



Field Inspection

Course Plan

Course Details

Certification:	Fire Inspector 1
CTS Guide:	Fire Inspector 1 Certification Training Standard (2014)
Description:	This course provides students with a basic knowledge of field inspection roles and responsibilities of a Fire Inspector 1 including basic plan review, emergency access for an existing system, hazardous materials, and the operational readiness of fixed fire suppression systems, existing fire detection and alarm systems, and portable fire extinguishers.
Designed For:	Entry-level Inspector
Prerequisites:	Fire Inspector 1A: Duties and Administration
Standard:	Complete all activities and formative tests. Complete all summative tests with a minimum score of 80%.
Hours:	Lecture: 18:30 Activities: 2:30 Testing: 3:00
Hours (Total):	24:00
Maximum Class Size:	30
Instructor Level:	Primary Instructor
Instructor/Student Ratio:	1:30
Restrictions:	None
SFT Designation:	CFSTES

Required Resources

Instructor Resources

To teach this course, instructors need:

- California Building Code
(International Code Council, current edition)
- California Code of Regulations (CCR) Title 19
(Office of Administrative Law, <https://oal.ca.gov/>)
- California Fire Code
(International Code Council, current edition)
- Ethical Practices Inventory
(The Williams Institute, www.ethics-twi.org)

Reference manual options:

- *Fire Inspection and Code Enforcement Instructor Resource Kit*
(IFSTA, 8th edition)

Or the combination of the following:

- *Fire Inspector: Principles and Practice*
(International Association of Fire Chiefs, Revised Enhanced 1st edition, Jones & Bartlett Learning, ISBN: 9781284137743)
- *Fire Inspector: Principles and Practice Instructor's ToolKit* CD-ROM
(International Association of Fire Chiefs, Cdr edition, Jones & Bartlett Learning, ISBN: 9781284095654)

Online Instructor Resources

The following instructor resources are available online at

<https://osfm.fire.ca.gov/divisions/state-fire-training/cfstes-professional-certification/>:

- Activity 6-1: Portable Fire Extinguisher Ratings
- Course plan
- Website

Student Resources

To participate in this course, students need:

- California Fire Code
(International Code Council, current edition)

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Reference manual options:

- *Fire Inspection and Code Enforcement*
(IFSTA, 8th edition, ISBN: 9780879396053)

Or

- *Fire Inspector: Principles and Practice*
(International Association of Fire Chiefs, Revised Enhanced 1st edition, ISBN:
9780763798574)

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: Fire Marshal Certification Process

Terminal Learning Objective

At the end of this topic, a student will be able to identify different levels in the Fire Marshal certification track, the courses and requirements for Fire Inspector 1 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 Fire Inspector certification track
 - Fire Inspector 1

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- Fire Inspector 2
- 2. Identify the other Fire Prevention certification tracks
 - Plan Examiner
 - Fire Marshal
- 3. Identify the courses required for Fire Inspector 1
 - Fire Inspector 1A: Duties and Administration
 - Fire Inspector 1B: Fire and Life Safety
 - Fire Inspector 1C: Field Inspection
 - Fire Inspector 1D: Field Inspection – California Specific
- 4. Identify any other requirements for Fire Inspector 1
- 5. Describe the capstone task book process
 - Complete all prerequisites and course work
 - Submit application and fees to request capstone task book
 - Must be employed by a California Fire Agency as a Fire Inspector
 - 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
- 6. Describe the capstone testing process
 - Complete coursework
 - Schedule online capstone test
 - Schedule skills evaluation test

Discussion Questions

1. How many levels are there in the Fire Marshal certification track? What are they?

Activities

1. To be determined by the instructor.

Unit 2: Basic Plan Review

Topic 2-1: Comparing Approved Plans and Existing Fire Protection Systems

Terminal Learning Objective

At the end of this topic, a student given approved plans and field observations will be able to compare an approved plan to an existing fire protection system in order to identify, document, and report any modifications to the system in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives

1. Identify construction document types, including:
 - Plans
 - Cut sheets
 - Calculations
 - Technical reports

- Specifications
- 2. Identify fire protection symbols and terminology associated with plans for fire protection systems (see NFPA 170)
 - Fire alarms
 - Fire sprinklers
 - Special systems
 - Fire protection
- 3. Read and comprehend plans for fire protection systems
 - Title sheet
 - Table of contents
 - Scope of work
 - Designer's information
 - General conditions
 - Compass point
 - Revision block
 - Key plan
 - Deferred submittals
 - Title block (all sheets)
 - Scale (all sheets)
 - Views
 - Plan
 - Elevation
 - Section
 - Detailed
- 4. Observe, recognize problems with, and make decisions about existing fire protection systems
- 5. Apply codes and standards applicable to fire protection systems

Discussion Questions

1. What is the difference between plan view and elevation view?
2. Where would you find installation details for a commercial hood system in a set of plans?

