

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

ITEMS	REQUIREMENTS
<b>1. FIRE PUMPS</b>	<ul style="list-style-type: none"> <li>xiv. Diesel Fire Pumps shall have a diesel filtration system to prevent the stagnation and frequent changing of diesel fuel.</li> <li>xv. Fire Pump set shall be located at the lowest level of the system in the building. However, from lowest level of the building to the ground floor level with fire access, is acceptable.</li> <li>xvi. See <b>Chapter 1, Table 1.9.2.</b> for Pump room sizes and construction.</li> <li>xvii. Elbows and tees with a centerline plane parallel to a horizontal split-case pump shaft shall only be permitted in the suction line where the distance between the flanges of the pump suction intake and the elbow and tee is greater than 10 times the suction pipe diameter.</li> <li>xviii. An exclusive, dedicated fire pump test line shall be provided from the fire pump discharge header.</li> </ul>
<b>2. ELECTRICAL POWER SUPPLY</b>	<ul style="list-style-type: none"> <li>i. The Primary Power Supply to the main electrical Fire Pump and the Jockey Pump shall be directly from the power utility company, in a dedicated distribution board located inside the pump room.</li> <li>ii. Where 2 electrical fire pumps are permitted in accordance with <b>Table 9.3.1.xii.</b>, power supply for main electrical pump shall be in accordance with <b>Table 9.3.2.i.</b> The power supply to the standby electrical pump shall be from separate power source such as building UPS, Diesel generator or alternative power source.</li> <li>iii. Where the fire pump set consists of 1 electrical and 1 diesel fire pump, the diesel fire pump shall have 8 hour operating capacity and such diesel fire pump shall not be required to have secondary power supply back-up.</li> <li>iv. The power supply from the power utility company to fire pumps shall be directly from the transformer without passing through building distribution boards, with only one lockable disconnecting source. See <b>Figure 9.2.a. and Figure 9.2.b.</b></li> <li>v. Such disconnecting means shall be remote, separate from the building disconnecting means, clearly identified with the sign in bold- "Fire Pump Disconnect/ DO NOT SWITCH OFF".</li> <li>vi. The power supply to multiple electrical fire pumps shall be through dedicated wiring, separate for each pump.,</li> <li>vii. All the wiring from the power utility company to the Fire pump controllers and to the pumps shall be 2 hour fire rated in a separate metal conduit.</li> <li>viii. All electrical equipment /installation methods shall comply with NFPA 70, Article 695.</li> </ul>
<b>3. FIRE PUMP CONTROLLER</b>	<ul style="list-style-type: none"> <li>i. Fire pump controllers shall be listed and approved by international testing laboratories, certified by international conformity certification bodies and listed by Civil Defence.</li> <li>ii. This controllers shall be wired, assembled, programmed, tested, certified and ready for immediate installation.</li> <li>iii. Controllers shall not be assembled at site.</li> <li>iv. Fire pump controller shall have the approved soft starter.</li> <li>v. Fire pump controllers with inbuilt and listed VFD (Variable Frequency Drive) shall be permitted.</li> </ul>