CONCRETE FORMWORK

1. GENERAL

1.1 Work Included

.1 Forms and supporting falsework design.

.2 Wood or steel forms for all cast-in-place concrete.

.3 Shoring, bracing, and anchorage.

.4 Coordinate installation of concrete accessories.

.5 Set anchor bolts, anchors, sleeves, frames, and other items supplied by other trades.

.6 Clean and oil erected formwork prior to concrete placement.

.7 Remove forms and supporting falsework.

1.2 Design Standards, Code Requirements

.1 Design, construct, and erect supporting formwork and falsework in accordance with the National Building Code of Canada, CAN/CSA-A23.1-00, CSA S269.1, ACI 347R, and applicable construction safety regulations

1.3 Quality Assurance

.1 Construct and erect concrete formwork in accordance with CAN/CSA-A23.1-00, CSA-S269.3, ACI 347R, and all applicable construction safety regulations for the place of work.

2. PRODUCTS

2.1 Materials

.1 For exposed surfaces: square-edged, smooth-surfaced panels, true in plane and free of holes, surface markings, or defects.

.2 For unexposed surfaces: square-edged plywood suitable to retain concrete without leakage or distortion.

.3 Wood Materials:

.1 Plywood: Douglas Fir, conforming to CSA O121, solid one side select sheathing-tight face grade. Sound, undamaged sheets with clean true edges.

.2 Lumber: conforming to CSA O141.

.3 Nails, spikes, and staples: galvanized or phosphatized; conforming to CSA B111.

.4 Prefabricated Forms:

.1 Steel type: minimum 1.6 mm steel thickness; well matched, tight fitting and adequately stiffened to support the weight of concrete without deflection detrimental to structural tolerance and appearance of finished concrete surface.

.5 Accessories:

.1 Form ties: plastic cone type fixed or adjustable length; minimum working strength of 13 kN. Wire ties are not permitted. Form ties shall be subject to acceptance by the Contract Administrator.

.2 Form release agent: colourless mineral oil, which will not stain concrete or impair colour characteristics or adhesion of coating intended for use on concrete.

.3 Corner or chamfer fillets: extruded plastic or mill finish pine, maximum possible lengths, mitred ends.

.4 Sealing tape: reinforced, self-adhesive PVC.

3. EXECUTION

3.1 Erection

.1 Verify lines, levels, and centres before proceeding with formwork. Ensure dimensions agree with the Drawings.

.2 Construct formwork and falsework to meet design and regulatory requirements and to produce finished concrete conforming to surfaces, shapes, lines, and dimensions indicated on the Drawings. Ensure visible lines follow smooth profile both vertically and horizontally.

.3 Arrange and assemble formwork to permit removal without damage to concrete.

.4 Align joints and make watertight to prevent leakage of cement paste and disfiguration of concrete. Keep form joints to a minimum.

.5 Provide falsework to ensure stability of formwork. Prop or strengthen all previously constructed parts liable to be overstressed by construction loads.

.6 Provide chamfer, sizes to match existing chamfers, on all internal and external corners and edges, vertical and horizontal, of exposed concrete unless shown otherwise.

.7 Set screeds with top edge level to required elevations.

.8 Check and readjust formwork to required lines and levels during placing of concrete.

3.2 Tolerances

.1 Construct formwork and all supporting or bracing members to produce concrete with dimensions, lines, and levels within tolerances specified in ACI 347.

.2 Construct formwork to produce concrete with dimensions, lines, and levels within the following tolerances. Tolerances are not cumulative.

.1 Deviation from vertical line for equipment supports: 6 mm in 3 m, 9 mm in 6 m; 10 mm maximum.

.2 Deviation from flat surface for equipment supports: 3 mm in 3 m; maximum 6 mm.

.3 Deviation from horizontal line: 6 mm in 3 m; maximum 10 mm.

