GENERAL NOTES

1. THIS SET OF DRAWINGS SHOWS THE COMPLETED PROJECT. IT IS TO BE READ IN CONJUNCTION WITH THE NON-STRUCTURAL DRAWING SETS. IT DOES NOT INCLUDE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORM WORK, FALSE WORK, SHORING, ETC. REQUIRED TO COMPLETE THE WORK.
2. THE USE OF THESE DRAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION" IN THE REVISIONS COLUMN BY TOWER ENGINEERING GROUP.
3. THE INFORMATION ON THIS DRAWING SHALL NOT BE USED FOR ANYTHING OTHER THAN THE SPECIFIED WORKS OR PART OF THE WORKS FOR WHICH IT HAS BEEN AUTHORIZED BY TOWER ENGINEERING GROUP.
4. SEE ARCHITECTURAL DRAWINGS FOR FLOOR AND ROOF ELEVATIONS, RECESSES, DRAINAGE SLOPES, DETAILED DIMENSIONS FOR DOORS, WINDOWS AND OTHER OPENINGS ETC.
5. SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR SLEEVES, NAILERS, INSERTS, ETC. TO BE ENCASED IN CONCRETE.
6. THE CONTRACTOR SHALL REVIEW ALL THE DRAWINGS AND CHECK DIMENSIONS BEFORE CONSTRUCTION. REPORT DISCREPANCIES BETWEEN STRUCTURAL AND OTHER DISCIPLINES DRAWINGS FOR CLARIFICATION.
7. THE CONTRACTOR SHALL REPORT ANY SITE MODIFICATIONS MADE DURING CONSTRUCTION, THAT DIFFER FROM THE STRUCTURAL DRAWINGS, TO TOWER ENGINEERING GROUP FOR REVIEW
8. DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT THE WRITTEN PERMISSION OF TOWER ENGINEERING GROUP. CONTRACTOR TO PROVIDE APPROPRIATE ATTACHMENTS AND CONNECTIONS FOR MECHANICAL, ELECTRICAL, AND OTHER SERVICES WITHOUT CUTTING OR DRILLING.
9. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND LANDSCAPE DRAWINGS FOR LOCATIONS, CONFIGURATIONS, EXTENT, AND SIZES OF ALL CURBS, UP-STANDS, DOWNTURNS, OPENINGS THROUGH FLOORS AND WALLS FOR DUCTS.
10. FIRE RESISTANCE RATINGS: SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR PRECISE LOCATIONS OF REQUIRED FIRE RESISTANCE RATINGS.
11. THE CONTRACTOR SHALL BE FAMILIAR WITH THE CONTENT AND RECOMMENDATIONS OF THE GEOTECHNICAL REPORTS.
12. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL COMPONENTS TO TOWER ENGINEERING GROUP FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS ARE TO INCLUDE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER, REGISTERED IN THE PROJECT PROVINCE, FOR DESIGN OF COMPONENTS AND/OR CONNECTIONS AS REQUIRED.
13. SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR BEFORE SUBMITTING TO TOWER ENGINEERING GROUP FOR OUR REVIEW.

OWNERSHIP AND COPYRIGHT RESERVED

1. ALL DRAWINGS, PLANS, MODELS, DESIGNS, SPECIFICATIONS AND OTHER DOCUMENTS PREPARED BY TOWER ENGINEERING GROUP AND USED IN CONNECTION WITH THE PROJECT ARE INSTRUMENTS OF SERVICE FOR THE EXECUTION OF THE PROJECT, AND ARE AND REMAIN THE PROPERTY OF TOWER ENGINEERING GROUP, WHETHER THE PROJECT IS EXECUTED OR NOT, AND TOWER ENGINEERING GROUP RESERVES THE COPYRIGHT THEREIN AND IN THE WORK EXECUTED THEREFROM: SHALL NOT BE USED FOR ANY OTHER PROJECT. EXCEPT ONLY FOR GENERAL REFERENCE PURPOSES FOR ADDITION OR ALTERATION TO THE WORK SHOWN IN THEM, AND SINCE SUCH DOCUMENTS ARE "DESIGN" DOCUMENTS ONLY AND MAY NOT REPRESENT THE ACTUAL PROJECT "AS CONSTRUCTED", USE OF THESE DOCUMENTS FOR GENERAL REFERENCE PURPOSES IS AT THE SOLE RISK OF THE PARTY USING THEM: THEY SHALL NOT BE COPIED WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED REPRESENTATIVE OF TOWER ENGINEERING GROUP.

