Date: December 30, 2013

To: Ronny J. Coleman, Chairman
    Statewide Training and Education Advisory Committee
    c/o State Fire Training

From: Mark Romer, Fire Service Training Specialist, State Fire Training

Subject/Agenda Action Item: 2013 Plan Examiner Standards and Curriculum

Recommended Actions: Information/Discussion

Background Information:

The Plans Examiner certification level was established in July 1997 prior to this time it was known as Fire Prevention Officer III. It is the third in a series of professional certification that lead to Certification as a Fire Marshal.

The Plans Examiner certification track requires that a person complete the course of study which consists of two courses

1. Fire Prevention 3A: Hydraulic Sprinkler Calculations
2. Fire Prevention 3B: Plan Checking

In addition to the completion of these two courses the person must be certified by the Office of the State Fire Marshal as a Fire Protection Specialist (which equals the new Fire Inspector II 2013 vers.) and hold a current Fire Code Inspector certification from the International Code Council (ICC).

In 2010 the whole Fire Prevention certification track went under a complete revision with the main emphasis on using NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plan Examiner as the driving document for the new certification track. It was during this process that State Fire Training decided to completely revamp the curriculum development process. During this time Plan Examiner was placed on the back burner while the new process was developed and finalized. Once that was completed Fire Inspector I and II were place into the new formats since they had already been brought before STEAC for approval. Plan Examiner has now been placed into the new format and is up for consideration by STEAC.
Analysis/Summary of Issue:

Plan Examiner now becomes a standalone certification combining both level I and II together under the new system. In the NFPA Professional Qualification Standards under the general section you will find prerequisites, chapter 7, 7.1 states “The Plan Examiner I shall meet the Job Performance Requirements (JPRs) defined in sections 7.2 and 7.3 and for Level II Chapter 8, 8.1 the Plan Examiner II shall meet the JPRs defined in chapter 7 and sections 8.2 and 8.3”. You will note that there is no requirement for a plan Examiner to first have been an Inspector.

Our new certification process for Plan Examiner will consist of the educational requirement that now consists of three courses:

- Plan Examiner 3A
- Plan Examiner 3B
- Plan Examiner 3C

The certification process for Plan Examiner will also include the completion of a task book and in the future a certification Examination that will consist of both a written exam and skills testing.

Two other considerations regarding these revised standards and curriculum that will be addressed in the future include a timeline plan to implement these changes and addressing instructor qualifications to teach the revised courses. For the purpose of this report we are focusing on the standards and the curriculum to meet those standards.
Plan Examiner

Certification Training Standards Guide

[Month Year]

California Department of Forestry and Fire Protection
Office of the State Fire Marshal
State Fire Training
This CTS guide utilizes NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plan Examiner (2009) to provide the qualifications for State Fire Training’s Plan Examiner certification.

State Fire Training coordinated the development of this CTS guide. Before its publication, the Statewide Training and Education Advisory Committee (STEAC) and the State Board of Fire Services (SBFS) recommended this CTS guide for adoption by the Office of the State Fire Marshal (OSFM).
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State Fire Training

Mission
To enable the California Fire Service to safely protect life and property through education, training, and certification.

The California Fire Services Training and Education System
The California Fire Service Training and Education System (CFSTES) was established to provide a single statewide focus for fire service training in California. CFSTES is a composite of all the elements that contribute to the development, delivery, and administration of training for the California fire service. The authority for the central coordination of this effort is vested in the Training Division of the California State Fire Marshal's Office with oversight provided by the State Board of Fire Services.

CFSTES facilitates, coordinates, and assists in the development and implementation of standards and certification for the California fire service. CFSTES:
1. Administers the California Fire Academy System
2. Provides accredited courses leading to certification and approved standardized training programs for local and regional delivery
3. Administers the national accreditation process in California
4. Publishes certification training standards, course plans, and a capstone task book for each certified level in the California fire service

CFSTES is a fire service system developed by the fire service, for the fire service. It is only as successful and effective as the people involved in it.
Acknowledgments

State Fire Training appreciates the hard work and accomplishments of those who built the solid foundation on which this program continues to grow.

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The development and publication of this CTS guide was funded in part by the Assistance to Firefighters Grant Program from the U.S. Department of Homeland Security. State Fire Training is grateful to the U.S. Department of Homeland Security for its financial contribution toward the completion of this project.
How to Read a CTS Guide

State Fire Training develops a Certification Training Standards (CTS) Guide for a variety of job functions in the fire service such as firefighter, driver/operator, fire instructor, and company officer. The CTS guide lists the requisite knowledge and skills and the job performance requirements a person is expected to complete in order to become certified in a specific function. CTS guides are appropriate for fire service personnel and individuals in related occupations pursuing State Fire Training certification.

Each CTS guide serves as a foundation for the certification programs recommended for adoption by the Office of the State Fire Marshal. Any certification program must be based on job-related knowledge and measurable performance standards. To master the knowledge and skills needed for specialized operations, individuals will require additional training to augment the performance standards included in the CTS guide.

Within the CTS guide, it is impossible to capture the different policies and procedures of each organization in the California fire service. Individuals aspiring to meet State Fire Training's certification training standards must do so in accordance with the codes, standards, regulations, policies, and standard operating procedures applicable within their own departments or jurisdictions.

Format
Each certification training standard included in the CTS guide includes the following:

Section Heading
The section heading describes a general category for a group of training standards. For example, the Fire Marshal CTS includes the following sections: Administration, Risk Management, Community Relations, Professional Development, Regulatory Programs, Fire and Life Safety, and Investigation. Each section contains one or more individual training standards.

Training Standard Title
The training standard title provides a general description of the performance requirement contained within the standard.

Authority
The CTS guide references each standard with one or more paragraphs of the corresponding National Fire Protection Association (NFPA) Professional Qualifications. This ensures that each fire service function within California's certification system meets or exceeds NFPA standards.
When California requirements exceed the NFPA standard, the CTS guide cites the Office of the State Fire Marshal as the authority and prints the corresponding information in *italics*.

**Given**
This section lists the objects, equipment, materials, or facilities an individual needs in order to acquire the requisite knowledge and skills or to accomplish the job performance requirement(s) within a training standard.

**Requisite Knowledge and Skills**
This section lists the knowledge and skills that an individual must acquire in order to accomplish the job performance requirement(s) within a training standard.

This section does not include NFPA requisite knowledge or skills that are too general to teach or that individuals should develop through life experiences. For example, a training standard would not list “communicate orally and in writing” or “ability to relate interpersonally” unless they specifically apply to a job performance requirement about acquiring communication skills or developing interpersonal relationships.

**Job Performance Requirements**
This section includes one or more written statements that describe a specific job-related task and define measurable or observable outcomes. After an individual completes all coursework and requisite requirements, the capstone task book process verifies completion of job performance requirements.

**Content**
In addition to the individual certification training standards, the CTS guide also includes State Fire Training Revisions and Errata pages.

**State Fire Training Content**
Located at the back of the CTS guide, this table documents any significant revisions made by State Fire Training to the NFPA standards in the development of this CTS guide. This table is used to justify content additions and advise the course plan development team.

**Errata**
Located at the back of the CTS guide, this page documents any changes made to the CTS guide outside of the five-year NFPA revision cycle.
Plan Examiner I

Section 1: Definition of Duties

1-1: Definition of Duties for Plan Examiner

Authority
  • Paragraph 7.2
  • Paragraph 7.3

Given
1. There are no givens identified for this training standard.

Requisite Knowledge and Skills
1. Identify the administrative duties of a plan examiner.
2. Identify the plan review duties of a plan examiner.

Job Performance Requirements
There are no job performance requirements identified for this training standard.
Section 2: Administration

2-1: Preparing Reports

Authority
- Paragraph 7.2.1

Given
1. Observations from a plan review

Requisite Knowledge and Skills
1. Describe the legal requirements for plan review reports.
2. Discuss the accepted practices, policies, and procedures of the jurisdiction.
3. Conduct code-related research.
4. Write reports.

