

GENERAL

- These notes are to be read in conjunction with the specifications.
- This building has been designed in accordance with the 2011 edition of the Manitoba Building Code.
- 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 design engineer.
- Errors in drawings and/or specifications and/or previously unknown existing conditions shall be brought to the attention of the engineer before proceeding with the work. During the tender stage, contractor shall request an interpretation of conflicts prior to tender. If no request is made, both provisions shall be presumed to be included in the tender and the engineer shall determine which provision governs, and the contractor shall perform the work at no additional cost to the owner.
- Any unnoted structural conditions observed or created during construction are to be reported to Engineer immediately.
- Contractor shall review, stamp, sign and date all shop drawings prior to forwarding to architect and/or engineer. The engineer's review is to be for conformance with the design concept and general compliance with the relevant contract documents. The engineer's review does not relieve the contractor of the sole responsibility to review, check and coordinate the shop drawings prior to submission. The contractor remains solely responsible for errors and omissions associated with the preparation of shop drawings as they pertain to member sizes, details, dimensions, etc..
- Coordinate size and location of all openings in structural members with trades involved. All openings not indicated on structural drawings to be approved by Engineer.
- Refer to Architectural, Mechanical and Electrical drawings for small openings, sleeves, recesses, depressions, sumps, trenches, curbs, housekeeping pods, equipment bases, and slopes not indicated on the structural drawings.
- Coordinate placement and location of items by subsequent trades. Relevant trades shall review prior to erection and/or installation.
- Confirm the location of all sub-grade services prior to commencing site work.
- Verify all dimensions and elevations from architectural drawings prior to construction. Any discrepancies to be reported to engineer immediately. Do not scale drawings.
- Do not backfill against structure until main floor is in place.
- Do not exceed, during construction, design live loads shown on plans. Reduce as necessary until materials reach design strength.
- Confirm all existing conditions prior to construction. Any discrepancies or conflicts to be reported to Engineer immediately.
- Drawings indicate general and typical details of construction. Where conditions are not specifically shown, similar details of construction shall be used, subject to approval by the engineer.
- Design loads as noted on plans are unfactored.

FOUNDATION

- Foundation design is based on the foundation investigation logs reported dated July 17, 2023 as prepared by SSU Engineering. Ensure that the requirements outlined in the report are read and understood prior to commencing with foundation work.
- Remove all organic material from the building area as outlined in the geotechnical report.
- Bearing surfaces to be inspected in the field by Professional Geotechnical Engineer registered in the province of Manitoba prior to placing concrete. Where required improve sub-grade as directed in writing by a Professional Geotechnical Engineer registered in the province of Manitoba.
- Unless otherwise shown on plans, foundation elements are to be centered under walls, grade beams, and columns.
- Provide dowels from footings, grade beams, and pilecaps. Reinforcing to match all vertical reinforcing in walls and columns or as noted on drawings.

HELICAL SCREW PILES

- Piles shall be no more than 2K out of plumb, and no more than 2" out of alignment in any direction.
- Pipe shaft shall meet minimum requirements of API 5CT Grade 3 ASTM (minimum yield strength of 45,000 psi, and a minimum tensile strength of 66,000 psi) and meet and/or exceed ASTM A53, type E (welded) or S (seamless) Grade B.
- Structural quality steel shall conform to latest CSA Standard G40.21, ASTM A36 for helix blade.
- Pile shafts and helix blades shall be hot dip galvanized.
- Welding shall be performed by shop qualified to CSA Standard W47.1.
- All welding shall conform to latest CSA Standard W59.
- Only new material shall be used in the construction of helical piles.
- Shop drawings sealed by Engineer registered in Manitoba shall be provided for review prior to installation. Pile supplier shall confirm soil requirements full extent of structures prior to shop drawing review.
- Pile supplier shall measure installation torque during pile placement and provide all necessary changes and capacities on the input shop drawings. Installation torque measurement logs shall be submitted to Wolfrom Engineering Ltd. immediately upon installation.
- At minimum one test location per every 10 piles installed. Installer shall advance a pile to minimum 3 helix diameters greater depth than deepest pile in represented group, and maintain torque measurement log of test pile installation. Torque log of test pile shall be submitted to Wolfrom Engineering Ltd., and to Geotechnical Engineer (if any) to permit confirmation of soil characteristics below the typical bearing stratum.
- Helix of pile shall NOT be installed in back-filled material. If back-filled material extends down more than 4 ft. below finished grade, both screw pile installer/manufacturer and Engineer of Record shall immediately be informed of back-fill depth, material and compaction method.
- Pile bearing helix shall be at minimum 8 ft. depth below finished grade, at all areas subject to frost, and at minimum 6 ft. depth below finished grade at all areas.
- Helical screw pile supplier and installer shall be CCMC certified.

