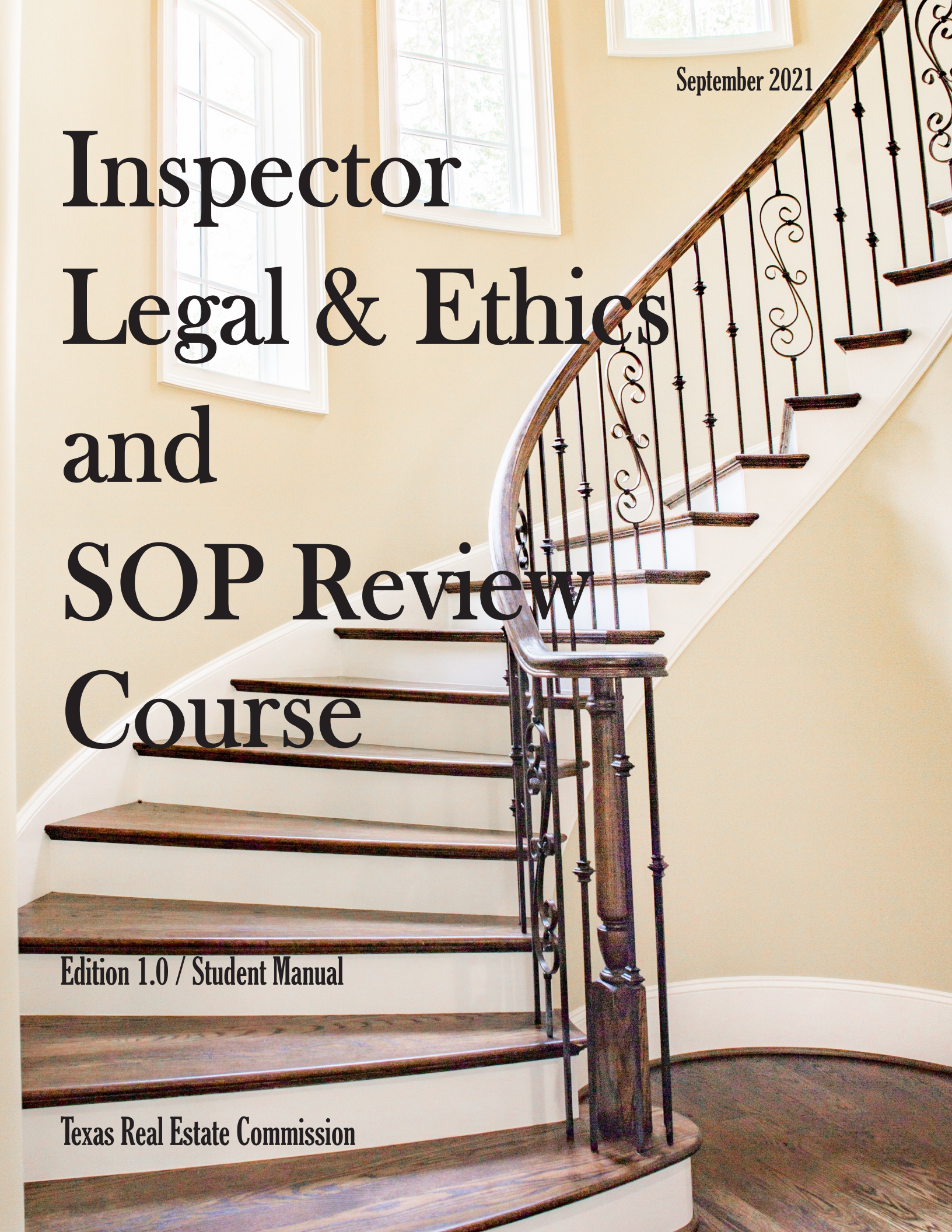

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Inspector Legal & Ethics and SOP Review Course

Edition 1.0 / Student Manual

Texas Real Estate Commission

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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 Report Form.

⇒ Discover terms and keywords to use to communicate findings in an informative 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, it is the written report that documents the inspection results and can be referenced weeks, months or even years after the inspection. It is the written record against which others will judge an inspector's work.

In Texas, use of the TREC Standard Inspection Report Form is required. Always refer to the TREC website to ensure you are using the most current form. See Appendix A. 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 reported exactly as it appears on the form. TREC rule §535.223 describes acceptable customizations that may be made.

The Standard Inspection Report Form

The Texas Standard Inspection Report contains more than just space for reporting the status of certain systems and components. The first two pages of the report, commonly referred to as "The Preamble", include important information for the inspector and client to understand regarding the inspection.

The first two pages of the report form include four elements:

1. The Client and Inspector's information;
2. The Purpose, Limitations and Inspector/Client Responsibilities;
3. The Texas Real Estate Consumer Notice Concerning Hazards or Deficiencies; and
4. Additional Information Provided by the Inspector (optional).

Speaking of refreshers…TREC rule §535.223 contains the requirements and deviations allowed on the Standard Inspection Report Form.

The rest of the report identifies the six systems of inspection.

I. I. Structural Systems

II. II. Electrical Systems

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

IV. IV. Plumbing Systems

V. V. Appliances

VI. VI. Optional Systems

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

I	NI	NP	D

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 to be inspected, there are four boxes that can be checked directly under the appropriate legend and additional room to write comments below the check boxes. More than one box for each item may be checked. 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 further explain the lack of an item. It may not be a problem if something is not present, such as no fireplace or chimney. However, the lack of a roof covering is a serious problem.

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 an item was inspected and there are no observed deficiencies to report. Inspectors are allowed, and in some cases required, to check more than one of the check boxes.

If an inspector finds an item Deficient, 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 cannot be inspected because it was buried, hidden, latent or concealed, "NI" is checked, and an explanation is required in the comments section as to why an item was not inspected. If an item is present on the property it must be inspected, unless the client agrees to the exclusion of the item or something prevents safe inspection of the item. If the client agrees to exclude an item from the inspection, it should be noted in the comments section for that item.

An inspector can check up to three applicable boxes. For example, an inspection of an oven could have three boxes checked. First, I (inspected) is checked for the overall visual inspection. If there was a broken knob for one of the burners, D (deficient) is checked. Since the performance of the fourth burner with the broken knob could not be inspected for performance, NI (not inspected) would be checked. An explanation should be provided in the comments section.

The comments section is used to report the condition and location of the deficient item. 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 scope of the inspection of a particular item. For example, when it is very hot outside, the heating system may only be operated briefly or not at all.

A list of components that are typically part of an inspection item can be included in the comments section. For example, one could include Kitchen, Bathroom #1, Bathroom #2, and Laundry area in the comments section of Plumbing Systems on the report form. It is not a good idea to use this space to include rarely found items, like bidets. Preprinted forms may be printed with room for several furnaces and related components, but not five furnaces, because you are not likely to find five furnaces in one structure on a regular basis.

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

The rest of the pages simply list the standard and optional items. You may have noticed that some items seem quite specific and others are rather general. Compare Dryer Exhaust Systems against Heating Equipment, for example. Heating equipment is a much broader and more complex system component. In heating, there may

be several specific components marked as deficient. These must be identified individually in the appropriate Comments section. These must be identified individually in the appropriate Comments section.

Additional items in some categories are deemed important enough to be included in the Standard Inspection Report Form as per the Texas Standards of Practice. However, not everything required in the Standards is listed in the Report Form. 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. Similarly, there is a requirement in the individual private sewage systems section to report on proximity to private water wells and other things.
4. In the individual private sewage systems section, there is a requirement to report the type of system and location of the drainfield, if possible. The report does not specify this.

Report Writing Tips

Inspecting real property is a communication business and must be concise yet thorough. The challenge for an inspector is to communicate findings in an informative and clear manner. Information should be conveyed so all readers have a complete understanding of the condition and consequences of the condition noted in the report. The report should provide well-defined explanations and include the implications and ramifications that may result from the condition.

The client should be able to understand what is contained in the report; such as what the problem is, where it is located and the seriousness of the problem. This sometimes includes advising a client to seek further evaluation by a qualified professional in a specific area. Fire, health and safety issues should be clearly explained. The client should be able to understand the condition of the home and any existing problems or issues so the client can make an informed decision. The report should be clear enough to understand the issues, even if the client is not present at the property during the inspection. Clarity should be the watchword for the written report.

The job of the inspector is to disclose the general condition of the property. That is the reason the inspector is hired. 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.

According to paragraph 7 of the Preamble to the Standard Report Form, an inspector may recommend the client seek a qualified contractor or licensed professional for further investigation of items such as:

- potential maintenance or repair (M/R);
- further evaluation or service;
- potential repair or replacement (R/R) of systems or system components; or
- further evaluation of homeowner/handyman work.

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
- Specialized Tools - "Without using Specialized Tools"

Important Keywords Continued

- Specialized Procedures - "Without using Specialized Procedures"
- Limited Visual Survey
- Basic Operation of the Systems and Components
- General Condition
- At the Time of Inspection
- Parts, Components, and Systems
- Determine
- Conditions beyond the control of the inspector reasonably prevent inspection of ...
- The conditions or materials are hazardous to the health or safety of the inspector to ...

Additional Key Words and Phrases

Following is a list of some additional key words and phrases inspectors might consider using in their reports:

* appears to be
* may contain
* serviceable
* I don't know
* possible
* suggest
* appropriate
* limited
* due to…….
* unable to…….
* ensure safety
* we advise
* thorough/complete
* verify operation
* not qualified/equipped
* this unit
* component
* comparison
* this section
* statistical
* history of failure
* infiltration
* potential
* susceptible
* prone to
* adverse condition
* further evaluation
* hazardous condition

Additional Key Word and Phrase Continued

* comprised, observed
* noted, extensive
* nearing end of useful life
* in my opinion
* highly visible

DISCUSSION

Are any of these words overused or abused?

What to Avoid in an Inspection Report

- use of unnecessarily big words
- use of overly technical terms
- use of industry jargon
- use of imprecise descriptives
- use of vague or ambiguous words
- use of value scales (Example: 1-10 where 1=good and 10=bad)
- use of 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
- stating the water heater is broken
- guaranteeing anything
- stating the anticipated life span of a system or component

Inspector Conduct During an Inspection

Consider this a gentle reminder of professional conduct 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.

Examples of inappropriate statements, remarks, expressions or actions;

- Deep or exhaustive sighing;
- 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 _____ ";
- Exclaiming "What an ugly____!";
- Asking "Why would you buy this dump?";
- Exclaiming "What a horrible____!";
- Exclaiming "What a filthy mess!";
- Asking "Can you believe this?"; or
- Smoking cigarettes, chewing gum, or *dippin'* tobacco.

Statement Development

There are two KEY components to a statement:

1. Report type of DEFICIENCY or DEFECT.

2. Report the LOCATION of the deficiency or defect.

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

Example:

Water stains were observed on the ceiling finish material in the living room. The cause and remedy should be further evaluated and corrected as necessary.

Limitations and Disclaimers

A disclaimer is the inspector's statement of limitation. The inspector is telling the clients what they will do and what they will not do during the inspection.

When inspecting a house, inspectors encounter many limitations worthy of noting in the report. Inspectors should not be afraid to repeat limitations as needed in order to clarify what the inspector is doing and not doing during the inspection. This will help to ensure transparency with the client.

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. I am unable to check the operation of the water fixtures and associated components that use water due to this limitation. A limited visual survey of the general condition of accessible components will be performed and if any deficiencies are observed, they will be listed within their related section.

The home is occupied at the time of the inspection.

I was unable to inspect the operation of some of the windows due to window treatments, personal effects, large, heavy or fragile storage and/or furniture. A limited visual survey of the general condition of accessible windows will be performed and if any deficiencies are observed, they will be listed within the appropriate section.

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.

There is evidence of recent patching and to the interior finish and prior interior finish repairs. This condition may limit the inspector's visual observations and ability to render accurate opinions as to the performance of the structure.

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

- ✓ Define exactly what is observed.
- ✓ Describe the finding in detail using concise sentences.
- ✓ Recommend further evaluation by a licensed professional or contractor, as applicable.
- ✓ Print clearly so that the client or other readers of the report can understand it.
- ✓ Ensure that all information is accurate.

Module 2

Statutory and Rules Update — SOPs and Departure

Learning Objectives

After this module you will be able to:

⇒ Understand your responsibilities 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 know and practice 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 Chapter 1101 and 1102 of the Texas Occupations Code (TOC) Based on authority granted in these laws, TREC has adopted and maintains rules specific to the standards for and responsibilities of inspectors.

