



**GENERAL NOTES**

- ALL WORK AND MATERIALS SHALL CONFORM TO THE 2015 EDITION OF THE NATIONAL BUILDING CODE.
- ALL LOADS INDICATED ON DRAWINGS ARE SERVICE (UNFACTORED) LOADS UNLESS NOTED.
- THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND CHECK ALL DIMENSIONS AGAINST SITE CONDITIONS AND REPORT ANY DISCREPANCIES BEFORE PROCEEDING WITH WORK.
- CONTRACTOR SHALL DESIGN, INSTALL AND MAINTAIN ADEQUATE TEMPORARY BRACING AND SHORING OF ALL STRUCTURAL ELEMENTS FOR STABILITY AND SAFETY WHERE REQUIRED DURING CONSTRUCTION. (THE ABOVE WORK IS BEYOND THE SCOPE OF THE STRUCTURAL ENGINEER).
- FOR OPENINGS THROUGH CONCRETE FLOOR SLABS, CONCRETE WALLS, MASONRY WALLS, AND STEEL DECK SEE MECHANICAL & ARCHITECTURAL FOR SIZE AND LOCATION. NO NEW OPENINGS SHALL BE CUT THROUGH EXISTING CONCRETE ETC. WITHOUT APPROVAL OF THE DEPARTMENTAL REPRESENTATIVE.
- INFORMATION RELATING TO THE VALUE OF THE BEARING CAPACITY UNDER FOOTINGS, ELEVATIONS GIVEN FOR FOOTINGS AND FOR COVER FOR FROST PROTECTION IS BASED ON INFORMATION SPECIFIED IN THE SOILS REPORT PREPARED BY EXP SERVICES (HFX-00245073-A0) DATED JULY 6, 2018. THE CONTRACTOR IS TO FOLLOW ALL RECOMMENDATIONS WITHIN THE SOILS REPORT INCLUDING REMOVALS OF ALL NON-ACCEPTABLE SOILS AND REPLACEMENT WITH APPROVED STRUCTURAL FILLS, ETC. UNLESS SPECIFICALLY NOTED OTHERWISE.
- ALL FOOTINGS SHALL BEAR ON UNDISTURBED SOIL, STRUCTURAL FILL OR SOUND CLEAN BEDROCK HAVING A MINIMUM BEARING CAPACITY OF 150 kPa (SLS) / 300 kPa (ULS). DO NOT PLACE CONCRETE IN FOOTING FORMS UNTIL BEARING CAPACITY IS CHECKED AND APPROVED IN WRITING BY THE SOILS ENGINEER. FOOTINGS MAY HAVE TO BE LOWERED TO ACHIEVE PROPER BEARING. DURING COLD WEATHER, SOILS SHALL BE PROTECTED AGAINST FREEZING TO PREVENT FROST HEAVE, LOSS OF BEARING CAPACITY, OR OTHER DAMAGE TO STRUCTURAL MEMBERS, SLABS ON GRADE, MASONRY, FORMWORK, AND OTHER ITEMS SUPPORTED THEREON.
- ALL FOOTINGS SUBJECT TO FREEZING CONDITIONS SHOULD HAVE A MINIMUM OF 1200mm OF SOIL COVER FOR FROST PROTECTION.
- REMOVE ALL LOOSE ROCK DOWN TO SOUND BEDROCK TO MAXIMUM REFUSAL DEPTH POSSIBLE WITH MECHANICAL EQUIPMENT. OBTAIN SOILS ENGINEER'S APPROVAL IN WRITING, OF ROCK BEARING CAPACITY BEFORE PLACING FOOTINGS.
- ANY EXCAVATION IN PROXIMITY OF THE EXISTING FOOTINGS MUST BE APPROVED BY THE SOILS ENGINEER PRIOR TO COMMENCEMENT AND COMPLETED UNDER HIS CONTINUAL SUPERVISION.
- ALL GEOTECHNICAL MATERIALS BENEATH SLABS ON GRADE (INCLUDING REMOVAL OF NON-ACCEPTABLE MATERIALS AND REPLACEMENT WITH APPROVED MATERIALS) SHALL BE PREPARED AS DETAILED IN THE SOILS REPORT UNLESS SPECIFICALLY NOTED OTHERWISE. SUB BASE UNDER SLABS ON GRADE SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY. COMPACTION SHALL BE VERIFIED IN WRITING BY THE SOILS ENGINEER PRIOR TO CASTING OF SLABS.
- BACKFILLING AGAINST WALLS ON ONE SIDE ONLY SHALL NOT BE STARTED UNTIL TEMPORARY BRACING OR FLOOR SLABS PROVIDING SUPPORT ARE IN PLACE AND SET.
- BACKFILL BEHIND FREE STANDING RETAINING WALLS TO BE COMPACTED WITH LIGHT EQUIPMENT TO MAXIMUM STANDARD PROCTOR DENSITY OF 95%. HEAVY COMPACTION EQUIPMENT IS TO BE AVOIDED.
- BACKFILL CONSIDERATIONS: ALL BACKFILL SHOULD BE PLACED IN LIFTS, NOT TO EXCEED 300mm IN THICKNESS, AND COMPACTED TO THE FOLLOWING PERCENTAGE OF THE OPTIMUM DRY DENSITY, DETERMINED BY STANDARD PROCTOR TEST (ASTM D698).