Job Performance Requirements
Prepare clear and concise reports that reflect the findings of a plan review in accordance with applicable codes and standards and jurisdictional policies.
2-2: Resolving Deficiencies during a Plan Review

Authority
• Paragraph 7.2.2

Given
1. A plan submittal
2. Established policies and procedures of the jurisdiction

Requisite Knowledge and Skills
1. Identify the policies and procedures of the jurisdiction regarding the communication of discrepancies.
2. Describe the appeals process.
3. Identify codes and standards.

Job Performance Requirements
Facilitate the resolution of deficiencies identified during a plan review. Identify, document with applicable references to codes and standards, and report to the plan submitter any deficiencies identified during a plan review.
2-3: Processing Plan Review Documents

Authority
- Paragraph 7.2.3

Given
1. A set of plans and specifications

Requisite Knowledge and Skills
1. Describe the plan review policies and procedures of the jurisdiction.
2. Review applications for completeness.

Job Performance Requirements
Process plan review documents, resulting in the issuance of required permits in accordance with the policies of the jurisdiction.
2-4: Determining Applicable Codes and Standards

Authority
- Paragraph 7.2.4

Given
1. A fire protection issue

Requisite Knowledge and Skills
1. *Discuss the* applicable codes and standards adopted by the jurisdiction.
2. *Describe the* format of codes and standards.
3. *Describe the* interrelationship of codes and standards.
4. *Describe* procedures adopted by the organizations responsible for promulgating these documents.
5. Conduct code-related research.
6. Apply codes and standards.

Job Performance Requirements
Determine the applicable code or standard, referencing the proper document, edition, and section.
Section 3: Plan Review

3-1: Identifying Requirements for Fire Protection or Life Safety Systems

Authority
- Paragraph 7.3.1

Given
1. A set of plans

Requisite Knowledge and Skills
1. Identify applicable code requirements for:
   - Life safety systems
   - Interior finishes
   - Third-party testing and evaluation
2. Read basic floor plans or shop drawings.
3. Identify the symbols used on a set of plans.
4. Apply codes and standards.

Job Performance Requirements
Identify the requirements for fire protection or a life safety system and identify, document, and report deficiencies in accordance with jurisdictional policies and procedures.
3-2: Verifying an Occupancy Classification and Maximum Allowable Occupant Loads

Authority
   - Paragraph 7.3.2
   - Paragraph 7.3.4
2. Office of the State Fire Marshal

Given
1. A set of plans
2. Specifications
3. A description of a building and its intended use

Requisite Knowledge and Skills
1. Describe how to calculate occupant loads for an occupancy and for building use based upon the various occupancies’:
   - Code requirements
   - Regulations
   - Operational features
   - Fire hazards
2. Calculate occupant loads.
3. Identify occupancy factors related to various occupancy types.
4. Use measuring tools.

Job Performance Requirements
1. Verify an occupancy classification in accordance with the applicable codes and standards and the policies of the jurisdiction.
2. Verify that a maximum allowable occupant load is in accordance with applicable codes and standards.
3-3: Verifying Construction Type

Authority
- Paragraph 7.3.3

Given
1. A set of plans, including the occupancy classification area and height, number of stories, and location

Requisite Knowledge and Skills
1. Describe types of construction
2. Discuss fire-rated construction components.
3. Describe typical building construction methods and materials.
4. Discuss code requirements related to construction types.
5. Determine construction types.
6. Conduct code-related research.

Job Performance Requirements
1. Verify that a building’s construction type is in accordance with applicable codes and standards and identify, document, and report deficiencies.
3-5: Verifying Egress Provision

Authority
- Paragraph 7.3.5

Given
1. A set of plans
2. An occupant load

Requisite Knowledge and Skills
1. Describe applicable code requirements for means of egress elements.
2. Discuss occupancy egress requirements.
3. Discuss the relationship of fixed fire protection systems to egress requirements.
4. Determine egress requirements based on occupant load.
5. Research codes.

Job Performance Requirements
Verify the provision of required egress, ensuring all egress elements have been provided and identifying, documenting, and reporting deficiencies in accordance with jurisdictional policies.
3-6: Evaluating Fire Flow Compliance

Authority
  • Paragraph 7.3.6

Given
1. A plan
2. Codes and standards
3. Fire flow test results

Requisite Knowledge and Skills
1. Identify standard civil engineering symbols.
2. Describe the types of water supply and distribution systems.
3. Describe water distribution system test methods.
4. Discuss characteristics of public and private water supply systems, including:
   • Water meters
   • Backflow prevention
   • Other devices that can impact fire flow
5. Analyze the effects of friction loss and elevation on water flow.
6. Discuss the potential impact of state health regulations on fire flow.
7. Describe the applicable codes and standards related to fire flow in the jurisdiction.
8. Interpret fire flow test results.
9. Determine fire hydrant locations and spacing.
10. Read fire flow graphs.

Job Performance Requirements
Evaluate code compliance for required fire flow and hydrant location and spacing, verifying correct hydrant location, determining required fire flow, and identifying, documenting, and reporting deficiencies in accordance with jurisdictional policies and procedures.
3-7: Evaluating Emergency Vehicle Access

Authority
  • Paragraph 7.3.7

Given
1. A plan

Requisite Knowledge and Skills
1. Discuss the operating requirements for fire department apparatus.
2. Identify planning and zoning requirements.
3. Describe emergency access requirements of applicable codes and standards.
4. Interpret and use plan scale.

Job Performance Requirements
Evaluate emergency vehicle access to ensure emergency access is provided in accordance with applicable codes and standards, while identifying, documenting, and reporting deficiencies in accordance with jurisdictional policies.
3-8: Recommending Plan Review Policies and Procedures

Authority
  • Paragraph 7.3.8

Given
1. Management objectives

Requisite Knowledge and Skills
1. Discuss the policies and procedures of the jurisdiction related to plan review.
2. Identify sources of detailed and technical information relating to fire protection and life safety.
3. Identify construction methods and materials related to fire safety.
4. Read and interpret construction plans and specifications.

Job Performance Requirements
Recommend policies and procedures for delivering plan reviews conducted in accordance with jurisdictional policies and due process of the law.
3-9: Participating in Legal Proceedings

Authority
• Paragraph 7.3.9

Given
1. The findings of a plan review
2. Consultation with legal counsel

Requisite Knowledge and Skills
1. Describe the legal requirements pertaining to evidence rules in the legal system.
2. Identify the types of legal proceedings.
3. Describe appropriate courtroom demeanor.
4. Differentiate facts from opinions.

Job Performance Requirements
Participate in legal proceedings, giving accurate testimony and with appropriate demeanor.
Plan Examiner I
Section 3: Plan Review

3-10: Reviewing Plans for Installing Fire Protection and Life Safety Systems

Authority
• Paragraph 7.3.10

Given
1. A plan submittal

Requisite Knowledge and Skills
1. Discuss the applicable codes and standards for fire protection systems.
2. Describe basic physical science as it relates to fire behavior and fire suppression.
3. Identify basic system design criteria.
4. Describe material listing requirements and specifications.
5. Describe installation techniques.
6. Describe acceptance inspection and testing of completed installations.
7. Review specifications.
8. Classify occupancies.
9. Apply standards.

Job Performance Requirements
Evaluate plans for the installation of fire protection and life safety systems, including pre-engineered systems, and equipment, and identify, document, and report deficiencies in accordance with jurisdictional policies.
Plan Examiner II
Section 4: Definition of Duties

4-1: Definition of Duties of Plan Examiner II

Authority
  • Paragraph 8.2
  • Paragraph 8.3

Given
1. There are no givens identified for this training standard.

Requisite Knowledge and Skills
1. Identify the administrative duties of a Plan Examiner II.
2. Identify the plan review duties of a Plan Examiner II.

Job Performance Requirements
There are no job performance requirements identified for this training standard.
Section 5: Administration

5-1: Creating Plan Review Checklists and Forms

Authority
Paragraph 8.2.1

Given
1. Applicable codes and standards
2. Departmental policies and procedures

Requisite Knowledge and Skills
1. Describe plan-review elements required by codes, standards, policies, and procedures of the jurisdiction.
2. Design checklists.

