GENERAL NOTES

1. STRUCTURAL DESIGN BASED ON THE MANITOBA BUILDING CODE 2011 EDITION.
   A) IMPORTANCE CATEGORY: POST DISASTER
   B) WIND LOAD: q50 = 0.45 kPa
   C) GROUND SNOW LOAD: Ss = 1.9 kPa
   D) ASSOCIATED RAIN LOAD: Sr = 0.2 kPa
2. SEISMIC SITE CLASSIFICATION: NOT APPLICABLE
3. DO NOT SCALE DRAWINGS.
4. DO NOT BACKFILL UNTIL GROUND FLOOR STRUCTURE IS IN PLACE AND BASEMENT SLABS HAVE BEEN POURED AND CURED.
5. ALL DIMENSIONS ARE TO BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
6. THESE STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE AND DO NOT INDICATE ALL COMPONENTS NECESSARY FOR SAFETY DURING CONSTRUCTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON AND AROUND THE JOBSITE DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO ALL TEMPORARY SHORING/BRACING.

FOUNDATIONS

1. FOUNDATION DESIGN BASED ON GEOTECHNICAL REPORT BY TREK GEOTECHNICAL DATED 2022/11/24.
2. NOTWITHSTANDING THE INFORMATION PROVIDED IN THE GEOTECHNICAL REPORT, THE FOUNDATION AND GENERAL CONTRACTORS SHALL SATISFY THEMSELVES AS TO THE PREVAILING CONDITIONS AT THE SITE AS NO EXTRAS SHALL BE GRANTED SHOULD CONDITIONS DIFFER FROM THOSE INDICATED.
3. PRECAST CONCRETE PILES TO BE DRIVEN TO REFUSAL TO DEVELOP CAPACITIES AS SHOWN BELOW. ULS CAPACITIES HAVE BEEN MULTIPLIED BY THE NOTED GEOTECHNICAL RESISTANCE FACTOR:

   A) 300 mm HEX. – ULS = 550 kN SLS = 445 kN
   B) 350 mm HEX. – ULS = 770 kN SLS = 625 kN GEOTECHNICAL RESISTANCE FACTOR – ϕ=0.40
   C) 400 mm HEX. – ULS = 990 kN SLS = 800 kN
   D) DRIVEN PILING SHALL BE COMPLETED BEFORE ANY FRICTION OR BELLED PILING OPERATIONS COMMENCE.
   E) A 9 kPa FACTORED ULS UPLIFT DESIGN VALUE HAS BEEN USED. UPPER 1.5 m OF PILE HAS BEEN NEGLECTED IN DETERMINING THE AXIAL UPLIFT RESISTANCE. ULS SKIN FRICTION VALUE HAS BEEN MULTIPLIED BY A GEOTECHNICAL RESISTANCE FACTOR OF 0.3.
4. ALL FOUNDATION INSTALLATIONS SHALL BE REVIEWED BY QUALIFIED GEOTECHNICAL PERSONNEL REPORTING TO THE GEOTECHNICAL ENGINEER THAT ISSUED THE SITE-SPECIFIC GEOTECHNICAL REPORT IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANITOBA BUILDING CODE.
5. REMOVAL OF UNSUITABLE MATERIALS, SUBGRADE PREPARATIONS & COMPACTED GRANULAR FILL FOR ALL SLABS SUPPORTED ON GRADE AS PER SITE-SPECIFIC GEOTECHNICAL REPORT.
6. PROVIDE 2 LAYERS 10 MIL POLYETHYLENE WRAPPED SONOTUBE, GREASED COMPLETELY ON INSIDE FOR TOP 1800 mm OF PILES INDICATED ON PLAN.

