

Fire Fighting CALCULATION NO

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FIRE FIGHTING

2.1 Description

1. The fire System has been designed in accordance with the following codes and regulations:
 - NFPA 10 - Portable Fire Extinguisher.
 - NFPA 12 - Standard on Carbon Dioxide Extinguishing System.
 - NFPA 13 - Standard for the Installation of Automatic Sprinkler.
 - NFPA 14 - Standard for the Installation of Standpipe and Hose System.
 - NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection.
 - NFPA 25 - Standard for the Inspection Testing and Maintenance of water based fire protection systems.
 - NFPA 101 - Life Safety Code.
 - NFPA 1963 - Standard for Fire Hose Connection.
 - NFPA 2001 - Standard on Clean Agent Fire Extinguishing System.
 - Local Civil Defence Codes & Standards.
2. The project is protected by means of sprinkler system throughout the project as per NFPA and SBC (Saudi Building Code) recommendation. The residential floors are protected by means of sprinkler system and fire hose reels and wet landing valves at each floor level.

An automatic sprinkler system will be provided for fire extinguishing in the building by a prompt and continuous discharge of water directly upon burning material. This is accomplished by means of arrangement of pipes to which are attached to outlet devices known as automatic sprinklers. These sprinklers are so constructed as to open automatically whenever the surrounding temperature reaches a predetermined point.

Automatic wet sprinkler system will be provided in accordance with the requirements of NFPA 13 standards and in compliance with Saudi Building Code (SBC) requirements. The sprinkler system will be of combined pipe system wherein a 150mm Ø size (with alarm check valve assembly covering a maximum area of 4831 m² as per NFPA 13) located in designated riser stair and shall be served off a fire fighting main distributed at high level. Each story and/or protected areas will be provided with subzone valve assemblies. The system will be divided into sprinkler zones through Automatic Zone Control Valve assembly (AZCV) and will be comprised of supervised control valve, water flow alarm switch, pressure gauges, & test/drain valve connection.

Fire Pump & Jockey Pump Schedule:

Pump Qty.	Location	Service	Description	Water Flow		Head (PSI)	Motor KW	Power V/Ph/Hz	Notes
				L/s	GPM				
1	Fire Pump Room – Technical Floor	Combined System	Electrical Pump (FP- 1)	63.1	1000	235	175	400/3/60	Electrical Driven Horizontal Split Case Fire Pump mounted on a concrete base.
1	Fire Pump Room – Technical Floor	Combined System	Electrical Pump (FP- 2)	63.1	1000	235	175	400/3/60	Electrical Driven Horizontal Split Case Fire Pump mounted on a concrete base.
1	Fire Pump Room – Technical Floor	Combined System	Jockey Pump (FP- 3)	1.9	50	240	20	400/3/60	Vertical Multistage Pump mounted on a concrete base.

Refer to Annex Folder “Fire Pumps Selections”.

- Fire water tanks for fire protection will be designed in conformance to NFPA 22 standards. In compliance with Saudi Building Code (SBC) requirements, the dedicated fire water tank will be GRP (Glass Reinforced Plastic) and constructed in two (2) compartments complete with isolation facilities to allow periodic cleaning and maintenance works.