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

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. TREC also notifies license holders of proposed and adopted rule changes eight times each year through the Inspector Insight, TREC's electronic newsletter for real estate inspectors. Recently adopted or proposed rules are included on the TREC website.

https://www.trec.texas.gov/rules-and-laws

Key TREC Rule Changes since 2019

§535.218 Continuing Education Required for Renewal (effective 3/5/19)

The revision allows inspectors to receive continuing education credit for courses applicable to inspectors that are taken to satisfy continuing education requirements for an occupational license issued by another Texas governmental body.

§535.219 Schedule of Administrative Penalties (effective 3/5/19)

This change added a statutory violation to the to the penalty matrix, which was inadvertently omitted.

§535.220 Professional Conduct and Ethics (effective 3/5/19)

This change tied the section back to the parallel requirement of §531.18, which was recently updated to provide more flexibility for license holders when linking to the required Consumer Protection Notice form.

§535.218 Continuing Education Required for Renewal (effective 9/2/2019)

Continuing education topics required for inspectors to renew their licenses are listed and are no longer cross referenced to §535.213 which was repealed and shall expire effective February 28, 2021. The rule includes the minimum requirements for receiving continuing education credit for a ride-along inspection course (now only available for CE). Lastly, the amendment expanded the ability for an inspector to receive up to four hours of CE credit per license period by attending any Texas Real Estate Inspector Committee meeting.

§535.222 Inspection Reports (effective 9/2/2019)

This change reduced the amount of time an inspector has to deliver a report from 3 days to 2 days and clarifies that the delivery of an inspection report is not required until the inspector receives payment for services.

§535.209 Examinations (effective 8/31/2020)

This change provides new inspector applicants the opportunity to complete the national education and take the national exam prior to taking the state education and the state exam. An applicant may still choose to take all pre-licensing education and sit for the national and state exams at the same time. This change coincides with changes to inspector pre-licensing education and experience effective March 1, 2021. This rule further identifies specific courses that must be taken if an applicant fails the national or state exam three times.

§535.212 Education and Experience, Requirements for a License (effective 8/31/2020)

These revisions significantly streamline the pre-licensing education and experience requirements for inspectors. Currently, there are three license types for inspectors: apprentice, real estate and professional. The more experienced license types (real estate and professional) can be attained through experience and sponsorship or through substitute coursework, which includes a hands-on practicum. The rule sets out each path in one place and reduces the total hours of coursework and field work for the substitute paths to be more in line with other states requirements. Additionally, the requirement to duplicate coursework was removed.

§535.213 Qualifying Real Estate Inspector Courses (effective 8/31/2020)

Revisions to pre-licensing course work more closely track the guidelines for the national exam and create improved Texas modules along with a practicum that will satisfy the field component of training.

§531.18 Consumer Information (effective 2/2021)

The amendment to the Consumer Protection Notice adds 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 for Form CN 1-3.

DISCUSSION

1. How can an inspector get involved in the rule-making process?
2. What kind of continuing education is accepted beyond TREC Providers?

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 for a client.

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.

When are the SOPs not applicable?

In general, the SOPs do not apply to systems or components not listed within the SOPs. The SOPs do not apply to cosmetic or aesthetic conditions, including wear and tear from ordinary use. 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
    - the actions of the inspector 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 at first contact if the inspector routinely forgoes inspecting a particular component or system required by the SOPs, and the inspector has reason to believe that property includes that component or system.

DISCUSSION

1. List examples of when an inspector does not have to use the Standard Report Form.
2. Discuss the difference in application of the departure provisions based on whether it is a routine practice or applied to a specific home inspection.
3. Does the fact that optional items are in the SOP imply that TREC inspectors are qualified to perform an inspection on all optional items?
4. What are some reasons an inspector may choose not to walk a roof?

NOTES

Case Study – Give Your Notice 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. This interior panel was readily accessible for inspection 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.

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).

NOTES

Module 3

Inspector Duties, Responsibilities, and Ethics

Learning Objectives

After this chapter you will be able to:

⇒ Explain the minimum level of competence for Texas licensing.

⇒ 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.

Competency

Inspectors must meet minimum competency standards for licensure in Texas by:

- completing qualifying courses;
- satisfying the experience requirement (by either completing a required number of inspections or the required practicum); and
- passing the national and state licensing exams.

Licensed inspectors must continue to demonstrate professional competency before they are eligible to renew a license, which is measured by completing required inspector continuing education (ICE).

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 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 or misdemeanor involving fraud.

Duties of a Sponsoring Inspector – What You Need to Know

Only a 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 one licensed professional inspector.

(b) A change in sponsorship must be reported to the Commission immediately. If the sponsorship ended because the professional inspector termi-

nated 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 ended the sponsorship, the apprentice inspector or real estate inspector shall immediately notify the professional inspector in writing.

(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 report 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 several purposes in the industry. 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 real estate inspector to expand their inspection business to be a multi-inspector company. Becoming a sponsor also allows professional inspectors to have 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. Professional inspectors must provide direct supervision for apprentices and indirect supervision for real estate inspectors.

Direct Supervision

Direct supervision requires the sponsoring inspector to be present on site when an apprentice conducts an inspection. If a professional inspector cannot be present on site, they must arrange for another licensed 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 persons sponsored. Direct supervision also requires the sponsoring professional inspector to review all inspection reports prepared by an apprentice to make sure that 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. The spon-

soring inspector must still communicate regularly with the real estate inspector and review the inspector's reports on a regular basis.

Consumer Information

Consumer Protection Notice (TREC No. CN 1-3)

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 1-3) 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:

- "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:

- 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 real estate 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.

Ethics

Overview

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 place the interests of their client before their own personal interest at all times and always seek to improve their knowledge of the inspection industry. The inspector's role as a consumer protector helps protect the public against fraud, misrepresentation or unethical practices in the field of real estate inspections and real estate transactions. Another goal of inspectors is to help the public understand the value of home inspection services.

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 inspection 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 have an interest in the property **and** is part of the real estate transaction, 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 also establish certain guidelines concerning 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 always attempt to increase his or her knowledge regarding new developments in the inspection industry.
- Because the client is likely less knowledgeable and less experienced with regard to 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 (or 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. But, when the inspector's client is not the property owner, the inspector must also be mindful of his or her duties to the 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, a pest control company may need to inspect for termite damage, a home security company may need access to provide an estimate for services, or a contractor may need access to the property 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

this does not mean the inspector may grant access to other parties.

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 others to promote high standards in the inspection profession.

Additionally, inspectors have a duty to report any possible violation of the TOC or 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 as a whole.

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 impartial opinion regarding all of 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 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.

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 in certain situations 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. In addition, when an inspector's payment for a real estate inspection is dependent on the closing of a real estate sale, there is a risk the inspector may not fully disclose the severity of any deficient conditions in an effort to ensure that the transaction closes and 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:

- federally related mortgage loan originator;
- 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 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 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.

Repairs on Inspected Property

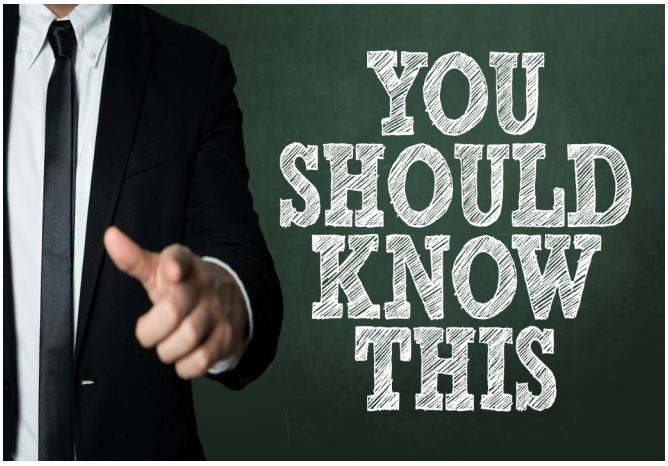
When an inspector has performed an inspection under a real estate contract, lease, or exchange of real property, TREC rule §535.220 prohibits the inspector from accepting employment to repair, replace, maintain or upgrade systems or components of property covered in the SOPs within 12 months after the date of the inspection. This provision only prevents an inspector from accepting employment to repair those homes or systems he or she inspected. It does not prevent an inspector from accepting employment to repair homes or systems the inspector did not inspect. If more than 12 months have passed since the inspection, this provision does not apply.

DISCUSSION

1. Does direct supervision require the sponsoring inspector to be present on site when an apprentice conducts an inspection?
2. Who can the inspector allow into the home during the inspection?
3. Should the inspector allow the homeowner to be present during the inspection?
4. What are the pro's/con's of having the homeowner present?
5. What are the pro's/con's of the inspector asking for the Seller Disclosure Notice before the inspection?
6. What do inspector's 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:

⇒ Increase your knowledge about safely accessing and properly departing a property.

⇒ Understand the importance of communication with the client prior to an inspection.

⇒ Describe the advantages and disadvantages of performing a sewer scope inspection.

⇒ Explain the requirements for corrugated stainless steel tubing (CSST) gas piping.

⇒ Understand smart home devices that may be present during an inspection and how to address them in the inspection report if they are not inspected.

Overview

This section intends to inform inspectors on new topics of interest to inspectors and topics that are good reminders for inspectors to consider.

Communication, Care, and Custody

Scheduling access to a residential property for an inspection has changed dramatically. An inspector has many issues to consider before they ever walk through the door. Has the contract been signed? How many days are in the option period? Is the house occupied or vacant? Who wants to be present at the inspection? Will the pets be secured?

It is easier to arrive at a vacant house, get the key from under the front door mat, and do the inspection with no one there. Most clients want to be present during the inspection. What can inspectors do in preparation and during the inspection to accept responsibility for access to and from a property?

Communication, care, and custody are the inspector's responsibility at every inspection.

Communication

When an inspection is requested, the inspector should verify with the client that the property is under contract and ready for inspection. The inspector should obtain permission from the client for access and know who will attend. The inspector should have full access to the property.

The inspector should consider reviewing available property information resources prior to arrival. This may include online information, the seller's disclosure notice, city inspections, and Google Earth images. An inspector may want to obtain any additional sources of information that can be used to discuss with the client prior to or at the inspection. Communication is key. It is important for an inspector to establish client expectations and ensure the client understands them.

It is helpful to minimize distractions before arriving at the property. For example, the inspector may request that all pets be removed or safely secured. If the property is occupied, ask that occupants are not present for the entirety of the inspection. If the buyer and seller will both be present during the inspection, it's important to know if their agents will also attend. Clear communication about how long an inspection is expected to take is helpful to all parties.

In today's world of Alexa® and smart doorbells, inspectors should assume they, and anyone attending the inspection, are being watched and possibly recorded. Surveillance by the property owner should be acknowl-

edged and communicated to the inspector and the buyer. The presence of video and audio equipment during an inspection may limit on-site communication between the client and the inspector, considering what the seller may see or overhear.

DICUSSION

What are some additional considerations when scheduling and communicating access prior to the inspection?

Care

Inspectors should always use the doorbell or knock before entering a property. The inspector should announce themselves clearly upon entering by saying something like, "REAL ESTATE" or "INSPECTOR ON SITE," even if the inspector has been told the property will be vacant. Inspectors should verify safe access and conditions throughout the home by making a cursory walk through of the entire property. It is also helpful to observe all conditions throughout the property to ensure the property is in the same state as it was upon entry. If necessary, take a few pictures.

The inspector should LEAVE EVERYTHING AS IT WAS FOUND.

An inspector may share their risk assessment with others at the inspection, by warning applicable parties of any potential hazards. For example, firearms, jewelry, currency should be secured or removed. This will help avoid any potential accusations regarding the honesty or integrity of the inspector.

Consider any additional protocols need such as masks, face shields, shoe covers, and hand sanitizer. Inspectors must take reasonable safety for themselves, those attending the inspection, and personal property items present.

DISCUSSION

What precautions do you take to care for the properties that you inspect?

Custody

Only those with mutually agreed upon access are allowed to attend the inspection. If the seller schedules a repair contractor during the inspection, the inspector should be notified in advance. If any visitors or contractors attempt to access the property while the inspection is taking place, the inspector should obtain their name, photograph, their vehicle and tag. Back up showings of the property should not occur during an inspection. Additionally, any significant hazards observed during the inspection that need immediate attention should be communicated to the owner or listing agent.