CAST-IN-PLACE CONCRETE

I CONCRETE

1. ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH CSA-A23.1-09 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CSA-A23.2-09 "METHOD OF TEST FOR CONCRETE".
2. PROVIDE CERTIFICATION THAT MIX PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF QUALITY, YIELD AND STRENGTH AS SPECIFIED IN CONCRETE MIXES, AND WILL COMPLY WITH CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
3. PROVIDE CERTIFICATION THAT PLANT, EQUIPMENT, AND MATERIALS TO BE USED IN CONCRETE COMPLY WITH REQUIREMENTS OF CSA-A23.1. CERTIFICATION LETTER TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
4. CONCRETE PROPERTIES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

PILES:	35 MPa MIN. AT 56 DAYS CLASS OF EXPOSURE: S-2 ENTRAINED AIR/CATEGORY: 2 (4% TO 7%) CEMENT TYPE: HS AGGREGATE: MAX. 20 mm CURING TYPE: TYPE 2 – ADDITIONAL SLUMP: MIN. 120 mm
PRECAST DRIVEN PILES:	35 MPa MIN. AT 28 DAYS CEMENT TYPE: HS (TYPE HSe NOT PERMITTED) SLUMP AND AGGREGATES TO MANUFACTURERS REQUIREMENTS
PILE CAPS:	35 MPa MIN. AT 56 DAYS CLASS OF EXPOSURE: S-2 ENTRAINED AIR/CATEGORY: 2 (4% TO 7%) CEMENT TYPE: HS AGGREGATE: MAX. 20 mm CURING TYPE: TYPE 2 – ADDITIONAL
EXTERIOR WALLS AND GRADE BEAMS:	25 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: F-2 ENTRAINED AIR/CATEGORY: 2 (4% TO 7%) AGGREGATE MAX. 20 mm CURING TYPE: TYPE 2 – ADDITIONAL
EXTERIOR SLABS-ON-GRADE AND INTERIOR APPARATUS BAYS ONLY	32 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: C-2 ENTRAINED AIR/CATEGORY: 1 (5% TO 8%) AGGREGATE MAX. 20 mm CURING TYPE: TYPE 2 – ADDITIONAL
INTERIOR SLABS-ON-GRADE:	25 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: 2 (4% TO 7%) AGGREGATE MAX. 20 mm CURING TYPE: TYPE 1 – BASIC
INTERIOR STRUCTURAL SLAB:	25 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: 2 (4% TO 7%) AGGREGATE MAX. 20 mm CURING TYPE: TYPE 1 – BASIC
BONDED TOPPING SLABS: ON HOLLOWCORE	30 MPa MIN. AT 28 DAYS MAX. 0.45 WATER TO CEMENTITIOUS RATIO CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE AGGREGATE MAX. 14 mm CURING TYPE: TYPE 3 – 7 DAY WET CURE
TOPPING SLABS ON METAL DECK:	25 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE (LESS THAN 3%) AGGREGATE MAX. 14 mm CURING TYPE: TYPE 1 – BASIC
TOPPING SLABS ON METAL DECK: EXTERIOR	25 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: F-2 ENTRAINED AIR/CATEGORY: 2 (4% TO 7%) AGGREGATE MAX. 14 mm CURING TYPE: TYPE 2 – ADITIONAL
MASONRY FILL:	20 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: F-2 ENTRAINED AIR/CATEGORY: 2 AIR CONTENT: 4% TO 7% AGGREGATE MAX. 14 mm SLUMP: 200 mm ± 40 mm

UNLESS INDICATED OTHERWISE THE GENERAL CONTRACTOR SHALL SPECIFY CONCRETE SLUMP APPROPRIATE WITH PLACEMENT METHODS AND SITE CONDITIONS. THE GENERAL CONTRACTOR SPECIFIED SLUMP MUST BE SHOWN ON THE CERTIFICATION LETTER AND CONCRETE DELIVERY TICKET.

6. UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO CSA-A23.1-09 AS FOLLOWS:
   A) TYPE 1 – BASIC: 3 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 40% OF THE SPECIFIED STRENGTH.
   B) TYPE 2 – ADDITIONAL: 7 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
   C) TYPE 3 – EXTENDED: 7 DAYS WET CURING ≥ 10°C.

II REINFORCING STEEL

1. ALL REINFORCING STEEL TO BE CSA-G30.18M-M92 GRADE 400R DEFORMED BARS EXCEPT COLUMN TIES AND BEAM STIRRUPS WHICH SHALL BE GRADE 400W STEEL.
2. ALL REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH THE LATEST EDITION OF THE REINFORCING STEEL INSTITUTE OF CANADA – MANUAL OF STANDARD PRACTICE, EXCEPT OTHERWISE NOTED. ALL LAPPED SPLICES TO BE CLASS B SPLICES, UNLESS NOTED.
3. WELDED STEEL WIRE MESH SHALL BE TO ASTM A185/A185M-07, 400 MPa YIELD, FLAT SHEETS ONLY.
4. REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-09 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

