum and add a statement in the comment section of the system stating that one or more of the burner elements were missing at the time of the inspection.

Example 5

An inspector is performing a home inspection on a home that has a sprinkler system; however, the control panel for the sprinkler system is missing. The inspector is unable to run the system but is still able to inspect the visible parts of the system. In this situation, the (I) box would be checked because some components were inspected, the (NI) box would be checked because the system was not run, and the (D) box would be checked because of the missing control box.

In conclusion, for each item to be inspected, there are four boxes that can be checked directly under the appropriate legend and additional room is available to enter 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 appropriate section of the report form.

It is important to remember that the purpose of the report is to document the inspector's findings, giving the reader an easy and efficient way to understand the condition of the property. The checkboxes are a visual reference as to what the reader can expect to see within the body of the inspection report for each system. Checking the appropriate boxes as they apply to each section is just one important part of the report writing process.

Discovering Deficiencies vs. Causing Deficiencies

Home inspectors are trained to examine a property's structural components, systems, and overall condition to identify deficiencies required to be reported by the SOPs. The home inspector's job is to observe and report any deficiencies and/or limitations that they encounter at the time of the inspection. All licensed inspectors should give the client a comprehensive and thorough inspection report showing the home's current condition, thus allowing the client to make an informed decision.

A visual inspection is the first line of defense in identifying any obvious defects in a system. A competent home inspector will have the training and experience to identify warning signs such as signs of leaks, rust, cracks, and damaged or missing components. By identifying these issues before operating the system, the inspector can avoid causing damage and advise the client on

what repairs or maintenance may be necessary to prevent further damage.

Photo credit: Tom Langley

Based upon what you see in this photo, should the inspector run the dishwasher?
The answer is NO. During the visual inspection of the dishwasher the drain line was found to be disconnected from the garbage disposal. The inspector should report that the drain line was disconnected and inform the client that the dishwasher was not operated because the drain line was disconnected.

If an inspector does not do a visual inspection of the system and its components and the inspector simply starts the dishwashing cycle during the inspection, a leak and possible damage could occur.

While home inspectors have the best intentions, their actions can inadvertently result in a deficiency or damage during an inspection. Inspectors might perform tasks that cause a deficiency such as disassembling a vent stack (not required) in order to remove an inspection cover on a gas furnace. When the inspector reassembles the vent stack, the inspector may not line it back up correctly - resulting in carbon monoxide and other byproducts venting to the interior of the structure. This can be avoided by adding a limitation to the inspection report stating the inspection cover could not be removed due to the vent stack.

If an inspector observes an immediate safety concern during an inspection, the SOPs allow the inspector to notify the homeowner that such a concern exists, without prior approval from the buyer. If the inspector observes a water leak, gas leak, or other safety concern that poses a risk to the occupant, the inspector should report this to the homeowner and/or their agent. The picture below shows a flue vent that has been separated. This poses a safety hazard and should be disclosed to the homeowner.

Photo credit: Mike Morgan

Home inspectors are not perfect, and mistakes can happen. Inspectors should be familiar with the SOPs and refer to them as necessary. If the inspector causes damage or a deficiency, they

are responsible for the cost of repairing or replacing the damaged component, unless the damage or deficiency was due to the normal operation of a system required by the SOPs. Consider a garage door operator that opens properly when tested and quits working the next time the button is pushed to lower the door. The inspector did nothing to cause the operator to quit, it was just its time to stop functioning and the inspector happened to be the last one to push the button.

In conclusion, home inspectors are responsible for observing and providing thorough inspection reports for their clients. A good inspector will minimize the risk of creating deficiencies or damage during the course of the inspection by having the necessary experience, training and tools to perform a quality inspection.

Case Study: Leaving Running Water Unattended Can Cause Significant Damage!

Facts: While testing a shower pan in the master shower, the inspector turned on the shower and placed a sink stopper with a removable center over the drain. The inspector left the water running in the shower, which caused water to overflow and spill out of the shower. The incident caused water damage to the carpet and other locations in and around the master bedroom.

The inspector stated that she was not aware that the shower did not have a shower curb when she started her test of the shower pan. The inspector further stated that the water did not properly drain and overflowed because of the lack of a curb and improper slope to the shower pan.

The water damage to the property delayed the closing of the sale and caused the buyers to incur additional moving expenses.

The Commission considered some factors in mitigation. Among other things, the inspector purchased a floor drying fan to mitigate the damage, and the inspector's insurance partially reimbursed the buyers and sellers for the damages.

Analysis: When performing an inspection, the inspector should be monitoring for leaks and not leave running water unattended.

Result: The inspector was found to have been negligent pursuant to 1101.301, Texas Occupations Code. The inspector was formally reprimanded and ordered to complete at least 10 hours of approved continuing education on plumbing.

Inspection Covers and Service Covers: What is the Difference?

Overview

An inspection cover is typically a smaller panel or cover that provides limited access to the internal components of an appliance or system. It is designed to allow visual inspection of key components such as burners, coils, heating elements, plumbing drains, etc. Inspection covers provide access for inspection, minor maintenance, or cleaning tasks such as replacing a filter or cleaning a sensor. Inspection covers are usually located in easily accessible areas of the appliance housing or walls with one or more screws, and can be removed without the need for special tools.

On the other hand, a service cover is a larger panel or cover that provides more extensive access to the internal components of the appliance or system. It is designed to allow technicians or service personnel the ability to perform more complex maintenance and repairs, such as replacing major components or cleaning the inside of the appliance. Service covers may be located in a more difficult-to-reach area of the appliance housing or could be semi-permanently sealed and may require specialized tools or procedures to remove.

While both inspection covers and service covers serve the purpose of providing access to the internal components of the appliance, they are typically designed for different levels of maintenance and repair tasks. Inspection covers are intended for quick and easy access to perform routine maintenance tasks or visual inspections of components, while service covers are designed for more extensive maintenance or repair work that may require more time and effort to complete.

