Fire Protection Bureau
Education, Enforcement and Analytics Section
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Fire Alarm Interconnectivity to the Fire Sprinkler System
This course covers the NFPA standards requiring water-based fire protection systems to be tested and inspected as per both the NFPA 25 and NFPA 72. This course will discuss the monitoring requirements for sprinkler systems as well as supervisory signals that need to be captured. This program will also cover dedicated function fire alarm systems that are used exclusively for sprinkler monitoring and the requirements for those systems.

Fire Pump Testing and Analysis
This course covers the requirements and procedures for fire pump acceptance testing found in NFPA 20 and those for the ongoing periodic testing as mandated by NFPA 25. This course reviews the roles of the contractor, manufacturer’s representatives, and the AHJ in conjunction with acceptance testing along with the procedures used for electric motor drivers, engine drives, and alternate power where provided. Weekly and monthly no-flow test requirements and procedures are reviewed along with those used with the annual performance test of fire pump systems. The course concludes with exercises demonstrating plotting pump curves, using affinity laws, and determining acceptable pump performance.

Fire Service Mains and their Appurtenances
The NFPA 24 Standard for the Installation of Private Fire Service Mains and their Appurtenances contains the latest requirements and information regarding the installation of underground water supply piping for fire protection systems. This course examines the requirements for the components used in these systems along with the installation requirements. Chapter 10 of NFPA 13 is an extract of the material found in NFPA 24 but does not include fire hydrants, hose houses, and other system devices.

Fire Sprinkler Systems - Plan Review
The approval of fire sprinkler systems includes a review of the design documents and an onsite verification of the completed system. This course is geared toward the AHJ and takes attendees through a step-by-step review of fire sprinkler working drawings, the accompanying hydraulic calculations, and the requirements for acceptance testing of the system. This course utilizes the requirements found in NFPA 13 and 13R. Attendees will work with an actual fire sprinkler working plan and the accompanying hydraulic calculations.

Fire Sprinkler System Requirements for Storage
Storage is one of the most challenging fire protection scenarios. This course is based on NFPA 13 and reviews the key decision points to apply an approved design option for fire sprinkler use with storage applications. Utilizing an interactive teaching method, this seminar follows the path that an engineer, designer, or AHJ uses when evaluating storage protection. The foundational questions of “What is being stored?”, “How is it stored?”, and “How high is it stored?”, are reviewed in detail. Once these questions are answered, the various design
approaches are considered to determine the best solution for the particular scenario. The seminar ends with a hands-on activity using the information shared in the course.

**Hydraulic Calculations for Sprinkler Systems**
This course introduces the participants to hydraulic calculations including sprinkler operating pressure, elevation pressure, and friction-loss. This course will examine the density/area approach to determine design criteria including water demand for sprinklers and hose allowance. A review of the common system configurations is conducted examining the benefits of each. The requirements for performing hydraulic calculations as per NFPA 13 are discussed including the required forms, C-values, and equivalent lengths. Further, participants will review hydraulic principles for calculating specific application sprinklers using minimum K-factors and pressure, the principles for determining the hydraulically most demanding area, and changing the sprinkler area of coverage, density, and orifice size to find the most efficient system layout and configuration. The calculation concepts for using looped and gridded configurations are examined.

**Introduction to Fire Alarm Systems**
This course covers fire alarm system basics based on NFPA 72 National Fire Alarm and Signaling Code. An understanding of fire alarm system components will be provided starting with the Fire Alarm Control Panel and power supplies. Fire alarm initiating devices will be discussed including smoke detectors, duct detectors, heat detectors, pull stations, tamper switches and water-flow switches. Fire alarm notification devices such as horns and strobes will also be discussed along with a review of the fundamental requirements that apply to most fire alarm systems. The basics of fire alarm system design and items required for plan review will also be covered.

**Introduction to Special Hazard Fire Suppression Systems**
This course introduces the attendees to water and non-water based fire suppression systems, which are used as an option to standard sprinkler systems or where sprinkler systems are ineffective with the hazard. These systems include Water-Mist (NFPA 750), Clean Agents (NFPA 2001), High Expansion Foam (NFPA 11), and CO₂ (NFPA 12). Participants will receive an overview of how the systems work, the appropriate hazards, basic design criteria, and the advantages and disadvantages for each type of system.