Job Performance Requirements
Create plan review checklists and forms that address key issues and clearly express jurisdictional code requirements.
5-2: Developing Plan Review Policies and Procedures

Authority
   - Paragraph 8.2.2
2. Office of the State Fire Marshal

Given
1. Management objectives

Requisite Knowledge and Skills
1. Discuss the legal requirements that affect the plan examiner’s duties.
2. Discuss the various systems of government that affect the plan examiner’s duties.
3. Discuss jurisdictional requirements used in the development of policies and procedures.
4. Identify sources of information used in the development of policies and procedures.
5. Describe the technical assistance used in the development of policies and procedures.

Job Performance Requirements
Develop and define policies and procedures for administering plan review functions in accordance with the jurisdiction's legal obligations.
Section 6: Plan Review

6-1: Evaluating Design Concepts

Authority
- Paragraph 8.3.1

Given
1. A preliminary design presentation

Requisite Knowledge and Skills
1. Discuss fire protection and life safety construction features.
2. Describe the jurisdiction’s preliminary plan review procedures.
3. Discuss the approval process for alternative fire protection methodologies.
4. Evaluate code compliance of conceptual designs.

Job Performance Requirements
Evaluate a proposed design concept to verify that it meets the intent of applicable codes and standards and is in accordance with jurisdictional policies and procedures.
6-2: Evaluating Proposed Passive Fire Protection Elements

Authority
   • Paragraph 8.3.2

Given
1. A set of plans and specifications for a building or facility

Requisite Knowledge and Skills
1. Explain fire protection construction features, such as:
   • Rated assemblies
   • Fire stops
   • Draft stopping
   • Draft curtains
   • Other passive fire protection features
2. Describe fire test methods.
3. Verify the rating of an assembly using reference materials.

Job Performance Requirements
Evaluate proposed passive fire protection elements of a building or portion of a building to verify that the protection provided for the facility is in accordance with applicable codes and standards, and identify, document, and report deficiencies in accordance with jurisdictional policies.
6-3: Evaluating Plans for a Process or Operation

Authority
   • Paragraph 8.3.3

Given
1. Plans and specifications

Requisite Knowledge and Skills
1. Describe the hazards of various operations used in commercial and industrial occupancies.
2. Identify applicable standards for arrangement and protection of various operations to be used in commercial and industrial occupancies.
3. Describe basic physical science principles relating to fire behavior and fire suppression, including mathematics, physics, and chemistry.
4. Identify reference materials related to fire hazard properties of flammable liquids, gases, and volatile solids.
5. Interpret codes and standards.

Job Performance Requirements
Evaluate plans for a process or operation, reviewing the process or operation for compliance with applicable codes and standards and identifying, documenting and reporting deficiencies in accordance with applicable codes, standards, and jurisdictional policies and procedures.
6-4: Evaluating Plans for Storage, Handling, and Use of Flammable and Combustible Liquids and Gases

Authority
- Paragraph 8.3.4

Given
1. Plans and specifications

Requisite Knowledge and Skills
1. *Describe* properties of flammable and combustible liquids and gases.
2. *Discuss* applicable standards for the handling, storage, arrangement, and protection of flammable and combustible liquids and gases.
3. Determine the classification of flammable and combustible liquids and gases using reference materials on fire protection.

Job Performance Requirements
Evaluate plans for storage, handling, and use of flammable and combustible liquids and gases, and identify, document, and report deficiencies in accordance with applicable codes, standards, and jurisdictional policies and procedures.
6-5: Evaluating Plans for Installing Fire Protection and Life Safety Systems

Authority
- Paragraph 8.3.5

Given
1. A plan submittal

Requisite Knowledge and Skills
2. Identify applicable codes and standards for fire protection systems.
3. Describe hydraulic theory.
4. Describe hydraulic calculations for fire suppression.
5. Identify construction types and techniques.
7. Classify occupancies.
8. Interpret codes and standards.

Job Performance Requirements
Evaluate plans for the installation of fire protection and life safety systems, and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies and procedures.
6-6: Evaluating a Proposed Alternative Method for Compliance

Authority
   • Paragraph 8.3.6
2. Office of the State Fire Marshal

Given
1. Supporting documentation of a design for a proposed alternate method of compliance

Requisite Knowledge and Skills
1. Explain how a building should perform under adverse conditions, including the objectives and performance requirements reflecting the level of safety required by the jurisdiction or other performance-based regulation for a process or operation.
2. Evaluate alternative proposals to prescriptive codes and standards.

Job Performance Requirements
Evaluate a proposed alternative method for compliance with applicable codes and standards to ensure that the design meets the intent of applicable codes and standards.
6-7: Evaluating Systems Integration

Authority
  • Paragraph 8.3.7

Given
1. A plan submittal
2. A life safety report
3. A sequence of operations report
4. Testing criteria

Requisite Knowledge and Skills
1. Explain the fire and life safety objectives.
2. Describe fire protection and life safety systems and their integration
3. Evaluate system integration.

Job Performance Requirements
Evaluate the integration of life safety, fire protection, security, and building service systems to ensure that the integration of proposed systems meets the requirements or intent of applicable codes and standards and the fire and life safety objectives of the jurisdiction, and identify, document, and report deficiencies in accordance with jurisdictional policies.
6-8: Evaluating Plans for Hazardous Materials Storage, Handling, and Use

Authority
- Paragraph 8.3.8

Given
1. Plans and specifications

Requisite Knowledge and Skills
2. Describe the properties of hazardous materials.
3. Identify applicable standards for handling, storage, arrangement, and protection of hazardous materials.
4. Identify reference materials related to hazardous materials.
5. Determine the classification of hazardous materials using reference materials.

Job Performance Requirements
Evaluate plans for storage, handling, and use of hazardous materials for compliance, and identify, document, and report deficiencies in accordance with applicable codes, standards, and jurisdictional policies and procedures.
6-9: Verifying Egress System and Elements

Authority
   - Paragraph 8.3.9
2. Office of the State Fire Marshal

Given
1. A plan of a building or portion of a building

Requisite Knowledge and Skills
1. Describe field verification practices.
2. Describe compliance of the egress system.

Job Performance Requirements
Identify and verify the provision of all egress elements, and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies.
6-10: Evaluating a Plan with Special Storage Arrangements

Authority
   - Paragraph 8.3.10
2. Office of the State Fire Marshal

Given
1. A plan with special storage arrangements

Requisite Knowledge and Skills
1. Discuss application of codes and standards adopted by the jurisdiction for special storage arrangements.
2. Determine commodity types and storage arrangements.

Job Performance Requirements
Evaluate a plan with special storage arrangements, identifying, documenting, and reporting deficiencies in accordance with adopted codes and standards and jurisdictional policies.
6-11: Evaluating Building Service Equipment and Operations

Authority
- Paragraph 8.3.11

Given
1. Plans and specifications

Requisite Knowledge and Skills
1. *Describe* types, installation, maintenance, and use of building service equipment and smoke control systems.
2. *Describe* installation of kitchen cooking equipment (including hoods and ducts), laundry chutes, elevators, and escalators.
3. *Identify* applicable codes and standards adopted by the jurisdiction.
4. Apply, read, and interpret HVAC plans.

Job Performance Requirements
Evaluate heating, ventilation, air conditioning, and other building service equipment and operations to verify that the systems and other equipment are designed in accordance with applicable codes and standards, and identify, document, and report deficiencies in accordance with jurisdictional policies.
6-12: Evaluating Performance-Based Design Concepts

Authority
- Paragraph 8.3.12

Given
1. A preliminary design presentation

Requisite Knowledge and Skills
1. Describe the approval process for alternative performance-based fire protection methodologies.
2. Discuss performance-based concepts.
3. Describe the development of appropriate input values based on building type and anticipated use.
4. Identify jurisdictional and code requirements.
5. Recognize deviations from the prescriptive code.
7. Determine and present appropriate design input values and parameters based on building type and anticipated use.

Job Performance Requirements
Evaluate a performance-based design concept to ensure that the proposed concept meets the intent of applicable codes and standards in accordance with jurisdictional policies and procedures.
6-13: Evaluating Community or Wildland-Urban Interface Plans

Authority
Office of the State Fire Marshal

Given
1. A set of landscape plans for a development or community
2. A set of landscape plans for a wildland–urban interface environment

Requisite Knowledge and Skills
1. Describe basic wildland fire behavior.
2. Describe wildland–urban interface fire progression.
3. Describe codes and standards related to a development’s or community’s landscape plan.
4. Describe codes and standards related to a wildland-urban interface landscape plan.
5. Describe the infrastructure considerations for grading and improvement plans.
6. Identify and evaluate design and maintenance standards for open space areas adjacent to new development projects.
7. Describe how to evaluate ignition-resistant standards relating to buildings located in the wildland-urban interface.
8. Describe how to evaluate fuel management considerations on landscape plans for buildings in the wildland-urban interface.
9. Describe how to process wildland–urban interface landscape plans in order to issue required or applicable permits.

