

## **Course Description**

### **FFP2120 | Building Construction for the Fire Science | 3.00 credits**

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.

## **Course Competencies:**

**Competency 1:** The student will comprehend the concepts of building construction components and techniques related to fire and life safety by:

1. Describing building construction components and techniques as they relate to building codes, fire and life-safety codes, fire prevention and inspection, firefighter safety, and firefighting strategy and tactics
2. Distinguishing the Classifications of major types of building construction as applicable with “model” building codes
3. Interpreting the hazards and tactical considerations associated with the various types of building construction
4. Analyzing the different loads and stresses that are placed on a building and their interrelationships
5. Describing principle structural components in a typical building design
6. Explaining the function of each building design
7. Comparing defined differences in fire resistance construction, the flame spread within building types, and describe the testing procedures used to establish ratings for each
8. Identifying the indicators of potential structural failure as they relate to firefighter safety
9. Analyzing the causes involved in the line of duty firefighter deaths related to structural firefighting and building collapse

**Competency 2:** The student will understand the principles of the use of water in fire protection and how to apply hydraulic principles to analyze and to solve water supply problems by:

1. Describing the basic elements of a public water supply system including sources, distribution networks, piping, hydrants and the community fire flow demand criteria
2. Describing the principles of forces that affect water at rest and in motion

**Competency 3:** Describe the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, and water supply for fire protection and portable fire extinguishers by:

1. Explaining the benefits of fire protection systems in various types of structures
2. Analyzing the elements of a public water supply system
3. Comparing defined differences in fire-resistant construction and the flame spread within building types
4. Describing testing procedures used to establish ratings for fire resistance and flame spread

**Competency 4:** The student will discuss the federal, state, and local laws that regulate emergency services, national standards influencing emergency services, standard of care, tort, liability, and a review of court cases by:

1. Describing federal, state, and local laws, which regulate or influence emergency services

**Competency 5:** The student will analyze the principles of fire control through utilization of personnel, equipment, and extinguishing agents on the fire ground by:

1. Explaining building construction and components and how they interrelate to pre-fire planning

**Learning Outcomes:**

- Communicate effectively using listening, speaking, reading, and writing skills
- Solve problems using critical and creative thinking and scientific reasoning
- Create strategies that can be used to fulfill personal, civic, and social responsibilities
- Demonstrate knowledge of ethical thinking and its application to issues in society