Inspections can be physically and emotionally demanding. Inspectors may feel distracted or lack full focus after completing an inspection. Inspectors often work in extreme hot or cold weather conditions. Climbing, balancing, crawling, and maneuvering small spaces while trying to stay focused over several hours can be taxing. Once the physical inspection is complete, a summary discussion with the client often takes place. Having a written or memorized departure procedure checklist can be very helpful.

Upon leaving the property, the inspector must verify that the entire property has been secured. When an inspector unlocks a property and enters it, they are responsible for the property until returning custody to the owner in the same condition as it was found. It is important to document the time you arrive and the time you depart and communicate that to the appropriate parties.

Some inspectors display a placard or sign that indicates that a home inspection is taking place. Displaying such a sign may reduce the chance of unauthorized persons attempting to access the property. See Appendix C for an example.

Sewer Scope Inspections

In August of 2020, The Texas State Board of Plumbing Examiners modified their previous rule that required a licensed plumber to perform sewer line scope inspections. As a result, a licensed plumber is no longer required to perform this inspection. Currently, the SOPs do not address sewer line scope inspections; however, inspectors must be competent to perform any additional service outside of the scope of the SOPs.

TREC rule §535.231 requires an inspector to operate plumbing fixtures, test for drain performance, and to report deficiencies in water supply pipes and waste pipes. The SOPs do not contemplate the use of a camera to scope a sewer line. In fact, the SOPs specifically exempt an inspector from using specialized equipment. While the SOPs do not prohibit an inspector from inspecting beyond the standards, when qualified, they do not provide specific guidance to those inspectors who choose to do so. As a reminder, Section 1102.301 of the TOC prohibits an inspector from performing an inspection in a negligent or incompetent manner.

Consider the expression, "Just because you can, doesn't mean you should." This suggests that an inspector must be competent to conduct all aspects of a real estate inspection, even when inspecting beyond the scope required by the SOPs. If a complaint is filed with TREC and it is determined that the inspector was not competent to perform a sewer scope inspection, the inspector may be subject to disciplinary action. An inspector should communicate to their client that they do not provide inspection services they are not trained or competent to inspect.

The average consumer may think that having their sewer scoped will provide assurance that there are no plumbing drain leaks. The fact is that scoping the sewer lines does not encompass the full integrity of the sewer lines, and is not a definitive method for ensuring that sewer lines are free of leaks. A hydrostatic or sewer flow test may be performed to determine if there are piping leaks. Only competent inspectors should perform this type of test.

Sewer scope inspections can provide an additional service to home buyers and can also provide an additional revenue stream for inspectors. Access to the main sewer cleanout is generally required. Sometimes access may be available through a roof sewer vent. A thorough evaluation of the sewer piping under the house and out to the main street should be conducted. Blockages or collapsed lines should avoided. Inspectors should not attempt to clear a line or remove a blockage. Deficiencies should be located and documented.

Inspectors must know the limitations of their equipment and provide sufficient video and information to their client to determine if repair estimates are needed. Further evaluations by a licensed plumbing contractor may be necessary if an inspector is unable to provide sufficient information.

Proper training is important for any inspector seeking to provide sewer cope inspection services to their clients.

Hydrostatic Testing (or Sewer Flow Testing)

The Addendum for Authorizing Hydrostatic Testing (Form ID 48-1) can be included with the One to Four Family Residential Contract and states, "Any hydrostatic testing must be separately authorized by Seller in writing."

Sewer piping tests for leaks are referred to as "hydrostatic testing." Plumbers also refer to this as a "sewer flow test." This is the same type of test that is done when new sewer piping is installed. When should further evaluations of the sewer piping system be advised? How does one know when further evaluation of sewer piping systems be recommended? Some may say that any sewer system over 30 years old should be tested. Others may say older cast iron systems should be tested. In fact, there is no absolute answer. Soil and foundation conditions are examples of factors that can damage sewer piping. Often times, foundation repairs will trigger a request for sewer piping tests.

If it is necessary to remove the commode for a sewer piping test, a licensed plumber must conduct the test. If the test can be performed without disconnecting plumbing, the requirement for a licensed plumber is not required. If an inspector performs the test, they must be properly trained, competent, and insured.

An inspector is not responsible for advising their client to have a sewer piping test performed. The client is responsible for determining the need for testing and obtaining permission from the seller to have the test conducted.

Corrugated Stainless Steel Tubing (CSST) Gas Lines

Corrugated stainless steel tubing (CSST) gas piping manufacturers require installation by certified installers for the different types of CSST products. Parts are not interchangeable. The licensed plumber evaluating, repairing, or installing a CSST gas system should be qualified and trained for the gas piping system that is in place.

Identification of the CSST material in the inspection report assists the buyer in identifying a licensed plumber that is qualified to evaluate or repair that CSST system.

Identifying bonding wires for gas piping systems is a TREC requirement. Determining the types of gas piping present is useful to the client when advising further evalua-

tions of the gas piping system. It is always useful for the client to be aware of the locations of accessible gas shut off valves, particularly the main gas valve on the exterior of the property.

Smart Homes

Today more and more smart home devices convey as part of the sale. When they are part of the property and an integral part of the operation of a device or system, inspectors are faced with operating those smart devices. Consider an inspector who is inspecting a smart home that has a control panel in place for the sprinkler system. Without full access, the inspector may only be able to test the sprinkler system in a manual mode. If so, the inspector should note this limitation on the inspection report.

The client needs to make arrangements for the inspector to have access to these systems, especially if passwords or codes are needed to operate them. This is another reminder that communication is key between the client and the inspector as described in the Care, Custody, and Control section of this chapter.

Below are just some of the smart devices an inspector may encounter:

- thermostat;
- sprinkler system control box;
- doorbells;
- entry door locks;
- garage door operator;
- water leak sensors; and
- motion activated sensors.

Fun fact: 40 years ago inspectors were faced with the dilemma of operating a new kitchen appliance innovation called a microwave.

Smart home automation components are identified as a general limitation the inspector is not required to inspect. However, there may be a client expectation to inspect these devices. If an inspector chooses not to inspect smart home devices, this should be disclosed to the client prior to performing the inspection.

NOTES

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 why you need to have a written opinion on foundation performance.

⇒ Recognize when a retaining wall is required to be inspected.

⇒ Discuss that an inspector provides a performance based inspection and not a code inspection.

Overview

The purpose of the information shared in this section of the course is not to break down each component of the Standards of Practice Structural System, but to share the most common mistakes and answer the "Do's and Don'ts" and the intent of the SOPs.

We will first 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

Let's start by breaking down the definition of "Accessible" in §535.227(b). Accessible – 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.

Part One of **Accessible** states that the inspector must use "Reasonable Judgment" when performing their inspections.

Reasonable describes someone having sound judgement that's sensible and fair. [*Oxford Languages*]

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

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 to making good decisions in a variety of situations.

Inspectors are asked as professionals to use reasonable judgment while performing an inspection.

Part Two of **Accessible** states that the inspector must consider if the systems are "Capable of being Approached, Entered, or Viewed" without the six factors listed above.

Capable of being Approached, Entered, or Viewed implies that the inspector "Will Do" or "Will Inspect" ALL components as outlined in the SOPs as long as they can be approached, entered, viewed in a manner as outlined in (A) through (F). The SOPs do not allow for random sampling or inspecting a representative number of components. You are required to inspect all 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. It is reasonable to say that a 9/12 pitch roof may be hazardous for an inspector to inspect from walking on the roof, but it would not be reasonable for an inspector to consider a 4/12 pitch roof to be hazardous to inspect from walking on the roof in good weather conditions.

It is reasonable to say that a crawl space should be entered to inspect from the crawl space area if it has good clearance, if it's dry and if there are no snakes or animals in the crawl space.

(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.

There is nothing in the definition that implies inspectors are not required to move items like curtains, soap bottles, children's toys or step over a rolled up carpet laying on the attic floor.

(C) Using specialized equipment or procedures;

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

*Inspectors **are** required to use 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, screw driver, mirror, tape measure, water pressure gauge, temperature testing device, etc.., that allow the inspector 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;

Inspector 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 as long as it is safe and reasonable to do so.

It is also reasonable to say that it would include covers for components like HVAC covers, water heater element covers and hydro-massage therapy equipment access panels.

(E) Damaging property, permanent construction or building finish; or

Simple. Inspectors are not required to damage property, permanent construction or building finish during the process of performing an inspection.

(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. This will also depend upon the inspector's reasonable judgement. For some, a 14-foot ladder may be sufficient. Others may require a 17-foot ladder.

Now that we have discussed the definition of accessible, 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 perform a random sampling or use a representative number during an inspection; such as windows, doors, receptacles, switches, etc. If in the reasonable judgment of the inspector it can be approached, entered or viewed in a safe manner, it must be inspected. If an inspector chooses not to inspect components as outlined in the SOPs, they must follow the rules as outlined in the Departure Provision §535.227(f).

Performance

Another very important definition to discuss and understand is the definition of "performance" in §535.227(b).

(b) Definitions.

> **(8) 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.

A performance based inspection does not require the inspector to determine whether or not components were properly installed per manufacturer requirements 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.

Let's review some of the Structural Systems where an inspector must apply reasonable judgement as it relates to performance.

Understanding the Difference Between "Report" and "Report as Deficient"

Several areas in the SOPs for structural systems 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.

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 gain related to the homes they inspect, unlike foundation repair companies that will send out a foundation specialist, who may simply be a sales person for the company.

Documenting the inspector's opinion of the performance of the foundation requires more than simply checking thing "inspected" box in 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 the foundation to be providing adequate support to the structure, they are not required to list any settlement or movement indicators. However, if the inspector observes deficiencies in the performance of the foundation that require further evaluation by a specialist or engineer, the inspector is required by the SOPs to list at least a few visible indicators. The SOPs do not require the inspector to provide an exhaustive list.

NOTES

Case Study – Cracked Floor Tiles Reveal a Structural Problem

Facts: A licensed professional inspector was hired by the buyer to perform an inspection. The inspector inspected the home and failed to report deficiencies related to the floors.

A large continuous crack running along several of the living room floor tiles was present and visible at the time of the inspection. However, the inspector failed to report it as a deficiency.

After the purchase, the buyer found that the cracked tiles were the result of a significant crack that extended throughout the foundation.

Analysis: The inspector should carefully inspect the condition of the floors, and report as a deficiency any worn, loose, cracked, or broken tiles and missing grout.

Result: The inspector had a history of prior disciplinary action. The inspector entered into an agreed order resulting in a 24 month suspension, with 30 days actual suspension and the remaining 23 months probated. The inspector was also required to complete additional continuing education, and pay an administrative penalty of $1,750 for violation of 22 Tex. Admin. Code §535.228 (e), failing to report deficiencies in interior walls, ceilings, floors and doors.

NOTES

Retaining Walls

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

One of the most commonly asked questions is, “When is the inspector required to inspect a retaining wall?” Simply put, an inspector is required to inspect retaining walls if the retaining wall is failing and the failure will adversely affect the foundation's performance. If this is the case, the inspector is then required to inspect and report visible defects observed.

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.

