

## GENERAL NOTES

- THIS SET OF DRAWINGS SHOWS THE COMPLETE 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.
- 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 THE CONTRACT ADMINISTRATOR.
- 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 THE CONTRACT ADMINISTRATOR.
- SEE ARCHITECTURAL DRAWINGS FOR FLOOR AND ROOF ELEVATIONS, RECESSES, DRAINAGE SLOPES, DETAILED DIMENSIONS FOR DOOR, WINDOW, AND OTHER OPENINGS ETC.
- SEE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR SLEEVES, NAILERS, INSERTS, ETC. TO BE ENCASED IN CONCRETE.
- THE CONTRACTOR SHALL REVIEW ALL THE DRAWINGS AND CHECK DIMENSIONS BEFORE CONSTRUCTION. REPORT DISCREPANCIES BETWEEN STRUCTURAL AND OTHER DISCIPLINES DRAWINGS FOR CLARIFICATION.
- THE CONTRACTOR SHALL REPORT ANY SITE MODIFICATIONS MADE DURING CONSTRUCTION, THAT DIFFER FROM THE STRUCTURAL DRAWINGS, TO THE CONTRACT ADMINISTRATOR FOR REVIEW.
- DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT THE WRITTEN PERMISSION OF THE CONTRACT ADMINISTRATOR. CONTRACTOR TO PROVIDE APPROPRIATE ATTACHMENTS AND CONNECTIONS FOR MECHANICAL, ELECTRICAL, AND OTHER SERVICES WITHOUT CUTTING OR DRILLING.
- REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND LANDSCAPE DRAWINGS FOR LOCATIONS, CONFIGURATIONS, EXTENT, AND SIZES OF ALL CURBS, UPSTANDS, DOWNTURNS; AND FOR OPENINGS THROUGH FLOORS AND WALLS FOR DUCTS.
- FIRE RESISTANT RATINGS: SEE ARCHITECTURAL, DRAWINGS AND SPECIFICATION FOR PRECISE LOCATIONS OF REQUIRED FIRE RESISTANCE RATINGS.
- THE CONTRACTOR SHALL BE FAMILIAR WITH THE CONTENT AND RECOMMENDATIONS OF THE GEOTECHNICAL REPORTS.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL COMPONENTS TO THE CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS ARE TO INCLUDE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER, REGISTERED IN THE PROJECT'S PROVINCE, FOR DESIGN OF COMPONENTS AND/OR

## OWNERSHIP AND COPYRIGHT RESERVED

- 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 OF 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

- THE CONTRACTOR SHALL PROVIDE REASONABLE NOTICE TO THE CONTRACT ADMINISTRATOR PRIOR TO POURING CONCRETE OR CONCEALING ANY STRUCTURAL COMPONENTS. THE PURPOSE OF THIS NOTICE IS TO ENABLE THE CONTRACT ADMINISTRATOR TO CONDUCT ANY FIELD REVIEWS.
- THE CONTRACT ADMINISTRATOR 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 THE CONTRACT ADMINISTRATOR'S ENGINEERS IN ORDER TO VISUALLY ASCERTAIN THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE PLANS AND SUPPORTING DOCUMENTS PREPARED BY TOWER ENGINEERING. FIELD REVIEW BY THE CONTRACT ADMINISTRATOR IS NOT CARRIED OUT FOR THE CONTRACTOR'S BENEFIT, NOR DOES IT MAKE THE CONTRACT ADMINISTRATOR OR TOWER ENGINEERING GROUP GUARANTORS OF THE CONTRACTORS WORK. IT REMAINS THE CONTRACTOR'S RESPONSIBILITY TO BUILD THE WORK IN PERFORMANCE WITH THE CONTRACT DOCUMENTS, THE CONTRACT ADMINISTRATOR OR TOWER ENGINEERING GROUP SHALL NOT BE RESPONSIBLE FOR THE OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING AND OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THE CONTRACT ADMINISTRATOR WILL REVIEW SHOP DRAWINGS PERTAINING TO THE WORK SHOWN ON TOWER ENGINEERING GROUP'S DRAWINGS. THE EXTENT OF THIS REVIEW IS AT THE SOLE DISCRETION OF THE CONTRACT ADMINISTRATOR 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 THIS RESPONSIBILITY FOR ERRORS AND OMISSIONS IN THE SHOP DRAWINGS OR FOR METING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

