


STRUCTURAL NOTES

GENERAL:

1. DESIGN AND CONSTRUCTION TO CONFORM TO STRUCTURAL REQUIREMENTS OF PART 4 OF NATIONAL BUILDING CODE OF CANADA (NBC) 2015.
2. CARRY OUT WORK IN ACCORDANCE WITH NEWFOUNDLAND & LABRADOR OCCUPATIONAL HEALTH AND SAFETY ACT.
3. READ DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL AND OTHER DISCIPLINE DRAWINGS. CROSS-REFERENCE ELEVATIONS, SLOPES AND DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL AND CIVIL DRAWINGS.
4. DO NOT SCALE OFF DRAWINGS. FOLLOW FIGURED DIMENSIONS ONLY.
5. LINEAR DIMENSIONS SHOWN ON DWGS ARE IN MILLIMETERS. ELEVATIONS ARE IN METERS. ELEVATIONS INDICATED ARE REFERENCED TO GEODETIC DATUM.
6. SECTION MARK SHOWN AS  MEANS SECTION 'A' LOCATED ON DWG S-01.
7. VERIFY DIMENSIONS AND DETAILS IN FIELD AND REPORT DISCREPANCIES AND INCOMPATIBILITIES TO ENGINEER PRIOR TO COMMENCING WORK.
8. CONTRACTOR IS RESPONSIBLE FOR SAFETY ASPECTS OF CONSTRUCTION AND INTEGRITY OF STRUCTURES DURING ERECTION INCLUDING, BUT NOT LIMITED TO, DESIGN AND CONSTRUCTION OF TEMPORARY SUPPORTS, BRACING, FORMWORK AND SHORING.
9. DO NOT CUT OR DRILL INTO STRUCTURAL MEMBERS AND DO NOT CUT OR BEND REBAR PROJECTIONS WITHOUT CONSULTANT'S WRITTEN APPROVAL.
10. WHERE INDICATED, TRADES SHALL SUBMIT SHOP DWGS STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN ONTARIO PRIOR TO FABRICATION.
11. MARK-UP AND MAINTAIN A SET OF STRUCTURAL DRAWINGS WITH AS-BUILT DIMENSIONS AND DETAILS MODIFIED DURING CONSTRUCTION. PROVIDE COPIES TO OWNER'S REPRESENTATIVE IF REQUESTED.

DESIGN LOADS:

1. DESIGN LOADS:

a. SPECIFIED DESIGN LOADS U.N.O. LIVE LOAD

ROOF / DECK: 4.8 kPa OR

CAFETERIA: 2.4 kPa

b. GROUND SNOW LOAD: (+ SNOW BUILD-UP AS INDICATED ON PLANS)

Is: ULS = 1.0 SLS = 0.9 Ss = 3.1 Sr = 0.6

c. WIND: (HOURLY WIND PRESSURE)

lw: ULS = 1.0 SLS = 0.75 q1/50 = 0.72 kPa

d. GUARDRAIL AND HANDRAIL LOADS:

GUARDRAIL HORIZONTAL LOADS:

EXITS, STAIRS, WALKWAYS: 0.75 kN/m OR 1.0 kN CONCENTRATED LOAD

CATWALKS, EQUIPMENT ACCESSWAYS: 1.0 kN CONCENTRATED LOAD

VEHICLE GUARDS: 22 kN CONCENTRATED LOAD

500 mm ABOVE FLOOR

GUARDRAIL VERTICAL LOADS:

AT TOP OF GUARDRAIL: 1.5 kN/m

INDIVIDUAL ELEMENTS WITHIN GUARD: 0.5 kN CONCENTRATED LOAD

HANDRAIL LOADS - IN ANY DIRECTION: 0.7 kN/m OR 0.9 kN CONCENTRATED LOAD

CONCENTRATED LOADS TO BE APPLIED AT ANY POINT ALONG MEMBER.

2. CONSTRUCTION LOADS SHALL NOT EXCEED SPECIFIED DESIGN LOADS.

3. ADDITIONAL LOADS AS REQUIRED FOR TEMPORARY CONSTRUCTION CONDITIONS TO BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN NEWFOUNDLAND & LABRADOR.

