

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 26 05 28 - Grounding - Secondary.

### **1.2 REFERENCES**

- .1 CSA International
  - .1 CAN/CSA-C22.2 No.47-M90(R2012), Air-Cooled Transformers (Dry Type).
  - .2 CSA C9-02(R2011), Dry-Type Transformers.
  - .3 CAN/CSA-C802.2-12, Minimum Efficiency Values for Dry Type Transformers.
- .2 National Electrical Manufacturers Association (NEMA)

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for dry type transformers and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2 Factory test reports should be provided for all transformers.

### **1.4 CLOSEOUT SUBMITTALS**

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit operation and maintenance data for dry type transformers for incorporation into manual.

### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
  - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
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- .3 Storage and Handling Requirements:
  - .1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect dry type transformers from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

## **1.6 LEED 2009 REQUIREMENTS**

- .1 LEED Documentation:
  - .1 Submit Material Safety Data Sheets (MSDS) or product data sheets, for all site applied interior paints, coatings, adhesives, sealants, sealant primers, concrete curing compounds, etc. to ensure compliance with LEED Requirements for low emitting materials as per Section 01 35 21.

## **PART 2 - PRODUCTS**

### **2.1 DESIGN DESCRIPTION**

- .1 Design 1.
  - .1 Type: ANN.
  - .2 3 phase, 600 V input, 120/208 V output, 60 Hz, rating as indicated on drawings.
  - .3 Voltage taps: standard.
  - .4 Insulation: Class 220, 150 degrees C temperature rise.
  - .5 Basic Impulse Level (BIL): standard.
  - .6 Hipot: standard.
  - .7 Average sound level: standard
  - .8 Impedance at 17 degrees C: standard
  - .9 Enclosure: CSA Type 1, removable metal front panel.
  - .10 Mounting: floor.
  - .11 Finish: in accordance with Section 26 05 00 - Common Work Results for Electrical.
  - .12 Copper windings.
  - .13 Winding configuration to be as noted on drawings.
  - .14 Voltage Regulation to be 4% or better.

## **2.2 EQUIPMENT IDENTIFICATION**

- .1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results for Electrical.
- .2 Label size: 7.
- .3 Nameplate wording: per Power Distribution Single Line Diagram Identification.

## **2.3 LEED 2009 REQUIREMENTS**

- .1 All site applied interior paints, coatings, adhesives, sealants, sealant primers, concrete curing compounds, etc. to comply with LEED Requirements for low emitting materials as per Section 01 35 21 - LEED 2009 Requirements.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for dry type transformers installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

### **3.2 INSTALLATION**

- .1 Mount dry type transformers up to 75 kVA as indicated.
  - .2 Mount dry type transformers above 75 kVA on floor.
  - .3 Ensure adequate clearance around transformer for ventilation.
  - .4 Install transformers in level upright position.
  - .5 Remove shipping supports only after transformer is installed and just before putting into service.
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- .6 Loosen isolation pad bolts until no compression is visible.
- .7 Make primary and secondary connections in accordance with wiring diagram.
- .8 Energize transformers after installation is complete.
- .9 Make conduit entry into bottom 1/3 of transformer enclosure.

### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

### **3.4 PROTECTION**

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by dry type transformers installation.