GENERAL

1. These notes are to be read in conjunction with the specifications.

2. This construction has been designed in accordance with the 2011 edition of the Manitoba Building Code.

3. The contractor shall be responsible for the design and installation of all necessary shoring, bracing and formwork. Formwork for new construction shall be bridged over existing services. Procedure must be approved by the Contract Administrator.

4. Any unsound structural conditions observed or created during construction are to be reported to Contract Administrator immediately.

5. Coordinate size and location of all openings in structural members with trades involved. All openings not indicated on structural drawings to be approved by Contract Administrator.

6. Verify all dimensions and elevations with architectural drawings prior to construction. Any discrepancies to be reported to Contract Administrator immediately. Do not scale drawings.

7. Do not backfill against structure until main floor is in place.

8. Confirm all existing conditions prior to construction. Any discrepencies or conflicts to be reported to Contract Administrator immediately.

MISCELLANEOUS METAL

1. Refer to architectural drawings for miscellaneous metal details.

2. All steel to be CSA G40.21-M300W

3. Welded rebar anchors to be grade 300 weldable.

4. All exposed miscellaneous metal to be reviewed for architectural appearance as per AISC. Specification for Architecturally Exposed Structural Steel.

STRUCTURAL STEEL

1. All structural steel including HSS sections, to be in accordance with G40.21-M350W.

2. All welding shall conform to CSA W59-M1989; fabricators to be certified in accordance with the latest edition of CSA W47.1.

3. Fabrication and erection shall be in accordance with CAN/CSA S16.1, "Limit States Design of Steel Structures".

4. Steel erector shall be responsible for supplying and erecting all temporary bracing to provide stability for the structure as a whole, until all related structural framing is erected and completely installed.

5. Fabricator shall notify the engineer of any proposed member substitutions or changed connection details.

6. Holes required in steel sections must be approved by the Contract Administrator.

7. All beams continuous over columns shall have 2 web stiffeners on each side, the same thickness as column unless noted, but not less than 3/8œ".

8. No holes permitted in top of beams at columns where beams are continuous over columns, unless loss of section by holes is compensated by equal material area welded to side of flange.

9. All structural steel shall receive at least one coat primer to CISC/CPMA standard 1-73a 1975.

10. Use asphalt base paint (flintkote 410-02 or eq.) at columns below slab.

11. All high strength bolts to be ASTM A325M.

12. The shear capacity of all shear splices shall be at least equal to the shear capacity of the smaller beam, unless noted.

13. The steel supplier shall shop weld 1" x ˜" masonry anchors to all steel members in contact with masonry walls. Maximum spacing of ties shall be 32" o/c unless noted.

14. Steel supplier is responsible for design and detailing of all structural steel connections not shown on drawings.

15. Anchor bolts shall be supplied by structural steel supplier & set by general contractor. General contractor to supply and install 1" non-shrink grout under all base plates unless noted.

16. Expansion anchors to be zinc-plated steel wedge type with the following design values in 30 MPa concrete:
1/2" - 2000 lbs shear, 2000 lbs pull-out
3/4" - 4000 lbs shear, 4000 lbs pull-out

17. All exposed portions of ledge angles and connections to be coated with bituminous paint.

18. Provide 3" x 3" x 1/4" angle framing around all deck openings greater than 18" x 18" unless noted.

19. Structural steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions and placement. All connections not shown on drawing are to be sealed by a Professional Engineer registered in the Province of Manitoba.

CONCRETE

1. Concrete work shall be in accordance with CSA A23.1-09 for "Concrete Materials and Methods of Concrete Construction" including cold weather requirements when the temperature falls below 5°C.

2. Provide one set of concrete test cylinders in accordance with CSA A23.1-09 for every 50 m3 of concrete placed and a minimum of one set for each structural component.

3. Performance specification as per A23.1-09 Table 5:

	Min. Concrete Strength @ 28 days:	
I.	Piles & Pile Caps	32 MPa
II.	Slabs on grade	35 MPa
III.	Exposed Grade Beams	35 MPa
IV.	Curbs/Sidewalks/Driveways	32 MPa
V.	All other conc.	30 MPa

	Exposure Class:	
I.	Grade Beams	F-2
II.	Piles & pile caps	S-2
III.	Slabs on grade	C-1
IV.	Curbs/sidewalks/driveways	C-2
V.	All other conc.	N

4. For floor slabs, design the concrete mix with aggregate grading and water to cement materials ratio to minimize shrinkage.

5. Walls, piers and columns shall be poured a minimum of 24 hours before slabs and beams.

6. Provide dovetail anchor slots in concrete walls and columns where masonry abuts.

7. All structural slabs framing into concrete walls or beams shall have a minimum 1 1/2" chase into supporting member x the height of the slab.

8. Where concrete beams frame into concrete walls or other concrete beams and are poured later, provide 1 1/2" chase (height and width to match beam).

9. The use of calcium chloride is not permitted.

10. Construction joint keys in grade beams shall be formed at pile locations only.

11. Construction joint keys in structural slabs to be formed at 1/3 span. Provide key width equal to half the thickness of the slab. Provide 15M dowels @ 24" o/c top & bottom.

12. Saw cuts for slab on grade shall be 1" deep & 1/8" wide. Cutting to be done not sooner than 12 hours, and not later than 24 hours after the slab is poured. Cuts to be filled with approved bituminous compound or caulking.

13. Saw cuts for slab to be spaced at maximum 20'-0" o/c unless noted otherwise on drawings. Provide diamond saw cuts around all column unless noted otherwise on drawings.