4. LOADS AND FORCES SHOWN ON DRAWINGS ARE UNFACTORED (SERVICE) LOADS U.N.O.

FOUNDATIONS:

1. SITE PREPARATION AND FOUNDATION DESIGN BASED ON FINAL GEOTECHNICAL INVESTIGATION REPORT BY EXP DATED FEBRUARY 2018 REF. No: SJN - 00244836-AO .
2. REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS REGARDING SITE PREPARATION, EXCAVATION, BACKFILL, COMPACTION FILL MATERIALS, DRAINAGE AND DEWATERING, ETC.
3. REMOVE SURFACE TOPSOIL, FILL AND ORGANIC MATERIAL UNDER FOOTINGS AND SLAB ON GRADE.
4. DO NOT PLACE CONCRETE OR MUD SLAB UNTIL GEOTECHNICAL ENGINEER HAS VERIFIED IN WRITING FOUNDATION AND SLAB-ON-GRADE BEARING SURFACE CAPACITY TO CARRY DESIGN LOADS.
5. PLACE BUILDING FOUNDATIONS ON UNDISTURBED SOIL AS PER GEOTECHNICAL REPORT.
6. PLACE STRUCTURAL FILL AS DIRECTED AND UNDER CONTINUOUS SUPERVISION OF GEOTECHNICAL ENGINEER.
7. PLACE EXTERIOR FOOTINGS MINIMUM DEPTH OF FROST PENETRATION BELOW EXTERIOR FINISHED GRADE.
8. PROVIDE FROST PROTECTION TO BEARING SURFACES AND EXPOSED FOOTINGS DURING WINTER CONSTRUCTION. DO NOT PLACE CONCRETE OR FILL ON FROZEN GROUND. REMOVE PREVIOUSLY FROZEN BEARING SURFACES.
9. BACKFILL MATERIALS AND BACKFILL INSTALLATION SHALL BE REVIEWED BY GEOTECHNICAL ENGINEER TO ENSURE COMPLIANCE WITH RECOMMENDATIONS IN GEOTECHNICAL REPORT AND NOTED HEREIN.
10. ENGINEERED BACKFILL SHALL BE FREE OF ORGANICS AND OTHER DELETERIOUS MATERIALS. BACKFILL EXTERIOR WALLS WITH CLEAN FREE-DRAINING GRANULAR MATERIAL.
11. DO NOT PLACE SLAB-ON-GRADE UNTIL UNDERGROUND SERVICES HAVE BEEN INSTALLED AND TESTED, AND BUILDING IS CLOSED-IN WEATHERTIGHT.
12. ENSURE FOUNDING MATERIAL FOR FOOTINGS AND OTHER CONCRETE WORK IS FREE FROM WATER.
13. PROVIDE DEWATERING SYSTEM WHERE REQUIRED AROUND EXCAVATED AREA, FOR FOUNDATIONS OR OTHER PURPOSES.

CONCRETE:

1. CONCRETE DESIGN TO CSA A23.3-14.
2. STRUCTURAL CONCRETE MATERIALS, TESTING AND WORKMANSHIP TO CSA A23.1/A23.2-14.
3. TOLERANCES FOR CONCRETE CONSTRUCTION TO CSA A23.1 / A23.2-14. SPECIFIED TOLERANCES DO NOT RELIVE CONTRACTOR OF RESPONSIBILITY TO PROVIDE CLOSER TOLERANCES REQUIRED BY OTHER SPECIALTY BUILDING COMPONENTS.
4. CONTRACTOR IS RESPONSIBLE FOR FORMWORK AND FALSEWORK DESIGN TO CAN/CSA S269.1-16.
5. SUBMIT MIX DESIGNS FOR RECORD TO TESTING AGENCY AND ENGINEER PRIOR TO COMMENCING WORK.
6. VERIFY CONCRETE STRENGTHS BY INDEPENDENT TESTS TO CSA A23.2-14. TAKE A MINIMUM OF 3 CYLINDERS FOR EACH DAYS POUR; EACH TYPE OR GRADE OF CONCRETE, EACH CHANGE IN SUPPLIER OR EACH 50 CUBIC METERS OR FRACTION THEREOF FOR EACH SEPARATE TYPE OF STRUCTURAL ELEMENT IN ANY ONE DAY'S POUR. TAKE ADDITIONAL TEST SPECIMENS TO VERIFY CONCRETE QUALITY AS REQUESTED BY OWNERS REPRESENTATIVE. TAKE ADDITIONAL TEST SPECIMEN DURING COLD WEATHER CONCRETING. TAKE AT LEAST ONE SLUMP TEST AND ONE AIR ENTRAINMENT TEST WITH EACH COMPRESSIVE STRENGTH TEST.
7. CEMENT: TO CSA A3001, TYPE GU, GENERAL USE U.N.O.
11. OBTAIN AUTHORIZATION FROM ENGINEER FOR USE OF SUPER PLASTICIZING ADMXTURE, WATER REDUCER AND OTHER ADMIXTURES. ADD, PLASTICIZER, WATER REDUCER AND/OR OTHER ADMIXTURES AS APPROVED BY DCC REPRESENTATIVE TO ACHIEVE DESIRED CONCRETE PROPERTIES. DO NOT INCREASE WATER CONTENT ABOVE CONTENT SPECIFIED. INCLUDE COST FOR ADMIXTURES IN CONCRETE COST.
12. DO NOT USE ADMIXTURES CONTAINING CALCIUM CHLORIDE.
13. CURING, PROTECTION AND FINISHING OF CONCRETE TO CSA-A23.1-14.

