

ABBREVIATIONS

Ø	AT (SPACING)	KO	KNOCKOUT
AB	ANCHOR BOLT	KPa	KILOPASCAL
ADJ	ADJUSTABLE	kg(5)	PER SQUARE FOOT
AF	ABOVE FINISHED FLOOR	KSI	kg(5) PER SQUARE INCH
ALT	ALTERNATE	L	LOWER LEVEL
ARCH	ARCHITECT	LB #	POUND(S)
BOT. B	BOTTOM	LG	LONG
B PL	BASE PLATE	LL	LINE LOAD
BC	BOTTOM CHORD	LLV	LOWER LEVEL
BD	BOARD	LLV	LONG LEG
BTWN	BETWEEN	VERTICAL	
BLK	BUILDING BLOCK	LLH	LONG LEG
BL	BOTTOM LOWER LAYER	LONG	LONGITUDINAL
BM	BEAM	LP	LONG POINT
BRG	BRIDGING BEARING	m	METRE
BRG PL	BEARING PLATE	mm	MILLIMETRE
BS	BOTH SIDES	MAX	MAXIMUM
BSMT	BASEMENT	MECH	MECHANICAL
BUL	BOTTOM UPPER LAYER	MEZZ	MEZZANINE
C	COMPRESSION (UNFACTORED)	MI	MOMENT
C/C	CENTRE TO CENTRE	MIN	MINIMUM
C/W	COMPLETE WITH CENTRE LINE	MISC	MISCELLANEOUS
CANT	CANTILEVER	MO	MASONRY OPENING
CAP	CAPACITY	MO	MOMENT
CEM	CEMENT	MSC	MISCELLANEOUS
CF	COMPRESSIVE FORCE	NC	NOT IN CONTRACT
CI	(FACTORED) CHANNEL	NF	NEAR FACE
CHAN	CAST IRON	NG	NUMBER
CI	CAST-IN-PLACE CONTROL JOINT	NOM	NEAR FACE
CLR	CLEAR	N/S	NORTH-SOUTH
CMU	CONCRETE MASONRY UNIT	O/C	ON CENTRE
COL	COLUMN	OD	OUTSIDE DIAMETER
COMP	COMPOSITE CONCRETE	O/O	OUT TO OUT
CONC	CONCRETE	OH	OVERHEAD
CONN	CONNECTION	OPENING	
CONSTR	CONSTRUCTION	OPEN WEB STEEL	
CONT	CONTINUOUS CORRIDOR	OST	OPEN WEB STEEL JOIST
DBL	DOUBLE DEFLECTION	Pa	PASCAL
DEFL	DEFLECTION	PC	PRECAST
DEMO	DEMOLITION	PERP	PERPENDICULAR
DEPR	DEPRESSION	PL	PLATE
DEV	DEVELOP.	PL	PLATE
4	DIAMETER	PL	PLATE
DIAG	DIAGONAL	PL	PLATE
DM	DIMENSION	PL	PLATE
DR	DIRECTION	PL	PLATE
DR	DRAG LOAD	PL	PLATE
DL	DOWN	PL	PLATE
DP	DEEP	PL	PLATE
DR	DOOR	PL	PLATE
DFR	DOUGLAS FIR	PL	PLATE
DWG	DRAWING(S)	PL	PLATE
DWL	DOWELS	PL	PLATE
EA	EACH	PL	PLATE
EE	EACH END	PL	PLATE
EJ	EACH FACE	PL	PLATE
EJ	EXPANSION JOINT	PL	PLATE
EL	ELEVATION	PL	PLATE
ELEV	ELEVATOR	PL	PLATE
ELEC	ELECTRICAL	PL	PLATE
ENG	ENGINEER	PL	PLATE
EQ	EQUAL	PL	PLATE
EQUIP	EQUIPMENT	PL	PLATE
ES	EACH SIDE	PL	PLATE
E-W	EAST-WEST	PL	PLATE
EW	EACH WAY	PL	PLATE
EXIST	EXISTING	PL	PLATE
EXP	EXPANSION	PL	PLATE
EXT	EXTERIOR	PL	PLATE
FN	FOUNDATION	PL	PLATE
FF	FINISHED	PL	PLATE
FL	FLOOR	PL	PLATE
FS	FAIR SIDE	PL	PLATE
FT	FOOT/FEET	PL	PLATE
GA	GAUGE	PL	PLATE
GALV	GALVANIZED	PL	PLATE
GEN	GENERAL	PL	PLATE
GR	GRADE	PL	PLATE
GRAN	GRANULAR	PL	PLATE
H	HIGH	PL	PLATE
H	HORIZONTAL	PL	PLATE
FORCE	(UNFACTORED)	PL	PLATE
HC	HOLLOWCORE	PL	PLATE
HEX	HEXAGON	PL	PLATE
HORIZ	HORIZONTAL	PL	PLATE
HF	HORIZONTAL FORCE	PL	PLATE
HM	HOLLOW METAL	PL	PLATE
HP	HIGH POINT	PL	PLATE
HT	HEIGHT	PL	PLATE
IC	IN CENTRE	PL	PLATE
ID	INSIDE DIAMETER	PL	PLATE
I/F	INSIDE FACE	PL	PLATE
INSUL	INSULATION	PL	PLATE
INT	INTERIOR	PL	PLATE
JST	JOIST	PL	PLATE
JT	JOINT	PL	PLATE
kg	KILOGRAM	PL	PLATE
KIP, K	1000 LB	PL	PLATE
KLF	kg(5) PER LINEAL FOOT	PL	PLATE
KN	KILONEWTON	PL	PLATE

