Table 9.11: Foam Sprinkler/ Deluge/ Pourer System Requirements

ITEMS	REQUIREMENTS
7. TEST CONNECTIONS	i. System test connections shall be sized to accommodate both the low flow of the proportioner and the maximum anticipated flow through the proportioner.
8. LOW EXPANSION FOAM **ALSO SEE TABLE 9.11.13., DESIGN CRITERIA**	i. Design criteria for above the surface application with fixed foam discharge outlet for Fixed-Roof Storage tanks containing Hydrocarbons shall comply with **Table 9.11.A** and **Table 9.11.E.**
9. FOAM WATER SPRINKLER	i. Design densities, design area and duration of foam water sprinkler and foam water spray applications for indoor storage of water miscible liquids with concentration ≤ 50% and Immiscible Liquids in metal container, shall be as per **Table 9.11.B.** ii. For in-rack sprinkler layout and schemes in **Table 9.11.B** refer to **Table 9.7.KK** iii. Design criteria for Foam water sprinkler system for processes and activities handling flammable and combustible liquids shall comply with **Table 9.11.C.**
10. FOAM HANDLINE AND MONITOR PROTECTION	**i.** Design criteria for Foam Handline and Monitor protection for Fixed-Roof Storage tanks containing Hydrocarbons shall comply with **Table 9.11.D.** ii. Foam Monitor nozzles shall not be considered as the primary means of protection for fixed-roof tanks over 18 m (60 ft.) in diameter. iii. Foam handlines shall not be permitted to be used as the primary means of protection for fixed-roof tanks over 9 m (30 ft.) in diameter or those over 6 m (20 ft.) in height. iv. The design Criteria of Foam Monitor System for Loading Racks (Truck or Rail cars at loading and unloading) shall comply with **Table 9.11.G.**

Table 9.11.A.: Discharge Time and Application Rate for Type II Fixed Foam Discharge Outlet of Outdoor Aboveground Storage Tank Containing Hydrocarbon

HAZARD	REQUIRED DESIGN DENSITY	DESIGN AREA m^2	ADDITIONAL FOAM FOR HYDRAULIC IMBALANCE	FOAM CAPACITY DURATION
1. Fixed roof storage tank containing hydrocarbon with flash point below 37°C or liquids heated above their flash point.	4.1 lpm (0.10 gpm)	Entire tank surface	10%	55 minutes
2. Fixed roof storage tank containing hydrocarbon with flash point between 37.8°C and 60°C (100°F and 140°F).	4.1 lpm (0.10 gpm)	Entire tank surface	10%	30 minutes
3. Fixed roof storage tank containing crude petroleum.	4.1 lpm (0.10 gpm)	Entire tank surface	10%	55 minutes
4. Floating roof storage tank containing hydrocarbon.	Follow NFPA 11	Follow NFPA 11	Follow NFPA 11	Follow NFPA 11