



COURSE SYLLABUS

Course: Fire Inspector 2C: Fire and Life Safety in Existing Buildings CFSTES
Hours: 16:00 (14:00 = instruction / 2:00 = testing)
Designed For: The certified Fire Inspector I advancing to the Fire Inspector II classification
Description: Upon completion of this course, the student will be familiar with fire growth potential including components that impact fire growth and high piled combustible storage; and evaluating fire and life safety features in existing buildings including water-based and special-agent fire suppression systems and fire detection and alarm systems.
Prerequisites: Fire Inspector 2A: Fire Prevention Administration
Passing Criteria: 80%
Certification: Fire Inspector II
Class Size: 30
Restrictions: None

REQUIRED STUDENT MATERIALS	EDITION	PUBLISHER
▪ California Fire Code	current	International Code Council (ICC)
▪ California Building Code	current	International Code Council (ICC)
▪ <i>Fire Inspection and Code Enforcement</i>	7th	IFSTA
REQUIRED INSTRUCTOR MATERIALS	EDITION	PUBLISHER
▪ California Building Code	current	International Code Council (ICC)
▪ California Fire Code	current	International Code Council (ICC)
▪ California Code of Regulations (CCR) Title 19	current	Online: www.oal.ca.gov/publications.htm Print: Barclays (www.west.thompson.com)
▪ <i>Inspection and Code Enforcement Instructor Resource Kit</i>	7th	IFSTA

FIRE INSPECTOR 2C: FIRE AND LIFE SAFETY IN EXISTING BUILDINGS COURSE SYLLABUS

Course Objectives: to provide the student with...

- a) Information about fire growth potential including components that impact fire growth and high piled combustible storage
- b) Information about evaluating fire and life safety features in existing buildings including water-based and special-agent fire suppression systems and fire detection and alarm systems

Course Content..... 16:00

Unit 1: Introduction

Topic 1: Orientation and Administration0:30

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to

Enabling Learning Objectives (ELO):

1. Identify the requirements of the facility that is hosting the program
2. Will complete all required paperwork for State Fire Training and the organization that is hosting the class.

Discussion Questions

1. To be determined by instructor

Activities

1. Complete State Fire Paperwork and Organizational paperwork

Evaluation: Formative Test, Summative Test

Unit 2: Fire Growth Potential in a Building or Space (CTS: 2-7)

Topic 1: Components that Impact Fire Growth 3:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe the impact of different factors on fire behavior, determine fire growth potential in a building or space, and verify and resolve fire-growth-related deficiencies.

Enabling Learning Objectives (ELO):

1. Describe the impact of the following factors on fire behavior:
 - Heat content of materials
 - Exposed surface area
 - Material height and array
 - Continuity
 - Compartment volume and ceiling height
 - Ventilation
 - Openness of compartment
 - Fuel type
 - Availability and location of additional fuels
 - Thermal properties of the compartment
 - Ambient conditions
 - Effects of changing conditions
2. Describe how to determine fire growth potential in a building or space, including:
 - Evaluating contents
 - Evaluating interior finishes
 - Evaluating construction elements
3. Describe how to verify and resolve deficiencies, including:
 - Observation and documentation
 - Reporting in accordance with jurisdictional policies
 - Taking appropriate action to gain code compliance
 - Referring to the appropriate level when necessary

Discussion Questions

1. What are some factors that help determine fuel load?
2. What impact would open windows have on a fire?
3. How does ceiling height/shape impact fire growth?

Activities

(Instructor to develop)

1. Given a set of NIST (National Institute of Standards and Technology) fire reports, discuss different factors that impact fires.

Evaluation: Formative Test, Summative Test

Topic 2: High Piled Combustible Storage 4:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to define high piled combustible storage, identify required permits for high piled combustible storage, and describe factors and general fire and life safety requirements related to high piled combustible storage.

Enabling Learning Objectives (ELO):

1. Define high piled combustible storage
2. Identify the required permit for high piled combustible storage
3. Describe factors related to high piled combustible storage, including:
 - Storage height
 - Commodity classification
 - Minimum size of storage array
 - Volumetric limitations
 - Storage methods
 - Pallets
 - Racks
 - Solid pile
 - Special hazards
 - Group A plastics
 - Tire storage

- Aerosols
- Flammable and combustible liquids
- 4. Describe general fire protection and life safety requirements
 - CFC Table 2306.2
 - Fire sprinklers
 - Hose connections
 - When required by AHJ
 - First aid firefighting and overhaul purposes (NFPA 13, chapter 12, section 12.2)
 - Installed in accordance with NFPA 13, chapter 8, section 8.17.5
 - Fire detection alarm systems
 - Building access
 - Smoke and heat removal
 - Draft curtains
 - CFC 2306.9
 - Aisle width
 - CFC Table 2308.3
 - Flue spaces

Discussion Questions

1. What is high piled combustible storage?
2. When can you have high piled storage without fire sprinklers?
3. How do you verify the adequacy of a sprinkler system for high piled storage?
4. What is the impact of encapsulating palletized materials?