REVIEW BY TOWER ENGINEERING GROUP

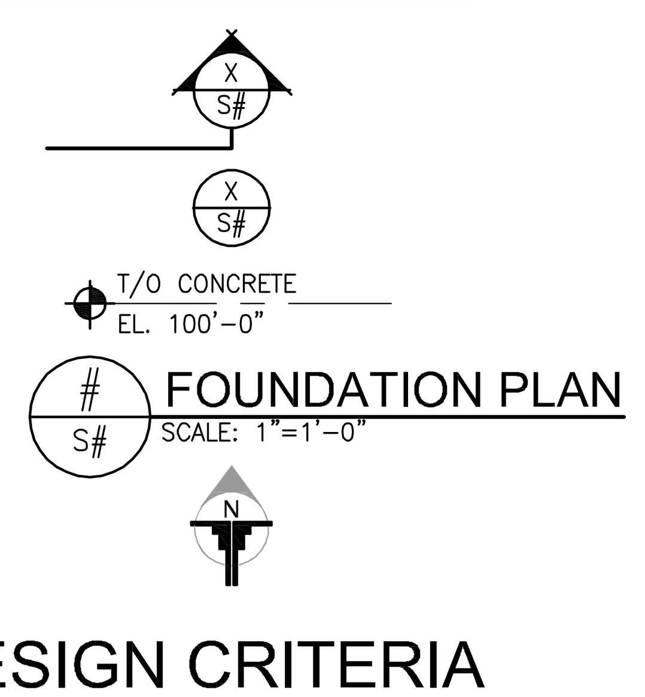
1. THE CONTRACTOR SHALL PROVIDE REASONABLE NOTICE TO TOWER ENGINEERING GROUP PRIOR TO POURING CONCRETE OR CONCEALING ANY STRUCTURAL COMPONENTS. THE PURPOSE OF THIS NOTICE IS TO ENABLE TOWER ENGINEERING GROUP TO CONDUCT ANY REQUIRED FIELD REVIEWS.
2. TOWER ENGINEERING GROUP PROVIDES FIELD REVIEW ONLY FOR THE WORK SHOWN ON THESE STRUCTURAL DRAWINGS. THIS REVIEW IS NOT A "FULL TIME" REVIEW BUT IS A PERIODIC REVIEW AT THE SOLE DISCRETION OF TOWER ENGINEERING GROUP'S ENGINEERS IN ORDER TO VISUALLY ASCERTAIN THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE PLANS AND SUPPORTING DOCUMENTS PREPARED BY TOWER ENGINEERING GROUP. FIELD REVIEW BY TOWER ENGINEERING GROUP IS NOT CARRIED OUT FOR THE CONTRACTOR'S BENEFIT, NOR DOES IT MAKE TOWER ENGINEERING GROUP GUARANTORS OF THE CONTRACTOR'S WORK. IT REMAINS THE CONTRACTOR'S RESPONSIBILITY TO BUILD THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. TOWER ENGINEERING GROUP SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. TOWER ENGINEERING GROUP WILL REVIEW SHOP DRAWINGS PERTAINING TO WORK SHOWN ON TOWER ENGINEERING GROUP'S DRAWINGS. THE EXTENT OF THIS REVIEW IS AT THE SOLE DISCRETION OF TOWER ENGINEERING GROUP'S ENGINEER AND IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMANCE WITH THE STRUCTURAL DESIGN CONCEPT. THE REVIEW IS NOT AN APPROVAL OF THE DESIGN, DETAILS AND DIMENSIONS INHERENT IN THE SHOP DRAWINGS. RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR SUBMITTING THEM. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY FOR ERRORS AND OMISSIONS IN THE SHOP DRAWINGS OR FOR MEETING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

