

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 03 30 00 – Cast-in-Place Concrete.

**1.2 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CSA-A23.1-14/A23.2-14, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CAN/CSA-O86-14, Engineering Design in Wood.
  - .3 CSA O121-08, Douglas Fir Plywood.
  - .4 CSA O151-09(R2014), Canadian Softwood Plywood.
  - .5 CSA O153-13, Poplar Plywood.
  - .6 CAN/CSA-O325-07(R2012), Construction Sheathing.
  - .7 CAN/CSA-S269.3-M92(R2013), Concrete Formwork.

**1.3 SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings for formwork and falsework.
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Newfoundland and Labrador, Canada.
- .3 Indicate method and schedule of construction, shoring, materials, arrangement of joints, ties, liners, and locations of temporary embedded parts. Comply with CAN/CSA-S269.3 for formwork drawings.
- .4 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.

**1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Waste Management and Disposal:
  - .1 Separate waste materials for reuse and recycling.
  - .2 Place materials defined as hazardous or toxic in designated containers.
  - .3 Divert wood materials from landfill to a recycling facility as approved by Departmental Representative.
  - .4 Divert plastic materials from landfill to a recycling facility as approved by Departmental Representative.
  - .5 Divert unused form release material from landfill to an official hazardous material collections site as approved by the Departmental Representative.

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**Part 2 Products**

**2.1 MATERIALS**

- .1 Formwork materials:
  - .1 Use wood and wood product formwork materials to CSA-O121 and CAN/CSA-O86.
- .2 Form ties:
  - .1 Use removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface. Holes to be plugged with approved material.
- .3 Form liner:
  - .1 Plywood: medium density overlay Douglas Fir to CSA O121 or Canadian Softwood Plywood to CSA O151, square edge, 19 mm thick.
- .4 Form release agent: non-toxic, biodegradable, low VOC.
- .5 Form stripping agent: colourless mineral oil, non-toxic, biodegradable, low VOC, free of kerosene, with viscosity between 70 and 110s Saybolt Universal 15 to 24 mm<sup>2</sup>/s at 40 degrees C, flashpoint minimum 150 degrees C, open cup.
- .6 Falsework materials: to CSA-S269.1.

**Part 3 Execution**

**3.1 FABRICATION AND ERECTION**

- .1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.
- .2 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.
- .3 Align form joints and make watertight.
  - .1 Keep form joints to minimum.
- .4 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections.
- .5 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

**3.2 REMOVAL**

- .1 Leave formwork in place for following minimum periods of time after placing concrete.

- .1 3 days for footings and frost walls.
- .2 Re-use formwork and falsework subject to requirements of CSA-A23.1/A23.2.

**END OF SECTION**