POST-INSTALLED ANCHORS

- Except where indicated on the drawings, post-installed anchors shall consist of the following anchor types:
 - Anchor to concrete
 - Adhesive anchors for concrete use:
 - HILTI HIT-HY 200 safe set system with HILTI hit-z rod for fast cure applications
 - HILTI HIT-HY 200 safe set system with HILTI hollow drill bit system for fast cure applications
 - HILTI HIT-RE 500V3 safe set system with HILTI hollow drill bit for slow cure applications
 - HILTI HIT-RE 500V3 safe set system with HILTI Roughening Tool (HT RT) with HAS-E threaded rod for slow cure applications
 - Steel anchor element shall be HILTI HES-N internally threaded inserts, HILTI HAS-E continuously threaded rod, or continuously deformed steel rebar.
 - Medium duty mechanical anchors for concrete use:
 - HILTI KWIK HUS EZ and KWIK HUS EZ- screw anchors
 - HILTI KWIK BOLT-TZ expansion anchors
 - HILTI KWIK BOLT 3 expansion anchors
 - Heavy duty mechanical anchors for concrete use:
 - HILTI HDA under anchors
 - HILTI HSL-3 expansion anchors
 - Rebar doweling into concrete
 - Adhesive anchors for cracked and uncracked concrete use:
 - HILTI HIT-HY 200 safe set system with HILTI hollow drill bit system with continuously deformed rebar
 - HILTI HIT-HY 500V3 safe set system with hollow drill bit with continuously deformed rebar
 - HILTI HIT-RE 500V3 safe set system with HILTI roughening tool (HT RT) with continuously deformed rebar in diamond cored holes.
 - Anchor to solid grouted masonry
 - Adhesive anchors use:
 - HILTI HIT-HY 70 masonry adhesive anchoring system
 - Steel anchor element shall be HILTI HAS-E continuously threaded rod or continuously deformed steel rebar.
 - Mechanical anchors use:
 - HILTI KWIK HUS-EZ screw anchor
 - HILTI KWIK BOLT-3 expansion anchors
- Install anchors per the manufacturer instructions, as indicated in the anchor packaging.
- The contractor shall arrange an anchor manufacturer's representative to provide on-site installation training for all of their anchoring products specified. The structural engineer of record must receive documented confirmation that all of the contractor's personnel who install anchors are trained prior to the commencement of installing anchors.

CONCRETE

- Concrete work shall be in accordance with CSA A23.1-14 for "Concrete Materials and Methods of Concrete Construction" including cold weather requirements when the temperature falls below 5°C.
- Fabrication and erection shall be in accordance with CAN/CSA A23.3-14 for "Design of Concrete Structures".
- Provide one set of concrete test cylinders in accordance with CSA A23.1-14 for every 50 m³ of concrete placed and a minimum of one set for each structural component.

Exposure Class	Curing Type	Min. Comp. Strength (MPa)	Applications
S-2	2	32 @ 56d	Exterior slab and beam

Minimum strength as noted above unless specified higher on drawings or in performance specifications. Allowable curing regime specified for normal concrete, additional requirements are specified in A23.1-14 Table 2 for concrete containing supplemental cementitious materials (SCMs).
- Allowable Curing Regimes as per A23.1-14 Table 20:

Curing Type	Description
1. Basic	3 d at >10°C or for time necessary to attain 40% of the specified strength
2. Additional	7 d at >10°C or for time necessary to attain 70% of the specified strength
3. Extended	70% of the specified strength A wet-curing period of 7 d.

Concrete is to be protected from environmental conditions such as excessive heat, freezing, precipitation and wind. Significant temperature differentials, premature drying and moisture loss must be prevented. Additional curing requirements may be necessary. The use of high early strength concrete to shorten the curing period must be approved by Wolfrom Engineering.
- For floor slabs, design the concrete mix with aggregate grading and water to cement materials ratio to minimize shrinkage.
- Provide concrete slab and floor finish classification overall F-number in accordance with Table 22, CSA A23.1-14.
- The use of calcium chloride is not permitted.
- 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.
- Slip joint all paving against structural members with 1/2" impregnated fibreboard.
- Provide minimum 6 mil poly vapour barrier below all slab on grade concrete slabs unless noted otherwise on drawings.
- Coordinate the location of all items embedded in concrete work with Architectural, Mechanical & Electrical drawings.
- Engineer to be notified at least 48 hours in advance of all major pours.
- Refer to architectural drawings for concrete surfaces requiring architectural finishes.
- Where voidform is indicated on drawings use cardboard shearmat below structural slabs and low-density polystyrene below walls and gradebeams. 6" Voidform to be provided below all concrete subgrade elements, including all walls, gradebeams, structural slabs, pilecaps, and pilasters unless noted otherwise.

