1. **COURSE ID:** FIRE 740  
   **TITLE:** Building Construction for Fire Protection  
   **Units:** 3.0 units  
   **Hours/Semester:** 48.0-54.0 Lecture hours  
   **Method of Grading:** Letter Grade Only  
   **Prerequisite:** completion of or concurrent enrollment in FIRE 715  
   **Recommended Preparation:**  
      Eligibility for ENGL 100 or 105.

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. Describe building construction as it relates to firefighter safety, building codes, fire prevention, code inspection, firefighting strategy and tactics  
   2. Classify major types of building construction in accordance with a local/model building code  
   3. Analyze the hazards and tactical considerations associated with the various types of building construction  
   4. Explain the different loads and stresses that are placed on a building and their interrelationships  
   5. Identify the function of each principle structural component in typical building design  
   6. Differentiate between fire resistance, flame spread and describe the testing procedures used to establish ratings for each  
   7. Classify occupancy designations of the building code  
   8. Identify the indicators of potential structural failure as they relate to firefighter safety  
   9. Identify the role of Geographical Information System (GIS) as it relates to 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:

**Origination Date:** September 2014
**Curriculum Committee Approval Date:** October 2014
**Effective Term:** Fall 2015
**Course Originator:** Michelle Schneider