Activities

1. Given a set of plans, identify the key components, symbols, and terminology.

CTS Guide Reference: CTS 3-9

Unit 3: Emergency Access for an Existing System

Topic 3-1: Inspecting Emergency Access for an Existing System

Terminal Learning Objective

At the end of this topic, a student given field observations will be able to inspect emergency access for an existing system in order to ensure maintenance of the required access for

emergency responders, and identify, document, and correct deficiencies in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives

1. Discuss codes and standards applicable to emergency access
2. Identify policies of the jurisdiction applicable to emergency access
 - Standard
 - Must provide access to within 150 feet of all portions of the exterior of the building
 - Must provide access of more than 150 feet with an approved turnaround
 - Exceptions
 - Discretion of the fire code official
3. Describe emergency access and accessibility requirements
 - Minimum width
 - Minimum height
 - Weight must conform with local apparatus axle loads
 - Turn radii must conform with local apparatus
 - Fire apparatus turnaround
 - Must have all-weather driving surface
 - Local approval required for road slope (see CFC Appendix D)
 - Bridges must support fire apparatus
 - Signage and curb marking must comply with the California Vehicle Code
 - Gates and barricades
 - Key boxes or electronic switches
 - Requirements for buildings under construction
4. Locate emergency access requirements contained in the applicable codes and standards
5. Observe, recognize problems with, and make decisions about emergency access

Discussion Questions

1. Why do local jurisdictions require fire lanes?
2. Who enforces fire lanes?
3. What constitutes an all-weather driving surface?
4. What does the code require as the minimum clear height for a fire lane?
5. What does the code state as the minimum width of a fire lane?
6. Who designates fire lanes?

Activities

1. To be determined by the instructor.

CTS Guide Reference: CTS 3-11

Unit 4: Operational Readiness of Fixed Fire Suppression Systems

Topic 4-1: Determining the Operational Readiness of Fixed Fire Suppression Systems

Terminal Learning Objective

At the end of this topic, a student given test documentation and field observations will be able to determine the operational readiness of existing fixed fire suppression systems in order to ensure operational readiness, document maintenance, and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives

1. Identify components and operations of fixed fire suppression systems
 - Water-based
 - Automatic sprinklers
 - Water spray
 - Water mist
 - Foam water
 - Fire pumps
 - Special agent
 - Dry chemical
 - Wet chemical
 - Clean agent
 - CO₂ systems
 - Foam systems
2. Identify codes and standards applicable to fixed fire suppression systems
3. Observe, recognize problems with, and make decisions about fixed fire suppression systems
4. Read test documentation and maintenance reports
 - Determining the adequacy of fire protection based on the hazard present
 - Common components to inspect
 - Documentation
 - Other considerations
 - California adoption of NFPA 25
 - California Code of Regulations, Title 19, Chapter 5

Discussion Questions

1. Is a water spray system the same as a fire sprinkler system?
2. Where do you find a dry pipe fire sprinkler system?
3. How often does the code require fire pump testing? Who can do the testing?
4. When does the code require inspection, testing and maintenance for a fire sprinkler system?
5. What is the most common application for a wet chemical fire extinguishing system?
6. What is the most common application for a dry chemical fire extinguishing system?
7. What is the most common application for a clean agent fire extinguishing system?

Activities

1. To be determined by the instructor.

CTS Guide Reference: CTS 3-5

Unit 5: Operational Readiness of Existing Fire Detection and Alarm Systems

Topic 5-1: Determining the Operational Readiness of Existing Fire Detection and Alarm Systems

Terminal Learning Objective

At the end of this topic, a student given test documentation and field observations will be able to determine the operational readiness of existing fire detection and alarm systems in order to ensure operational readiness, document maintenance, and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policy.

Enabling Learning Objectives

1. Identify the components and operation of fire detection and alarm systems and devices
 - Alarm systems
 - Fire alarm control units
 - Power supplies
 - Initiating devices
 - Alerting devices
 - Auxiliary control interface
 - Alarm-initiating devices
 - Smoke detectors
 - Heat detectors
 - Pilot sprinkler
 - Manual pull stations
 - Flame detectors
 - Water flow switches
 - Gas detectors
 - Notification methods
 - Public mode
 - Private mode
 - Panel monitoring
 - Supervised
 - Non-supervised
 - Signal transmission
 - Supervisory
 - System trouble
 - Alarms
2. Identify codes and standards applicable to fire detection and alarm systems and devices

3. Observe, recognize problems with, and make decisions about fire detection and alarm systems and devices
 - Visually observe components
 - Determine panel readiness
 - Confirm that all initiating devices are unobstructed
 - Review the owner's documentation of periodic inspections
 - Review any third-party notices of deficiencies in the system
4. Read test documentation and maintenance reports

Discussion Questions

1. What is the difference between an initiating and a notification appliance?
2. What is the difference between a supervisory and a trouble signal?
3. What types of signals does the code require be transmitted to a central station?
4. What is the difference between a public mode and a private mode fire alarm system?
5. When is a fire alarm system required to be monitored?
6. When can a fire alarm system be disabled?
7. Who should be notified when a fire alarm system is disabled?
8. What is the inspection interval for inspection of a fire alarm system?

