

	PRINCETON PLASMA PHYSICS LABORATORY ES&H DIRECTIVES	
	ES&HD 5008 SECTION 5, CHAPTER 3 Fire Protection Engineering	
Approved	Date: 1/31/06 Revision 4	Page 1 of 3

CHAPTER 3, FIRE PROTECTION ENGINEERING

3.1 FIRE PROTECTION CRITERIA and REQUIREMENTS

3.1.1 The following documents are the baseline criteria of the Fire Protection Program. The Program shall be administered to provide and maintain compliance with these requirements as a minimum. The fire protection related codes and standards in effect when facility design commences (code of record) shall remain in effect for the life of the facility.

3.1.2 When substantial upgrades or modifications are made, the current edition of the code shall apply to the upgrade or modification. Also, if there is a significant hazard that endangers building occupants, the public, or the environment, the facility shall be upgraded to the requirements of the current edition of the code or standard.

- A. DOE Order 420.1A, "Facility Safety"
- B. DOE Order 440.1A, "Worker Protection Management For DOE Federal And Contractor Employees"
- C. DOE Order 470.4, "Safeguards and Security Program"
- D. DOE Standard 1066, "Fire Protection Design Criteria"
- E. DOE Standard 1088, "Fire Protection for Relocatable Structures"
- F. National Fire Protection Association Codes and Standards
- G. Title 29, Code of Federal Regulations 1910 and 1926
- H. International Building Code, 2000
- I. International Fuel Gas Code, 2003
- J. State of New Jersey, Uniform Fire Code
- K. PPPL Policies and Procedures

3.2 TECHNICAL LIBRARY

3.2.1 Items A, B, C, D, E, G, and K are available on the World Wide Web.

3.2.2 The Fire Protection Engineer shall maintain the other standards listed in paragraph 3.1 above plus other reference material, as necessary.

3.3 FIRE PROTECTION DESIGN REVIEW

3.3.1 Fire Protection review and approval by the M&O Fire Protection Engineer is required for the following:

- A. Facility Additions
- B. Facility Modifications such as relocating walls which could impact detection or suppression systems.
- C. Facility Modifications which impact egress such as changes to doors, aisles or walls.
- D. Changes of occupancy which could change the hazard classification of the area. For example, changing a room from office use to storage use.
- E. Any change to a fire system.

3.4 DESIGN SPECIFICATIONS

3.4.1 All fire-protection designs shall use state-of-the-art equipment that has been tested by a nationally recognized testing laboratory for its intended use. All equipment components shall be compatible with existing equipment and installed as required by the applicable NFPA Codes and Standards.

3.4.2 New or modified fire system shall be tested to verify the systems perform as required. Test results shall be documented and any deficiencies shall be noted and corrected.

3.5 PROPERTY LOSS LIMITATION

3.5.1 DOE Criteria for limiting property loss are found in the Implementation Guide for use with DOE Orders 420.1A and 440.1A, Fire Safety Program. Those criteria are summarized below:

- A. Facilities having over 5,000 square feet and an MPFL of \geq \$1 Million are protected by automatic suppression.
- B. Facilities having an MPFL $>$ \$50 Million are protected by redundant fire protection systems.

3.5.2 PPPL further limits property loss through a defense in depth fire protection program. The elements of this program are:

- A. Fire Prevention.
- B. Early Fire Detection systems in areas of high value or high programmatic importance.
- C. Fire Suppression by automatic sprinkler systems throughout the Laboratory except for areas that have been specifically considered and exempted as being inappropriate for sprinkler protection.
- D. Fire Suppression by other automatic systems, as appropriate.
- E. Full Time Fire Department.
- F. Rated Fire Barriers.