GENERAL NOTES:

- STRUCTURAL DESIGN BASED ON THE MANITOBA BUILDING CODE 2011 EDITION.
 - IMPORTANCE CATEGORY: NORMAL
 - WIND LOAD: q50 = 0.45 kPa
 - GROUND SNOW LOAD: Sg = 1.9 kPa
 - ASSOCIATED RAIN LOAD: Sr = 0.2 kPa
- DO NOT SCALE DRAWINGS.
- DO NOT BACKFILL UNTIL GROUND FLOOR STRUCTURE IS IN PLACE.
- ALL DIMENSIONS ARE TO BE VERIFIED WITH THE EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION.
- THESE STRUCTURAL DRAWINGS SHOW THE COMPLETED STRUCTURE AND DO NOT INDICATE ALL COMPONENTS NECESSARY FOR SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SAFETY ON AND AROUND THE JOBSITE DURING CONSTRUCTION INCLUDING BUT NOT LIMITED TO ALL TEMPORARY SHORING/BRACING.

FOUNDATIONS

- FOUNDATION DESIGN BASED ON GEOTECHNICAL REPORT BY TREK GEOTECHNICAL, DATED OCTOBER 8, 2021.
- 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.
- ALL FRICITION PILES ARE DESIGNED BASED ON THE FOLLOWING:
 - COMPRESSIVE DEPTH METRES

ULS KPa	0	1.5	10.5	16	15
SLS KPa	0	1.5	10.5	16	15
 - ULS SKIN FRICTION VALUE HAVE BEEN MULTIPLIED BY A GEOTECHNICAL RESISTANCE FACTOR OF 0.4.
- ULS BEARING CAPACITY OF 80 KPa THIS BEARING CAPACITY HAS BEEN MULTIPLIED BY A GEOTECHNICAL RESISTANCE FACTOR OF 0.40.
- EFFECTIVE LENGTH OF FRICITION PILES IS TOTAL LENGTH AS SHOWN ON PLAN MINUS 2.4 METRES FOR EXTERIOR PILES SUBJECT TO FREEZING CONDITIONS AND MINUS 1.5 METRES FOR PILES NOT SUBJECT TO FREEZING CONDITIONS.
- FRICITION PILE REINFORCING TO BE 6000 MM LONG UNLESS NOTED IN PLANS: 10M RINGS AT 1200 MM ON-CENTRE AND 3-10M RINGS AT 150 MM ON-CENTRE AT TOP. EXTEND VERTICAL PILE REINFORCING 450 MM INTO BEAMS OR WALLS. PILE REINFORCING TO BE 5-10M FOR 400MM DIAMETER PILES, 6-10M FOR 450MM, 5-15M FOR 500MM, 5-15M FOR 550MM, 6-15M FOR 600MM
- 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 PART 4 OF THE NATIONAL BUILDING CODE OF CANADA / THE MANITOBA BUILDING CODE.
- REMOVAL OF UNSUITABLE MATERIALS, SUBGRADE PREPARATIONS & COMPACTED GRANULAR FILL FOR ALL SLABS SUPPORTED ON GRADE AS PER SITE-SPECIFIC GEOTECHNICAL REPORT.

