

4.12. Tunnel Fire Protection Systems

4.12.1. Tunnel shall be provided with Fire protection Systems in compliance with **Table 9.28.** and Auxiliary Rooms fire protection systems, if any, as per **Table 9.30.**

Table 9.28.: Tunnel Fire Protection Systems

OCCUPAN- CY	SYSTEM REQUIREMENTS	COMBINED FIRE PUMP SET AND FIRE WATER TANK CAPACITIES
A. CABLE TUNNELS	<p><u>1. IF LENGTH OF THE CABLE TUNNEL IS LESS THAN 60 m</u></p> <ul style="list-style-type: none"> i. An automatic Deluge Water Spray System as per Section 3.8. OR Automatic Water Mist System, as per Section 3.10, shall be provided. ii. A dry riser + Hose Reel System shall be provided at the Tunnel entry points, as per Section 3.2 and Section 3.3. 	<p><u>1. IF LENGTH OF THE TUNNEL IS LESS THAN 60 m</u></p> <ul style="list-style-type: none"> iii. The capacity of the fire pump set shall be sufficient to satisfy minimum of 2 adjacent deluge water spray system zones at a pressure as required to satisfy 4.5 bar at the most remote Hose reel outlet valve. iv. Where water mist is provided, the capacity of the fire pump set for water mist system shall be as per the manufacturer's specifications and approved design and installation guideline. v. The water tank shall have a capacity of 60 minutes of operation, complete with low water level detection and instantaneous refilling arrangement.
	<p><u>2. IF LENGTH OF THE TUNNEL IS MORE THAN 60 m</u></p> <ul style="list-style-type: none"> i. An automatic Deluge Water Spray as per Section 3.8. OR Automatic Water Mist System, as per Section 3.10, shall be provided. ii. A wet riser System shall be provided throughout the building as per Section 3.4. 	<p><u>2. IF LENGTH OF THE TUNNEL IS MORE THAN 60 m</u></p> <ul style="list-style-type: none"> iii. The capacity of the fire pump set shall be sufficient to satisfy minimum of 2 adjacent deluge water spray system zones at a pressure as required to satisfy 6.9 bar at the most remote landing valve. iv. Where water mist is provided, the capacity of the fire pump set for water mist system shall be as per the manufacturer's specifications and approved design and installation guideline. v. The water tank shall have a capacity of 60 minutes of operation, complete with low water level detection, direct breaching inlet and instantaneous refilling arrangement.
B. ROAD/RAIL TUNNELS	<p><u>1. IF LENGTH OF THE TUNNEL IS LESS THAN 90 M</u></p> <ul style="list-style-type: none"> i. None 	
	<p><u>2. IF LENGTH OF THE TUNNEL IS 90 m—1000 m</u></p> <ul style="list-style-type: none"> i. A wet riser System shall be provided throughout the building as per Section 3.4. 	<p><u>2. IF LENGTH OF THE TUNNEL IS 90 m—1000 m</u></p> <ul style="list-style-type: none"> ii. The capacity of the fire pump set shall be 750 gpm at a pressure as required to satisfy 6.9 bar at the most remote Landing valve. iii. The water tank shall have a capacity of 60 minutes of operation, complete with low water level detection, direct breaching inlet and instantaneous refilling arrangement.