ABBREVIATIONS

ALT	ALTERNATE
BOT	BOTTOM
BR	BRACKET
BTW	BETWEEN
B/W	BOTH WAYS
BLL	BOTTOM LOWER LAYER
BUL	BOTTOM UPPER LAYER
C/W	COMPLETE WITH
CL	CENTRELINE
C/C	CENTRE TO CENTRE
CIP	CAST IN PLACE
CMU	CONCRETE MASONRY UNIT
CANT.	CANTILEVER
CONT.	CONTINUOUS
DL	DEAD LOAD
LL	LIVE LOAD
SL	SNOW LOAD
E/E	EACH END
E/F	EACH FACE
E/S	EACH SIDE
E/W	EACH WAY
(E) ; EXIST.	EXISTING
E.O.C.	EDGE OF CONCRETE
E.O.D.	EDGE OF DECK

H1E	HOOK ONE END
H2E	HOOK TWO ENDS
H & V	HORIZONTAL AND VERTICAL
HOR	HORIZONTAL
GALV.	HOT DIPPED GALVANIZED
MAX.	MAXIMUM
MIN.	MINIMUM
N.T.S.	NOT TO SCALE
O/C	ON CENTER
R/W	REINFORCED WITH
S.D.L.	SUPERIMPOSED DEAD LOAD
SIM.	SIMILAR
S.O.G.	SLAB ON GRADE
STAG.	STAGGER
S.J.	STRUT JOIST
SV	SITE VERIFY
TYP.	TYPICAL
T/O	TOP OF
T1E	TIE ONE END
T & B	TOP AND BOTTOM
T & C	TENSION AND COMPRESSION
U.N.O.	UNLESS NOTED OTHERWISE
U/S	UNDER SIDE OF
VERT.	VERTICAL

SYMBOL LEGEND



SECTION MARKER
(MEANS SECTION X SHOWN ON DRAWING SHEET S#)

PLAN DETAIL REFERENCE MARKER
(MEANS DETAIL X SHOWN ON DRAWING SHEET S#)

ELEVATION REFERENCE MARKER

DRAWING SHEET REFERENCE MARKER

NORTH ARROW REFERENCE MARKER

DESIGN CRITERIA

THE DESIGN OF THE STRUCTURE IS IN ACCORDANCE WITH NBCC 2010 AND PART 4 OF DIVISION B, STRUCTURAL DESIGN OF THE 2011 MANITOBA BUILDING CODE.

IMPORTANCE CATEGORY	NORMAL		
SNOW DESIGN DATA	Ss= 1.9 kPa	Sr= 0.2 kPa	Is= 1.0
WIND DESIGN DATA	q(1/50)= 0.45 kPa	q(1/10)= 0.35 kPa	Iw= 1.0

ROOF LOADS, FLOOR LOADS, UPLIFT LOADS, LATERAL LOADS REFER TO PLAN
CONTRACTOR TO ENSURE THAT CONSTRUCTION LOADS DO NOT EXCEED DESIGN LOADS.

STRUCTURAL MOVEMENTS/ TOLERANCES

1. THIS STRUCTURE WILL UNDERGO NORMAL TYPES OF MOVEMENT AND DEFLECTION AND THE NON-STRUCTURAL COMPONENTS MUST BE DETAILED TO ACCOMMODATE THIS.
2. SLAB MOVEMENT/CRACKING
   SINCE THE STABILITY OF A SLAB-ON-GRADE IS ALMOST ENTIRELY DEPENDENT ON THE NATURE OF THE SOIL UPON WHICH IT IS SUPPORTED, SOME MOVEMENT RESULTING IN DISPLACEMENT AND CRACKING OF THE SLAB AND OTHER INTERIOR BUILDING COMPONENTS SHOULD BE EXPECTED. ACCURATE LIMITS DEFINING THE AMOUNT AND FREQUENCY OF MOVEMENT CANNOT BE GIVEN DUE TO UNKNOWN AND/OR UNCONTROLLABLE FACTORS SUCH AS SOIL MOISTURE MOISTURE CONTENT, WATER TABLE, SILT POCKETS, ETC., WHICH ALL AFFECT THE SUPPORTING SOIL. THE OWNER SHALL ASSUME ALL RISK ASSOCIATED WITH THIS SYSTEM.
3. DRYWALL PARTITIONS, MECHANICAL EQUIPMENT, ELECTRICAL EQUIPMENT, BUILDING FIXTURES, GLAZING AND CURTAIN WALLS MUST BE DETAILED AND INSTALLED TO ACCOMMODATE SLAB MOVEMENT.
4. ALL STRUCTURES ARE SUBJECT TO CONSTRUCTION TOLERANCES. THIS SHOULD BE ALLOWED FOR IN DETAILING NON-STRUCTURAL COMPONENTS.
5. DEFLECTION LIMITS
   A. GIRTS (WIND) = L/180
   B. WALL PANEL = L/180

