



**Note:** The PROV published in November 2017 replaces OPSS 913 COMMON, November 2014 with no technical content changes.

## **CONSTRUCTION SPECIFICATION FOR EMBEDDED WORK IN STRUCTURES FOR ELECTRICAL SYSTEMS**

---

### **TABLE OF CONTENTS**

<b>913.01</b>	<b>SCOPE</b>
<b>913.02</b>	<b>REFERENCES</b>
<b>913.03</b>	<b>DEFINITIONS - Not Used</b>
<b>913.04</b>	<b>SUBMISSION AND DESIGN REQUIREMENTS - Not Used</b>
<b>913.05</b>	<b>MATERIALS</b>
<b>913.06</b>	<b>EQUIPMENT - Not Used</b>
<b>913.07</b>	<b>CONSTRUCTION</b>
<b>913.08</b>	<b>QUALITY ASSURANCE - Not Used</b>
<b>913.09</b>	<b>MEASUREMENT FOR PAYMENT - Not Used</b>
<b>913.10</b>	<b>BASIS OF PAYMENT</b>

#### **913.01 SCOPE**

This specification covers the requirements for the installation of electrical and communication materials to be embedded in structures.

#### **913.02 REFERENCES**

This specification refers to the following standards, specifications, or publications:

##### **Ontario Provincial Standard Specifications, Construction**

OPSS 603	Installation of Ducts
OPSS 616	Footings and Pads for Electrical Equipment

## **CSA Standards**

C22.2 No. 40-M1989 (R2009)	Cutout, Junction, and Pull Boxes
C22.2 No. 85-14	Rigid PVC Boxes and Fittings
C22.2 No. 211.2-06 (R2011)	Rigid PVC (Unplasticized) Conduit
C22.2 No. 227.1-06 (R2011)	Electrical Nonmetallic Tubing

### **913.05 MATERIALS**

#### **913.05.01 Junction Boxes and Fittings**

Junction boxes and fittings shall be according to CSA C22.2 No. 85.

#### **913.05.02 Rigid Ducts**

Rigid ducts to be embedded shall be according to OPSS 603, Table 1.

Ducts less than 60 mm diameter shall be rigid PVC and according to CSA C22.2 No. 211.2. The associated cleaner and solvent cement shall be according to the duct manufacturer's recommendations.

#### **913.05.03 Flexible Ducts and Fittings**

Flexible ducts and fittings shall be according to CAN/CSA C22.2 No. 227.1.

#### **913.05.04 Fish Line**

Fish line shall be nylon or polypropylene materials with a minimum test strength of 400 N.

#### **913.05.05 Anchorage Assemblies and Hardware**

Anchorage assemblies and hardware shall be according to OPSS 616.

##### **913.05.05.01 Anchor Assembly Struts**

Anchor assembly struts shall be according to OPSS 616.

##### **913.05.05.02 Studs, Nuts, and Washers**

Studs, nuts, and washers shall be according to OPSS 616.

##### **913.05.05.03 Ferrules**

Ferrules shall be according to OPSS 616.

### **913.07 CONSTRUCTION**

#### **913.07.01 Embedded Work in Structure**

All components shall be installed at locations specified in the Contract Documents. Components shall be secured and supported in place so that shifting or deflection of the components does not occur during the placing of concrete or under other such loads as may be encountered during construction.

### **913.07.01.01 Junction Boxes**

Junction boxes shall be installed so that the outside faces of the covers are flush with the finished surface of the concrete, except for barrier walls. Junction boxes shall be recessed 50 mm in barrier walls and have grounded galvanized steel treaded covers according to CSA C22.2 No. 40 and the Contract Documents.

Junction boxes shall be drilled to accept conduit fittings as specified in the Contract Documents. Ducts and conduit fittings shall be connected to junction boxes using appropriate solvent cement.

### **913.07.01.02 Ducts**

Ducts shall be installed using CSA approved fittings, couplings, and accessories for the type of duct used. Adapter couplings shall be installed between ducts of dissimilar materials. Expansion and deflection fitting assemblies or wobble joints shall be installed at structural expansion joints.

Expansion and deflection coupling joints shall be according to the Contract Documents and manufacturer's specifications. Duct to couplings and fittings connections shall be made with a cleaner and solvent cement suitable for the type of duct installed.

Ducts ending at vertical concrete faces shall be terminated with fittings as specified in the Contract Documents.

Ducts shall be free of debris, water, breakage, and distortion and verified by pulling a mandrel through the ducts.

All open ends in ducts shall be plugged with plastic plugs.

### **913.07.01.03 Fish Line**

A fish line shall be installed in all duct systems. A 1.5 m length of fish line shall be left coiled in each junction box and at each duct termination at a concrete face by bringing the fish line out of the duct beside the plastic plug.

### **913.07.01.04 Anchorage Assemblies**

Anchorage assemblies shall be installed according to OPSS 616.

### **913.07.02 Embedded Work in Structure for Other than Owner**

The work for embedded work in structure for other than the Owner shall be according to subsection Embedded Work in Structure and as specified in the Contract Documents.

When material supplied by others to the Contractor is specified in the Contract Documents, the Contractor shall notify the Contract Administrator in writing of the need for the material a minimum of 30 Days in advance of the date when the material is required.

## **913.10 BASIS OF PAYMENT**

### **913.10.01 Embedded Work in Structure - Item**

Payment at the Contract price for the above tender item shall be full compensation for all labour, Equipment, and Material to do the work.