



DEPARTMENT OF FINANCIAL SERVICES

Division of State Fire Marshal
Bureau of Fire Standards and Training

Title: Syllabus for Building Construction for the Fire Service

Revision: January 2022

Section I - Course Information

Course Title: Building Construction for the Fire Service

Course Number(s): BFST/FFP/ATPC2120

Class Days/Time: If being taught at the Florida State Fire College Campus 11655 NW Gainesville Road, Ocala, FL 34482 Bldg. C – Classrooms – Monday - Friday 8 a.m.- 5 p.m. Additional coursework outside the classroom totaling five (5) hours of work may be assigned.

Section II - Points of Contact

Training Supervisor:

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Program Manager:

Name:
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Section III – Course Description

This course will provide the student with a basic understanding of building design and construction methods which will aid in decision making processes related to fire prevention and control. Students will gain an understanding of construction principles and practices related to fire loads and behavior to make more effective, safer, and timely decisions to protect people and property from potential and actual fires.

Section IV - Course Materials, Grading, and Attendance

Recommended Book: *Building Construction Related to the Fire Service (4th ed.); IFSTA (2016)*
ISBN: 978-087939594-0

Prerequisite(s): None

Contact Hours: This class has 45 contact hours.

Continuing Educations Units (CEU's): 45 hours towards Fire Code Administrator, Fire Safety Inspector, Instructor I, II, III and renewal.

Pre-Course Assignment: None

Required Materials: Paper, pens, USB portable storage device (thumb drive)

Grading: Students must achieve a minimum cumulative score of 70% to pass this course. Course grades are determined from assignments and activities including, homework, projects, quizzes, exams, and presentations. Below is the breakdown of the final accumulative grading:

- Individual Exercises 20 points
- Group Exercises 25 points
- Final Group project 25 points
- Final Written Exam 30 points

Attendance: Students are required to attend all sessions of the course.

- Excused absences - Students are permitted excused absences totaling no more than 10% of class (4.5 hours maximum); the instructor shall be the sole determining authority in the determination of an excused absence and may assign supplemental work to make up for missed class time.
- Unexcused absences - The instructor shall be the sole determining authority in the determination of an unexcused absence (i.e. “no call, no show”). The instructor has no obligation to offer the student an opportunity to make up assignments, including quizzes and/or exams, but may do so at his/her discretion.

Section VI – Job Performance Requirements

Given information from discussion and reading materials, the student will satisfy the Job Performance Requirements (JPR) of the applicable National Fire Protection Association (NFPA) standards, any applicable skill sheets.

NFPA 1021, *Standard for Fire Officer Professional Qualifications*, 2014 Edition

4.5* Inspection and Investigation. This duty involves conducting inspections to identify hazards and address violations, performing a fire investigation to determine preliminary cause, securing the incident scene, and preserving evidence, according to the following job performance requirements.

4.5.1 Describe the procedures of the AHJ for conducting fire inspections, given any of the following occupancies, so that all hazards, including hazardous materials, are identified, approved forms are completed, and approved action is initiated:

- (1) Assembly
- (2) Educational
- (3) Health care

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- (4) Detention and correctional
- (5) Residential
- (6) Mercantile
- (7) Business
- (8) Industrial
- (9) Storage
- (10) Unusual structures
- (11) Mixed occupancies

4.5.2 Identify construction, alarm, detection, and suppression features that contribute to or prevent the spread of fire, heat, and smoke throughout the building or from one building to another, given an occupancy, and the policies and forms of the AHJ so that a pre-incident plan for any of the following occupancies is developed:

- (1) Public assembly
- (2) Educational
- (3) Institutional
- (4) Residential
- (5) Business
- (6) Industrial
- (7) Manufacturing
- (8) Storage
- (9) Mercantile
- (10) Special properties

NFPA 1031, Standard for Professional Qualifications for Fire Inspector and Plans Examiner, 2014 Edition

4.2.1 Prepare inspection reports, given agency policy and procedures, and observations from an assigned field inspection, so that the report is clear and concise and reflects the findings of the inspection in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.2.2* Recognize the need for a permit, given a situation or condition, so that requirements for permits are communicated in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.2.3 Recognize the need for plan review, given a situation or condition, so that requirements for plan reviews are communicated in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.2.4* Investigate common complaints, given a reported situation or condition, so that complaint information is recorded, the AHJ-approved process is initiated, and the complaint is resolved.

4.2.5* Identify the applicable code or standard, given a fire protection, fire prevention, or life safety issue, so that the applicable document, edition, and section are referenced.

4.3.1 Identify the occupancy classification of a single-use occupancy, given a description of the occupancy and its use, so that the classification is made according to the applicable codes and standards.

