



# FISHERIES AND OCEANS CANADA

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TENDERFOOR CREEK HATCHERY - COMPLETION OF A GABLE ROOF AND  
ASSOCIATED WORKS

FILE #. FP802-140249

SPECIFICATIONS  
December 2014



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Approved: 2006-03-31

**Part 1            General**

**1.1                WORK COVERED BY CONTRACT DOCUMENTS**

- .1 Work of this Contract comprises general construction of the completion of a roof that has already been partially constructed over part of the Tenderfoot Creek hatchery, and further identified as Tenderfoot Hatchery.

**1.2                CONTRACT METHOD**

- .1 Construct Work under fixed price contract.
- .2 Contractor is to employ suppliers and subcontractors for the Owner for all work necessary to complete the project.

**1.3                WORK BY OTHERS**

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Owner.
- .2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Owner, in writing, any defects which may interfere with proper execution of Work.

**1.4                WORK SEQUENCE**

- .1 Construct Work in stages to accommodate Owner's continued use of premises during construction.
- .2 Co-ordinate Progress Schedule and co-ordinate with Owner Occupancy during construction.
- .3 Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.
- .4 Maintain fire access/control.

**1.5                CONTRACTOR USE OF PREMISES**

- .1 Limit use of premises for Work, for storage, and for access, to allow:
  - .1 Owner occupancy.
  - .2 Work by other contractors.
  - .3 Public usage.
  - .4 Emergency vehicle access.
- .2 Co-ordinate use of premises under direction of Owner.

- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .5 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Owner.
- .6 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

#### **1.6 OWNER OCCUPANCY**

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

#### **1.7 PARTIAL OWNER OCCUPANCY**

- .1 Schedule and substantially complete designated portions of Work for Owner's occupancy prior to Substantial Performance of entire Work.

#### **1.8 ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to building operations, occupants, public and normal use of premises. Arrange with Owner to facilitate execution of work.

#### **1.9 EXISTING SERVICES**

- .1 Notify, Owner and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Owner 48 hours' notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic, and tenant operations.
- .3 Establish location and extent of service lines in area of work before starting Work. Notify Owner of findings.
- .4 Submit schedule to and obtain approval from Owner for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .5 Where unknown services are encountered, immediately advise Owner and confirm findings in writing.

- .6 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .7 Record locations of maintained, re-routed and abandoned service lines.

**1.10 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each document as follows:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed Shop Drawings.
  - .5 List of Outstanding Shop Drawings.
  - .6 Change Orders.
  - .7 Other Modifications to Contract.
  - .8 Field Test Reports.
  - .9 Copy of Approved Work Schedule.
  - .10 Health and Safety Plan and Other Safety Related Documents.
  - .11 Other documents as specified.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

Approved: 2005-12-31

**Part 1            General**

**1.1                ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

**1.2                USE OF SITE AND FACILITIES**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where security is reduced by work provide temporary means to maintain security.
- .4 Closures: protect work temporarily until permanent enclosures are completed.

**1.3                ALTERATIONS, ADDITIONS OR REPAIRS TO EXISTING BUILDING**

- .1 Execute work with least possible interference or disturbance to building operations occupants, and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

**1.4                EXISTING SERVICES**

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative Consultant 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide for personnel and pedestrian and vehicular traffic.

**Part 2            Products**

**2.1                NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

- .1 Not Used.

**END OF SECTION**

Approved: 2006-06-30

**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1     Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative/Owner.
- .2     Provide physical space and make arrangements for meetings.
- .3     Preside at meetings.
- .4     Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

**1.2                PRECONSTRUCTION MEETING**

- .1     Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2     Departmental Representative, Consultant, and Contractor will be in attendance.
- .3     Establish time and location of meeting and notify parties concerned minimum 3 days before meeting.
- .4     Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5     Agenda to include:
  - .1     Appointment of official representative of participants in the Work.
  - .2     Schedule of Work
  - .3     Delivery schedule of specified equipment.
  - .4     Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
  - .5     Owner provided products.
  - .6     Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .7     Appointment of inspection and testing agencies or firms.
  - .8     Insurances, transcript of policies.

**1.3                PROGRESS MEETINGS**

- .1     During course of Work and 1 week prior to project completion, schedule progress meetings.
- .2     Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3     Notify parties minimum 5 days prior to meetings.

- .4 Agenda to include the following:
  - .1 Field observations, problems, conflicts.
  - .2 Problems which impede construction schedule.
  - .3 Corrective measures and procedures to regain projected schedule.
  - .4 Revision to construction schedule.
  - .5 Progress schedule, during succeeding work period.
  - .6 Review submittal schedules: expedite as required.
  - .7 Maintenance of quality standards.
  - .8 Review proposed changes for affect on construction schedule and on completion date.
  - .9 Other business.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

