

**CHAPTER 4  
PLAN EXAMINER  
CURRICULUM OUTLINE**

(Only the Plan Examiner I curriculum is required for the PE1 certification)

<b>PLAN EXAMINER I</b>		
<b>SECTION</b>	<b>SUBJECT</b>	<b>RECOMMENDED HOURS</b>
470-7.1	General	1
470-7.2	Administration	6
470-7.3	Plans Review	29/33
	<b>TOTAL RECOMMENDED HOURS</b>	<b>40</b>

The recommended hours include time for skills evaluation and is based on 12 students. Hours needed depends on the actual number of students.

## REFERENCE LIST FOR THE BASIC FIRE INSPECTOR CURRICULUM

Certified Training Facilities approved to teach this curriculum must have the following reference materials:

*Emergency Response Guidebook*, (2016 edition). U.S. Department of Transportation

*Fire Inspection and Code Enforcement* (8<sup>th</sup> ed.) (2016). Stillwater, OK: Fire Protection Publications. International Fire Service Training Association.

*Hazardous Materials for First Responders* (5<sup>th</sup> Ed.) (2017). Stillwater, OK: Fire Protection Publications. International Fire Service Training Association.

Local Codes and Standards.

*NFPA 1031: Standard for Professional Qualifications for Fire Inspector and Plan Examiner* (2014 ed.). Quincy, MA: National Fire Protection Association. NFPA Publications.

*NFPA 472: Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents* (2013 ed.). Quincy, MA: National Fire Protection Association. NFPA Publications.

*Plans Examiner for Fire and Emergency Services* (2<sup>nd</sup> ed.) (2016). Stillwater, OK: Fire Protection Publications. International Fire Service Training Association.

*Standards Manual for Fire Protection Personnel*. Austin, TX: Texas Commission on Fire Protection.

## **Course Instructor Information**

### **Basic Fire Inspector**

#### **Overview**

The Fire Inspector curriculum is designed to provide clear guidance that ensures adequate presentation of the information required to meet the Job Performance Requirements (JPRs) of the National Fire Protection Association (NFPA) 1031, *Standard for Professional Qualifications for Fire Inspector and Plan Examiner*, 2014 Edition.

The Fire Inspector curriculum is chapter 4 of the Texas Commission on Fire Protection (TCFP) Curriculum Manual.

To qualify for the Fire Inspector certification, the Fire Inspector I and II curricula must be completed.

To qualify for the Plan Examiner I certification, only the Plan Examiner I curriculum must be completed.

If a student completed training under the Fire Inspector with Plan Examiner I curriculum (offered prior to March 1, 2019), the student is eligible for both the Fire Inspector and Plan Examiner I certification if all sections of the exam are passed. If the student passes only the Inspector I and II sections of the exam, the student is only eligible for the Fire Inspector certification.

<b>Certification Level</b>	<b>TCFP Section Number</b>	<b>NFPA 1031 Chapter</b>
Fire Inspector I	401	4
Fire Inspector II	402	5
Plan Examiner I	470	7

#### **Layout**

The NFPA numbering sequence is mirrored to allow easy correlation between this document and the NFPA standard. For example, 401-4.2.1 identifies the section in TCFP's Fire Inspector curriculum that corresponds to NFPA section 4.2.1.

#### **NFPA Appendix Information**

When a section references information from "Annex A Explanatory Material" in the NFPA standard, it is identified by adding an "A" to the section number. For example, 401-A.4.2.5 identifies the section in Inspector I that corresponds to NFPA Annex A information for NFPA section 4.2.5.

### TCFP Standards Manual

It is critical that the course instructor review the chapters in the TCFP Standards Manual that apply to this curriculum. Of primary importance are the following chapters:

- Chapter 421, Standards for Certification
- Chapter 437, Fees
- Chapter 429, Fire Inspector Certification
- Chapter 439(e)(2), Examinations
- Chapter 449.5, Certification as Head of a Prevention Only Department

These chapters do not address every issue that could impact this curriculum. Therefore, the course instructor is encouraged to become familiar with the TCFP Standards Manual.

### Supplemental Information

Instructors are expected to provide supplemental information if the main reference (textbook) does not provide adequate information to ensure successful completion of the JPRs as listed in the curriculum.