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

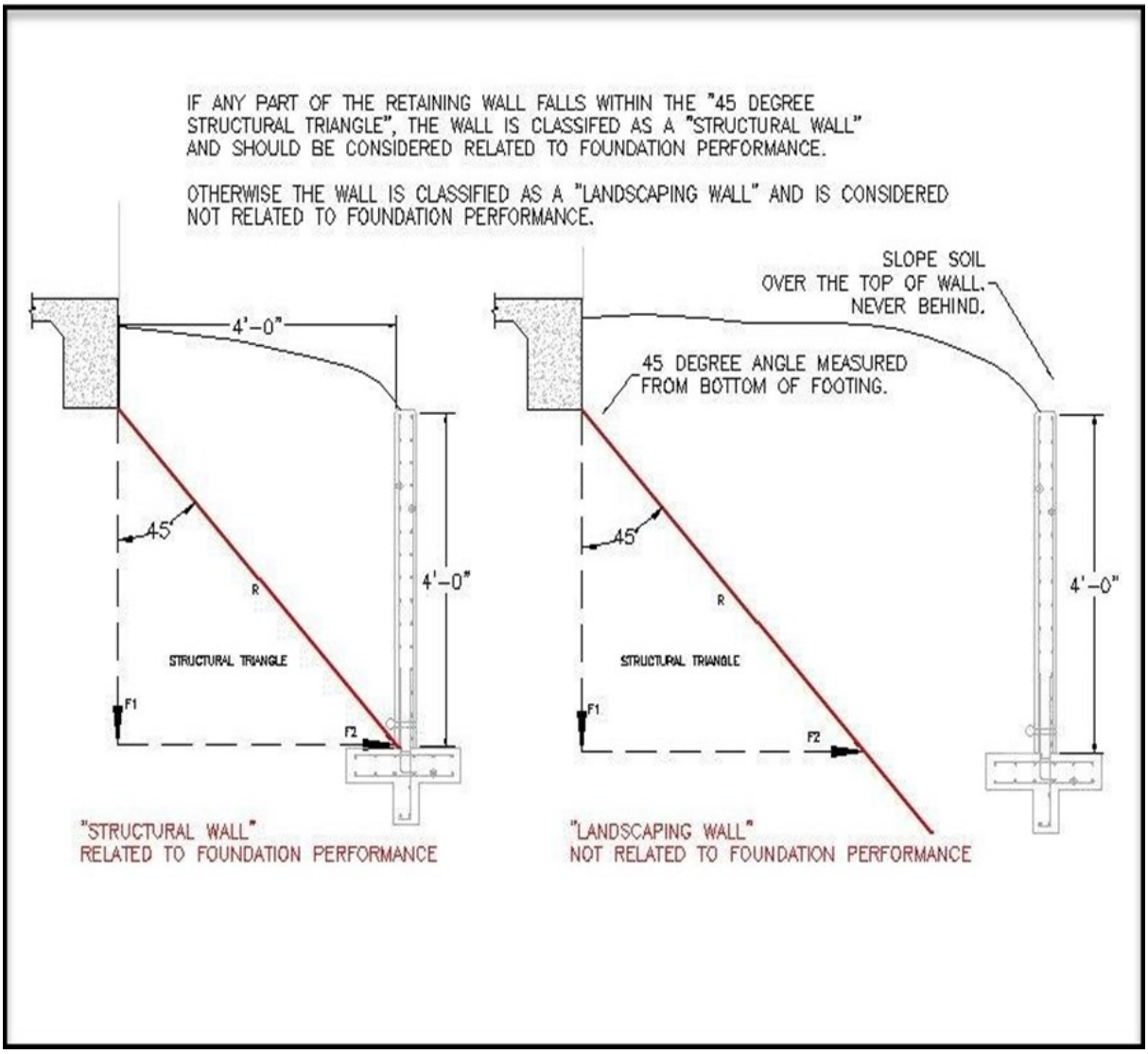


Illustration Courtesy of Lighthouse Engineering - Michael Gandy, PE

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

Photo credit: Brian Murphy

NOTES

Below are examples of landscape walls that do <u>not</u> require inspection.

Photo credit: Brian Murphy

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 passes by 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, and cloudiness between the panes of glass and report as deficient when they are discovered.

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. But, 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 defects. Remember, 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 condition of the carport.

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

Example of a patio with egress/ingress

Photo credit: Brian Murphy

Example of a patio without egress/ingress

Photo credit: Brian Murphy

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.
4. Share examples of marginal site drainage or ventilation that are performing but not ideal for matching the code requirements.

Structural System Overview - §535.228

Foundations

- The inspector shall:
  - render a written opinion as to the performance of the foundation; and
  - report:
    - the type of foundations;
    - the vantage point from which the crawl space was inspected;
    - generally report present and visible indications used to render the opinion of adverse performance, such as:
    - binding, out-of-square, non-latching doors;
    - framing or frieze board separations;
    - sloping floors;
    - window, wall, floor, or ceiling cracks or separations; and
    - rotating, buckling, cracking, or deflecting masonry cladding.
  - report as Deficient:
    - deteriorated materials;
    - deficiencies in foundation components such as; beams, joists, bridging, blocking, piers, posts, pilings, columns, sills or subfloor;
    - deficiencies in retaining walls related to foundation performance;
    - exposed or damaged reinforcement;
    - crawl space ventilation that is not performing; and
    - crawl space drainage that is not performing.
- 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;
  - provide an exhaustive list of indicators of possible adverse performance; or
  - inspect retaining walls not related to foundation performance.

Grading and Drainage

- The inspector shall report as Deficient:
  - drainage around the foundation that is not performing;
  - deficiencies in grade levels around the foundation; and
  - deficiencies in installed gutter and downspout systems.
- The inspector is not required to:
  - inspect flatwork or detention/retention ponds (except as related to slope and drainage);
  - determine area hydrology or the presence of underground water; or
  - determine the efficiency or performance of underground or surface drainage systems.

Roof covering materials

- The inspector shall:
  - inspect the roof covering materials from the surface of the roof;
  - report:

        - type of roof coverings;
        - vantage point from where the roof was inspected;
        - evidence of water penetration;
        - evidence of previous repairs to the roof covering material, flashing details, skylights and other roof penetrations; and
    - report as Deficient deficiencies in:
        - fasteners;
        - adhesion;
        - roof covering materials;
        - flashing details;
        - skylights; and
        - other roof penetrations.
- 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 on the roof;
    - determine:
    - the remaining life expectancy of the roof covering; or
    - the number of layers of roof covering material;
    - identify latent hail damage;
    - exhaustively examine all fasteners and adhesion, or
    - provide an exhaustive list of locations of deficiencies and water penetrations.

Roof structures and attics

- The inspector shall:
- report:
    - the vantage point from which the attic space was inspected;
    - approximate average depth of attic insulation;
    - evidence of water penetration;
- report as Deficient:
    - attic space ventilation that is not performing;
    - deflections or depressions in the roof surface as related to adverse performance of the framing and decking;
    - missing insulation;
    - deficiencies in:
        - installed framing members and decking;
        - attic access ladders and access openings; and
        - attic ventilators.
- The inspector is not required to:
    - enter attics or unfinished spaces where openings are less than 22 inches by 30 inches or headroom is less than 30 inches;
    - operate powered ventilators; or
    - provide an exhaustive list of locations of deficiencies and water penetrations.

Interior walls, ceilings, floors, and doors

- The inspector shall:
    - report evidence of water penetration;
- report as Deficient:
    - deficiencies in the condition and performance of doors and hardware;
    - deficiencies related to structural performance or water penetration; and
    - the absence of or deficiencies in fire separation between the garage and the living space and between the garage and its attic.
- The inspector is not required to:
    - report cosmetic damage or the condition of floor, wall, or ceiling coverings; paints, stains, or other surface coatings; cabinets; or countertops, or
    - provide an exhaustive list of locations of deficiencies and water penetrations.

Exterior walls, doors, and windows

- The inspector shall:
    - report evidence of water penetration;
- report as Deficient:
    - the absence of performing emergency escape and rescue openings in all sleeping rooms;

- a solid wood door less than 1-3/8 inches in thickness, a solid or honeycomb core steel door less than 1-3/8 inches thick, or a 20-minute fire-rated door between the residence and an attached garage;
- missing or damaged screens;
- deficiencies related to structural performance or water penetration;
- deficiencies in:
  - weather stripping, gaskets or other air barrier materials;
  - claddings;
  - water resistant materials and coatings;
  - flashing details and terminations;
  - the condition and performance of exterior doors, garage doors and hardware; and
  - the condition and performance of windows and components.

- The inspector is not required to:
  - report the condition of awnings, blinds, shutters, security devices, or other non-structural systems;
  - determine the cosmetic condition of paints, stains, or other surface coatings; or
  - operate a lock if the key is not available.
  - provide an exhaustive list of locations of deficiencies and water penetrations.

Exterior and interior glazing

- The inspector shall report as Deficient:
  - insulated windows that are obviously fogged or display other evidence of broken seals;
  - deficiencies in glazing, weather stripping and glazing compound in windows and doors; and
  - the absence of safety glass in hazardous locations.
- The inspector is not required to:
  - exhaustively inspect insulated windows for evidence of broken seals;
  - exhaustively inspect glazing for identifying labels; or
  - identify specific locations of damage.

Interior and exterior stairways

- The inspector shall report as Deficient:
  - 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
  - deficiencies in steps, stairways, landings, guardrails, and handrails.
- The inspector is not required to exhaustively measure every stairway component.

Fireplaces and chimneys

- The inspector shall report as Deficient:
  - built-up creosote in accessible areas of the firebox and flue;
  - the presence of combustible materials in near proximity to the firebox opening;
  - the absence of fireblocking at the attic penetration of the chimney flue, where accessible; and
  - deficiencies in the:
    - damper;
    - lintel, hearth, hearth extension, and firebox;
    - gas valve and location;
    - circulating fan;
    - combustion air vents; and
    - chimney structure, termination, coping, crown, caps, and spark arrestor.
- The inspector is not required to:
  - verify the integrity of the flue;
  - perform a chimney smoke test; or
  - determine the adequacy of the draft.

Porches, Balconies, Decks, and Carports

- The inspector shall:
- inspect:
    - attached balconies, carports, and porches;
    - abutting porches, decks, and balconies that are used for ingress and egress; and
- report as Deficient:
    - 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
    - deficiencies in accessible components.
- The inspector is not required to:
    - exhaustively measure every porch, balcony, deck, or attached carport components; or
    - enter any area where headroom is less than 18 inches or the access opening is less than 24 inches wide and 18 inches high.

NOTES

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.

⇒ Understanding the factors that can affect temperature measurements when evaluating the performance of the HVAC.

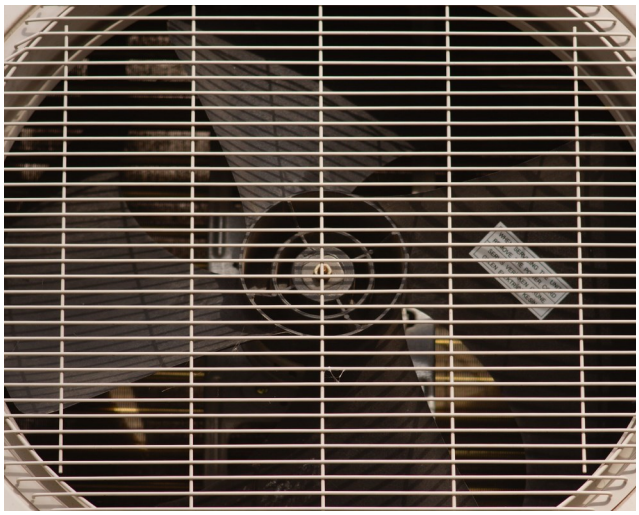
Overview

An HVAC system can be compared to the cardiovascular system of the human body. It has veins that carry blood away from all parts of the body and bring it toward the heart. The heart pumps the blood back through the arteries to every part of the body to start the movement, again and again, hence creating the circulation system of the body.

The typical HVAC system has a similar task. A central air handler unit (AHU) with a high-powered fan both draws air from the conditioned space through return air ducts and pushes air through similar supply ducts back to the same areas from which it was taken, hence the home's air circulation system. Somewhere in the return side, the air is filtered to remove large contaminants, and in the air-handler, the air is either cooled or heated based on the demand by the occupants using a thermostat. If one stopped here like most present residential systems, it should be called the "HAC" system, heating or air conditioning. The forgotten "V" has only recently been appearing on the scene.

HVAC SOP Requirements & Reporting

The SOPs details the scope of the HVAC system 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. That is a tough line not to cross.

Type of System

This chapter 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, through 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 a long time, especially for single room air conditioning. A more recent addition are ductless or mini-splits systems. They bring the best features of both types of distributing conditioned air by avoiding inefficient air duct systems and only conditioning the rooms needed. 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 pack-

aged units.

Some homes may use radiant heat or baseboard for heat, although that is rare 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 or perhaps a heat pump? A heat pump (HP), in its most straightforward explanation, operates the air conditioner in reverse, creating the same BTU's of heat as an electric heat system for 50% to 75% less electricity used at the meter. A traditional AC system blows cold air inside the home and hot air outside the home via the outside condenser unit. In the HP mode it reverses blowing heat inside the home and cold air out of the condenser unit. If this is the case, it must be reported and the inspector must test the backup or supplemental heat. One possibility is that the unit is fuel-fired by burning gas, natural gas or propane. Other types of fuel, although rare in Texas, are oil, coal, wood, or pellets. Space heaters are not typically inspected because they are not a permanent heat source. Examples include portable electric or gas space heaters and fireplaces.

