Table 9.10: Automatic Deluge Water Spray System Requirements

ITEMS	REQUIREMENTS
15. DESIGN	i. The system and water supplies shall be designed to admit water into the piping and to discharge effective water spray from all open nozzles without delay. ii. Tapping from wet risers to feed deluge system shall not be permitted. iii. Manual operation shall be permitted where automatic operation of the system presents a hazard to personnel and trained personnel are available to operate such manual systems. iv. Nozzle spacing (vertically or horizontally) shall not exceed 3 m. v. A single system shall not protect more than one fire area. vi. The hydraulically designed discharge rate for a single system or multiple systems designed to operate simultaneously shall not exceed the available water supply. vii. Extinguishment of fires by water spray shall be accomplished by one or a combination of the following methods: a. Surface cooling b. Smothering by produced steam c. Emulsification d. Dilution e. Other factors viii. Design Densities for various hazards, when demanded by other sections of this code or by Civil Defence hazard evaluation shall be as per **Table 9.10.D.** The duration of Discharge shall not be less than 60 minutes. ix. All Deluge Water Spray Systems shall be hydraulically designed along with the manufacturer's instructions.

Table 9.10.D.: Water Spray Design Densities and Criteria

HAZARD,	REQUIRED DESIGN DENSITY	OTHER REQUIREMENTS
1. Cable - Spread/ Trenches/ Trays/Cable runs	12.2 lpm (0.30 gpm)	Air Sampling Type smoke detection for smoldering fire sensing shall be provided.
2. Belt Conveyors	10.2 lpm (0.25 gpm)	Interlocks shall be provided between the detection system and the machinery to shut down belt conveyor operation, including upstream feed.
3. Conveyor Belt	10.2 lpm (0.25 gpm)	The water spray system shall be installed to automatically wet the top belt, its contents, and the bottom return belt.
4. Pumps, Compressors handling Flammable Liquids		See **Chapter 13. Flammable Liquids**
5. Flammable Liquid pool fires		See **Chapter 13. Flammable Liquids**
6. Vessels Exposure protection (LPG/ Flammable Liquid/ Gas Tanks,	10.2 lpm (0.25 gpm)	Water spray shall be applied to top and bottom surfaces of vertical vessels. See also **Chapter 13. Flammable Liquids**
7. Structural Steel Exposure protection	4.1 lpm (0.10 gpm)	Horizontal, stressed (primary) structural steel members shall be protected.
8. Vertical Structural Steel Exposure protection	10.2 lpm (0.25 gpm)	A vertical structural steel that has been encased in fire-resistant insulating material to provide a desired level of fire resistance, does not need not be protected with a water spray system.
9. Transformers	10.2 lpm (0.25 gpm)	The water shall be applied to a projected area of rectangular prism envelope for the transformer and its appurtenances.