


STRUCTURAL NOTES

GENERAL:

- DESIGN AND CONSTRUCTION OF NEW STRUCTURE, AND EXISTING AFFECTED BY MODIFICATIONS TO CONFORM TO STRUCTURAL REQUIREMENTS OF PART 4 OF NATIONAL BUILDING CODE OF CANADA (NBC) 2010. REMAINDER OF EXISTING STRUCTURE, WHERE NOT AFFECTED BY MODIFICATIONS, WAS NOT REVIEWED AND REMAINS RESPONSIBILITY OF OTHERS.
- CARRY OUT WORK IN ACCORDANCE WITH NEWFOUNDLAND & LABRADOR OCCUPATIONAL HEALTH AND SAFETY ACT.
- 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.
- DO NOT SCALE OFF DRAWINGS. FOLLOW FIGURED DIMENSIONS ONLY.
- LINEAR DIMENSIONS SHOWN ON DWGS ARE IN MILLIMETERS. ELEVATIONS ARE IN METERS. ELEVATIONS INDICATED ARE REFERENCED TO GEODETIC DATUM.
- SECTION MARK SHOWN AS  MEANS SECTION 'A' LOCATED ON DWG S-01.
- VERIFY DIMENSIONS AND DETAILS IN FIELD AND REPORT DISCREPANCIES AND INCOMPATIBILITIES TO ENGINEER PRIOR TO COMMENCING WORK.
- 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.
- DO NOT CUT OR DRILL INTO STRUCTURAL MEMBERS AND DO NOT CUT OR BEND REBAR PROJECTIONS WITHOUT CONSULTANT'S WRITTEN APPROVAL.
- WHERE INDICATED, TRADES SHALL SUBMIT SHOP DWGS STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN NEWFOUNDLAND & LABRADOR PRIOR TO FABRICATION.
- 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:

- DESIGN LOADS:
 - SPECIFIED DESIGN LOADS U.N.O. LIVE LOAD
ROOF / DECK: 4.8 kPa OR
CAFETERIA: 2.4 kPa
 - 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)
Iw: ULS = 1.0 SLS = 0.75 q1/50 = 0.72 kPa
 - 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.
- CONSTRUCTION LOADS SHALL NOT EXCEED SPECIFIED DESIGN LOADS.
- ADDITIONAL LOADS AS REQUIRED FOR TEMPORARY CONSTRUCTION CONDITIONS TO BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN NEWFOUNDLAND & LABRADOR.
- LOADS AND FORCES SHOWN ON DRAWINGS ARE UNFACTORED (SERVICE) LOADS U.N.O.

FOUNDATIONS:

- SITE PREPARATION AND FOUNDATION DESIGN BASED ON FINAL GEOTECHNICAL INVESTIGATION REPORT BY EXP DATED FEBRUARY 2018 REF. No: SJN-00244836-A0.
- REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS REGARDING SITE PREPARATION, EXCAVATION, BACKFILL, COMPACTION FILL MATERIALS, DRAINAGE AND DEWATERING, ETC.
- REMOVE SURFACE TOPSOIL, FILL AND ORGANIC MATERIAL UNDER FOOTINGS AND SLAB ON GRADE.
- 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.
- PLACE BUILDING FOUNDATIONS ON UNDISTURBED SOIL AS PER GEOTECHNICAL REPORT.
- PLACE STRUCTURAL FILL AS DIRECTED AND UNDER CONTINUOUS SUPERVISION OF GEOTECHNICAL ENGINEER OF RECORD.
- PLACE EXTERIOR FOOTINGS MINIMUM DEPTH OF FROST PENETRATION BELOW EXTERIOR FINISHED GRADE.
- 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.
- BACKFILL MATERIALS AND BACKFILL INSTALLATION SHALL BE REVIEWED BY GEOTECHNICAL ENGINEER TO ENSURE COMPLIANCE WITH RECOMMENDATIONS IN GEOTECHNICAL REPORT AND NOTED HEREIN.
- ENGINEERED BACKFILL SHALL BE FREE OF ORGANICS AND OTHER DELETERIOUS MATERIALS. BACKFILL EXTERIOR WALLS WITH CLEAN FREE-DRAINING GRANULAR MATERIAL.
- DO NOT PLACE SLAB-ON-GRADE UNTIL UNDERGROUND SERVICES HAVE BEEN INSTALLED AND TESTED, AND BUILDING IS CLOSED-IN WEATHERTIGHT.
- ENSURE FOUNDING MATERIAL FOR FOOTINGS AND OTHER CONCRETE WORK IS FREE FROM WATER.
- PROVIDE DEWATERING SYSTEM WHERE REQUIRED AROUND EXCAVATED AREA, FOR FOUNDATIONS OR OTHER PURPOSES.