TREC rule §535.227(b) of the SOP states that an inspector is not required to "disassemble items other than covers or panels intended to be removed for inspection."

Examples

Example 1:
To inspect the burners and to verify the flame color, the front cover of a furnace cabinet (inspection cover) will need to be removed. The inspection cover may have one or more screws that will need to be removed to get the cover off. Note that the number of fasteners does not determine if the cover is an inspection cover or a service cover. Once the outer cover is removed, any cover within the cabinet is considered a service cover and is typically not removed by the home inspector.
If an inspection cover is not or cannot be removed TREC rule §535-227(f) of the departure provisions must apply, and the inspector must add a limitation statement to each section of the REI 7-6 form that the limitation applies to. The limitation statement must explain what was not inspected and the reason why.
It is important to understand TREC rule §535.227(f)(C)(iii) of the departure provisions which states, "An inspector may depart from the inspection of a component or system required by the standards of practice only if the actions of the inspector may cause damage to the property."

Example 2:
When visually inspecting the outside of the electrical panel cabinet and the dead front cover (the outer cover of the panel protecting the internal components), the inspector notices that the dead front cover has been painted and the paint is covering the edges of the cover at the wall. If the inspector removes the screws and simply pulls to remove the cover off the wall, damage to the wall and paint may occur. Therefore, the inspector should use reasonable care when removing the cover.

DISCUSSION

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? The panel shown below is in the living area (an enclosed garage) of a home. Would you have removed the cover? Do you use a tool to cut around the cover to remove the inspection cover? Do you choose not to inspect the electrical panel cabinet?

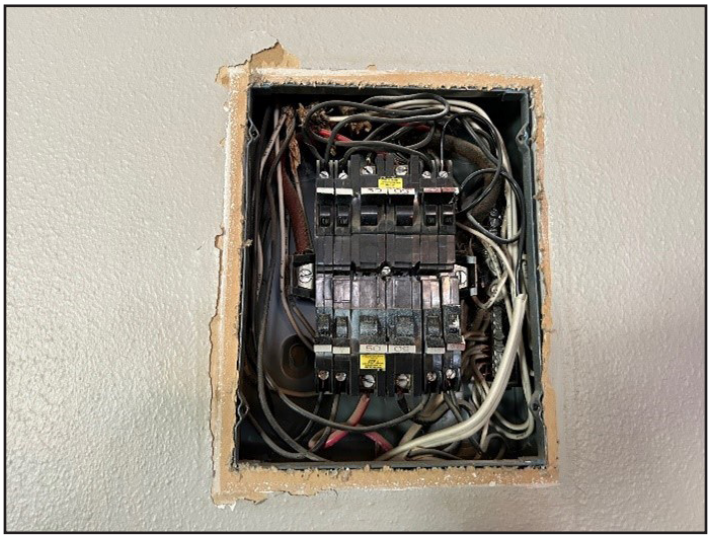


Photo credit: Mike Morgan

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.

Most inspectors have encountered covers that were covering something important and were required to be inspected by the SOPs. Understanding when to make a reasonable attempt to remove inspection covers is important. While every situation is unique, in most situations, it is the responsibility of the home inspector to remove access panels and/or inspection covers that they encounter during a home inspection. Doing this will help the inspector to provide the client with the most thorough and complete inspection possible.

Thermal Imaging

Thermal imaging is a technology that allows for the detection of temperature variations in a particular area. This technology is often used in home inspections to identify potential issues that may not be visible to the naked eye. Thermal imaging equipment is listed in the SOPs in rule §535.227(a)(i)(1) under specialized equipment.

The colors in the thermal image of the attic below show the variations of surface temperatures between 73.6 degrees and 88.4 degrees.

Photo credit: Tom Langley

The SOP is clear when stating that the inspector is “not required to use specialized equipment,” This does not mean the inspector can’t use specialized equipment. The only requirement for the use of thermal imaging equipment is that the inspector must possess the competency required to do so, as stated under TREC rule §535.227(a)(4)

One of the major benefits of thermal imaging during a home inspection is the ability to detect issues with insulation. Poor insulation can lead to energy inefficiency, which can result in higher energy bills for homeowners. Thermal imaging can detect areas where insulation is missing or not properly installed, allowing for the homeowner to address the issue and improve energy efficiency.

Thermal imaging can also be used to detect issues with electrical systems. Overheating electrical components can be a sign of potential problems, such as faulty wiring or overloading of circuits. A thermal imaging camera can detect these issues by detecting the abnormal heat generated by the electrical components.

Thermal imaging cameras are a great tool when used to detect issues with HVAC systems. A thermal imaging camera can detect areas where there may be a leak in ductwork, which can result in decreased efficiency and increased energy costs.

Thermal imaging can also be a great tool to detect issues related to water. A plumbing leak or a roof leak can be difficult to detect visually, but a thermal imaging camera can detect temperature variations that may help to identify an issue related to water.

Overall, thermal imaging is a valuable tool for home inspectors as it allows them to detect issues that may not be visible to the naked eye. No, it is not x-ray vision, but this technology can help inspectors provide homeowners with a more thorough inspection by identifying and addressing potential problems early on. This can save the homeowner time, money, and headaches in the long run.

Module 5
Structural Systems SOPs

Learning Objectives

After this module, you will be able to:

- Understand how the definitions in the TREC rules work together.
- Explain the need to have a written opinion on foundation performance.
- Recognize when a retaining wall is required to be inspected.
- Understand the difference between the inspector's performance-based inspection and a code inspection.

Overview

The information in this section of the course doesn't 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.

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 listed above.

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.

(A) Hazard to the inspector

Inspectors should use reasonable judgment when considering what is hazardous to the inspector. Nothing in the SOPs requires 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 crawl space 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.

