

Texas State Board of Plumbing Examiners
Plumbing Inspector
Examination Review Course

The following Examination Review Course is designed to assist an applicant in preparing for the Plumbing Inspector examination.

What to Expect From the Examination

The applicant for a Plumbing Inspector License (the “applicant”) will be tested on his or her knowledge and understanding of the proper installation of commercial and residential plumbing systems. The examination relates to plumbing inspections performed by a Plumbing Inspector. The examination consists of:

- 258 written multiple choice questions; including
 - 193 questions based on Plumbing Codes in general;
 - 30 questions based on the Plumbing Codes, specific to water heater installation;
 - 10 questions on medical gas piping installations;
 - 25 questions on the Plumbing License Law and Board Rules;
- 1 Fuel Gas Pipe Sizing chart;
- 1 Water Pipe Sizing chart;
- 1 Gas Fueled Appliance Vent Sizing chart; and
- 1 Drainage System Pipe Sizing chart.

Many of the multiple-choice questions will be answered while viewing both full-size and reduced-scale plumbing installations. Other multiple-choice questions will be answered while viewing illustrations of plumbing installations.

How to Study the Plumbing Codes

The applicant should study either the:

- **2012 International Plumbing Code and 2012 International Fuel Gas Code**, English and Spanish editions available by calling 800-786-4452 or website address is www.iccsafe.org/
- OR** the
- **2012 Uniform Plumbing Code**, available by calling 800-854-2766 or website address is <http://iapmostore.org/>

The examination is not specific to any one of the plumbing codes named above. In other words, the individual needs to study only one of the above named codes and not both. When preparing for the examination, the applicant should pay particular attention to the following chapters and subject matter listed under each chapter:

Chapter on Definitions

Studying a plumbing code should begin with learning and understanding the proper plumbing terms and their meanings found in the chapter on Definitions. When the proper terms and their meanings are known and understood, the applicant will find the other chapters in the plumbing code much easier to understand. The plumbing codes use only correct plumbing terms and do not contain any slang terms. Since the examination is based on the plumbing codes, only correct terms are used in the examination.

A Sample Question from the Plumbing Inspector Examination:

A vent pipe connecting upward from a soil or waste stack to a vent stack to prevent pressure changes in the stack is a:

- A. crown vent
- B. common vent
- C. loop vent
- D. yoke vent

Chapter on General Regulations or General Requirements

The chapter on general regulations or general requirements, generally addresses the requirements for the installation of plumbing. Some of the subjects in this chapter may be more specifically addressed in the other chapters of the code. Some of the subjects covered in this chapter include:

- types of materials and fixtures which may and may not be used;
- installation methods which may and may not be used;
- protection of piping from corrosion, stress, freezing and physical damage;
- proper bedding, support and protection of pipe installed in trenches and tunnels;
- limitations on cutting, notching and boring of the building structure;
- required types and methods of testing and inspection of the plumbing system.

A Sample Question from the Plumbing Inspector Examination:

New, altered, or replaced plumbing:

- A. may be covered if not inspected after 48 hours
- B. may be covered if all ends are exposed
- C. shall be left uncovered until inspected and approved
- D. may be covered if bad weather damage should occur

Chapter on Plumbing Fixtures

The chapter in the codes on plumbing fixtures addresses the approved types and sizes of fixtures, faucets and fixture fittings and their installation. Some of the subjects covered in this chapter are:

- water closets, bidets, lavatories, bathtubs, showers, sinks, automatic clothes washers, dish washers, food grinders;
- fixture fittings and accessories, such as p-traps, tailpieces, slip joint connections, flush valves and overflows in water closet tanks.

A Sample Question from the Plumbing Inspector Examination:

Water closets or bidets shall not be set closer than _____ from its center to any sidewall or partition.

- A. 10 inches
- B. 12 inches
- C. 15 inches
- D. 18 inches

Chapter on Water Heaters

The chapter on water heaters addresses the installation of water heaters, including the required connections, valves and safety devices. The chapter in the codes on fuel gas, also addresses many requirements for water heater installation and venting. Some of the subjects addressed in the chapter on Water Heaters are:

- approved locations of water heaters
- supply valves
- pressure and temperature relief valves and drains
- drain pans

During the examination, the applicant will view several water heater installations. Each water heater installation will be numbered. Each water heater will have the manufacturer's warning and statistical labels affixed to the water heater. Each water heater installation will contain some code violations, which must be identified by the applicant.