The prudent inspector will assess the condition of all the components of the HVAC system before the operational test. Why worry about if the thermostat activates the system if parts are damaged or missing? The inspector may 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 notes of defects that are listed in the SOPs. This includes a visual inspection of all the components, locations, and access. At this point, the inspector is 90% done with the HVAC inspection.

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, breakers, gas service, etc.

Note: If limitations exist, they should be noted in the report. Evidence of limitations, such as inclement weather conditions, should be documented. This can be accomplished with something as simple as a photograph taken from a cell phone that demonstrates existing weather conditions.

In a forced-air system, the air-handler fan begins blowing air to all the registers, and within a reasonable time, the register supply air should be getting hotter or colder, respectively, than the air entering the return system. Depending on the type of system, the time required to get up to optimal performance may be up to ten minutes. Most inspectors will measure the temperature at the closest return register(s) to use as the first reference temperature, then continue to each room supply register to make an opinion as to how well the system is performing using the closest supply register as the second reference temperature. Checking every supply register is key to evaluating the duct systems' integrity noted later in the SOPs. The lack of warmer or cooler air in an individual register may indicate a defect in that section of the distribution system. Many manufacturers look for a 30-60 degree rise across the unit when heating, and a drop of 15-20 degrees when cooling. A rise of over 75-80 degrees may indicate insignificant airflow or malfunctioning units when heating, either of 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 but can skew your results and should be considered. 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. Using a vehicle as an analogy, low MPG performance might be blamed on the engine when it is low tire pressure or a struggling transmission impacting the low performance.

Additional considerations when evaluating cooling performance include ambient temperatures and humidity. Heating systems are relatively unaffected by seasonal temperatures and varying humidity, but these factors can significantly affect the unit's cooling performance. High humidity levels may make it nearly impossible for the AC to achieve a cooling effect, so inspecting a vacant home located in humid regions when the HVAC system was off will skew the numbers (a lot).

As a reminder, the SOP definition of performance is an 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***. Be aware that cooling-related air conditioning performance falls between 3-7% per year, on average, depending on maintenance and heavy use (this is Texas, after all). For example, an average unit that started with a cooling capacity of three tons (36,000 BTU/hour) could see a capacity drop by about 20% after five years, 40% after ten years, and 60% after fifteen years.

Armed with that knowledge and knowing the HVAC company is interested in pleasing the average consumer, they will typically oversize the initial installation, which can delay the apparent shortfall to occupants for maybe ten years. For this reason, an inspector should avoid making assessments on sizing and efficiency.

So What Is The "V" in HVAC?

It is an interesting fact 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 building 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.

Case Study – It Was Only A Matter of Degrees

Facts: A licensed professional inspector was hired by the 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 23 degrees Farenheit.

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), by failing to report as deficient inadequate cooling as demonstrated by its performance.

DISCUSSION

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

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

Photo Credit: Steven Rinehart

The picture below is an example of deteriorating duct-work. Classic 80's grey vapor barrier on the ducts crumbled after prolonged exposure to heat and UV light from attic vents. Once the vapor barrier is gone, the fiberglass insulation tries to return to its original flat condition.

Photo Credit: Steven Rinehart

HVAC Standards Overview - §535.230

The scope consists of three primary areas: Heating, Cooling, and Ducts systems.

Heating Equipment

General Requirements

- The inspector shall report;
    - Type of heating systems; Central forced air, radiant, baseboard
    - Energy sources; Natural gas, propane (LP), oil, coal, wood, electricity, (Air source) **heat pumps**, ground-source **heat pumps**)
        - Type of fuel-fired heating systems based on efficiency: Natural draft, Forced-air, Forced draft, Condensing
- The inspector shall report as Deficient: (For all types of units)
    - Inoperative units;
    - Deficiencies in the thermostats;
    - Inappropriate locations;
    - The lack of protection from physical damage;
    - Burners, burner ignition devices or heating elements, switches, and thermostats that are not 18 inches above the lowest garage floor elevation, unless the unit is listed for garage floor installations;
    - The absence of an opening would allow access to inspection, service, repair, or re-

placement; removing permanent construction or building finish;
    - When applicable, a floored passageway and service platform that would allow access for equipment inspection, service, repair, or replacement;
    - Deficiencies in mounting and performance of window and wall units.
- The inspector shall report deficiencies in; (For Electric Heating Equipment)
    - Performance of heat pumps;
    - Performance of heating elements; and
    - Conditions of conductors; and
- The inspector shall report as Deficient: (For gas and other fuel-fired units)
    - Gas leaks;
    - Flame impingement, uplifting flame, improper flame color, or excessive scale buildup;
    - The absence of a gas shutoff valve within six feet of the appliance;
    - The absence of a gas appliance connector or one that exceeds six feet in length;
    - Gas appliance connectors that are concealed within or extended through walls, floors, partitions, ceilings, or appliance housings; and
- The inspector shall report as Deficient: deficiencies in; (For gas and other fuel-fired units)
    - Combustion and dilution air;
    - Gas shutoff valves;
    - Access to gas shutoff valves that prohibit full operation;
    - Gas appliance connector materials; and
    - The vent pipe, draft hood, draft, proximity to combustibles, and vent terminations point and clearances.

Cooling Equipment

Requirements for **cooling units** other than evaporative coolers.

- The inspector shall report the type of systems; for example window air conditioners, evaporative coolers, ductless mini-split, whole house (central) forced -air, split or packaged
- The inspector shall report as deficient;
    - inoperative units;
    - inadequate Cooling as demonstrated by its performance;
    - the absence of an opening that would allow access (inspection/servicing/replacement)
    - when applicable; a floored passageway and service platform
    - noticeable vibration of blowers or fans;
    - water in the auxiliary/secondary drain pan
    - a primary drain pipe that discharges in a sewer vent;
    - missing or deficient refrigerant pipe insulation;
    - dirty coils, where accessible;
    - condensing units lacking adequate clearances or air circulation or that has deficiencies in the fins, location, levelness, or elevation above grade surfaces
- The inspector shall report as deficient; deficiencies in;
    - the condensate drain and auxiliary/ secondary pan and drain system;
    - mounting and performance of window or wall units; and
    - thermostats.
    - the type of systems;
    - the type of water supply line;
- The inspector shall report as deficient;
    - inoperative units;
    - inadequate access and clearances;
    - deficiencies in performance or mounting;
    - missing or damaged components;
    - the presents of active water leaks; and
    - the absence of backflow prevention.

Requirements for evaporative coolers

- The inspector shall report;
    - the type of systems;
    - the type of water supply line;
- The inspector shall report as deficient;
    - inoperative units;
    - inadequate access and clearances;
    - deficiencies in performance or mounting;
    - missing or damaged components;
    - the presents of active water leaks; and
    - the absence of backflow prevention.

Duct Systems, Chases, and Vents

- The inspector shall report as Deficient:
    - damaged duct systems or improper material;
    - damaged or missing duct insulation;
    - the absence of airflow at accessible supply registers;
    - the presence of gas piping and sewer vents concealed in ducts, plenums, and chases;

    - ducts or plenums in contact with the earth; and
- The inspector shall report as Deficient deficiencies in:
    - filters;
    - grills or registers; and
    - the location of return air openings.

Actions Not Required

The inspector is not required to perform the following actions:

- program digital thermostats or controls;
- inspect:
    - for the pressure of the system refrigerant, type of refrigerant, or refrigerant leaks;
    - winterized or decommissioned equipment; or
    - 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;
- operate:
    - setback features on thermostats or controls;
    - cooling equipment when the outdoor temperature is less than 60 degrees Fahrenheit;
    - radiant heaters, steam heat systems, or unvented gas-fired heating appliances; or
    - heat pumps, in the heat pump mode, when the outdoor temperature is above 70 degrees;
- verify:
    - compatibility of components;
    - tonnage match of indoor coils and outside coils or condensing units;
    - the accuracy of thermostats; or
    - the integrity of the heat exchanger; or
- determine:
    - sizing, efficiency, or adequacy of the system;
    - balanced airflow of the conditioned air to the various parts of the building; or
    - types of materials contained in insulation.

NOTES

Module 7

Electrical & Appliances SOPs

Learning Objectives

After this module you will be able to:

⇒ Explain the basics and differences of grounding versus bonding.

⇒ Understand the requirements for testing GFCIs.

⇒ 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 remained 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. Almost everything in today's home depends on electricity, and our lives would not be the same without it. We often get annoyed at the inconvenience of a short power outage because we have become accustomed to the normal functioning of our electricity.

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 with these new demands. 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 does 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 to look for and potentially dangerous components that could make a home's electrical system less safe.

Lives could depend on the inspection.

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 can be better understood by every home inspector.

The second part 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, appliances are modern conveniences that many have grown to depend on. Besides thoroughly inspecting functionality of an appliance, there are also safety issues that an inspector is required to inspect.

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 they mean different things, and serve two different purposes. So, what is the difference between grounding and bonding?

What is Grounding?

Grounding is connecting the home's electrical system to the earth in a manner that will limit the voltage caused by lightning, line surges, or unintentional contact with higher-voltage lines. Proper grounding will stabilize the voltage to earth during normal operation.

Put another way, the purpose of grounding is to maintain a constant voltage of the home's electrical system by dissipating voltage spikes caused by outside influences such as a lightning strike or a voltage spike on the transmission lines. Voltage spikes impacting the home's electrical system are detrimental because they can damage electrical equipment and components in the home.

Grounding is typically accomplished by connecting the electrical service of a home to a grounding electrode system. Two of the most common types are concrete-encased electrodes and ground rod electrodes. A ground rod is normally an 8-foot long solid copper rod that is driven into the ground. This provides a path for voltage spikes to travel to and dissipate into the ground.

What is Bonding?

Bonding typically uses a normally non-current-carrying conductor to connect devices together to keep them at the same voltage. An example of this is swimming pool equipment, which 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 simultaneously with two different pieces of pool equipment at different voltages. When devices and equipment is properly bonded, they cannot be at different voltages.

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.

Grounding vs. Bonding – A Summary

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 same voltage
Functions principally during normal operation of the system	Functions principally when there is a fault or a problem with the system
Protects equipment	Protects people

DISCUSSION

1. Discuss the difference between grounding and bonding.

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

Ground-Fault Circuit Interrupter (GFCI) Devices

TREC SOPs state that the inspector shall report

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

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.

How to test 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;
- crawlspaces;
- unfinished basements;
- kitchen countertops; and
- receptacles that are located within six feet of the outside edge of a sink.

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.**

NOTES

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.

Inspecting Smoke 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.

Air Conditioner Condenser Unit Breakers and Wire Sizing

The inspector should understand sizing of the breaker, known as an OCPD or Over Current Protective Device and the size of the wire supplying the condenser unit. This is important because the wire and breaker sizes typically do not follow the same rules of wire and breaker sizes normally used as shown in the table below.

Below is a table reflecting 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.

In order to properly determine the required wire and breaker sizes, there are some terms with which the inspector should be familiar regarding the air conditioner condenser unit. These terms are MCA (Minimum Circuit Ampacity), 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.

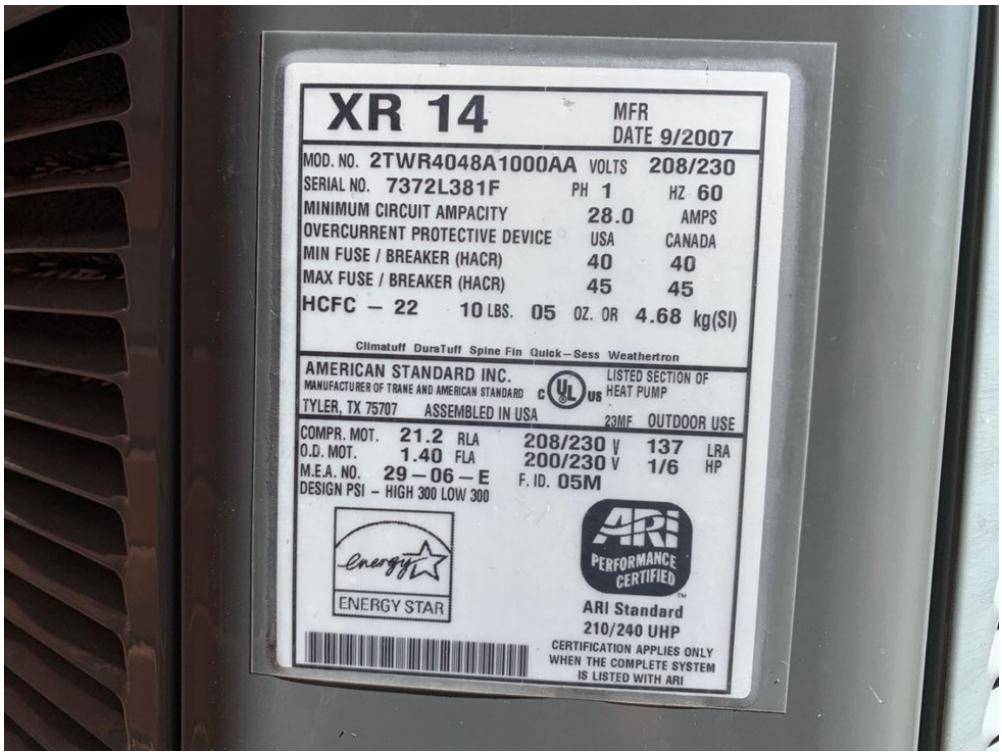


Photo credit: Mike Morgan

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.