CONCRETE REINFORCING:

1. REINFORCING STEEL TO BE DEFORMED NEW BILLET STEEL TO CSA G30.18-2009 GRADE 400.
2. WELDED STEEL WIRE FABRIC TO CONFORM TO ASTM A185/A185M. PROVIDE IN FLAT SHEETS ONLY.
3. DETAIL, FABRICATE, PLACE AND SUPPORT REINFORCING STEEL IN ACCORDANCE WITH REINFORCING STEEL MANUAL OF STANDARD PRACTICE BY THE REINFORCING STEEL INSTITUTE OF CANADA, 2004, AND CSA-A23.3-14 U.N.O.
4. U.N.O. HOOKED BARS TO BE STANDARD HOOKS. DETAIL HOOKS AND BENDS IN ACCORDANCE WITH R.S.I.C. MANUAL OF STANDARD PRACTICE AND CSA A23.3-14.
5. PROVIDE CORNER BARS TO MATCH WALL HORIZONTAL REINFORCEMENT AT WALL INTERSECTIONS AND CORNERS WITH CLASS B TENSION LAP SPLICE TO MAIN HORIZONTAL BARS.
6. SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
7. SECURE REINFORCING STEEL, EMBEDDED PARTS, ANCHOR BOLTS, DOWELS ETC. IN POSITION PRIOR TO PLACING CONCRETE AND HELD RIGIDLY IN PLACE DURING CONCRETE PLACEMENT.
8. PLACE REINFORCING STEEL TO TOLERANCES AS PER CSA A23.1. PROVIDE SUPERVISION TO ENSURE REBAR AND EMBEDMENTS ARE MAINTAINED IN CORRECT POSITION DURING CONCRETE PLACEMENT.
9. NOTIFY ENGINEER FOR REVIEW OF REINFORCING STEEL PRIOR TO CLOSING FORMS.

STRUCTURAL STEEL:

1. STEEL SECTIONS ARE INDICATED IN S.I. SYSTEM OF UNITS.
2. STRUCTURAL STEEL DESIGN AND ERECTION TO CSA S16-14
3. STRUCTURAL STEEL MATERIALS AND FABRICATION TO CAN/CSA G40.20/G40.21-13:

W, WWF GRADE 350W

C, S, ANGLES, PLATES, BARS & TEES GRADE 300W

HSS FOR GIRTS, BRACING & COLUMNS GRADE 350W, CLASS C

HSS FOR MISC METALS GRADE 350W, CLASS C

COLD FORMED STEEL GRADE 350W

SHEET STEEL ASTM A653/A653M-11, GRADE 230

PIPE SECTIONS ASTM A53/A53M-12, GRADE B, fy = 240 MPa

BOLTS, NUTS, WASHERS ASTM A325-09, MINIMUM SIZE 19 mm DIA.