.3 If tolerances are exceeded, remove, replace, or modify placed concrete as directed by the Contract Administrator at no cost to the City.

3.3 Embedded Items

.1 Provide formed openings where required for pipes, conduits, sleeves, and other work to be embedded in and passing through the concrete members.

.2 Accurately locate and set in place items that are to be cast directly into concrete.

.3 Coordinate the work of other sections and cooperate with trades involved in setting sleeves, bolts, anchors, and other inserts.

.4 Coordinate installation of concrete accessories specified in Section 03250 – Concrete Accessories.

.5 Set anchor bolts, sleeves, and inserts accurately at the positions designated. Secure in position by means of wooden templates and ties to prevent shifting and floating during concrete placement.

.6 Do not set anchor bolts, sleeves, and inserts into placed concrete.

3.4 Field Quality Control

.1 Inspect and check complete formwork, falsework, shoring, and bracing to ensure that the work is in accordance with formwork design and that supports, fastenings, wedges, ties, and embedded items are secure.

.2 Inform the Contract Administrator when the formwork is complete and has been cleaned to allow for review. The Contract Administrator's review will be for verification that forms are clean and free from debris.

.3 Allow the Contract Administrator to review each section of formwork prior to reuse. Formwork may be reused if accepted by the Contract Administrator.

3.5 Preparation

.1 Apply form release agent in accordance with the manufacturer's recommendations prior to placing reinforcing steel, anchoring devices, and embedded items.

.2 Do not apply form release agent on construction joints or where concrete surfaces are to receive special finishes or applied coatings that are affected by the agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces moist prior to placing the concrete.

3.6 Form Removal

.1 Notify the Contract Administrator prior to removing the formwork.

.2 Do not remove forms and falsework until the concrete has gained sufficient strength to carry its own weight, plus construction loads or design loads which are liable to be imposed. Verify strength of concrete by compression tests to satisfaction of Contract Administrator.

.3 Removal of forms allowed after a minimum of three (3) Calendar Days and after the concrete has reached a minimum of 70% of the twenty eight (28) day design compressive strength provided that curing of concrete is performed as specified in Section 03300 – Cast-In-Place Concrete.

.4 Loosen forms carefully. Do not apply tools to exposed concrete surfaces.

.5 Leave forms loosely in place for protection until complete removal is acceptable to the Contract Administrator.

END OF SECTION

CONCRETE REINFORCEMENT

1. GENERAL

1.1 Work Included

.1 Reinforcing steel bars for cast-in-place concrete complete with tie wire.

.2 Support chairs, bolsters, bar supports, and spacers for reinforcing.

1.2 Design Standards, Code Requirements

.1 Perform concrete reinforcing work in accordance with the National Building Code of Canada and CAN/CSA-A23.1-00, except where otherwise specified.

1.3 Test Reports

.1 If requested by the Contract Administrator, submit certified copies of mill test report of reinforcement supplied, indicating physical and chemical analysis.

1.4 Placement Drawings

.1 Submit bar lists and placement drawings in accordance with Section 01300 - Submittals.

.2 Clearly indicate bar sizes, spacing, locations, and quantities of reinforcement steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.

.3 Drawings and details to conform to CAN/CSA-A23.1-00, CAN/CSA-A23.3, and RSIC Reinforcing Steel Manual of Standard Practice.

.4 Detail placement of reinforcing where special conditions occur.

.5 Indicate on Placement Drawing the location of anchor bolts set in accordance with base plate and anchor bolt setting.

.6 Detail lap lengths and bar development lengths to CAN/CSA-A23.3, unless otherwise shown on the Drawings.

1.5 Delivery/Storage

.1 Deliver, handle, and store concrete reinforcement in a manner so as to prevent damage and contamination.

CONCRETE REINFORCEMENT

2. PRODUCTS

2.1 Materials

.1 Reinforcing steel: 400 MPa yield grade, deformed billet steel bars conforming to CSA G30.18, plain finish.