**NFPA 13D – Residential Fire Sprinkler Systems**
This course covers the purpose of NFPA 13D residential fire sprinkler systems and the basic design concepts. The types of systems are reviewed in detail including multipurpose, network, and passive systems. The requirements for pipe, fittings, sprinklers, and system appurtenances are discussed. The location and positioning of sprinklers is covered with an emphasis on correct application of sprinkler Types. This seminar reviews hydraulic calculations required by NFPA 13D and well as the hydraulic consequences when making field changes to sprinkler layout,
pipe sizes and lengths, or the system riser location. The seminar concludes by reviewing the requirement for system acceptance including the performance of “bucket tests.”

**NFPA 14 Standpipes**
Standpipe and Hose Systems are a critical fire protection system designed for the use of trained fire department personnel. NFPA 14 Standard for the Installation of Standpipe and Hose Systems is used for the session. This seminar covers the types and classes of standpipes, design criteria, installation requirements, and acceptance testing.

**NFPA 20 - Fire Pumps**
This course provides a review of the design, installation, and acceptance testing of stationary fire pumps. The course begins with a review of basic pump principles including laminar and balanced flow along with basic hydraulic principles. The difference between centrifugal and positive displacement pumps will be examined. The attendees will learn about the various types of centrifugal fire pumps and how each are best applied. The performance requirements, selection and sizing of pumps will be discussed with hands-on activities to give experience in choosing the most cost effective fire pump. Installation requirements will be thoroughly reviewed with illustrations of acceptable and unacceptable layouts.

**NFPA 25 Inspection and Testing of Water-Based Systems, NICET Test Preparation**
This course is focused on preparing for the successful completion of the NICET examination requirements for NICET certification through Level II for the inspection and testing of water-based suppression systems. This seminar is focused on the understanding and use of NFPA 25. NPFA 25 is the only document allowed to be referenced while taking the examinations. In addition, basic inspector procedures and safety requirements are reviewed. The seminar utilizes timed practice quizzes totaling 200 questions to give hands-on experience in using NFPA 25 under exam-like conditions. Note: This course requires that students have the 2014 edition of NFPA 25 (not included). This course does not qualify for CEU’s.

**Residential Fire Sprinklers: Homes to High Rise**
The protection of residential occupancies is unique with its distinct requirements for the use and location of sprinklers. Systems installed in accordance with NFPA 13D and 13R are strictly life safety in their purpose while those installed in dwelling units as allowed by NFPA 13 are a part of a larger protection scenario. This course examines the requirements for each document and the desired protection objectives.

**Residential Fire Sprinkler Requirements NFPA 13, 13R, 13D**
This course addresses the design and installation of sprinkler systems in residential occupancies. The seminar reviews the requirements for sprinkler spacing, residential system components and hardware; hydraulic calculations, and water supplies. Installation requirements, including obstructions, heat zone limitations, pipe supports and valve criteria are
Seismic Protection for Fire Sprinkler Systems
Seismic protection for fire sprinkler systems is a fact of life for many locations. This course is designed for those who have an understanding of seismic terms with a focus on the proper application of the requirements for seismic protection including flexibility, clearance, and bracing. Further, participants of the course will learn to apply the concepts of lateral and horizontal loads, determine the zone of influence, and the calculation and layout of seismic bracing.

Understanding and Applying NFPA 25
NFPA 25 is one of the misunderstood and misapplied standards in use today. This course examines the scope and purpose of NFPA 25. Owner, AHJ, and contractor responsibilities are reviewed for issues such as accessibility, freeze protection, reporting, and safety. The issue of contractor and owner liability is discussed in detail. The layout of the standard is reviewed and the scope of inspections, tests, and maintenance is reviewed for major systems including sprinklers, standpipes, and fire pumps. The most common tests required by NFPA 25 will be discussed including main drains, valve operation, dry valve full and partial trips, pressure reducing valves, and others. Participants will learn to identify and apply testing procedures that will help ensure that systems function properly and assist in limiting the potential liability that comes with having standard testing procedures.

Water-Based Systems Layout, NICET Test Preparation
This course is focused on preparing for the successful completion of the NICET examination requirements for NICET certification through Level II for water-based systems layout. This seminar is focused on the understanding and use of the NFPA 13, 14, 20 and 291 standards that are allowed to be referenced while taking the examinations. The seminar utilizes timed practice quizzes to give hands-on experience in using the NFPA standards under exam-like conditions. Note: Students should have the 2016 edition of NFPA 13, 14, 20 and 291 (not included). This course does not qualify for CEU’s.

Registration Link: https://www.surveymonkey.com/r/2KSD97J