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 thoroughly.

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.

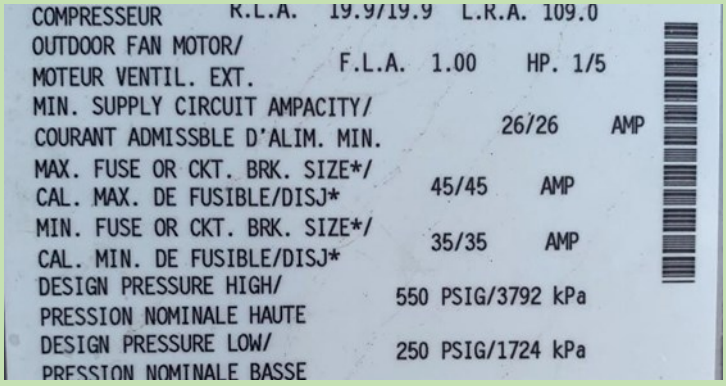
2. What is the proper method to use for testing GFCI receptacles?

3. Discuss the limitations of using various testing devices such as the 3-light tester 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.



Electrical Standards Overview - §535.229

The standard covers service entrance and panels, branch circuits, connected devices, and fixtures.

Service entrance and panels

- The inspector shall report as Deficient:
  - a drop, weatherhead or mast that is not securely fastened to the building;
  - the absence of or deficiencies in the grounding electrode system;
  - missing or damaged dead fronts or covers plates;
  - conductors not protected from the edges of electrical cabinets, gutters, or cutout boxes;
  - electrical cabinets and panel boards not appropriate for their location; such as a clothes closet, bathrooms or where they are exposed to physical damage;
  - electrical cabinets and panel boards that are not accessible or do not have a minimum of 36 -inches of clearance in front of them;
  - deficiencies in:
    - electrical cabinets, gutters, cutout boxes, and panel boards;
    - the insulation of the service entrance conductors, drip loop, separation of conductors at weatherheads, and clearances;
    - the compatibility of overcurrent devices and conductors;
    - the overcurrent device and circuit for labeled and listed 250-volt appliances;
    - bonding and grounding;
    - conductors;
    - the operation of installed ground-fault or arc-fault circuit interrupter devices; and
  - the absence of:
    - trip ties on 250-volt overcurrent devices or multi-wire branch circuit;
    - appropriate connections;
    - anti-oxidants on aluminum conductor terminations;
    - a main disconnecting means.
- The inspector is not required to:
  - determine present or future sufficiency of service capacity amperage, voltage, or the capacity of the electrical system;
  - test arc-fault circuit interrupter devices when the property is occupied or damage to personal property may result, in the inspector's reasonable judgment;
  - conduct voltage drop calculations;
  - determine the accuracy of overcurrent device labeling;
  - remove covers where hazardous as judged by the inspector;
  - verify the effectiveness of overcurrent devices; or
  - operate overcurrent devices.

Branch circuits, connected devices, and fixtures

- The inspector shall:
  - manually test the installed and accessible smoke and carbon monoxide alarms;
  - report the type of branch circuit conductors;
  - report as Deficient:
    - the absence of ground-fault circuit interrupter protection in all:
    - bathroom receptacles;
    - garage receptacles;
    - outdoor receptacles;
    - crawl space receptacles;
    - unfinished basement receptacles;
    - kitchen countertop receptacles; and
    - receptacles that are located within six feet of the outside edge of a sink;
  - the failure of operation of ground-fault circuit interrupter protection devices;
  - missing or damaged receptacle, switch or junction box covers;
  - the absence of:
    - equipment disconnects;
    - 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;
  - deficiencies in:
    - receptacles;
    - switches;
    - bonding or grounding;
    - wiring, wiring terminations, junction boxes, devices, and fixtures, including improper location;
    - doorbell and chime components;
    - smoke and carbon monoxide alarms;

- improper use of extension cords;
- deficiencies in or absences of conduit, where applicable; and
- the absence of smoke alarms:
  - in each sleeping room;
  - outside each separate sleeping area in the immediate vicinity of the sleeping rooms; and
  - in the living space of each story of the dwelling.

- **The inspector is not required to:**
  - inspect low voltage wiring;
  - disassemble mechanical appliances;
  - verify the effectiveness of smoke alarms;
  - verify interconnectivity of smoke alarms;
  - activate smoke or carbon monoxide alarms that are or may be monitored or require the use of codes;
  - verify that smoke alarms are suitable for the hard of hearing ; or
  - remove the covers of junction, fixture, receptacle or switch boxes unless specifically required by these standards.

NOTES

Appliances

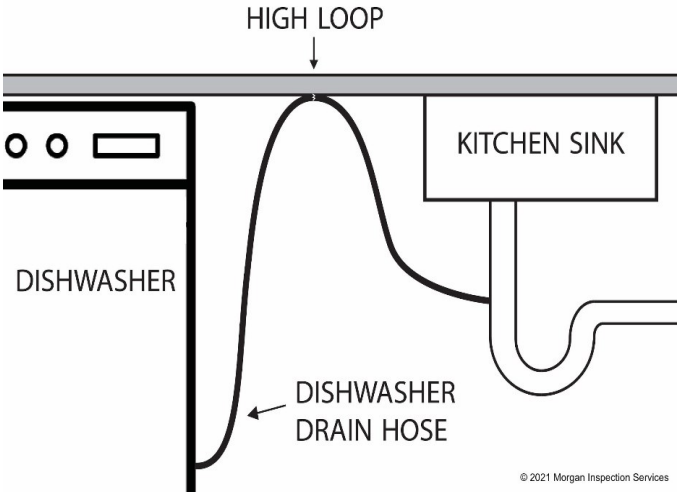
Dishwasher Back Flow Prevention

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.

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

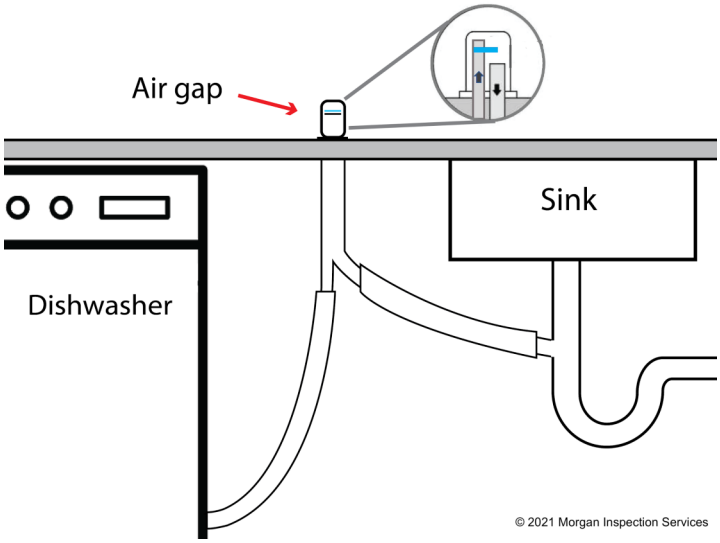
High Loop

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



Air Gap

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



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

Testing Garage Door Operator Safety Features

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

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

Prior to operating the garage door operator, it is recom-

mended 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, the SOPs requires an inspector to "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"

Based on item 3 above, a missing exhaust fan, if required, would constitute a "missing component."

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

Current building codes require that all bathrooms have some type of ventilation. They must either have a window that opens or an exhaust fan capable of moving and least 50 cfm of air. Code also states that the exhaust fan must discharge outside the home. While some municipalities do not enforce the requirement to discharge outside the home, the SOPs require inspectors to report as deficient an exhaust fan that does not discharge outside the home.

NOTES

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 back flow 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 scope consists of nine 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; (7) Garage Door Openers; (8) Dryer Exhaust Systems; and (9) Other.

General provisions

- The inspector is not required to:
  - operate or determine the condition of other auxiliary components of inspected items;
  - test for microwave oven radiation leaks;
  - inspect self-cleaning functions;
  - disassemble appliances;
  - determine the adequacy of venting systems; or
  - determine proper routing and lengths of duct systems.

Dishwashers

- The inspector shall report as Deficient:
  - inoperative units;
  - deficiencies in performance or mounting;
  - rusted, missing or damaged components;
  - the presence of active water leaks; and
  - the absence of backflow prevention.

Food waste disposers

- The inspector shall report as Deficient:
  - inoperative units;
  - deficiencies in performance or mounting;
  - missing or damaged components; and
  - the presence of active water leaks.

Range hoods and exhaust systems.

- The inspector shall report as Deficient:
  - inoperative units;
  - deficiencies in performance or mounting;
  - missing or damaged components;
  - ducts that do not terminate outside the building, if the unit is not of a re-circulating type or configuration; and
  - improper duct material.

Electric or gas ranges, cooktops, and ovens.

- The inspector shall report as Deficient:
  - inoperative units;
  - missing or damaged components;
  - combustible material within thirty inches above the cook top burners;
  - absence of an anti-tip device, if applicable;
  - gas leaks;
  - the absence of a gas shutoff valve within six feet of the appliance;
  - the absence of a gas appliance connector or one that exceeds six feet in length;
  - gas appliance connectors that are concealed within or extended through walls,

floors, partitions, ceilings or appliance housings; and
    - deficiencies in:
        - thermostat accuracy (within 25 degrees at a setting of 350° F);
        - mounting and performance;
        - gas shut-off valves;
        - access to a gas shutoff valves that prohibits full operation; and
        - gas appliance connector materials.

Microwave ovens

- The inspector shall inspect built-in units and report as Deficient:
    - inoperative units;
    - deficiencies in performance or mounting; and
    - missing or damaged components.

Mechanical exhaust systems and bathroom heaters

- The inspector shall report as Deficient:
    - inoperative units;
    - deficiencies in performance or mounting;
    - missing or damaged components;
    - ducts that do not terminate outside the building; and
    - a gas heater that is not vented to the exterior of the building unless the unit is listed as an unvented type.

Garage door operators

- The inspector shall report as Deficient:
    - inoperative units;
    - deficiencies in performance or mounting;
    - missing or damaged components;
    - installed photoelectric sensors located more than six inches above the garage floor; and
    - door locks or side ropes that have not been removed or disabled.

Dryer exhaust systems

- The inspector shall report as Deficient:
    - missing or damaged components;
    - the absence of a dryer exhaust system when provisions are present for a dryer;
    - ducts that do not terminate to the outside of the building;
    - screened terminations; and
    - ducts that are not made of metal with a smooth interior finish.

NOTES

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

Indoor plumbing became more available for most Americans about 100 years ago. According to www.theplumber.com, some rural areas did not have indoor commodes until the 1960's.

In 1954, Albert Einstein joked that rather than becoming a scientist, he could have been a plumber. That comment yielded him many invitations from plumbers to join the plumbing profession. As an inspector, when you observe a plumbing installation you should ask yourself, "Was this installed by an Einstein plumber or a handyman?"

An inspector should remember in broad terms, that plumbing systems protect the sanitary health of the nation. Home inspectors should be aware of plumbing conditions that may contaminate residential water systems or impact their client or community's health and safety. The client depends on the inspection to notify them if the plumbing installation is deficient. Deficiencies in a plumbing installation can cause not only future property damage but may make a client ill.

Home inspectors need to know more than "effluent runs downhill." Having a sufficient flow of water is an assumed expectation. Home inspectors also identify plumbing conditions that may contaminate residential water systems or impact their client or community's health and safety. Obvious leaks are relatively easy to spot. It's more challenging leaks that can be easily overlooked.