Approved: 2006-09-30

**Part 1            General**

**1.1                ADMINISTRATIVE**

- .1        Submit to Departmental Representative/Owner submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2        Do not proceed with Work affected by submittal until review is complete.
- .3        Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4        Where items or information is not produced in SI Metric units converted values are acceptable.
- .5        Review submittals prior to submission to Departmental Representative/Owner. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6        Notify Departmental Representative/Owner, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7        Verify field measurements and affected adjacent Work is co-ordinated.
- .8        Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative/Owner's review of submittals.
- .9        Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative/Owner. review.
- .10      Keep one reviewed copy of each submission on site.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1        Refer to CCDC 2 GC 3.11.
- .2        The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .3        Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of BC, Canada.
- .4        Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment,

indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

- .5 Allow 2 days for Departmental Representative/Owner's review of each submission.
- .6 Adjustments made on shop drawings by Departmental Representative/Owner. are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative/Owner prior to proceeding with Work.
- .7 Make changes in shop drawings as Departmental Representative/Owner require, consistent with Contract Documents. When resubmitting, notify Departmental Representative/Owner in writing of revisions other than those requested.
- .8 Accompany submissions with transmittal letter, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .9 Submissions include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Subcontractor.
    - .2 Supplier.
    - .3 Manufacturer.
  - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
  - .5 Details of appropriate portions of Work as applicable:
    - .1 Fabrication.
    - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
    - .3 Setting or erection details.
    - .4 Capacities.
    - .5 Performance characteristics.
    - .6 Standards.
    - .7 Operating weight.
    - .8 Wiring diagrams.
    - .9 Single line and schematic diagrams.
    - .10 Relationship to adjacent work.
- .10 After Departmental Representative/Owner's review, distribute copies.

- .11 Submit electronic copies of shop drawings for each requirement requested in specification Sections and as Departmental Representative/Owner may reasonably request.
- .12 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative/Owner where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative/Owner.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 3 years of date of contract award for project.
- .14 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Departmental Representative/Owner.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.
- .15 Submit electronic copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative/Owner.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Submit electronic copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative/Owner.
  - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .17 Submit electronic copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative/Owner.
- .18 Delete information not applicable to project.
- .19 Supplement standard information to provide details applicable to project.
- .20 If upon review by Departmental Representative/Owner, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .21 The review of shop drawings by Public Works and Government Services Canada (PWGSC) is for sole purpose of ascertaining conformance with general concept.

- .1 This review shall not mean that PWGSC approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
- .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

**1.3 SAMPLES**

- .1 Not used.

**1.4 MOCK-UPS**

- .1 Not used.

**1.5 PROGRESS PHOTOGRAPHS**

- .1 Submit progress photographs in accordance as requested by the Departmental Representative/Owner.

**1.6 CERTIFICATES AND TRANSCRIPTS**

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

Approved: 2006-06-30

## **Part 1            General**

### **1.1            SECTION INCLUDES**

- .1        Health and safety considerations required to ensure that PWGSC shows due diligence towards health and safety on construction sites, and meets the requirements laid out in PWGSC/RPB Departmental Policy DP 073 - Occupational Health and Safety - Construction.

### **1.2            REFERENCES**

- .1        Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2        Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1        Material Safety Data Sheets (MSDS).
- .3        Province of British Columbia
  - .1        Occupational Health and Safety Act, R.S.Y. [1986].

### **1.3            SUBMITTALS**

- .1        Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Submit site-specific Health and Safety Plan: Within 3 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
  - .1        Results of site specific safety hazard assessment.
  - .2        Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
- .3        Submit 2 copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative authority having jurisdiction, weekly.
- .4        Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .5        Submit copies of incident and accident reports.
- .6        Submit WHMIS MSDS - Material Safety Data Sheets
- .7        Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 3 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative.
- .8        Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.

#### **1.4 SAFETY ASSESSMENT**

- .1 Perform site specific safety hazard assessment related to project.

#### **1.5 MEETINGS**

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

#### **1.6 REGULATORY REQUIREMENTS**

- .1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

#### **1.7 GENERAL REQUIREMENTS**

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

#### **1.8 RESPONSIBILITY**

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

#### **1.9 COMPLIANCE REQUIREMENTS**

- .1 Comply with Workers Compensation Act, B.C. Reg..
- .2 Comply with Occupational Health and Safety Regulations, 1996.
- .3 Comply with Occupational Health and Safety Act, General Safety Regulations, O.I.C..
- .4 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

#### **1.10 UNFORSEEN HAZARDS**

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in

accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

### **1.11 HEALTH AND SAFETY CO-ORDINATOR**

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
  - .1 Have site-related working experience specific to activities associated with contamination.
  - .2 Have working knowledge of occupational safety and health regulations.
  - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

### **1.12 CORRECTION OF NON-COMPLIANCE**

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

### **1.13 BLASTING**

- .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.
- .2 Do blasting operations in accordance with Section 31 23 16.26 - Rock Removal.

### **1.14 POWDER ACTUATED DEVICES**

- .1 Use powder actuated devices only after receipt of written permission from Departmental Representative.

### **1.15 WORK STOPPAGE**

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

**END OF SECTION**

Approved: 2006-03-31

**Part 1            General**

**1.1                REFERENCES AND CODES**

- .1        Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2        Meet or exceed requirements of:
  - .1        Contract documents.
  - .2        Specified standards, codes and referenced documents.

