

**THE CORPORATION OF THE CITY OF NIAGARA FALLS
ON BEHALF OF THE NIAGARA PUBLIC PURCHASING COMMITTEE
REQUEST FOR TENDER – RFT1-2019
SUPPLY & DELIVERY OF READY MIX CONCRETE**

SPECIFICATIONS

All materials quoted must meet current Ontario Provincial Standard Specifications including, but not limited to, the following:

- OPSS 1302 - Material Specification for Water
- OPSS.MUNI 1301 - Material Specification for Cementing Materials
- OPSS.MUNI 1002 - Material Specification for Aggregates - Concrete
- OPSS.MUNI 1350 - Material Specification for Concrete - Materials and Production
- OPSS.MUNI 1359 - Material Specification for Unshrinkable Back Fill

A) Unshrinkable fill

Unshrinkable fill shall conform to the requirements as outlined in OPSS.MUNI 1359.

B) Portland Cement

Portland cement shall conform to the requirements as outlined in OPSS.MUNI 1301.

C) Fine Aggregate

Fine aggregate shall conform to the requirements as outlined in OPSS.MUNI 1002.

D) Coarse Aggregate

Coarse aggregate shall conform to the requirements as outlined in OPSS.MUNI 1002.

E) Water

Water to be used for mixing concrete shall conform to the requirements in OPSS 1302.

F) Air Entrainment Agent

An approved air entrainment agent shall be added in such amounts as to produce the appropriate air content indicated in OPSS.MUNI 1350 at the time of placing, as determined by an approved air meter. The air entraining agent used by the Contractor must be approved by the said Agencies. The air entraining agent, when added separately, shall be added by volume in the amount specified in the designated mix. This amount is subject to field adjustment to give the air content specified.

G) Mixing and Delivery

The concrete shall be mixed and delivered in batching plants and truck mixers meeting OPSS.MUNI 1350, thereof specifications for ready mixed concrete. If additional water is required, the mixer shall be run for a minimum of 20 additional revolutions to ensure homogeneity of the concrete before discharge. The concrete shall be delivered to the site of the work in the location specified and the discharge completed within ninety (90) minutes after the materials have been added to the mixer. Discharge chutes shall be kept clean and free from hardened concrete and may be wetted down prior to use.

NOTE: Any N.P.P.C. Agency ordering ready mix concrete under the terms and conditions of this RFT and the subsequent award by the Agency **SHALL NOT** pay for waiting time for deliveries arriving **before the time** stipulated for the delivery to the site designated by said Agency.

**THE CORPORATION OF THE CITY OF NIAGARA FALLS
ON BEHALF OF THE NIAGARA PUBLIC PURCHASING COMMITTEE
REQUEST FOR TENDER – RFT1-2019
SUPPLY & DELIVERY OF READY MIX CONCRETE**

SPECIFICATIONS

H) Design Specifications

Unless otherwise stated by the Municipal employee at the time of ordering the concrete, the following specifications of the concrete shall be carried out by the Contractor:

CSA Exposure Classes:

CSA Exposure Class C-1, 35 MPa, 0.40 maximum W/CM ratio

CSA Exposure Class C-2, 32 MPa, 0.45 maximum W/CM ratio

CSA Exposure Class C-3, 30 MPa, 0.50 maximum W/CM ratio

CSA Exposure Class C-4, 25 MPa, 0.55 maximum W/CM ratio

The minimum allowable compressive strength of the concrete after 28 days shall be the strength specified in the Form of Tender.

- The nominal maximum sizes of coarse aggregate shall be as per OPSS.MUNI 1350.
- The required slump of the concrete, at the time of placing, shall be 70 mm+/- 20mm.
- The minimum and maximum air content of the concrete as determined at the time of placing by an air meter shall be as per OPSS.MUNI 1350.

The Contractor shall show proof of ability to produce concrete to meet these specifications prior to the awarding of the contract.

I) Control Inspection and Testing

The Engineers and inspectors of the said Agencies shall be afforded full facilities for the inspection and testing of both the concrete itself and the constituent materials, both at the site of the work, or at any plant used for the manufacture of concrete, to determine whether the concrete is being supplied in accordance with these specifications.

During the course of the work, various control tests may be carried out by the said Agencies as follows:

Slump test in accordance with CSA A23.2 -5C to control consistency and check batch to batch uniformly.

Compressive strength test based on 4" x 8" standard cylinders made from concrete incorporated in the work. The method of making and curing test specimens shall be as specified in CSA A23.2 - 3C and the method of testing in compression shall be as specified in CSA A23.2 -9C.

Air content as determined by an approved air meter at the end of the chute.

**THE CORPORATION OF THE CITY OF NIAGARA FALLS
ON BEHALF OF THE NIAGARA PUBLIC PURCHASING COMMITTEE
REQUEST FOR TENDER – RFT1-2019
SUPPLY & DELIVERY OF READY MIX CONCRETE**

SPECIFICATIONS

Such other tests as the said Agencies may from time to time determine which are in keeping with the determination of compliance with the requirements of these specifications. If the measured slump or air content falls outside the limits specified, a check test shall be made. In the event of a second failure, the said Agencies reserve the right to refuse to permit the use of the batch of concrete represented.

J) Accelerated Strength (High Early Strength) Concrete

- The accelerated strength concrete (including cylinders) shall be tested in conformance with the autogenous curing test procedure C of ASTM C684.
- The tested strength shall be no less than 75% of the design strength (eg. 30 MPa) in 24 hours.
- The NPPC participating Agency's inspector or representative shall be given a copy of the tickets from the concrete plant for all loads containing accelerated strength concrete mix.