ONTARIO PROVINCIAL STANDARD SPECIFICATION

OPSS.PROV 2452
NOVEMBER 2018
(Formerly OPSS 2452, Nov 2010)

Note: The PROV published in November 2018 replaces OPSS 2452 COMMON, November 2010 with no technical content changes.

MATERIAL SPECIFICATION FOR ALUMINUM POLES, BASE MOUNTED

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2452.01 SCOPE

This specification covers the requirements for base mounted aluminum poles maximum 15.1 m in length with cast shoe bases.

2452.02 REFERENCES

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

CSA Standards

W47.2-2011 (R2015) Certification of Companies for Fusion Welding of Aluminum

ASTM International

B 221M-13 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, Profiles, and Tubes (Metric)

B 108/B108M-18e1 Standard Specification for Aluminum-Alloy Permanent Mold Castings

2452.04 DESIGN AND SUBMISSION REQUIREMENTS

2452.04.01 Submission Requirements

2452.04.01.01 Working Drawings

Working Drawings shall be prepared for the fabrication of aluminum poles.

Three sets of Working Drawings shall be submitted to the Contract Administrator at least 14 Days prior to commencement of fabrication of the aluminum poles, for information purposes only. Prior to making a submission, the seals and signatures of a design Engineer and a design-checking Engineer shall be affixed on the Working Drawings verifying that the drawings are consistent with the Contract Documents.

Where multi-discipline engineering work is depicted on the same Working Drawing and the design or design-checking Engineer or both are unable to seal and sign the Working Drawing for all aspects of the work, the drawing shall be sealed and signed by as many additional design and design-checking Engineers as necessary.

As a minimum, the Working Drawings shall include the following information:

a) Detailed dimensions.

b) Plans, elevations, sections, and details to show pole structural details.

c) Equipment layout.

d) Anchor bolt locations.

e) Exact pole weight.

f) Detailed bill of materials.

g) Details of equipment nameplates.

A copy of the Working Drawings shall be retained for 7 years.

2452.05 MATERIALS

2452.05.01 General

Aluminum used in the production of pole shafts shall be according to ASTM B 221, alloy 6063-T4.

Aluminum used in the production of base castings shall be according to ASTM B 108, alloy A 356.0-T6.

2452.07 PRODUCTION

2452.07.01 General

The length of the poles shall be as specified in the Contract Documents.

The completed pole assembly shall be tempered to T6 condition and have a minimum yield strength of 165 MPa and a minimum ultimate tensile strength of 193 MPa.

Shafts shall be round in cross-section and taper from bottom to top.

Shafts shall be fabricated from a single tube with a wall thickness of 4.775 or 6.35 mm as specified in the Contract Documents.

Welded joints shall not be permitted for shafts.

Sweep shall not exceed 3.2 mm per 4.57 m, and the overall sweep shall not be greater than:

(Pole length (m)/4.57 m) x 3.2 mm

The pole shall be supplied with a one-piece cast shoe base complete with 8 gussets and a factory installed dampener for poles over 9.0 m in length.

After fabrication, the underside of the cast shoe base shall be true, distortion free, and perpendicular to the centreline of the pole shaft. When the cast shoe base is in contact with concrete, a cold tar epoxy coating shall be applied to the underside.

A removable aluminum top cap shall be supplied with the shaft. The cap shall be secured rigidly to the shaft by a hexagonal head stainless steel set screw.

Wiring apertures at the bracket mounting level and at the handhole shall be accurately positioned on the pole. Wiring apertures, complete with neoprene grommets, shall provide a smooth cable entrance.

All welding shall be according to CSA W47.2.

The handhole shall be formed by extrusion or other appropriate method and be designed such that the strength and cross-section of the shaft is not reduced.

Handhole covers shall be provided complete with a neoprene gasket, secured with stainless steel fasteners, aluminum back bar, and stainless steel inserts.

The shaft shall be rotary sanded and protective wrapped for shipment.

2452.07.02 Mounting Plate for Grounding

The mounting plate for the grounding post shall be welded to the shaft in such a manner that the temper of the shaft is not impaired and to present a smooth surface on the exterior of the shaft.

2452.07.03 Marking

Each pole shall have the following identification markings located approximately 100 mm above the top of the handhole:

a) Manufacturer's name or trademark.

b) Length.

c) Wall thickness.

d) Bolt circle diameter.

e) Designation OPSS 2452.

f) Date of manufacture (i.e., yyyy-mm-dd).

These markings shall be on a corrosion-resistant metal plate securely attached to the surface of the pole.

2452.07.04 Packaging and Shipping

Each pole shall be shipped complete with hardware suitably packaged to ensure that all parts are delivered as an entity.

The grounding connector shall be assembled inside the pole prior to shipment.

The Owner shall be advised of the shipping date 3 Business Days prior to delivery.

2452.08 QUALITY ASSURANCE

2452.08.01 Inspection

All work is subject to an inspection by the Owner's representative prior to shipment.

The supplier shall notify the Owner of the date that the fabrication of the poles is to commence.

The Owner's representative shall have free access to the place of fabrication for the purpose of inspecting and examining plant records; certificates; materials used; fabrication process, including welding; and to make any tests as may be considered necessary, while the poles are being fabricated.