Activities

1. Given a scenario, complete an NFPA 72 Inspection and Testing form.

CTS Guide Reference: CTS 3-6

Unit 6: Operational Readiness of Portable Fire Extinguishers

Topic 6-1: Determining the Operational Readiness of Portable Fire Extinguishers

Terminal Learning Objective

At the end of this topic, a student given test documentation and field observations will be able to determine the operational readiness of existing portable fire extinguishers in order to ensure operational readiness, document maintenance, and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives

1. Identify portable fire extinguishers
 - Classifications
 - Ratings
 - Types
 - Components
 - Placement
 - Agents used
2. Identify codes and standards applicable to portable fire extinguishers
3. Observe, recognize problems with, and make decisions about portable fire extinguishers
4. Read test documentation and maintenance reports
 - Verify pressure

- Check inspection tag(s)
- Identify service intervals (California Code of Regulations, Title 19, Chapter 3)
- Check service collar
- Check the seal
- Identify hydrostatic test identification
- Check for obstructions

Discussion Questions

1. How often should an inspector do a visual inspection of a fire extinguisher?
2. When does the code require a hydrostatic test for a fire extinguisher?
3. What are the classifications of fire as it relates to the classification of a fire extinguisher?
4. How many tags are required on a fire extinguisher?
5. When does the code require a licensed technician to inspect a fire extinguisher?

Activities

1. Activity 6-1: Portable Fire Extinguisher Ratings

CTS Guide Reference: CTS 3-7

Unit 7: Hazardous Materials

Topic 7-1: Classification and Properties

Terminal Learning Objective

At the end of this topic, a student given a substance or material will be able to identify its properties and hazards in accordance with basic principles of chemistry.

Enabling Learning Objectives

1. Define solid, liquid, and gas
2. Identify physical properties of liquids, gases, and solids, including:
 - Color
 - Smell
 - Freezing point
 - Boiling point
 - Melting point
 - Opacity
 - Viscosity
 - Density
 - Specific gravity
 - Vapor density
 - Vapor pressure
 - Water solubility
 - Flammable/explosive range
 - Flashpoint
 - Evaporation rate
3. Identify chemical properties of liquids, gases, and solids, including:

- Heat of combustion
 - Reactivity with water
 - pH scale
4. Describe the physical hazards of:
 - Explosives and blasting agents
 - Flammable and combustible liquids
 - Flammable solids and gases
 - Organic peroxide materials
 - Oxidizer materials
 - Pyrophoric materials
 - Unstable (reactive) materials
 - Water reactive solids and liquids
 - Cryogenic fluids
 - Combustible fibers
 5. Describe the health hazards of:
 - Highly toxic materials
 - Toxic materials
 - Corrosive materials
 6. Identify ways to determine chemical information, including:
 - Material Safety Data Sheet (MSDS)
 - Labels
 - Shipping documents
 - References (ERG, NIOSH, etc.)
 - Handling

Discussion Questions

1. What chemical properties have a significant impact on code requirements?
2. How do you classify a chemical?
3. Where can you find the properties for a specific chemical?

Activities

- Given several MSDS examples, ask students to classify substances.

CTS Guide Reference: CTS 3-12 and 3-13

Topic 7-2: Verifying Code Compliance for Incidental Storage, Handling, and Use of Flammable and Combustible Liquids and Gases

Terminal Learning Objective

At the end of this topic, a student given field observations and inspection guidelines from the jurisdiction will be able to verify code compliance for incidental storage, handling, and use of flammable and combustible liquids and gases in order to address applicable codes and standards and identify, document, and report deficiencies in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives

1. Identify the classification of incidental amounts of flammable and combustible liquids and gases
2. Identify the labeling requirements of incidental amounts of flammable and combustible liquids and gases
3. Identify the storage requirements of incidental amounts of flammable and combustible liquids and gases
 - Maximum allowable quantities
 - California Fire Code, Table 2703.1.1 (1-4)
 - Permissible quantities
 - Waste
4. Identify the handling requirements of incidental amounts of flammable and combustible liquids and gases
5. Identify the use of incidental amounts of flammable and combustible liquids and gases
 - CUPA (Certified Unified Program Agency) reporting requirements
6. Observe, recognize problems with, and make decisions about incidental amounts of flammable and combustible liquids and gases
7. Apply codes and standards applicable to incidental amounts of flammable and combustible liquids and gases

Discussion Questions

1. What is the difference between quantities requiring a permit and maximum allowable quantities?
2. What fire-code-regulated activities does the CUPA control?

