



**MATERIAL SPECIFICATION FOR
CORRUGATED STEEL PIPE (CSP) PRODUCTS**

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1801.01	SCOPE
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This specification covers the requirements for all corrugated steel pipe products to be used for storm sewers, pipe culverts, and subdrains.

1801.01.01 Specification Significance and Use

This specification is written as a municipal-oriented specification. Municipal-oriented specifications are developed to reflect the administration, testing, and payment policies, procedures, and practices of many municipalities in Ontario.

Use of this specification or any other specification shall be as specified in the Contract Documents.

1801.01.02 Appendices Significance and Use

Appendices are not for use in provincial contracts as they are developed for municipal use, and then, only when invoked by the Owner.

Appendices are developed for the Owner's use only.

Inclusion of an appendix as part of the Contract Documents is solely at the discretion of the Owner. Appendices are not a mandatory part of this specification and only become part of the Contract Documents as the Owner invokes them.

Invoking a particular appendix does not obligate an Owner to use all available appendices. Only invoked appendices form part of the Contract Documents.

The decision to use any appendix is determined by an Owner after considering their contract requirements and their administrative, payment, and testing procedures, policies, and practices. Depending on these considerations, an Owner may not wish to invoke some or any of the available appendices.

1801.02 REFERENCES

When the Contract Documents indicate that municipal-oriented specifications are to be used and there is a municipal-oriented specification of the same number as those listed below, references within this specification to an OPSS shall be deemed to mean OPSS.MUNI, unless use of a provincial-oriented specification is specified in the Contract Documents. When there is not a corresponding municipal-oriented specification, the references below shall be considered to be the OPSS listed, unless use of a provincial-oriented specification is specified in the Contract Documents.

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

Corrugated Steel Pipe Institute

- Bulletin 18 Certification Program for Corrugated Steel Pipe Institute Members & Products CSA G401 Protocol
- Bulletin 19 Certification Program for Structural Plate Corrugated Steel Pipe Products and Deep Corrugated Structural Plate Products

CSA Standards

- G401-14 Corrugated Steel Pipe Products

1801.03 DEFINITIONS

For the purpose of this specification, the following definitions apply:

Certification Body means an independent 3rd party agency accredited by the Standards Council of Canada that has the qualifications, skills, and expertise required to confirm that a pipe manufacturer produces pipe products to the quality and requirements of an accepted standard and that has the mandate to certify the pipe products produced.

Certified means pipe products that have been marked with a certification body's logo confirming that the production of the pipe product is in accordance with the quality and requirements of CSA G401.

Corrugated Steel Pipe Products means any one or any combination of the following products:

- round corrugated steel pipe with an end finish
- corrugated steel pipe arch with an end finish
- round structural plate corrugated steel pipe with an end finish
- structural plate corrugated steel pipe arch with an end finish
- round spiral rib pipe with an end finish
- spiral rib steel pipe arch with an end finish
- perforated corrugated steel pipe
- corrugated steel pipe coupler bands with or without gasket
- corrugated steel pipe end sections
- corrugated steel pipe safety slope end treatments
- corrugated steel pipe saddle branches

Delivered Quality means the pipe products' physical condition upon arrival at the construction site in terms of the extent and degree of dents, scratches, cracks, pipe coating integrity, etc., that appear on the pipe products delivered.

1801.05 MATERIALS

1801.05.01 Corrugated Steel Pipe Products

Corrugated steel pipe products shall be according to CSA G401 and Appendix A of the same standard. CSP coating shall be galvanized, aluminized Type 2, or polymer laminated and structural plate culvert coating shall be galvanized or thermoplastic co-polymer as specified in the Contract Documents.

1801.07 PRODUCTION

1801.07.01 Fabrication

The pipe diameter, wall thickness, coating, and type of all corrugated steel pipe products shall be as specified in the Contract Documents.

All corrugated steel pipe products used on the Contract shall be supplied from a manufacturer that is certified to produce corrugated steel pipe products in accordance with CSA G401. Refer to the Corrugated Steel Pipe Institute's technical bulletins 18 for CSP and 19 for SPCS plant CSA certification programs.