## ABBREVIATIONS

ALT	ALTERNATE	H & V	HORIZONTAL AND VERTICAL
BOT	BOTTOM	HOR	HORIZONTAL
BR	BRACKET	GALV	HOT DIPPED GALVANIZED
BTW	BETWEEN	MAX	MAXIMUM
B/W	BOTH WAYS	MIN	MINIMUM
BLL	BOTTOM LOWER LAYER	N.T.S.	NOT TO SCALE
BUL	BOTTOM UPPER LAYER	O/C	ON CENTER
C/W	COMPLETE WITH	R/W	REINFORCED WITH
CL	CENTRELINE	S.D.L	SUPERIMPOSED DEAD LOAD
C/C	CENTRE TO CENTRE	SIM	SIMILAR
CIP	CAST IN PLACE	S.O.G.	SLAB ON GRADE
CMU	CONCRETE MASONRY UNIT	STAG.	STAGGER
DL	DEAD LOAD	S.J.	STRUT JOIST
LL	LIVE LOAD	TYP	TYPICAL
SL	SNOW LOAD	T/O	TOP OF
E/E	EACH END	TIE	TIE ONE END
E/F	EACH FACE	T & B	TOP AND BOTTOM
E/S	EACH SIDE	T & C	TENSION AND COMPRESSION
E/W	EACH WAY	U.N.O.	UNLESS NOTED OTHERWISE
H/E	HOOK ONE END	U/S	UNDER SIDE OF
H/E	HOOK TWO ENDS	VERT.	VERTICAL

## SYMBOL LEGEND

	SECTION MARKER (MEANS SECTION # SHOWN ON DRAWING SHEET S-#)
	PLAN DETAIL REFERENCE MARKER (MEANS DETAIL # 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	Sr = 0.2 kPa	Is = 1.00
SNOW DESIGN DATA	Ss = 1.9 kPa	0.35 kPa q(1/10)	Iw = 1.00
WIND DESIGN DATA	0.45 kPa q(1/50)		

CONTRACTOR TO ENSURE THAT CONSTRUCTION LOADS DO NOT EXCEED DESIGN LOADS.

## STRUCTURAL MOVEMENTS/ TOLERANCES

- THIS STRUCTURE WILL UNDERGO NORMAL TYPES OF MOVEMENT AND DEFLECTION AND THE NON-STRUCTURAL COMPONENTS MUST BE DETAILED TO ACCOMMODATE THIS.
- DRYWALL, PARTITIONS, MECHANICAL EQUIPMENT, ELECTRICAL EQUIPMENT, BUILDING FIXTURES, GLAZING AND CURTAIN WALLS MUST BE DETAILED AND INSTALLED TO ACCOMMODATE SLAB MOVEMENT.
- ALL STRUCTURES ARE SUBJECT TO CONSTRUCTION TOLERANCES. THIS SHOULD BE ALLOWED FOR IN DETAILING NON-STRUCTURAL COMPONENTS.

## NON-STRUCTURAL ELEMENTS

- "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 MOST CURRENT NBCC.
- EXAMPLES OF NON-STRUCTURAL OR SECONDARY STRUCTURAL ELEMENTS INCLUDE, BUT ARE NOT LIMITED TO:
  - ARCHITECTURAL COMPONENTS SUCH AS GUARDRAILS, HANDRAILS, CEILING, MILLWORK ETC.
  - LANDSCAPE ELEMENTS SUCH AS BENCHES, LIGHT POSTS, PLANTERS, ETC.
  - CLADDING, GLAZING, WINDOW MULLIONS, INTERIOR STUD WALLS AND EXTERIOR STUD WALLS.
  - ARCHITECTURAL PRECAST, PRECAST CLADDING.
  - MECHANICAL AND ELECTRICAL EQUIPMENT, COMPONENTS, AND THEIR ATTACHMENT DETAILS.
  - ELEVATORS, ELEVATOR HOIST BEAMS, ESCALATORS, AND OTHER CONVEYING SYSTEMS.
  - BRICK OR BLOCK VENEERS AND THEIR ATTACHMENTS.
  - NON-LOAD BEARING MASONRY.
  - NON-STRUCTURAL CONCRETE TOPPING
  - ALUMINUM SKYLIGHTS.
  - STAIRS
- 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

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

E. EXTERIOR SLABS ON GRADE	CLASS C-1 EXPOSURE (35 MPa @28d) AIR CONTENT CATEGORY 1 (REFER TO TABLE 4, LATEST EDITION CSA A23.1)
- CONCRETE SLUMP TO BE COORDINATED BETWEEN CONTRACTOR AND CONCRETE SUPPLIER CONSIDERING THE PERFORMANCE CRITERIA AND THE CONTRACTOR'S CRITERIA FOR CONSTRUCTION AND PLACEMENT.
- MISCELLANEOUS CONCRETE ELEMENTS (PITS, TRENCHES, ETC.) TO BE MINIMUM 6" (150mm) THICK REINFORCED WITH 10M @ 12" (300mm) O/C EACH WAY U.N.O.
- CONCRETE SAMPLING AND TESTING TO BE COMPLETE IN ACCORDANCE WITH THE LATEST EDITION CSA A23.1/A23.2