**REINFORCED CONCRETE NOTES**

- ALL CONCRETE STRUCTURES SHALL CONFORM TO CSA-A23.3 UNLESS NOTED OTHERWISE.
- ALL CONCRETE, CONCRETE MATERIAL, FORMS, PRACTICE, ETC., SHALL CONFORM TO CSA-A23.1 UNLESS NOTED OTHERWISE.
- MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 28 MPa UNLESS NOTED ON DRAWINGS:
  - 3.1 FOOTINGS (EXCEPT RETAINING WALL FOOTINGS) ..... 20 MPa
  - 3.2 EXTERIOR SLAB ON GRADE, SIDEWALKS & CURBS ..... 35 MPa
  - 3.3 EXTERIOR STRUCTURAL SLABS, BEAMS & COLUMNS ..... 35 MPa
  - 3.4 MUD SLAB ..... 15 MPa
- ALL CONCRETE TESTING SHALL CONFORM TO CSA-A23.2.
- FOR COMPRESSIVE STRENGTH TESTING OF CONCRETE A MINIMUM OF 3 CYLINDERS ARE REQUIRED FOR:
  - 5.1 EACH DAYS POUR
  - 5.2 EACH TYPE OR GRADE OF CONCRETE
  - 5.3 EACH CHANGE OF SUPPLIER
  - 5.4 EACH 20 cu. m. OR FRACTION THEREOF FOR COLUMNS
  - 5.5 EACH 100 cu. m. OR FRACTION THEREOF FOR ALL OTHER CONCRETE
  - 5.6 ADDITIONAL TEST SPECIMENS SHALL BE TAKEN WHENEVER REQUESTED BY THE ENGINEER OR THE SUPERVISOR TO VERIFY THE CONCRETE QUALITY.
- 20mm MAX. AGGREGATE SIZE THROUGHOUT. ALL CONCRETE EXPOSED TO WEATHER OR FREEZING CONDITIONS SHALL BE AIR ENTRAINED TO 6.5% (+1.5%). SLUMP TO BE 75mm (±25mm).
- AT LEAST ONE SLUMP TEST SHALL BE TAKEN WITH EACH COMPRESSIVE STRENGTH TEST.
- AT LEAST ONE AIR ENTRAINMENT TEST SHALL BE TAKEN WITH EACH COMPRESSIVE STRENGTH TEST AS APPLICABLE.
- NO ADMIXTURES SHALL BE USED WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER.
- CONCRETE PROTECTIVE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS (UNLESS NOTED ON DRAWINGS):
  - 10.1 CAST AGAINST FILL - NO FORMWORK ..... 75mm
  - 10.2 EXPOSED TO EARTH OR WEATHER ..... 40mm
  - 10.3 COLUMNS/BEAMS (TIES & STIRRUPS)-PROTECTED ..... 30mm
  - 10.4 WALLS - PROTECTED ..... 20mm
  - 10.5 SLABS (TOP BARS) - PROTECTED ..... 20mm
  - 10.6 SLABS (BOT. BARS) - PROTECTED ..... 25mm
