

CONCRETE

- ALL CONCRETE CONSTRUCTION, COLD WEATHER CONSTRUCTION & CONCRETE TESTING TO BE IN ACCORDANCE WITH THE LATEST EDITION OF CSA STANDARDS A23.1-09 AND A23.2-09.
- ALL CONCRETE TO BE NORMAL WEIGHT HARD ROCK CONCRETE WITH A MINIMUM 28 DAY, OR 56 DAY COMPRESSIVE STRENGTH AS NOTED IN TABLE 2, A23.1-09.
- CONCRETE CLASSES OF EXPOSURE (REFER TO TABLE 1, A23.1-09):

- A. INTERIOR SLABS ON GRADE (INCLUDING TOPPING)CLASS N EXPOSURE (25 MPa @28d)
 B. INTERIOR STRUCTURAL SLABSCLASS N EXPOSURE (25 MPa @28d)

- 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 UNLESS NOTED OTHERWISE.

REINFORCING

- REINFORCING STEEL SHALL BE GRADE 400 DEFORMED NEW BILLET STOCK CONFORMING TO LATEST CSA SPECIFICATION C30.18-M92 (R2007). WELDED WIRE MESH SHALL CONFORM TO CSA A23.1-09 CLAUSE 6.1.1.1.
- CONCRETE COVER TO BE AS PER TABLE 17 OF CSA A23.1-09

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, SHELLS, AND FOLDED PLATES	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.

ITEMS EMBEDDED IN CONCRETE

SEE ALSO CSA A23.1-09 - CLAUSE 6.7
 EXCEPT WHEN APPROVED BY THE STRUCTURAL ENGINEER, PIPES, CONDUITS, AND SLEEVES EMBEDDED IN CONCRETE SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING GUIDELINES:

- GENERAL
 - NOT WITHSTANDING THE SATISFYING 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.
 - CENTERLINE SPACING TO BE NOT LESS THAN 3 DIAMETERS.
 - CENTERLINE SPACING BETWEEN PARALLEL CONDUIT AND REINFORCING BARS TO BE 3 DIAMETERS.
 - ADD REINFORCING AT POINTS OF CONGESTION AS DIRECTED BY THE STRUCTURAL ENGINEER.
- FOR SLABS - CONDUITS IN THE PLANE OF THE SLAB:
 - LOCATE BETWEEN TOP AND BOTTOM REINFORCING. (WHERE APPLICABLE)
 - MAXIMUM SIZE IN ONE LAYER TO BE NOT MORE THAN 1/4 OF CONCRETE THICKNESS.
 - THREE LAYERS OR MORE CROSSING WILL NOT BE PERMITTED.
- FOR WALLS - CONDUIT/ PIPES NOT ALLOWED WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

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 AND BUILDING FIXTURES 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.

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. SHALL NOT BE COPIED WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED REPRESENTATIVE OF TOWER ENGINEERING GROUP.

FIELD REVIEW BY THE CONTRACT ADMINISTRATOR

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 IN ORDER TO ASCERTAIN THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE PLANS AND SUPPORTING DOCUMENTS PREPARED BY THE CONTRACT ADMINISTRATOR. FIELD REVIEW BY THE CONTRACT ADMINISTRATOR IS NOT CARRIED OUT FOR THE CONTRACTOR'S BENEFIT, NOR DOES IT MAKE THE CONTRACT ADMINISTRATOR GUARANTORS OF THE CONTRACTORS WORK. IT REMAINS THE CONTRACTOR'S RESPONSIBILITY TO BUILD THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACT ADMINISTRATOR SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK OF FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

