

**COURSE
OUTLINE**
Construction Methods and Materials

Course Description

FS 130. Construction Methods and Materials. 3 hours credit. Prerequisite: FS 100 with a “C” or better or be currently enrolled in FS 100. This course will enable the student to recognize various building configurations and the specific hazards associated with them. The student will develop an understanding of the concepts of fire-resistance and how fire affects structural members in an uncontrolled environment. The student will develop an understanding of how different building configurations and construction materials can influence fire suppression tactics.

Course Relevance

The principles learned in the course will provide the student with knowledge in building construction. This information should be applied to their continuing education in the field and will provide a foundation to understand fire tactics, fire behavior, and fire safety.

Required Materials

FS 130 Textbook:

International Fire Service Training Association. (1999). *Building construction related to the fire service* (2nd ed.). Stillwater, OK: Fire Protection Publications.

National Fire Protection Association (2008) *Brannigan’s building construction for the fire service* (4th ed.). Sudbury, MA: Jones & Bartlett

Learning Outcomes

The intention is for the student to be able to

1. Identify different construction elements and processes and explain hazards associated with each
2. Explain how different building configurations and construction methods affect fire behavior and affect fire suppression

Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course

Through the student’s involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Critical Thinking
 - Through identifying and defining different construction methods as they relate to fire suppression and fire prevention, the student will develop critical thinking skills.

2. Problem solving

- Through identifying and defining problems with different elements of building construction as they relate to fire suppression, safety, and fire behavior, the student will develop problem solving skills.

Secondary skills (developed but not documented): Listening
Reading

Major Summative Assessment Task(s)

These learning outcomes and the primary Learning PACT skills will be demonstrated by

1. Production of a summative report identifying problems and hazards associated with specific types of building construction

Course Content

- I. Themes – Key recurring concepts that run throughout this course:
 - A. Knowledge of various types of construction
 - B. Safety
- II. Issues – Key areas of conflict that must be understood in order to achieve the intended outcome:
 - A. Knowledge that building construction can affect fire behavior
 - B. Safety issues associated with building construction
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Identification of different types of construction
 - B. Knowledge of different construction methods
 - C. Understanding principles of fire resistance, compartmentation, and fireproofing
- IV. Skills/Competencies – Actions that are essential to achieve the course outcomes:
 - A. Identify different types and methods of construction
 - B. Identify and describe particular hazards associated with different types of building construction
 - C. Explain the effects that different types and methods of construction have on fire suppression

Learning Units

- I. Building construction and the fire service
- II. Design principles
- III. Building classifications
- IV. Structural principles
- V. Building materials
- VI. Foundations

- VII. Structural systems
- VIII. Floors and ceilings
- IX. Walls
- X. Roofs
- XI. Door and window assemblies
- XII. Interior finish
- XIII. Building services and subsystems
- XIV. Underground facilities
- XV. Buildings fire protection systems
- XVI. Buildings under construction

Learning Activities

Activities will include class discussion, lecture and classroom exercises, designed to give the student an understanding of the concepts of building construction as it relates to the fire service.

Grade Determination

The student will be graded on satisfactory completion of the assessment task, attendance, assignments, and examinations.