

CHAPTER 1

GENERAL

1-1. Purpose and scope. This manual establishes the minimum water supply requirements for fire protection at Army mobilization facilities. It prescribes the minimum rate of flow (gallons per minute), residual pressure (pounds per square inch), and flow duration (hours) for fire protection purposes. This manual also establishes the criteria for selection and installation of fire pumps to be used for supplying fire protection water.

1-2. Definitions.

a. Classification of occupancies. For the purpose of sprinkler protection, various occupancies are grouped according to their degree of hazard. The occupancies in a particular group present about the same hazard and impose approximately the same demand on similar sprinkler systems. The assigned standard building classification of occupancy is to be used to determine fire protection water supply requirements for that particular building design. The basic hazard classification of an occupancy does not, in all instances, categorically define the fire hazard present in all areas of that occupancy. If more hazardous processes or areas exist within a given occupancy, they should be protected in accordance with the fire protection requirements pertaining to the hazard classification of that area. The classification for special buildings or buildings where no standard building design exists will be determined from the following definitions or by comparison with one of the typical examples of occupancies listed under each classification.

(1) Light Hazard Occupancies. Occupancies or portions of other occupancies where the quantity and combustibility of contents are low and fires with relatively low rates of heat release are expected. The following are examples of Light Hazard Occupancies:

- Churches and Chapels
- Clinics (dental, outpatient)
- Clubs (Officer, Enlisted Personnel, etc.)
- Data Processing Areas
- Disciplinary Barracks
- Dispensaries
- Dwellings
- Gymnasiums
- Hospitals
- Libraries (except large stack rooms)
- Offices
- Photographic Processing Areas
- Schools

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(2) Ordinary Hazard Group 1 Occupancies. Occupancies or portions of other occupancies where combustibility is low, quantity of combustibles is moderate, stock piles of combustibles do not exceed 8 feet, and fires with moderate rates of heat release are expected. The following are examples of Ordinary Hazard Group 1 Occupancies:

- Armories
- Bowling Alleys
- Commissaries
- Exchanges
- Forge Shops
- Printing Shops (Using inks having flash points above 110 degrees F.)
- Small Stores
- Theatres and Auditoriums

(3) Ordinary Hazard Group 2 Occupancies. Occupancies or portions of other occupancies where quantity and combustibility of contents is moderate, stock piles do not exceed 12 feet, and fires with moderate rate of heat release are expected. The following are examples of Ordinary Hazard Group 2 Occupancies:

- Air Rework Facilities
- Boiler Rooms
- Electrical Maintenance Shops
- Engine and Generator Rooms
- Laboratories
- Libraries (large stack rooms)
- Machine Shops
- Printing Plants
- Refrigeration and Air Compressor Rooms
- Ship Fitting Shops
- Switchgear Rooms
- Welding Shops

(4) Ordinary Hazard Group 3 Occupancies. Occupancies or portions of other occupancies where quantity or combustibility of contents is high, and fires of high rate of heat release are expected. The following are examples of Ordinary Hazard Group 3 Occupancies:

- Ordnance Plants (except exposed powder areas)
- Piers and Wharves
- Vehicle Repair Garages
- Woodworking Plant

(5) Extra Hazard Occupancies. Occupancies or portions of other occupancies where quantity and combustibility of contents are very high, or where flammable liquids, dust, lint, or other materials are present introducing the probability of explosion and rapidly developing

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fires with high rates of heat release. The following are examples of Extra Hazard Occupancies:

- Engine Test Cells
- Flammable and Combustible Liquids (not high piles or high rack storage)
- Warehouses (not high piled or high rack storage)

Extra hazard occupancies also include other facilities or areas that fall within this general classification, but which have special protection requirements. This group includes facilities such as:

- Aircraft Hangars
- Foam Rubber or Plastic Storage
- Missile Assembly
- Ordnance Plants (exposed powder areas)
- Rubber Tire Storage
- Warehouses (high piled or high rack storage)

b. Types of construction. The types of building construction are based on fire resistivity or combustibility of structural elements. In general, standard building designs for mobilization will be of combustible materials Type V as defined in the Uniform Building Code. Life safety fire protection for standard building designs is discussed in EM 1110-3-120.

c. Subject facility. Building, storage yard, or other installation whose fire protection water supply requirements are being considered.

d. Exposed facility. A building, storage yard, or other installation within 150 feet of the subject facility.

e. Separation factor. A measure of the potential for fire transmission between an exposed facility and the subject facility.

f. Exposure factor. A factor which will modify the basic fire flow rate to recognize the need for additional water to protect exposed facilities. This factor is based on the separation factors of the subject facility.

g. Basic fire flow rate. The flow rate determined necessary for fire control in the subject facility.

h. Fire flow duration. The length of time during which the required fire flow rate needs to be supplied to the subject facility.

i. Residual pressure. The pressure in the water supply system main while the required fire flow rate is being discharged near the subject facility.

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j. Required fire flow demand. The water supply determined necessary for fire control in the subject facility and for protection of exposed facilities. The required fire flow demand consists of the required fire flow rate, fire flow duration, and residual pressure.

k. Special fire suppression systems. Fire suppression systems are systems that reduce fire hazard or control fire by reducing or preventing oxygen from reaching the fuel and heat source. Fire suppression systems requiring water supply include but are not necessarily limited to the following.

<u>System</u>	<u>NFPA Reference</u>
Deluge Foam-Water Sprinkler System	16
Foam Water-Spray System	16
Foam Extinguishing System (Low Expansion)	11
High Expansion Foam System	11A
Synthetic Foam and Combined Agent System	11B
Water Spray System	15

l. Story. Usable floor level as defined in the Uniform Building Code.

m. Floor area. Usable areas within a building as defined in the Uniform Building Code.

n. Exposed wall. The wall or perimeter of an exposed facility facing the subject facility.

o. Required fire flow rate. The flow rate determined necessary for fire control in the subject facility and for protection of exposed facilities. The required fire flow rate is determined by using the basic fire flow rate and the exposure factor.