**1.2                HAZARDOUS MATERIAL DISCOVERY**

- .1        Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.
- .2        PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.
- .3        Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

**1.3                BUILDING SMOKING ENVIRONMENT**

- .1        Comply with smoking restrictions and municipal by-laws.

**1.4                NATIONAL PARKS ACT**

- .1        Perform Work in accordance with National Parks Act when projects are located within boundaries of National Park.

**Part 2            Products**

**2.1                NOT USED**

- .1        Not Used.

**Part 3            Execution**

**3.1                NOT USED**

- .1        Not Used.

**END OF SECTION**

Approved: 2006-09-30

**Part 1            General**

**1.1                REFERENCES**

- .1        Canadian Construction Documents Committee (CCDC)
  - .1        CCDC 2-2008, Stipulated Price Contract.

**1.2                INSPECTION**

- .1        Refer to CCDC 2, GC 2.3.
- .2        Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .3        Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative, or law of Place of Work.
- .4        If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .5        Departmental Representative/ Owner may order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents.

**1.3                INDEPENDENT INSPECTION AGENCIES**

- .1        Independent Inspection/Testing Agencies will be engaged by Departmental Representative/Owner for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative/Owner.
- .2        Provide equipment required for executing inspection and testing by appointed agencies.
- .3        Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .4        If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative/Owner at no cost to Owner. Pay costs for retesting and reinspection.

**1.4                ACCESS TO WORK**

- .1        Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2        Co-operate to provide reasonable facilities for such access.

**1.5 PROCEDURES**

- .1 Notify appropriate agency Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

**1.6 REJECTED WORK**

- .1 Refer to CCDC, GC 2.4.
- .2 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative/Owner as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .3 Make good other Contractor's work damaged by such removals or replacements promptly.
- .4 If in opinion of Departmental Representative/Owner it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative/Owner.

**1.7 EQUIPMENT AND SYSTEMS**

- .1 Submit adjustment and balancing reports for mechanical, electrical and building equipment systems.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

Approved: 2006-06-30

## **Part 1            General**

### **1.1                REFERENCES**

- .1 Canadian Construction Documents Committee (CCDC)
  - .1 CCDC 2-[1994], Stipulated Price Contract.
- .2 Canadian Green Building Council (CaGBC)
  - .1 LEED Canada-NC Version 1.0-[December 2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System For New Construction and Major Renovations.
- .3 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.
  - .2 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.
- .4 Canadian Standards Association (CSA International)
  - .1 CSA-A23.1/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CSA-0121-[M1978(R2003)], Douglas Fir Plywood.
  - .3 CAN/CSA-S269.2-[M1987(R2003)], Access Scaffolding for Construction Purposes.
  - .4 CAN/CSA-Z321-[96(R2001)], Signs and Symbols for the Occupational Environment.
- .5 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.
- .6 U.S. Environmental Protection Agency (EPA) / Office of Water
  - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

### **1.2                INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

### **1.3 HOISTING**

- .1 Provide, operate and maintain hoists required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

### **1.4 SITE STORAGE/LOADING**

- .1 Refer to CCDC 2, GC 3.12.
- .2 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .3 Do not load or permit to load any part of Work with weight or force that will endanger Work.

### **1.5 CONSTRUCTION PARKING**

- .1 Parking will not be permitted on site [provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.
- .3 Clean runways and taxi areas where used by Contractor's equipment.

### **1.6 SECURITY**

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

### **1.7 OFFICES**

- .1 Provide office heated, lighted and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.

### **1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

### **1.9 SANITARY FACILITIES**

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

#### **1.10 CONSTRUCTION SIGNAGE**

- .1 Provide and erect project sign, within 3 days of signing Contract, in a location designated by Departmental Representative.
- .2 Construction sign of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.
- .3 No other signs or advertisements, other than warning signs, are permitted on site.

#### **1.11 PROTECTION AND MAINTENANCE OF TRAFFIC**

- .1 Provide access and temporary relocated roads as necessary to maintain traffic.
- .2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .3 Provide measures for protection and diversion of traffic, including provision of watchpersons and flagpersons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .4 Protect travelling public from damage to person and property.
- .5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .7 Construct access and haul roads necessary.
- .8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.
- .9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .10 Dust control: adequate to ensure safe operation at all times.
- .11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.
- .12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .13 Provide snow removal during period of Work.

- .14 Remove, upon completion of work, haul roads designated by Departmental Representative.

### **1.12 CLEAN-UP**

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not Used.

