

## 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 an Engineer registered in the Province of Manitoba.
- Errors in Drawings and/or Specifications and/or previously unknown existing conditions shall be brought to the attention of the Contract Administrator as per B4.
- Any unsound structural conditions observed or created during construction are to be reported to the Contract Administrator immediately.
- Contractor shall review, stamp, sign and date all Shop Drawings prior to forwarding to Contract Administrator. The Contract Administrator's review is to be for conformance with the design concept and general compliance with the relevant Contract documents. The Contract Administrator'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 the Contract Administrator.
- Refer to Architectural, Mechanical and Electrical Drawings for small openings, sleeves, recesses, depressions, sumps, trenches, curbs, housekeeping pads, 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 with Architectural drawings prior to construction. Any discrepancies to be reported to Contract Administrator 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 Contract Administrator 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 Contract Administrator.
- All design loads as noted on plan are unfactored.

## 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 (HIT RT) with HAS-E threaded rod** for slow cure applications
      - Steel anchoring element shall be Hilti HIS-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-1 screw anchors**
      - Hilti Kwik bolt-TZ expansion anchors**
      - Hilti Kwik bolt 3 expansion anchors**
    - Heavy duty mechanical anchors for concrete use:
      - Hilti HAD undercut 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 (HIT 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**
  - Anchor to hollow / Multi-Wythe 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
      - The appropriate size screen tube shall be used per adhesive manufacturer's recommendation
  - Install anchors per the manufacturer's instructions, as included in the anchor packaging.
  - The Contractor shall arrange an anchor manufacturer's representative to provide onsite installation training for all of their anchoring products specified. The Contract Administrator must receive documented confirmation that all of the Contractor's personnel who install anchors are trained prior to the commencement of installing anchors.

## FOUNDATION

- Foundation design is based on the Foundation Investigation Soils Report dated January 18, 2016 as prepared by TREK Geotechnical Inc. 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.
- Driven precast concrete piles shall be designed based on a factored bearing resistance indicated 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 by 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.
- Foundation and retaining walls have been design assuming an effective drainage system is provided behind the walls.
- Backfill Material to be compacted to 98% of standard proctor maximum dry density in maximum 6" lifts.
- Do not backfill behind foundation walls until the floor system or concrete slabs are in place and concrete has reached 28 day design strength.

- Backfill walls below grade evenly on both sides ensuring that no portion of the fill is placed more than 24" above any other portion of the fill during backfilling.
- Cast-in-place piles are designed for an assumed skin friction of 292 PSF.
- Concrete for cast-in-place piles shall be 32 MPa @ 28 days using Sulfate Resisting Type HS or HSB cement, 3/4" maximum size aggregate, 3 1/2" slump and 4% to 7% air entrainment. Vibrate the top 10 feet of each pile.
- Piles shall be no more than 2% out of plumb; and no more than 2" out of alignment.
- Pile reinforcing shall extend a minimum of 2'-0" into pilecap or grade beam/wall.
- 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.
- Footings and pads designed for a maximum bearing pressure of 1500 PSF.
- All footings shall extend a minimum of 20" into native undisturbed soil, and bear on a level surface capable of supporting the maximum design pressure.
- Footing excavations & footings to be protected from frost at all times, during construction.
- Concrete for footings, pads and piers shall be 30 MPa @ 28 days. Use Sulphate Resisting Type 50 cement, 1 1/2" max aggregate size, 3 1/2" slump and 3% to 5% air entrainment.
- All exterior footings shall have at least 4 feet of earth cover, or equivalent insulation for frost protection.
- Footings bases shall be stepped at a maximum 1 to 1 slope where bearing levels vary.
- Slab sub-base & over excavated footings 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.

## C-HP CONCRETE PILES

- Cast-in-place piles are designed for an assumed skin friction of as shown in table below from TREK Geotechnical Inc. Geotech Report dated February 1, 2016.