Activities

- Given various scenarios, determine if the quantity and type of chemical exceeds the maximum allowable quantity.

CTS Guide Reference: CTS 3-12

Topic 7-3: Verifying Code Compliance for Incidental Storage, Handling, and Use of Hazardous Materials

Terminal Learning Objective

At the end of this topic, a student given field observations will be able to verify code compliance for incidental storage, handling, and use of hazardous materials in order to address applicable codes and standards for each hazardous material encountered and identify, document, and report each deficiency in accordance with applicable codes and standards and jurisdictional policies.

Enabling Learning Objectives

1. Identify the classification of hazardous materials
2. Identify the labeling requirements of hazardous materials
3. Identify the transportation requirements of hazardous materials
4. Identify the storage requirements of hazardous materials
 - Maximum allowable quantities

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- California Fire Code, Table 2703.1.1 (1-4)
 - California Fire Code, Table 2703.11.1
 - Permissible quantities
 - Waste
5. Identify the handling requirements of hazardous materials
 6. Identify the use of hazardous materials
 7. Observe, recognize problems with, and make decisions about hazardous materials
 8. Apply codes and standards applicable to hazardous materials

Discussion Questions

1. How many classifications are there for hazardous materials?
2. Where would storage information be found for maximum allowable quantities?

Activities

1. To be determined by the instructor.

CTS Guide Reference: CTS 3-13

Time Table

Segment	Lecture Time	Activity Time	Total Unit Time
Unit 1: Introduction			
Topic 1-1: Orientation and Administration			
Lecture	00:30		
Activity 1-1: To be determined by instructor		00:00	
Topic 1-2: Fire Marshal Certification Process			
Lecture	00:30		
Activity 1-2: To be determined by instructor		00:00	
Unit 1 Totals	1:00	00:00	1:00
Unit 2: Basic Plan Review			
Topic 2-1: Comparing Approved Plans and Existing Fire Protection Systems			
Lecture	2:00		
Activity 2-1: See suggested activity		00:30	
Unit 2 Totals	2:00	00:30	2:30
Unit 3: Emergency Access for an Existing System			
Topic 3-1: Inspecting Emergency Access for an Existing System			
Lecture	2:00		
Activity 3-1: To be determined by instructor		00:00	
Unit 3 Totals	2:00	00:00	2:00
Unit 4: Operational Readiness of Fixed Fire Suppression Systems			
Topic 4-1: Determining the Operational Readiness of Fixed Fire Suppression Systems			
Lecture	4:00		
Activity 4-1: To be determined by instructor		00:00	
Unit 4 Totals	4:00	00:00	4:00
Unit 5: Operational Readiness of Existing Fire Detection and Alarm Systems			
Topic 5-1: Determining the Operational Readiness of Existing Fire Detection and Alarm Systems			

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Segment	Lecture Time	Activity Time	Total Unit Time
Lecture	2:00		
Activity 5-1: See suggested activity		00:30	
Unit 5 Totals	2:00	00:30	2:30
Unit 6: Operational Readiness of Portable Fire Extinguishers			
Topic 6-1: Determining the Operational Readiness of Portable Fire Extinguishers			
Lecture	1:30		
Activity 6-1: Portable Fire Extinguisher Ratings		00:30	
Unit 6 Totals	1:30	00:30	2:00
Unit 7: Hazardous Materials			
Topic 7-1: Classification and Properties			
Lecture	2:00		
Activity 7-1: See suggested activity		00:30	
Topic 7-2: Verifying Code Compliance for Incidental Storage, Handling, and Use of Flammable and Combustible Liquids and Gases			
Lecture	2:00		
Activity 7-2: See suggested activity		00:30	
Topic 7-3: Verifying Code Compliance for Incidental Storage, Handling, and Use of Hazardous Materials			
Lecture	2:00		
Activity 7-3: To be determined by instructor		00:00	
Unit 7 Totals	6:00	1:00	7:00
Lecture, Activity, and Unit Totals:	18:30	2:30	21:00

Course Totals

Segment Type	Time
Total Lecture Time (LT)	18:30
Total Activity Time (AT)	2:30
Total Testing Time (TT)	3:00
Total Course Time	24:00