

Certified Fire Protection Specialist Program Blueprint

It is important to remember that while some of the domains correspond both in title and in content to sections of the FPH, not all of them do, nor are they meant to be an exact reflection of FPH sections. For example, content area V: Fire Prevention does not have a corresponding section within the FPH, and its content is drawn from multiple FPH sections.

- I. Safety in the Built Environment** **5%**
 - A. Understand the challenges to safety in the built environment
 - 1. Types of Construction
 - 2. Occupancy Classifications
 - 3. Concepts and application of compartmentation
 - B. Understand the application of fire protection features
 - C. Be familiar with codes and standards for the built environment, major Standards Development Organizations (SDOs), and their processes

- II. Basics of Fire and Fire Science** **10%**
 - A. Understand the chemistry and physics of fire
 - B. Identify dynamics of fire growth and products of combustion (Heat Release Rate, Flame Spread and Smoke Development)

- III. Information and Analysis for Fire Protection** **5%**
 - A. Understand the process, concepts, and tools involved with fire loss investigation
 - B. Demonstrate proficiency in the use fire incident data and statistics
 - C. Perform fire analysis

- IV. Human Behavior in Fire Emergencies** **5%**
 - A. Understand the principles of human behavior in fire
 - B. Perform egress design and prediction calculations

- V. Fire Prevention: Programs, Materials, Processes, and Environments** **15%**
 - A. Understand Fire hazards and prevention principles
 - B. Understand hazards to Life Safety and mitigation principles
 - C. Understand the components, fire hazards, operating principles and fire protection practices associated with the various types of systems, including, but not limited to:
 - 1. HVAC and refrigeration systems
 - 2. Emergency and standby power systems
 - 3. Photovoltaic systems
 - 4. Energy Storage Systems
 - 5. Safety Control Systems (PLC Safety Controllers, Hardwired Interlock Systems)
 - 6. Materials-handling equipment
 - 7. Electronic equipment
 - 8. Commercial kitchen and cooking equipment

- D. Understand and identify the fire hazards and hazard mitigation principles associated with the various processes, including, but not limited to:
 - 1. Grinding processes
 - 2. Semiconductor manufacturing
 - 3. Hot work
- E. Understand the hazards and fire protection best practices associated with the following material storage, handling, and housekeeping principles
 - 1. Demonstrate knowledge of proper storage and handling procedures of solid fuels, flammable and combustible liquids and gases, and dusts.
 - 2. Understanding the exposures and controls for various storage arrangements.
 - 3. Understand explosion prevention and protection

VI. Facility Fire Hazard Management

10%

- A. Demonstrate a knowledge and understanding of:
 - 1. Fire department response tactics and procedures
 - 2. Types of building construction and how they relate to fire hazards and fire service response
 - 3. Environmental hazards to facilities
- B. Understand how to perform fire, explosion, and life safety risk assessment and analyses of a given facility
- C. Understand how to conduct complex inspection surveys of commercial and residential properties to evaluate physical characteristics of a property and business and evaluate compliance with applicable codes, standards, and regulations
- D. Understand the processes of acquisition, installation, operation, maintenance and disposition of building systems
- E. Develop and manage emergency preparedness, response, and business continuity procedures and assure all emergency systems and procedures are tested as planned
- F. Understand public and private water systems
- G. Understand fire department access needs for facilities

VII. System Approaches to Property Classes

5%

- A. Know how to classify occupancies
- B. Understand life safety as it relates to different occupancy classifications
- C. Understand fire protection in special occupancies, including, but not limited to:
 - 1. High-rises
 - 2. Institutional facilities
 - 3. Hazardous material operations
 - 4. Warehouse and storage operations

VIII. Organizing for Fire and Rescue Services

5%

- A. Perform pre-incident planning for industrial, residential, and commercial facilities
- B. Understand operations of fire loss prevention and emergency organizations

- C. Understand operations of emergency medical services
- D. Understand fire prevention and code enforcement operations
- E. Understand fire and emergency service training methodology
- F. Understand operations of fire department facilities and fire training facilities
- G. Understand operations of public emergency services communication systems
- H. Understand the basics of fire department apparatus and equipment
- I. Understand the use and function of fire and emergency services protective clothing and protective equipment (PPE)
- J. Evaluate fire department response and prevention resources and the placement thereof
- K. Understand the management of fire response operations
- L. Understand the concept of Community Risk Reduction (CRR)

IX. Detection and Alarm

10%

- A. Understand the fundamentals and operational characteristics of the modern fire alarm and detection systems:
 - 1. Equipment
 - 2. Design and installation
 - 3. Initiating devices
 - 4. Interaction of interfaced fire protection systems
- B. Understand inspection, testing, and maintenance of fire alarm systems
- C. Understand surveillance and fire guard services for fire protection
- D. Understand plans review for detection and alarm systems
- E. Understanding the basic design and installation concepts of Two-way Radio Communication Enhancement Systems
- F. Understand the benefits and proper application of smoke alarms in the one-and two-family dwelling environment

X. Water-Based Fire Suppression

20%

- A. Understand the design and operation of water distribution systems
- B. Understand water supply system requirements
- C. Understand design criteria for hydraulics for fire protection
- D. Determine water supply adequacy testing and determination
- E. Identify and understand the operating principles of stationary fire pumps
- F. Understand inspection, testing, and maintenance processes and requirements for water-based suppression systems
- G. Understand the characteristics and applications of the following types of water-based suppression systems:
 - 1. Automatic sprinkler systems
 - 2. Fine water mist systems
 - 3. Foam-water sprinkler systems
 - 4. Deluge systems
- H. Understand the benefits and proper application of fire sprinkler systems in the one-and two-family dwelling environment

XI. Fire Suppression without Water

5%

- A. Understand the proper use/application, and the limitations of non-water based agents and systems (clean agent, hybrid, carbon dioxide, dry and wet chemical, foam, etc.)
- B. Understand the design, proper installation, and operation of non-water-based extinguishing systems
- C. Understand inspection, testing, and maintenance processes and requirements for non-water-based extinguishing systems
- D. Understand the proper installation, use, testing, and maintenance of portable fire extinguishers

XII. Confining Fires

5%

- A. Understand building construction elements for fire protection
- B. Understand the following elements of confinement of fire in buildings
 - 1. Fire resistance rated construction
 - 2. Fire walls, barrier, and partitions
 - 3. Smoke barriers
 - 4. Fire doors and windows
 - 5. Protection of openings and penetrations
- C. Understand structural damage factors to be evaluated after a fire
- D. Understand fire hazards associated with construction, alteration and demolition of buildings