

PART 1 - GENERAL

1.1 RELATED  
SECTIONS

- .1 Section 03 20 00 - Concrete Reinforcing.
- .2 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
  - .1 CAN/CSA-A23.1-04, Concrete Materials and Methods of Concrete construction.
  - .2 CAN/CSA-086-01 (R2006), Engineering Design in Wood (Limit States Design).
  - .3 CSA 0121-M1978 (R2003), Douglas Fir Plywood.
  - .4 CSA 0151-04, Canadian Softwood Plywood.
  - .5 CSA 0153-M1980 (R2003), Poplar Plywood.
  - .6 CAN3-0188.0-M78, Standard Test Methods for Mat-Formed Wood Particleboards and Waferboard.
  - .7 CSA 0437 Series-93 (R2001), Standards for OSB and Waferboard.
  - .8 CSA S269.1-1975 (R2003), Falsework for Construction Purposes.
  - .9 CAN/CSA-S269.3-M92 (R2003), Concrete Formwork.

1.3 SHOP DRAWINGS

- .1 Submit shop drawings for formwork and falsework in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Indicate method and schedule of construction, shoring, stripping, and re-shoring procedures, materials, arrangement of joints, special architectural exposed

finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1 for falsework drawings. Comply with CAN/CSA-S269.3 for formwork drawings.

- .3 Indicate formwork design data, such as permissible rate of concrete placement and temperature of concrete, in forms.
- .4 Indicate sequence of erection and removal of formwork/falsework as directed by Departmental Representative.
- .5 Each shop drawing submission shall bear stamp and signature of qualified Professional Engineer licensed to practice in the Province of Newfoundland and Labrador, Canada.

#### 1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal and the Waste Reduction Workplan.
- .2 Place materials defined as hazardous or toxic waste in designated containers.
- .3 Ensure emptied containers are sealed and stored safely for disposal away from children.
- .4 Use sealers, form release, and stripping agents that are non-toxic, biodegradable, and have zero or low volatile organic compound (VOC) content.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Formwork materials:
  - .1 Formwork materials to CAN/CSA-A23.1.
- .2 Form ties:
  - .1 Removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm in diameter in concrete surface.
- .3 Form release agent:
  - .1 Non-toxic, chemically active release agents containing compounds that react with free lime present in concrete to provide water insoluble soaps, preventing set of film of concrete in contact with form.
- .4 Falsework materials:
  - .1 Falsework materials to CSA-S269.1.
  - .2 Materials required to bear grade marks, or be accompanied with certificates, test reports, or other proof of conformity.
- .5 Pre-moulded joint fillers:
  - .1 Bituminous-impregnated fibreboard to ASTM D1751.
- .6 Bond Breaker:
  - .1 Impermeable tube formed of polyvinylchloride, rubber, or similar material meeting approval of Departmental Representative. Internal diameter equal to dowels.

- .7 Sealant:
  - .1 Sealant to Section 07 92 00 - Joint Sealants.

### 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 Obtain Departmental Representative's approval for use of earth forms framing openings not indicated on drawings.
- .3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.
- .4 Fabricate and erect falsework in accordance with CSA S269.1.
- .5 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 CAN/CSA-A23.1.
- .6 Align form joints and make watertight. Keep form joints to minimum.
- .7 Use 25 mm chamfer strips on external corners and/or 25 mm fillets at interior corners and joints unless specified otherwise.
- .8 Form chases, slots, openings, drips, recesses, and expansion and control joints as indicated.
- .9 Build in anchors, sleeves, and other

inserts required to accommodate Work specified in other sections. Ensure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

- .10 Clean formwork in accordance with CAN/CSA-A23.1 before placing concrete.

### 3.2 REMOVAL AND RESHORING

- .1 Leave formwork in place for following minimum periods of time after placing concrete:
  - .1 Seven (7) days for walls and sides of beams;
  - .2 Seven (7) days for columns;
  - .3 Five (5) days for beam soffits, slabs, decks, and other structural members, or three (3) days when replaced immediately with adequate shoring to standard specified for falsework;
  - .4 Five (5) days for footings and abutments.
- .2 Remove formwork when concrete has reached 75% of its design strength or minimum period noted above, whichever comes later, and replace immediately with adequate reshoring.
- .3 Provide necessary reshoring of members where early removal of forms may be required or where members may be subjected to additional loads during construction as required.
- .4 Space reshoring in each principal direction at not more than 3000 mm apart.
- .5 Re-use formwork and falsework

subject to requirements of CSA-  
A23.1/A23.2.

<u>3.3 JOINT FILLERS</u>	.1	Locate and form expansion joints as indicated. Install joint filler in all joints.
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<u>3.4 JOINT SEALANT</u>	.1	Fill expansion and control joints with sealer as per the details of drawings and manufacturer's instructions.
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END OF SECTION