NON-STRUCTURAL ELEMENTS

1. "NON-STRUCTURAL" OR "SECONDARY STRUCTURAL" ELEMENTS ARE NOT THE RESPONSIBILITY OF TOWER ENGINEERING GROUP. THEY ARE DESIGNED, DETAILED, AND REVIEWED IN THE FIELD BY OTHERS. THEY APPEAR ON DRAWINGS OTHER THAN THOSE OF TOWER ENGINEERING GROUP. WHERE STRUCTURAL ENGINEERING RESPONSIBILITY IS REQUIRED FOR THESE ELEMENTS, THIS SHALL BE PROVIDED BY SPECIALTY STRUCTURAL ENGINEERS, WHO SHALL ALSO PROVIDE ANY CERTIFICATION REQUIRED BY BUILDING PERMIT AUTHORITIES. SPECIALTY STRUCTURAL ENGINEERS ARE TO DESIGN THESE ELEMENTS ACCORDING TO THE APPLICABLE DESIGN LOADS AS NOTED IN PART 4 OF THE NBCC 2010.
2. EXAMPLES OF NON-STRUCTURAL OR SECONDARY STRUCTURAL ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO:
   A. ARCHITECTURAL COMPONENTS SUCH AS GUARDRAILS, HANDRAILS, CEILINGS, MILLWORK ETC.
   B. LANDSCAPE ELEMENTS SUCH AS BENCHES, LIGHT POSTS, PLANTERS, ETC.
   C. CLADDING, GLAZING, WINDOW MULLIONS, INTERIOR STUD WALLS AND EXTERIOR STUD WALLS.
   D. ARCHITECTURAL PRECAST, PRECAST CLADDING.
   E. MECHANICAL AND ELECTRICAL EQUIPMENT, COMPONENTS, AND THEIR ATTACHMENT DETAILS.
   F. ELEVATORS, ESCALATORS, AND OTHER CONVEYING SYSTEMS.
   G. BRICK OR BLOCK VENEERS AND THEIR ATTACHMENTS.
   H. NON-LOAD BEARING MASONRY.
   I. NON-STRUCTURAL CONCRETE TOPPINGS
   J. ALUMINUM SKYLIGHTS.
   K. STAIRS
3. SHOP DRAWINGS FOR NON-STRUCTURAL ELEMENTS WHICH MAY AFFECT THE PRIMARY STRUCTURAL SYSTEM SHALL BE SUBMITTED TO TOWER ENGINEERING GROUP THESE DRAWINGS WILL BE REVIEWED ONLY FOR THE EFFECT ON THE PRIMARY STRUCTURAL SYSTEM.

CONCRETE

1. ALL CONCRETE CONSTRUCTION, COLD WEATHER CONSTRUCTION & CONCRETE TESTING TO BE IN ACCORDANCE WITH THE CSA STANDARDS A23.1-09 AND A23.2-09 (R2014).
2. ALL CONCRETE TO BE NORMAL WEIGHT HARD ROCK CONCRETE WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH AS NOTED IN TABLE 2 OF THE CSA A23.1-09 (R2014).
3. CONCRETE CLASSES OF EXPOSURE (REFER TO TABLE 1, CSA A23.1-09 (R2014):

A.	GRADE BEAMS	CLASS S-2 EXPOSURE (32 MPa @28d)
B.	TOPPING	CLASS N EXPOSURE (25 MPa @28d)
C.	EXTERIOR SLABS ON GRADE (SIDEWALKS, CURBS, TOPPING, PADS)	CLASS C-2 EXPOSURE (32 MPa @28d)
D.	PILE CAPS	CLASS S-2 EXPOSURE (32 MPa @28d)
E.	FOUNDATION WALLS, PILES, CONCRETE BEAMS	CLASS S-2 EXPOSURE (32 MPa @28d)