PILES: EXPOSURE CLASS: S-2	75 mm TO TIES	
PILE CAPS: EXPOSURE CLASS: S-2	50 mm BOTTOM TO TIES AND BOTTOM REINFORCING.	
EXTERIOR WALLS: EXPOSURE CLASS: F-2	40 mm OUTSIDE FACE	20 mm INSIDE FACE.
GRADE BEAMS: EXPOSURE CLASS: F-2	50 mm BOTTOM TO TIES	40mm SIDES AND TOP TO TIES
EXTERIOR SLABS-ON-GRADE: EXPOSURE CLASS: C-2	40 mm TOP	40 mm BOTTOM
INTERIOR SLABS-ON-GRADE: EXPOSURE CLASS: N	40 mm TOP	20 mm BOTTOM
INTERIOR STRUCTURAL SLABS: EXPOSURE CLASS: N	25 mm TOP	25 mm BOTTOM

5. IN WALLS AND GRADE BEAMS, BEND ALL TOP, INTERMEDIATE, AND BOTTOM HORIZONTAL STEEL MINIMUM 600 mm AROUND CORNERS, OR USE EXTRA L BARS MINIMUM 1200 mm LONG. ALL OPENINGS IN WALLS TO HAVE 2-15M EACH SIDE AND 2-25M OVER, EXCEPT AS NOTED.
6. TOP STEEL IN BEAMS TO BE LAPPED AT CENTRE SPAN, WITH CLASS B SPLICES, BOTTOM STEEL CAN BE BUTTED AT SUPPORT.
7. IN WALLS, TOP STEEL TO BE LAPPED AT CENTRE SPAN WITH CLASS A TENSION SPLICES, BOTTOM STEEL TO BE BUTTED AT SUPPORT, HORIZONTAL STEEL TO BE LAPPED WITH CLASS A TENSION SPLICES, VERTICAL STEEL TO BE LAPPED WITH CLASS B TENSION SPLICES, EXCEPT AS NOTED.
8. IN SLABS ON GRADE, BARS TO BE LAPPED WITH CLASS A TENSION SPLICES, EXCEPT AS NOTED.
9. ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
10. ALL OPENINGS IN CAST-IN-PLACE CONCRETE FLATWORK TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, EXCEPT AS NOTED.
11. FOR ALL STRUCTURAL SLABS A MINIMUM OF 50% OF THE BOTTOM STEEL SHALL BE CONTINUED A MINIMUM DISTANCE OF 150 mm INTO ALL SUPPORTING WALLS AND BEAMS. IF KEYS ARE USED AT JOINTS BETWEEN SLABS AND WALLS OR BEAMS, BOTTOM DOWELS EQUAL TO BOTTOM REINFORCEMENT OR 10M AT 300 mm O/C SHALL BE PROVIDED WHICHEVER IS GREATER.
12. ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 mm O/C EACH WAY, UNLESS NOTED.
13. WHEN CONCRETE BEAMS ARE CAST INTO A WALL / BEAM CHASE, DOWELS SIZE AND NUMBER SAME AS BEAM REINFORCING ARE TO BE PROVIDED FROM WALL, UNLESS OTHERWISE SHOWN ON PLAN.
14. FOR TWO-WAY FLAT SLABS PROVIDE MINIMUM 2-10M BOTTOM INTEGRITY BARS THROUGHOUT STRUCTURES IN ACCORDANCE WITH CSA A23.3-09, CLAUSE 13.10.6.

III FORMWORK

1. SHEARMAT OR APPROVED CARDBOARD VOID FORM WITH A MIN. DEPTH OF 150 mm SHALL BE USED AS THE BOTTOM FORM FOR STRUCTURAL SLABS AT GRADE, GRADE BEAMS, AND WALLS IN CONTACT WITH SOIL. SELECT AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC. SHALL BE SUPPORTED BY PADS OF PLYWOOD OR TEMPERED HARDBOARD TO PREVENT PUNCTURING THE VOID FORM.
3. UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 mm ASPHALT IMPREGNATED FIBREBOARD.
4. ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 40 mm DEEP.
5. ALL STRUCTURAL SLABS FRAMING INTO BEAMS AND WALLS ARE TO HAVE A MINIMUM KEY OF 40 mm
6. ALL CONCRETE BEAMS FRAMING INTO CONCRETE WALLS / BEAMS ARE TO BE SUPPORTED BY A CHASE OF MINIMUM 100 mm DEPTH AND THE HEIGHT AND WIDTH OF THE BEAM.
7. PLACE 10 MIL POLYETHYLENE UNDER ALL INTERIOR SLABS ON FILL AND OVER TOP OF VOID FORM.
8. PROVIDE 150 mm WIDE, RIBBED, PVC WATERSTOPS IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ALL EXTERIOR WALLS BELOW GRADE AND PIT WALLS.