2.2 Accessory Materials

.1 Tie wire: minimum 1.6 mm annealed type or patented system acceptable to the Contract Administrator.

.2 Chairs, bolsters, bar supports, and spacers: adequately sized for strength and support of reinforcing steel during construction. Broken concrete blocks and wood supports are not acceptable.

.3 Special chairs, bolsters, bar supports, and spacers: where adjacent to exposed concrete surfaces, non-corrosive material such as plastic or plastic coated type shall be used.

2.3 Fabrication

.1 Fabricate reinforcing steel in accordance with CAN/CSA-A23.1.00 and Drawings.

.2 Locate reinforcing splices not indicated on the Drawings at points of minimum stress. Unless otherwise noted, provide tension lap splices, Class B.

.3 All bars to be bent cold in the shop.

.4 Field bending of reinforcing bars will not be permitted.

.5 Fabricate within the following tolerances:

.1 Sheared length: plus 0, minus 25 mm

.2 Stirrups and ties: plus 0, minus 10 mm

.3 Other bends: plus 0, minus 25 mm.

.6 Welding or heating of reinforcement is not permitted.

3. EXECUTION

3.1 Installation

.1 Place reinforcing steel in accordance with reviewed placing drawings and CAN/CSA-A23.1-00.

.2 Adequately support reinforcing and secure against displacement within the tolerances permitted.

.3 Protect steel reinforcement by the thickness of concrete cover indicated on the Drawings. Where not otherwise shown, provide concrete cover of 50 mm.

.4 Place reinforcement within the following tolerances:

.1 Structural members: +/- 10 mm

.2 Rebar bends and ends: +/- 15 mm

3.2 Construction Review

.1 Notify the Contract Administrator when steel installation is complete and before the forms are closed.

3.3 Cleaning

.1 Ensure all loose scale, loose rust, and other deleterious matter from surfaces of reinforcing is removed in a manner that is acceptable to the Contract Administrator.

END OF SECTION

CONCRETE ACCESSORIES

1. GENERAL

1.1 Work Included

.1 Curing and sealing of new concrete.

.2 Bonding of new concrete to existing concrete.

.3 Bonding for patching of formed concrete.

.4 Bonding for patching of concrete floor surface.

1.2 Submissions

.1 Submit product data sheets for proposed products in accordance with Section 01300 – Submittals.

.2 Submission shall include procedures such as surface preparation, installation method, and curing.

2. PRODUCTS

2.1 Materials

.1 Curing and sealing compounds: conforming to ASTM C309, Master Builders Masterseal, or Sika Florseal.

.2 Latex patching agent: Daraweld-C Latex Bonding Agent.

.3 Epoxy Bonding Agent: Master Builders Concresive 1001 LPL, Dural Duralbond, or Sikadur 32 HI-bond.

.4 Repair Mortar: one or two component cementitious patching compound, Meadow-Crete by W. R. Meadows or SikaTop Plus by Sika.

3. EXECUTION

3.1 Preparation

.1 Review proposed installation procedures with the Contract Administrator prior to installation of products.

CONCRETE ACCESSORIES

3.2 Installation

.1 Coordinate work of this Section with other construction.

.2 Install all concrete accessories in accordance with Drawings and manufacturer's recommendations and ensure compatibility. Install straight, level, and plumb.

.3 Ensure items are not disturbed during concrete placement.

.4 Latex Patching Agent is to be used for patching formed concrete surfaces where required.

.5 Curing and sealing compounds shall be used for purposes of curing of all concrete where practical and compatible with intended finishes; otherwise moist curing shall be used as per Section 03300 – Cast-In-Place Concrete.

.6 Latex bonding agent shall be used for patching formed concrete surfaces where required.

.7 Epoxy Bonding Agent shall be used to bond new concrete to existing concrete surfaces.

