

**Table 11.12: Guidelines for LPG Installations used for Flame Effect**

ITEMS	REQUIREMENTS FOR FLAME EFFECT USING LPG
<b>3. SEPARATION DISTANCES OF LPG CYLINDER OR CONTAINER</b>	<ul style="list-style-type: none"> <li>i. 6 m distance shall be maintained between cylinder compartment to any fire exit route, Exit Doors, Exit Stairs, Windows and openings.</li> <li>ii. 3 m should be maintained between LPG container and any ignition sources/ appliances.</li> <li>iii. 6 m distance shall be maintained from LPG container to any Air intake units, Window type and Split Type AC units, Air vents, Balanced type flue outlets.</li> <li>iv. 6 m distance shall be maintained from LPG container to any parking lot, parking ramp or road.</li> <li>v. 6 m distance shall be maintained between LPG container to Fire Accessways, Assembly points and Fire Truck parking slot.</li> <li>vi. 3 m distance shall be maintained from cylinders to drains, shaft openings, pits, opening to basements, ramp openings.</li> <li>vii. 10 m distance shall be maintained from LPG container compartment to Fire Hydrant.</li> </ul>
<b>4. LPG MANAGEMENT</b>	<ul style="list-style-type: none"> <li>i. LPG supply shall only be available for the flame effect during operation.</li> <li>ii. A manual shut-off valve shall be installed in accessible location, when closed shall shut-off all LPG supply to flame effect control system.</li> <li>iii. Where low pressure in LPG could cause the flame effect control system to malfunction, low pressure supervision devices shall be installed.</li> <li>iv. Where high pressure in LPG could cause the flame effect control system to malfunction, low pressure supervision devices shall be installed.</li> <li>v. Flame effect valve, 'hold-open' type, shall be installed for flame effect burner, which when loss of hold-open signal shall shut-off LPG supply to the burner.</li> <li>vi. Flame effects using LPG accumulators shall be manufactured, tested and approved and certified as unfired pressure vessels as per Section 4. The amount of LPG in accumulator shall never be more than what is required to produce the flame effect. Any amount required more than required for effect, shall be evaluated by risk assessment and approved from Civil Defence.</li> <li>vii. The piping used for flame effect shall be pressure tested.</li> </ul>
<b>5. ELECTRICAL EQUIPMENT AND WIRING</b>	<ul style="list-style-type: none"> <li>i. Electrical equipment and wiring shall be approved for the purpose and shall comply with <b>NFPA 70</b>.</li> <li>ii. Wiring for LPG leak detection system, supervision and remote operations shall be MICC or 2 hour fire rated 2X1.5 mm cable.</li> </ul>
<b>6. SAFETY PROVISIONS</b>	<ul style="list-style-type: none"> <li>i. Permanent LPG installations for flame effects shall be provided with fixed Fire protection systems as per risk assessment and Civil Defence evaluation.</li> <li>ii. The LPG installation and flame effect area shall be provided with at least two approved portable B:C rating dry chemical fire extinguisher having a minimum capacity of 9kg and pressurized water extinguishers each. Extinguishers shall be placed on opposite sides of flame show area.</li> </ul>
<b>7. SAFETY PRECAUTIONS</b>	<ul style="list-style-type: none"> <li>i. LPG cylinders or containers shall not be connected or disconnected during the flame effect show or performance.</li> <li>ii. Flame effects shall not be triggered until all area is declared as hazard free area by operation supervisor by either manual means or automatic means.</li> <li>iii. All flame effect shows shall be supervised and monitored by fire safety personnel knowledgeable and working experience with fire safety and fire fighting.</li> </ul>