STRUCTURAL STEEL

1. THE STRUCTURAL STEEL FABRICATOR'S ENGINEER SHALL BE RESPONSIBLE FOR LOCATING AND DESIGNING PROVISIONS FOR ALL TEMPORARY FALL PROTECTION SYSTEMS REQUIRED DURING CONSTRUCTION TO MEET MANITOBA WORKPLACE HEALTH AND SAFETY REGULATIONS.
2. THE STRUCTURAL STEEL ERECTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND ERECTING ALL TEMPORARY GUYING AND BRACING OF THE STEEL FRAMING TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. THESE SHALL REMAIN IN PLACE UNTIL ALL STEEL DECKING IS ERECTED, WELDED IN PLACE, ALL MASONRY/CONCRETE WALLS CONSTRUCTED, AND ALL HOLLOWCORE HAS BEEN ERECTED, JOINTS GROUTED, AND BEARING ENDS HAVE BEEN GROUTED AND CURED.
3. STRUCTURAL STEEL TO CONFORM TO CSA-G40.21-04, "STRUCTURAL QUALITY STEELS" AND CSA-G40.20 "GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL", ASTM A572/A572M "STANDARD SPECIFICATION FOR HIGH-STRENGTH LOW-ALLOY COLUMBIUM-VANADIUM STRUCTURAL STEEL" OR ASTM A992/A992M "STANDARD SPECIFICATION FOR STRUCTURAL STEEL SHAPES".
4. ALL ROLLED OR STEEL STRUCTURAL SECTIONS SHALL BE G40.21-350W, ASTM A992 OR ASTM A572 GRADE 50. ALL HOLLOW STRUCTURAL SECTIONS TO BE G40.21-350W CLASS C OR ASTM A500-C. ALL ANGLES, CHANNELS AND PLATES SHALL BE G40.21-300W.
5. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE PERFORMED IN ACCORDANCE WITH CSA S16-09, "DESIGN OF STEEL STRUCTURES".
6. ALL WELDING SHALL CONFORM TO THE LATEST EDITION OF CSA W59, "WELDED STEEL CONSTRUCTION". FABRICATORS SHALL BE PROPERLY CERTIFIED IN ACCORDANCE WITH CSA W47.1, "CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES".
7. STRUCTURAL STEEL SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA COVERING THE DESIGN OF CONNECTIONS, TO THE PROJECT DESIGN ENGINEER FOR REVIEW PRIOR TO FABRICATION. CONNECTION DESIGN TO INCLUDE FOR ALL ADJUSTABLE CONNECTIONS REQUIRED TO SUIT FABRICATION AND ERECTION PROCEDURES AND TOLERANCES.
8. ALL BOLTED CONNECTIONS TO USE A325 HIGH STRENGTH BOLTS. MINIMUM CONNECTION SHALL CONSIST OF 2 BOLTS.
9. ALL STRUCTURAL STEEL IS TO RECEIVE ONE COAT OF CISC/CPMA 1-73a QUICK DRYING SHOP PRIMER. STEEL IN CRAWLSPACES SHALL RECEIVE 2 COATS. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2. STEEL RECEIVING FINISH PAINTING TO HAVE ONE COAT OF CISC/CPMA 2-75 QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP7.
10. ALL STRUCTURAL STEEL INDICATED AS GALVANIZED IS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH CAN/CSA-G164 "HOT DIP GALVANIZING OF IRREGULARLY SHAPED ARTICLES" WITH A MINIMUM GALVANIZED COATING OF 610 GRAMS PER SQUARE METRE OF SURFACE AREA. ALL FIELD WELDING TO BE TOUCHED UP WITH BRUSH APPLIED ZINC RICH PAINT CONTAINING MORE THAN 92% METALLIC ZINC BY WEIGHT.
11. STRUCTURAL STEEL SUPPLIER TO PROVIDE 40 mm x 5 mm MASONRY ANCHORS BY 400 mm LONG WITH 50 mm HOOK AT 800 mm O/C, ON ALL COLUMNS, GIRTS, AND BEAMS IN CONTACT WITH MASONRY.
