

**Table 9.3: General Requirements of Water Based Fire Protection Systems**

ITEMS	REQUIREMENTS
<b>5. DRAINAGE</b>	<ul style="list-style-type: none"> <li>i. The Fire water tank area shall be provided with an adequate drainage facility and an arrangement such that over filling tank shall not flood the area and the pump room.</li> <li>ii. The pump room and floor corridors shall be provided with a drainage facility to drain the dripped and leaked water OR water flooded during firefighting operation.</li> </ul>
<b>6. PIPING</b>	<ul style="list-style-type: none"> <li>i. The aboveground fire protection Pipes shall be threaded for Lowrise buildings and in welded steel for Midrise and Highrise buildings, approved and listed by Civil Defence as per test standards mentioned in <b>Section 6. of this chapter</b>.</li> <li>ii. Underground fire protection pipes shall be HDPE (High density Polyethylene), minimum of DR-9 (Dimension Ratio) rating, compatible with the local temperature ratings, approved and listed by Civil Defence as per test standards mentioned in <b>Section 6. of this chapter</b>.</li> <li>iii. Pipes shall be rated for working pressures not less than the maximum pressure it serves as per the design and corresponding locations within the system.</li> <li>iv. Pipes shall be rated for working temperatures not less than the maximum temperature statistics of the country terrain.</li> <li>v. Pipe sizes connecting to Fire Pump System shall be as per <b>Table 9.3.a</b>.</li> </ul>
<b>7. FITTINGS</b>	<ul style="list-style-type: none"> <li>i. Steel Fittings shall be threaded for Lowrise buildings and in butt welded steel for Midrise and Highrise buildings, approved and listed by Civil Defence as per tests mentioned in <b>Section 6. of this chapter</b>.</li> <li>ii. The underground piping network fittings shall be HDPE, DR-9, approved and listed by Civil Defence as per tests mentioned in <b>Section 6. of this chapter</b>. HDPE fittings shall be butt fusion welded as per the manufacturer's instructions.</li> <li>iii. Fittings shall be rated for working pressures not less than the maximum pressure it serves as per the design and corresponding locations within the system.</li> <li>iv. Pipes shall be rated for working temperatures not less than the maximum temperature statistics of the country terrain.</li> <li>v. Screwed unions shall not be used.</li> <li>vi. A one piece reducing fitting shall be used wherever a change is made in the size of pipe.</li> </ul>
<b>8. ATS (AUTOMATIC TRANSFER SWITCH/ POWER TRANSFER SWITCH)</b>  <b>ATS IS NOT REQUIRED WHERE PUMP SET PROVIDED IS 1 ELECTRICAL 1 DIESEL &amp; 1 JOCKEY</b>	<ul style="list-style-type: none"> <li>i. Where required, a dedicated ATS (Automatic Transfer Switch) shall be provided in the pump room for power transfer from primary supply, power utility company to secondary, (diesel generator/UPS) standby power provisions. See <b>Figure 9.2</b>.</li> <li>ii. ATS can be built in as integral part of an approved and fire pump controller or dedicated ATS as a separate product.</li> <li>iii. ATS or power transfer from primary source of power to alternate source of power to the fire pump shall be essentially located inside the pump room, at or near the fire pump controller.</li> <li>iv. Where dedicated ATS is provided, it shall be approved and listed for the fire controller.</li> <li>v. The power transfer switch shall not have short circuit or overcurrent protection as part of the switching mechanism of the transfer switch.</li> <li>vi. A means to prevent the sending of the signal for starting of the alternate source generator when commanded by the ATS, if the alternate isolating switch or the alternate circuit breaker is in the open or tripped position.</li> <li>vii. The (ATS) power transfer switch shall be electrically operated and mechanically held.</li> <li>viii. The power transfer switch shall be suitable for the available short-circuit currents at the transfer switch normal and alternate input terminals.</li> <li>ix. The power transfer switch shall have an ampere rating not less than 115 percent of the motor full-load current and also be suitable for switching the motor locked rotor current.</li> </ul>