- TOP BARS IN SLAB MUST BE SUPPORTED ACCURATELY ON STEEL CHAIRS TO GIVE 20mm CONCRETE COVER. WHERE U/S OF SLAB IS TO BE EXPOSED, USE PLASTIC COATED CHAIRS OR APPROVED EQUAL.
- THE CONTRACTOR SHALL PROVIDE CONTINUOUS SUPERVISION DURING THE PLACEMENT OF CONCRETE TO ENSURE THAT THE REINFORCING STEEL IS MAINTAINED IN ITS CORRECT POSITION.
- CONSTRUCTION JOINTS SHALL BE LOCATED SO AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND TO THE ENGINEER'S APPROVAL. CONSTRUCTION JOINTS SHALL BE KEYS AND 15M DOWELS x 900mm @ 600mm c/c SHALL BE ADDED. REINFORCING SHALL NOT BE INTERRUPTED.
- AT LEAST SEVEN (7) DAYS SHALL ELAPSE AFTER CASTING CONCRETE WALLS BEFORE FLOOR MEMBERS OR ROOF MEMBERS SUPPORTED THEREON ARE PLACED.
- FORMWORK MUST NOT BE REMOVED UNTIL CONCRETE HAS ATTAINED SUFFICIENT STRENGTH TO SUSTAIN ALL LOADS. FORMS FOR SLABS MAY BE REMOVED AFTER SEVEN (7) DAYS OF NORMAL CURING CONDITIONS, PROVIDED THAT RESHORING IS INSTALLED IMMEDIATELY AT NO MORE THAN 3.0m SPACINGS AND MAINTAINED UNTIL THE CONCRETE HAS ATTAINED ITS 28 DAY STRENGTH AND A MINIMUM OF 21 DAYS AFTER SLAB WAS CAST.
- FOR OPENINGS REQUIRED BY OTHER TRADES, SEE MECH. AND ARCH. DRAWINGS. NO OPENINGS SHALL BE MADE IN FLOOR SLABS NEAR A COLUMN OR A WALL WITHOUT SPECIFIC APPROVAL FROM THE DEPARTMENTAL REPRESENTATIVE. WHERE SMALL DIAMETER PIPING IS ALLOWED, IT SHALL BE INDIVIDUALLY SLEEVED AND LOCATED SO THAT NO REINFORCING STEEL IS CUT.
- ALL BUTTING MASONRY SHALL BE ANCHORED TO THE CONCRETE STRUCTURE. DO NOT INSTALL DOVETAIL ANCHOR SLOTS IN STRUCTURAL SLABS, BEAMS, COLUMNS OR WALLS.
- ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH OF 400 MPa AND SHALL CONFORM TO CSA G30.18.
- ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED, PLACED AND SUPPORTED IN ACCORDANCE WITH "REINFORCING STEEL MANUAL OF STANDARD PRACTICE" BY THE REINFORCING STEEL INSTITUTE OF CANADA.

