

National Fire Academy

FESHE Model Curriculum

Fire Prevention

February 2008



FEMA



Fire and Life Safety Education

Course Description: This course provides information relating to the field of fire and life safety education.

Prerequisite: Demonstration of a competency in high school level language arts or the equivalent.
Completion of *Fire Prevention* or instructor approval.

- Outcomes:**
1. Differentiate between Public Education, Public Information and Public Relations/Marketing.
 2. Demonstrate the need for establishing fire and life safety education as a value within the fire service culture.
 3. Identify stakeholders; develop partnerships and coalitions to work on fire and life safety education activities.
 4. Identify and use local, regional and national sources of data for fire and injury prevention programs.
 5. Identify budget needs for program delivery and the process for requesting funds.
 6. Select, design, implement, and evaluate fire and life safety education programs that address specific community risk issues.
 7. Develop an accountability system to measure program delivery.

Available Text: *Fire and Life Safety Education*; IFSTA, Fire Protection Publication

**Supporting
References/Research
for Faculty and
Students:**

U. S. Fire Administration

Publications: <http://www.usfa.fema.gov/applications/publications>

See Fire Protection, Fire Service Operations

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Learning Resource Center:

<http://www.lrc.fema.gov>

**Supporting
References/Research
for Faculty and
Students:**

References

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

<http://www.homefiresprinkler.org>

Society of Fire Protection Engineers:

<http://www.pentoncmg.com/sfpe/index.html>

Current Events/News

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

Assessment:

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

Points of Contact:

Gerri Penney, M.Ed., Palm Beach County Fire Rescue
(561) 616-7024, gpenney@co.palm-beach.fl.us

Course Outline

Fire and Life Safety Education

- I. Introduction to Public Education, Public Information and Public Relations/Marketing
 - A. Definitions
 - B. Roles and Responsibilities

- II. Fire and life safety education and the fire service culture
 - A. Identify cultural components
 - B. Value of fire and life safety education
 - C. Customer benefit
 - 1. Internal (staff)
 - 2. External (public)

- III. Stakeholders, partnerships and coalitions
 - A. Define and Identify
 - B. Building partnerships
 - C. Establishing coalitions

- IV. Fire and injury data collection and use
 - A. Sources
 - B. Interpretation
 - C. Relevance and prioritization
 - D. Utilization

- V. Budget
 - A. Needs assessment
 - B. Development
 - C. Funding sources

- VI. Fire and Life Safety Education Programs
 - A. Select
 - B. Design
 - C. Implement
 - D. Evaluate

VII. Accountability systems

- A. Define
- B. Collect data
 - 1. staffing and resources
 - 2. audience
 - 3. program type
- C. Compile data
- D. Analyze

Principles of Code Enforcement

Course Description: To provide the students with the fundamental knowledge, of the role of code enforcement in a comprehensive fire prevention program.

Prerequisite: *Principles of Emergency Services, Fire Prevention, Fire Protection Systems,* or Instructor approval.

- Outcomes:**
1. Explain the code enforcement system and the fire inspector's role in that system.
 2. Describe the codes and standards development and adoption processes.
 3. Describe the difference between prescriptive and performance based codes.
 4. Describe the legal authority and limitations relevant to fire code inspections.
 5. Describe the importance of thorough documentation.
 6. Recognize ethical practices for the code enforcement officer.
 7. Explain the application, and interrelationship of codes, standards, recommended practices and guides.
 8. Describe the differences in how codes apply to new and existing structure.
 9. Identify appropriate codes and their relationship to other requirements for the built environment.
 10. Describe the political, business, and other interest that influence the code enforcement process.
 11. Identify the professional development process for code enforcement practitioners.

Suggested Student Texts: *Fire Protection Handbook, NFPA*

Supporting References/Research for Faculty and Students: **U. S. Fire Administration**
Publications: <http://www.usfa.fema.gov/applications/publications>
Applied Research:
<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

National Institute for Standards and Technology

<http://www.fire.nist.gov>: Fire Tests/Data, Software/Models,

Publications, FIREDOC (under Publications)

References

Current Events/News

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

Assessment:

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

Points of Contact:

Jim Goodloe, bureau Chief of Fire Prevention
FL Division of State Fire Marshal, 850-413-3620
Jim.Goodloe@fldfs.com

Course Outline

Principles of Code Enforcement

VIII. Introduction to Code Enforcement System

- A. Which codes are adopted
- B. Code interpretation
- C. Permits and appeals process
- D. Organizational structure
- E. Establishment of the AHJ

II. Legal authority and limitations for code enforcement

- A. Governmental structure:
Federal, state, county, municipality
- B. Statutes/laws, rules/regulations, codes and ordinances
- C. Right of entry

III. The Codes of Standards Development Process

- A. Historical overview
- B. NFPA, ICC, ANSI, UL, FM etc. processes
- C. The code adoption process

IV. Prescriptive vs. Performance based codes

- A. Definitions
- B. Development of performance based code concepts
- C. Role of each

V. Documentation

- A. Concise written communication
- B. Reason for documentation
 - 1. for legal requirements
 - 2. records retention

VI. Codes, standards, recommended practices and guides

- A. Definitions
- B. Enforcement applicability
- C. Application in new and existing structures

VII. Interrelationship of codes

- A. Fire and Life Safety
- B. Building
- C. Plumbing, Mechanical, Electrical
- D. Zoning and other local ordinances
- E. Regional and local code amendments

VIII. Influences on code enforcement

- A. Political
- B. Business
- C. Other special interests and advocacy groups

IX. Professional development for code enforcement

- A. Training
- B. Education
- C. Certification

X. Ethical practices in government and customer service

- A. Ethical standards
- B. Interpersonal relationships
- C. Conflict resolution

Fire Plans Review

Course Description: This course provides for the application of fire codes and standards in developing an understanding of a building's fire protection features including the design of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and egress arrangements through the evaluation of 2D drawings and schematics.

