



# COURSE INFORMATION AND REQUIRED MATERIALS

**Course:** Fire Inspector 2B: Fire and Life Safety Requirements (2011) CFSTES  
**Hours:** 24:00 (22:00 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 complex means of egress and calculating occupant loads; construction features including those required in a wildland urban interface environment; fire growth potential including components that impact fire growth and high piled combustible storage; and evaluating emergency plans and procedures.  
**Prerequisites:** Fire Inspector 2A: Fire Prevention Administration  
**Certification:** 80%  
**Standard:** Fire Inspector II  
**Class Size:** 30  
**Restrictions:** None

REQUIRED STUDENT MATERIALS	EDITION	PUBLISHER
▪ California Building Code	Current	ICC
▪ California Fire Code	Current	ICC
▪ Fire Inspection and Code Enforcement	Seventh	FPP
REQUIRED INSTRUCTOR MATERIALS		
▪ California Building Code	Current	ICC
▪ California Fire Code	Current	ICC
▪ California Code of Regulations (CCR) Title 19	Current	OAL or Barclays
▪ Inspection and Code Enforcement Instructor Resource Kit	Seventh	FPP

PUBLISHER CONTACT INFORMATION		
Barclays	Barclays	<a href="http://www.west.thompson.com">www.west.thompson.com</a>
FPP	Fire Protection Publications	<a href="http://www.ifsta.org">www.ifsta.org</a>
ICC	International Code Council	<a href="http://www.iccsafe.org/STORE/Pages/default.aspx">http://www.iccsafe.org/STORE/Pages/default.aspx</a>
OAL	Office of Administrative Law	<a href="http://www.oal.ca.gov/publications.htm">www.oal.ca.gov/publications.htm</a>

## FIRE INSPECTOR 2B COURSE PLAN

Course Objectives: to provide the student with...

- a) Information about means of egress and calculating occupant loads
- b) Information about construction features, including those required in a wildland urban interface environment
- c) Information about fire growth potential including components that impact fire growth and high piled combustible storage
- d) An opportunity to evaluate emergency plans and procedures

Course Content..... 22:00

### Unit 1: Introduction

Topic 1-1: Orientation and Administration ..... 0:30

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to identify the classroom and facility requirements along with the course completion requirements.

Enabling Learning Objectives (ELO):

1. Identify facility and classroom requirements
  - Start and end times
  - Breaks
  - Restrooms
  - Food locations
  - Smoking locations



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- Emergency procedures
  - Electronic devices
  - Special needs and accommodations
  - Other requirements
2. Review the course syllabus
- Course objectives
  - Calendar of events
  - Course requirements
  - Student evaluation process (80% is required on all summative tests)
  - Assignments and activities
  - Required student resources
  - Class participation requirements

### Discussion Questions

1. What are formative and summative tests?

### Activities

1. To be determined by the instructor

## Unit 2: Occupant Load and Means of Egress

Topic 2-1: Occupant Loads ..... 2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to calculate the occupant load of a multi-use building, assess alternative methods to adjust occupant loads, and evaluate evacuation plan procedures related to adjusted occupant loads.

Enabling Learning Objectives (ELO):

1. Describe how to calculate the occupant load of a multi-use building, including:
  - Identifying the function of each area to be evaluated
  - Determining the correct occupant load factor based on Table 1004.1.1 – Maximum Floor Area Allowable Per Occupant (CFC or CBC)
  - Describing how to determine square footage, including:
    - Gross square footage
    - Net square footage
  - Design occupant load
  - Areas with fixed seating
  - Areas without fixed seating
  - Increased occupant load
  - Posting of occupant load
  - Exiting from multiple levels and egress convergence
  - Outdoor areas
  - Multiple occupancies
2. Describe how to assess alternative methods to adjust occupant loads, including:
  - Evaluating the space and its intended use(s)
  - Keeping occupant load in compliance with applicable codes and standards
  - Identifying solutions to increase occupant loads on a case-by-case basis as determined by the local fire authority
3. Describe how to evaluate evacuation plan procedures related to adjusted occupant loads

### Discussion Questions

1. Can you allow the number of occupants to exceed the maximum occupant load?

### Activities

1. Activity 2-1: Occupant Load



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Topic 2-2: Complex Means of Egress.....4:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe complex means of egress components; analyze egress components; and resolve egress deficiencies.

Enabling Learning Objectives (ELO):

1. Describe complex means of egress components, including:
  - Accessible means of egress
  - Area of refuge
  - Common path of egress travel
  - Corridor
  - Exit enclosure
  - Exit passageway
  - Egress width and distribution
  - Emergency lighting
  - Accessible means of egress
  - Door swing
  - Door operations, locks, and latches
  - Panic hardware
  - Stairway width
  - Stairway treads and risers
  - Exit signs: visual and tactile
  - Stairway and ramp handrails
  - Guards
  - Egress through intervening spaces
  - Common path of egress travel
  - Number of exit or exit access doorways
  - Egress separation
  - Travel distance
  - Corridor construction
  - Number of exits
  - Vertical exit enclosures
  - Exit passageways
  - Horizontal exits
  - Exterior exit stairways
  - Egress from assembly occupancies
2. Describe how to analyze egress components of a building or portion of a building, including:
  - Verifying that they meet applicable codes and standards
  - Verifying proper maintenance
3. Describe the process for resolving deficiencies, including:
  - Verification
  - Documentation
  - Taking appropriate action to gain code compliance
  - Reporting or referring in accordance with jurisdictional codes and standards

Discussion Questions

1. What are some common egress violations?

Activities

(Instructor to develop)

1. Given a set of plans, review the existing system for a list of criteria.



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### Unit 3: Construction Features

Topic 3-1: Construction Features ..... 4:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to evaluate a building's area, height, occupancy classification and construction type to verify that the building is in accordance with applicable codes and standards; describe building construction with an emphasis on fire-related construction; evaluate and analyze construction methods and assemblies for fire rating using test results and manufacturer specifications; describe the applicable codes and standards for installation and testing of fire protection systems, means of egress, and building services equipment; describe the concept of performance-based versus prescriptive design; and resolve deficiencies.