Activities

(Instructor to develop)

1. Given commodity information, use CFC Table 2306.2 to figure out requirements.

Evaluation: Formative Test, Summative Test

Unit 3: Fire and Life Safety in Existing Buildings (CTS: 2-2)

Topic 1: Evaluating Fire and Life Safety Features.....2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to evaluate fire protection systems and equipment, observe and verify field conditions to evaluate fire protection systems, and verify and resolve deficiencies.

Enabling Learning Objectives (ELO):

1. Describe how to evaluate fire and life safety features, including:
 - Approved for occupancy or hazard being protected
 - Appropriate equipment in the appropriate location for hazard
 - Properly maintained
2. Describe the field conditions that must be observed and verified to evaluate existing fire and life safety features, including:
 - Unobstructed devices
 - Documentation of required testing
 - Damaged assemblies and equipment
3. Describe how to verify and resolve deficiencies, including:
 - Observation and documentation
 - Reporting in accordance with jurisdictional policies
 - Taking appropriate action to gain code compliance
 - Referring to the appropriate level when necessary

Discussion Questions

1. How would you evaluate an existing assembly?
2. How would you evaluate a change in use?

Activities

(Instructor to develop)

1. Given images of non-compliant features, work in small groups to identify the problems with each.

Evaluation: Formative Test, Summative Test

Topic 2: Water-Based Fire Suppression Systems 1:30

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to inspect an existing water-based fire suppression system and equipment, verify that systems and equipment comply with construction documents, and verify and resolve deficiencies.

Enabling Learning Objectives (ELO):

1. Describe how to inspect existing water-based fire suppression systems and equipment to comply with applicable codes and standards, including:
 - Automatic sprinkler systems
 - Water spray fixed systems
 - Water mist systems
 - Foam water systems
 - Standpipe and hose systems
 - Fire pumps
2. Describe how to verify that systems and equipment comply with construction documents, including:
 - Applying applicable codes and standards
 - NFPA 25 as adopted and amended by California
 - CCR Title 19
 - CFC, chapter 9, sections 9.03 and 9.05
 - Ensuring life safety systems and building services equipment are installed, inspected and tested to perform as described in the operations and maintenance manuals
3. Describe how to verify and resolve deficiencies, including:
 - Observation and documentation
 - Reporting in accordance with jurisdictional policies
 - Taking appropriate action to gain code compliance
 - Referring to the appropriate level when necessary

Discussion Questions

1. What are common deficiencies found during inspections of existing water-based fire suppression systems?
2. What would you do if you found an inoperative system in an occupied building?

Activities

1. To be determined by instructor.

Evaluation: Formative Test, Summative Test

Topic 3: Special-Agent Fire Suppression Systems 1:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to verify that special-agent fire suppression systems and equipment comply with codes and standards and construction documents, and verify and resolve deficiencies.

Enabling Learning Objectives (ELO):

1. Describe how to verify that special-agent fire suppression systems and equipment comply with applicable codes and standards, including:
 - Dry chemical
 - Wet chemical
 - Clean agent
 - Foam
 2. Describe how to verify that systems and equipment comply with construction documents, including:
 - Applying applicable codes and standards
 - CCR, Title 19, section 904
 - CFC, chapter 9, sections 9.04
 - Ensuring life safety systems and building services equipment are installed, inspected and tested to perform as described in the operations and maintenance manuals
 3. Describe how to verify and resolve deficiencies, including:
 - Observation and documentation
 - Reporting in accordance with jurisdictional policies
 - Taking appropriate action to gain code compliance
 - Referring to the appropriate level when necessary
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Discussion Questions

1. What are common deficiencies found during inspections of existing special agent suppression systems?
2. In a commercial kitchen, what impact would reconfiguring the cooking equipment have on the suppression system?

Activities

1. To be determined by instructor.

Evaluation: Formative Test, Summative Test

Topic 4: Fire Detection and Alarm Systems2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to inspect fire detection and alarm systems and equipment to ensure compliance with codes and standards and construction documents, and verify and resolve deficiencies.

Enabling Learning Objectives (ELO):

1. Describe how to inspect fire detection and alarm systems and equipment to comply with applicable codes and standards, including:
 - Automatic alarm initiating devices
 - Manual alarm initiating devices
 - Alarm notification devices
2. Describe how to inspect fire detection and alarm systems and equipment to comply with applicable codes and standards, including:
 - Automatic alarm initiating devices
 - Manual alarm initiating devices
 - Alarm notification devices
3. Describe how to verify that systems and equipment comply with construction documents, including:
 - Applying applicable codes and standards
 - NFPA 72
 - CCR, Title 19, division 1, chapter 4
 - CFC, chapter 9, section 9.07
 - Ensuring life safety systems and building services equipment are installed, inspected and tested to perform as described in the operations and maintenance manuals
4. Describe how to verify and resolve deficiencies, including:
 - Observation and documentation
 - Reporting in accordance with jurisdictional policies
 - Taking appropriate action to gain code compliance
 - Referring to the appropriate level when necessary

Discussion Questions

1. What are common deficiencies found during inspections of existing fire detection and alarm systems?
2. What action would you take if the fire alarm system was found to be inoperable?

Activities

1. To be determined by instructor.

Evaluation: Formative Test, Summative Test