Pile Depth Below Ground Surface (m)	Geodetic Elevation (m)	ULS Axial Unit Resistance (kPa)			SLS Axial-Compressive Unit Resistance Shaft Adhesion (kPa)
		Compression $\phi = 0.4$		Uplift $\phi = 0.3$	
		Shaft Adhesion	End Bearing	Shaft Adhesion	
0 to 1.5	232.8 to 231.3	0	0	0	0
1.5 to 10	231.3 to 222.8	16	70	12	16

- Concrete for cast-in-place piles shall be 30 MPa @ 28 days using Sulfate Resisting Type 50 cement, 40mm maximum size aggregate, 90mm slump and 3% to 5% air entrainment. Vibrate the top 3 metres of each pile
- Piles shall be no more than 2% out of plumb; and no more than 50mm out of alignment.
- Pile reinforcing shall extend a minimum of 600mm into pilecap or grade beam/wall.
- Slab sub-base to be built up of 'C-Base' granular fill compacted to 95% Standard Proctor Density in maximum 200mm lifts. Final lift to be 150mm '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.
- Provide full time inspection of piling by Geotechnical Engineer of record registered in the Province of Manitoba.

## 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 A23-14 for every 50 m<sup>3</sup> of concrete placed and a minimum of one set for each structural component.
- Performance specification as per A23.1-14 Table 5:

Min. Concrete Strength @ 28 Days:	
a. Piles & Pile Caps	32 MPa
b. All other heated concrete	30 MPa
c. Concrete column	60 MPa
- Exposure Class:
  - Piles & pile caps S-2
  - Exterior structural slabs & grade beams C-1
  - Curbs/sidewalks/driveways C-2
  - Concrete column F-2
  - All other conc. N
- For floor slabs, design the concrete mix with aggregate grading and water to cement Materials ratio to minimize shrinkage.
- Walls, piers and columns shall be poured a minimum of 24 hours before slabs and beams.
- Provide concrete slab and floor finish classification overall F-number in accordance with Table 21, CSA A23.1-14.
- Unless noted otherwise, utilize Curing types that correlate with Class of exposure for Table 2, CSA A23.1-14.
- Provide dovetail anchor slots in concrete walls and columns where masonry abuts.
- All structural slabs framing into concrete walls or beams shall have a minimum 40mm chase into supporting member by the height of the slab.
- Where concrete beams frame into concrete walls or other concrete beams and are poured later, provide 40mm chase (height and width to match beam).
- The use of calcium chloride is not permitted.
- Construction joint keys in grade beams shall be formed at pile locations only.
- Concrete cold joints below grade in exterior perimeter concrete walls and beams to have continuous swellable hydrophilic waterstop sealant.
- 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 @ 600 o/c top & bottom.
- Saw cuts for slab on grade shall be 25mm deep & 3mm 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.
- Saw cuts for slab on grade shall be spaced at maximum 600mm o/c unless noted otherwise on drawings. Provide diamond saw cuts around all columns unless noted otherwise on Drawings.
- Slip joint all paving against structural members with 12mm impregnated fiberboard.
- Provide minimum 6 mil poly vapor 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.
- Contract Administrator 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 grade beams. 150mm voidform to be provided below all concrete subgrade elements, including all walls, grade beams, structural slabs, pilecaps, and pilasters unless noted otherwise.

- 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.
- Exterior sidewalks to be 100mm thk. concrete on compacted granular fill reinforced with 10M @ 300 o/c each way mid-depth. Provide tooled control joints @ max. 1500 o/c and construction joints @ max. 6100 o/c
- Concrete slab at exterior refuse container to be 150mm thick concrete on compacted granular fill reinforced with 15M @ 300 o/c each way mid. depth.

## REINFORCING

- All bars to conform to CSA G30.18-M92:

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 – refer to table below:

EXPOSURE CONDITION	EXPOSURE CLASS		
	N	F-1, F-2 S-1, S-2, S-3	C-XL, C-1, C-2, C-3 A-1, A-2, A-3
Cast against and permanently exposed to earth.	-	3"	3"
Beams, girders, columns, and piles to ties/stirrups (except noted below).	1 1/4"	1 1/2"	2 3/8"
Parkade suspended slabs, Top Bars	3/4"	1.5"	2 3/8"
	Bottom Bars	-	1 3/4"
Parkade slabs on grade & structural slabs at grade.	Top Bars	-	1 1/4"
	Bottom Bars	-	2 1/4"
Parkade beams (to stirrups)	-	-	1 1/2"
Ratio of cover to nominal bar diameter.	-	-	1 1/2"
Ratio of cover to nominal maximum aggregate size.	1	1.5	2