CAST-IN-PLACE CONCRETE

- CONCRETE
 - ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CSA-A23.1-09 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CSA-A23.2-09 "METHOD OF TEST FOR CONCRETE".
 - 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.
 - 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.
 - CONCRETE TESTING TO BE PERFORMED IN ACCORDANCE WITH CSA-A23.1-09. MINIMUM ONE SET OF TESTS PER POUR. COST OF TESTING TO BE CARRIED BY THE CONTRACTOR.
 - CONCRETE PROPERTIES SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE DRAWINGS.

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 STRUCTURAL SLABS:	35 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: C-1 ENTRAINED AIR/CATEGORY: 1 (5% TO 8%) AGGREGATE MAX. 20 mm CURING TYPE: TYPE 2 - ADDITIONAL
EXTERIOR SLABS-ON-GRADE:	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:	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 STRUCTURAL SLABS:	25 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE AGGREGATE MAX. 20 mm CURING TYPE: TYPE 2 - ADDITIONAL
MASONRY FILL:	20 MPa MIN. AT 28 DAYS CLASS OF EXPOSURE: N ENTRAINED AIR/CATEGORY: NONE AIR CONTENT: LESS THAN 3% AGGREGATE MAX. 14 mm SLUMP: 200 mm ± 40 mm

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

UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF CSA-A23.1-09 AS FOLLOWS:

- TYPE 1 - BASIC: 3 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 40% OF THE SPECIFIED STRENGTH.
- TYPE 2 - ADDITIONAL: 7 DAYS ≥ 10°C AND FOR A TIME NECESSARY TO ATTAIN 70% OF THE SPECIFIED STRENGTH.
- TYPE 3 - EXTENDED: 7 DAYS NET CURING ≥ 10°C.

REINFORCING STEEL

- 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.
- 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.
- WELDED STEEL WIRE MESH SHALL BE TO ASTM A185/A185M-07, 400 MPa YIELD, FLAT SHEETS ONLY.
- REINFORCING STEEL COVER IS TO CONFORM TO CAN/CSA A23.3-09 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

EXPOSURE CLASS:	GRADE BEAMS:	50 mm BOTTOM TO TIES	40 mm SIDES AND TOP TO TIES.
EXTERIOR STRUCTURAL SLABS:	EXPOSURE CLASS: F-2	60 mm TOP	60 mm BOTTOM
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	20 mm TOP	20 mm BOTTOM

- IN WALLS AND GRADE BEAMS, BEND ALL TOP, INTERMEDIATE, AND BOTTOM HORIZONTAL STEEL 600 mm AROUND CORNERS, OR USE EXTRA L BARS 1200 mm LONG. ALL OPENINGS IN WALLS TO HAVE 2-15M SIDE AND 2-25M OVER, EXCEPT AS NOTED.
- TOP STEEL IN BEAMS TO BE LAPPED AT CENTRE SPAN, WITH CLASS B SPLICES; BOTTOM STEEL CAN BE BUTTED AT SUPPORT.
- 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.
- IN SLABS ON GRADE, BARS TO BE LAPPED WITH CLASS A TENSION SPLICES, EXCEPT AS NOTED.
- ALL REINFORCING TO BE HELD IN PLACE, AND TIED BY THE USE OF PROPER ACCESSORIES, SUCH AS H-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. H-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
- ALL OPENINGS IN CAST-IN-PLACE CONCRETE FLATWORK TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, EXCEPT AS NOTED.
- 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.
- ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 400 mm O/C EACH WAY, UNLESS NOTED.
- 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.

FORMWORK

- 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.
- ACCESSORIES SUCH AS H-CHAIRS, SPACERS, ETC. SHALL BE SUPPORTED BY PADS OF PLYWOOD OR TEMPERED HARDBOARD TO PREVENT PUNCTURING THE VOID FORM.
- UNLESS NOTED OTHERWISE PROVIDE SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 12 mm ASPHALT IMPREGNATED FIBREBOARD.
- ALL CONSTRUCTION JOINT KEYS ARE TO BE A MINIMUM OF 40 mm DEEP.
- ALL STRUCTURAL SLABS FRAMING INTO BEAMS AND WALLS ARE TO HAVE A MINIMUM KEY OF 40 mm
- 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.
- PLACE 10 MIL POLYETHYLENE UNDER ALL INTERIOR SLABS ON FILL AND OVER TOP OF VOID FORM.
- 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