## REINFORCING

- REINFORCING STEEL SHALL BE GRADE 400 DEFORMED NEW BILLET STOCK CONFORMING TO THE LATEST EDITION OF CSA SPECIFICATION G30.18. WELDED WIRE MESH SHALL CONFORM TO THE LATEST EDITION CSA A23.1 CLAUSE 6.1.1.
- CONCRETE COVER TO BE AS PER TABLE 17 OF THE LATEST EDITION CSA A23.1

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
BEAMS, GIRDERS, COLUMNS, AND PILES	30mm	40mm	60mm
SLABS, WALLS, JOISTS,	20mm	40mm	60mm

- CONCRETE COVER FOR EXPOSURE CLASSES NOT NOTED ABOVE TO BE 40 mm.
- TOP STEEL IN GRADE BEAMS TO BE SPLICED AT CENTER SPAN AND BOTTOM STEEL TO BE SPLICED OVER SUPPORTS. SPLICE LENGTHS:
  - TENSION ZONE SPLICE TO BE AVOIDED WHEREVER POSSIBLE, BUT IF REQUIRED, LENGTH SHOULD BE SPECIFIED BY THE DESIGN ENGINEER.
  - COMPRESSION ZONE SPLICE SHOULD NOT BE LESS THAN 30 BAR DIAMETERS.
- CONCRETE COVER FOR FIRE RATING REQUIREMENTS AS PER CURRENT EDITION OF NBCC

## STRUCTURAL STEEL

- ALL STRUCTURAL STEEL ROLLED SECTIONS AND STRUCTURAL PLATES SHALL CONFORM TO THE LATEST EDITION CSA STANDARDS G40.21. ALL HOLLOW STRUCTURAL SECTION SHALL CONFORM TO THE LATEST EDITION CSA STANDARD G40.21.
- ALL ANCHOR BOLTS TO BE 4-3/4" x 18" C/W 3" HOOK. U.N.O ANCHOR BOLT MATERIAL SHALL CONFORM TO THE LATEST EDITION CSA G40.21 300M.
- ALL WELDERS AND WELDING PROCEDURES TO BE CERTIFIED BY CANADIAN WELDING BUREAU.
- 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.
- 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.
- STEEL FABRICATOR TO DESIGN AND SUPPLY ANGLES AS INDICATED FOR SUPPORT AND SUSPENSION OF MECHANICAL EQUIPMENT.
- CROSS BRACING CONNECTIONS TO BE DESIGNED TO RESIST THE FACTORED TENSILE FORCE (T1) LISTED ON THE DRAWINGS.
- PROVIDE CLIP ANGLES AT ALL STEEL COLUMNS FOR SUPPORT OF HOLLOWCORE SLABS - TYP. ALL COLUMNS. SEE STANDARD DETAIL.
- 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.

## FOUNDATION/BASE SLAB

- BASE SLAB CONCRETE TO BE CLASS C-1 EXPOSURE (35 MPa @ 28d). (SEE TABLE 1, LATEST EDITION OF CSA A23.1)
- SLAB PREPARATION:
  - REMOVE ORGANICS
  - PROOF ROLL/COMPACT EXPOSED SUBGRADE TO 98% SPMD
  - PLACE AND COMPACT MIN. 300mm GRANULAR BASE (100% SPMD)
  - COMPACTION TESTING TO BE COMPLETED BY AN INDEPENDENT THIRD PARTY TESTING AGENCY. COMPACTION TEST RESULTS ARE TO BE PROVIDED TO TOWER ENGINEERING GROUP.

## LIST OF STRUCTURAL DRAWINGS

S1.0 GENERAL NOTES  
S1.1 FOUNDATION PLAN, FRAMING PLAN, SECTIONS AND DETAILS

NO.	REVISIONS	DATE	BY
0	ISSUED FOR CONSTRUCTION	11/25/13	MG

### CONSULTANT

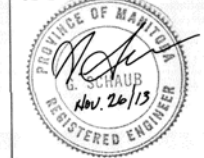
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TOWER PROJECT NO. :131370  
**TOWER ENGINEERING GROUP**  
 UNIT 1 - 1140 WAVERLEY ST. WINNIPEG, MB R3T 0P4  
 TEL: (204) 925-1150 FAX: (204) 925-1155  
 EMAIL: towereng@towereng.ca WEB: www.towereng.ca  
 • WINNEPEG • CALGARY • CAMBRIDGE

### SEAL

### SEAL



### PROJECT

**TRAILHEAD SHELTER**  
**WINNIPEG, MB**

### DRAWING

**GENERAL NOTES**

DESIGNED: MG	DRAWING NO.  <b>S1.0</b>  REVISION
DRAWN: MG	
CHECKED: GS	
SCALE: AS NOTED	
DATE: 11/25/2013	
PROJECT NO.: 131370	