12. NO HOLES PERMITTED IN TOP FLANGE OF BEAMS AT COLUMNS WHERE BEAMS ARE CONTINUOUS OVER COLUMNS.
13. ALL BEAMS CONTINUOUS OVER COLUMNS ARE TO HAVE WEB STIFFENERS THE SAME SIZE AND ORIENTATION AS THE COLUMN BELOW, UNLESS OTHERWISE NOTED.
14. ANCHOR BOLTS TO BE ASTM A307 GRADE C OR ASTM F1554 GRADE 36, WELDABLE, PROVIDED BY STEEL SUPPLIER AND SET BY THE GENERAL CONTRACTOR. WHERE ASTM F1554 GRADE 55 ANCHOR BOLTS ARE USED, BOLTS TO BE WELDABLE GRADE STEEL.
15. FABRICATOR TO NOTIFY ENGINEER OF ANY PROPOSED MEMBER SUBSTITUTIONS AND CHANGED CONNECTION DETAILS.
16. THE STRUCTURAL STEEL SUPPLIER SHALL PROVIDE AND BE RESPONSIBLE FOR ALL HOLES IN STEEL SECTIONS REQUIRED BY OTHER TRADES. SECTION SHALL BE STRENGTHENED WHERE REQUIRED TO GUARANTEE THE ORIGINAL STRENGTH OF THE BEAM. ANY CUTTING OF STEEL AT THE JOB SITE SHALL BE DONE ONLY AS DIRECTED AND APPROVED BY THE ENGINEER.
17. JOIST SEATS MAY BE BOLTED TO BEAM TOP FLANGES USING PAIRS OF 14.3 mm DIAMETER BOLT HOLES ORIENTED ACROSS THE FLANGE WIDTH. ALL HOLES MUST BE FILLED WITH 12.7 mm DIAMETER BOLTS.
18. UNLESS NOTED OTHERWISE ON DRAWINGS PROVIDE L76x76x6.4 DIAPHRAGM CHORD ANGLE AROUND ENTIRE PERIMETER OF BUILDING.
19. ALL OPENINGS LARGER THAN 450 mm x 450 mm THROUGH STEEL DECK TO BE FRAMED WITH L76x76x6.4 ANGLES ALL AROUND, EXCEPT AS NOTED. SMALLER OPENINGS THROUGH STEEL DECK TO BE STIFFENED BY STEEL DECK SUPPLIER. WHEN STEEL DECK CHANGES ITS FRAMING DIRECTION, USE L65 x 65 x 6.4 ANGLE TO SUPPORT EDGE.
20. STRUCTURAL STEEL WHICH SUPPORTS ARCHITECTURAL FINISHES MUST BE DESIGNED TO BE SUFFICIENTLY ADJUSTABLE TO MEET REQUIRED INSTALLATION TOLERANCES. SEE ARCHITECTURAL FOR REQUIRED FINISH CLEARANCES.
21. STEEL FRAMING BELOW AND PARALLEL TO HOLLOWCORE SPAN TO HAVE MINIMUM 19 mm DIAMETER x 152 mm LONG NELSON STUDS LOCATED AT Z-BAR TIE LOCATIONS AT 1/3 POINTS OF SPAN OR AS NOTED ON PLAN.
22. STEEL BEAMS SUPPORTING HOLLOWCORE SLAB ENDS TO PROVIDE 176x76x6 DIAPHRAGM CHORD ANGLE AROUND TOP FLANGE WITH 19 mm DIAMETER x 152 mm LONG NELSON STUDS AT 1220 mm ON CENTER FOR 203 TO 254 HOLLOWCORE, 19 mm x 178 LONG NELSON STUDS AT 1220 mm ON CENTER FOR 305 HOLLOWCORE WELDED TO TOP FLANGE OF BEAM AND GROUTED INTO POCKETS OR CORES OF PRECAST, OR AS NOTED ON PLAN.
23. STEEL STRUTS THAT BRACE TOP AND/OR BOTTOM FLANGES OF BEAMS MUST BE INSTALLED PRIOR TO ANY TEMPORARY CONSTRUCTION LOADING.
24. FOR ALL STEEL CONNECTIONS, SUPPLIERS/DESIGNERS SHALL PROVIDE A FINAL INSPECTION AND A LETTER SEALED BY THE ENGINEERS RESPONSIBLE, CERTIFYING THAT STEEL CONNECTIONS ARE CONSTRUCTED AND INSTALLED AS PER DESIGN ASSUMPTIONS AND INSTALLATION REQUIREMENTS.
25. STRUCTURAL STEEL TO BE REVIEWED BY THIRD PARTY STRUCTURAL STEEL INSPECTION AGENCY.

