ABBREVIATIONS

@ AB	AT (SPACING) ANCHOR BOLT	KO kPa
ADJ AFF	ADJUSTABLE ABOVE FINISHED	KSF
ALT ARCH	ALTERNATE ARCHITECT.	KSI
BOT, B	ARCHITECTURAL BOTTOM	LB, LG
B PL BC	BASE PLATE BOTTOM CHORD	
BD BTWN	BOARD BETWEEN	LLV
BLDG BLK BLI	BUILDING BLOCK BOTTOM LOWER	LLH
BM	LAYER BFAM	LONG LP
BRDG BRG	BRIDGING BEARING	mm MAS
BRG PL BS	BEARING PLATE BOTH SIDES	MAX MECH
BSMT BUL	BASEMENT BOTTOM UPPER	MEZZ Mf
С		MIN
C/C	(UNFACTORED) CENTRE TO	MISC MK
c/w	COMPLETE WITH	MO MOM
€ CANT	CENTRE LINE CANTILEVER	NIC NF
CAP. CEM Cf	CEMENT	NO. NOM
	FORCE (FACTORED)	NTS N-S
CHAN CI	CHANNEL CAST IRON	NS 0/C
CIP CJ	CAST-IN-PLACE CONTROL JOINT	0D 0/0
CLR CMU	CLEAR CONCRETE	0/F OH
COL	MASONRY UNIT COLUMN	OPNO OWSJ
	COMPOSITE CONCRETE CONNECT	Pa
CONSTR	CONNECTION CONSTRUCTION	PERP
CONT	CONTINUOUS	PLF
DBL DEFL	DOUBLE DEFLECTION	PLYW PREF
DEMO	DEMOLISH, DEMOLITION	PROJ PSF
DEPR DET	DEPRESSION DETAIL	PSI
Ø	DEVELOP, DEVELOPMENT DIA DIAMETER	PT
DIAG DIM	DIAGONAL DIMENSION	R REF
DIR DL	DIRECTION DEAD LOAD	REINF
DN DP	DOWN DEEP	REM REQ
DR DFIR DWC	DOUR DOUGLAS FIR	REV RO
DWG DWL	DRAWING(S) DOWEL(S)	R/W SCHE
EA EE FF	EACH END FACH FACE	SIM
EJ EL	EXPANSION JOINT ELEVATION	S1E SL
ELEV ELEC	ELEVATOR ELECTRICAL	SOG SPEC
ENG EQ	ENGINEER EQUAL	SPF SQ
EQUIP ES	EQUIPMENT EACH SIDE	STD STR
E-W EW	EAST-WEST EACH WAY	STIFF
EXP	EXPANSION	STRU
FDN FF	FOUNDATION FAR FACE	T
FIN FL	FINISHED FLOOR	Т Т/О
FS FT	FAR SIDE FOOT/FEET	T&B TEMP
FTG GA	FOOTING GAUGE	Tf
GALV GEN GR	GALVANIZED GENERAL CRADE	THRU TLL
GRAN H	GRANULAR HIGH	TRAN TS
H	HORIZONTAL	TUL TYP
HC	(UNFACTORED) HOLLOWCORE	UHMV
hex Horiz	HEXAGON HORIZONTAL	UL
Hf	HORIZONTAL	U/N
HM	(FACTORED) HOLLOW METAL	U/S V
пР HT IC	HUGH PUINT HEIGHT IN CENTRE	VERT
ID I /F	INSIDE DIAMETER	Vf
INSUL INT	INSULATION	W W/
JST JT	JOIST JOINT	W/O WD
kg KIP, K	KILOGRAM 1000 LB	WP WT
KLF	kip(s) PER LINEAL	WWM

KILONEWTON

kN

KNOCKOU KILOPASCAL kip(s) PER SQUARE FOOT kip(s) PER SQUARE INCH LOW POUND(S) LB, # LONG LIVE LOAD LOWER LAYER LONG LEG VERTICA LONG LEG HORIZONTAI LONG I ONGITUDINAI LOW POINT METRE MILLIMETRE MASONRY MAXIMUM MECH MECHANICA MEZZANINE FACTORED MOMENT MINIMUM MISCELLANEOUS MARK MASONRY OPENING MOMENT MEGAPASCAL NOT IN CONTRACT NEAR FACE NUMBER NOMINAL NOT TO SCALE NORTH-SOUTH NELSON STUD ON CENTRE OUTSIDE DIAMETER 0/0 OUT TO OUT 0/F OUTSIDE FACE OVERHEAD OPNG OPENINO OPEN WEB STEEL OWSJ PASCAL PRECAST PERP PERPENDICULAR PL, PL PI ATF POUNDS PER LINEAL FOOT PLYWD PLYWOOD PREFAB PREFABRICATED PROJECTION PROJ POUNDS PER SQUARE FOOT POUNDS PER SOUARE INCH PRESSURE TREATED RADIUS, REACTION REFERENCE REINF REINFORCE REINFORCEMENT REMAINDER REQUIRED REVISION, REVISED ROUGH OPENING RFINFORCE WITH R/W SCHED SCHEDULE SECTION SIMILAR STRUT JOIST STRUT ONE END SLAB SLAB ON GRADE SPEC SPECIFICATIONS SPRUCE-PINE-FIR SQUARE STANDARD STAIR STIFFFNFR STIRRUP STEEL STRUCT STRUCTURAL SYM SYMMETRICAL TENSION (UNFACTORED) TOP TOP OF TOP & BOTTOM TEMP TEMPORARY TENSION FORCE (FACTORFD) THRU THROUGH TOP LOWER LAYER TRANS TRANSVERSE TEMPERATURE TOP UPPER LAYER TYPICAL UHMW ULTRA HIGH MOLECULAR WFIGHT UPPER LAYER U/N UNLESS OTHERWISE NOTED U/S UNDERSIDE VERTICAL SHEAR (UNFACTORED) VERT VERTICAL VERTICAL SHEAR (FACTORED) WIDE, WIDTH WITH WITHOUT WOOD WORK POINT WEIGHT WELDED WIRE MESH X-BRACE CROSS BRACING

