SEALING OF SERVICE DUCTS, ENTRANCES, AND BUS OPENINGS IN ELECTRICAL DISTRIBUTION STRUCTURES

FILE: CONSTRUCTION STANDARDS MANUAL NO. 3, SECTION NO. 42
CABLE PULLING FIELD MANUAL NO. 3, SECTION NO. 4
VAULT INSTALLATION FIELD MANUAL NO. 5, SECTION NO. 2
SUBWAY CONSTRUCTION FIELD MANUALS NO. 11 AND 12, SECTION NO. 1

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1.0 PURPOSE

This specification outlines the type of duct sealing material, locations where sealing is required, and procedures for duct sealing in order to obtain a water and gas tight seal.

2.0 REGIONS APPLICABLE

All

3.0 GENERAL INFORMATION

Sealing against water and gas penetration is required in service duct(s) and bus opening(s) in structures housing distribution system electrical equipment. Application of sealing material prevents flooding of equipment, and water, gas penetration into customer's premises and/or service equipment.

4.0 APPLICATION OF DUCT SEALING MATERIAL

4.1 Type of Sealing Material Used - the choice of the sealing material used will depend on the water pressure encountered at the particular location. For normal conduit depth ordinary compounds shall be used. For deeper conduit installations, or heads of water pressure greater than 5 feet, foams shall be applied as per purchase specification EO-100023.

4.2 Locations to be Sealed - Water and gas tight seals shall be applied at the following locations:

a. At the ends of all ducts entering transformer manholes.

b. At both ends of all ducts entering a transformer vault from a street or private property duct system.

c. At both ends of ducts between network vaults. Exception - Water and gas tight seals are not required in a duct if the duct length is less than 2 feet, and other means of gas or water migration exist, such as weep holes, floor penetrations, etc…

d. At both ends of underground service pipes or conduits, including riser pipes connecting to underground services (excluding streetlight services which are to be packed in the structure but not the base). See section 9 for the guidelines for determination of service ducts.

e. At the ends of all ducts from station manhole to the unit substation.
switchgear. Any spare ducts from the station manhole to the unit
substation switchgear are to be plugged with a molded plastic plug that
properly fits the duct diameter in both the manhole and the switchgear
cubicle.

4.3 Maintenance Of Seals

a. All conduit/duct ends terminating within Company structures are to be
maintained by Company personnel.

b. All conduit/duct ends terminating within customer structure are to be
maintained by the customer.

5.0 SEALING PROCEDURE

5.1 Service Ducts and Entrances

These steps shall be followed when sealing service ducts and entrances:

a. All cable and duct surfaces shall be cleaned. Running water should not
be allowed to flow through the duct before proper curing of the sealing
material is achieved. If running water is present, follow steps described
in specification EO-6217-C (latest revision) for additional measures to
be taken.

b. Follow all duct sealing material application steps described in
specification EO-6217-C (latest revision).

5.2 Bus Openings

To seal bus openings between vault compartments, the joints between the
bus and insulating supports as well as the joints between the supports
and the surrounding areas shall be sealed in the manner described in
Paragraph 4.0.

5.3 Station Manhole and Substation Switchgear

To seal ducts within the unit substation switchgear cubicles require that
the associated feeder be de-energized and grounded in accordance with
ConEd's "General Instructions Governing Work on System Electrical
Equipment" handbook.
6.0  **VENTILATION**

Approved mechanical ventilation must be used in the structure prior to and during application of duct sealing foam material.

7.0  **PERSONAL PROTECTION**

Con Edison field personnel are required to wear proper personal protective equipment when handling or installing duct sealing material. Approved hand cleaners must be used to clean up after the work is completed.

8.0  **CLEANLINESS IN THE STRUCTURE**

Remnants of duct sealing compounds or foams used by Company field personnel shall not be left in the structure after work is completed. Precautions should be taken to prevent any sealing compound or foam material from adhering to cables or equipment housed in the structure. All duct sealing materials shall be “faced-off” with the wall.

9.0  **GENERAL GUIDELINES FOR DETERMINATION OF SERVICE DUCTS**

Con Edison’s Underground Distribution system was built over many decades. Conduits of various sizes and different materials were used at different periods of time in the history of the company. Although it is not possible to specify what is used for service conduits in every case, the following guidelines are applicable in most cases:

a. Ducts 4 inches and larger are generally not service ducts.

b. Ducts 3 inches and smaller should be considered service ducts.

Exception: Tile ducts 3 inches in size are not considered service ducts.

10.0  **REFERENCE SPECIFICATIONS**

EO-3584-C  Method of Sealing Bare Neutral in Service Cables at Customers end of Service Duct.

EO-6208-C  Customers Electrical Service Installation in Buildings with Basements at Property Line Indoor Metering.

EO-6210-B  Property Line Splice Box Requirements for Buildings Back of Property Line.

EO-6214-C  Customers Electric Service Installation in Building with Sub -
sidewalk Space Outside of Property Line Indoor Metering.

EO-6217-C Method of Sealing Phase Grouped Service Cable and Conduit.
EO-8302-B Primary and Secondary Cable Risers.
EO-100023 Purchase Recommendation for Duct Sealing Compounds.

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REVISION NO. 10:
This specification has been revised:
4.2 d. and section 9: Added guidelines to determine service ducts.

FILE:
Cable Pulling Field Manual No.3, Section No. 4 – Sealing of Duct