STEEL JOISTS

1. JOIST FABRICATOR TO CONSULT THE SUPPLEMENTS TO THE NATIONAL BUILDING CODE OF CANADA ON NON-UNIFORM SNOW LOADS.
2. JOISTS ARE TO BE CAMBERED FOR THE GREATER OF: FULL DEAD LOAD DEFLECTION OR FOR NOMINAL CAMBER AS SPECIFIED IN CSA S16-09.
3. ALL JOIST BRIDGING TO CONFORM WITH THE LATEST BUILDING CODE REQUIREMENTS, EXCEPT AS NOTED.
4. JOISTS BEARING ON BEAMS TO REST ON THE MIDDLE THIRD OF THE FLANGE. JOISTS IN LINE TO BEAR END TO END ON THE SUPPORTING BEAMS WITH A MAXIMUM GAP OF 13 mm
5. JOIST SUPPLIER TO REFER TO MECHANICAL DRAWINGS FOR LOCATION AND WEIGHTS OF EQUIPMENT SUPPORTED BY JOISTS. JOISTS TO HAVE INTERNAL MEMBERS IN LINE WHERE REQUIRED BY MECHANICAL DUCTS.
6. ALL STEEL JOISTS TO RECEIVE ONE COAT OF SHOP PRIMER CISC/CPMA 1-73a QUICK DRYING. JOISTS IN CRAWLSPACE TO HAVE 2 COATS. JOISTS TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2. JOISTS RECEIVING FINISH PAINTING TO HAVE ONE COAT OF CISC/CPMA 2-75 QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP7.
7. JOIST SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA TO THE PROJECT DESIGN ENGINEER FOR REVIEW PRIOR TO FABRICATION.
8. JOISTS WHICH ARE RESISTANCE WELDED SHALL CONFORM TO CSA W55.2, "RESISTANCE WELDING PRACTICE" AND CSA-W55.3, "RESISTANCE WELDING QUALIFICATION CODE FOR FABRICATORS OF STRUCTURAL MEMBERS USED IN BUILDINGS".
9. ALL COLUMNS TO BE STRUTTED BY JOISTS OR BEAMS. WHERE JOISTS OR BEAMS DO NOT LINE UP WITH COLUMNS TOP OF COLUMNS TO BE STRUTTED TO JOISTS WITH L76x76x6.4 TO ADJACENT JOIST TOP CHORD AT PANEL POINTS.
10. ALL JOISTS LINING UP WITH COLUMNS ARE TO BE STRUT JOISTS, DESIGNED TO RESIST END MOMENTS AS INDICATED ON THE DRAWINGS.
11. LIVE LOAD DEFLECTION CRITERIA SHALL BE L/360 UNLESS OTHERWISE NOTED.
12. CONTRACTOR SHALL REPORT TO ENGINEER ANY EQUIPMENT LOADS TO BE SUPPORTED BY JOISTS NOT SHOWN ON DRAWINGS.