Job Performance Requirements
Evaluate landscape plans for a development, community, or a wildland–urban interface, ensuring compliance with applicable codes and standards and identifying, documenting, and reporting deficiencies according to jurisdictional policies and procedures, resulting in the issuance of required or applicable permits.
6-14: Evaluating Proposed Tenant Improvements

Authority
Office of the State Fire Marshal

Given
1. A set of plans for a tenant improvement

Requisite Knowledge and Skills
1. Describe how to evaluate a proposed tenant improvement or change in occupancy classification.
2. Describe the requirements for determining damage repair.
3. Describe the application process to repair or restore a building to its use.
4. Describe the requirements for increasing the fire protection systems in an existing building under tenant improvements or repair.
5. Describe the requirements for a historic building under repair or renovation.
6. Describe the requirements for demolition and fire safety during construction.

Job Performance Requirements
Evaluate a proposed tenant improvement or change in occupancy for a building or portion of a building, ensuring compliance with applicable codes and standards, and identifying, documenting, and reporting deficiencies according to jurisdictional policies and procedures.
State Fire Training Content

Code Key

Blocks
- G = Given
- RKS = Requisite Knowledge and Skills
- JPR = Job Performance Requirements
- NCTS = New certification training standard

Sources
- [ACRONYM = Title]
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Certification: [Certification Title]

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<td>Title 14, Division 1.5, Chapter 7, Subchapter 2, Articles 1–5</td>
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## Errata

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Basic Plan Review
Course Plan

Course Details

Certification: Plan Examiner
CTS Guide: Plan Examiner
Description: This course provides information on processing plan review documentation, applying codes and standards, plan review procedures, occupancy classification, evaluating construction type and egress compliance, and verification of building access and design requirements.

Designed For: Those desiring to become plan examiners
Prerequisites: None
Standard: Complete all activities and formative tests.
Complete all summative tests with a minimum score of 80%.

Hours: Lecture: 27:30
Activities: 6:00
Testing: 2:30

Hours (Total): 36:00
Maximum Class Size: 30
Instructor Level: Primary
Instructor/Student Ratio: 1:30
Restrictions: None
SFT Designation: CFSTES
Required Resources

Instructor Resources
To teach this course, instructors need:

- Plans Examiner for Fire and Emergency Services, 1st edition
- California Building Code
- California Fire Code (with Title 19 excerpts)

Online Instructor Resources
The following instructor resources are available online at
http://osfm.fire.ca.gov/training/instructorscorner.php:
- Basic Plan Review course plan

Student Resources
To participate in this course, students need:

- California Building Code
- California Fire Code (with Title 19 excerpts)
- Plans Examiner for Fire and Emergency Services, 1st edition
Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective
At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives
1. Identify facility requirements
   - Restroom locations
   - Food locations
   - Smoking locations
   - Emergency procedures
2. Identify classroom requirements
   - Start and end times
   - Breaks
   - Electronic device policies
   - Special needs and accommodations
   - Other requirements as applicable
3. Review course syllabus
   - Course objectives
   - Calendar of events
   - Course requirements
   - Student evaluation process
   - Assignments
   - Activities
   - Required student resources
   - Class participation requirements

Discussion Questions
1. What is a formative test? What is a summative test?

Activities
1. To be determined by the instructor.

Topic 1-2: Plan Examiner Certification Process

Terminal Learning Objective
At the end of this topic, a student will be able to identify different levels in the Plan Examiner certification track and the courses and requirements for certification, and be able to describe the capstone task book and testing process.

Enabling Learning Objectives
1. Identify the different levels of certification in the Plan Examiner certification track
2. Identify the courses required for Plan Examiner certification
   - Plan Examiner 3A
   - Plan Examiner 3B
   - Plan Examiner 3C
3. Identify any other requirements for Plan Examiner certification
4. Describe the capstone task book process
   - Complete all prerequisites and course work
   - Submit application and fees to request capstone task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training
5. Describe the capstone testing process
   - Complete course work
   - Schedule online capstone test
   - Schedule skills evaluation test

Discussion Questions
1. How many levels are there in the Plan Examiner certification track? What are they?

Activities
1. To be determined by the instructor.

Topic 1-3: Definition of Duties

Terminal Learning Objective
At the end of this topic, a student, given AHJ policies and procedures, will be able to define the role of the plan examiner in the fire department, following proper plan check procedures, using proper communication techniques, handling complaints according AHJ standards, and ensuring code compliance of all building designs submitted.

Enabling Learning Objectives
1. Identify the administrative duties of a plan examiner.
   - Reviewing plans
   - Preparing correspondence and plan review reports
   - Communicating with:
     o Fire inspectors
     o Emergency response personnel
     o Building department and planning department
     o Public works
   - Handling complaints
   - Maintaining records
Plan Examiner 3A

- Participating in legal proceedings
- Identifying when additional expertise is required
- Familiarity with procedures used by the jurisdiction to evaluate alternative methods
- Researching
- Interpreting codes
- Implementing policy
- Participating in legal proceedings
- Creating forms and job aids

2. Identify the plan review duties of a plan examiner.
   - Reviewing and approving plans for life and fire issues including interior finish, occupancy type, height and area limitations, construction type, and general fire safety
   - Identifying requirements for fire protection systems and permits
   - Analyzing and approving plans, specifications, and construction documents for buildings, processes, operations, and fire protection systems and equipment

Discussion Questions
1. Why is it important to establish good communications with the building and planning departments?
2. How do you, as a plan reviewer, verify that the spirit of the law has been carried out?
3. Define the working relationship between field personnel and the plan examiner.
4. How do you prioritize plans to be reviewed?

Activities
1. To be determined by the instructor.

CTS Guide Reference: CTS 1-1, 4-1

Unit 2: Plan Review Documents

Topic 2-1: Processing Plan Review Documents

Terminal Learning Objective
At the end of this topic, a student, given a set of plans and specifications, will be able to process plan review documents, resulting in the issuance of required permits in accordance with the policies of the jurisdiction.

Enabling Learning Objectives
1. Review applications for completeness
   - Required information
   - Required submittals
2. Describe the plan review policies and procedures of the jurisdiction
3. Research any existing information or files for the given property

Discussion Questions
1. What should the plan examiner do with an incomplete submittal?
2. What are approved plans with contingencies?
3. What are deferred submittals and when are they appropriate?

Activities
1. To be determined by the instructor.

CTS Guide Reference: CTS 2-3

Topic 2-2: Determining Applicable Codes and Standards

Terminal Learning Objective
At the end of this topic, a student, given a fire protection issue, will be able to determine the applicable code or standard, referencing the proper document, edition, and section.

Enabling Learning Objectives
1. Discuss the applicable codes, ordinances, and standards adopted by the jurisdiction
2. Describe the format of codes and standards
3. Describe the interrelationship of codes and standards
   • Building standards versus non-building standards
4. Describe procedures adopted by the organizations responsible for promulgating these documents
5. Conduct code-related research
6. Apply codes and standards

Discussion Questions
1. How do you address a known hazard for which you are not the authority having jurisdiction?
2. How does the plan examiner determine which codes are applicable? Describe factors affecting this.

Activities
1. To be determined by the instructor

CTS Guide Reference: CTS 2-4

Topic 2-3: Preparing Reports

Terminal Learning Objective
At the end of this topic, a student, given observations from a plan review, will be able to prepare clear and concise reports that reflect the findings of a plan review in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives
1. Describe the legal requirements for plan review reports
2. Discuss the accepted practices, policies, and procedures of the jurisdiction
3. Conduct code-related research
4. Write reports

Discussion Questions
1. When is it appropriate to indicate deficiencies directly on the plan or submitted documents?
2. How do you cite code sections and related deficiencies on a report? Why?
Activities
1. To be determined by the instructor.

