

**Table 14.4.: Fire and Life Safety Requirements for District Cooling facilities and Cooling Towers**

HAZARD/ LOCATION	REQUIREMENTS
<b>11. COOLING TOWERS</b>	<p><b><u>1. CONSTRUCTION</u></b></p> <ul style="list-style-type: none"> <li>i. Water cooling towers with combustible exterior surfaces, including deck, distribution basins, louvers fills etc., shall be located at least 30 m from <ul style="list-style-type: none"> <li>a. Structures or processes that emit sparks or flying brands under ordinary circumstances, such as chimneys, incinerators, flare stacks or cob burners.</li> <li>b. Materials or processes of severe fire hazard, such as petroleum processing and storage tanks, explosives manufacturing or storage, and petroleum product pipelines and pumping stations.</li> </ul> </li> <li>ii. Cooling towers with combustible exterior surfaces which are protected for exposure protection such as water spray system as per <b>Chapter 9. Fire Protection System</b>, the separation distance of 12 m from structures and processes as mentioned in <b>Table 14.4.11.1.i.</b>, above shall be acceptable.</li> <li>iii. Cooling towers with “noncombustible” surfaces, distribution system, louvers, fill and drift eliminator shall be permitted to be located at 12 m or more from hazards listed in <b>Table 14.4.11.1.i.</b></li> <li>iv. A fire resistant partition, tested in accordance with <b>NFPA 251.</b>, shall be provided to underside of the fan deck (counterflow towers) or distribution basin (crossflow towers) and shall extend below the operating water level of cold-water basin.</li> </ul> <p><b><u>2. LIFE SAFETY</u></b></p> <ul style="list-style-type: none"> <li>i. Minimum of 2 enclosed exits shall be provided for the cooling tower location, in compliance with <b>Chapter 3. Means of Egress.</b></li> <li>ii. Exit Signs shall be provided as per <b>Chapter 5. Exit Signs.</b></li> <li>iii. Emergency Lighting shall be provided as per <b>Chapter 6. Emergency Lighting</b></li> </ul> <p><b><u>3. FIRE DETECTION</u></b></p> <ul style="list-style-type: none"> <li>i. Heat Detection and Alarm System shall be provided, as per <b>Chapter 8. Fire Detection and Alarm System.</b></li> <li>ii. Where cooling tower deluge water spray system is provided, Pilot Line Detectors, installed in accordance with <b>NFPA 214</b>, shall be permitted to actuate the deluge water spray system.</li> </ul> <p><b><u>4. FIRE PROTECTION</u></b></p> <ul style="list-style-type: none"> <li>i. Where cooling tower’s structure, fan, distribution system, louvers, fill and drift eliminator materials are all of noncombustible materials, fire protection system is not required.</li> <li>ii. Where any of the material of cooling tower is combustible and not certified as “noncombustible”, cooling tower shall be provided with deluge water spray system as per <b>NFPA 214.</b> and <b>Chapter 9. Fire Protection Systems.</b></li> <li>iii. Where deluge water spray system is provided, minimum rate of application shall be <ul style="list-style-type: none"> <li>a. Under the fan decks of counterflow towers, shall be 0.5 gpm/ft<sup>2</sup>, including fan opening.</li> <li>b. Under the fan decks of crossflow towers, shall be 0.33 gpm/ft<sup>2</sup>, including fan opening.</li> <li>c. Over the fill areas of crossflow towers, shall be 0.5 gpm/ft<sup>2</sup>.</li> </ul> </li> <li>iv. Wet Risers shall be provided throughout in accordance with <b>Chapter 9. Fire Protection Systems.</b></li> <li>v. Fire extinguisher shall be provided as per <b>Chapter 4.</b></li> </ul>