CONCRETE:

- CONCRETE DESIGN TO CSA A23.3-04.
- STRUCTURAL CONCRETE MATERIALS, TESTING AND WORKMANSHIP TO CSA A23.1/A23.2-09.
- TOLERANCES FOR CONCRETE CONSTRUCTION TO CSA A23.1 / A23.2-09. SPECIFIED TOLERANCES DO NOT RELIVE CONTRACTOR OF RESPONSIBILITY TO PROVIDE CLOSER TOLERANCES REQUIRED BY OTHER SPECIALTY BUILDING COMPONENTS.
- CONTRACTOR IS RESPONSIBLE FOR FORMWORK AND FALSEWORK DESIGN TO CAN/CSA S269.1-1975 AND CSA S269.3-M92.
- SUBMIT MIX DESIGNS FOR RECORD TO TESTING AGENCY AND ENGINEER OF RECORD PRIOR TO COMMENCING WORK.
- VERIFY CONCRETE STRENGTHS BY INDEPENDENT TESTS TO CSA A23.2-09. 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.
- CEMENT: TO CSA A3001-08, TYPE GU, GENERAL USE U.N.O.
- OBTAIN AUTHORIZATION FROM ENGINEER OF RECORD FOR USE OF SUPER PLASTICIZING ADMXTURE, WATER REDUCER AND OTHER ADMXTURES. ADD, PLASTICIZER, WATER REDUCER AND/OR OTHER ADMXTURES AS APPROVED BY DEPARTMENTAL REPRESENTATIVE TO ACHIEVE DESIRED CONCRETE PROPERTIES. DO NOT INCREASE WATER CONTENT ABOVE CONTENT SPECIFIED. INCLUDE COST FOR ADMXTURES IN CONCRETE COST.
- DO NOT USE ADMXTURES CONTAINING CALCIUM CHLORIDE.
- CURING, PROTECTION AND FINISHING OF CONCRETE TO CSA-A23.1-09.

CONCRETE REINFORCING:

- REINFORCING STEEL TO BE DEFORMED NEW BILLET STEEL TO CSA G30.18-09 GRADE 400.
- WELDED STEEL WIRE FABRIC TO CONFORM TO ASTM A185/A185M. PROVIDE IN FLAT SHEETS ONLY.
- 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-A23.3-09 U.N.O.
- 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 A23.3-09.
- PROVIDE CORNER BARS TO MATCH WALL HORIZONTAL REINFORCEMENT AT WALL INTERSECTIONS AND CORNERS WITH CLASS B TENSION LAP SPLICE TO MAIN HORIZONTAL BARS.
- SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.
- SECURE REINFORCING STEEL, EMBEDDED PARTS, ANCHOR BOLTS, DOWELS ETC. IN POSITION PRIOR TO PLACING CONCRETE AND HELD RIGIDLY IN PLACE DURING CONCRETE PLACEMENT.
- 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.
- NOTIFY DEPARTMENT REPRESENTATIVE FOR REVIEW OF REINFORCING STEEL PRIOR TO CLOSING FORMS.