(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.

(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 (discussed in Chapter 4); moisture meters; gas or carbon monoxide detection equipment; environmental testing equipment and devices; elevation determination devices; or ladders ca-

pable of reaching surfaces over one story above ground surfaces.

Inspectors are required to use basic tools to perform an inspection and use reasonable judgment regarding the tools necessary for performing an inspection that meets the requirements of the SOPs.

It is reasonable to say that an inspector should utilize 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. Chapter 4 discusses not causing damage during an inspection and includes considerations about removing inspection or service panels during an inspection.

(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.

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.

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 §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.

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; Interior Walls, Ceilings, Floors and Doors; and Exterior and Interior Glazing of the SOPs, as examples.

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 indicators such as concrete cracks, brick cracks and out of square doors. The inspector may choose to recommend that the client have the foundation further evaluated by a structural engineer.

Case Study: A Wavy Roof Reveals Rafter Spreading

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. While inspecting the foundation, he reported signs of structural movement based on the wavy, sagging roof.

At the time of inspection, several roof rafters were visibly cracked and nails had pulled out. However, the inspector did not report these deficiencies while inspecting the attic and roof structure. After the purchase, the buyer found that the roof rafters were spreading and needed to be repaired.

Analysis: The inspector should carefully inspect the condition of the roof, and report as deficient any visible signs of roof rafter spreading.

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. The inspector was also required to complete additional continuing education for violating 22 Tex. Admin. Code § 535.228(d)(1)(B)(ii), failing to report as deficient deflections in or depressions in the roof surface related to adverse performance of framing and decking and deficiencies in installed framing members and decking.

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 would 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 realize 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.

Retaining Walls

TREC rule §535.228(a)(1)(D)(iii) addresses retaining walls related to foundation performance.

A question often asked by inspectors is “when is a retaining wall required to be inspected, and when is the inspector not required to inspect a retaining wall?” Perhaps the simplest way for the inspector to answer this is to ask the following question: “If this retaining wall fails to adequately support the soil behind it, can the home’s foundation be adversely affected?” If the answer is “yes,” then the inspector is required to inspect the retaining wall and to report any defects observed with the retaining wall.

The two types of retaining walls are structural walls and landscape walls. Inspectors are not required to inspect landscape walls. The “45-degree rule” is useful in determining whether a retaining wall is a structural wall or a landscape wall. If the retaining wall falls outside of the 45-degree rule, the wall is considered a landscape wall and not required to be inspected according to the SOPs.

If the retaining wall falls within the 45-degree rule, the inspector must perform a visual inspection of the retaining wall and report on visible defects.

Another way to simply determine if a retaining wall is supporting the foundation is if the horizontal distance from the foundation to the retaining wall is less than the height of the retaining wall, then it is supporting the foundation. If the horizontal distance from the foundtaion to the retaining wall is greater than the height of the retaining wall, then it is not supporting the foundation.