The picture below reflects what can happen when water is left on during the inspection and the property has a defective shower pan.

Photo credit: Brian Murphy

REMEMBER!

DO NOT LEAVE ANY ROOM WITH WATER RUNNING! (or you will pay…)

Plumbing Fixture Inspections

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

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.

Water Pressure Reducing Valves or Devices

Water pressure exceeding 80 psi should be reported as deficient. A water pressure reducing valve or device may be necessary to protect the plumbing system and fixtures that may be damaged from excessive or high water pressure. Older homes may have air chambers installed in the walls adjacent to some plumbing fixtures like the laundry connection. These can become waterlogged and no longer function. Shock arrestors may not be sufficient to protect piping from extreme water hammer conditions. Several types of plumbing fixtures and appliances may be damaged from high water pressures and water hammers. A water hammer results when a surge of high water pressure forces the water to stop or change direction abruptly.

The picture below is an example of a water pressure test at the outside hose bib.

Photo credit: Brian Murphy

The resulting damage to the piping or fixture may result in water that runs continuously and does not shut off. Significant water loss and water damage may occur. The fixture or parts may need to be replaced. Types of appliances or fixtures with valves that may be damaged from excessive high water pressure or water hammer events include water softeners, washing machines, dishwashers, icemakers, and toilet ballcocks.

Expansion Devices and Mixing Valves

When water pressure reducing valves or devices are in use, expansion devices like expansion tanks are also installed. 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 the same

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 water logged.

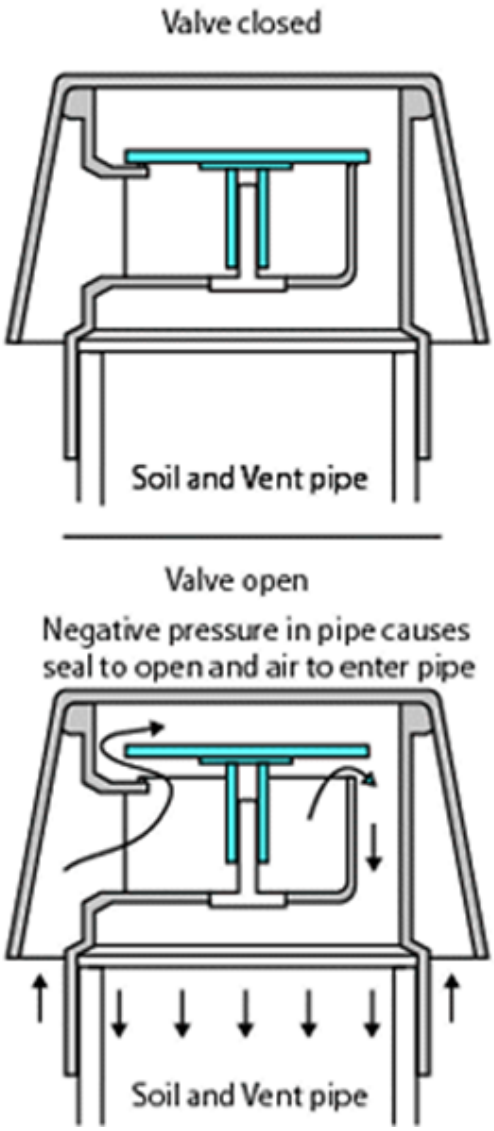
Common locations for mixing valves are in bathrooms where bathtubs that have separate hot and cold valves. The mixing valve is used to reduce scalding temperatures by mixing cold water into the hot water supply. This should be identified so the client knows where to access and adjust this valve as needed.

Sink Drain Vents and Air Admittance Valves

Sink drains that do not have separate air vents for the drain may have an air admittance valve. Island sink drain loop vents may be replaced with this type of vent. These mechanical devices are installed past the sink drain trap and extend towards the countertop of the sink cabinet area. They should be identified as an item to be monitored for possible future replacement. If a sewer gas odor is observed, the inspector should recommend replacement.

Below is an example of a sink drain and an air admittance valve. The diagram shows the valve closed and the valve open.

Photo credit: Brian Murphy



Gas Leak Detection

Gas distribution leaks should be reported as deficient. Testing for gas leaks does not require the use of an electronic gas detection device or leak detection bubbles. 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. Otherwise, the inspector should inform their client of their circumstance and encourage them to have someone else inspect for gas leaks.

The picture below is an example of a gas line leak test.

Photo credit: Brian Murphy

Gas Piping Systems and Gas Pressure Regulators

Gas piping systems should be sized to provide adequate BTU's to gas fixtures and appliances. The type of gas piping material used impacts the size, length, and pressure needed to meet BTU demands. Steel gas piping sizing is not the same as Corrugated Stainless Steel Tubing (CSST).

If the gas piping system has been altered from its original installation by a nonprofessional, further evaluation to verify proper installation of the gas piping is advised. One example is connecting a new gas line to a kitchen cooktop from the gas dryer piping.

Smaller gas supply lines may be used with higher gas pressure piping. This allows for the plumber to install a smaller gas line to a gas pressure regulator and still meet the BTU demands by feeding a manifold of smaller gas pipes. This reduces material costs and eases installations.

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.

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, Respondent performed a "Gas Line Leak Test." Respondent 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 Respondent his method for inspecting gas supply lines for leaks is 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: Respondent refunded the entire inspection fee of $895.10 back to the buyer, and agreed to cease to perform "Gas Line Leak Tests." Respondent 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. The picture below shows an example of testing a shower pan.

Photo credit: Brian Murphy

DISCUSSION

1. Should an inspector test for shower pan leaks?

2. What effects can foundation damage and repairs have on drain piping beneath a home and how can drain piping damage be detected?

Water Heater Safety

Why do people call it a hot water heater? Because it heats hot water. When a hot water heater continuously heats hot water, bad things can happen. 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. A homeowner may say that it has been there for 10 years and nothing bad has ever happened. Another perspective may be that the homeowner has been lucky for 10 years and a tragedy could happen at any moment.

Clients are mainly interested in knowing that they will have hot water. Most don't understand why it has a safety Temperature Pressure Relief Valve (TPRV). Inspections and re-inspections of safety devices are part of the inspector's responsibilities and duties. A complete inspection of the valve can be done by a licensed plumber. This entails removing and visually inspecting for accumulation of deposits and corrosion, and to ensure that it has not been altered or improperly repaired. Replacement of an old TPRV with a new TPRV may be recommended. Prevention of water heater explosions or personal injuries are reasons the TPRV should have a periodic re-inspection. Recommend to the client that a TPRV inspection log should be established for a record of inspection dates and inspection results for re-inspection of the TPRV.

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 plumber.

Water Heater Relief Valve Installation

The relief valve temperature sensor measures temperature and pressure. The relief valve temperature sensor should be located in the hottest part of the tank, typically the top 6 inches. The sensing element should be immersed in the hottest water (at the top 6 inches of the tank).

Usually a dripping relief valve is the result of thermal expansion or foreign material at the seat preventing it to close. A valve that relieves in volume is usually due to excessive high temperature. A new temperature and pressure relief valve should be installed when a water heater is replaced. Alterations of parts may result in devastating damage or injuries.

Plumbing Systems Standards Overview - §535.231

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

Plumbing systems

- The inspector shall report:
  - location of water meter;
  - location of homeowners main water supply shutoff valve; and
  - static water pressure;
- report as Deficient:
  - the presence of active leaks;

- the lack of a pressure reducing valve when the water pressure exceeds 80 PSI;
- the lack of an expansion tank at the water heater(s) when a pressure reducing valve is in place at the water supply line/system;
- the absence of:
  - fixture shut-off valves;
  - dielectric unions, when applicable;
  - back-flow devices, anti-siphon devices, or air gaps at the flow end of fixtures; and
- deficiencies in:
  - water supply pipes and waste pipes;
  - the installation and termination of the vent system;
  - the performance of fixtures and faucets not connected to an appliance;
  - water supply, as determined by viewing functional flow in two fixtures operated simultaneously;
  - fixture drain performance;
  - orientation of hot and cold faucets;
  - installed mechanical drain stops;
  - commodes, fixtures, showers, tubs, and enclosures; and
  - the condition of the gas distribution system.

- The inspector is not required to:
  - operate any main, branch, or shut-off valves;
  - operate or inspect sump pumps or waste ejector pumps;
  - verify the performance of:
    - the bathtub overflow;
    - clothes washing machine drains or hose bibbs; or
    - floor drains;
  - inspect:
    - any system that has been winterized, shut down or otherwise secured;
    - 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;
    - inaccessible gas supply system components for leaks;
    - for sewer clean-outs; or
    - for the presence or performance of private sewage disposal systems; or
  - determine:
    - quality, potability, or volume of the water supply; or
    - effectiveness of backflow or anti-siphon devices.

Water heaters

- The inspector shall report:
  - the energy source;
  - the capacity of the units;
- report as Deficient:
  - inoperative units;
  - leaking or corroded fittings or tanks;
  - damaged or missing components;
  - the absence of a cold water shut-off valve;
  - 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;
  - inappropriate locations;
  - the lack of protection from physical damage;
  - 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;
  - the absence of an opening that would allow access to equipment for inspection, service, repair or replacement without removing permanent construction or building finish;
  - when applicable; a floored passageway and service platform that would allow access for equipment inspection, service, repair or replacement;
  - the absence of or deficiencies in the temperature and pressure relief valve and discharge piping;
  - a temperature and pressure relief valve that failed to operate, when tested manually;
- The inspector is not required to:
  - verify the effectiveness of the temperature and pressure relief valve, discharge piping,

or pan drain pipes;
    - 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
    - determine the efficiency or adequacy of the unit.
- Requirements for electric units. The inspector shall report as Deficient deficiencies in:
    - performance of heating elements; and
    - condition of conductors; and
- Requirements for gas units. The inspector shall report as Deficient:
    - gas leaks;
    - flame impingement, uplifting flame, improper flame color, or excessive scale build-up;
    - the absence of a gas shut-off valve within six feet of the appliance;
    - the absence of a gas appliance connector or one that exceeds six feet in length;
    - gas appliance connectors that are concealed within or extended through walls, floors, partitions, ceilings or appliance housings;
    - deficiencies in:
        - combustion and dilution air;
        - gas shut-off valves;
        - access to a gas shutoff valves that prohibit full operation;
        - gas appliance connector materials; and
        - vent pipe, draft hood, draft, proximity to combustibles, and vent termination point and clearances.

Hydro-massage therapy equipment

- The inspector shall report as Deficient:
    - inoperative units;
    - the presence of active leaks;
    - deficiencies in components and performance;
    - missing and damaged components;
    - 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
    - the absence or failure of operation of ground -fault circuit interrupter protection devices; and
- The inspector is not required to determine the adequacy of self-draining features of circulation systems.

Optional Systems

Overview

Optional Systems include five items TREC has identified and deemed necessary to set a standard protocol to ensure the public is protected and inspectors understand what is expected of them.

An inspector is not required to inspect optional systems, and in fact, some home inspectors don't inspect any of them. Informal surveys indicate even fewer inspectors perform all five optional items. An average number of inspectors perform two or three optional systems, 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 were 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 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 (shut off) 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 layers of protection, especially for children. Most people think of fences, but they actually include structures that act as part of the perimeter. Gates may be self-closing & latching, 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, 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 gold 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.

Note: The SOPs list the presence of a single blockable main drain as a defect, but there are multiple ways to make a single drain safe such as a vacuum release system or an automatic pump shut-off system.

Outbuildings

The procedure for inspecting outbuildings. Inspections 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 like a workshop.

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 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 (Septic)

Septic systems are an emerging field for inspectors. Oddly, they are regulated by TCEQ in all areas except inspections. Septic system inspections can be performed by home inspectors but require additional training. Most inspectors who perform septic system 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.

Overview of Optional Systems SOPs

Note that an inspector is not required to inspect the components or systems described under this section. Also, if an inspector agrees to inspect a component or system described under this section, the general provisions under §535.227 of this title and the provisions and requirements of this section applicable to that component or system apply.