CTS Guide Reference: CTS 2-1

Topic 2-4: Resolving Deficiencies during a Plan Review

Terminal Learning Objective
At the end of this topic, a student, given a plan submittal and established policies and procedures of the jurisdiction, will be able to facilitate the resolution of deficiencies identified during a plan review. Identify, document with applicable references to codes and standards, and report to the plan submitter any deficiencies identified during a plan review.

Enabling Learning Objectives
1. Identify the policies and procedures of the jurisdiction regarding the communication of discrepancies
2. Identify the policies and procedures for resubmitting plans
3. Describe the appeals process
4. Identify codes and standards

Discussion Questions
1. How can the plan examiner resolve plan discrepancies on a plan to avoid multiple resubmittals?
2. Is there a time when it is appropriate to terminate a plan submission prior to completing the review?
3. How much consultation can a plan examiner provide to a designer to assist him or her with achieving plan approval?
4. How can preformatted comments expedite the plan review process?

Activities
1. To be determined by the instructor.

CTS Guide Reference: CTS 2-2

Topic 2-5: Creating Plan Review Checklists and Forms

Terminal Learning Objective
At the end of this topic, a student, given applicable codes and standards and departmental policies and procedures, will be able to create plan review checklists and forms that address key issues and clearly express jurisdictional code requirements.

Enabling Learning Objectives
1. Describe plan-review elements required by codes, standards, policies, and procedures of the jurisdiction
2. Describe checklist formats, including:
   - Web-based applications
   - Automated methods
   - Interactive methods
   - Paper
3. Design checklists

Discussion Questions
1. What is the purpose of a checklist and who is the intended audience?
2. What should appear on a checklist?

Activities
1. The instructor should create an activity requiring students to design their own checklists.

CTS Guide Reference: CTS 5-1

Topic 2-6: Recommending and Developing Plan Review Policies and Procedures

Terminal Learning Objective
At the end of this topic, a student, given management objectives, will be able to recommend, develop, and define policies and procedures for administering plan review functions in accordance with the jurisdiction’s legal obligations.

Enabling Learning Objectives
1. Discuss the legal requirements that affect the plan examiner’s duties
2. Discuss the various systems of government that affect the plan examiner’s duties
3. Discuss jurisdictional requirements used in the development of policies and procedures
4. Identify sources of information used in the development of policies and procedures
5. Describe the technical assistance used in the development of policies and procedures
6. Discuss the policies and procedures of the jurisdiction related to plan review
   - Sources of detailed and technical information relating to fire protection and life safety
   - Construction methods and materials related to fire safety
   - Construction plans and specifications

Discussion Questions
1. What types of issues would need to be addressed in policies and procedures for a plan review program?
2. When is it appropriate to seek legal counsel while reviewing proposed policies?
3. What kinds of ethical issues might be addressed in policies and procedures?

Activities
1. Instructor should develop an activity requiring small groups of students to brainstorm, identifying topics covered by plan-review-process policies or procedures. Follow with a classroom discussion.

CTS Guide Reference: CTS 5-2, 3-8

Topic 2-7: Participating in Legal Proceedings

Terminal Learning Objective
At the end of this topic, a student, given the findings of a plan review ad consultation with legal counsel, will be able to participate in legal proceedings, giving accurate testimony and with appropriate demeanor.

Enabling Learning Objectives
1. Describe the legal requirements pertaining to evidence rules in the legal system
2. Types of legal proceedings:
   - Depositions
   - Administrative hearings
   - Court proceedings
3. Describe appropriate courtroom demeanor
4. Differentiate facts from opinions
   - Fact-based testimony
   - Expert testimony

Discussion Questions
1. In an administrative hearing, can the governing body produce a ruling less than the minimum code? Why or why not?

Activities
1. To be determined by the instructor.

CTS Guide Reference: CTS 3-9

Unit 3: Evaluation and Verification

Topic 3-1: Identifying Requirements for Fire Protection or Life Safety Systems

Terminal Learning Objective
At the end of this topic, a student, given a set of plans, will be able to identify the requirements for fire protection or a life safety system and identify, document, and report deficiencies in accordance with jurisdictional policies and procedures.

Enabling Learning Objectives
1. Identify applicable code requirements for:
   - Life safety systems
   - Fire protection
   - Fire protection systems
   - Interior finishes
   - Third-party testing and evaluation
2. Read basic floor plans or shop drawings
   - Title page
   - Legend
   - General notes
3. Identify the symbols used on a set of plans
4. Apply codes and standards

Discussion Questions
1. How much contact should you have with the designer during the review process?

Activities
1. Instructor should create an activity requiring students to look at multiple sets of plans, evaluating their scopes.
Plan Examiner 3A

Instructor Notes
1. Classrooms should be set up to permit students to open up construction documents at their work stations.
2. Activity 3-1 will be the first activity in a series of activities using the construction documents.

CTS Guide Reference: CTS 3-1

Topic 3-2: Verifying an Occupancy Classification and Maximum Allowable Occupant Loads

Terminal Learning Objective
At the end of this topic, a student, given a set of plans, specifications, and a description of a building and its intended use, will be able to verify an occupancy classification and a maximum allowable occupant load in accordance with the applicable codes and standards and the policies of the jurisdiction.

Enabling Learning Objectives
1. Describe types of building uses
2. Describe how to calculate occupant loads for an occupancy and for building use based upon the various occupancies’:
   - Code requirements
   - Regulations
   - Operational features
   - Fire hazards
3. Calculate occupant loads
   - Square footage
   - Fixed seating
4. Identify occupancy factors related to various occupancy types
5. Use measuring tools

Discussion Questions
1. What is the difference between use and occupancy classification?
2. How are occupant loads used?

Activities
1. The instructor should create an activity requiring students to calculate the occupant load of the dining area in the plan set provided with the recommended textbook or another plan provided by the instructor.

CTS Guide Reference: CTS 3-2

Topic 3-3: Verifying Construction Type
Plan Examiner 3A

Terminal Learning Objective
At the end of this topic, a student, given a set of plans, including the occupancy classification area and height, number of stories, and location, will be able to verify that a building’s construction type is in accordance with applicable codes and standards and identify, document, and report deficiencies.

Enabling Learning Objectives
1. Describe types of construction
2. Discuss fire-rated construction components
3. Describe typical building construction methods and materials
4. Discuss code requirements related to construction types
   - Minimum type
   - Maximum height
   - Maximum area
   - Location/property line
   - Height and area increases
5. Determine construction types
6. Conduct code-related research

Discussion Questions
1. How does a mezzanine affect the height and area of a building?
2. What is the relationship between a building’s size and its construction type?
3. How does the presence of an automatic sprinkler system impact construction type choices?
4. What is an imaginary property line?

Activities
1. The instructor should create an activity addressing height and area increases.

CTS Guide Reference: CTS 3-3

Topic 3-4: Verifying Egress Compliance

Terminal Learning Objective
At the end of this topic, a student, given a set of plans for a building or portion of a building and an occupant load, will be able to identify and verify the provision of required egress and egress elements, ensuring all egress elements have been provided and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives
1. Describe applicable code requirements for means of egress elements
2. Describe compliance of the egress system
3. Discuss occupancy egress requirements
4. Discuss the relationship of fixed fire protection systems to egress requirements
5. Determine egress requirements based on occupant load
6. Describe field verification practices
Discussion Questions

1. Where are occupants considered safe, other than a public way?
2. Is a corridor part of access or exit?

Activities

1. The instructor should create an activity requiring students to evaluate egress compliance for the plans included with the textbook.

CTS Guide Reference: CTS 3-5, 6-9

Topic 3-5: Evaluating Emergency Vehicle Access

Terminal Learning Objective

At the end of this topic, a student, given a plan, will be able to evaluate emergency vehicle access to ensure emergency access is provided in accordance with applicable codes and standards, while identifying, documenting, and reporting deficiencies in accordance with jurisdictional policies.