## **Part 3 Execution**

### **3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction, sediment and erosion control drawings, sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**END OF SECTION**

Approved: 2006-03-31

**Part 1            General**

**1.1                REFERENCES**

- .1        Canadian Construction Documents Committee (CCDC)
  - .1        CCDC 2-[94], Stipulated Price Contract.
- .2        Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

**1.2                PROJECT CLEANLINESS**

- .1        Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.
- .2        Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .3        Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4        Dispose of waste materials and debris off site.
- .5        Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .6        Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .7        Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
- .8        Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .9        Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

**1.3                FINAL CLEANING**

- .1        Refer to CCDC 2, GC 3.14.
- .2        When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .3        Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

- .4 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .5 Remove waste products and debris [other than] [including] that caused by Owner or other Contractors.
- .6 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .7 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .8 Clean and polish glass, mirrors, hardware, wall tile, stainless steel, chrome, porcelain enamel, baked enamel, plastic laminate, and mechanical and electrical fixtures. Replace broken, scratched or disfigured glass.
- .9 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors.
- .10 Clean lighting reflectors, lenses, and other lighting surfaces.
- .11 Vacuum clean and dust building interiors, behind grilles, louvres and screens.
- .12 Wax, seal, shampoo or prepare floor finishes, as recommended by manufacturer.
- .13 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .14 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .15 Remove dirt and other disfiguration from exterior surfaces.
- .16 Clean and sweep roofs, gutters, areaways, and sunken wells.
- .17 Sweep and wash clean paved areas.
- .18 Clean equipment and fixtures to sanitary condition; clean or replace filters of mechanical equipment.
- .19 Clean roofs, downspouts, and drainage systems.
- .20 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.
- .21 Remove snow and ice from access to building.

**Part 2            Products**

**2.1                NOT USED**

.1            Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

Approved: 2006-03-31

**Part 1            General**

**1.1                REFERENCES**

- .1    Canadian Construction Documents Committee (CCDC)
  - .1    CCDC 2-[94], Stipulated Price Contract.
  - .2    DOC 14-[2000], Design-Build Stipulated Price Contract.
  - .3    DOC 15-[2000], Design-Builder/ Consultant Contract.

**1.2                INSPECTION AND DECLARATION**

- .1    Contractor's Inspection: Contractor conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1    Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .2    Request Departmental Representative Inspection.
- .2    Departmental Representative Inspection: Departmental Representative, Consultant and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3    Completion: submit written certificate that following have been performed:
  - .1    Work has been completed and inspected for compliance with Contract Documents.
  - .2    Defects have been corrected and deficiencies have been completed.
  - .3    Equipment and systems have been tested, adjusted and are fully operational.
  - .4    Operation of systems have been demonstrated to Owner's personnel.
  - .5    Work is complete and ready for final inspection.
- .4    Final Inspection: when items noted above are completed, request final inspection of Work by Owner, Departmental Representative, Consultant, and Contractor. If Work is deemed incomplete by Owner, Departmental Representative, Engineer, and Consultant, complete outstanding items and request re-inspection.
- .5    Declaration of Substantial Performance: when Owner and Departmental Representative and Engineer consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Substantial Performance. Refer to CCDC 2, General Conditions Article DOC 14 DOC 15 for specifics to application.
- .6    Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance shall be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

- .7 Final Payment: when Owner and Departmental Representative consider final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. Refer to CCDC 2. If Work is deemed incomplete by Owner, Departmental Representative, and Consultant, complete outstanding items and request re-inspection.
- .8 Payment of Holdback: after issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount in accordance with CCDC 2

**1.3 CLEANING**

- .1 In accordance with Section 01 74 11 - Cleaning.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Executionnot Used**

- .1 Not Used.

**END OF SECTION**

Approved: 2008-06-30

## **Part 1            General**

### **1.1                SECTION INCLUDES**

- .1        An abridged version of Section [02 41 16 - Structure Demolition], methods and procedures for demolition of structures, parts of structures, basements and foundation walls, including abandonment and removal of septic tanks and tanks containing petroleum products.

### **1.2                REFERENCES**

- .1        Canadian Council of Ministers of the Environment (CCME)
  - .1        PN 1326-[July 2005], Environmental Code of Practice for aboveground and underground tank systems containing petroleum products and allied petroleum products.
  - .2        Canadian Standards Association (CSA International)
    - .1        CSA S350-[M1980(R2003)], Code of Practice for Safety in Demolition of Structures.

### **1.3                DELIVERY, STORAGE AND HANDLING**

- .1        Waste Management and Disposal:
  - .1        Separate waste materials for reuse and recycling.

### **1.4                SITE CONDITIONS**

- .1        Take precautions to protect environment.
- .2        Should material resembling spray or trowel-applied asbestos or other designated substance be encountered, stop work, take preventative measures, and notify Departmental Representative immediately.
  - .1        Do not proceed until written instructions have been received from Departmental Representative.
- .3        Notify Departmental Representative before disrupting building access or services.

## **Part 2            Products**

### **2.1                EQUIPMENT**

- .1        Leave equipment and machinery running only while in use, except where extreme temperatures prohibit shutting down.
- .2        Demonstrate that tools and machinery are being used in manner which allows for salvage of materials in best condition possible.