4.3.2 Compute the allowable occupant load of a single-use occupancy or portion thereof, given a detailed description of the occupancy, so that the calculated allowable occupant load is established in accordance with applicable codes and standards.

4.3.3* Inspect means of egress elements, given observations made during a field inspection of an existing building, so that means of egress elements are maintained in compliance with applicable codes and standards and deficiencies are identified, documented, and reported in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.3.4* Verify the type of construction for an addition or remodeling project, given field observations or a description of the project and the materials being used, so that the construction type is identified and recorded in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.3.5* Determine the operational readiness of existing fixed fire suppression systems, given test documentation and field observations, so that the systems are in an operational state, maintenance is documented, and deficiencies are identified, documented, and reported in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.3.6* Determine the operational readiness of existing fire detection and alarm systems, given test documentation and field observations, so that the systems are in an operational state, maintenance is documented, and deficiencies are identified, documented, and reported in accordance with the policies of the jurisdiction.

4.3.7* Determine the operational readiness of existing portable fire extinguishers, given field observations and test documentation, so that the equipment is in an operational state, maintenance is documented, and deficiencies are identified, documented, and reported in accordance with the policies of the jurisdiction.

4.3.8* Recognize hazardous conditions involving equipment, processes, and operations, given field observations, so that the equipment, processes, or operations are conducted and maintained in accordance with applicable codes and standards and deficiencies are identified, documented, and reported in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.3.9 Compare an approved plan to an existing fire protection system, given approved plans and field observations, so that any modifications to the system are identified, documented, and reported in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.3.10* Verify that emergency planning and preparedness measures are in place and have been practiced, given field observations, copies of emergency plans, and records of exercises, so that plans are prepared and exercises have been performed in accordance with applicable codes and standards and deficiencies are identified, documented, and reported in accordance with the applicable codes and standards and the policies of the jurisdiction.

4.3.11* Inspect emergency access for an existing site, given field observations, so that the required access for emergency responders is maintained and deficiencies are identified, documented, and corrected in accordance with the applicable codes, standards, and policies of the jurisdiction.

Section VII – Plan of Instruction

The following is the plan of instruction used during course offerings held at the Florida State Fire College. It also serves as the suggested instructional block format for other approved training providers who use the recommended text book. All class offerings **must** satisfy the JPRs listed in *Section VI – Job Performance Requirements* regardless of textbook used.

Day/Date	Chapters	Activities
Day 1	Class Introductions and Orientation Chapter 1 – Building Construction and the Fire Service Chapter 2 – Building Classifications and Structure Fire Resistance Chapter 3 – Structural Design Features of Buildings Group/Individual Project Discussion and Assignment	<ul style="list-style-type: none"> • Introductions • Group project discussion
Day 2	Quiz – Chapters 1-3 Chapter 4 – Building Systems Chapter 5 – Interior Finishes and Passive Fire Protection Chapter 6 – Foundations	<ul style="list-style-type: none"> • Quiz 1 • Videos
Day 3	Quiz – Chapters 4-5-6 Chapter 7 – Wood Construction Chapter 8 – Masonry and Ordinary Construction Chapter 9 – Steel Construction	<ul style="list-style-type: none"> • Quiz 2 • Videos
Day 4	Quiz – Chapters 7-8-9 Chapter 10 – Concrete Construction Chapter 11 – Roofs Chapter 12 – Special Structures and Design Features	<ul style="list-style-type: none"> • Quiz 3 • Videos
Day 5	Quiz – Chapters 10-11-12 Chapter 13 – Buildings Under Construction, Remodeling, Expansion, and Demolition Chapter 14 – Non-Fire Building Collapse Final Project Presentations Course Completion	<ul style="list-style-type: none"> • Quiz 4 • Project presentations

Section VIII – Final Presentation and Grading Rubric

Description of Assignment:

The final project for this class involves a group presentation in PowerPoint format. All members are expected to contribute equally. The presentation should take no longer than 5-10 minutes and groups must submit a written summary of their work to accompany their presentation.

The final project consists of completing a drawing of a building (not on the Fire College campus) which outlines specific items fire service personnel should be aware of when responding to businesses in their response area. Students are permitted to utilize any drawing medium they desire but their work must be original. **DO NOT SUBMIT A DEPARTMENT ORIGINATED DRAWING. ALL WORK MUST BE ORIGINAL IN ORDER TO RECEIVE CREDIT.**

Format and Grading of Assignment:

Students will conduct and create a drawing of a pre-fire plan/building walkthrough within their response district. The drawing may be completed utilizing any drawing program (i.e. Microsoft Publisher, Visio, etc.) available. Students may create the drawing by hand.