When the delivered quality of certified corrugated steel pipe products is deemed to be unacceptable by the Contract Administrator, the products shall be rejected.

1801.08 QUALITY ASSURANCE

1801.08.01 Inspection, Testing, and Record Keeping

Inspection, testing, and record keeping for corrugated steel pipe products shall be according to CSA G401.

1801.08.02 Markings

Certified corrugated steel round pipe and pipe arch and certified spiral rib round pipe and pipe arch shall be marked according to CSA G401, along with the logo of the certification body and name of the pipe manufacturer.

Certified structural plate corrugated steel pipe plate shall be marked according to CSA G401, along with the logo of the certification body and name of the pipe manufacturer.

Accepted certification body logos confirming certified corrugated steel pipe products shall be as shown in Figures 1 and 2.

1801.08.03 Certificate of Compliance

When requested by the Owner, the Contractor shall provide a certificate of compliance for subdrains and the corrugated steel pipe products used for eccentric loader assemblies to indicate that the product was produced and tested according to the appropriate specification requirements.

When requested by the Owner, the Contractor shall provide a copy of the certificate of compliance from the manufacturer for storm sewers and pipe culverts. The manufacturer's certificate of compliance shall be issued by the certification body confirming that the manufacturer produces certified corrugated steel pipe products in accordance with CSA G401.

1801.09 OWNER PURCHASE OF MATERIAL

Measurement of corrugated steel pipe with corrugated steel coupler bands shall be by length in metres along the centreline of the pipe.

For measurement purposes, a count shall be made of all other corrugated steel pipe products.

Payment at the price specified in the purchasing order shall be for the supply of corrugated steel pipe with coupler bands and other corrugated steel pipe products delivered to the destination on the date and time specified.

The cost of all testing, except that performed in the Owner's laboratory, shall be included in the price.



FIGURE 1
CSA Standards Certification Logo



FIGURE 2
Canadian Welding Bureau Certification Logo

**Appendix 1801-A, November 2019
FOR USE WHILE DESIGNING MUNICIPAL CONTRACTS**

Note: This is a non-mandatory Commentary Appendix intended to provide information to a designer, during the design stage of a contract, on the use of the OPS specification in a municipal contract. This appendix does not form part of the standard specification. Actions and considerations discussed in this appendix are for information purposes only and do not supersede an Owner's design decisions and methodology.

Designer Action/Considerations

The designer should specify the following in the Contract Documents:

- Coating type. (1801.05.01)
- Pipe diameter, wall thickness, coating, and type. (1801.07.01)

The designer should ensure that the General Conditions of Contract and the 100 Series General Specifications are included in the Contract Documents.

Related Ontario Provincial Standard Drawings

OPSD 800.010	Concrete Pipe Culvert and Sewer Extensions Using Corrugated Steel Pipe
OPSD 800.011	Concrete Rigid Frame Box and Open Culvert Extensions Using Corrugated Steel Pipe
OPSD 801.010	Cut End Finish, Circular Pipe and Pipe-Arch Corrugated Steel Pipe
OPSD 801.020	End Section Details, Corrugated Steel Pipe
OPSD 801.030	Bevel Details, Circular and Pipe-Arch Structural Plate, Corrugated Steel Pipe
OPSD 801.040	Culvert and Sewer Safety Slope End Treatment, Notes and Tables
OPSD 801.041	Culvert and Sewer Safety Slope End Treatment, Assembly Details
OPSD 801.042	Culvert and Sewer Safety Slope End Treatment, Connection Details
OPSD 801.043	Culvert and Sewer Safety Slope End Treatment, Installation Details
OPSD 805.010	Height of Fill Table, Round Corrugated Steel Pipe and Structural Plate Corrugated Steel Pipe
OPSD 805.020	Height of Fill Table, Corrugated Steel Pipe-Arch and Structural Plate Corrugated Steel Pipe-Arch
OPSD 805.030	Height of Fill Table, Spiral Rib Round Pipe
OPSD 805.040	Height of Fill Table, Spiral Rib Pipe-Arch