Below is a diagram of a structural wall versus a landscaping wall

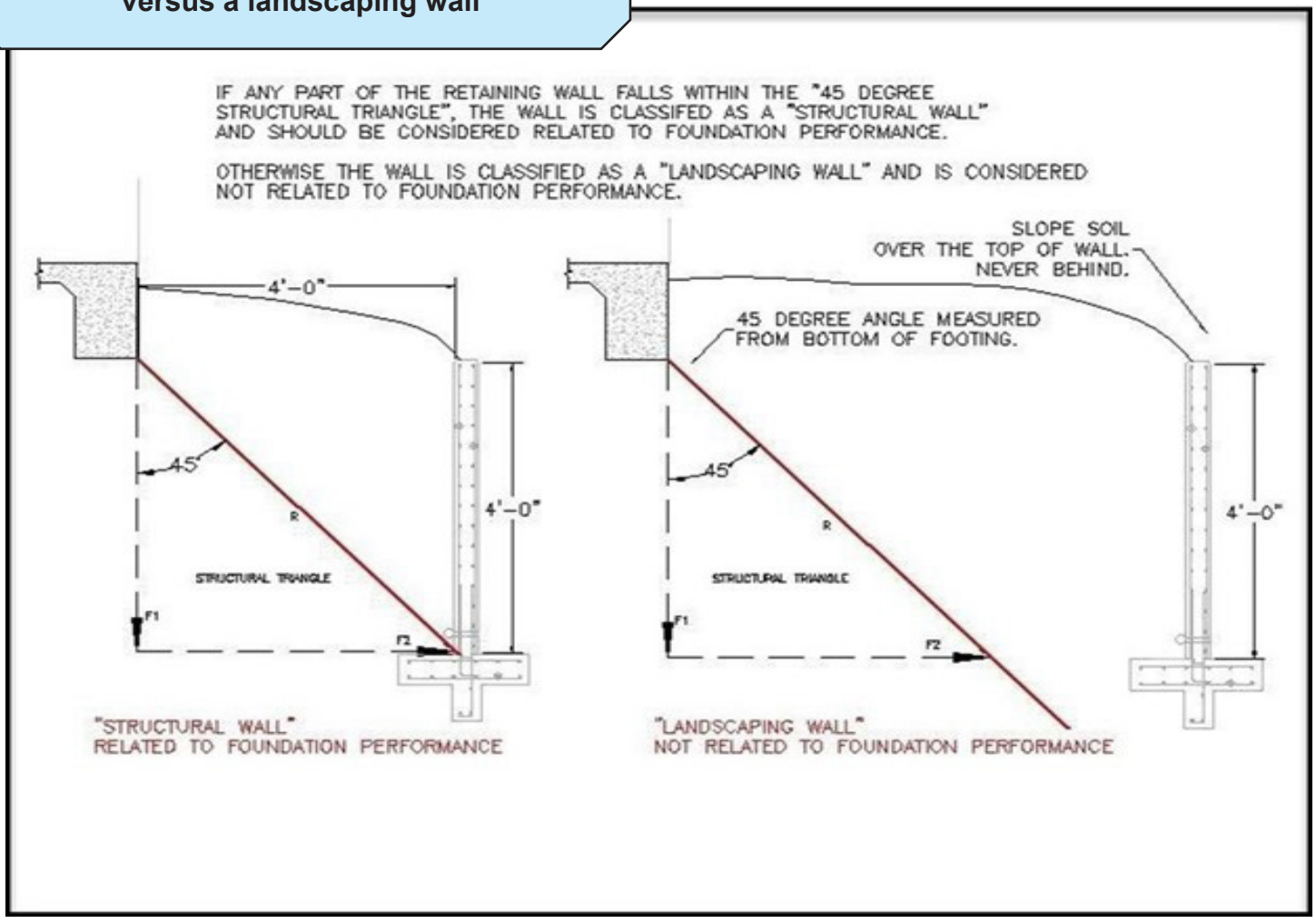


Illustration Courtesy of Lighthouse Engineering - Michael Gandy, PE

Below is an example of a structural wall that an inspector must inspect.

Photo credit: Brian Murphy

Below is an example of a landscape wall that does not require inspection.

Photo credit: Brian Murphy

DISCUSSION

Is the photo below a retaining wall or a landscaping wall? Is it required to be inspected?

Photo credit: Brian Murphy

Exterior and Interior Glazing

TREC rule §535.228(g)(1)(A) requires an inspector to report as deficient insulated windows that are obviously fogged or display other evidence of broken seals.

What does obviously fogged mean?

According to www.merriam-webster.com/thesaurus, synonyms for “obviously” include, but are not limited to clearly; distinctly; discernably; visibly; and positively.

Evidence of lost seals can change from day to day, hour to hour and climate to climate. The sun may shine directly on an insulated window and cause moisture to develop between the two panes of glass. As the sun moves and no longer shines on the window, the moisture dissipates, leaving no trace of the lost seal.

The SOPs require an inspector to look for visible moisture, crystallization, rust stains and cloudiness between the panes of glass and report as deficient when they are observed.

However, the SOPs do not require an inspector to exhaustively inspect insulated windows for evidence of broken seals or identify specific locations of damage.

Porches, Balconies, Decks and Carports

According to TREC rule §535.228(j)(1)(A)(ii) and (iii), an inspector must inspect attached balconies, carports and porches; and abutting porches, decks, and balconies that are used for ingress and egress. However, what does “attached” and “abutting” mean for the purpose of an inspection? Merriam-Webster defines attached as connected or joined to something. By this definition, if a balcony, carport, or porch is physically attached to the structure, the SOPs require the inspector to perform a visual inspection of the components and report visible deficiencies. If a carport is close to the house but not attached, inspectors are not required by the SOPs to inspect the detached carport or provide information related to the condition of the carport.

Merriam-Webster defines “abut” or “abutting” as something that borders on or leans on for support.

Example of a patio with egress/ingress

Photo Credit: Jennifer Grube

Example of a patio without egress/ingress

Photo Credit: Tom Langley

The SOPs require an inspector to inspect abutting porches, decks, and balconies that are used for ingress and egress.

With that in mind, an inspector is not required to inspect a porch, patio, or deck in close proximity to the structure that is not used for entering or exiting the structure.

Below are examples of two patios. One patio contains egress and ingress, the other does not provide egress and ingress.

DISCUSSION

1. Discuss the differences and provide examples of accessible vs. not accessible.
2. Share some examples of written foundation performance opinions.
3. Discuss the difference between a performance-based inspection and a code inspection.

Structural Systems Overview - §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.

Module 6

Heating, Ventilation, Air Conditioning (HVAC) SOPs

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.

Overview

When compared to many other systems in the home, the HVAC system is a relatively new development. However, it has become an expectation to 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 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 module 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 SOP, such as size and efficiency. To provide 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, gone into 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 the air 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.

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 vise-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.

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 at every inspection. This should be done regardless of how hot it is outside.

Case Study: Not A Heat Pump? Not A Problem

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 crawl space 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 crawl space. 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 or damage that may affect airflow.

Below are examples of deficiencies in ductwork.

Photo credit: Tom Langley

Photo credit: Mike Morgan

Photo credit: Mike Morgan

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.

Return air openings should be located near the center of the home and close to the floor. In a large home, or in a home with split living areas, multiple return air openings may be required.

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 the properly sized, that it is properly installed, and that it is reasonably clean.

Case Study: It Was Only a Matter of Degrees

Facts: A licensed professional inspector was hired by a buyer to perform an inspection. The inspector inspected the cooling system and reported the following:

Today's temperature differential (Delta-T): 13 Degrees. This component appears to be performing adequately at the time of this inspection. It is achieving an operation, function, or configuration consistent with accepted industry practices for its age.

The report also included a general notice to the client where the inspector defined what he considered to be an acceptable range: Temperature differential readings are a fundamental standard for testing the proper operation of the cooling system. The normal acceptable range is considered approximately between 15 to 22 degrees Fahrenheit.

Shortly after moving in the buyer found that the AC was not cooling properly and an HVAC company determined that the evaporator coils were damaged and needed to be replaced.

Analysis: The inspector's opinion of adequate performance seemed to be in conflict with his own description of an acceptable performance range. The Commission determined that absent any other reported factors, the 13-degree 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 and administrative penalty of $500 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.

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.

Photo Credit: Steven Rinehart

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.

DISCUSSION

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

HVAC Standards Overview - §535.230

The standard covers three primary areas: heating equipment, cooling equipment; and ducts systems, chases, and vents.

(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 & Appliances SOPs

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.
- Identify how to inspect for proper backflow prevention on dishwashers.
- Summarize how to properly inspect the safety features on a garage door operator.

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.
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 ground.

