

Prepared by the Department of Social Sciences, Behavioral Sciences, and Human Services
Date of Departmental Approval: February 12, 2013
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Effective: Fall 2013

1. **Course Number:** FSC153
Course Title: Building Construction for the Fire Protection
2. **Description:** (replaces FSC104) This course provides the components of building construction related to fire fighters and life safety. The elements of construction design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies.
3. **Student Learning Outcomes:** (instructional objectives, intellectual skills)
Upon successful completion of this course, students are able to do the following.
 - Identify various classifications of building construction
 - Describe building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, firefighting strategy and tactics
 - Classify major types of building construction in accordance with local/model building code
 - Analyze the hazards and tactical considerations associated with the various types of building construction
 - Explain the different loads and stresses that are placed on a building and their interrelationships
 - Identify the functions of each principle structural component in typical building design
 - Differentiate between fire resistance and flame spread, and describe the testing procedures used to establish ratings for each
 - Classify occupancy designations of the building code
 - Identify the indicators of potential structural failure as they relate to firefighter safety
 - Identify the role of GIS as it relates to building construction
4. **Credits:** 3 credits
5. **Satisfies General Education Requirement:** No
6. **Co-requisite:** FSC150/FSC100
7. **Semester Offered:** Varies
8. **Suggested General Guidelines for Evaluation:** Exams, quizzes, and class projects
9. **General Topical Outline:**
 - I. Introduction
 - A. History of Building Construction
 - B. Governmental Functions, Building and Fire Codes
 - C. Fire Risks and fire Protection
 - D. Pre-fire Planning and Fire Suppression Strategies
 - II. Principles of Construction
 - A. Terminology and Definitions
 - B. Building Occupancy Classifications
 - C. Characteristics of Building Materials
 - D. Types and Characteristics of Fire Loads
 - E. Effects of Energy Conservation
 - III. Building Construction
 - A. Structural Members
 1. Definitions, Description, and Carrying capacities
 2. Effects of Loads
 - B. Structural Design and Construction Methods
 - C. System Failures

- IV. Principles of Fire Resistance
 - A. Standards of Construction
 - B. Fire Intensity and Duration
 - C. Theory versus Reality

- V. Fire Behavior versus Building Construction
 - A. Flame Spread
 - B. Smoke and Fire Containment
 - 1. Construction and Suppression Systems
 - 2. HVAC Systems
 - 3. Rack Storage
 - 4. Combustible

- VI. Wood Construction
 - A. Definition and Elements of Construction
 - B. Types of Construction
 - C. Fire Stopping and Fire Retardants
 - D. Modifications/Code Compliance

- VII. Ordinary Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability and Fire Barriers
 - C. Modifications/Code Compliance

- VIII. Collapse

- IX. Ventilation

- X. Non-Combustible

- XI. Concrete Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability and Fire Resistance
 - C. Modifications/Code Compliance

- XII. High Rise Construction
 - A. Early versus Modern Construction
 - B. Vertical and Horizontal Extension of Fire and Smoke
 - C. Fire Protection and Suppression
 - D. Elevators
 - E. Atriums/Lobbies
 - F. Modifications/Code Compliance

- XIV. Collapse

- XV. Ventilation