STRUCTURAL STEEL:

- STEEL SECTIONS ARE INDICATED IN S.I. SYSTEM OF UNITS.
- STRUCTURAL STEEL DESIGN AND ERECTION TO CSA S16-09
- STRUCTURAL STEEL MATERIALS AND FABRICATION TO CSA G40.20-04/G40.21-04 (R2009):

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
SHEET STEEL	ASTM A653/A653M-09, GRADE 230
PIPE SECTIONS	ASTM A53/A53M-07, GRADE B, fy = 240 MPa
BOLTS, NUTS, WASHERS	ASTM A325-09, MINIMUM SIZE 19 mm DIA.
ANCHOR BOLTS, NUTS AND WASHERS	ASTM A307-07 OR GRADE 300W
HEAVY HEX NUTS	ASTM A563-07a, GRADE A
CHECKER PLATE	ASTM A36/ A36M-08
- WELDING DESIGN AND PRACTICE TO CSA W59-03 (R2008). WELDING ELECTRODES TO CSA W48-06.
- STRUCTURAL STEEL FABRICATOR, ERECTOR AND WELDERS TO BE CERTIFIED BY AND QUALIFIED IN ACCORDANCE WITH CSA W47.1-09 DIVISION 1 OR 2.1. SUBMIT DOCUMENTATION CONFORMING CERTIFICATION PRIOR TO FABRICATION.
- CONNECTIONS SHALL BE DESIGNED, AND CALCULATIONS AND SHOP DRAWINGS STAMPED BY PROFESSIONAL ENGINEER REGISTERED IN PROVINCE OF NEWFOUNDLAND & LABRADOR. SUBMIT SHOP DRAWINGS FOR REVIEW.
- BOLTED CONNECTION TO HAVE MINIMUM OF TWO (2) BOLTS PER CONNECTION U.N.O. ON DRAWINGS.
- DESIGN CONNECTIONS IN ACCORDANCE WITH CSA S16-09 FOR FORCES INDICATED.
- BRACE CONNECTIONS TO BE CONCENTRIC AND DESIGNED FOR FORCES INDICATED.
- MINIMUM WELDS FOR CONNECTIONS TO BE 5mm FILLET WELDS. WELDS SHALL BE CONTINUOUS U.N.O. GRIND SMOOTH WHERE EXPOSED.
- INSPECTION AND TESTING OF STRUCTURAL STEEL FRAMEWORK (SUCH AS, BUT NOT LIMITED TO, BOLT TORQUE, WELD QUALITY, ALIGNMENT) IN ACCORDANCE WITH CSA S16-09.
- DO NOT SPLICE MEMBERS, OTHER THAN WHERE INDICATED ON DRAWINGS, WITHOUT PRIOR APPROVAL FROM ENGINEER OF RECORD. DETAIL SPLICES FOR FULL MEMBER STRENGTH. WELDED SPLICES TO BE INSPECTED BY 100% RADIOGRAPHIC EXAMINATION.
- CLEAN, PREPARE SURFACES AND SHOP PRIME STRUCTURAL STEEL IN ACCORDANCE WITH CSA S16-09. SEE SPECIFICATION FOR ADDITIONAL COATING REQUIREMENTS.
- TOUCH UP SHOP PRIMER TO BOLTS, WELDS AND BURNED AND SCRATCHED SURFACE AT COMPLETION OF ERECTION.
- DO NOT PAINT OR PRIME FAYING SURFACES.

TIMBER FRAMING:

- WOOD MATERIALS AND DESIGN SHALL BE IN ACCORDANCE WITH CSA 086-09.
- FRAMING, BRIDGING, BLOCKING, NAILING AND OTHER DETAILS NOT SPECIFIED ON DRAWINGS TO BE IN ACCORDANCE WITH PART 9 OF THE NBC 2010
- JOIST HANGERS TO BE HUS AND FRAMING ANCHORS TO BE A35 BY SIMPSON STRONG TIE OR APPROVED EQUAL.
- USE STAINLESS STEEL HARDWARE & FASTENERS IN PRESSURE TREATED WOOD.