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.

Swimming pool equipment must be electrically bonded together so that all equipment such as pumps and heaters will be at the same voltage. This lowers the risk of electrocution if someone comes in contact with two different pieces of pool equipment at different voltages simultaneously. When devices and equipment are properly bonded, they cannot be at different voltages.

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. 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
Connect the equipment to Earth	Connect 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 ssame voltage
Functions principally during normal operation of the system	Functions principally when there is a fault or a problem wiht 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.
2. the failure of operation of ground-fault 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.

Testing GFCI Devices

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 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;
- outdoors;
- crawl spaces;
- basements;
- kitchen countertops;
- receptacles that re located within six feet of the outside edge of a sink, shower or bathtub;
- laundry areas;
- 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 devices, 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;
- bedrooms;
- sunrooms;
- recreation rooms;
- closets;
- hallways; and
- laundry areas.

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.

The inspector should verify that each alarm is functional by pushing the built-in test button on each 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 an 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: Better Safe Than Sampled

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.

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 conditioner 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, 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.

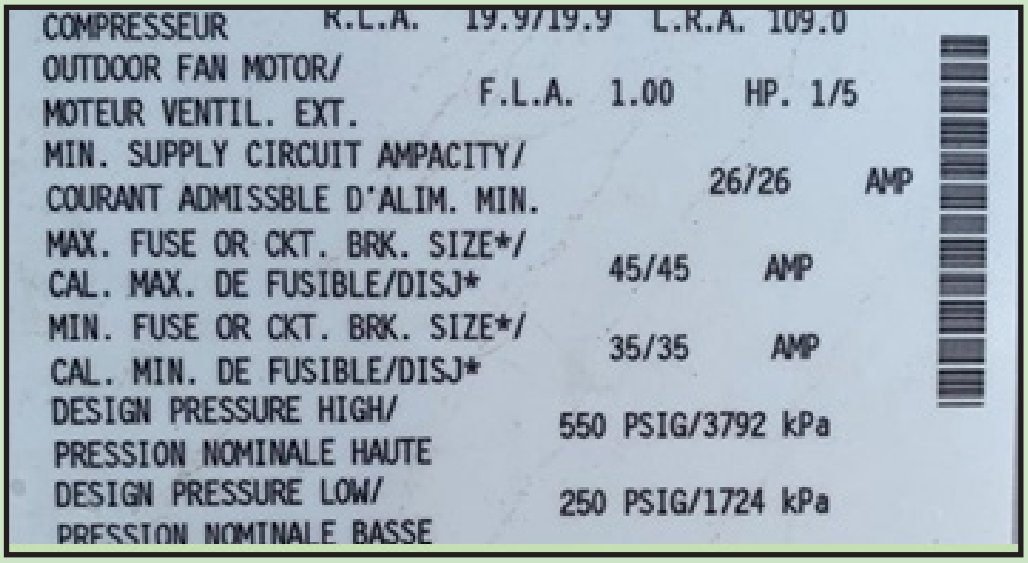
If an inspector does not understand this concept and doesn't know how to interpret the numbers on the condenser unit label, then they may assume that #10 wire must be protected by a circuit breaker no larger than 30 amps. The numbers in the above table do not necessarily apply to air conditioning condenser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

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.



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.

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.

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).

Electrical Standards Overview - §535.229

The standard covers two areas: service entrance and panels; and branch circuits, connected devices, and fixtures.

(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

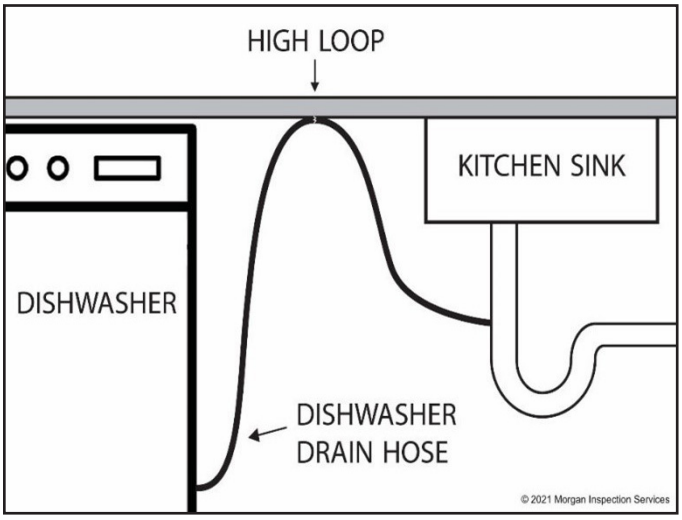
Dishwasher Backflow Prevention

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.

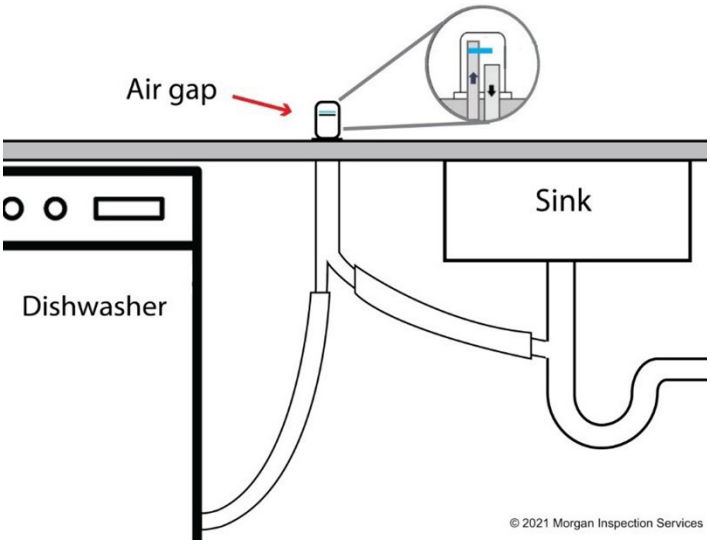
High Loop

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 to- ward 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 dishwash- er 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.

