DRAWING SPECIFICATIONS

DIVISION 1 – GENERAL REQUIREMENTS

1.1 General Notes
.1 General Specifications – National Building Code of Canada 2010. Contractor shall read Structural drawings in conjunction with Architectural, Mechanical, Electrical and Elevator drawings. Unless noted otherwise, typical details apply throughout. All dimensions in millimetres.

1.2 Discrepancies
.1 Report any discrepancies to the Consultant before proceeding with the work.

1.3 Mechanical Openings
.1 Refer to mechanical drawings to confirm size and locations of all openings. Notify Consultant prior to proceeding if conditions differ significantly between drawings.

1.4 Existing Construction
.1 All information concerning existing construction has been taken from original drawings and site measurements. Contractor to confirm on site all existing dimensions, elevations and details prior to commencing work. Should information differ significantly from those shown, consult the Consultant prior to proceeding. All existing construction altered or damaged during course of work to be made good to match.

1.5 Shop Drawings
.1 Contractor to submit paper or pdf copies of premanufactured structural materials to the Consultant for review prior to fabrication.

1.6 Temporary Works
.1 Contractor is responsible for the design, construction and maintenance of all temporary works as may be required during the course of construction. Temporary works include, but are not limited to, shoring, scaffolding and bracing required to stabilize the structure until permanent structure is in place. Contractor to engage professional design services where required to comply with applicable Code requirements.

DIVISION 2 – SITEWORK

2.1 Bored Piles
.1 Excavate pile shaft to minimum dimensions indicated. Provide casing if required due to water, sloughing or caving. Hang reinforcement centrally in hole and place concrete within 12 hours of excavating pile. Vibrate concrete as placing proceeds.

ADIVISION 3 – CONCRETE

3.1 Concrete Reinforcement
.1 All reinforcing steel, unless noted otherwise, shall be deformed bars of high strength new billet steel conforming to CSA G30.18–09, Grade 400.
.2 Minimum lap splice for 10M bars to be 450 mm. Minimum lap splice for 15 M bars and larger to be 36 bar diameters or 675 mm, whichever is greater.
.3 All reinforcing bars to be continuous, unless noted otherwise.
.4 Lap reinforcing where noted on drawings. Otherwise, lap top bars at midspan; bottom bars at supports as required for length.
.5 Column and pile ties and beam stirrups shall conform to CSA G30.18–09, Grade 300.
.6 Welded wire mesh to G30.5–M1983. Minimum lap splice 200 mm. Provide in flat sheets only.
.7 Perform concrete reinforcing in accordance with CSA–A23.1–09

3.2 Cast–in–Place Concrete
.1 Perform cast–in–place concrete work in accordance with CSA A23.1–09, "Concrete Materials and Methods of Concrete Construction".
.2 Cement to CSA A3000–08, "Portland Cements", and aggregates to CSA–A23.1–04, "Concrete Materials and Methods of Concrete Construction".
.3 Submit concrete mix designs to Consultant for review.
.4 Proportion normal density concrete in accordance with CSA A23.1–09 Alternative 1, to give the properties in accordance with the following table:

Type	Location	Exposure Class	Strength f'c(MPa)	Aggreg. max(mm)	Slump mm	Total Air %
.1	Piling	S–2	32 @56d	40	80±30	3 to 6
.2	Grade Beam and Pilecaps	S–2	32 @56d	20	80±30	4 to 7
.3	Slab on Deck	N	25 @28d	20	80±30	nil
.4	Exterior Slabs	C–2	32 @28d	20	80±30	5 to 8

3.3 Concrete Testing
.1 Contractor to arrange and pay for concrete tests. Take 1 set of tests for each 50 cubic metres of concrete cast or each days casting. Tests to include:
.1 3 test cylinders plus 1 additional cylinder for cold weather concreting. Additional cylinder to be cured under job conditions.
.2 1 slump test.
.3 1 air content test.
.2 Submit test results to Consultant.
.3 Tests to be performed by CSA approved agency.
.3 Concrete testing to CSA A23.2–09.

3.4 Concrete Formwork
.1 To conform to applicable requirements of CAN/CSA–A23.1 Concrete Materials and Methods of Construction and CAN/CSA S269.3–M92 (R2008) Falsework for Construction Purposes.

