

Spacing between transformer substation and main distribution box



Article Overview

Adequate spacing between a transformer substation and the main distribution box is essential for safety, maintenance, and fire protection, typically ranging from 1 meter (3 feet) for small units to several meters for larger high-voltage transformers.

General Clearance Guidelines

Transformer clearance refers to the minimum distance required between a transformer and surrounding structures, including the main distribution box, to ensure safe operation, maintenance access, and proper cooling. Key factors influencing spacing include transformer size, voltage rating, cooling requirements, and fire safety considerations .

- Small MV/LV transformers (up to 2000 kVA): Typically, a minimum clearance of 1 meter (3 feet) from walls or other equipment is recommended for maintenance access and ventilation .
- Larger liquid-filled transformers: For medium and high-voltage transformers with mineral oil or ester insulation, spacing may need to be 3-6 meters (10-20 feet) from buildings or combustible materials to reduce fire risk .
- Indoor installations: Transformers installed in fire-resistant rooms or vaults may have reduced spacing requirements, often 300 mm (12 inches) from combustible materials if proper barriers are in place .
- Outdoor installations: Adequate separation from other equipment, walls, or distribution boxes is recommended to allow safe access, cooling, and emergency re...

Article Content

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1.2 Purpose The purpose of this guide is to provide guidance to the substation engineer in established practices for the application

Jun 09, 2026

Spacing Between Substations and Liquid-Type Transformers: How

Substations exist at every petrochemical facility, from the incoming power high-voltage substation and switchyard

Aug 25, 2025

TSE Substation Design Best Practices

TSE Substation Design Best Practices Purpose This document provides best practices for designing substations within the TSE

Jun 28, 2026

Electrical Substation Design for Safety, Reliability and Sustainability

The main ideas and considerations that support the optimization of electrical substation design have been painstakingly addressed in

Feb 27, 2026

Secondary unit substations design guide

This combination provides both voltage transformation and primary transformer switching and overcurrent protection in a space-

Oct 02, 2025

Transformer Clearance (Indoor and Outdoor) and Fire Protection

Between transformers and buildings separating walls shall be provided. For example EI 60; if additional fire separating

Oct 15, 2025

Substation Standards

of the substation. It shows all the transmission lines coming into the substation and the major equipment in the substation

Sep 06, 2025

Transformer Clearance Guide: Safety, Cooling and Access

Transformer clearance is the space required for electrical insulation, cooling, fire protection, operation, maintenance, lifting, cable

Nov 12, 2025

Design guidelines for substation and power distribution systems of ...

No wall enclosure for transformer required and substation space requirement is reduced. For example, with VCB HT

Mar 31, 2026

Medium voltage products Technical guide The MV/LV transformer ...

substations with installed power limited to 2000 kVA or two 1000 kVA MV/LV transformers. The purpose of this guide is to give an

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Distribution Substations

A substation that has a step-up transformer increases the voltage while decreasing the current, while a step-down transformer

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Design of substation (with Transformer Design) | PDF

The document outlines the design and functionality of electrical substations, including their classification, layout, and essential

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SPACING CONSIDERATIONS BETWEEN SUBSTATION

Surprisingly, there are no prescriptive mandatory national statutes requiring minimum distances between transformers and

Apr 07, 2026

Secondary unit substations design guide

The VFI transformer combines a conventional liquid-filled distribution substation transformer with a vacuum fault

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GUIDELINES FOR SUBSTATION AND SWITCHROOM

The minimum recommended spacing between the walls and the transformer periphery from the point of proper

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Appendix 5-2: Collection Substation Design Criteria

MW solar facility is connected to this substation. The 34.5 kV bus consists of one (1) 34.5 kV collection feeders. The 345 kV bus

Feb 27, 2026

11KV Clearance Requirements in Substations

This document provides guidelines on minimum clearance requirements and standards for electrical substations. It outlines

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Substation Design Principles

The telecommunications panels shall be located in the substation control room, adjacent to the SCADA RTU panels. The

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Transformer Clearance Requirements Guide | PDF | Transformer

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Feb 03, 2026

Substation Electrical Clearance Standards | PDF

This document provides guidelines for minimum electrical clearances and safety standards for electrical substations of various voltages.

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