

## 2.1.2. Substations - Fire and Life Safety Requirements

**2.1.2.1.** The Fire Detection and Life Safety requirements for substation shall be as per **Table 14.1.**

**Table 14.1: Fire Detection and Life Safety Requirements for Substations**

ITEMS	REQUIREMENTS
1. CONSTRUCTION	<b><u>1. TYPE OF CONSTRUCTION</u></b>
	i. The Substation building shall be of Fire Resistant construction equivalent to Type I (443) as per <b>Chapter 1.</b>
	<b><u>2. COMPARTMENTATION</u></b>
	<p>i. Every room of the substation building shall be a 2 hour fire resistance rated separate compartment.</p> <p>ii. Battery rooms, relay rooms, switchgear room, control room, cable spreading room, GIS room shall be separate compartments from each other, of 2 hour fire resistance rating.</p> <p>iii. Battery rooms shall be separate from battery charger rooms with 2 hour fire resistance rated compartments.</p> <p>iv. Fire pump room shall be separated from all other areas by 2 hour fire resistance rated compartment.</p> <p>v. Offices shall be separated from rest of the areas by 2 hour fire resistance rated compartment.</p> <p>vi. Transformers, capacitors located adjacent to substation building shall be separated from the main building by 2 hour fire resistance rated walls.</p>
	<b><u>3. OUTDOOR OIL INSULATED TRANSFORMERS</u></b>
	<p>i. Power capacitor units located outdoor, which contain a combustible dielectric fluid, should be a minimum of 3m from any structure or building having no fire resistive rating.</p> <p>ii. Outdoor oil insulated transformers containing 500 gal. or more of oil, shall be separated from adjacent structures and from each other by 2 hour fire resistance rated walls.</p> <p>iii. Such a fire wall separating oil insulated transformers shall be designed to withstand the effects of exploding transformer bushings or lightening arrestors.</p> <p>iv. Where outdoor transformers are not separated by fire walls, they shall be separated from any structure by a distance as per <b>Table 14.1.a.</b></p> <p>v. As a minimum, the firewall should extend at least 0.3 m above the top of the transformer casing and oil conservator tank and at least 0.61 m beyond the width of the transformer and cooling radiators.</p>

**Table 14.1.a.: Separation distance of Oil insulated transformers from structures**

TRANSFORMER OIL CAPACITY	MINIMUM DISTANCE WITHOUT FIRE WALL (X)
1. LESS THAN 500 GAL.	i. Oil spill containment basin shall be 1.5 m away from any structure.
2. 500 GAL—5000 GAL	i. 7.6 m
3. MORE THAN 5000 GAL.	i. 15.2 m