**WOOD FRAMING NOTES**

- ALL TIMBER AND LUMBER SHALL COMPLY WITH CSA-086-01.
- ALL PLYWOOD AND OSB SHEATHING SHALL COMPLY WITH CSA-O325.0 - CONSTRUCTION SHEATHING.
- ROOF SHEATHING SHALL BE 19mm EXTERIOR GRADE PLYWOOD.
- ALL LUMBER USED FOR STUD BEARING WALLS, LINTELS AND POSTS SHALL BE NUMBER ONE GRADE S.P.F. UNLESS NOTED.
- ALL EXTERIOR STUD BEARING WALLS SHALL BE 38x140mm @ 400mm c/c WITH 38x140mm SHOE AND 38x140mm DOUBLE TOP PLATE UNLESS NOTED.
- ALL INTERIOR STUD BEARING WALLS SHALL BE 38x140mm @ 400mm c/c WITH 38x140mm SHOE AND 38x140mm DOUBLE TOP PLATE UNLESS NOTED.
- ALL EXTERIOR WALL SHEATHING SHALL BE 16mm EXTERIOR GRADE PLYWOOD.
- ALL DIMENSION LUMBER SHALL COMPLY WITH CSA O141.
- CUTTING OF HOLES OR REMOVAL OF STRUCTURAL FRAMING BY TRADES FOR INSTALLATION OF PIPING, DUCTWORK, ELECTRICAL, ETC. SHALL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENTAL REPRESENTATIVE.
- ALL ROOF TRUSSES SHALL BE SPACED NOT MORE THAN 600mm c/c UNLESS NOTED OTHERWISE.
- LOADS FOR PRE-ENGINEERED WOOD TRUSSES SHALL BE AS FOLLOWS:
  - 11.1 TOP CHORD LIVE LOAD TO BE DETERMINED IN STRICT ACCORDANCE WITH PART 4 OF THE N.B.C. (CALCULATE Cs & Ca IN ACCORDANCE WITH PART 4 OF THE N.B.C.)
    - 11.1.1. S<sub>s</sub> = 1.9 kPa
    - 11.1.2. S<sub>r</sub> = 0.6 kPa
    - 11.1.3. C<sub>b</sub> = 0.8
    - 11.1.4. C<sub>w</sub> = 1.0
  - 11.2 BOTTOM CHORD LIVE LOAD= 0.5 kPa
  - 11.3 TOP CHORD DEAD LOAD= 0.30 kPa (INCREASE TOP CHORD DEAD LOAD TO 0.60 kPa IN LOCATIONS WHERE JACK TRUSSES ETC. ARE REQUIRED)
  - 11.4 BOTTOM CHORD DEAD LOAD= 0.25 kPa
- SUBMIT DETAILS AND CAPACITIES OF ALL TRUSS CONNECTIONS (HANGERS, ETC.) FOR APPROVAL BEFORE TRUSS FABRICATION.
- ROOF TRUSS SUPPLIER SHALL PROVIDE TRUSS BEARING SHOES WHERE REQUIRED IF ALLOWABLE STRESS PERPENDICULAR TO GRAIN IS EXCEEDED. SUBMIT DETAILS FOR REVIEW.
- HANGING OF SERVICES FROM CHORDS OF TRUSSES MUST BE STAGGERED AND APPROVED BY THE DEPARTMENTAL REPRESENTATIVE.
- INSTALL WOOD SHEATHING TO STUD WALLS AND ROOF FRAMING WITH JOINTS STAGGERED AND ENDS BUTTED OVER FRAMING. NAIL WOOD SHEATHING WITH 83.5mm COMMON NAILS AT 150mm c/c ALONG EDGES AND 300mm c/c ON INTERMEDIATE SUPPORTS.
- TRUSSES SHALL BE FASTENED TO PLATES WITH 1.214mm ZINC COATED TIE DOWN ANCHORS TYPICAL EACH END.
- STRUCTURAL COMPOSITE LUMBER (SCL) SHALL BE LAMINATED VENEER LUMBER (LVL) OR PARALLAM (PSL) OR APPROVED EQUIVALENT, MINIMUM DESIGN PROPERTIES SHALL BE:
  - 18.1. F<sub>v</sub>: 37 MPa
  - 18.2. F<sub>v</sub>: 3.7 MPa
  - 18.3. E: 13,800 MPa



rev.	description	date
1	ISSUED FOR TENDER	2018.09.19

project **BIO SEARCH & RESCUE MARINE OPERATIONS BUILDING** project  
 Dartmouth, Nova Scotia

**TYPICAL DETAILS AND NOTES**

designed E. LIDSTONE	conçu
date 09/19/18	
drawn R. LAJOIE	dessiné
date 09/19/18	
approved E. LAJOIE	approuvé
date 09/19/18	
Tender	Soumission
PWGSC Project Manager	Administrateur de projets TPSCG
project number	no. du projet
<b>R096002-001</b>	
drawing no.	no. du dessin
<b>S-5</b>	