END OF SECTION

CAST-IN-PLACE-CONCRETE

1. GENERAL

1.1 Work Included

.1 All reinforced cast-in-place concrete shown on the Drawings unless specifically excluded, and includes, but is not limited to, equipment pads, curbs, and pipe supports.

.2 Restoration of floor at areas where equipment pads and other items are to be removed.

.3 Embedment of pipes, miscellaneous anchor bolts, conduits, inserts, and other accessories as required to accommodate the work of other Sections.

.4 Repairing concrete imperfections.

1.2 Quality Assurance

.1 Cast-in-place concrete to conform to CAN/CSA-A23.1-00.

1.3 Inspection & Testing

.1 Notify the Contract Administrator when complete formwork and concrete reinforcement is ready for inspection.

.2 Allow ample time for notification, inspection, and corrective work, if required, before scheduling concrete placement.

.3 Concrete sampling, inspection, and testing will be performed by an inspection and testing firm appointed and paid for by the City.

.4 Provide unencumbered access to all portions of work and cooperate with appointed firm.

.5 Submit proposed mix design statement of each class of concrete to the Contract Administrator for review two (2) weeks prior to commencement of the work.

.6 Tests of cement and aggregates may be performed to ensure conformance with requirements stated herein.

.7 Notify the Contract Administrator a minimum of 24 hours prior to concrete placement. Under no circumstances pour concrete without notifying Contract Administrator, or in his absence, arranging for review of the work and sampling of concrete.

.8 Three concrete test cylinders will be taken for every 50 or less cubic meters of each class of concrete placed.

.9 At least three test cylinders will be taken daily for each class of concrete placed.

.10 One slump test and one air content test will be taken for each set of test cylinders taken.

.11 Additional slump and air content tests may be taken as necessary to verify quality of concrete.

.12 Testing of concrete will be performed in accordance with CAN/CSA-A23.2-00. Test results will be issued to the Contractor, the Contract Administrator, and the City.

.13 The Contractor shall pay costs for required retesting due to defective materials or workmanship.

.14 If accepted by the Contract Administrator, the Contractor may arrange and pay for additional tests for use as evidence to expedite construction.

2. PRODUCTS

2.1 Concrete Materials

.1 Cement: Normal Type 10 Portland Cement conforming to CSA-A3000.

.2 Fine aggregate: conforming to Normal Density Fine Aggregate, CAN/CSA-A23.1-00. If requested by the Contract Administrator, submit evidence at least two weeks before use in concrete mix showing conformance to Normal Density Fine Aggregate, CAN/CSA-A23.1-00, Table 4 and Table 6.

.3 Coarse aggregate: conforming to Normal Density Coarse Aggregate, CAN/CSA-A23.1-00, Group I, 20 to 5 mm and 10 to 2.5 mm. If requested by the Contract Administrator, submit evidence at least two weeks before use in concrete mix showing conformance to Normal Density Coarse Aggregate, CAN/CSA-A23.1-00, Table 5 and Table 6.

.4 Ensure that no aggregates are used which may undergo volume change due to alkali reactivity, moisture retention, or other causes. Confirm suitability of aggregate with a petrographic analysis if deemed necessary by the Contract Administrator.

.5 Water: Potable, clean, and free from injurious amounts of oil, alkali, organic matter, or other deleterious matter.

.6 Materials are to be obtained from the same source of supply or manufacturer for the duration of the Work.

.7 Supplementary cementing materials: conforming to CSA-A23.5.

.8 Non-ferrous Grout: Pre-mixed, non-shrink, Master Builders 713, Sika M-Bed, CPD Non Shrink Grout, Steel C1 Grout, minimum 35 MPa compressive strength.

2.2 Admixtures

.1 No admixtures other than air-entraining agent, water-reducing agent, and superplasticizer shall be used without the written authorization of the Contract Administrator, unless specified.

.2 Air entrainment: conforming to Standard C260.