**Part 3 Execution**

**3.1 PREPARATION**

- .1 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .2 Protection:
  - .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and parts of building to remain in place. Provide bracing and shoring required.
  - .2 Keep noise, dust, and inconvenience to occupants to minimum.
  - .3 Protect building systems, services and equipment.
  - .4 Provide temporary dust screens, covers, railings, supports and other protection as required.
- .3 Disconnect and re-route electrical, telephone and communication service lines. Post warning signs on electrical lines and equipment which must remain energized to serve other products during period of demolition.
- .4 Locate and protect utility lines. Do not disrupt active or energized utilities traversing premises designated to remain undisturbed.
- .5 Disconnect and cap mechanical services.
  - .1 Natural gas supply lines: remove in accordance with utility company requirements.
  - .2 Sewer and water lines: remove in accordance with requirements of authority having jurisdiction and as directed by Departmental Representative.

**3.2 DEMOLITION SALVAGE AND DISPOSAL**

- .1 Remove parts of existing building to permit new construction. Sort materials into appropriate piles for reuse and recycling.
- .2 Remove items to be reused, store as directed by Departmental Representative/Owner and re-install under appropriate section of specification.
- .3 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.
- .4 Dispose of removed materials, to appropriate recycling facilities, reuse facilities except where specified otherwise, in accordance with authority having jurisdiction.

**3.3 STOCKPILING**

- .1 Label stockpiles, indicating material type and quantity.
- .2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.
- .3 Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.

- .4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

### **3.4 CLEANING AND RESTORATION**

- .1 Keep site clean and organized throughout demolition procedure.
- .2 Upon completion of project, reinstate areas parking surfaces, walkways, light standards, affected by Work to condition which existed prior to beginning of Work, match condition of adjacent, undisturbed areas.

**END OF SECTION**

Approved: 2006-09-30

## **Part 1            General**

### **1.1                MEASUREMENT PROCEDURES**

- .1     Measure reinforcing steel in kilograms of steel incorporated into Work, computed from theoretical unit mass specified in CAN/CSA-G30.18 for lengths and sizes of bars as indicated or authorized in writing by Departmental Representative/Owner.
- .2     No measurement will be made under this Section.

### **1.2                REFERENCES**

- .1     American Concrete Institute (ACI)
  - .1     SP-66-[04], ACI Detailing Manual 2004.
    - .1     ACI 315-[99], Details and Detailing of Concrete Reinforcement.
    - .2     ACI 315R-[04], Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.
  - .2     American Society for Testing and Materials International (ASTM)
    - .1     ASTM A143/A143M-[03], Standard Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
    - .2     ASTM A185/A185M-[05a], Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
    - .3     ASTM A497/A497M-[05a], Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.
    - .4     ASTM A775/A775M-[04a], Standard Specification for Epoxy-Coated Reinforcing Steel Bars.
  - .3     Canadian Standards Association (CSA International)
    - .1     CSA-A23.1-[04]/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
    - .2     CSA-A23.3-[04], Design of Concrete Structures.
    - .3     CAN/CSA-G30.18-[M92(R2002)], Billet-Steel Bars for Concrete Reinforcement, A National Standard of Canada.
    - .4     CSA-G40.20/G40.21-[04], General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
    - .5     CAN/CSA-G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles, A National Standard of Canada.
    - .6     CSA W186-[M1990(R2002)], Welding of Reinforcing Bars in Reinforced Concrete Construction.
  - .4     Reinforcing Steel Institute of Canada (RSIC)
    - .1     RSIC-[2004], Reinforcing Steel Manual of Standard Practice.

### **1.3 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.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Substitute different size bars only if permitted in writing by Departmental Representative/Owner.
- .2 Reinforcing steel: billet steel, grade 300, deformed bars to CAN/CSA-G30.18, unless indicated otherwise.
- .3 Reinforcing steel: weldable low alloy steel deformed bars to CAN/CSA-G30.18.
- .4 Cold-drawn annealed steel wire ties: to ASTM A497/A497M.
- .5 Deformed steel wire for concrete reinforcement: to ASTM A497/A497M.
- .6 Welded steel wire fabric: to ASTM A185/A185M.
- .7 Welded deformed steel wire fabric: to ASTM A497/A497M.
- .8 Epoxy Coating of non-prestressed reinforcement: to ASTM A775/A775M.
- .9 Galvanizing of non-prestressed reinforcement: to CAN/CSA-G164, minimum zinc coating 610 g/m<sup>2</sup>.
  - .1 Protect galvanized reinforcing steel with chromate treatment to prevent reaction with Portland cement paste.
  - .2 If chromate treatment is carried out immediately after galvanizing, soak steel in aqueous solution containing minimum 0.2% by weight sodium dichromate or 0.2% chromic acid.
    - .1 Temperature of solution equal to or greater than 32 degrees and galvanized steels immersed for minimum 20 seconds.
  - .3 If galvanized steels are at ambient temperature, add sulphuric acid as bonding agent at concentration of 0.5% to 1%.
    - .1 In this case, no restriction applies to temperature of solution.
  - .4 Chromate solution sold for this purpose may replace solution described above, provided it is of equivalent effectiveness.
    - .1 Provide product description as described in PART 1 - SUBMITTALS
- .10 Chairs, bolsters, bar supports, spacers: to CSA-A23.1/A23.2.
- .11 Plain round bars: to CSA-G40.20/G40.21.