DOUGLAS FIR NO. 2 OR BETTER
HEM-FIR OR SPRUCE NO. 2 OR BETTER
S-P-F NO. 2 OR BETTER
- STRUCTURAL LUMBER TO BE STAMPED BY MANUFACTURER INDICATING GRADE:


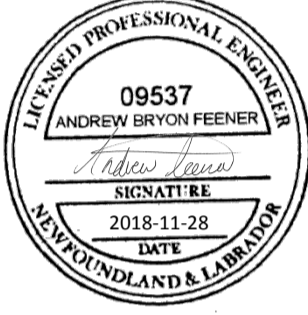



ORIENTED STRAND BOARD (OSB) TO CONFORM TO CSA 0325-07.
- GLULAM TO BE FABRICATED IN ACCORDANCE WITH CAN/CSA-0122-M89 AND SHALL BE MANUFACTURED IN PLANTS CERTIFIED BY CSA-0177-M89, DESIGN TO CONFORM TO CAN/CSA 086-14.
- GLULAM BEAMS TO BE D-FIR 24F-EX BENDING GRADE, EXTERIOR SERVICE, INDUSTRIAL APPEARANCE. MEMBERS TO BE STAMPED WITH MANUFACTURER'S IDENTIFICATION MARK.
- GLULAMS OVER 3 METRES (10 FEET) TO HAVE A DEAD LOAD CAMBER OF R=1600-FOOT RADIUS.
- 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.
- PROVIDE DOUBLE JOIST UNDER ALL PARTITION WALLS.
- PROVIDE TWO 2X TOP PLATES LAPPED 1500 mm MINIMUM AND NAILED WITH 3" COMMON NAILS AT 150 mm O.C. STAGGERED ALONG LAP.
- FINGER JOINTED WALL STUDS MAY BE USED WHEN MARKED AS FOLLOWS:

.SPS1 AND SPS2 IN ALL LOCATIONS
.SPS3 INTERIOR WALLS ONLY, EXCEPT SHEAR WALLS
- WINDOW HEADERS OVER 2400 mm SPAN TO HAVE MIN. 2 CRIPPLES AT END UNLESS NOTED OTHERWISE IN PLAN.
- SAWN TIMBER TO BE D, FIR NO. 1 OR BETTER. (SIZES SHOWN ON DRAWINGS INDICATE ACTUAL SIZES OF TIMBER U.N.O.).
- 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
- PARALLAM BEAMS TO BE 2.0E WVS PARALAM PSL BEAMS AS MANUFACTURED BY TRUS JOIST MACMILLAN LIMITED. STRUCTURAL PROPERTIES AS SUPPLIED AND WARRANTED BY MANUFACTURER.
- STAPLES ARE NOT PERMITTED FOR SHEAR WALL OR ROOF/ FLOOR SHEATHING APPLICATION.
- ALL JOIST TO BEAM FLUSH CONNECTIONS TO BE WITH JOIST HANGERS OR FRAMING ANCHORS. NO PRESSURE BLOCKING IS PERMITTED.
- ALL EXTERIOR WOOD OR WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED MATERIAL AS PER CAN/CSA 080 SERIES-08.

SECONDARY STRUCTURAL COMPONENTS:

- DEIGN SECONDARY STRUCTURAL COMPONENTS IN ACCORDANCE WITH APPLICABLE DESIGN LOADS INCLUDING OPERATING, SEISMIC AND WIND. ALLOW FOR DEFLECTION COMPATIBILITY WITH MAIN STRUCTURAL ELEMENTS. EXAMPLES OF SECONDARY STRUCTURAL COMPONENTS INCLUDE BUT ARE NOT LIMITED TO:
 - CURTAIN WALL, STORE FRONTS, WINDOWS, SKYLIGHTS, GLAZED PARTITIONS;
 - INTERIOR AND EXTERIOR NON-LOAD BEARING STEEL STUD PARTITIONS, FRAME WALLS;
 - MASONRY BLOCK AND GLASS BLOCK PARTITIONS;
 - BRICK, BLOCK AND STONE VENEER SUPPORT CONNECTIONS AND TIES;
 - EXTERIOR CLADDING ELEMENTS;
 - PARAPETS, UPSTANDS, ORNAMENTAL BUILDING COMPONENTS;
 - HANDRAILS, GUARDRAILS, RAILINGS;
 - LANDSCAPING COMPONENTS (BENCHES, LIGHT POSTS, PLANTERS, ETC.);
 - FLAG POLES;
 - FALL ARREST AND FALL RESTRAINT SYSTEMS;
 - WINDOW WASHING EQUIPMENT INCLUDING ATTACHMENTS AND ANCHORAGE;
 - CANOPIES, CEILINGS;
 - ELEVATORS, ESCALATORS AND OTHER CONVEYING SYSTEMS INCLUDING PROPRIETARY SUPPORT BEAMS AND CONNECTIONS;
 - SUPPORT AND LATERAL BRACING OF PLUMBING, FIRE SUPPRESSION, MECHANICAL AND ELECTRICAL SYSTEMS;
 - LIFTING ANCHORS FOR PRECAST CONCRETE ELEMENTS;
 - PALLET RACKING, PREFAB PLATFORMS;
 - HATCHES AND EXTERIOR OVERHEAD DOORS;
 - ROOF TO ROOF ACCESS LADDERS.
- DESIGN TO BE PERFORMED BY A SPECIALTY STRUCTURAL ENGINEER REGISTERED IN THE PROVINCE OF Nfld. SUBMIT STAMPED DRAWINGS AND LETTERS OF ASSURANCE TO DEPARTMENT REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION. MAKE DESIGN CALCULATIONS AVAILABLE FOR REVIEW UPON REQUEST. SPECIALTY ENGINEER SHALL CARRY PROFESSIONAL LIABILITY INSURANCE AND SHALL SUBMIT EVIDENCE OF INSURANCE UPON REQUEST.
- SPECIALTY ENGINEER TO UNDERTAKE ADEQUATE FIELD REVIEWS TO CERTIFY THAT FABRICATION AND CONSTRUCTION CONFORMS TO SUBMITTED DESIGN. CERTIFICATION OF FIELD REVIEWS TO BE SUBMITTED TO DCC REPRESENTATIVE. IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY SPECIALTY ENGINEER FOR FIELD REVIEWS.

	Government of Canada	Gouvernement du Canada		
Parks Canada Newfoundland East Field Unit	Parcs Canada Unité de gestion de Terre-neuve Est			
<div></div> <div>FOR TENDER PURPOSES ONLY</div>				
C02	2018/11/28	ISSUED FOR ADDENDUM #1	D.K./J.O.	
C01	2018/10/17	ISSUED FOR TENDER	D.K.	
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé
		Detail number Sheet number	A Numéro de detail B Numéro de la feuille	
		Linear dimensions in millimetres	Dimensions linéaires en millimètres	
Consultant's Name Nom de l'expert-conseil			Eng. Stamp Sceau de l'ingénieur	
 SNC • LAVALIN SNC • LAVALIN Inc. Halifax, Nova Scotia, Canada Member of the SNC • LAVALIN Group				
Project title/Titre du projet TERRA NOVA VISITOR CENTRE REHABILITATION UPGRADES GLOVERTOWN, NL				
Drawing title/Titre du dessin GENERAL NOTES				
Designed by/Concept par A.F.			Date 2018/04/02	
Drawn by/Dessiné par J.O.			Date 2018/04/02	
Checked by/Vérifié par C.S.			Date 2018/04/02	
Project No./No. du projet 1326		Scale/Echelle AS SHOWN	Sheet No./ Node la feuille	
Drawing Set No./No. de série du dessin S-01				