



PDHonline Course M110A (4 PDH)

Introduction to Fire Protection Systems

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MODULE - 2

OVERVIEW OF CODES AND STANDARDS RELATED TO FIRE PROTECTION SYSTEMS

This module will introduce the student to the various codes which affect fire protection system design.

Following successful completion of this module, the student should be able to:

- Cite the main organization in the U.S. responsible for fire protection codes, and cite several standards that apply to fire protection systems.
- Cite an internationally recognized testing laboratory that tests components and systems for fire protection.
- Cite an insurance organization involved in the research and approval of fire protection equipment and systems.
- List the fundamental difference between NFPA and insurance company codes.
- List at least two model building codes that specify where fire protection systems are required.

First it should be strongly emphasized that codes are minimum requirements. Often, a thorough analysis of a particular situation and sound engineering judgement dictate that designs which affect life safety exceed minimum code requirements.

The standards most widely adopted for fire protection systems in the United States are those published by the National Fire Protection Association (NFPA). NFPA was first organized in 1896, and currently publishes the “National Fire Code” which contain over 300 codes and standards which are made available for adoption by any organization or jurisdiction having enforcement powers. The National Fire Codes are also the basis by which architects and engineers incorporate fire safe design into buildings used by the public.

The NFPA codes* which most apply to our course material are:

- NFPA 12 Standard for Carbon Dioxide Extinguishing Systems
- NFPA 12A Standard on Halon 1301 Fire Extinguishing Systems
- NFPA 13 Standard for Installation of Sprinkler Systems
- NFPA 14 Standard for the Installation of Standpipes, Private Hydrants, and Hose Systems
- NFPA 15 Standard for Water Spray Fixed Systems for Fire Protection
- NFPA 17 Standard for Dry Chemical Extinguishing Systems
- NFPA 17A Standard for Wet Chemical Extinguishing Systems
- NFPA 20 Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 69 Standard on Explosion Prevention Systems
- NFPA 72 National Fire Alarm Code
- NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.
- NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems

*These standards are not required reading. However, if the student wishes further information on these standards contact NFPA at [http:// www.nfpa.org](http://www.nfpa.org)

Other NFPA codes such as NFPA 101- Code of Safety to Life from Fire in Buildings and Structures and NFPA 70- National Electrical Code affect fire protection systems.

Other standards organizations exist such as Underwriters Laboratory (UL), which publishes testing laboratory approvals of devices and systems that are commonly used in fire suppression systems. Devices such as smoke detectors, sprinkler heads, valves, etc. are submitted by manufacturers of such products and are subjected to rigorous testing before listing or approval is given by UL. UL also conducts full scale testing and research on specific types of wall, floor, doors, and ceiling assemblies as well as specific types building materials to develop fire resistance ratings used by architects and engineers in the design of buildings.

Fire protection standards for application to specific insured properties may also apply. For instance, properties insured by Factory Mutual (FM), are required to follow fire protection design criteria, and use tested fire protection components as tested through Factory Mutual research. Other

insurance companies such as Kemper, IRM, IRI and others have determined similar types of fire protection design criteria to be used in the protection of their insured properties.

Generally, NFPA standards are developed from a life safety standpoint whereas insurance requirements have been primarily developed to protect property.

Many other regional and/or local codes affect the design of fire safe buildings and also mandate where fire protection systems are to be installed within buildings. These model building codes (adopted by local and state governmental bodies) provide minimum design requirements relating to building construction, means of egress requirements, and fire protection system application. These model building codes include the following:

- The International Building Code
- The Southern Building Code
- The Uniform Building Code