The final project is worth 100 points towards the final grade. Scoring will be assigned according to the grading rubric. To receive full credit, the following elements need to be present:

- Legend defining symbols used
- Business name and address (upper left-hand corner)
- Directional indicator (top of page)
- Utilities shut offs (water, gas, electric, etc.)
- General building layout
- Hydrant location(s) and approximate distance from structure
- Sprinklered or Non-sprinklered building
- Other critical information (i.e. special hazards, alarm control panel, informational messages, light weight truss use, etc.)

Additionally, students must document significant building construction factors including (but not limited to) truss construction, old (pre-existing) or new construction, roof type, and construction type. Students must also identify any special hazard considerations regarding the structure that could pose additional challenges and/or risks to responding firefighters. For example, a building with significant roof loads (i.e. HVAC units) on top of truss construction would pose significant collapse hazard for interior crews.

Section IX – Review Date and Author

January 5, 2022

Robert Coyne

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						Score
Building Layout	Building layout is clearly defined and easy to understand; drawing provides clear indication of street and building access; drawing provides a clear understanding of additional information to be utilized by responding firefighters (i.e. caution messages)	Building layout is clearly defined and moderately easy to understand; drawing provides indication of street and building access; drawing provides a moderate understanding of additional information to be utilized by responding firefighters (i.e. caution messages)	Building layout is moderately defined but easy to understand; drawing provides indication of street or building access but not both; drawing provides a moderate understanding of additional information to be utilized by responding firefighters (i.e. caution messages)	Building layout is moderately defined and difficult to understand; drawing provides indication of street or building access but not both; drawing provides a moderate understanding of additional information to be utilized by responding firefighters (i.e. caution messages)	Building layout is poorly defined and difficult to understand; drawing does not provide indication of street or building access; drawing provides a poor understanding of additional information to be utilized by responding firefighters (i.e. caution messages)	
Symbols Used	Legend is present and includes all symbols in drawing; symbols are unique respective to one another, clearly identified, and reflect locations on drawing; drawing specifically identifies location of all respective shut offs for utilities (water, gas, electric, and/or LPG)	Legend is present and includes most symbols in drawing; symbols are unique respective to one another, fairly identified, and reflect locations on drawing; drawing specifically identifies location of most respective shut offs for utilities (water, gas, electric, and/or LPG)	Legend is present and includes most symbols in drawing; symbols are not unique respective to one another, fairly identified, or reflect locations on drawing; drawing generally identifies location of most respective shut offs for utilities (water, gas, electric, and/or LPG)	Legend is present and includes some (less than 50%) symbols in drawing; symbols are not unique respective to one another, poorly identified, or do not reflect locations on drawing; drawing fails to identify location of most respective shut offs for utilities (water, gas, electric, and/or LPG)	Legend absent from drawing; symbols absent or unclear what they are indicating; drawing fails to identify location respective shut offs for utilities (water, gas, electric, and/or LPG)	
Water Supply and Fire Protection Systems	Drawing provides a clear hydrant locations and distance from structure; drawing provides clear indication of sprinkler system status; drawing indicates presence of FACP AND FDC locations (should indicate if not present in building)	Drawing provides hydrant locations and distance from structure; drawing provides clear indication of sprinkler system status; drawing indicates presence of FACP OR FDC locations or fails to indicate absence of either system in building	Drawing provides hydrant locations and distance from structure; drawing provides no indication of sprinkler system status; drawing indicates presence of FACP OR FDC locations or fails to indicate absence of either system in building	Drawing provides hydrant locations without distance from structure; drawing provides no indication of sprinkler system status; drawing does not indicate presence of FACP OR FDC locations or fails to indicate absence of either system in building	Drawing does not provide hydrant locations and distance from structure; drawing provides no indication of sprinkler system status; drawing does not indicate presence of FACP OR FDC locations or fails to indicate absence of either system in building	


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General Formatting	Business name and address are present in the upper left-hand corner; directional indicator is present at the top of the page; drawing provides a clear idea of hazards, access, and informational messages	Business name and address are present but not in the upper left-hand corner; directional indicator is present but not at the top of the page; drawing provides an idea of hazards, access, and informational messages	Business name and address OR directional indicator is not included in drawing; drawing provides a moderate idea of hazards, access, and informational messages	Business name and address OR directional indicator is not included in drawing; drawing provides a poor idea of hazards, access, and informational messages	Business name and address AND directional indicator is not included in drawing; drawing provides no idea of hazards, access, and informational messages	
Construction Factors	Student provides a minimum of four (4) building construction factors AND two (2) potential associated hazards in the building	Student provides a minimum of four (4) building construction factors AND one (1) potential associated hazard in the building	Student provides a minimum of three (3) building construction factors AND one (1) potential associated hazard in the building	Student provides a minimum of two (2) building construction factors AND one (1) potential associated hazard in the building	Student fails to provide a minimum of two (2) building construction factors OR one (1) potential associated hazard in the building	
						

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