- 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.
- 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 BECKING 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.
- 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".
- 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.
- FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL BE PERFORMED IN ACCORDANCE WITH CSA S16-09, "DESIGN OF STEEL STRUCTURES".
- 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".
- 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.
- ALL BOLTED CONNECTIONS TO USE A325 HIGH STRENGTH BOLTS. MINIMUM CONNECTION SHALL CONSIST OF 2 BOLTS.
- ALL STRUCTURAL STEEL IS TO RECEIVE ONE COAT OF OISC/CPMA 1-75% QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2. STEEL RECEIVING FINISH PAINTING TO HAVE ONE COAT OF OISC/CPMA 2-75 QUICK DRYING SHOP PRIMER. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP7.
- 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.
- 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, GRIS, AND BEAMS IN CONTACT WITH MASONRY.
- NO HOLES PERMITTED IN TOP FLANGE OF BEAMS AT COLUMNS WHERE BEAMS ARE CONTINUOUS OVER COLUMNS.
- ALL BEAMS CONTINUOUS OVER COLUMNS ARE TO HAVE WEB STIFFENERS THE SAME SIZE AND ORIENTATION AS THE COLUMN BELOW, UNLESS OTHERWISE NOTED.
- 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 36 ANCHOR BOLTS ARE USED, ANCHOR BOLTS TO BE WELDABLE GRADE STEEL.
- FABRICATOR TO NOTIFY ENGINEER OF ANY PROPOSED MEMBER SUBSTITUTIONS AND CHANGED CONNECTION DETAILS.
- 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 MAINTAIN 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.
- UNLESS NOTED OTHERWISE ON DRAWINGS PROVIDE L76 x 76 x 6.4 DIAPHRAGM CHORD ANGLE AROUND ENTIRE PERIMETER OF BUILDING.
- ALL OPENINGS LARGER THAN 450 mm x 450 mm THROUGH STEEL DECK TO BE FRAMED WITH L76 x 76 x 6.4 ANGLES ALL AROUND, EXCEPT AS NOTED. SMALLER OPENINGS THROUGH STEEL DECK TO BE STIFFENED BY STEEL SUPPLIER. WHEN STEEL DECK CHANGES ITS FRAMING DIRECTION, USE L65 x 65 x 6.4 ANGLE TO SUPPORT EDGE.
- STRUCTURAL STEEL WHICH SUPPORTS ARCHITECTURAL FINISHES MUST BE DESIGNED TO BE SUFFICIENTLY ADJUSTABLE TO MEET REQUIRED INSTALLATION TOLERANCES. SEE ARCHITECTURAL FOR REQUIRED FINISH TOLERANCES.
- STEEL STRUTS THAT BRACE TOP AND/OR BOTTOM FLANGES OF BEAMS MUST BE INSTALLED PRIOR TO ANY TEMPORARY CONSTRUCTION LOADS.
- STRUCTURAL STEEL CONNECTIONS TO BE REVIEWED BY STRUCTURAL STEEL DESIGN ENGINEERING OR THIRD PARTY STRUCTURAL STEEL CONNECTION INSPECTION AGENCY.

METAL DECK

- ROOF DECK SHALL BE 38 mm DEEP PROFILE, 0.76 mm, WITH RIB SPACING OF 150 mm.
- DECK SHALL BE MINIMUM GRADE A WITH A MINIMUM GALVANIZED ZINC COATING TO Z275.
- DECK SHALL BE ARC SPOT WELDED TO BEARING SUPPORTS AT 300 mm O/C. WELDS SHALL BE 20 mm DIAMETER.
- SIDE LAPS SHALL BE MECHANICALLY FASTENED (BUTTON-PUNCHED) AT 600 mm ON-CENTRE.
- DECK FASTENING LEGS POWER-ACTIVATED DRIVE PINS TO STRUCTURAL MEMBERS AND SHELAP SCREWS MAY BE PROPOSED AS AN ALTERNATE TO PULDED 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.
- DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 150 mm TO 300 mm ACROSS THE FLUTES WITH MINIMUM L65 x 65 x 6.4 EACH SIDE OF OPENING PERPENDICULAR TO FLUTES. ANGLE SHALL BE WELDED TO AT LEAST TWO FLUTES ON EACH SIDE OF OPENING.
- DECK SUPPLIER SHALL REINFORCE OPENINGS UP TO 450 mm ACROSS THE FLUTES WITH SUITABLE REINFORCEMENT BASED ON A STRUCTURAL ANALYSIS OF THE LOADS INVOLVED.
- TOUCH UP DECK WITH ZINC RICH PAINT WHERE ZINC COATING HAS BEEN BURNED BY WELDING.