Prerequisite: Demonstration of a competency in high school level algebra or the equivalent.
Completion of Fire Protection Systems, Fire Inspection Principles, Fire Protection Hydraulics and Water Supply, Building Construction for Fire Protection or the equivalent or instructor approval.

- Outcomes:**
5. Describe at least three reasons for performing plan checks, the objectives of a proposed plans review program, the impact of such a program, and how the program will enhance current fire prevention programs.
 6. Develop a graphic illustration of a model plans review system, identifying at least four components involved in the system including the use of plans review checklists.
 7. List three methods to monitor and evaluate the effectiveness of code requirements according to applicable standards.
 8. Determine fire department access, verify appropriate water supply, and review general building parameters.
 9. Determine occupancy classification, construction type; calculate occupant load and, the height and area of a building.
 10. Determine the appropriateness of the three components of a building's egress system (exit access, exit, and exit discharge), verify building compartmentation and the proper enclosure of vertical openings.
 11. Identify special hazards, verify interior finish and establish the proper location for pre-engineered fire extinguishing systems.
 12. Verify the compliance of a heating, ventilating, and air conditioning (HVAC) system, review sources requiring venting and combustion air, verify the proper location of fire dampers, and evaluate a stairwell pressurization system.

13. Verify the proper illumination for exit access, the arrangement of exit lighting and perform a life safety evaluation of the egress arrangement of a building.
14. Verify the design of a fire alarm and detection system, and an offsite supervisory system for compliance with applicable standards.

Available Texts:

Automatic Sprinkler and Standpipe Systems; John L. Bryan, NFPA
Design of Special Hazard and Fire Alarm System; Robert Gagnon, Thomson

Design of Water Based Fire Protection Systems; Robert Gagnon, Thomson

Fire Protection Handbook, NFPA

Fire Suppression and Detection Systems; John Bryan, MacMillan Publishing

Operation of Fire Protection Systems; NFPA

Private Fire Protection and Detection; Fire Protection Publication

**Supporting
References/Research
for Faculty and
Students:**

U. S. Fire Administration

Publications: <http://www.usfa.fema.gov/applications/publications>

See Fire Protection, Fire Service Operations

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

National Institute for Standards and Technology

<http://www.fire.nist.gov>: Fire Tests/Data, Software/Models, Publications, FIREDOC (under Publications)

References

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

<http://www.homefiresprinkler.org>

Society of Fire Protection Engineers:

<http://www.pentoncmg.com/sfpe/index.html>

Current Events/News

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

Assessment:

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

Points of Contact:

Chief Daniel Uthe, Tucson Fire Department
(530) 791-5630 dan.uthe@tucsonaz.gov

Course Outline

Fire Plans Review

- IX. Introduction to Plans Review
 - A. The role plans review plays in protecting the life and safety of building occupants and emergency responders
 - B. The various approaches utilized in plans review programs
 - C. Relationships between the codes (Fire, Building, Mechanical, Electrical, Plumbing, Zoning, Conservation, etc.)
 - D. Understanding level of authority

- II. Plans Review of Life Safety Issues
 - A. Means of Egress
 - B. Occupancy classification and occupant load
 - C. Construction Type
 - D. Height and Area

- III. Site plans review issues related to fire protection
 - A. Fire Department access
 - B. Secondary containment
 - C. Special hazards and exposures
 - D. Temporary requirements

- IV. Introduction to plans review of Fire Protection Systems
 - A. The role fire protection systems play in protecting the life, safety and welfare of the general public and firefighters
 - B. Overview of the different types of fire protection systems
 - C. The role of codes & standards in fire protection system design

- V. Plans review of water supply for fire protection
 - A. Sources of fire protection water supply
 - B. Distribution networks
 - C. Piping
 - D. Hydrants
 - E. Utility company interface with the fire department

- VI. Plans review of water-based fire suppression systems
 - A. Properties of water
 - 1. Water as an effective extinguishing agent
 - 2. How water extinguishes fire
 - B. Sprinkler Systems
 - 1. Types of systems & applications

- 2. Types of sprinklers & applications
 - 3. Piping, valves, hangers & alarm devices
 - 4. Fire department operations in buildings with sprinkler systems
 - C. Residential sprinkler systems
 - D. Standpipe systems
 - 1. Types & applications
 - 2. Fire department operations in buildings with standpipes
 - E. Foam systems
 - F. Water mist systems
 - G. Fire pumps
 - 1. Types
 - 2. Components
 - 3. Operation
 - 4. Fire pump curves
- VII. Plans review of non-water-based fire suppression systems and portable fire extinguishers
 - A. Carbon dioxide systems
 - 1. Applications
 - 2. Extinguishing properties
 - 3. System components
 - B. Dry/Wet Chemical Extinguishing systems
 - 1. Extinguishing properties
 - 2. Applications
 - 3. UL 300
 - C. Clean agent system
 - D. Plans review of portable fire extinguishers
 - 1. Types & applications
 - 2. Selection
 - 3. Placement
- VIII. Plans review of fire alarm systems
 - A. Components
 - B. Types of fire alarm systems
 - C. Detectors
 - 1. Smoke
 - 2. Heat
 - 3. Flame
 - D. Audible/visual devices
 - E. Alarm monitoring
 - F. Testing & maintenance of fire alarm systems
- IX. Plans review of smoke management systems
 - A. Identification of smoke management systems
 - B. Firefighter interface with smoke management systems