4. CONCRETE SLUMP TO BE COORDINATED BETWEEN CONTRACTOR AND CONCRETE SUPPLIER CONSIDERING THE PERFORMANCE CRITERIA AND THE CONTRACTOR'S CRITERIA FOR CONSTRUCTION AND PLACEMENT.
5. MISCELLANEOUS CONCRETE ELEMENTS (PITS, TRENCHES, ETC,) TO BE MINIMUM 6" (150mm) THICK REINFORCED WITH 10M @ 12" (300mm) O/C EACH WAY U.N.O.
6. CONCRETE SAMPLING AND TESTING TO BE COMPLETE IN ACCORDANCE WITH THE CSA A23.1-09/A23.2-09 (R2014).

FOUNDATION

1. FOUNDATION DESIGN BASED ON THE GEOTECHNICAL REPORT PREPARED BY M. BLOCK & ASSOCIATES LTD. DATED NOVEMBER 08, 2018.
2. CENTER PILES ON GRADE BEAMS UNLESS OTHERWISE NOTED.
3. A QUALIFIED GEOTECHNICAL ENGINEER IN EMPLOY OF THE OWNER TO REVIEW AND VERIFY PILE DESIGN CAPACITIES DURING INSTALLATION ON SITE.

ITEMS EMBEDDED IN CONCRETE

SEE ALSO CSA A23.1-09
EXCEPT WHEN APPROVED BY THE STRUCTURAL ENGINEER, PIPES, CONDUITS, AND SLEEVES EMBEDDED IN CONCRETE SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING GUIDELINES:

1. GENERAL
   A. NOT WITHSTANDING THE SATISFACTION OF THESE GUIDELINES, THE CONDUIT, SLEEVES, PIPES, ETC. SHALL NOT IMPAIR THE STRUCTURAL STRENGTH AND SHALL BE MOVED IF SO DIRECTED BY THE STRUCTURAL ENGINEER.
   B. CENTERLINE SPACING TO BE NOT LESS THAN 3 DIAMETERS.
   C. CENTERLINE SPACING BETWEEN PARALLEL CONDUIT AND REINFORCING BARS TO BE 3 DIAMETERS.
   D. ADD REINFORCING AT POINTS OF CONGESTION AS DIRECTED BY THE STRUCTURAL ENGINEER.
2. FOR SLABS – CONDUITS IN THE PLANE OF THE SLAB:
   A. LOCATE BETWEEN TOP AND BOTTOM REINFORCING. (WHERE APPLICABLE)
   B. MAXIMUM SIZE IN ONE LAYER TO BE NOT MORE THAN 1/4 OF CONCRETE THICKNESS.
   C. THREE LAYERS OR MORE CROSSING WILL NOT BE PERMITTED.
3. FOR WALLS & SLABS – CONDUIT/ PIPES NOT ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

REINFORCING

1. REINFORCING STEEL SHALL BE GRADE 400 DEFORMED NEW BILLET STOCK CONFORMING TO THE CSA SPECIFICATION G30.18-09. WELDED WIRE MESH SHALL CONFORM TO THE CSA A23.1-09 (R2014) CLAUSE 6.1.1.1.
2. CONCRETE COVER TO BE AS PER TABLE 17 OF THE CSA A23.1-09 (R2014).

EXPOSURE CONDITION	EXPOSURE CLASS		
	N	F-1, F-2, S-1, S-2	C-XL, C-1, C-3 A-1, A-2, A-3
PILES	75mm	75mm	75mm
BEAMS, GIRDERS AND COLUMNS	30mm	40mm	60mm
SLABS, WALLS AND JOISTS	20mm	40mm	60mm

3. CONCRETE COVER FOR EXPOSURE CLASSES NOT NOTED ABOVE TO BE 40 mm.
4. TOP STEEL IN GRADE BEAMS TO BE SPLICED AT CENTER SPAN AND BOTTOM STEEL TO BE SPLICED OVER SUPPORTS. SPLICE LENGTHS:
   A. TENSION ZONE SPLICE TO BE AVOIDED WHEREVER POSSIBLE, BUT IF REQUIRED, LENGTH SHOULD BE SPECIFIED BY THE DESIGN ENGINEER.
   B. COMPRESSION ZONE SPLICE SHOULD NOT BE LESS THAN 30 BAR DIAMETERS.
5. CONCRETE COVER FOR FIRE RATING REQUIREMENTS AS PER CURRENT EDITION OF NBCC
6. ALL BEAM STIRRUPS AND COLUMN/WALL/PILASTER TIES SHALL HAVE 135 DEGREES TAILS. 90 DEGREE TAILS ARE NOT PERMITTED FOR STIRRUPS AND TIES.