REINFORCING

- 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
 - All steel to be detailed in accordance with the current ACI Detailing Manual.
 - Minimum clear cover to reinforcing - as per CSA A23.1 & A23.2 table 17.
- | CLEAR CONCRETE COVER TO REINFORCEMENT | | | |
|---|----------|---------------|---------------|
| EXPOSURE CLASS | F-1, F-2 | C-XL, C-1 | C-2, C-3 |
| EXPOSURE CONDITION | N | S-1, S-2, S-3 | A-1, A-2, A-3 |
| Coat against and permanently exposed to earth | 3" | 3" | 3" |
- | STEEL GRADES | GRADE |
|------------------------------------|--|
| ROLLED SHAPES, REIN. BARS | CSA G40.21 300M OR ASTM A 602 GRADE 60 |
| WELDED WIRE FABRIC SECTIONS | CSA G40.21 300M |
| HEAVY STRUCTURAL SECTIONS | CSA G40.21 300M SLAB C |
| OTHER STRUCTURAL SHAPES AND PLATES | CSA G40.21 300M |
| BOLTS | ASTM A325 |
| ANCHOR RODS | ASTM F1554 GRADE 36 |
| HEAVY TRIP BOLDS | ASTM A306 |
| THREADER RODS | ASTM A36 |
- NOTE: THE LARGEST COVER REQUIRED FOR ANY ONE ELEMENT SHALL GOVERN.

BAR SIZE	STANDARD END HOOKS							
	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"

- In concrete beams, bend horizontal reinforcing 24" around corners, or use extra corner bars 36" x 36".
- Top steel in beams and concrete walls shall be lapped at centre span, bottom steel shall be lapped at support.
- All reinforcing steel shall be cleaned of all dirt, grease and other deleterious materials prior to placing.
- All reinforcing shall be new billet deformed bars.
- Reinforcing steel supplier to confer with contractor as to desired construction joint locations and supply dowels and bar lengths to accommodate these joints.
- Reinforcing steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions, placement and splice locations.
- Except as noted otherwise, provide dowels matching vertical or horizontal reinforcing of adjacent concrete members and/or elements.

SITE VISITS & CLOSING DOCUMENTS

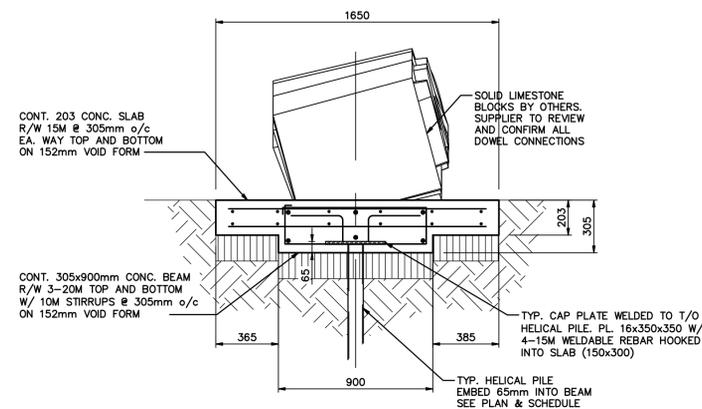
STRUCTURAL SITE REVIEW & CLOSING DOCUMENT REQUIREMENTS

SITE VISITS	REQUIREMENTS
PILE INSTALLATION	REFER TO FOUNDATION NOTES AND GEOTECHNICAL REPORT FOR REVIEW REQUIREMENTS.
REBAR INSTALLATION	WEL TO BE NOTIFIED 2 BUSINESS DAYS PRIOR TO ALL CONCRETE PLACEMENT. NO CONCRETE SHALL BE PLACED PRIOR TO WEL APPROVAL.
FINAL REVIEW	ALL ITEMS ON DEFICIENCY LIST ARE TO BE ADDRESSED PRIOR TO FINAL REVIEW. PHOTOS ARE TO BE PROVIDED UPON COMPLETION OF DEFICIENCY ITEMS FOR WEL'S REVIEW. WEL WILL DETERMINE WHETHER AN ADDITIONAL SITE REVIEW IS REQUIRED.

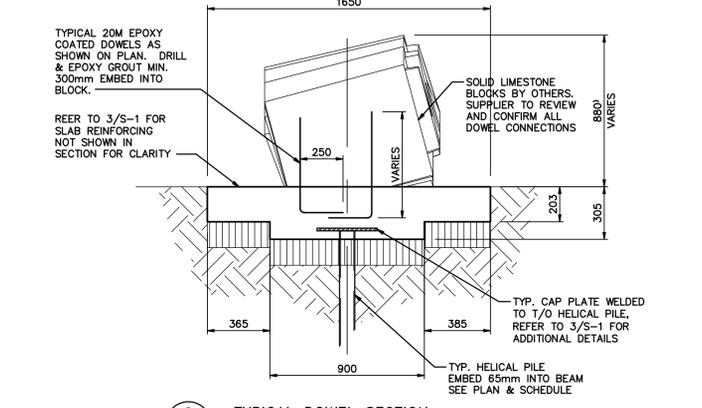
NOTE: FAILURE TO NOTIFY WEL OF CONSTRUCTION PROGRESS IN TIME FOR SITE REVIEWS MAY RESULT IN DESTRUCTIVE TESTING, REMOVAL OF FINISHING MATERIALS AND/OR ADDITIONAL FEES FOR SITE REVIEWS. ADDITIONAL TESTING, REPAIRS AND FINISHING COSTS WILL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. CERTIFICATION OF THE PRODUCT WILL BE WITHHELD UNTIL REVIEWS ARE COMPLETED TO WEL'S SATISFACTION AND OUTSTANDING INVOICES ARE PAID.