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.

Requirements for Bathroom Exhaust Fans

Proper ventilation is a critical part of a properly functioning house. After a hot shower, a bathroom mirror is typically so fogged up that it is not useable for several minutes. There is also the same amount of moisture on just about every surface in the bathroom. It is just much more visible on the mirror.

If not adequately dealt with, moisture can and will wreak havoc on a home over a period of time. It can cause rot and mold and can create a condition more conducive to termite activity. For this reason, the inspector should ensure that there is adequate bathroom ventilation.

With regard to mechanical exhaust systems or bathroom exhaust fans and heaters, the SOPs requires an inspector to 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.

When are exhaust fans required, and when are they not required to be installed in a bathroom?

Current building standards require that all bathrooms have some type of ventilation. They must either have an operable window or an exhaust fan that properly discharges outside the home. The SOPs require inspectors to report as deficient an exhaust fan that does not properly discharge outside the home.

GROUP EXERCISE

Break into groups and discuss the following items for about five minutes. Each group will report their findings back to the class. It may be best to assign only one or two questions to each group so that each topic can be discussed in more depth.

1. Discuss the proper way to test a garage door operator auto-reversing feature. Discuss the risks associated with testing the auto-reversing feature.
2. Discuss various ways cross connections or backflow can occur with dishwashers and food waste disposers. Discuss things that the inspector should look for on these two appliances to ensure that cross connections do not occur.
3. Discuss in your group how a dishwasher should be inspected.
4. List the items/features that those in your group commonly look for when inspecting an oven/range. (Items that are not specifically listed in the SOPs may be included in this list.)
5. Discuss best practices concerning inspecting microwaves.

Appliance Standards Overview - §535.232

The standard covers eight major areas: (1) dishwashers; (2) food waste disposers; (3) range hood & exhaust systems; (4) ranges, cooktops, & ovens; (5) microwave ovens; (6) mechanical exhaust vents & bathroom heaters; garage door openers; and (8) dryer exhaust systems.

(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 & Optional Systems SOPs

Learning Objectives

After this module you will be able to:

- Identify typical locations of active plumbing leaks.
- Recognize the purpose of water pressure reducing valve and devices.
- Understand water heater concerns that inspectors should be aware of.
- 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.

Plumbing

Overview / History

Indoor plumbing is a modern convenience that most Americans take for granted, but it wasn't always so widely available. The introduction of indoor plumbing in the United States can be traced back to the mid-19th century, when cities began to experience rapid population growth and overcrowding.

In the early days of indoor plumbing, it was a luxury reserved for the wealthy. However, as the technology improved and became more affordable, it began to be more widely adopted by the middle class. By the turn of the 20th century, indoor plumbing was becoming more common in urban areas, and by the 1920s, it was considered a standard feature in new homes.

The widespread availability of indoor plumbing brought many benefits, including improved sanitation and hygiene, as well as greater convenience. Prior to the advent of indoor plumbing, people had to rely on outhouses or shared privies, which could be unsanitary and difficult to maintain. With indoor plumbing, people could have their own toilets and bathrooms in their homes, which greatly improved the overall health and well-being of the population.

In addition to improved sanitation, indoor plumbing also made it possible for people to have running water in their homes. This allowed for greater convenience, as people no longer had to rely on carrying water from a well or other source. Inspectors should be aware of plumbing conditions such as cross connections that may contaminate water systems or impact the client or community's health and safety . The client depends on the inspector to notify them if the plumbing installation is deficient. Deficiencies in a plumbing installation can not only cause property damage, but may make a client ill.

Overall, the introduction of indoor plumbing in the United States was a major step forward in terms of public health and convenience. It greatly improved the lives of many Americans, and it is now considered an essential part of modern living. This is why it is such an important part of an inspection.

The picture below shows a cross connection in a toilet tank

Photo Credit: Tom Langley

Plumbing Inspections

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 for proper ventilation: Ensure that all fixture drains have proper venting to prevent gases and odors from entering the home.
- 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.

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

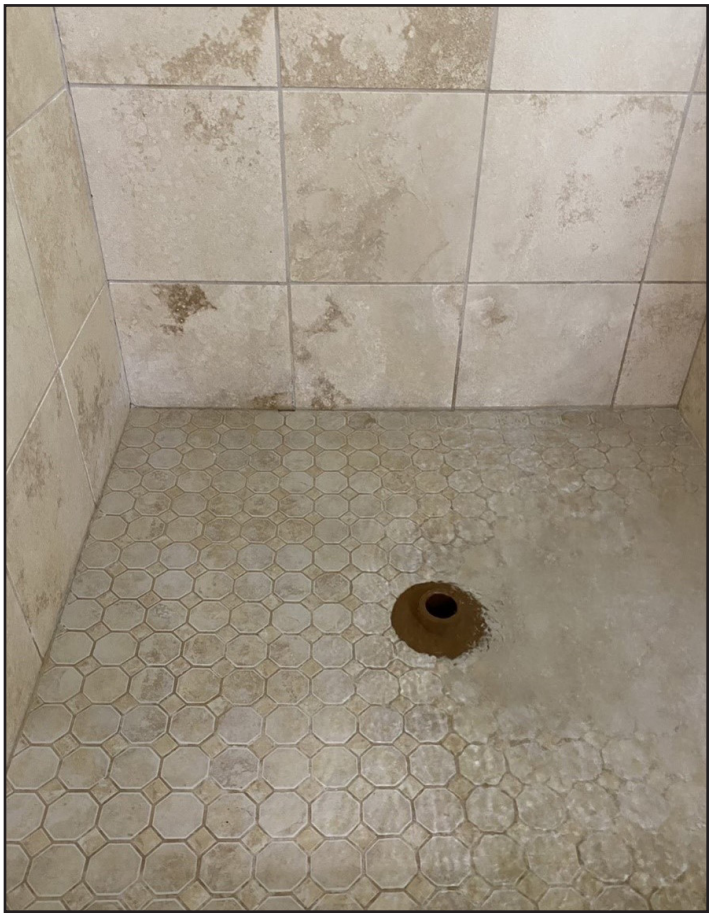


Photo Credit: Tom Langley

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.