3.5 Concrete Floor Finishing
.1 All interior slabs to be steel trowel finished to flatness of 5 mm in 3000.
.2 All concrete floors to have minimum 2 applications of acrylic sealant (CPD Acryl Cure & Seal or equivalent).
.3 All exterior slabs to have medium broom finish.

3.6 Concrete Accessories
.1 Concrete Anchors : Sizes as detailed on drawings, Standard embedment and installation as per Manufacturers Specifications.
.1 Expansion Wedge Anchors to be Hilti Kwik Bolt 3 or approved alternate.
.2 Drop In Anchors to be Hilti HDI Anchors or approved alternate.
.3 Heavy Duty Sleeve Anchors to be Hilti HSL 3 or approved alternate.
.4 Undercut Anchors to be Hilti HDA or approved alternate
.5 Hollow Masonry Adhesive Anchors to be Hilti HIT HY 20 or approved alternate.
.6 Adhesive Anchors to be Hilti HIT HY 150 Max (fast set, hammer drilled holes), Hilti HIT RE 500 (slow set, cored holes), Hilti HIT ICE (cold weather below –10C) or approved alternate complete with specified rod (HAS–E, HAS Super, SS304/316), washer and nut.

.2 Concrete Patching Material
Pre–packaged, polymer modified, cementitious product containing graded natural aggregate. EMACO R300 – Rapid Setting Mortar as manufactured by Master Builders or approved equal.

.3 Cement Grout Capsules
Reinforcing steel detailed to be installed in pre–placed concrete to be anchored using Lafarge Fondu Cement Grout Capsules M3RR or approved equal.

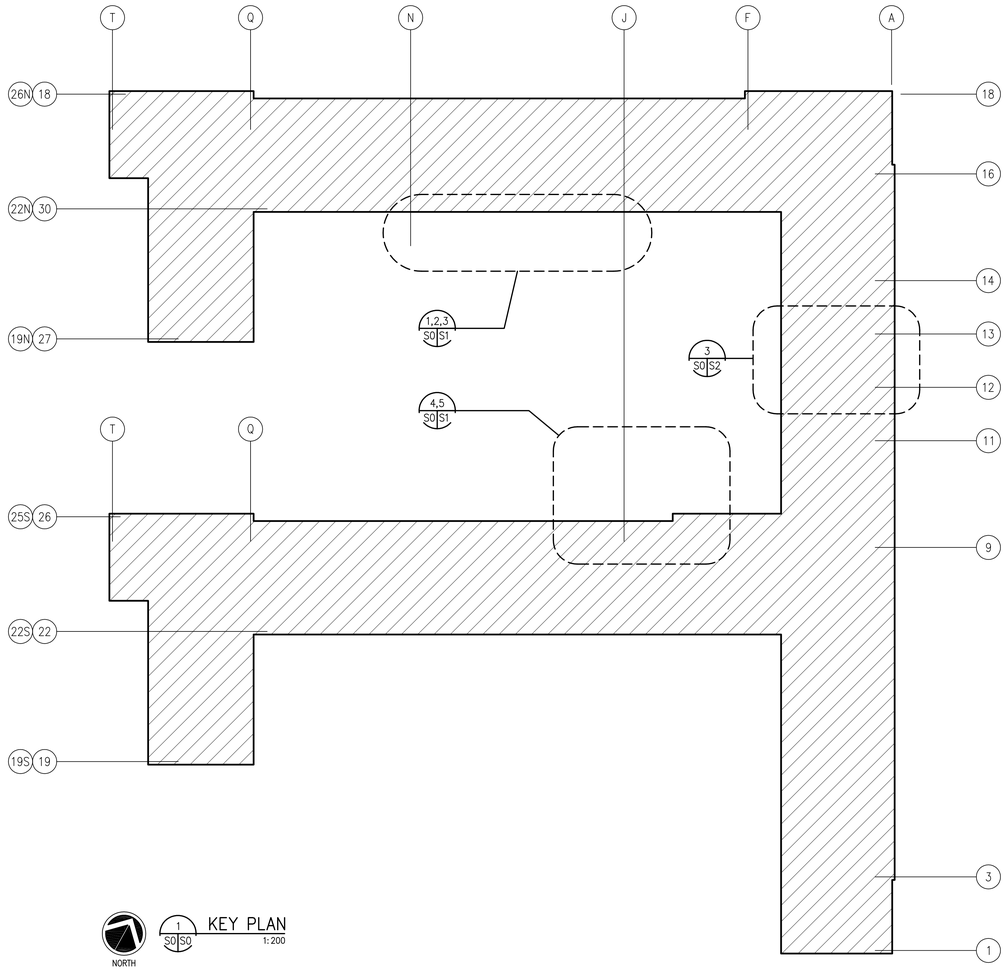
3.7 Void Form: to comply with either of the following.
.1 Biodegradable Void Form
150 mm deep, structurally sufficient to support weight of wet concrete and other superimposed loads without collapsing until concrete has gained sufficient strength to support these loads after which time the form must promptly degrade. Do not wrap void form. Do not install void form over poly ground sheet. The onus is entirely on the Contractor and Supplier to ensure that the void form is installed to perform as intended.
.2 Compressible Void Form
GeoVoid (below slabs) or GeoSpan (below walls & grade beams) compressible void form by Plasti–Fab designed by supplier for 150mm soil heave, installed to suppliers specifications.