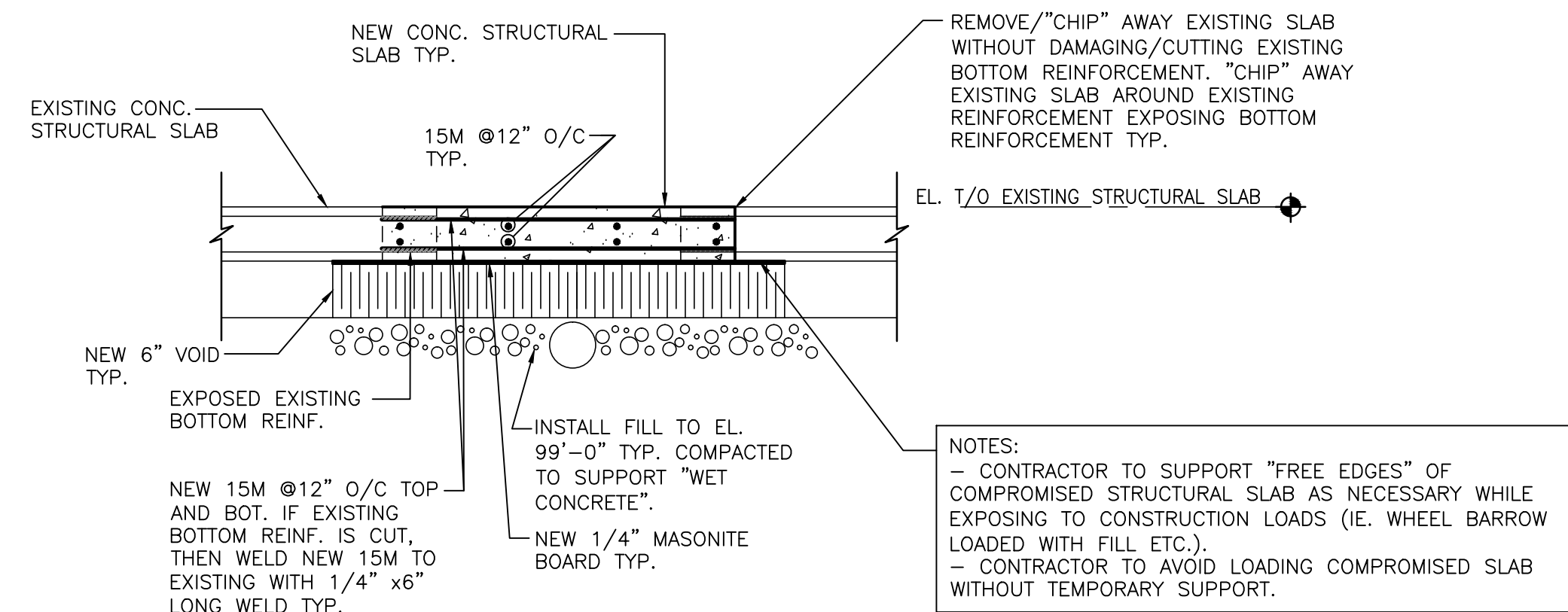
THE CONTRACT ADMINISTRATOR WILL REVIEW SHOP DRAWINGS PERTAINING TO WORK SHOWN ON THE CONTRACT ADMINISTRATOR DRAWINGS. THE EXTENT OF THIS REVIEW IS AT THE SOLE DISCRETION OF THE CONTRACT ADMINISTRATOR AND IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMANCE WITH THE STRUCTURAL DESIGN CONCEPT. THE 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 HIS RESPONSIBILITY FOR ERRORS AND OMISSIONS IN THE SHOP DRAWINGS OF FOR MEETING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

GENERAL NOTES

- THIS SET OF DRAWINGS SHOWS THE COMPLETED PROJECT. THEY DO 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" OR "ISSUED FOR TENDER" IN THE REVISION'S COLUMN BY THE CONTRACT ADMINISTRATOR.
- THE INFORMATION ON THIS DRAWING SHALL NOT BE USED FOR ANY OTHER THAN THE SPECIFIED WORKS OR PART OF THE WORKS FOR WHICH IT HAS BEEN AUTHORIZED BY THE CONTRACT ADMINISTRATOR.
- SECTION MARKER SHOWN THUS  MEANS SECTION # SHOWN ON DRAWING SHEET S#.
- SEE ARCHITECTURAL DRAWINGS FOR FLOOR AND ROOF ELEVATIONS, RECESSED, DRAINAGE SLOPES, DETAILED DIMENSIONS FOR DOORS, WINDOWS 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.
- 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 RESISTANCE RATINGS:
SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR PRECISE LOCATION OF REQUIRED FIRE RESISTANCE RATINGS.
- 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 REQUIRED FIELD REVIEWS.
- THE CONTRACTOR SHALL FAMILIARIZE HIMSELF 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 TO INCLUDE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER FOR DESIGN OF COMPONENTS AND/ OR CONNECTIONS AS REQUIRED.
- THE DESIGN OF THE STRUCTURE IS IN ACCORDANCE WITH PART 4 OF DIVISION B, STRUCTURAL DESIGN OF THE 2011 MANITOBA BUILDING CODE.