### Components of the Curriculum

Each section of the curriculum identifies the NFPA JPR and subdivides the requisite knowledge requirements into learning components. For example:

Curriculum	Explanation
<b>401-4.2.6</b> Participate in legal proceedings, given the findings of a field inspection or a complaint and consultation with legal counsel, so that all information is presented and the inspector's demeanor is professional.	Section number and NFPA JPR
<b>Requisite Knowledge:</b> The legal requirements pertaining to evidence rules in the legal system, types of legal proceedings.	Requisite knowledge statement
1. The legal requirements pertaining to evidence rules in the legal system a. Texas Rules of Evidence	First part of requisite knowledge
2. Types of legal proceedings a. Appeals i. Appeals boards ii. Appeals hearings b. Criminal c. Civil	Second part of requisite knowledge
<b>Requisite Skills:</b> The ability to maintain a professional courtroom demeanor, communicate, listen, and differentiate facts from opinions.	Requisite skills statement

### **Skills**

NFPA requisite skill requirements are address in the corresponding skill sheets. The skills are combined depending on whether the skill relates to General, Field Inspection, Administration, or Plans Review.

### **Levels of Certification**

The Fire Inspector I conducts basic fire inspections and applies codes and standards.

The Fire Inspector II conducts most types of inspections and interprets applicable codes and standards.

The Plan Examiner I analyzes building construction, hazardous processes and architectural drawings or plans to ensure compliance with building and fire codes.

# **PLAN EXAMINER I**

## SECTION 470

### PLAN EXAMINER I

#### **470-7.1**

#### **General**

The Plan Examiner I shall meet the job performance requirements defined in Sections 7.2 and 7.3.

#### **470-7.2**

#### **Administration**

This duty involves the review of plans, preparation of correspondence and plan review reports, communication with fire inspectors and emergency response personnel, handling of complaints, maintenance of records, participation in legal proceedings, identification of when additional expertise is required, and familiarity with procedures used by the jurisdiction to evaluate alternative methods, according to the following job performance requirements.

#### **470-A.7.2**

Maintaining an open dialogue with fire inspectors and emergency response personnel is a key component of the duties of Plan Examiner I.

#### **470-7.2.1**

Prepare reports, given observations from a plan review, so that the report is clear and concise, and reflects the findings of the plan review in accordance with applicable codes and standards and the policies and procedures of the jurisdiction.

#### **Requisite Knowledge:**

1. Codes and standards
  - a. Reasons for construction permits
  - b. Ordinances
  - c. Code amendments
  - d. Code models
  - e. Code types
  - f. Code references
  - g. Plans review checklists
2. Legal requirements for plan review reports
  - a. Administrative
  - b. Judicial
3. Accepted practices, policies, and procedures of the jurisdiction
  - a. Plans review
  - b. Building and life safety components
  - c. Design, permitting and construction processes
  - d. Plans review organizations

e. Plans

**Requisite Skills:** The ability to conduct code-related research and write reports.

**470-7.2.2** Facilitate the resolution of deficiencies identified during the plan review, given a submittal and the established policies and procedures of the jurisdiction, so that deficiencies are identified, documented, and reported to the plan submitter with applicable references to codes and standards.

**470-A.7.2.2** The plan review process should not select or direct the design of fire protection features; it is intended to evaluate the compliance of a proposed fire protection feature for a given hazard.

**Requisite Knowledge:**

1. Policies and procedures of the jurisdiction regarding the communication of discrepancies
2. The appeals process
  - a. Plan review process
  - b. Plan submittal and processing
  - c. Legal proceedings
3. Codes and standards
  - a. Code references
4. Alternate design
  - a. Materials
  - b. Methods
  - c. Equivalencies
  - d. Board of appeals
  - e. Performance-based codes
  - f. Performance-based design process

**Requisite Skills:** The ability to communicate orally and in writing.

**470-7.2.3** Process plan review documents, given a set of plans and specifications, so that required permits are issued in accordance with the policies of the jurisdiction.

**Requisite Knowledge:**

1. Plan review policies and procedures of the jurisdiction
  - a. Design analysis
  - b. Abbreviations and symbols



- c. Measurements
  - d. Plan set organization
2. Site, plot, utility and landscape plans
  3. Architectural plans
  4. Structural plans
  5. Mechanical plans
  6. Electrical plans
  7. Fire protection system plans
  8. Hazardous materials and processes
  9. Membrane structures and tents

**Requisite Skills:** The ability to review applications for completeness.

**470-7.2.4** Determine the applicable code or standard, given a fire protection issue, so that the proper document, edition, and section are referenced.