14. Slip joint all paving against structural members with 1/2" impregnated fibreboard.

15. Provide minimum 6 mil poly vapour barrier below all slab on grade concrete slabs unless noted otherwise on drawings.

16. Coordinate the location of all items embedded in concrete work with Architectural, Mechanical & Electrical drawings.

17. Engineer to be notified at least 48 hours in advance of all major pours.

18. Refer to architectural drawings for concrete surfaces requiring architectural finishes.

19. Where voidform is indicated on drawings use cardboard shearmat below structural slabs and low-density polystyrene below walls and gradebeams.

20. For structural slabs at grade, plywood over biodegradable wax mat cardboard, complete with moisture resistant treated paper faces, with sufficient strength to support the weight of wet concrete until initial set.

ADHESIVE ANCHORING SYSTEM

1. Drill holes with ANSI B212.15 matched tolerance carbide tipped drill bits. Diamond coring holes is not permitted.

2. Drilled hole specifications (diameter & depths) shall comply with manufacturer specifications and ICBP ER-5193.

3. Allowable loads may be increased by 33-1/3% for short-term wind or seismic load resistance IAW ICBO ER-5193.

4. When conducted, field proof test anchors 150-200% of manufacturer published allowable tension load. Torque testing is not permitted.

5. Installation in holes with standing water is not permitted.

6. Anchors will be tightened with a torque wrench. Use of an impact wrench is not permitted.

7. Prepare base material and Install all anchors as per manufacturer's requirements.

REINFORCING

1. All bars to conform to CSA G30.18-09:
15M bars and larger to be grade 400
10M bars and supporting rods to be grade 300 or better

2. All steel to be detailed in accordance with the current ACI Detailing Manual.

3. Minimum clear cover to reinforcing.

3/4" structural slabs
1" interior face of walls
1 1/2" face of grade beams
2" exterior face of walls, bottom of grade beams & walls
3" pile caps
3" bottom of footings

4. Reinforcement noted with "C" as C10M is to have a standard hook at one end. Length of bar indicated is exclusive of hook length.

5. Reinforcement noted with "E" as 10ME is to be epoxy-coated.

6. All reinforcing shall be held in place with proper accessories.

7. Standard end hook lengths for reinforcement - refer to table below.

STANDARD END HOOKS

BAR SIZE	10M	15M	20M	25M	30M	35M	45M	55M
90° HOOK LENGTH	7"	10"	12"	16"	20"	26"	32"	41"
180° HOOK LENGTH	6"	7"	8"	12"	16"	22"	27"	35"

8. In concrete beams, bend horizontal reinforcing 24" around corners, or use extra corner bars 36" x 36".

9. All openings in concrete walls and/or slabs to have minimum 2-15M extra reinforcing all around, 1 each face, extend minimum 2'-0" past, plus additional 15M diagonal bars each face 1.5 times longer then shortest opening size or min. 20" and maximum 5'-0" in length at each corner unless noted otherwise. Maximum opening size 3'-0" wide; top of opening to be minimum 2'-0" below top of wall elevation. For all openings greater than 3'-0" contact the Engineer for further instruction. Coordinate all openings with Architectural, Electrical and Mechanical drawings.

10. Do not cut reinforcing at openings where it can be spread continuously around opening.

11. All openings in grade beams to be confirmed by the Contract Administrator.

12. Top steel in beams shall be lapped at centre span, bottom steel shall be lapped at support.

13. All reinforcing steel shall be cleaned of all dirt, grease and other deleterious materials prior to placing.

14. All reinforcing shall be new billet deformed bars.

15. Minimum reinforcing for equipment bases 10M @ 12" o/c each way.

16. All welded wire fabric shall be transported and delivered in flat sheets.

17. Reinforcing steel supplier to confer with contractor as to desired construction joint locations and supply dowels and bar lengths to accommodate these joints.

18. Reinforcing steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions, placement and splice locations.

CAST IN PLACE PILE FOUNDATION

1. Cast-in-place piles are designed using a service limit state (SLS) adhesion value of 19 kPa and a factored limit state (ULS) adhesion value 25 kPa between 3.0m to 10m depth below grade from Dyregrov Robinson April 26, 2013 geotechnical report. A resistance factor of 0.4 was utilized to obtain the factored adhesion value.

2. Concrete for cast-in-place piles shall be 32 MPa @ 28 days using Sulfate Resisting Type 50 cement, 1 1/2" maximum size aggregate, 3 1/2" slump and 3% to 5% air entrainment. Vibrate the top 10 feet of each pile.

3. Piles shall be no more than 2% out of plumb; and no more than 2" out of alignment.

4. Pile reinforcing shall extend a minimum of 2'-0" into pilecap or grade beam/wall.

5. Slab sub-base to be built up of 'C-Base' granular fill compacted to 95% Standard Proctor Density in maximum 8" lifts. Final lift to be 6" 'A-Base' granular fill compacted to 98% Standard Proctor Density. All compaction densities to be confirmed by an independent testing agency prior to placement of any concrete.

psastudio inc.
Peter Sampson Architecture Studio Incorporated
707 Sara Avenue R3G 0Y8
Winnipeg, Manitoba
studio@psastudio.ca
1 204 475 9323

Owner

City of Winnipeg
190 River Road, Winnipeg, MB

No.	Date	Revision Notes
1.	15.03.10	Issued for Coord
2.	15.04.10	Issued for 66% Review
3.	15.05.08	Issued for Construction

APEGM
Certificate of Authorization
Wolfrom Engineering Ltd.
No. 1156 Expiry: April 30, 2016

PROVINCE OF MANITOBA
J.C.P. REID
Member
22314
2015-05-25
REGISTERED PROFESSIONAL ENGINEER

Project

St. Vital Park Washrooms

Drawing

Structural Specification

Drawn By	Reviewed By
MH	PS
Scale	Drawing No.
	SP-2

Date	Project No.	File No.
May 2015	1445	0