A Sample Question from the Plumbing Inspector Examination:

The combustion air openings in the water heater #1 closet are 8 inches in diameter. One is located 12 inches down from the ceiling to the center of the opening. The other is located near the bottom of the water heater, which is 18 inches off the floor. At 1 square inch of opening required per 2,000 Btu, the combustion air openings would be:

- A. properly located and sized.
- B. correctly sized, but the lower opening should be within 12 inches of the floor.
- C. correctly located, but should be at least 10 inches in diameter.
- D. sized correctly, but both openings should be in the upper 12 inches of the closet.

Chapter on Water Supply and Distribution

The chapter on water supply and distribution address materials and installation of hot and cold water supply and distribution systems. Some of the subjects covered in this chapter are:

- cross-connection contamination prevention, including vacuum breakers and air gaps;
- approved materials for water supply piping;
- required methods for installation of water piping, including threaded, solvent cement and solder joints.

A Sample Question from the Plumbing Inspector Examination:

An approved type pressure regulator should be used when water pressure is over _____ psi gauge:

- A. 40
- B. 60
- C. 80
- D. 100

Chapter on Sanitary Drainage

The chapter on sanitary drainage addresses the materials and installation of sanitary drainage piping systems. Some of the subjects covered in this chapter are:

- approved and prohibited materials for sanitary drain piping;
- required methods for installation of drainage piping, including solvent cement joints;
- required distance between building drain and water service;
- required locations of cleanouts;
- testing of sanitary drainage piping.

A Sample Question from the Plumbing Inspector Examination:

Which one of these fixtures has the highest fixture unit rating?

- A. Bathtub
- B. Water closet
- C. Lavatory
- D. Kitchen sink

Chapter on Indirect and Special Wastes

The Chapter on Indirect and Special Wastes addresses conditions often found to be specific to food handling establishments, health care and laboratory facilities. Much of this chapter is regarding the correct methods for providing air gaps and neutralizing devices for corrosive wastes.

A Sample Question from the Plumbing Inspector Examination:

Piping receiving the discharge of chemical wastes shall not be made of:

- A. glass
- B. copper
- C. corrosion resistant material
- D. high silicone cast iron

Chapter on Vents

The chapter on vents addresses the materials and installation of vent systems, which allow the sanitary drainage system to operate properly. Some of the subjects covered in this chapter are:

- the purpose of properly installed vent systems
- the different vent types and components which create a complete vent system
- vent terminals
- grading of vents
- connection of vent piping to sanitary drainage piping
- wet venting on the same floor versus wet venting one floor above another

A Sample Question from the Plumbing Inspector Examination:

Increasing vents by one pipe size will:

- A. provide increased drainage.
- B. allow a uniform installation.
- C. allow vents of longer lengths.
- D. allow vents to be shorter.

Chapter on Traps

The chapter on traps addresses the materials and installation of traps in the sanitary drainage system. Some of the subjects covered in this chapter are:

- design of different types of traps
- fixture traps
- protection of trap seals
- prohibited traps

A Sample Question from the Plumbing Inspector Examination:

What is the maximum acceptable distance from the fixture outlet to the trap weir, except for washing machines?

- A. 12 inches
- B. 24 inches
- C. 36 inches
- D. 58 inches

Chapter on Fuel Gas or Fuel Piping

The chapter on fuel gas or fuel piping addresses the pipes, valves, fittings and installation of those materials used for supplying fuel gas to water heaters and appliances. The applicant should be knowledgeable of the following subjects covered in this chapter:

- the different types of fuel gasses
- approved and prohibited materials for fuel gas piping
- testing of fuel gas systems

The applicant should also know that in order to install liquefied petroleum (L.P.) gas, a separate license issued by the Texas Railroad Commission must first be obtained by anyone who installs L.P. gas piping.

A Sample Question from the Plumbing Inspector Examination:

In a fuel gas steel pipe system, what size pipe shall be supported vertically at a minimum of every floor level?

