



# Division 262213

# Dry Type Transformers

## DESIGN GUIDE

## 1 General

### 1.1 Introduction

- A. This section applies to the following:
  - 1. Dry-type general purpose transformers
- B. The use of dry-type transformers should be avoided to help reduce heat load within buildings. The use of dual services (480V & 208V) or a single service (208V) shall be considered in lieu of distribution systems with dry-type transformers.

## 2 Materials

### 2.1 Dry-type transformers

- A. Manufacturers: Eaton, General Electric, Square D, or approved equal.
- B. Type: Transformers shall be of the two-winding insulating type. Units shall be enclosed except for ventilating openings. Transformers shall be air-cooled by natural convection and not rely upon fans for airflow.
- C. Core and Core Assemblies: Transformer core shall be constructed of high-grade, non-aging, grain-oriented silicon steel with high magnetic permeability, and low hysteresis and eddy current losses. Primary and secondary coils shall be wound of copper with continuous wound construction.



- D. Insulation: Insulation materials shall be flame-retardant and shall not support combustion.
- E. Bonding: The core of the transformer shall be visibly bonded to the enclosure by means of a flexible grounding conductor sized in accordance with code.
- F. Vibration Isolation: The completed core and coil shall be bolted to the base of the enclosure but isolated by means of rubber vibration-absorbing mounts. There shall be no metal-to-metal contact between the core and coil and the enclosure except for the flexible ground strap.
- G. Enclosures: Transformer enclosures shall be made of heavy-gauge steel. Transformers shall be equipped with a wiring compartment suitable for conduit entry and large enough to allow convenient wiring.
- H. Seismic Construction: The equipment shall be constructed to meet the project seismic requirements.

## 3 Execution

### 3.1 Preparation

- A. Provide a 4 inch high concrete housekeeping pad for each transformer extending approximately 1 inch beyond the equipment enclosure on both sides and in front, except as otherwise indicated on the drawings.

### 3.2 Adjustment and Testing

- A. Measure primary and secondary voltages and make appropriate tap adjustments for optimum operating level.
- B. After making tap adjustments, measure the primary voltage phase-to-phase and the secondary voltage phase-to-phase and phase-to-neutral for all transformers. Record results for O&M manuals.
- C. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Check tightness of connections using calibrated torque wrench per manufacturer's instructions. Record date and value of torque for O&M manuals.



## 4 Appendix

### 4.1 Reserved for future.