STRUCTURAL STEEL STUDS

1. STEEL STUD SUPPLIER TO PROVIDE SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF THE PROJECT.
2. SHOP DRAWINGS MUST INCLUDE SIZE, SPACING, AND CONNECTIONS OF ALL STEEL STUDS AS WELL AS ALL APPLICABLE DETAILS.

ITEMS EMBEDDED IN CONCRETE

SEE ALSO CSA A23.1-09
EXCEPT WHEN APPROVED BY THE STRUCTURAL ENGINEER, PIPES, CONDUITS, AND SLEEVES EMBEDDED IN CONCRETE SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING GUIDELINES:
1. GENERAL
   A. NOT WITHSTANDING THE SATISFACTION OF THESE GUIDELINES, THE CONDUIT, SLEEVES, PIPES, ETC. SHALL NOT IMPAIR THE STRUCTURAL STRENGTH AND SHALL BE MOVED IF SO DIRECTED BY THE STRUCTURAL ENGINEER.
   B. CENTERLINE SPACING TO BE NOT LESS THAN 3 DIAMETERS.
   C. CENTERLINE SPACING BETWEEN PARALLEL CONDUIT AND REINFORCING BARS TO BE 3 DIAMETERS.
   D. ADD REINFORCING AT POINTS OF CONGESTION AS DIRECTED BY THE STRUCTURAL ENGINEER.
2. FOR SLABS – CONDUITS IN THE PLANE OF THE SLAB:
   A. LOCATE BETWEEN TOP AND BOTTOM REINFORCING. (WHERE APPLICABLE)
   B. MAXIMUM SIZE IN ONE LAYER TO BE NOT MORE THAN 1/4 OF CONCRETE THICKNESS.
   C. THREE LAYERS OR MORE CROSSING WILL NOT BE PERMITTED.
3. FOR WALLS & SLABS – CONDUIT/ PIPES NOT ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

STRUCTURAL STEEL

1. STRUCTURAL STEEL TO CONFORM TO CSA G40.20-13/G40.21-13 350W EXCEPT PLATES AND ANGLES, WHICH SHALL CONFORM TO CSA G40.20-13/G40.21-13 300W. HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO THE CSA STANDARD G40.21-13 350W-CLASS C. XS PIPE TO CONFORM TO ASTM A53.
2. ALL ANCHOR BOLTS TO BE 4-19mmø x457mm C/W 76mm HOOK. U.N.O ANCHOR BOLT MATERIAL SHALL CONFORM TO THE CSA G40.21-13 300W.
3. ALL WELDERS AND WELDING PROCEDURES TO BE CERTIFIED BY CANADIAN WELDING BUREAU.
4. EXPOSED STEEL TO BE GALVANIZED U.N.O..
5. PROVIDE STIFFENER PLATES TO BOTH SIDES AT WEBS OF BEAMS BEARING OVER COLUMNS. THE PLATES ARE TO BE OF THE SAME THICKNESS AS COLUMN FLANGES FOR W-SHAPES, COLUMN WALL FOR HSS SHAPES OR 9mm WHICHEVER IS GREATER.
6. REINFORCING FOR ALL OPENINGS IN STEEL DECK GREATER THAN 400mm x 400mm IS TO BE DESIGNED, SUPPLIED AND INSTALLED BY THE STRUCTURAL STEEL SUPPLIER U.N.O. REFER TO ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL DRAWINGS FOR REQUIRED OPENINGS.
7. STEEL FABRICATOR TO DESIGN AND SUPPLY ANGLES AS INDICATED FOR SUPPORT AND SUSPENSION OF MECHANICAL EQUIPMENT.
8. CROSS BRACING CONNECTIONS TO BE DESIGNED TO RESIST THE FACTORED TENSILE FORCE (Tf) LISTED ON THE DRAWINGS.
9. PROVIDE CLIP ANGLES AT ALL STEEL COLUMNS FOR SUPPORT OF HOLLOWCORE SLABS – TYP. ALL COLUMNS. SEE STANDARD DETAIL.
10. INSPECTION OF BOLTS/WELDS/OTHER CONNECTIONS TO BE COMPLETED BY AN APPROVED, QUALIFIED INDEPENDENT THIRD PARTY. A LETTER OF CERTIFICATION IS TO BE SUBMITTED TO TOWER ENGINEERING GROUP UPON COMPLETION.
11. DESIGN CONNECTIONS, UNLESS NOTED, FOR FACTORED SHEAR CAPACITIES OF MEMBER SIZES USING STANDARD SHEAR CONNECTIONS AS PUBLISHED BY CISC.
12. STRUCTURAL STEEL SUPPLIER TO PROVIDE SHOP DRAWINGS, INCLUDING LAYOUT, ERECTION AND CONNECTIONS DRAWINGS, SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT PROVINCE.

