

College of San Mateo
Official Course Outline

1. **COURSE ID:** FIRE 740 **TITLE:** Building Construction for Fire Protection **C-ID:** FIRE 130X

Units: 3.0 units **Hours/Semester:** 48.0-54.0 Lecture hours; and 96.0-108.0 Homework hours

Method of Grading: Letter Grade Only

Recommended Preparation:

Eligibility for ENGL 100 or ENGL 105. FIRE 715

2. **COURSE DESIGNATION:**

Degree Credit

Transfer credit: CSU

3. **COURSE DESCRIPTIONS:**

Catalog Description:

This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations and operating at emergencies.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S):**

Upon successful completion of this course, a student will meet the following outcomes:

1. Identify various classifications of building construction
2. Understand theoretical concepts of how fire impacts major types of building construction

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**

Upon successful completion of this course, a student will be able to:

1. Identify various classifications of building construction.
2. Understand theoretical concepts of how fire impacts major types of building construction.

6. **COURSE CONTENT:**

Lecture Content:

1. Introduction
 - A. History of Building Construction
 - B. Governmental Functions, Building and Fire Codes
 - C. Fire Risks and Fire Protection
 - D. Fire Loss Management and Life Safety
 - E. Pre-fire Planning and Fire Suppression Strategies
2. Principles of Construction
 - A. Terminology and Definitions
 - B. Building and Occupancy Classifications
 - C. Characteristics of Building Materials
 - D. Types and Characteristics of Fire Loads
 - E. Effects of Energy Conservation
3. Building Construction
 - A. Structural Members
 - a. Definitions, Description and Carrying Capacities
 - b. Effects of Loads
 - B. Structural Design and Construction Methods
 - C. Systems Failures
4. Principles of Fire Resistance
 - A. Standards of Construction
 - B. Fire Intensity and Duration
 - C. Theory versus Reality
5. Fire Behavior versus Building Construction
 - A. Flame Spread
 - B. Smoke and Fire Containment
 - a. Construction and Suppression Systems
 - b. HVAC Systems
 - c. Rack Storage

- d. Combustible
- 6. Wood Construction
 - A. Definition and Elements of Construction
 - B. Types of Construction
 - C. Fire Stopping and Fire Retardants
 - D. Modification/Code Compliance
- 7. Ordinary Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability and Fire Barriers
 - C. Modification/Code Compliance
- 8. Collapse
- 9. Ventilation
- 10. Non-Combustible
- 11. Steel Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability, Fire Resistance and Fire Protection of Elements
 - C. Modifications/Code Compliance
- 12. Concrete Construction
 - A. Definitions and Elements of Construction
 - B. Structural Stability and Fire Resistance
 - C. Modifications/Code Compliance
- 13. 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
- 14. High Rise Collapse
- 15. High Rise Ventilation

7. REPRESENTATIVE METHODS OF INSTRUCTION:

Typical methods of instruction may include:

- A. Lecture
- B. Activity
- C. Discussion

8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

Writing Assignments:

Presentation topic description and outline

Reading Assignments:

Assigned reading for class session

Other Outside Assignments:

Preparation of oral presentation

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Oral Presentation
- B. Papers
- C. Quizzes
- D. Written examination

10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

- A. International Fire Service Training Association (IFSTA). *Building Construction Related to the Fire Service*, 4th ed. Fire Protection Publications (IFSTA), 2016
- B. Corbett, G. P.; Brannigan, F. L.; NFPA. *Building Construction for the Fire Service*, 6th ed. Jones & Bartlett Learning, 2021

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Course Originator: Michelle Schneider