Landscape irrigation (sprinkler) systems

- the inspector shall:
    - manually operate all zones or stations on the system through the controller;
    - report as Deficient:
        - the absence of a rain or moisture sensor,
        - inoperative zone valves;
        - surface water leaks;
        - the absence of a backflow prevention device;
        - the absence of shut-off valves between the water meter and backflow device;
        - deficiencies in the performance and mounting of the controller;
        - missing or damaged components; and
        - deficiencies in the performance of the water emission devices; such as, sprayer heads, rotary sprinkler heads, bubblers or drip lines.
- The inspector is not required to inspect:
    - for effective coverage of the irrigation system;
    - the automatic function of the controller;
    - the effectiveness of the sensors; such as, rain, moisture, wind, flow or freeze sensors; or
    - sizing and effectiveness of backflow prevention device.

Swimming pools, spas, hot tubs, and equipment,

- the inspector shall.
    - report the type of construction;
    - report as Deficient:

        - a pump motor, blower, or other electrical equipment that lacks bonding;
        - the absence of or deficiencies in safety barriers;
        - water leaks in above-ground pipes and equipment;
        - the absence or failure in performance of ground-fault circuit interrupter protection devices; and
        - deficiencies in:
            * surfaces;
            * tiles, coping, and decks;
            * slides, steps, diving boards, handrails, and other equipment;
            * drains, skimmers, and valves;
            * filters, gauges, pumps, motors, controls, and sweeps;
            * lighting fixtures; and
            * the pool heater that these standards of practice require to be reported for the heating system.
- The inspector is not required to:
    - disassemble filters or dismantle or otherwise open any components or lines;
    - operate valves;
    - uncover or excavate any lines or concealed components of the system;
    - fill the pool, spa, or hot tub with water;
    - inspect any system that has been winterized, shut down, or otherwise secured;
    - determine the presence of sub-surface water tables;
    - determine the effectiveness of entrapment covers;
    - determine the presence of pool shell or sub-surface leaks; or
    - 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.

Outbuildings

- 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
- 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.

Private Water Wells

- The inspector shall:
    - operate at least two fixtures simultaneously;
    - recommend or arrange to have performed coliform testing;
    - report:
        - the type of pump and storage equipment;
        - the proximity of any known septic system;
    - report as Deficient deficiencies in:
        - water pressure and flow and performance of pressure switches;
        - the condition of accessible equipment and components; and
        - the well head, including improper site drainage and clearances.
- The inspector is not required to:
    - open, uncover, or remove the pump, heads, screens, lines, or other components of the system;
    - determine the reliability of the water supply or source; or
    - locate or verify underground water leaks.

Private Sewage Disposal (Septic) Systems

- The inspector shall:
    - report:
        - the type of system;
        - the location of the drain or distribution field;
        - 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;
    - report as Deficient:

- visual or olfactory evidence of effluent seepage or flow at the surface of the ground;
- inoperative aerators or dosing pumps; and
- deficiencies in:
    - accessible components;
    - functional flow;
    - site drainage and clearances around or adjacent to the system; and
    - the aerobic discharge system.

- The inspector is not required to:
    - excavate or uncover the system or its components;
    - determine the size, adequacy, or efficiency of the system; or
    - determine the type of construction used.

NOTES

Appendix A

Standard Report Form

PROPERTY INSPECTION REPORT

Prepared For: _____
(Name of Client)

Concerning: _____
(Address or Other Identification of Inspected Property)

By: _____ _____
(Name and License Number of Inspector) (Date)

_____
(Name, License Number of Sponsoring Inspector)

PURPOSE, LIMITATIONS AND INSPECTOR / CLIENT RESPONSIBILITIES

This property inspection report may include an inspection agreement (contract), addenda, and other information related to property conditions. If any item or comment is unclear, you should ask the inspector to clarify the findings. It is important that you carefully read ALL of this information.

This inspection is subject to the rules ("Rules") of the Texas Real Estate Commission ("TREC"), which can be found at www.trec.texas.gov.

The TREC Standards of Practice (Sections 535.227-535.233 of the Rules) are the minimum standards for inspections by TREC-licensed inspectors. An inspection addresses only those components and conditions that are present, visible, and accessible at the time of the inspection. While there may be other parts, components or systems present, only those items specifically noted as being inspected were inspected. The inspector is NOT required to turn on decommissioned equipment, systems, utility services or apply an open flame or light a pilot to operate any appliance. The inspector is NOT required to climb over obstacles, move furnishings or stored items. The inspection report may address issues that are code-based or may refer to a particular code; however, this is NOT a code compliance inspection and does NOT verify compliance with manufacturer's installation instructions. The inspection does NOT imply insurability or warrantability of the structure or its components. Although some safety issues may be addressed in this report, this inspection is NOT a safety/code inspection, and the inspector is NOT required to identify all potential hazards.

In this report, the inspector shall indicate, by checking the appropriate boxes on the form, whether each item was inspected, not inspected, not present or deficient and explain the findings in the corresponding section in the body of the report form. 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. General deficiencies include inoperability, material distress, water penetration, damage, deterioration, missing components, and unsuitable installation. Comments may be provided by the inspector whether or not an item is deemed deficient. The inspector is not required to prioritize or emphasize the importance of one deficiency over another.

Some items reported may be considered life-safety upgrades to the property. For more information, refer to Texas Real Estate Consumer Notice Concerning Recognized Hazards or Deficiencies below.

THIS PROPERTY INSPECTION IS NOT A TECHNICALLY EXHAUSTIVE INSPECTION OF THE STRUCTURE, SYSTEMS OR COMPONENTS. This inspection may not reveal all deficiencies. A real estate inspection helps to reduce some of the risk involved in purchasing a home, but it cannot eliminate these risks, nor can the inspection anticipate future events or changes in performance due to changes in use or occupancy. If is recommended that you obtain as much information as is available about this property, including seller's disclosures, previous inspection reports, engineering reports, building/remodeling permits, and reports performed for and by relocation companies, municipal inspection departments, lenders, insurers, and appraisers. You should also attempt to determine whether repairs, renovation, remodeling, additions, or other such activities have taken place at this property. It is not the inspector's responsibility to confirm that information obtained from these sources is complete or accurate or that this inspection is consistent with the opinions expressed in previous or future reports.

ITEMS IDENTIFIED IN THE REPORT DO NOT OBLIGATE ANY PARTY TO MAKE REPAIRS OR TAKE OTHER ACTIONS, NOR IS THE PURCHASER REQUIRED TO REQUEST THAT THE SELLER TAKE ANY ACTION. When a deficiency is reported, it is the client's responsibility to obtain further evaluations and/or cost estimates from qualified service professionals. Any such follow-up should take place prior to the expiration of any time limitations such as option periods.

Report Identification: _____

Evaluations by qualified tradesmen may lead to the discovery of additional deficiencies which may involve additional repair costs. Failure to address deficiencies or comments noted in this report may lead to further damage of the structure or systems and add to the original repair costs. The inspector is not required to provide follow-up services to verify that proper repairs have been made.

Property conditions change with time and use. For example, mechanical devices can fail at any time, plumbing gaskets and seals may crack if the appliance or plumbing fixture is not used often, roof leaks can occur at any time regardless of the apparent condition of the roof, and the performance of the structure and the systems may change due to changes in use or occupancy, effects of weather, etc. These changes or repairs made to the structure after the inspection may render information contained herein obsolete or invalid. This report is provided for the specific benefit of the client named above and is based on observations at the time of the inspection. If you did not hire the inspector yourself, reliance on this report may provide incomplete or outdated information. Repairs, professional opinions or additional inspection reports may affect the meaning of the information in this report. It is recommended that you hire a licensed inspector to perform an inspection to meet your specific needs and to provide you with current information concerning this property.

TEXAS REAL ESTATE CONSUMER NOTICE CONCERNING HAZARDS OR DEFICIENCIES

Each year, Texans sustain property damage and are injured by accidents in the home. While some accidents may not be avoidable, many other accidents, injuries, and deaths may be avoided through the identification and repair of certain hazardous conditions. Examples of such hazards include:

- malfunctioning, improperly installed, or missing ground fault circuit protection (GFCI) devices for electrical receptacles in garages, bathrooms, kitchens, and exterior areas;
- malfunctioning arc fault protection (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).

To ensure that consumers are informed of hazards such as these, the Texas Real Estate Commission (TREC) has adopted Standards of Practice requiring licensed inspectors to report these conditions as "Deficient" when performing an inspection for a buyer or seller, if they can be reasonably determined.

These conditions may not have violated building codes or common practices at the time of the construction of the home, or they may have been "grandfathered" because they were present prior to the adoption of codes prohibiting such conditions. While the TREC Standards of Practice do not require inspectors to perform a code compliance inspection, TREC considers the potential for injury or property loss from the hazards addressed in the Standards of Practice to be significant enough to warrant this notice.

Contract forms developed by TREC for use by its real estate license holders also inform the buyer of the right to have the home inspected and can provide an option clause permitting the buyer to terminate the contract within a specified time. Neither the Standards of Practice nor the TREC contract forms require a seller to remedy conditions revealed by an inspection. The decision to correct a hazard or any deficiency identified in an inspection report is left to the parties to the contract for the sale or purchase of the home.

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:

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:

IV. PLUMBING SYSTEMS

☐ ☐ ☐ ☐ **A. Plumbing Supply, Distribution Systems and Fixtures**
Location of water meter:
Location of main water supply valve:
Static water pressure reading:
Comments:

☐ ☐ ☐ ☐ **B. Drains, Wastes, and Vents**
Comments:

☐ ☐ ☐ ☐ **C. Water Heating Equipment**
Energy Sources:
Capacity:
Comments:

☐ ☐ ☐ ☐ **D. Hydro-Massage Therapy Equipment**
Comments:

☐ ☐ ☐ ☐ **E. Other**
Comments:

Report Identification: _____

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

I	NI	NP	D

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:

VI. OPTIONAL SYSTEMS

☐ ☐ ☐ ☐ **A. Landscape Irrigation (Sprinkler) Systems**
Comments:

☐ ☐ ☐ ☐ **B. Swimming Pools, Spas, Hot Tubs, and Equipment**
Type of Construction:
Comments:

☐ ☐ ☐ ☐ **C. Outbuildings**
Comments:

Report Identification: _____

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

I	NI	NP	D

☐ ☐ ☐ ☐ **D. Private Water Wells** (A coliform analysis is recommended.)
Type of Pump:
Type of Storage Equipment:
Comments:

☐ ☐ ☐ ☐ **E. Private Sewage Disposal (Septic) Systems**
Type of System:
Location of Drain Field:
Comments:

☐ ☐ ☐ ☐ **F. Other**
Comments:

Appendix B

Consumer Protection Notice (Form CN 1-3)

THE TEXAS REAL ESTATE COMMISSION (TREC) REGULATES
REAL ESTATE BROKERS AND SALES AGENTS, REAL ESTATE INSPECTORS,
HOME WARRANTY COMPANIES, 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 TWO RECOVERY FUNDS WHICH MAY BE USED TO SATISFY A CIVIL COURT JUDGMENT AGAINST A BROKER, SALES AGENT, REAL ESTATE INSPECTOR, 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 FUNDS, 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

Appendix C

"Inspector on Premises" Sign

Attention!!!

Home Inspection in Progress

A licensed TREC real estate inspector is on the property.

My name is _____

Unauthorized persons are not allowed on the property.

If you need assistance, please call my office at

____-____-_____

Inspection should be complete by ____:_____

Appendix D

Optional Equipment

TREC rule §535.227 explains that an 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. The inspection does not require the use of specialized equipment. However, some inspectors may choose to use some of the equipment listed below.

Tool Box
Voltage Continuity Tester
GFCI Tester
Voltage Sensor (Ultimate AC Sensor)
Insulated Screw drivers Phillips and Flathead
Flashlight (Streamlite)
Ratchet driver and ratchets ¼, 5/16, 3/8)
Klein Flathead Screwdriver
Mirror 36” extending handle
Razor knife
25 foot tape measure
Gas Log Starter Key
Channel Locks
Water Key / Wrench
Water Pressure (PSI) Gauge
Infrared Thermometer
Gas Leak Detector
Moisture Meter (Survey Master)
Lighter for gas logs
Little Giant Ladder
Extension Rod for Smoke Alarm
Zip-Level
Sharpie (Black)
Shower Stopper
Flat rubber stopper
Kitchen Sink stopper
MicroChek (Microwave leak detector)
Disposal Key

Crawl Suit / Dickies Coveralls
Shoe Covers
Computer
Keyboard, Mouse & Stylus
Computer case
Computer Bag
Camera Bag
Digital Camera
SD Card
USB / SD Thumb Drive
Supra Key Card or Ekey
Flir Camera
Drill Motor
Tramex moisture meter

Appendix E

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

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/