3.8 Grout
.1 Premixed, non–shrink, non–metallic grout with minimum strength at 3 days of 20 MPa, and capable of developing a minimum strength at 28 days of 50 MPa.

DIVISION 5 – METALS

5.1 Structural Steel
.1 Structural size shapes, bar size shapes and welded shapes to CAN/CSA G40.21–04 (R2009)M, 350 MPa Weldable Grade.
.2 Hollow structural sections to CAN/CSA G40.21–04 (R2009), 350 MPa Weldable Grade.
.3 Plates and bars to CAN/CSA G40.21–04 (R2009), 260 MPa Weldable Grade.
.4 Hot dipped galvanizing zinc. coating. 600 grams/square meter to CAN/CSA–G164–M92.
.5 Welding material to CSA W59–03 (R2008). Welding to CSA W59–03 (R2008) and CSA W55.3–08. Fabricators and erectors responsible for welding of structures shall be certified by the Canadian Welding Bureau (CWB) to the requirements of CSA Standard W47.1 (Division 1 or Division 2), of CSA Standard W55.3–08, or both, as applicable. Contractor to submit proof of certification with CWB with shop drawings.
.6 Bolts, nuts and washers to ASTM A325.
.7 Anchor bolts to ASTM A307.
.8 Threaded Rod to ASTM A193 B7.
.9 Paint for primer as per CGSB L–GP–40d, or CISC/CPMA Standard 1073a. All primer to be grey unless approved otherwise.
.10 Fabrication and erection to CAN/CSA S16–01 and CISC Code of Standard Practice.
.11 All bolted connections to be "Bearing" type except where subject to stress reversal, which are to be "Slip–Resistant" type connections.
.12 All beams to be connected for the greater of the following conditions:
.1 Loads shown on drawings.
.2 50% of total uniformly distributed load resistance of the member.
.3 1/2 depth of the connected member using M20 bolts (minimum 2 bolts) in double shear.
.13 After erection, prime all welds not shop primed except surfaces to be in contact with concrete.

5.2 Metal Decking
.1 Decking to be three span continuous where possible. Nominal core thicknesses as detailed on drawings. Decking supplier to cut and frame all openings unless noted otherwise. Unless noted otherwise, all openings 150 to 450 mm in size to be framed on two sides by decking supplier with angle L55x55x5 perpendicular to flutes, extended minimum two flutes each side of openings and welded to deck. Unless noted otherwise all openings larger than 450 mm to be framed each side with angle L75x75x6. Decking supplier to provide closure supports throughout to ensure a complete and continuous membrane. Roof deck designed as structural diaphragm. Contractor to ensure all side lap fastening and welding complies with drawings.