MASONRY

- CONCRETE BLOCKS TO CONFORM TO CSA-A165.1-04 SERIES "CONCRETE BLOCK MASONRY UNITS".
 - STANDARD HOLLOW MASONRY UNITS SHALL BE H/15/A/M. (COMPRESSIVE STRENGTH IS BASED ON NET AREA).
- 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".
- USE DUR-O-WAL OR EQUAL EVERY SECOND COURSE UNLESS NOTED OTHERWISE. EVERY COURSE FOR STACK BOND.
- 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.
- ALL MASONRY WALLS TO BE PROPERLY BRACED UNTIL STRUCTURE IS CLOSED IN AND WALL PERMANENTLY SUPPORTED.
- ALL BLOCK WALLS RECEIVING BEAMS TO HAVE 2 COURSES HIGH, 400 mm LONG FILLED WITH 20 MPa CONCRETE UNLESS NOTED ON DRAWINGS.
- 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 1.2 MPa.
- UNTELS IN NON-LOAD BEARING 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

PRECAST CONCRETE

- PRECAST CONCRETE IS TO BE DESIGNED IN ACCORDANCE WITH CSA A23.3-04 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS".
- ALL STRUCTURAL PRECAST ELEMENTS ARE TO BE PRODUCED BY A MANUFACTURING PLANT CERTIFIED BY CPCL AND TO MEET THE REQUIREMENTS OF CSA-A23.4-09(R2014) "PRECAST CONCRETE-MATERIALS AND CONSTRUCTION" (INCLUDING APPENDICES A & B).
- PRIOR TO FABRICATION THE MANUFACTURER SHALL SUBMIT LAYOUT AND ERECTION DRAWINGS TO THE ENGINEER FOR REVIEW BEARING THE SEAL OF AN ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA SHOWING THE FOLLOWING:
 - SPECIFIED LOADS ASSUMED IN THE DESIGN OF THE PRECAST;
 - EACH PRECAST ELEMENT SHALL BE IDENTIFIED BY A STANDARD MARK PLACED LEGIBLY ON THE UNIT AT THE TIME OF MANUFACTURE AND LOCATED ON THE MANUFACTURERS LAYOUT PLAN;
 - DIMENSIONS AND LOCATION OF ALL PRECAST PIECES INCLUDING AREAS WHERE PRECAST CANNOT BE USED DUE TO PRODUCT LIMITATIONS;
 - LOCATIONS WHERE SUPPORT IS REQUIRED IN ADDITION TO THAT SHOWN ON STRUCTURAL DRAWINGS;
 - ALL CONNECTION DETAILS NECESSARY FOR PROPER INSTALLATION;
 - DIMENSIONS AND LOCATION OF ALL PREFORMED OPENINGS OR EMBEDMENTS BEING PROVIDED;
 - LOCATIONS WHERE HANGERS WILL BE SUPPLIED TO PROVIDE OPENINGS; AND
 - LOCATIONS WHERE STRUCTURALLY COMPOSITE CONCRETE TOPPING IS REQUIRED FOR THE PRECAST TO SUPPORT SPECIFIED LOADS.
 - REINFORCING, INCLUDING CANTILEVER SECTIONS.
 - IF SOLID OR GROUTED PLANKS REQUIRED.
 - CAMBER OF MEMBER.
- ALL ANGLES, ANCHOR BOLTS AND OTHER MISCELLANEOUS METAL NECESSARY TO SUPPORT PRECAST SECTIONS TO ADJACENT PRECAST ELEMENTS SHALL BE DESIGNED, DETAILED AND SUPPLIED BY THE PRECAST SUPPLIER. WHERE APPLICABLE, THESE SHALL BE INSTALLED BY THE GENERAL CONTRACTOR WHO SHALL ALLOW FOR INSTALLATION COST IN HIS PRICE.
- PRECAST SUPPLIER TO COORDINATE WITH MECHANICAL AND ELECTRICAL DRAWINGS AND TRADES FOR ANY OPENINGS. ALL HOLES LARGER THAN 150 mm IN DIAMETER TO BE FORMED IN THE SHOP.
- ALL INSERTS, ANCHORS, HANGERS AND MISCELLANEOUS ATTACHMENTS FOR OTHER TRADES SHALL BE THE RESPONSIBILITY OF OTHERS.
- PRECAST FABRICATOR SHALL DESIGN ROOF ELEMENTS FOR POSSIBLE CONCENTRATED LOADS AS DESCRIBED BY NBC-10, CLAUSE 4.1.5.9 AND SHALL REVIEW ALL PROJECT DOCUMENTS TO CONFIRM LOCATION OF POINT LOADS IN EXCESS OF THOSE IDENTIFIED BY NBC-10.
- INSTALLATION OF THE PRECAST UNITS SHALL BE BY THE SUPPLIER, OR UNDER THEIR SUPERVISION, AND SHALL BE DONE BY A SKILLED INSTALLATION CREW. INSTALLATION TOLERANCES SHALL COMPLY WITH CSA-A23.4. SUPPLIER SHALL PROVIDE CERTIFICATION OF INSTALLATION UNDER SEAL OF PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA AFTER COMPLETION.
- THE GENERAL CONTRACTOR SHALL PROVIDE TRUE AND LEVEL BEARING SURFACES BEFORE ANY PRECAST SLABS SHALL BE DELIVERED FOR ERECTION. ALL KEYS TO BE COMPLETELY CLEANED PRIOR TO INSTALLATION OF GROUT. PRECAST SLABS MUST BE ALIGNED AND LEVELED BEFORE GROUTING THE KEYS AND JOINTS WITH A GROUT MIX AS SPECIFIED BY THE PRECAST SUPPLIER/DESIGNER.
- MINIMUM DESIGN BEARING FOR PRECAST:
 - 75 mm ON MASONRY OR CONCRETE; 89 mm FOR 300 mm SLABS WITH SPANS EXCEEDING 11600 mm;
- PROVIDE AND INSTALL BEARING PADS AT HOLLOWCORE BEARING AS SPECIFIED BY HOLLOWCORE SUPPLIER.