ANCHOR BOLTS, NUTS AND WASHERS ASTM A307 OR GRADE 300W

HEAVY HEX NUTS ASTM A563-07a, GRADE A

CHECKER PLATE ASTM A36
4. WELDING DESIGN AND PRACTICE TO CSA W59-03. WELDING ELECTRODES TO CSA W48-06.
5. STRUCTURAL STEEL FABRICATOR, ERECTOR AND WELDERS TO BE CERTIFIED BY AND QUALIFIED IN ACCORDANCE WITH CSA STANDARD W47.1-03 DIVISION 1 OR 2.1. SUBMIT DOCUMENTATION CONFORMING CERTIFICATION PRIOR TO FABRICATION.
6. CONNECTIONS SHALL BE DESIGNED, AND CALCULATIONS AND SHOP DRAWINGS STAMPED BY PROFESSIONAL ENGINEER REGISTERED IN PROVINCE OF ONTARIO. SUBMIT SHOP DRAWINGS FOR REVIEW.
7. BOLTED CONNECTION TO HAVE MINIMUM OF TWO (2) BOLTS PER CONNECTION U.N.O. ON DRAWINGS.
8. DESIGN CONNECTIONS IN ACCORDANCE WITH CSA S16-14 FOR FORCES INDICATED.
9. BRACE CONNECTIONS TO BE CONCENTRIC AND DESIGNED FOR FORCES INDICATED.
10. MINIMUM WELDS FOR CONNECTIONS TO BE 5mm FILLET WELDS. WELDS SHALL BE CONTINUOUS U.N.O. GRIND SMOOTH WHERE EXPOSED.
11. INSPECTION AND TESTING OF STRUCTURAL STEEL FRAMEWORK (SUCH AS, BUT NOT LIMITED TO, BOLT TORQUE, WELD QUALITY, ALIGNMENT) IN ACCORDANCE WITH CSA S16-14.
12. DO NOT SPLICE MEMBERS, OTHER THAN WHERE INDICATED ON DRAWINGS, WITHOUT PRIOR APPROVAL FROM ENGINEER. DETAIL SPLICES FOR FULL MEMBER STRENGTH. WELDED SPLICES TO BE INSPECTED BY 100% RADIOGRAPHIC EXAMINATION.
13. CLEAN, PREPARE SURFACES AND SHOP PRIME STRUCTURAL STEEL IN ACCORDANCE WITH CSA S16-14. SEE SPECIFICATION FOR ADDITIONAL COATING REQUIREMENTS.
14. TOUCH UP SHOP PRIMER TO BOLTS, WELDS AND BURNED AND SCRATCHED SURFACE AT COMPLETION OF ERECTION.
15. DO NOT PAINT OR PRIME FAYING SURFACES.

TIMBER FRAMING:

1. WOOD MATERIALS AND DESIGN SHALL BE IN ACCORDANCE WITH CAN/CSA 086-14 "ENGINEERING DESIGN IN WOOD (LIMIT STATES DESIGN)".
2. FRAMING, BRIDGING, BLOCKING, NAILING AND OTHER DETAILS NOT SPECIFIED ON DRAWINGS TO BE IN ACCORDANCE WITH PART 9 OF THE NBCC 2015
3. JOIST HANGERS TO BE HUS AND FRAMING ANCHORS TO BE A35 BY SIMPSON STRONG TIE OR APPROVED EQUAL.
4. STRUCTURAL LUMBER TO BE STAMPED BY MANUFACTURER INDICATING GRADE:

DOUGLAS FIR NO. 2 OR BETTER


HEM-FIR OR SPRUCE NO. 2 OR BETTER

S-P-F NO. 2 OR BETTER
5. ORIENTED STRAND BOARD (OSB) TO CONFORM TO CAN 0325-16 "CONSTRUCTION SHEATING".
6. GLULAM TO BE FABRICATED IN ACCORDANCE WITH CAN/CSA-0122-M89 "STRUCTURAL GLUED-LAMINATED TIMBER" AND SHALL BE MANUFACTURED IN PLANTS CERTIFIED BY CAN/CSA-0177-M89. "QUALIFICATION CODE FOR MANUFACTURERS OF STRUCTURAL GLUED-LAMINATED TIMBER. DESIGN TO CONFORM TO CAN/CSA 086-14, "ENGINEERING DESIGN IN WOOD (LIMIT STATES DESIGN)"
7. GLULAM BEAMS TO BE D-FIR 24F-EX BENDING GRADE, INTERIOR SERVICE, INDUSTRIAL APPEARANCE. MEMBERS TO BE STAMPED WITH MANUFACTURER'S IDENTIFICATION MARK.
8. GLULAMS OVER 3 METRES (10 FEET) TO HAVE A DEAD LOAD CAMBER OF R=1600-FOOT RADIUS.
9. LAMINATE STUDS SOLID UNDER ALL LINTELS AND BEAMS TO WIDTH OF BEAM. (NO. OF STUDS TO EQUAL NO. OF BEAM LAMINATIONS). ENSURE THAT POSTS AND COLUMNS ARE CONTINUOUS TO FOUNDATIONS.
10. PROVIDE DOUBLE JOIST UNDER ALL PARTITION WALLS.
11. PROVIDE TWO 2X TOP PLATES LAPPED 1500 mm MINIMUM AND NAILED WITH 3" COMMON NAILS AT 150 mm O.C. STAGGERED ALONG LAP.
12. FINGER JOINTED WALL STUDS MAY BE USED WHEN MARKED AS FOLLOWS:


.SPS1 AND SPS2 IN ALL LOCATIONS

.SPS3 INTERIOR WALLS ONLY, EXCEPT SHEAR WALLS
13. WINDOW HEADERS OVER 2400 mm SPAN TO HAVE MIN. 2 CRIPPLES AT END UNLESS NOTED OTHERWISE IN PLAN.
14. SAWN TIMBER TO BE D. FIR NO. 1 OR BETTER. (SIZES SHOWN ON DRAWINGS INDICATE ACTUAL SIZES OF TIMBER U.N.O.).
15. SHEATHING:

ROOF (FLAT)	15.5 mm	T & G PLYWOOD
FLOORS (PITCHED)	12.5 mm	T & G PLYWOOD
FLOORS	15.5 mm	T & G PLYWOOD GLUED AND NAILED
EXTERIOR WALLS	12.5 mm	T & G PLYWOOD
16. PARALLAM BEAMS TO BE 2.0E WS PARALAM PSL BEAMS AS MANUFACTURED BY TRUS JOIST MACMILLAN LIMITED. STRUCTURAL PROPERTIES AS SUPPLIED AND WARRANTED BY MANUFACTURER.
17. MICROLAM BEAMS TO BE 1.9E MICROLAM LVL BEAMS AS MANUFACTURED BY TRUS JOIST MACMILLAN LIMITED. STRUCTURAL PROPERTIES AS SUPPLIED AND WARRANTED BY MANUFACTURER.
18. TIMBERSTRAND LUMBER TO BE 1.3E TIMBERSTRAND LSL FOR DEPTH UP TO 11 1/4" AND 1.5E TIMBERSTRAND LSL FOR DEPTH 11 7/8" AND GREATER. BEAMS AS MANUFACTURED BY TRUS JOIST MACMILLAN LIMITED. STRUCTURAL ROPERTIES AS SUPPLIED AND WARRANTED BY MANUFACTURER.
19. ALL BUILT-UP PARALAM BEAMS OVER 2 LAMINATIONS TO BE BOLTED WITH 12 mm DIA. BOLTS @ 800 mm TOP & 800 mm BOTTOM, STAGGERED.
20. BOLTS AND THREADED RODS TO BE A307 OR 300W GRADE.
21. STAPLES ARE NOT PERMITTED FOR SHEAR WALL OR ROOF/ FLOOR SHEATHING APPLICATION.
22. ALL JOIST TO BEAM FLUSH CONNECTIONS TO BE WITH JOIST HANGERS OR FRAMING ANCHORS. NO PRESSURE BLOCKING IS PERMITTED.
23. ALL EXTERIOR WOOD OR WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED MATERIAL AS PER CAN/CSA 080 SERIES-15 "WOOD PRESERVATION".



Government of Canada




Gouvernement du Canada

Parks Canada

Newfoundland East Field Unit

Parcs Canada

Unité de gestion de Terre-neuve Est



FOR TENDER PURPOSES ONLY

C01	2018/10/17	ISSUED FOR TENDER	D.K.	NS
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé

A

B

Detail number

Sheet number


A Numéro de détail

B Numéro de la feuille

Linear dimensions
in millimetres

Dimensions linéaires
en millimètres

Consultant's Name
Nom de l'expert-conseil



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Halifax, Nova Scotia, Canada

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Eng. Stamp
Sceau de l'ingénieur

Project title/Titre du projet

TERRA NOVA VISITOR CENTRE
REHABILITATION UPGRADES

GLOVERTOWN, NL

Drawing title/Titre du dessin

GENERAL NOTES

Designed by/Concept par	Date
A.F.	2018/04/02
Drawn by/Dessiné par	Date
J.O.	2018/04/02
Checked by/Vérifié par	Date
C.S.	2018/04/02
Project No./No. du projet	Scale/Echelle
1326	AS SHOWN
Drawing Set No./No. de série du dessin	Sheet No./ N° de la feuille
S-01	

GSC-A1