**470-A.7.2.4** The plan examiner should enforce only those codes and standards that have been legally adopted by the jurisdiction. The plan examiner should retroactively apply codes and standards only when authorized to do so by the jurisdiction.

**Requisite Knowledge:**

1. Applicable codes and standards adopted by the jurisdiction
  - a. Automatic sprinkler systems
  - b. Standpipes
  - c. Fire alarm and detection systems
  - d. Automatic elevators
  - e. Fire command center
  - f. Restaurant kitchen systems
  - g. Gaseous extinguishing agents and systems
  - h. Smoke control systems
  - i. Portable fire extinguishers
2. Format of codes and standards
  - a. Code models
  - b. Code types

- c. Code references
3. Interrelationship of codes and standards
  - a. Nationally recognized codes and standards
  - b. Jurisdiction adopted codes and amendments
  - c. State statute, rules and regulations
4. Procedures adopted by the organizations responsible for promulgating these documents
  - a. Model code groups
  - b. Nationally recognized standards
  - c. Local jurisdiction

**Requisite Skills:** The ability to conduct code-related research, apply codes and standards, and make decisions.

### **470-7.3**

#### **Plans Review**

This duty involves the review and approval of plans for life and fire issues including interior finish, occupancy type, height and area limitations, construction type, and general fire safety and the identification of the requirements for fire protection systems and permits, to ensure that the plans meet the intent of applicable codes and standards for fire and life safety, according to the following job requirements.

- 470-7.3.1** Identify the requirements for fire protection or a life safety system, given a set of plans, so that deficiencies are identified, documented, and reported in accordance with the policies and procedures of the jurisdiction.

#### **Requisite Knowledge:**

1. Applicable code requirements for life safety systems
  - a. Occupancy classification
  - b. Means of egress
  - c. Fire protection features
  - d. Building services
2. Interior finish
3. Third-party testing and evaluation

**Requisite Skills:** The ability to read basic floor plans or shop drawings and identify symbols used and apply codes and standards.

- 470-7.3.2** Verify the occupancy classification, given a set of plans, specifications, and a description of a building and its intended use, so that the

classification is made in accordance with the applicable codes and standards and the policies of the jurisdiction.

**Requisite Knowledge:**

1. How to calculate occupant loads for an occupancy and for building use
2. Code requirements for various occupancies
3. Regulations for various occupancies
4. Operational features for various occupancies
5. Fire hazards presented by various occupancies

**Requisite Skills:** The ability to calculate occupant loads, identify occupancy factors related to various occupancy types, and use measuring tools.

**470-7.3.3** Verify the construction type, given a set of plans, including the occupancy classification area, height, number of stories, and location, so that the building is in accordance with applicable codes and standards and deficiencies are identified, documented, and reported.

**Requisite Knowledge:**

1. Types of construction
2. Fire-rated construction components
3. Typical building construction methods and materials
4. Code requirements related to construction types

**Requisite Skills:** The ability to read plans, determine construction types, and conduct code-related research.

**470-7.3.4** Verify the occupant load, given a set of plans, so that the maximum allowable occupant load is in accordance with applicable codes and standards.

**Requisite Knowledge:**

1. How to calculate occupant loads for an occupancy and for building use

2. Code requirements for various occupancies
3. Regulations for various occupancies
4. Operational features for various occupancies
5. Fire hazards presented by various occupancies

**Requisite Skills:** The ability to calculate occupant loads, identify occupancy factors related to various occupancy types, and use measuring tools.

**470-7.3.5** Verify that required egress is provided, given a set of plans and an occupant load, so that all required egress elements are provided and deficiencies are identified, documented, and reported in accordance with the policies of the jurisdiction.

**470-A.7.3.5** This individual should be able to calculate occupant loads and determine occupant egress capabilities and systems. He or she should be able to cite multiple references from various codes and standards that reflect an understanding of the topic.