MISCELLANEOUS METALS

1. SEALED SHOP DRAWINGS ARE TO BE PROVIDED FOR ALL STAIRS, LANDINGS, PLATFORMS AND GUARDRAILS TO TOWER ENGINEERING GROUP FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS TO INCLUDE DESIGN LOADS, WELDING & BOLTED CONNECTION DETAILS, AND ALL OTHER PERTINENT INFORMATION AS REQUIRED. SHOP DRAWINGS TO BE SEALED BY AN ENGINEER REGISTERED IN THE PROVINCE WHERE THE WORK IS UNDERTAKEN.
2. UPON COMPLETION OF STAIR, LANDING, PLATFORM & GUARDRAIL INSTALLATION, MISCELLANEOUS METALS SUPPLIER SHALL PROVIDE A LETTER OF CERTIFICATION CONFIRMING THAT THE COMPONENTS WERE INSTALLED IN ACCORDANCE WITH THE DESIGN DOCUMENTS & SPECIFICATIONS. THE CERTIFICATION LETTER IS TO BE SEALED BY AN ENGINEER REGISTERED IN THE PROVINCE WHERE THE WORK IS UNDERTAKEN.
3. EXPOSED STEEL GUARDRAILS, PLATES, POSTS & ANCHORS TO BE GALVANIZED U.N.O.

LUMBER

1. FRAMING LUMBER SHALL CONFORM TO THE CSA 0141-05 (R2012) AND SHALL BE OF THE FOLLOWING MINIMUM GRADES:
   LINTELS, JOISTS AND BEAMS: S-P-F No.1/No.2
   BUILT-UP COLUMNS AND STUD WALLS: S-P-F No.1/No.2
2. SHEATHING MATERIAL TO BE MIN 13mm" THICK PLYWOOD IN ACCORDANCE WITH CSA 0325-07 (R2012) U.N.O. ALL SHEETS TO BE STAGGERED. FASTEN SHEETS WITH 76mm COMMON NAILS AT 12" O/C ALONG ALL STUDS/JOISTS AND AT 152mm O/C ALONG EDGES OF SHEET, U.N.O. STAPLES ARE NOT ACCEPTABLE. OSB FOR VERTICAL SHEATHING ONLY
3. FLOOR AND ROOF SHEATHING TO BE GLUED AND NAILED TO JOISTS.
4. WOOD IN CRAWL SPACE TO BE PRESSURE TREATED U.N.O.
5. CONTINUOUS SILL GASKET REQUIRED AT ALL LUMBER BEARING POINTS ON CONCRETE.
6. GLUE-LAMINATED TIMBER PANELS (GLT) TO BE MANUFACTURED IN ACCORDANCE WITH CSA STANDARD 0122.
7. MANUFACTURER OF GLT MUST BE CERTIFIED IN ACCORDANCE WITH CSA STANDARD 0177.
8. GLT SUPPLIER TO PROVIDE SHOP DRAWINGS, INCLUDING LAYOUT AND ERECTION DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROJECT PROVINCE.