Enabling Learning Objectives

1. Discuss the operating requirements for fire department apparatus
2. Identify planning and zoning requirements
3. Describe emergency access requirements of applicable codes and standards
4. Determine fire hydrant locations and spacing
5. Interpret and use plan scale

Discussion Questions

1. What is the maximum distance of a fire hydrant from a structure?
2. How can parking plans impact fire apparatus access?
3. When would the plan examiner require more than twenty feet for a fire lane?
4. How do you identify fire lanes in your jurisdiction?

Activities

None (see instructor notes).

Instructor Notes

1. Activity 3-6 pertains to topics 3-5 and 3-6.

CTS Guide Reference: CTS 3-7

Topic 3-6: Evaluating Fire Flow Compliance

Terminal Learning Objective

At the end of this topic, a student, given a plan, codes and standards, and fire flow test results, will be able to evaluate code compliance for required fire flow and hydrant location and spacing, verifying correct hydrant location, determining required fire flow, and identifying, documenting, and reporting deficiencies in accordance with jurisdictional policies and procedures.

Enabling Learning Objectives

1. Identify standard civil engineering symbols
2. Describe the types of water supply and distribution systems
3. Describe water distribution system test methods
4. Discuss characteristics of public and private water supply systems, including:
   - Water meters
   - Backflow prevention
   - Other devices that can impact fire flow
5. Analyze the effects of friction loss and elevation on water flow
6. Discuss the potential impact of state health regulations on fire flow
7. Describe the applicable codes and standards related to fire flow in the jurisdiction
8. Interpret fire flow test results
9. Read fire flow graphs

Discussion Questions
1. How should fire flow be distributed through multiple hydrants?
2. How do fire flow requirements vary in rural versus urban areas and/or commercial versus residential buildings?

Activities
1. The instructor should create an activity requiring students to use their civil drawings to determine compliance for fire flow hydrants along fire apparatus access.

Instructor Notes
1. Activity 3-6 applies to both topics 3-5 and 3-6.

CTS Guide Reference: CTS 3-6

Topic 3-7: Evaluating Design Concepts

Terminal Learning Objective
At the end of this topic, a student, given a preliminary design presentation, will be able to evaluate a proposed design concept to verify that it meets the intent of applicable codes and standards and is in accordance with jurisdictional policies and procedures.

Enabling Learning Objectives
1. Identify jurisdictional and code requirements
2. Describe the jurisdiction’s preliminary plan review procedures
3. Discuss fire protection construction features
4. Discuss the approval process for alternative fire protection methodologies
5. Recognize deviations from the prescriptive code
6. Evaluate code compliance of conceptual designs
7. Determine and present appropriate design input values and parameters based on building type and anticipated use
8. Describe the approval process for alternative performance-based fire protection methodologies
9. Discuss performance-based concepts
10. Describe the development of appropriate input values based on building type and anticipated use
11. Recognize and interpret performance-based proposals

Discussion Questions
1. When should performance-based design be considered?
2. When should the design professional contact the plan examiner?

Activities
1. To be determined by the instructor.

Instructor Notes

CTS Guide Reference: CTS 6-1, 6-12

Topic 3-8: Evaluating Proposed Tenant Improvement

Terminal Learning Objective
At the end of this topic, a student, given a set of plans for a tenant improvement, will be able to evaluate a proposed tenant improvement or change in occupancy for a building or portion of a building, ensuring compliance with applicable codes and standards, and identifying, documenting, and reporting deficiencies according to jurisdictional policies and procedures.

Enabling Learning Objectives
1. Describe how to evaluate a proposed tenant improvement or change in occupancy classification
2. Describe the requirements for determining damage repair
3. Describe the application process to repair or restore a building to its use
4. Describe the requirements for increasing the fire protection systems in an existing building under tenant improvements or repair
5. Describe the requirements for a historic building under repair or renovation
6. Describe the requirements for demolition and fire safety during construction

Discussion Questions
1. How does code applicability change when there is a change in use but not a change in occupancy classification?
2. How does code applicability change when there is a change in occupancy classification but not a change in use?

Activities
1. To be determined by instructor.

CTS Guide Reference: CTS 6-14
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<td>Activity 2-5: The instructor should create an activity requiring students to design their own checklists.</td>
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<td>Topic 2-6: Recommending and Developing Plan Review Policies and Procedures</td>
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<td>Activity 2-6: Instructor should develop an activity requiring small groups of students to brainstorm, identifying topics covered by plan-review-process policies or procedures. Follow with a classroom discussion.</td>
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<td>Topic 2-7: Participating in Legal Proceedings</td>
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**Unit 3: Fire and Life Safety Plan Review Part I**

<p>| Topic 3-1: Identifying Requirements for Fire Protection or Life Safety Systems |              | 3:00          |                 |
| Topic 3-1: Instructor should create an activity requiring students to look at multiple sets of plans, evaluating their scopes. |              | 1:00          |                 |
| Topic 3-2: Verifying an Occupancy Classification and Maximum Allowable Occupant Loads |              | 1:30          |                 |
| Topic 3-2: The instructor should create an activity requiring students to calculate the occupant load of the dining area in the plan set provided with the recommended textbook or another plan provided by the instructor. |              | 0:30          |                 |
| Topic 3-3: Verifying Construction Type                                  |              | 2:00          |                 |
| Topic 3-3: The instructor should create an activity addressing height and area increases. |              | 0:30          |                 |
| Topic 3-4: Verifying Egress Compliance                                  |              |               |                 |</p>
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<tr>
<td>Activity 3-4: The instructor should create an activity requiring students to evaluate egress compliance for the plans included with the textbook.</td>
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<tr>
<td>Topic 3-5: Evaluating Emergency Vehicle Access</td>
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<tr>
<td>Topic 3-6: Evaluating Fire Flow Compliance</td>
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<td>Activity 3-6: The instructor should create an activity requiring students to use their civil drawings to determine compliance for fire flow hydrants along fire apparatus access.</td>
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<td>Topic 3-7: Evaluating Design Concepts</td>
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<td>Topic 3-8: Evaluating Proposed Tenant Improvement</td>
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**Course Totals**

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Plan Review for Fire and Life Safety

Course Plan

Course Details

Certification: Plan Examiner

CTS Guide: Plan Examiner

Description: This course provides information on evaluating passive fire protection elements, installation of fire protection and life safety elements, system integration, proposed alternatives for compliance, and building service equipment and operations.

Designed For: Those desiring to become plan examiners

Prerequisites: Plan Examiner 3A, Basic Plan Review

Standard: Complete all activities and formative tests.

Testing: Complete all summative tests with a minimum score of 80%.

Hours: Lecture: 26:00

Activities: 5:30

Testing: 2:30

Hours (Total): 34:00

Maximum Class Size: 30

Instructor Level: Primary

Instructor/Student Ratio: 1:30

Restrictions: None

SFT Designation: CFSTES
Required Resources

Instructor Resources
To teach this course, instructors need:
- Plans Examiner for Fire and Emergency Services, 1st edition
- California Building Code
- California Fire Code (with Title 19 excerpts)

Online Instructor Resources
The following instructor resources are available online at
http://osfm.fire.ca.gov/training/instructorscorner.php:
- Plan Review for Fire and Life Safety course plan

Student Resources
To participate in this course, students need:
- California Building Code
- California Fire Code (with Title 19 excerpts)
- Plans Examiner for Fire and Emergency Services, 1st edition
Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective
At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives
1. Identify facility requirements
   • Restroom locations
   • Food locations
   • Smoking locations
   • Emergency procedures
2. Identify classroom requirements
   • Start and end times
   • Breaks
   • Electronic device policies
   • Special needs and accommodations
   • Other requirements as applicable
3. Review course syllabus
   • Course objectives
   • Calendar of events
   • Course requirements
   • Student evaluation process
   • Assignments
   • Activities
   • Required student resources
   • Class participation requirements

Discussion Questions
1. What is a formative test? What is a summative test?

Activities
1. To be determined by the instructor.

Topic 1-2: Plan Examiner Certification Process

Terminal Learning Objective
At the end of this topic, a student will be able to identify different levels in the Plan Examiner certification track and the courses and requirements for certification, and be able to describe the capstone task book and testing process.