Enabling Learning Objectives (ELO):

1. Describe how to evaluate a building's area, height, occupancy classification, and construction type to verify that the building is in accordance with applicable codes and standards
2. Describe building construction with an emphasis on fire-related construction
3. Describe how to evaluate and analyze construction methods and assemblies for fire rating using test results and manufacturer specifications, including:
  - Design/listing criteria, including:
    - ASTM E119
    - ASTM E84
    - UL 555S
    - SFM 12-7A-2
4. Describe the applicable codes and standards installing and testing fire protection systems, means of egress, and building services equipment
5. Describe the concept of performance-based versus prescriptive design, including:
  - Materials testing
  - Technical analysis
  - Human-factor studies
  - Fire protection engineering principles
6. Describe the procedures for resolving deficiencies, including:
  - Identifying deficiencies
  - Referencing applicable codes and standards
  - Documenting deficiencies
  - Reporting a summary of deficiencies
  - Verifying corrective actions
  - Identifying alternate methods and materials for compliance

Discussion Questions

1. Does the code allow wood in a Type III structure?
2. What is performance-based design?
3. How do you resolve deficiencies identified in plan review?
4. If a building addition exceeds allowable height or area, to whom should an inspector refer the project?

Activities

1. Activity 3-1: Construction Features

Topic 3-2: Construction Features for Wildland Urban Interface Areas ..... 2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe building construction features required in a wildland urban interface environment.

Enabling Learning Objectives (ELO):

1. Describe building construction features required in a wildland urban interface environment, including:
  - Ignition-resistant construction
  - Roofing
  - Vents



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- Exterior coverings
- Exterior doors and windows
- Decking
- Ancillary structures

### Discussion Questions

1. Why do structures in a wildland urban interface environment require different construction features?

### Activities

1. Given pictures of structures in a wildland urban interface, identify compliant and non-compliant construction features.

## Unit 4: Fire Growth Potential in a Building or Space

Topic 4-1: Components that Impact Fire Growth..... 3:00

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

### Enabling Learning Objectives (ELO):

1. Describe flame spread and smoke development ratings of contents, interior finishes, building construction elements, decorations, decorative materials, and furnishings
2. 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
3. Describe how to evaluate fire growth potential in a building or space, including:
  - Contents
  - Interior finishes
  - Construction elements
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 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

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



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Topic 4-2: 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; describe factors and general fire and life safety requirements related to high piled combustible storage; and identify, document, verify, and report or resolve high piled storage deficiencies.

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
5. Describe how to identify, document, verify, and report or resolve deficiencies

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

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

Unit 5: Emergency Planning and Preparedness Procedures

Topic 5-1: Evaluating Emergency Plans and Procedures ..... 2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe the purpose, use, and applicability of evacuation plans, fire safety programs for crowd control, and human behavior during fire and



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other emergencies; identify agency and individual roles in developing and implementing emergency evacuation plans, information sources and criteria for emergency evacuation plans, occupancies that require emergency evacuation plans, and other incidents that may require an inspector to participate in an emergency evacuation plan; and evaluate emergency evacuation plans.

Enabling Learning Objectives (ELO):

1. Describe the purpose, use, and applicability of evacuation plans
2. Identify agency and individual roles in developing and implementing emergency evacuation plans, including:
  - Authority having jurisdiction
  - Owner / operator
  - Joint Commission on Accreditation of Hospitals (hospitals only)
3. Identify information sources and criteria for emergency evacuation plans, including:
  - California Fire Code
  - CCR Title 19
  - NFPA 101
  - Joint Commission on Accreditation of Hospitals (hospitals only)
4. Identify occupancies that require emergency evacuation plans, including:
  - K-12 Schools
  - High-rise buildings
  - Hospitals
  - Care facilities
  - Hotels
  - Organized camps
  - Office buildings with two or more stories
  - Covered malls
  - (See CCR Title 19, article 1, section 3.09)
5. Describe fire safety programs for crowd control
6. Describe human behavior during fire and other emergencies
7. Describe how to evaluate emergency evacuation plans, including:
  - Meets applicable codes and standards
  - Is applicable to occupancy
  - Contains all required elements
  - Exercised as required by code
  - Maintains records
8. Identify other incidents that may require an inspector to participate in an emergency evacuation plan, including:
  - Large scale fire incidents
  - Wildland urban interface fires
  - Natural disasters
  - Terrorism

Discussion Questions

1. What is the role of an AHJ in the development of an evacuation plan?
2. What are some acceptable locations for an evacuation area?

Activities

1. Evaluate sample emergency evacuation plans.

Summative Testing .....	1:00
Formative Testing .....	2:00