## **2.2 SOURCE QUALITY CONTROL**

- .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, 1 week prior to beginning reinforcing work.
- .2 Upon request, inform Departmental Representative of proposed source of material to be supplied.

## **Part 3 Execution**

### **3.1 PREPARATION**

- .1 Galvanizing to include chromate treatment.
  - .1 Duration of treatment to be 1 hour per 25 mm of bar diameter.
- .2 Conduct bending tests to verify galvanized bar fragility in accordance with ASTM A143/A143M.

### **3.2 FIELD BENDING**

- .1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying slow and steady pressure.
- .3 Replace bars, which develop cracks or splits.

### **3.3 PLACING REINFORCEMENT**

- .1 Place reinforcing steel [as indicated on placing drawings] [and] in accordance with [CSA-A23.1/A23.2] [ \_ ].
- .2 Use plain round bars as slip dowels in concrete.
- .3 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.
- .4 Ensure cover to reinforcement is maintained during concrete pour.

### **3.4 FIELD TOUCH-UP**

- .1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcing steel with compatible finish to provide continuous coating.

**END OF SECTION**

Approved: 2006-09-30

## **Part 1            General**

### **1.1                REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A185-[05], Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
  - .2 ASTM D260-[86(2001)], Standard Specification for Boiled Linseed Oil.
  - .3 ASTM D1751-[04], Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Non extruding and Resilient Bituminous Types).
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-19.24-[M90], Multicomponent, Chemical-Curing Sealing Compound.
- .3 Canadian Standards Association (CSA International)
  - .1 CSA-A23.1/A23.2-[2004], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CAN/CSA-A3000-[03], Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
    - .1 CSA-A3001-[03], Cementitious Materials for Use in Concrete.
  - .3 CAN/CSA-G30.18-[M92(R2002)], Billet-Steel Bars for Concrete Reinforcement.

### **1.2                DESIGN REQUIREMENTS**

- .1 Alternative 1 - Performance: in accordance with CSA-A23.1/A23.2, and as described in Contract Drawings.

### **1.3                QUALITY ASSURANCE**

- .1 Quality Control Plan: submit written report, as described in PART 3 - VERIFICATION, to Departmental Representative/Owner verifying compliance that concrete in place meets performance requirements.

### **1.4                DELIVERY, STORAGE AND HANDLING**

- .1 Concrete hauling time: maximum allowable time limit for concrete to be delivered to site of Work and discharged not to exceed 120 minutes after batching.
  - .1 Modifications to maximum time limit must be agreed to by the Departmental Representative and concrete producer as described in CSA A23.1/A23.2.
  - .2 Deviations to be submitted for review by the Departmental Representative.
- .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Cement: to CAN/CSA-A3001, Type GU.
- .2 Water: to [CSA-A23.1/A23.2]
- .3 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .4 Welded steel wire fabric: to ASTM A185
- .5 Premoulded joint filler:
  - .1 Bituminous impregnated fibreboard: to ASTM D1751.
- .6 Joint sealer/filler: grey to CAN/CGSB-19.24, Type 1, Class B.
- .7 Other concrete materials: to CSA-A23.1/A23.2.

**2.2 MIXES**

- .1 Alternative 1 - Performance Method for specifying concrete: to meet performance criteria in accordance with CAN/CSA-A23.1/A23.2.
  - .1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as described in PART 3 - VERIFICATION.
  - .2 Provide concrete mix to meet following hard state requirements:
    - .1 Durability and class of exposure: C-2
    - .2 Minimum compressive strength at 28days: 25 MPa.
    - .3 Intended application: Footings
    - .4 Geometrical requirements: match existing/pre-construction elevation, gradient, and cross-section

**Part 3 Execution**

**3.1 PREPARATION**

- .1 Provide Departmental Representative 24 hours notice before each concrete pour.
- .2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.
- .3 During concreting operations:
  - .1 Development of cold joints not allowed.
  - .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.
- .4 Protect previous Work from staining.
- .5 Clean and remove stains prior to application of concrete finishes.

### **3.2 CONSTRUCTION**

- .1 Perform cast-in-place concrete work in accordance with CSA-A23.1/A23.2.

### **3.3 FINISHES**

- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA-A23.1/A23.2.
- .2 Pavements, walks, curbs and exposed site concrete:
  - .1 Screed to plane surfaces and use [aluminum] [magnesium] [wood] floats.
  - .2 Provide round edges and joint spacings using standard tools.
  - .3 Trowel smooth to provide lightly brushed non-slip finish.

### **3.4 CONTROL JOINTS**

- .1 Cut and form control joints in slabs on grade at locations indicated, in accordance with CSA-A23.1/A23.2 and install specified joint sealer/filler.

### **3.5 EXPANSION AND ISOLATION JOINTS**

- .1 Install premoulded joint filler in expansion and isolation joints full depth of slab flush with finished surface to CSA-A23.1/A23.2.

### **3.6 CURING**

- .1 Use curing compounds compatible with applied finish on concrete surfaces free of bonding agents and in accordance with CSA-A23.1/A23.2.