METAL DECK

1. ROOF DECK SHALL BE 38 mm DEEP PROFILE, 0.76 mm THICK, WITH RIB SPACING OF 152 mm
2. FLOOR DECK SHALL BE 38 mm DEEP PROFILE, 1.21 mm THICK, COMPOSITE, WITH RIB SPACING OF 152 mm
3. DECK SHALL BE MINIMUM GRADE A WITH A MINIMUM GALVANIZED ZINC COATING TO Z275.
4. DECK SHALL BE ARC SPOT WELDED TO BEARING SUPPORTS AT 300 mm O/C. WELDS SHALL BE 20 mm DIAMETER.
5. SIDE LAPS SHALL BE MECHANICALLY FASTENED (BUTTON-PUNCHED) AT 600 mm ON-CENTRE.
6. DECK FASTENING USING POWDER-ACTUATED DRIVE PINS TO STRUCTURAL MEMBERS AND SIDELAP SCREWS MAY BE PROPOSED AS AN ALTERNATE TO PUDDLE WELDS AND BUTTON-PUNCHING. DECK SUPPLIER TO PROVIDE SEALED SHOP DRAWING INDICATING DETAILS OF PROPOSED SYSTEM, INCLUDING MANUFACTURER; TYPE, SIZE & SPACING OF DRIVE PINS AND SCREWS; DIAPHRAGM SHEAR CAPACITY; AND DIAPHRAGM STIFFNESS, FOR REVIEW AND ACCEPTANCE BY PROJECT ENGINEER PRIOR TO CONSTRUCTION. IF ACCEPTED FOR USE, DECK INSTALLER TO PROVIDE WRITTEN CONFIRMATION THAT INSTALLERS ARE CERTIFIED BY THE DRIVE-PIN SYSTEM MANUFACTURER FOR THE PROPER INSTALLATION OF THE SELECTED SYSTEM.
7. DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 150 mm TO 300 mm ACROSS THE FLUTES WITH MINIMUM L65x65x6.4 EACH SIDE OF OPENING PERPENDICULAR TO FLUTES. ANGLE SHALL BE WELDED TO AT LEAST TWO FLUTES ON EACH SIDE OF OPENING.
8. DECK SUPPLIER SHALL REINFORCE OPENINGS UP TO 450 mm ACROSS THE FLUTES WITH SUITABLE REINFORCEMENT BASED ON A STRUCTURAL ANALYSIS OF THE LOADS INVOLVED.
9. TOUCH UP DECK WITH ZINC RICH PAINT WHERE ZINC COATING HAS BEEN BURNED BY WELDING.

STAIRS AND GUARDRAILS

1. FOR ALL STEEL, PRECAST AND/OR TIMBER STAIRS AND GUARDRAILS, SUPPLIERS ARE TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA FOR REVIEW BY THE PROJECT ENGINEER, PRIOR TO FABRICATION. ENGINEERING SHOP DRAWINGS SHALL INCLUDE DESIGN LOADS, LAYOUT PLAN, CONNECTION DETAILS, AND ALL OTHER PERTINENT INFORMATION.
2. FOR ALL STEEL, PRECAST AND/OR TIMBER STAIRS AND GUARDRAILS, SUPPLIERS/DESIGNERS SHALL PROVIDE A FINAL INSPECTION AND A LETTER SEALED BY THE ENGINEERS RESPONSIBLE FOR THE STAIR AND GUARDRAIL DESIGNS, CERTIFYING THAT STAIRS AND GUARDRAILS ARE CONSTRUCTED AND INSTALLED AS PER DESIGN ASSUMPTIONS AND INSTALLATION REQUIREMENTS.

MASONRY

1. CONCRETE BLOCKS TO CONFORM TO CSA-A165.1-04 SERIES "CONCRETE BLOCK MASONRY UNITS".
   A) STANDARD HOLLOW MASONRY UNITS SHALL BE H/15/A/M.
   B) STANDARD SOLID MASONRY UNITS SHALL BE SF/15/A/M.
   C) LIGHTWEIGHT HOLLOW MASONRY UNITS SHALL BE H/15/C/M.
   D) LIGHTWEIGHT SOLID MASONRY UNITS SHALL BE SF/15/C/M.
      (COMPRESSIVE STRENGTH IS BASED ON NET AREA).
2. EXTERIOR AND LOAD BEARING WALLS ARE TO BE BUILT WITH TYPE "S" MORTAR HAVING A MINIMUM STRENGTH OF 12 MPa AT 28 DAYS. INTERIOR MASONRY NON-LOAD BEARING WALLS MAY BE BUILT WITH TYPE "N" MORTAR HAVING A COMPRESSIVE STRENGTH OF 5 MPa AT 28 DAYS. MORTAR SHALL CONFORM TO CSA A179-04, "MORTAR AND GROUT FOR UNIT MASONRY".
3. USE DUR-O-WAL OR EQUAL EVERY SECOND COURSE UNLESS NOTED OTHERWISE. EVERY COURSE FOR STACK BOND.
4. THE TOP COURSE OF ALL BLOCK WALLS IS TO BE A "U" BLOCK WITH 2-10M CONTINUOUS CENTERED AND FILLED WITH 20 MPa CONCRETE UNLESS NOTED ON PLAN AND AT EACH FLOOR LEVEL.
5. ALL MASONRY WALLS TO BE PROPERLY BRACED UNTIL STRUCTURE IS CLOSED IN AND WALL PERMANENTLY SUPPORTED.
6. ALL BLOCK WALLS RECEIVING BEAMS TO HAVE 2 COURSES HIGH, 400 mm LONG FILLED WITH 20 MPa CONCRETE UNLESS NOTED ON DRAWINGS.
7. MASONRY TIES AND ANCHORS SHALL BE DESIGNED IN CONFORMANCE WITH CSA-A370-04, "CONNECTORS FOR MASONRY". DESIGN WIND PRESSURE FOR TIES IN EXTERIOR WALLS SHALL BE 1.47 kPa
8. LINTELS IN NON-LOADBEARING BLOCK WALLS SHALL BE AS FOLLOWS UNLESS NOTED ON DRAWINGS:

UP TO 1200 mm	200 mm HIGH "U" BLOCK 20 MPa CONCRETE FILL 2-10M BOTTOM
1200 mm TO 2400 mm	400 mm HIGH "U" BLOCK 20 MPa CONCRETE FILL 2-15M BOTTOM

WOOD

1. ALL FLOOR JOISTS AND LINTELS TO BE NO.1/NO.2 SPF, WALL STUDS AND PLATES TO BE NO.1/NO.2 SPF. ALL WOOD TO BE KILN DRIED.
2. ALL WALLS TO BE ADEQUATELY BRACED UNTIL SHEATHING INSTALLED ON WALLS, FLOOR BELOW AND STRUCTURES ABOVE.
3. MAIN FLOOR BOTTOM PLATE IS TO CONSIST OF PWF GRADE MATERIAL AND TO BOLTED TO THE FOUNDATION WITH A MINIMUM OF 1/2" DIAMETER ANCHOR BOLTS x 200 mm LONG AT 1200 mm O/C.
4. USE 4 mm DIAMETER x 50 mm LONG POWDER ACTUATED FASTENERS AT 400 mm ON CENTRE UNLESS NOTED OTHERWISE FOR WOOD STUDS IN CONTACT WITH STEEL COLUMNS, GIRTS AND BEAMS.
5. NAILING PATTERNS AND NAIL LENGTHS SHALL CONFORM TO TABLE 9.23.3.4. AND 9.23.3.5. OF THE NATIONAL BUILDING CODE RESIDENTIAL STANDARDS, HOWEVER STAPLE FASTENERS WILL NOT BE ACCEPTED.
6. PLYWOOD SUB-FLOORING AND SHEATHING SHALL BE EXTERIOR DOUGLAS FIR PLYWOOD CONFORMING TO CSA 0121-08 "DOUGLAS FIR PLYWOOD" UNLESS OTHERWISE NOTED.
7. PLANK DECKING SHALL BE D.F.R SELECT GRADE AND SHALL BE LAID IN CONTROL RANDOM PATTERN TO 086-14 REQUIREMENTS.
8. ALL JOISTS OR BEAMS FLUSH FRAMED INTO OTHER BEAMS SHALL BE CONNECTED USING METAL JOIST OR BEAM HANGERS.
9. PSL FLEXURAL MEMBERS TO BE 2.0E GRADE AS MANUFACTURED BY WEYERHAEUSER OR APPROVED ALTERNATE.
10. LVL FLEXURAL MEMBERS TO BE 2.0E GRADE AS MANUFACTURED BY WEYERHAEUSER, LP BUILDING SOLUTIONS, OR APPROVED ALTERNATE.
11. PSL POSTS TO BE 1.8E GRADE AS MANUFACTURED BY WEYERHAEUSER OR APPROVED ALTERNATE.
12. LSL STUDS OR FLEXURAL MEMBERS TO BE 1.55E COMMERCIAL GRADE AS MANUFACTURED BY WEYERHAEUSER, LP BUILDING SOLUTIONS, OR APPROVED ALTERNATE.

GLUED LAMINAT