.3 Water-reducing agent: Type WN conforming to ASTM Standard C494.

.4 Superplacticizer: conforming to ASTM Standard C494.

.5 General chemical admixtures: conforming to ASTM Standard C494.

.6 Calcium chloride or admixtures containing calcium chloride shall not be used in concrete.

2.3 Concrete Mixes

.1 Pay all costs for mix design. Submit design to the Contract Administrator to review a minimum of two weeks prior to concrete pour.

.2 Provide concrete mixed in accordance with requirements of CSA-A23.1-00.

.3 Interior concrete: exposure Class N, minimum 28 day compressive strength 30 MPa, cement type 10, maximum water cement ratio 0.50, maximum coarse aggregate size 20 mm, and maximum slump 90 mm ±20 mm. Air entrainment is not required.

.4 Maximum allowable substitution of cement with supplementary cementing material shall be 20% by weight.

3. EXECUTION

3.1 Placing Concrete

.1 Place concrete in accordance with requirements of CAN/CSA-A23.1-00 and as indicated on the Drawings. Layout of the work and accuracy of same is the Contractor's sole responsibility.

.2 All concrete shall be placed within 1.5 hours of mixing.

.3 Ensure all anchor bolts, seats, plates, and other items to be cast into concrete are securely placed and will not interfere with concrete placement.

.4 Before placing concrete all equipment for transporting the concrete shall be cleaned of hardened concrete and foreign materials.

.5 Immediately before concrete is placed all forms shall be carefully inspected to ensure that they are properly placed, sufficiently rigid, and tight, and that all reinforcing steel and embedded parts are in the correct position and secured against movement during the placing operation. All forms shall be thoroughly cleaned and material removed.

.6 Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods, which will prevent the separation or loss of the ingredients. Concrete shall be deposited in the forms as nearly as practicable in its final position to avoid re-handling or flowing. Vibrators shall not be used to move concrete. Under no circumstances shall the concrete, which has partially hardened, be deposited in the forms.

.7 Concrete shall be thoroughly compacted by mechanical vibrators during placing operations. It shall be thoroughly worked around the reinforcement, embedded fixtures, and into the corners of the forms.

.8 Prepare set or existing concrete by removing all laitance and loose or unsound materials and apply bonding agent in accordance with manufacturer's recommendations.

.9 Vibrate concrete using the appropriate size equipment as placing proceeds, in accordance with CAN/CSA-A23.1-00. Check frequency and amplitude of vibrations prior to use. Provide additional standby vibrators in the event of equipment failure.

.10 In locations where new concrete is dowelled to existing concrete, drill holes in existing concrete, insert steel dowels, and pack solidly with non-shrink grout.

.11 Honeycomb or embedded debris is not acceptable.

.12 Remove and replace defective concrete.

.13 Maintain accurate records of cast-in-place concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.2 Cold and Hot Weather Concreting

.1 Conform to requirements of CAN/CSA 23.1-00 for cold and hot weather concreting.

3.3 Concrete Protection for Reinforcement

.1 Ensure reinforcement is placed to provide minimum concrete cover in accordance with Section 03200 – Concrete Reinforcement.

3.4 Construction Tolerance

.1 The work shall be carefully and accurately set out; true to the positioning, levels, slopes, and dimensions shown on the Drawings and conforming to Sections 03100 – Concrete Formwork and 03200 – Concrete Reinforcement. As a minimum construction tolerances shall be as listed below:

.1 Sizes of member or thickness of slabs: +6 mm - 0 mm.

.2 Cover of concrete over reinforcement: ±3 mm.

.3 Variations from plumb: 6 mm in 3.0 m, 10 mm maximum.

.4 Variations from flat: 3 mm in 3.0 m, 6 mm maximum.

.2 If these tolerances are exceeded the Contractor may, at the discretion of the Contract Administrator, be required to remove and replace or to modify the placed concrete before acceptance. The cost incurred by the Contract Administrator for such investigation, testing, or review of reconstruction and the cost of reconstruction shall be borne by the Contractor.