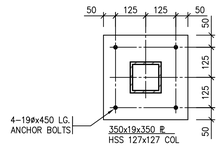
1 S0 S0 KEY PLAN 1:200

COLUMN & BASE PLATE SCHEDULE

MARK NO.	COLUMN SIZE	BASE PL TYPE.	U/S PL ELEVATION	REMARKS
C1	HSS 127x127x4.78	A	100 190	

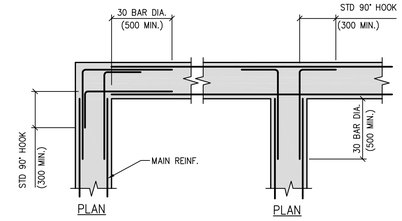
BASE PLATE SCHEDULE

ALL BASE PLATES TO BE PLACED OVER 40 GROUT UNLESS NOTED OTHERWISE



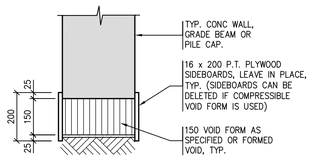
B. PL TYPE A

3 S1 S0 COLUMN & BASE PLATE SCHEDULE N.T.S.

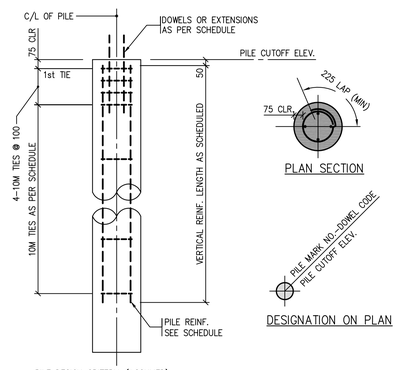


NOTE: 15M CORNER BAR REINFORCING. MATCH SPACING WITH HORIZONTAL REINFORCING OF WALL OR GRADE BEAM.

4 S0 S0 TYP. WALL OR GRADE BEAM INTERSECTION NTS



5 S0 S0 TYP. VOID FORM DETAIL NTS



PILE DESIGN CRITERIA (ASSUMED)

DEPTH BELOW GRADE (M)	SKIN FRICTION (KPa)
0 – 2M BELOW 2M	NEGLECT 25 kPa

PILE REINFORCING SCHEDULE

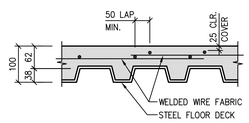
PILE MARK No.	PILE SHAFT DIA.	PILE LENGTH	VERTICAL REINF.	HORIZONTAL TIES	REMARKS
P301	300	4500	2–15Mx4400	NONE	
P401	400	4500	4–15Mx4400	10M @ 400	

NOTES:
1. ALL PILES TO BE CUTOFF AT ELEVATION DENOTED ON SCHEDULE U.N.O. ON PLAN.
2. REINFORCING LENGTHS DO NOT INCLUDE EXTENSIONS OR HOOKS.

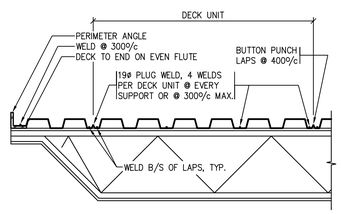
DOWEL NOTES:
A. EXTEND VERTICAL REINF. 550mm ABOVE PILE CUTOFF.
B. EXTEND VERTICAL REINF. 500mm ABOVE PILE CUTOFF c/w 90° HOOKS.
C. 2–20M x 1100 lg. EXTEND 550mm ABOVE PILE CUTOFF.
D. 4–20M x 1100 lg. EXTEND 550mm ABOVE PILE CUTOFF.
E. EXTEND VERTICAL REINF. 735mm INTO STRUCTURAL SLAB AND BEND DOWN ON SITE.

2 S1 S0 TYP. FRICTION PILE DETAIL N.T.S.

TYPICAL CONCRETE SLAB–ON–DECK
TOP OF CONCRETE SLAB @ ELEV. 100 750 U.N.O.
100 CONCRETE SLAB–ON–DECK
38mm x 0.76mm HI–BOND STEEL FLOOR DECK
DECK TO BE ZF075 STANDARD
(ZINC WIPE COAT GALVANIZED)
REINF. CONC. WITH 152x152xMW25.8xMW25.8WWF



6 S1 S0 100 CONC. SLAB ON DECK DETAIL NTS



ALL WELDS TO BE 19ø PLUG WELDS, TOUCH UP GALVANIZING

7 S1 S0 TYP. FLOOR DECK WELDING DETAILS NTS

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Revision/ Revision	Description/Description	Date/Date
0	ISSUED FOR TENDER	2014–01–17

Client/client

Project title/Titre du projet
REGINA, SK

SHARED LEARNING FACILITY

Approved by/Approuve par

Designed by/Concept par
SK

Drawn by/Dessine par
CS / DL

PWGSC Project Manager/Administrateur de Projets
AC

Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'ingénierie

Client/client

Drawing title/Titre du dessin
SPECIFICATIONS
TYPICAL DETAILS

Project No./No. du projet	Sheet/Feuille	Revision no./ La Révision no.
05-2013	S0	0

BBK Drawing file: 83800–S0.dwg

0 10 20 30 40 50 60 70 80 90 100mm