Enabling Learning Objectives
1. Identify the different levels of certification in the Plan Examiner certification track
2. Identify the courses required for Plan Examiner certification
Plan Examiner 3B

- Plan Examiner 3A
- Plan Examiner 3B
- Plan Examiner 3C

3. Identify any other requirements for Plan Examiner certification
4. Describe the capstone task book process
   - Complete all prerequisites and course work
   - Submit application and fees and request capstone task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training

5. Describe the capstone testing process
   - Complete course work
   - Schedule online capstone test
   - Schedule skills evaluation test

Discussion Questions
1. How many levels are there in the Plan Examiner certification track? What are they?

Activities
1. To be determined by the instructor.

Unit 2: Evaluating and Reviewing Plans

Topic 2-1: Evaluating Proposed Passive Fire Protection Elements

Terminal Learning Objective
At the end of this topic, a student, given a set of plans and specifications for a building or facility, will be able to evaluate proposed passive fire protection elements of a building or portion of a building to verify that the protection provided for the facility is in accordance with applicable codes and standards, and identify, document, and report deficiencies in accordance with jurisdictional policies.

Enabling Learning Objectives
1. Describe fire protection construction features, such as:
   - Rated assemblies
   - Fire stops
   - Draft stopping
   - Draft curtains
   - Other passive fire protection features
2. Identify fire test methods.
3. Verify the rating of an assembly using reference materials.
Discussion Questions
1. What testing laboratories would you accept for technical reports?
2. How is the use of fire caulks verified for installation and plan review processes?

Activities
1. The instructor should create an activity involving researching listed or approved designs or assemblies.

Instructor Notes
1. Have the students watch a video on materials testing for ASTM E84 or ASTM E119.

CTS Guide Reference: CTS 6-2


Terminal Learning Objective
At the end of this topic, a student, given a plan submittal, will be able to evaluate plans for the installation of fire protection and life safety systems, including pre-engineered systems, and equipment, and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies and procedures.

Enabling Learning Objectives
1. Describe basic physical science as it relates to fire behavior and fire suppression
2. Identify basic system design criteria and applicable codes and standards for fire protection systems
   - Fire alarm systems
   - Smoke management systems
   - Fire suppression systems
   - Standpipes
   - Fire pumps
   - Engineered and preengineered extinguishing systems
3. Describe material listing requirements and specifications
4. Describe installation techniques
5. Review specifications
6. Describe hydraulic theory
7. Describe hydraulic calculations for fire suppression
   - Identify fire flow
8. Verify hydraulic calculations
9. Verify emergency backup battery calculations
10. Verify voltage drop calculations
11. Describe acceptance inspection and testing of completed installations
12. Classify occupancies for fire suppression systems
   - Light hazard
   - Moderate hazard
Plan Examiner 3B

- High hazard
13. Interpret codes and standards
14. Apply standards

Discussion Questions
1. What should be considered when specifying the location of fire department connections (FDCs)?
2. How does occupancy classification influence the necessity for fire protection and life safety systems?

Activities
1. The instructor should create an activity directing students to evaluate shop drawings for fire alarm and fire sprinkler systems for compliance with the minimum standards.

Instructor Notes
1. The instructor will need to locate appropriate shop drawings for a fire alarm system, fire sprinkler systems, and kitchen hood and duct systems, as they are not included in the plans included with the text.

CTS Guide Reference: CTS 6-5, 3-10

Topic 2-3: Evaluating a Proposed Alternative Method for Compliance

Terminal Learning Objective
At the end of this topic, a student, given supporting documentation of a design that does not meet prescriptive code requirements, will be able to evaluate a proposed alternative method for compliance with applicable codes and standards to ensure that the design meets the intent of applicable codes and standards.

Enabling Learning Objectives
1. Describe how a building should perform under adverse conditions, including the objectives and performance requirements reflecting the level of safety required by the jurisdiction or other performance-based regulation for a process or operation.
2. Evaluate alternative proposals to prescriptive codes and standards.

Discussion Questions
1. When should performance-based design be considered?
2. What liabilities are created when accepting alternate means of protection?

Activities
1. To be determined by the instructor.

CTS Guide Reference: CTS 6-6

Topic 2-4: Evaluating Systems Integration

Terminal Learning Objective
At the end of this topic, a student, given a plan submittal, a life safety report, a sequence of operations report, and testing criteria, will be able to evaluate the integration of life safety, fire protection, security, and building service systems to ensure that the integration of
proposed systems meets the requirements or intent of applicable codes and standards and the fire and life safety objectives of the jurisdiction, and identify, document, and report deficiencies in accordance with jurisdictional policies.

**Enabling Learning Objectives**
1. Explain the fire and life safety objectives
2. Describe fire protection and life safety systems and their integration
3. Evaluate system integration

**Discussion Questions**
1. What fire and life safety concerns apply to security systems?
2. What are the fire and life safety objectives of your organization?

**Activities**
1. Instructor should create an activity directing students to review the integrated components of a clean agent extinguishing system using shop drawings.

**CTS Guide Reference:** CTS 6-7

**Topic 2-5: Evaluating Building Service Equipment and Operations**

**Terminal Learning Objective**
At the end of this unit, a student, given plans and specifications, will be able to evaluate heating, ventilation, air conditioning, and other building service equipment and operations to verify that the systems and other equipment are designed in accordance with applicable codes and standards, and identify, document, and report deficiencies in accordance with jurisdictional policies.

**Enabling Learning Objectives**
1. Describe types, installation, maintenance, and use of building service equipment and smoke control systems
2. Describe installation of kitchen cooking equipment (including hoods and ducts), laundry chutes, elevators, and escalators
3. Identify applicable codes and standards adopted by the jurisdiction
4. Apply, read, and interpret HVAC plans

**Discussion Questions**
1. Should the smoke detector for automatic HVAC shutdown be put in the supply or the return? Why? Should it generate a supervisory or fire alarm condition upon activation?

**Activities**
1. Instructor should create an activity directing students to, given a set of mechanical plans, evaluate opening protection of fire rated walls penetrated by mechanical ducts.

**CTS Guide Reference:** CTS 6-11
## Time Table

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<th>Activity Time</th>
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<td><strong>Unit 1: Introduction</strong>&lt;br&gt;Topic 1-1: Orientation and Administration</td>
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<tr>
<td>Topic 1-2: Plan Examiner Certification Process</td>
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<td>Lecture</td>
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<td>Topic 2-4: Evaluating Systems Integration</td>
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<td>Activity 2-4: Instructor should create an activity directing students to review the integrated components of a clean agent extinguishing system using shop drawings.</td>
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<tr>
<td>Topic 2-5: Evaluating Building Service Equipment and Operations</td>
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<td>Activity 2-5: Instructor should create an activity directing students to, given a set of mechanical plans, evaluate opening protection of fire rated walls penetrated by mechanical ducts.</td>
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**Course Totals**

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| Total Activity Time (AT)      | 5:30         |
| Total Testing Time (TT)       | 2:30         |
| **Total Course Time**         | **34:00**    |
Plan Review for Special Hazards
Course Plan

Course Details

Certification: Plan Examiner
CTS Guide: Plan Examiner
Description: This course provides information on evaluating plans for a process or operations; for storage, handling, and use of flammable and combustible liquids and gases; for the storage and use of hazardous materials; with special storage requirements; and for community or wildland–urban interface.
Designed For: Those desiring to become plan examiners
Prerequisites: Plan Examiner 3A, Introduction to Plan Review
Plan Examiner 3B, Plan Review for Fire and Life Safety
Standard: Complete all activities and formative tests.
Complete all summative tests with a minimum score of 80%.
Hours: Lecture: 17:00
Activities: 3:00
Testing: 2:00
Hours (Total): 22:00
Maximum Class Size: 30
Instructor Level: Primary
Instructor/Student Ratio: 1:30
Restrictions: None
SFT Designation: CFSTES
Plan Examiner 3C

Required Resources

Instructor Resources

To teach this course, instructors need:

- Plans Examiner for Fire and Emergency Services, 1st edition
- California Building Code
- California Fire Code (with Title 19 excerpts)

Online Instructor Resources

The following instructor resources are available online at
http://osfm.fire.ca.gov/training/instructorscorner.php:

- Plan Review for Special Hazards course plan

Student Resources

To participate in this course, students need:

- California Building Code
- California Fire Code (with Title 19 excerpts)
- Plans Examiner for Fire and Emergency Services, 1st edition
Unit 1: Introduction

Topic 1-1: Orientation and Administration

Terminal Learning Objective
At the end of this topic, a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, resources, evaluation methods, and participation requirements in the course syllabus.