3.5 Equipment Pads and Pipe Supports

.1 Provide concrete pads and supports for equipment and pipes where and as indicated on the Drawings. Adjust dimensions to reviewed equipment Shop Drawings.

.2 Insert bolts and sleeves and pack solidly with non-shrink grout, in accordance with setting details and templates.

.3 Steel trowel surface smooth. Chamfer all exposed horizontal and vertical edges.

3.6 Curing and Protection

.1 Cure and protect freshly placed concrete in accordance with Clause 21 of CAN/CSA-A23.1-00.

.2 All concrete shall receive moist curing for a period of at least seven (7) Calendar Days. One of the following methods shall be used as soon as the concrete has hardened sufficiently to prevent marring:

.1 Surface covered with canvas or other satisfactory material and kept thoroughly wet.

.2 Surface sealed with polyethylene sheeting at least 0.15 mm thick and the concrete kept thoroughly wet.

.3 Subject to the acceptance of the Contract Administrator or as specified, a liquid, membrane-forming curing compound applied at the rate recommended by the manufacturer may be used. Curing compounds shall not be used on a surface where the bond may be compromised for the finish.

.4 Surfaces of concrete that are protected by formwork left in place for seven (7) Calendar Days, shall not require any additional curing (except as specified for hot weather). If the formwork is removed in less than seven (7) Calendar Days, the concrete shall receive a moist curing as above or until seven (7) Calendar Days have elapsed since the concrete was placed, whichever occurs first.

.5 No concreting will be allowed until all materials required for the curing phase are on Site and ready for use.

3.7 Formed Concrete

.1 Allow the Contract Administrator to review concrete surfaces immediately upon removal of the forms.

.2 Modify or replace concrete not conforming to qualities, lines, details, and elevations specified herein or indicated on the Drawings to the satisfaction of the Contract Administrator.

.3 Remove all exposed metal form ties, nails and wires, break off fins, and remove all loose concrete.

.4 Interior formed concrete surfaces

.1 Finish exposed surfaces to Smooth Rubbed Finish conforming to CAN/CSA-A23.1-00, Clause 24.3.7.2.

.2 Finish non-exposed surfaces to Rough-Formed Finish conforming to CAN/CSA-A23.1-00, Clause 24.3.5.

.5 Patching formed surfaces

.1 Any imperfect joints, voids, stone pockets, or other defective areas and tie holes, as specified, shall at once be patched before the concrete is thoroughly dry.

.2 Defective areas shall be chipped away to a depth of not less than 40 mm with the edges perpendicular to the surface.

.3 The area to be patched and a space at least 150 mm wide entirely surrounding it shall be wetted to prevent absorption of water from the patching mortar. Apply bonding agent to manufacturer’s instructions and patch with patching mortar, followed by proper curing.

.4 The patch shall be made of the same material and of the same proportions as used for the concrete except that the coarse aggregate shall be omitted, and cement added to match the colour of the surrounding concrete. The amount of mixing water shall be as little as is consistent with the requirements.

3.8 Patching Floor Surfaces

.1 Patch existing concrete where concrete and other items have been removed. Prepare surfaces to be smooth without bumps or holes, patching as required to match adjacent existing surfaces, ready for painting.

.2 For areas to be patched, remove concrete to a depth to meet the recommended minimum thickness of floor patch material, but no less than 20 mm. Saw cut perpendicular or undercut (i.e., half dovetail) edges forming neat straight lines in rectangular shapes.

.3 Remove steel dowels a minimum of 25 mm below finished floor surface.

.4 Remove all loose concrete so as to present a thoroughly clean surface.

.5 Allow Contract Administrator to review concrete surfaces prior to installing the patching.

.6 Install patching to manufacturer's instructions including mixing, wetting floor surface, bonding agents, placing, and curing.