PRECAST

1. REFERENCE CODES & STANDARDS: CSA A23.1-09, CSA A23.2-09 (R2014), CSA A23.3-04 (R2010), CSA A23.4-09 (R2014).
2. PRECAST SUPPLIER/MANUFACTURER:
   A. MUST BE CERTIFIED TO CANADIAN PRECAST/PRESTRESSED CONCRETE INSTITUTE (CPCI) CERTIFICATION PROGRAM.
   B. MUST MEET REQUIREMENTS OF CSA A23.4-09 (R2014), INCLUDING APPENDICES A & B, TOGETHER WITH PCI MNL-116 AND 117 AND CPCI CERTIFICATION REQUIREMENTS.
3. THE DESIGN OF ALL PRECAST COMPONENTS SHALL BE THE RESPONSIBILITY OF THE SUPPLIER'S ENGINEER. THE PRECAST SHALL BE DESIGNED TO SUPPORT ALL LOADS AS SPECIFIED IN THE APPLICABLE BUILDING CODE (INCLUDING LATERAL LOADS) PLUS THE LIVE, SNOW, DEAD, AND MISCELLANEOUS LOADS INDICATED ON THESE DRAWINGS.
4. DESIGNS SHALL BE IN ACCORDANCE WITH THE CSA A23.3-04 (R2010). FABRICATION AND INSTALLATION OF PRECAST SHALL BE IN ACCORDANCE WITH THE CSA A23.4-09 (R2014) (INCLUDING TOLERANCES).
5. MINIMUM STRENGTH AT 28 DAYS SHALL BE 35 MPa.
6. THE SUPPLIER SHALL CHECK WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR OPENINGS LARGER THAN 150mm AND FORM THEM IN SHOP, ALL FRAMING AND REINFORCING FOR OPENINGS TO BE DESIGNED AND SUPPLIED BY PRECAST SUPPLIER.
7. THE SUPPLIER SHALL PROVIDE THE CONTRACTOR WITH SETTING DRAWINGS, SHOWING THE LOCATIONS OF ALL EMBEDDED PARTS REQUIRED.
8. HOLLOWCORE SLABS MUST BE LEVELED AND ALIGNED BEFORE GROUTING THE KEYS AND JOINTS AS PER CSA A23.1-09.
9. ALL HOLLOWCORE SURFACES WITH SELF-LEVELING OR BONDED COMPOSITE CONCRETE TOPPING TO HAVE A ROUGHENED (BROOMED) FINISH.
10. ALL TOPPINGS TO BE BONDED TO HOLLOWCORE SURFACE WITH CEMENT/SAND GROUT OR LATEX MODIFIED GROUT ACCORDING TO CLAUSE 7.6.4.2.2 OF THE CSA A23.1-09.
11. THE CONTRACTOR MUST ACCOUNT FOR CAMBER WHEN PLACING TOPPING ON HOLLOWCORE.
12. UPON COMPLETION OF THE PRECAST INSTALLATION, PRECAST SUPPLIER SHALL PROVIDE A LETTER OF CERTIFICATION CONFIRMING THAT THE PRECAST COMPONENTS WERE INSTALLED IN ACCORDANCE WITH THE DESIGN DOCUMENTS & SPECIFICATIONS. THE CERTIFICATION LETTER IS TO BE SEALED BY AN ENGINEER REGISTERED IN THE PROVINCE WHERE THE WORK IS UNDERTAKEN.

LIST OF STRUCTURAL DRAWINGS

TOWER PROJECT NO. : 181335
TOWER ENGINEERING GROUP
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• WINNIPEG • CALGARY

No.	Date	Issue / Revision	By
4.	2019-07-08	Issued for Construction	LHT
4.	2019-06-26	Issued for 100% Pre-Tender Review	LHT
3.	2019-05-13	Issued for Pre-Tender Review	LHT
2.	2019-02-22	Design Development	LHT
1.	2018-12-17	Schematic Design Review	LHT

Drawn By: BKF

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APEGM
Certificate of Authorization
Tower Engineering Group
No. 4156 Expiry: April 30, 2020

PROVINCE OF MANITOBA REGISTERED PROFESSIONAL ENGINEER
THOMSON
Member 30264
2019-07-16

The contractor is to verify dimensions and data noted herein with conditions on the site and is held responsible for reporting any discrepancy to the architects for adjustment.

Winnipeg

Bill and Helen Norrie Library

Project No.: 2017-082
Tender No.: 542-2019
Address: 15 Poseidon Bay, Winnipeg, MB.

General Notes

Comm. No.: 1847

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