The picture below is an example of an expansion tank at the water heater.

Photo Credit: Tom Langley

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 SOP Rule §535.231(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.

Tankless Water Heaters

Tankless water heaters have been around for more than 90 years, but they did not become viable alternatives to a standard tank unit until the 1970s. The efficiency of tankless systems continued to increase over the years and now many people install tankless water heaters to save energy—as well as space.

When inspecting tankless water heaters, it is important to remember that you must follow the SOPs (Rule §535.231 (b)) no differently than when inspecting a standard tank water heater.

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.

Photo Credit: Tom Langley

The diagram shows the valve closed and the valve open.

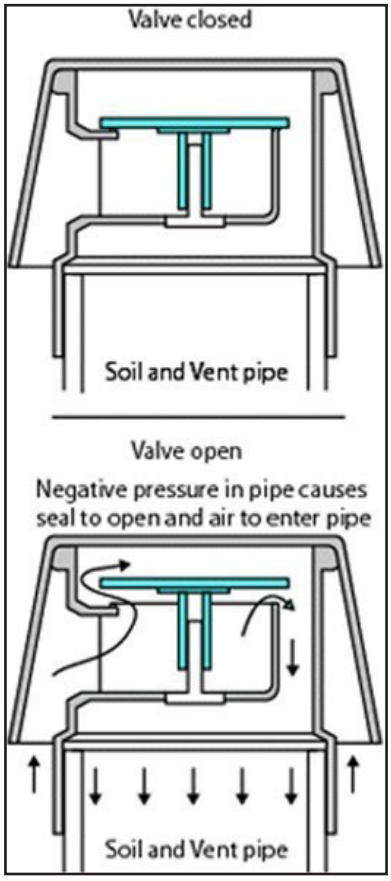


Diagram Credit: Brian Murphy

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

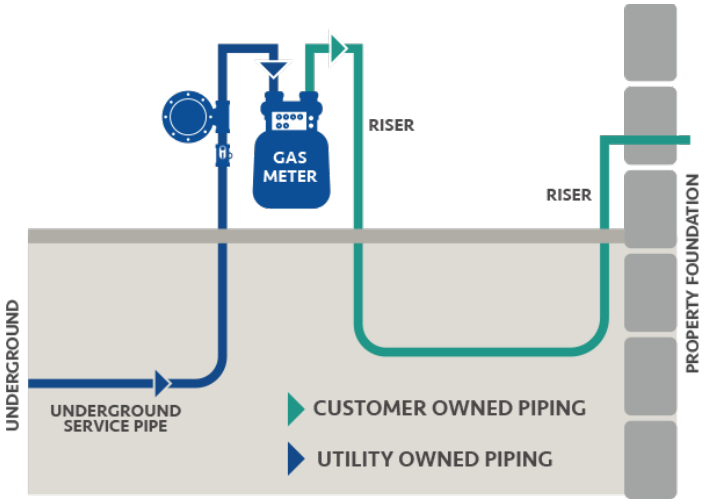


Diagram Credit: Tom Langley

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.

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.

Regulators are prone to leaks and should always be checked for leaks.

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.

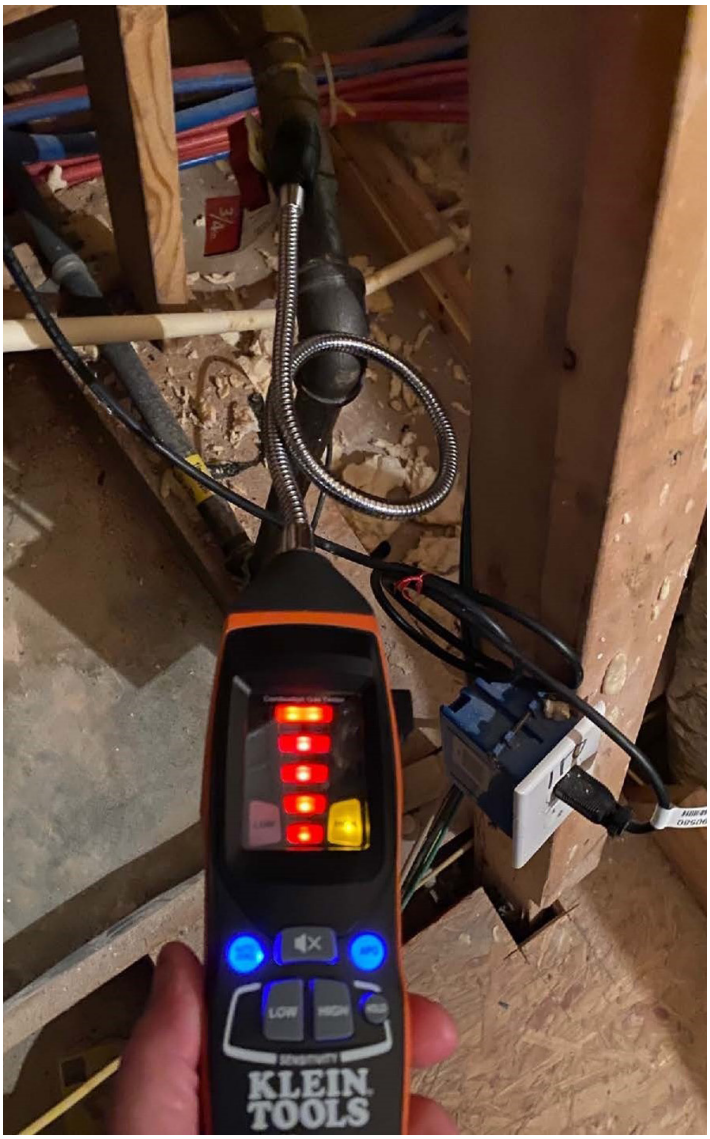


Photo credit: Tom Langley

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.