### **3.7 SITE TOLERANCES**

- .1 Concrete floor slab finishing tolerance in accordance with CSA-A23.1/A23.2.

### **3.8 VERIFICATION**

- .1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established in PART 2 - PRODUCTS, by Departmental Representative and provide verification of compliance as described in PART 1 - QUALITY ASSURANCE.

### **3.9 CLEANING**

- .1 Use trigger operated spray nozzles for water hoses.
- .2 Designate cleaning area for tools to limit water use and runoff.

**END OF SECTION**

Approved: 2005-06-30

## **Part 1            General**

### **1.1                SUMMARY**

- .1    Section Includes:
  - .1        Material and installation for prefabricated wood trusses.
  - .2        Sustainable requirements for construction and verification:

### **1.2                REFERENCES**

- .1    Canadian Standards Association (CSA International)
  - .1        CSA O80 Series-[97(R2002)], Wood Preservation.
  - .2        CAN/CSA-O86-[01], Engineering Design in Wood.
  - .3        CAN/CSA-O141-[91(R1999)], Softwood Lumber.
  - .4        CSA S307-[M1980(R2001)], Load Test Procedure for Wood Roof Trusses for Houses and Small Buildings.
  - .5        CSA S347-[99(R2004)], Method of Test for Evaluation of Truss Plates Used in Lumber Joints.
  - .6        CSA W47.1-[03], Certification of Companies for Fusion Welding of Steel.
- .2    Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1        Material Safety Data Sheets (MSDS).
- .3    National Lumber Grades Authority (NLGA)
  - .1        NLGA-[03], Standard Grading Rules for Canadian Lumber.
- .4    National Research Council (NRC)/Institute for Research in Construction (IRC) - Canadian Construction Materials Centre (CCMC)
  - .1        CCMC-[2002], Registry of Product Evaluations.
- .5    Truss Plate Institute of Canada (TPIC)
  - .1        TPIC - [1996 (R2001)], Truss Design Procedures and Specifications for Light Metal Plate Connected Wood Trusses (Limit States Design).

### **1.3                DESIGN REQUIREMENTS**

- .1    Design light metal plate connected wood trusses in accordance with TPIC truss design procedures for wood truss chords and webs in accordance with engineering properties in CAN/CSA-O86.
- .2    Design light metal plate connected wood trusses in accordance with TPIC truss design procedures for truss joint designs to test engineering properties in accordance with CSA S347 and listed in CCMC Registry of Product Evaluations.

- .3 Design trusses, bracing, and bridging in accordance with CAN/CSA-O86.1 for building locality as ascertained by NBC, Climatic Information for Building Design in Canada and minimum uniform and minimum concentrated loadings stipulated in NBC commentary.
- .4 Limit live load deflection to 1/360th of span where ceilings are hung directly from trusses.
- .5 Limit live load deflections to 1/180<sup>th</sup> of span unless otherwise specified or indicated.
- .6 Provide camber for trusses as indicated.

#### **1.4 QUALITY ASSURANCE**

- .1 Qualifications:
  - .1 Fabricator for trusses to show evidence of quality control program such as provided by regional wood truss associations, or equivalent.
  - .2 Fabricator for welded steel connections to be certified in accordance with CSA W47.1.
- .2 Pre-Installation Meeting:
  - .1 Convene pre-installation meeting one week prior to beginning work of this Section
    - .1 Verify project requirements.
    - .2 Review installation conditions.
    - .3 Co-ordination with other building subtrades.
    - .4 Review manufacturer's installation instructions and warranty requirements.
- .3 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

#### **1.5 SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Shop Drawings:
  - .4 Each shop drawing submission showing connection details to be signed and stamped by professional engineer registered or licensed in province of BC, Canada.
  - .5 Indicate special structural application and specification as according to local authorities having jurisdiction.
  - .6 Indicate TPIC Truss Design Procedure and CSA O86 Engineering Design in Wood and specific CCMC Product Registry number of the truss plates

- .7 Indicate species, sizes, and stress grades of lumber used as truss members. Show pitch, span, camber, configuration and spacing of trusses. Indicate connector types, thicknesses, sizes, locations and design value. Show bearing details. Indicate design load for members.
- .8 Submit stress diagram or print-out of computer design indicating design load for truss members. Indicate allowable load and stress increase.
- .9 Indicate arrangement of webs or other members to accommodate ducts and other specialties.
- .10 Show location of lateral bracing for compression members.
- .11 Test reports: submit certified test reports for prefabricated wood trusses from approved independent testing laboratories, indicating compliance with specifications for specified performance characteristics and physical properties.
- .12 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .13 Instructions: submit manufacturer's installation instructions.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Storage and Protection:
  - .1 Store trusses on job site in accordance with manufacturer's instructions. Provide bearing supports and bracings. Prevent bending, warping and overturning of trusses.
- .2 Waste Management and Disposal:
  - .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

## **Part 2 Products**

### **2.1 MATERIALS**

- .1 Lumber, with maximum moisture content of 19% at time of fabrication and to following standards:
  - .1 CAN/CSA-O141.
  - .2 NLGA (National Lumber Grading Association), Standard Grading Rules for Canadian Lumber.
- .2 Fastenings: to CAN/CSA-O86.
- .3 Fire retardant: CSA O80.1 and CSA O80.2.