GENERAL NOTES:

- 1. STRUCTURAL DESIGN BASED ON THE MANITOBA BUILDING CODE 2011 EDITION. A) IMPORTANCE CATEGORY: NORMAL
- WIND LOAD: q50 = 0.45 kPa C) GROUND SNOW LOAD: Ss = 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 PROJECT DRAWINGS 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
- 3. ALL FRICTION PILES ARE DESIGNED BASED ON THE FOLLOWING: A) COMPRESSIVE DEPTH METRES ULS kPA SLS kPA - 1.5 10.5
- ULS SKIN FRICTION VALUE HAVE BEEN MULTIPLIED BY A GEOTECHNICAL RESISTANCE FACTOR OF 0.4. B) UPLIFT DEPTH METRES ULS kPa SLS kPa
- 1.5 10.5 1.5 -ULS SKIN FRICTION VALUE HAVE BEEN MULTIPLIED BY A GEOTECHNICAL RESISTANCE FACTOR OF 0.3.
- C) ULS BEARING CAPACITY OF 80 KPA THIS BEARING CAPACITY HAS BEEN MULTIPLIED BY A GEOTECHNICAL RESISTANCE FACTOR OF 0.40. EFFECTIVE LENGTH OF FRICTION 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.
- E) FRICTION 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, 10-15M FOR 750MM
 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 PART 4 OF THE NATIONAL BUILDING CODE OF CANADA / THE MANITOBA BUILDING CODE.
- 5. REMOVAL ÓF UNSUITABLE MATERIALS, SUBGRADE PREPARATIONS & COMPACTED GRANULAR FILL FOR ALL SLABS SUPPORTED ON GRADE AS PER SITE-SPECIFIC GEOTECHNICAL REPORT. CAST-IN-PLACE CONCRETE

I CONCRETE

- 1. 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
- 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 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.
- 5. 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 FNTRAINED AIR/CATEGORY: 2 (4% TO 7%) AGGREGATE MAX. 20 mm CURING TYPE: TYPE 2 - ADDITIONAL

35 MPa MIN. AT 28 DAYS

CLASS OF EXPOSURE: C-

AGGREGATE MAX. 20 mm

32 MPa MIN. AT 28 DAYS

CLASS OF EXPOSURE: C-2

AGGREGATE MÁX. 20 mm

32 MPa MIN. AT 28 DAYS

CLASS OF EXPOSURE: C-2

AGGREGATE MAX, 20 mm

25 MPa MIN. AT 28 DAYS

CLASS OF EXPOSURE: N

AGGREGATE MAX. 20 mm

20 MPa MIN. AT 28 DAYS

ENTRAINED AIR/CATEGORY: NONE

ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)

ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)

ENTRAINED AIR/CATEGORY: 1 (5% TO 8%)

CURING TYPE: TYPE 2 - ADDITIONAL

EXTERIOR STRUCTURAL SLABS:

EXTERIOR SLABS-ON-GRADE:

INTERIOR SLABS-ON-GRADE:

INTERIOR STRUCTURAL SLABS:

MASONRY FILL:

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.