HOLLOWCORE

- FINAL HOLLOWCORE PANEL LAYOUT TO BE DETERMINED BY HOLLOWCORE SUPPLIER. COORDINATE REINFORCING REQUIRED WITH PROJECT ENGINEER IF FOUR STRIPS ARE REQUIRED.
- HOLLOWCORE SUPPLIER TO COORDINATE OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- HOLLOWCORE KEYS AND JOINTS MUST BE GROUTED PRIOR TO IMPOSING ANY TEMPORARY CONSTRUCTION LOADS ON THE PLANKS (MATERIAL STORAGE, MOTORISED LIFTS, H-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK).
- FOR OPENINGS THROUGH HOLLOWCORE, POSITION OPENINGS TO ALIGN WITH CORES. DO NOT CUT STRAND REINFORCING. WHERE PIPE BANKS OR SMALL OPENINGS (150 mm MAX) GO THROUGH HOLLOWCORE, POSITION SO THAT ONE OPENING GOES THROUGH EACH CORE. WHERE PIPE BANKS OR SMALL OPENINGS RUN PARALLEL TO HOLLOWCORE, SPACE OPENINGS AT MINIMUM 150 mm ON CENTER. COORDINATE ALL OPENING LOCATIONS PRIOR TO MANUFACTURING OF HOLLOWCORE.
- FOR PIPING AND DUCTWORK SUSPENDED FROM HOLLOWCORE:
 - MECHANICAL TRADES AND HOLLOWCORE SUPPLIER TO COORDINATE LOCATIONS WHERE CORES ARE TO BE GROUTED SOLID FOR ANCHORS.
 - DO NOT CORE HOLES FOR ANCHORS.
 - LOCATE PRESTRESSING STRANDS WITHIN HOLLOWCORE PRIOR TO DRILLING. DO NOT CUT STRANDS. DO NOT LOCATE ANCHORS/HANGERS AT STRANDS.



2021-10-29

NO.	DATE	REVISION / ISSUANCE
3	-	-
2	-	-
1	-	-
0	21.10.29	- ISSUED FOR CONSTRUCTION

Seal

Architect



Engineer