3.9 Grouting

.1 Grout all miscellaneous anchor bolts with non-ferrous or epoxy grout as specified using templates for accurate positioning.

.2 Grout between pipes and pipe supports as required to provide continuous support over the entire contact area.

.3 Grout under base plates and other items as required and shown on the Drawings.

.4 Grout dowels to existing concrete as indicated on the Drawings.

3.10 Clean-Up

.1 As work progresses and at the completion of work, remove from site all debris, excess materials, and equipment.

END OF SECTION

EPOXY GROUT

1. GENERAL

1.1 Work Included

.1 Prepare surfaces to receive grout.

.2 Fill pump skid frames and associated anchor bolts, grout containment under valve, and other like items with epoxy grout as indicated on the Drawings.

1.2 Job Conditions

.1 Maintain surfaces at an ambient air temperature of minimum 10°C for a minimum period of 24 hours prior to, during, and 72 hours after application.

2. PRODUCTS

2.1 Grout

.1 Epoxy grout: Sikadur 42 Grout Pak LE, Masterflow 678 DP Plus.

2.2 Formwork Materials

.1 Plywood: Douglas Fir plywood, GIS, undamaged sheets with true edges.

.2 Lumber: sound, sizes as required.

.3 Nails, spikes, staples: all galvanized steel.

3. EXECUTION

3.1 Installation Preparation

.1 Conduct a pre-installation meeting with grout supplier, pump Supply Contractor, grout installer, and Contract Administrator representative in attendance to discuss the preparation requirements, grout installation procedures, pump installation procedures, and any other items relating to the installation.

.2 Ensure that the pump skid frame installation is complete, level, and securely anchored as required by the pump Supply Contractor. Prior to grout installation, the pump Supply Contractor shall review the skid frame installation and report in writing to the Contract Administrator that grout installation may proceed.

3.2 Surface Preparation

.1 Remove all defective concrete, laitance, dirt, oil, grease, and other foreign material from concrete surfaces by bush-hammering, chipping, water jet, sandblasting, air blasting, or other

similar means, until a sound, clean concrete surface is achieved to ensure proper bond with grout.

.2 Clean all steel surfaces in contact with epoxy grout to a commercial white finish (SP-10) to ensure maximum adhesion. Install epoxy grout before re-oxidizing occurs.

.3 Follow manufacturer's directions respecting saturation of surfaces with water prior to grouting.

3.3 Formwork

.1 Construct formwork accurately, ensuring grout conforms to lines, levels, and dimensions indicated on Drawings. Extend grout horizontally a minimum of 12 mm from the edge of all base plates.

.2 Arrange and assemble formwork to permit dismantling and stripping, ensuring grout is not damaged during its removal.

.3 Provide sufficient clearance for proper placement between formwork and area being grouted.

.4 Cover form surfaces with an acceptable release coating to prevent bond with grout.

3.4 Construction Review

.1 Notify the Contract Administrator 24 hours prior to placing grout, to permit review of formwork and placing of grout.

3.5 Mixing

.1 Mix grout materials in accordance with manufacturer's instructions.

.2 Mix grout as close to work area as possible. Transport quickly and in a manner that does not permit segregation of materials.

.3 Do not permit any water to be added after grout has been mixed. Re-tempering grout is not acceptable.

3.6 Installation

.1 If necessary, heat surfaces to minimum temperature recommended by the Manufacturer.

.2 Place grout quickly and continuously by most practical means permissible, as recommended by the manufacturer.

.3 Thoroughly compact grout, free from voids and air pockets to ensure full contact on all surfaces including undersides of framing members and equipment.

.4 Trowel edges of grout to true lines.

3.7 Curing

.1 Cure grout in strict compliance with manufacturer's instructions.

3.8 Repairs

.1 Repair any visible defects in grouting, patch with matching grout.

END OF SECTION