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?

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)(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 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 TPRV is advised or that it should be replaced and properly installed by a licensed professional plumber.

Plumbing Systems Standards Overview - Rule §535.231

The plumbing system SOPs cover four areas: plumbing systems, water heater, hydro-massage therapy equipment, and gas distribution systems.

(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 back-flow 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

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 afield closely related to those listed in optional systems.

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. Basic Sesame Street standard, note 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 during the initial assessment, 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.

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.

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.

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 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 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.

Other Built-in Appliances

The inspection of other built-in appliances not listed under §535.232 – Appliances 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.

Optional Systems Overview - §535.233

Note that an inspector I 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.

(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.

PROPERTY INSPECTION REPORT FORM INSTRUCTIONS

TEXAS REAL ESTATE COMMISSION

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 should be checked when a component or system is only partially inspected. 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.

Appendix B - Standard Report Form (REI 7-6)

PROPERTY INSPECTION REPORT FORM

Name of Client	*Date of Inspection*
Address of Inspected Property	
Name of Inspector	*TREC License #*
Name of Sponsor (if applicable)	*TREC License #*

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).

RESPONSIBILTY 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.

REI 7-6 (8/9/21) Promulgated by the Texas Real Estate Commission · (512) 936-3000 · www.trec.texas.gov

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

Report Identification: _____

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

I	NI	NP	D

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:

Report Identification: _____

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

I	NI	NP	D

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:

Report Identification: _____

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

I	NI	NP	D

☐ ☐ ☐ ☐ **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:

Report Identification: _____

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

I	NI	NP	D

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:

Appendix C – Consumer Protection Notice (Form CN 1-5)

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

TREC

TEXAS REAL ESTATE COMMISSION

TEXAS REAL ESTATE COMMISSION

P.O. BOX 12188

AUSTIN, TEXAS 78711-2188

(512) 936-3000

CN 1-5

Appendix D – Notice of Apprentice/Real Estate Inspector Termination

Texas Real Estate Commission
P.O. Box 12188
Austin, Texas 78711-2188
(512) 936-3000 www.trec.texas.gov

Print Form

NOTICE OF APPRENTICE/REAL ESTATE INSPECTOR TERMINATION

Submit this form by email to documents@trec.texas.gov.

ALL INFORMATION MUST BE TYPED OR PRINTED IN INK.

Apprentice/Real Estate Inspector's Name as it appears on License

Apprentice/Real Estate Inspector's License Number

My sponsorship of the apprentice/real estate inspector listed above is terminated and I am no longer responsible for the inspector's professional actions. I have given the apprentice/real estate inspector written notice of this termination.

Sponsoring Inspector's Name

Sponsoring Inspector's License Number

Sponsoring Inspector's Signature *

Date

List the assumed business name or DBA that needs to be removed below:

PRIVACY NOTICE

In accordance with Chapter 559, Government code, the following notice about certain information laws and practices is given.

(1) With few exceptions, an individual is entitled on request to be informedabout the information that a state governmental body collects about the individual.

(2) Under Sections 552.021 and 552.023 of the Government Code, the individual is entitled to receive and review the information.

(3) Under Section 559.004 of the Government Code, the individual is entitled tohave the governmental body correct information about the individual that is incorrect.

REI-TS-0 (11/07/2022)

Appendix E – Basic Inspection Tools

TREC rule §535.227 explains that an inspection is a limited visual survey and basic performance valuation 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.

The inspection requires the use of reasonable and appropriate tools to satisfy the requirements of the standards of practice. Below are some examples of tools that an inspector might use to perform an inspection in accordance with the SOPs.

Ladder - capable of reaching one story roof [Rule§535.227(b)(1)(f)]

Screw drivers - for removing inspection covers and face plates on outlets and switches (if aluminum branch circuits are present) [Rule§535.227(b)(1)(D) & Rule§535.229(b)(C)(v)(II)]

Nut drivers - for removing inspection covers [Rule§535.227(b)(1)(D)]

Water pressure gauge - for checking water pressure [Rule§535.231(a)(B)(ii)]

Flashlight - to see in dark and low light areas [Rule§535.228(a) & Rule§535.228(d)]

Outlet Receptacle/GFCI tester - to test polarity and the operation of GFCI's [Rule§535.227(b)(C)(vii)(I)(II)(III)]

Voltage/continuity meter - for checking 250-volt outlets and bonding [Rule§535.229(b)(C)(viii) & Rule§535.229 (a)(G)(v)]

Voltage tester - to check abandoned wires for being energized, safety first!

Oven thermometer – to check oven for internal thermostat accuracy [Rule 535.232(d)(6)A)]

HVAC thermometer – to check A/C differentials and verify heating elements are working [Rule§535.230(b)(B)(I) & Rule§535.230(a)(2)(B)]

Roof pitch gauge – to determine the slope to make sure the proper roofing material is installed [Rule§535.228©(C)(iii)]

Tape measure for measuring, not guessing! [Rules§§§§535.228(a),535.228(c),535.228(d),535.228(f)]

According to TREC rule §535.227(C)(i) an inspection does not require the use of specialized equipment. This rule goes to list examples of equipment that is considered specialized.

Appendix F – 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-pocket-edition

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/property-inspection-report-0

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 Advisor

https://www.trec.texas.gov/news-articles

Commission & Committee Meeting Schedules

https://www.trec.texas.gov/apps/meetings/