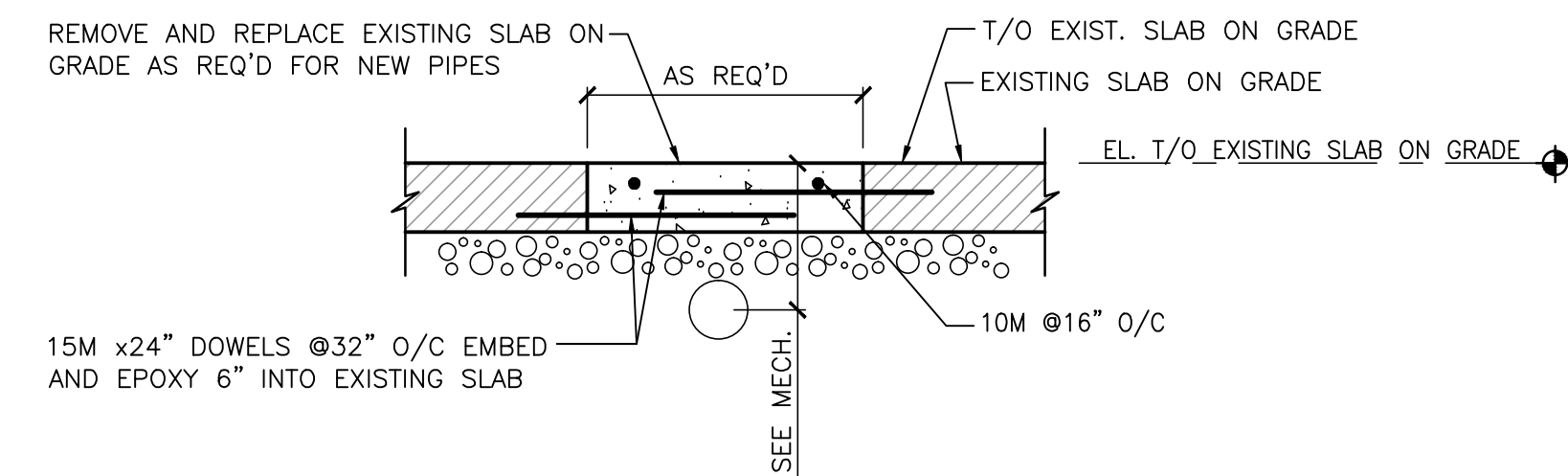
LIST OF STRUCTURAL DRAWINGS

- S1.1 GENERAL NOTES AND TYP. DETAILS



1 TYPICAL STRUCTURAL SLAB DETAIL FOR NEW PIPES
 SCALE 3/4"-1'-0"

REFER TO MECHANICAL FOR EXACT LOCATIONS OF NEW PIPES



2 TYPICAL SLAB ON GRADE DETAIL FOR NEW PIPES
 SCALE 3/4"-1'-0"

TOWER PROJECT NUMBER: 12431
TOWER ENGINEERING GROUP
 1-1140 WAVERLEY STREET WINNIPEG, MB R3T 0P4
 TEL: 204-925-1150 FAX: 204-925-1155
 towereng@towereng.ca www.towereng.ca
 • WINNIPEG • CALGARY • CAMBRIDGE

NO.	DATE	DESCRIPTION	BY
2	NOVEMBER 27, 2015	ISSUED FOR REVIEW	PW
1	APRIL 15, 2013	ISSUED FOR REVIEW	PW

DRAWN BY SM
 PRINTING DATE APRIL, 2013

Drawings and specifications, as instruments of service are the property of the city, the copyright in the same being reserved to them. No reproduction may be made without the permission of the city, and all prints to be returned. 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 designer for adjustment.



SYNERGY INTERIOR DESIGN INC
 13 Rosewarne. Avenue WINNIPEG, MB Canada R2M 0V8
 204 233 9159
 malvine@synergyinteriors.com

DATE MARCH 2013 SCALE AS NOTED REVISIONS 1
 DRAWN BY SM CHECKED BY PW

STATION 10, 1354 BORDER ST. WINNIPEG, MB.
 CITY OF WINNIPEG