6. UNLESS NOTED OTHERWISE CONCRETE CURING TO CONFORM TO THE LATEST EDITION OF 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 \geq 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. 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:

EXPOSURE CLASS:

GRADE BEAMS: EXPOSURE CLASS: F–2	50 mm BOTTOM TO TIES	40mm SIDES AND TOP TO TIES
EXTERIOR STRUCTURAL SLABS: EXPOSURE CLASS: C-1	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
		ND DOTTOM LIODIZONTAL STEEL 60

5. 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 EACH 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 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 0/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 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. 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.
- 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. 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
- 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

- 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. 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". 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
- TOI FRANCES. 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 1-730 QUICK DRYING SHOP PRIMER. 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.
- 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 STEE 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. UNLESS NOTED OTHERWISE ON DRAWINGS PROVIDE L76 x 76 x 6.4 DIAPHRAGM CHORD ANGLE AROUND ENTIRE PERIMETER OF BUILDING.
- 18. 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 DECK SUPPLIER. WHEN STEEL DECK CHANGES ITS FRAMING DIRECTION, USE L65 x 65 x 6.4 ANGLE TO SUPPORT EDGE. 19. STRUCTURAL STEEL WHICH SUPPORTS ARCHITECTURAL FINISHES MUST BE DESIGNED TO BE SUFFICIENTLY ADJUSTABLE TO MEET REQUIRED
- INSTALLATION TOLERANCES. SEE ARCHITECTURAL FOR REQUIRED FINISH TOLERANCES. 20. STEEL STRUTS THAT BRACE TOP AND/OR BOTTOM FLANGES OF BEAMS MUST BE INSTALLED PRIOR TO ANY TEMPORARY CONSTRUCTION LOADING. 21. 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.
- 3. 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 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
- 6. 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 8. 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".
- A) STANDARD HOLLOW MASONRY UNITS SHALL BE H/15/A/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 MPg AT 28 DAYS. INTERIOR MASONRY NON-LOAD BEARING WALLS MAY BE BUILT WITH TYPE 'N' MORTAR HAVING A COMPRESSIVE STRENGTH OF 5 MPG 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 MPg CONCRETE UNLESS NOTED ON PLAN.
- . 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. 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 kPa
- 8. LINTELS IN NON-LOAD BEARING BLOCK WALLS SHALL BE AS FOLLOWS UNLESS NOTED ON DRAWINGS:

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

UP TO 1200 mm

- PRECAST CONCRETE IS TO BE DESIGNED IN ACCORDANCE WITH CSA A23.3-04 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS". 2. ALL STRUCTURAL PRECAST ELEMENTS ARE TO BE PRODUCED BY A MANUFACTURING PLANT CERTIFIED BY CPCI AND TO MEET THE REQUIREMENTS
- OF CSA-A23.4-09(R2014) "PRECAST CONCRETE-MATERIALS AND CONSTRUCTION" (INCLUDING APPENDICES A & B). 3. 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:
- A) SPECIFIED LOADS ASSUMED IN THE DESIGN OF THE PRECAST; B) 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; c) 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. K) CAMBER OF MEMBER
- 4. 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.
- 5. 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. 6. 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 NBCC-10, CLAUSE 4.1.5.9 AND
- SHALL REVIEW ALL PROJECT DOCUMENTS TO CONFIRM LOCATION OF POINT LOADS IN EXCESS OF THOSE IDENTIFIED BY NBCC-10. 8. INSTALLATION OF THE PRECAST UNITS SHALL BE BY THE SUPPLIER, OR UNDER THEIR SUPERVISION, AND SHALL BE DONE BY A SKILLED ERECTION 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. 9. 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.
- 10. MINIMUM DESIGN BEARING FOR PRECAST A) 75 mm ON MASONRY OR CONCRETE; 89 mm FOR 300 mm SLABS WITH SPANS EXCEEDING 11600 mm;
- 11. PROVIDE AND INSTALL BEARING PADS AT HOLLOWCORE BEARING AS SPECIFIED BY HOLLOWCORE SUPPLIER.
- I HOLLOWCORE
- 1. FINAL HOLLOWCORE PANEL LAYOUT TO BE DETERMINED BY HOLLOWCORE SUPPLIER. COORDINATE REINFORCING REQUIRED WITH PROJECT ENGINEER IF POUR STRIPS ARE REQUIRED. 2. HOLLOWCORE SUPPLIER TO COORDINATE OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.
- 3. HOLLOWCORE KEYS AND JOINTS MUST BE GROUTED PRIOR TO IMPOSING ANY TEMPORARY CONSTRUCTION LOADS ON THE PLANKS (MATERIAL STORAGE, MOTORIZED LIFTS, ETC.). 4. 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. 5. FOR PIPING AND DUCTWORK SUSPENDED FROM HOLLOWCORE;
- A) MECHANICAL TRADES AND HOLLOWCORE SUPPLIER TO COORDINATE LOCATIONS WHERE CORES ARE TO BE GROUTED SOLID FOR ANCHORS. B) DO NOT CORE HOLES FOR ANCHORS. C) LOCATE PRESTRESSING STRANDS WITHIN HOLLOWCORE PRIOR TO DRILLING. DO NOT CUT STRANDS. DO NOT LOCATE ANCHORS/HANGERS AT STRANDS

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Architect				
x architecture inc. 120 Fort Street, Suite 103 Winnipeg, Manitoba R3C 1C7 Engineer				
Winnipeg, Manitoba R3C 5R6 T 204. 943. 7501 F 204. 943. 7507 2021-0367 Crosier Kilgour & Partners Ltd. CONSULTING STRUCTURAL ENGINEERS				
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