STRUCTURAL STEEL

- All welding shall conform to CSA W59-03 (R2008); fabricators to be certified in accordance with CSA W47.1-09.
- Fabrication and erection shall be in accordance with CAN/CSA S16-09, "Limit States Design of Steel Structures".
- Unless noted otherwise, design connections for non-composite beams for factored moment shear force equal to 67% of the total beam load tabulated in the CISC handbook of steel construction.
- Unless noted otherwise, design moment connections for non-composite beams for a factored moment equal to the full moment capacity of the smaller member joined.
- Supply steel with properties noted in steel grades table below.
- 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.
- Fabricator shall notify the engineer of any proposed member substitutions or changed connection details.
- Holes required in steel sections must be approved by the engineer.
- Provide 3/8" weep holes at top and bottom of all HSS columns.
- All columns passing thru concrete shall have compressive material to isolate it from surrounding concrete.
- All structural steel shall receive at least one coat primer to CISC/CSMA standard 1-73a 1975.
- All exterior steel exposed to weather to be galvanized.
- Use asphalt base paint (GloVar 22 coat tar epoxy or eq.) at columns below slab.
- All high strength bolts to be in accordance with the latest edition of ASTM A325M.
- Provide minimum of 2 bolts in bolted connections.
- All bolted connections to use snug-tightened high-strength bolts unless noted on drawings.
- The shear capacity of all shear splices shall be at least equal to the shear capacity of the smaller beam, design and detail.
- Steel supplier is responsible for design and detailing of all structural steel connections not shown on drawings.
- All miscellaneous steel not detailed on drawings, such as: stairs, railings, ceilings and non-structural architectural steel shall be detailed by the steel supplier.
- 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.
- All grout under bearing plates and base plates shall be non-metallic, non-shrink type with minimum 28 day compressive strength of 4500 PSI, installed in accordance with the specification and manufacturer's recommendations.
- All exposed portions of ledge angles and connections to be coated with bituminous paint.
- Structural steel supplier shall submit shop drawings for review of fabrication, sizes, dimensions and placement. All connections not shown on drawings are to be sealed by a Professional Engineer registered in the Province of Manitoba. A certification letter, sealed by a professional engineer registered in Manitoba, is to be submitted to verify installation is in conformance with shop drawings.



1 TYPICAL SECTION
1 : 20



2 TYPICAL DOWEL SECTION
1 : 20

ENGINEERS
GEOSCIENTISTS
MANITOBA
Certificate of Authorization
Wolfrom Engineering Ltd.
No. 1166

WOLFROM
ENGINEERING LTD.
WWW.WOLFROMENG.COM

LOCATIONS APPROVED UNDERGROUND STRUCTURES		G.B.M. ELEV.
SIGNED BY:	DATE:	
SUPV UG STRUCTURES		
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING.		
NO.	REVISIONS	DATE BY
0	ISSUED FOR CONSTRUCTION	12-13-2023 JLG

HTFC PLANNING & DESIGN
300-115 Bernhart Ave. Winnipeg, MB R2S 0R3
PHONE: 204-944-9967

DESIGNED BY: JLG
CHECKED BY: JLG
DRAWN BY: JLG
APPROVED BY: JLG

HOR. SCALE: AS NOTED
VERTICAL: AS NOTED

RELEASED FOR CONSTRUCTION

DATE: 12-11-2023

ENGINEER
Winnipeg
MEMBER
35022
2023-12-13
REGISTERED PROFESSIONAL ENGINEER

CONSULTANT ACDI DWG. NO.
W23278 - S.1

THE CITY OF WINNIPEG
PLANNING, PROPERTY AND DEVELOPMENT
PLANNING AND URBAN DESIGN DIVISION

Winnipeg

EAST EXCHANGE - OSEREDOK PARK & WATERFRONT LETTERS

CITY DRAWING NUMBER
SHEET 7 OF 9

GENERAL NOTES AND DETAILS

BID NO.
1035-2023

NOTE: These design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations or warranties made by the design professional to any party with whom the design professional has not entered into a contract.