- A. 1 ¼ inch or larger
- B. 1 inch
- C. ¾ inch
- D. ½ inch

What to Expect on the Pipe Sizing Charts

The applicant should know how to size fuel gas piping, water piping, fuel gas fired appliance vent piping and drainage piping, using the pipe sizing charts found in the plumbing and fuel gas codes. It should be noted that pipe sizing charts may vary, depending on which code is used. For that reason, the actual pipe sizing charts that the applicant will use during the examination will be mailed to the applicant after being scheduled for the examination and prior to the examination date. The applicant will have ample time to become familiar with the charts, prior to the examination.

- **Fuel Gas Pipe Sizing Chart**

The applicant will be provided a plan view diagram of fuel gas piping. The applicant will be expected to determine the minimum pipe sizes, beginning at a gas meter and continuing to a furnace, kitchen range (stove), clothes dryer and water heater.

- **Water Pipe Sizing Chart**

The applicant will be provided with an isometric diagram of water piping. The applicant will be expected to determine the minimum pipe sizes, beginning at the water meter and continuing to three hose bibs, two lavatories, two water closets, one shower, one bathtub, one sink, one laundry tray and one water heater.

- **Fuel Gas Fired Appliance Vent Pipe Sizing Chart**

The applicant will be provided with an elevation view diagram of an individual vent from one appliance and a combined vent system from two appliances. The applicant will be expected to determine the minimum pipe sizes of the vents.

- **Drainage Pipe Sizing Chart**

The applicant will be provided with isometric and riser diagrams of a five-story drainage system. The type and number of fixtures on each floor is provided. The applicant will be expected to determine the number of drainage fixture units and minimum pipe sizes for the drainage system.

How to Study the National Fire Protection Association NFPA 99C Standard on Gas and Vacuum Systems (Medical Gas and Vacuum Piping Installation Standards)

The applicant should obtain a copy of the National Fire Protection Association latest edition of *NFPA 99C Standard on Gas and Vacuum Systems*, and study the chapter sections which address the following subjects:

- Approved piping materials and markings
- Approved shutoff valves
- Locating piping in prohibited areas
- Testing methods and pressures
- Brazing procedures, filler materials and purging
- Pipe labeling
- Piping support spacing

The latest edition of *NFPA 99C Standard on Gas and Vacuum Systems* may be obtained by contacting NFPA by telephone at (800) 344-3555, or via internet at www.nfpa.org

A Sample Question from the Plumbing Inspector Examination:

Before closing of the walls, each section of the piping system shall be subjected to a test pressure of a minimum _____ psig.

- A. 50
- B. 60
- C. 150
- D. 200

How to Study the Plumbing License Law and Board Rules

The Plumbing License Law and Board Rules contain the regulations for persons who work in the plumbing industry to abide by. The applicant should be familiar with all of these regulations. However, for the purposes of preparing for the Plumbing Inspector examination, the applicant should study the **Plumbing License Law, Sections** 1301.351, 1301.356, 1301.403, 1301.404, 1301.452, 1301.502, 1301.508, 1301.701, 1301.702 and the **Board Rules, Sections** 361.1, 365.1, 367.2, 367.4, 367.5 and 367.7.

The Plumbing License Law and Board Rules are available on the Texas State Board of Plumbing Examiners website at www.tsbpe.state.tx.us or by calling the Board's office at 512-936-5200.

- A Sample Question from the Plumbing Inspector Examination:

A licensed Plumbing Inspector:

- A. may accept reasonable compensation or things of value from a contractor or owner whose work the Plumbing Inspector is inspecting.
- B. may own or work for a plumbing company as long as it is in a city other than where he/she performs inspections without violating the Plumbing License Law.
- C. may enforce the adopted plumbing code, but not the Plumbing License Law.
- D. shall enforce the adopted plumbing code and the Plumbing License Law consistently and equitably to all persons within his/her jurisdiction.

How to Apply to Take the Plumbing Inspector Examination

Once the applicant has:

- met the requirements to take the Plumbing Inspector examination; and
- has gained the knowledge and understanding of the proper installation of commercial and residential plumbing systems, as described in this preparation course;

the applicant may apply to take the Plumbing Inspector examination by submitting to the Board:

- a completed Plumbing Inspector examination application form;
- the examination fee; and
- other documentation detailed on the examination application form.

All forms are available on the Texas State Board of Plumbing Examiners website at www.tsbpe.state.tx.us or by calling the Board's office at 512-936-5200.