**Requisite Knowledge:**

1. Applicable code requirements for means of egress elements
  - a. Components
  - b. Capacity
  - c. Number
  - d. Arrangement
  - e. Travel distance
  - f. Discharge
  - g. Illumination
  - h. Emergency lighting
  - i. Marking
  - j. Special provisions
2. Occupancy egress requirements
  - a. General
  - b. Specific
3. The relationship of fixed fire protection systems to egress requirements
  - a. Fire alarm
  - b. Fire suppression

- c. Smoke control
- d. Elevator controls

**Requisite Skills:** The ability to determine egress requirements based on occupant load and research codes.

**470-7.3.6** Evaluate code compliance for required fire flow and hydrant location and spacing, given a plan, codes and standards, and fire flow test results, so that hydrants are correctly located, required fire flow is determined, and deficiencies are identified, documented, and reported in accordance with the policies and procedures of the jurisdiction.

**Requisite Knowledge:**

1. Standard civil engineering symbols
2. Types of water supply and distribution systems
3. Water distribution system test methods
4. Characteristics of public and private water supply systems,
5. Water meters, backflow prevention and other devices that can impact on fire flow
6. The effects of friction loss and elevation on water flow
7. Potential impact of state health regulations on fire flow
8. The applicable codes and standards related to fire flow in the jurisdiction

**Requisite Skills:** The ability to interpret fire flow test results, determine fire hydrant locations and spacing, and read fire flow graphs.

**470-7.3.7** Evaluate emergency vehicle access, given a plan, so that emergency access is provided in accordance with applicable codes and standards and deficiencies are identified, documented, and reported in accordance with the policies of the jurisdiction.

**Requisite Knowledge:**

1. Operating requirements for fire department apparatus
  - a. Minimum inside/outside radii
  - b. Minimum width
  - c. Minimum vertical clearance

- d. Weight
- 2. Planning and zoning requirements
- 3. Emergency access requirements of applicable codes and standards
  - a. Acceptable surfaces
  - b. Specifications for dead end roads, turnarounds, cul-de-sacs and access gates
  - c. Markings

**Requisite Skills:** The ability to interpret and use plan scale.

**470-7.3.8** Recommend policies and procedures for the delivery of plan review services, given management objectives, so that plan reviews are conducted in accordance with the policies of the jurisdiction and due process of the law is followed.

**Requisite Knowledge:**

- 1. Policies and procedures of the jurisdiction related to plan review
- 2. Sources of detailed and technical information relating to fire protection and life safety
  - a. Nationally recognized codes and standards
  - b. Professional organizations
  - c. Trade organizations

**Requisite Skills:** The ability to identify construction methods and materials related to fire safety, read and interpret construction plans and specifications, communicate orally and in writing, educate, research, make decisions, recognize problems, and resolve conflicts.

**470-7.3.9** Participate in legal proceedings, given the findings of a plan review and consultation with legal counsel, so that testimony is accurate and the plan reviewer's demeanor is appropriate to the proceeding.

**470-A.7.3.9** The committee intends that this requirement encompass preparation, documentation, and presentation in a formal proceeding, such as a deposition, administrative hearing, or court proceeding.

**Requisite Knowledge:**

- 1. The legal requirements pertaining to evidence rules in the legal system
  - a. Vernon's Civil Statutes
  - b. Code of Criminal Procedure

- c. Texas Rules of Evidence
2. The types of legal proceedings
  - a. Civil
  - b. Criminal
  - c. Administrative (e.g., Board of Appeals, sanctions, fire marshal order)
  - d. Statutory

**Requisite Skills:** Familiarity with courtroom demeanor, communication, and listening skills and the ability to differentiate facts from opinions.

**470-7.3.10** Evaluate plans for the installation of fire protection and life safety systems, given a plan submittal, so that the fire protection systems, including pre-engineered systems, and equipment are reviewed and deficiencies are identified, documented, and reported in accordance with the policies and procedures of the jurisdiction.

**Requisite Knowledge:**

1. Applicable codes and standards for fire protection systems
2. Basic physical science as it relates to fire behavior and fire suppression
3. Basic system design criteria
4. Material listing requirements
5. Material specifications
6. Installation techniques
7. Acceptance inspection/testing of completed installations
8. Construction types and techniques
9. Classification of occupancies

**Requisite Skills:** The ability to review specifications, read plans, classify occupancies, and apply standards.