### **2.2 FABRICATION**

- .1 Fabricate wood trusses in accordance with reviewed shop drawings.

- .2 Provide for design camber and roof slopes when positioning truss members.
- .3 Apply fire retardant in accordance with CSA O80 Series.

### **2.3 SOURCE QUALITY CONTROL**

- .1 Identify lumber by grade stamp of an agency certified by Canadian Lumber Standards Administration Board.
- .2 Certify by agency accredited by Standards Council of Canada that [preservative] [and] [fire retardant] treated wood in accordance with CSA O80 Series.

## **Part 3 Execution**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

### **3.2 ERECTION**

- .1 Erect wood trusses as indicated with reviewed shop drawings.
- .2 Handling, installation, erection, bracing and lifting in accordance with manufacturers instructions.
- .3 Make adequate provisions for handling and erection stresses.
- .4 Exercise care to prevent out-of-plane bending of trusses.
- .5 Install temporary horizontal and cross bracing to hold trusses plumb and in safe condition until permanent bracing and decking are installed.
- .6 Install permanent bracing in accordance with [approved] [reviewed] shop drawings, prior to application of loads to trusses.
- .7 Do not cut or remove any truss material without approval of Departmental Representative and manufacturer's Engineer.
- .8 Remove chemical and other surface deposits on treated wood, in preparation for applied finishes.

### **3.3 FIELD QUALITY CONTROL**

- .1 Manufacturer's Field Services:
  - .1 Have manufacturer of products supplied under this Section review work involved in handling, installation/application, protection and cleaning of its product[s], and submit written reports, in acceptable format, to verify compliance of work with Contract.

- .2 Manufacturer's field services: provide manufacturer's field services, consisting of product use recommendations and periodic site visits for inspection of product installation, in accordance with manufacturer's instructions.
- .3 Schedule site visits to review work at stages listed:
  - .1 After delivery and storage of products, and when preparatory work on which work of this Section depends is complete, but before installation begins.
  - .2 Twice during progress of work at 25% and 60% complete.
- .2 Upon completion of work, after cleaning is carried out.
- .3 Obtain reports within three days of review and submit immediately to Departmental Representative/Owner.

### **3.4 CLEANING**

- .1 Remove surplus materials, excess materials, rubbish, tools and equipment on completion of installation.

**END OF SECTION**

Approved: 2004-06-30

## **Part 1            General**

### **1.1                GUIDELINES**

- .1    Roofing Contractors Association of British Columbia (RCABC)
  - .1    Contractor is to follow Section 8.0 - Architectural Metal Roofing
  - .2    Contractor is to only follow RCABC Guidelines/Specifications and is not required to be a member of the association.
  - .3    No third party inspection is required for the project by the Contractor. Departmental Representative/Owner may choose to hire a roof inspector.

### **1.2                REFERENCES**

- .1    Aluminum Association (AA).
  - .1    AA DAF-45-[R03], Designation System for Aluminum Finishes - 9th Edition.
  - .2    AA ASM-35-[October 2000], Specifications for Aluminum Sheet Metal Work in Building Construction, Section 5.
- .2    American Society for Testing and Materials International, (ASTM).
  - .1    ASTM A167-[99], Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
  - .2    ASTM A240/A240M-[02a], Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
  - .3    ASTM A653/A653M-[02a], Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .4    ASTM A792/A792M-[02], Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process.
  - .5    ASTM B32-[00e1], Standard Specification for Solder Metal.
  - .6    ASTM B370-[98], Standard Specification for Copper Sheet and Strip for Building Construction.
  - .7    ASTM D523-[89(1999)], Standard Test Method for Specular Gloss.
  - .8    ASTM D822-[01], Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .3    Canadian General Standards Board (CGSB).
  - .1    CAN/CGSB-37.5-[M89], Cutback Asphalt Plastic Cement.
  - .2    CAN/CGSB-37.29-[M89], Rubber-Asphalt Sealing Compound.
  - .3    CAN/CGSB-51.32- [M77], Sheathing, Membrane, Breather Type.
  - .4    CAN/CGSB-93.1-[M85], Sheet Aluminum Alloy, Prefinished, Residential.
- .4    Canadian Standards Association (CSA International).
  - .1    CAN/CSA A123.3-[98], Asphalt Saturated Organic Roofing Felt.
- .5    Department of Justice Canada (Jus).

- .1 Canadian Environmental Protection Act (CEPA), 1999.
- .6 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).
- .7 National Research Council Canada (NRC)/Institute for Research in Construction (IRC) - Canadian Construction Materials Centre (CCMC).
  - .1 CCMC-[2002], Registry of Product Evaluations.
- .8 Transport Canada (TC).
  - .1 Transportation of Dangerous Goods Act (TDGA), 1992.

**END OF SECTION**