Print Date: 3/27/19

Course Objectives/Course Outline
Spokane Community College

Course Title: Building Construction
Prefix and Course Number: FS 152

Course Learning Outcomes:

By the end of the course, a student should be able to:

- Describe building construction as it relates to firefighter safety, buildings codes, fire prevention, code inspection, firefighting strategy, and tactics.
- Classify major types of building construction in accordance with a 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 function of each principle structural component in typical building design.
- Differentiate between fire resistance, 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.

Course Outline

I. 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
II. 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

III. Building Construction
    A. Structural Members
        1. Definitions, Descriptions 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. Steel Construction
    A. Definitions and Elements of Construction
    B. Structural Stability, Fire Resistance and Fire Protection of Elements
    C. Modifications/Code Compliance
XII. Concrete Construction
    A. Definitions and Elements of Construction
    B. Structural Stability and Fire Resistance
    C. Modifications/Code Compliance
XIII. 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