Enabling Learning Objectives
1. Identify facility requirements
   - Restroom locations
   - Food locations
   - Smoking locations
   - Emergency procedures
2. Identify classroom requirements
   - Start and end times
   - Breaks
   - Electronic device policies
   - Special needs and accommodations
   - Other requirements as applicable
3. Review course syllabus
   - Course objectives
   - Calendar of events
   - Course requirements
   - Student evaluation process
   - Assignments
   - Activities
   - Required student resources
   - Class participation requirements

Discussion Questions
1. What is a formative test? What is a summative test?

Activities
1. To be determined by the instructor.

Topic 1-2: Plan Examiner Certification Process

Terminal Learning Objective
At the end of this topic, a student will be able to identify different levels in the Plan Examiner certification track and the courses and requirements for certification, and be able to describe the capstone task book and testing process.

Enabling Learning Objectives
1. Identify the different levels of certification in the Plan Examiner certification track
2. Identify the courses required for Plan Examiner certification
3. Identify any other requirements for Plan Examiner certification

4. Describe the capstone task book process
   - Complete all prerequisites and course work
   - Submit application and fees and request capstone task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training

5. Describe the capstone testing process
   - Complete course work
   - Schedule online capstone test
   - Schedule skills evaluation test

Discussion Questions
1. How many levels are there in the Plan Examiner certification track? What are they?

Activities
1. To be determined by the instructor.

Unit 2: Hazard Operations and the Wildland-Urban Interface

Topic 2-1: Evaluating Plans for a Process or Operation

Terminal Learning Objective
At the end of this topic, a student, given plans and specifications, will be able to evaluate plans for a process or operation, reviewing the process or operation for compliance with applicable codes and standards and identifying, documenting and reporting deficiencies in accordance with applicable codes, standards, and jurisdictional policies and procedures.

Enabling Learning Objectives
1. Describe the hazards of various operations used in commercial and industrial occupancies
2. Identify applicable standards for arrangement and protection of various operations to be used in commercial and industrial occupancies
3. Describe basic physical science principles relating to fire behavior and fire suppression, including mathematics, physics, and chemistry
4. Identify reference materials related to fire hazard properties of flammable liquids, gases, and volatile solids
5. Interpret codes and standards
Discussion Questions
1. How does your jurisdiction handle operational permits?
2. What operations create significant hazards for fire fighters and response personnel?

Activities
1. Instructor should create an activity directing students to research an industrial incident and identify the causes.

CTS Guide Reference: CTS 6-3

Topic 2-2: Evaluating Plans for Storage, Handling, and Use of Flammable and Combustible Liquids and Gases

Terminal Learning Objective
At the end of this topic, a student, given plans and specifications, will be able to evaluate plans for storage, handling, and use of flammable and combustible liquids and gases, and identify, document, and report deficiencies in accordance with applicable codes, standards, and jurisdictional policies and procedures.

Enabling Learning Objectives
1. Describe properties of flammable and combustible liquids and gases
2. Discuss applicable standards for the handling, storage, arrangement, and protection of flammable and combustible liquids and gases
3. Determine the classification of flammable and combustible liquids and gases using reference materials on fire protection

Discussion Questions
1. What is the difference in storage methods for flammable liquids used in mercantile versus storage?
2. What are the hazards associated with the sale of flammable compressed gas in a mercantile occupancy?

Activities
1. Instructor should create an activity directing students to research and identify the thresholds for maximum allowable quantities of flammable liquids or gases in multiple occupancies.

CTS Guide Reference: CTS 6-4

Topic 2-3: Evaluating Plans for Hazardous Materials Storage, Handling, and Use

Terminal Learning Objective
At the end of this topic, a student, given plans and specifications, will be able to evaluate plans for storage, handling, and use of hazardous materials for compliance, and identify, document, and report deficiencies in accordance with applicable codes, standards, and jurisdictional policies and procedures.
Enabling Learning Objectives
1. Describe the properties of hazardous materials.
2. Identify applicable standards for handling, storage, arrangement, and protection of hazardous materials.
3. Identify reference materials related to hazardous materials.
4. Determine the classification of hazardous materials using reference materials.

Discussion Questions
1. How might the plan examiner interface with administrating authorities (Health and Safety Code, Chapter 6.95)?
2. How many flammable liquid storage cabinets are permitted in a sprinklered single-story building?
3. What limitations does a local agency have in classifying an occupancy as an L?

Activities
1. Instructor should create an activity directing students to research and identify the thresholds for maximum allowable quantities of hazardous materials in multiple occupancies.

CTS Guide Reference: CTS 6-8

Topic 2-4: Evaluating a Plan with Special Storage Arrangements

Terminal Learning Objective
At the end of this topic, a student, given a plan with special storage arrangements, will be able to evaluate a plan with special storage arrangements, identifying, documenting, and reporting deficiencies in accordance with adopted codes and standards and jurisdictional policies.

Enabling Learning Objectives
1. Discuss application of codes and standards adopted by the jurisdiction for special storage arrangements.
2. Determine commodity types and storage arrangements.

Discussion Questions
1. How is fire fighter safety addressed by the plan examiner in high-piled combustible storage?
2. When is storage limited to six feet in height?

Activities
1. Instructor should create an activity directing students to classify commodities based upon applicable codes.

CTS Guide Reference: CTS 6-10

Topic 2-5: Evaluating Community or Wildland–Urban Interface Plans
Terminal Learning Objective
At the end of this topic, a student, given a set of landscape plans for a development or community and a set of landscape plans for a wildland–urban interface environment, will be able to evaluate landscape plans for a development, community, or a wildland–urban interface, ensuring compliance with applicable codes and standards and identifying, documenting, and reporting deficiencies according to jurisdictional policies and procedures, resulting in the issuance of required or applicable permits.

Enabling Learning Objectives
1. Describe basic wildland fire behavior.
2. Describe wildland–urban interface fire progression.
3. Describe codes and standards related to a development’s or community’s landscape plan.
4. Describe codes and standards related to a wildland–urban interface landscape plan.
5. Describe the infrastructure considerations for grading and improvement plans.
6. Identify and evaluate design and maintenance standards for open space areas adjacent to new development projects.
7. Describe how to evaluate ignition-resistant standards relating to buildings located in the wildland–urban interface.
8. Describe how to evaluate fuel management considerations on landscape plans for buildings in the wildland–urban interface.
9. Describe how to process wildland–urban interface landscape plans in order to issue required or applicable permits.

Discussion Questions
1. At what point in a development-design process should wildland–urban interface protection methods be identified?
2. What resources can a plan examiner use when evaluating wildland fuel hazards?
3. What is the difference between fire-resistive construction and ignition-resistant construction?

Activities
1. Instructor should create an activity directing students to evaluate landscape drawings for a residence in a very-high-fire-hazard-severity zone for compliance with applicable codes.

Instructor Notes
1.

CTS Guide Reference: CTS 6-13
### Time Table

<table>
<thead>
<tr>
<th>Segment</th>
<th>Lecture Time</th>
<th>Activity Time</th>
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<tr>
<td><strong>Unit 1: Introduction</strong></td>
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<tr>
<td>Topic 1-1: Orientation and Administration</td>
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<td>Activity 1-1: To be determined by instructor</td>
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<td>Topic 1-2: Plan Examiner Certification Process</td>
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<td><strong>Unit 2: Hazard Operations and the Wildland-Urban Interface</strong></td>
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<td>Topic 2-1: Evaluating Plans for a Process or Operation</td>
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<td>Activity 2-1: Instructor should create an activity directing students to research an industrial incident and identify the causes.</td>
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<td>Topic 2-2: Evaluating Plans for Storage, Handling, and Use of Flammable and Combustible Liquids and Gases</td>
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<td>Activity 2-2: Instructor should create an activity directing students to research and identify the thresholds for maximum allowable quantities of flammable liquids or gases in multiple occupancies.</td>
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Unit 3 Totals 16:00 3:00 19:00

Lecture, Activity, and Unit Totals: 17:00 3:00 20:00

Course Totals

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