Note: The largest cover required for any one element shall govern
- Reinforcement noted with "C" as C10M is to have a standard hook at one end. Length of bar indicated is exclusive of hook length.
- Reinforcement noted with "E" as 10ME is to be epoxy-coated.
- All reinforcing shall be held in place with proper accessories.
- 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"	12"	22"	27"	35"

- In concrete beams, bend horizontal reinforcing 24" around corners, or use extra corner bars 36" x 36".
- 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 than 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 Contract Administrator for further instruction. Coordinate all openings with Architectural, Electrical and Mechanical Drawings.
- Do not cut reinforcing at openings where it can be spread continuously around opening.
- All openings in grade beams to be confirmed by the Contractor Administrator.
- Top steel in beams 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.
- Minimum reinforcing for equipment bases 10M @ 12" o/c each way.
- All welded wire fabric shall be transported and delivered in flat sheets.
- 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 at adjacent concrete members and/or elements

## OPEN WEB STEEL JOISTS

- Joists which are resistance welded shall conform to CAN/CSA W55.3-08.
- Steel joists design shall allow for all snow build-ups prescribed by the 2010 edition of the National Building Code of Canada.
- Bridging shall conform to the latest code requirements.
- Bridging to be connected to all beams and walls.
- Joist supplier to design joists to support mechanical equipment, all weights & locations to be confirmed by Mechanical Subcontractor.
- Where point loads on joists do not occur at panel points, strengthen chords as required. Indicate all point load locations on Shop Drawings.
- Camber all joists for specified dead load plus half of the specified live load (min. 12mm) according to CSA-S16 unless noted otherwise.
- Design and supply joist seats and bearing plates to suit elevations and skews indicated on Drawings.
- The steel joist supplier shall submit Drawings bearing the seal of an Engineer, registered in the Province of Manitoba for review of:
  - fabrication Drawings of each truss type c/w member sizes, dimensions, and design information.
  - an erection Drawing, showing the location of all truss and other information required by the Contractor for the proper installation of the trusses.

## STRUCTURAL STEEL

- All 'W' and 'HSS' sections shall be in accordance with CAN/CSA G40.21-04 M350W, all other sections shall be in accordance with CAN/CSA G40.21-04 M300W.
- 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 below.

Member Type:	Grade:
Rolled W-shapes	CSA G40.21 350W or ASTM A 992 Grade 50
Welded wide flange sections	CSA G40.21 350W
Hollow structural sections	CSA G40.21 350W Class C
Other structural shapes and plates	CSA G40.21 350W
Bolts	ASTM A325
Anchor rods	ASTM F1554 Grade 36
Headed stud anchors	ASTM A108
Threaded rods	ASTM A36
- 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 Contract Administrator of any proposed member substitutions or changed connection details.
- Holes required in steel sections must be approved by the Contractor Administrator.
- Provide 3/8"  $\varnothing$  weep holes at top and bottom of all HSS columns.
- All beams continuous over columns shall have 2 web stiffeners on each side, the same thickness as column unless noted, but not less than 3/8".
- 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.
- 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/CPMA standard 1-73a 1975.
- Use asphalt base paint (flintkote 410-02 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, unless noted.
- The steel supplier shall shop weld 1 1/2" x 1/8" masonry anchors to all steel members in contact with masonry walls. Maximum spacing of ties shall be 32" o/c unless noted.
- 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, awnings and non-structural Architectural steel shall be detailed by the steel supplier.
- Anchor bolts shall be supplied by structural steel supplier and set by Contractor. 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.
- Expansion anchors to be zinc-plated steel wedge type with the following design values in 30 MPa concrete:

1/2" $\varnothing$ - 2000 lbs shear, 2000 lbs pull-out
3/4" $\varnothing$ - 4000 lbs shear, 4000 lbs pull-out
- All exposed portions of ledge angles and connections to be coated with bituminous paint.
- Provide 3" x 3" x 1/4" angle framing around all deck openings greater than 18" x 18" unless noted.
- All steel beams supporting masonry walls to have minimum 3/4"  $\varnothing$  x 12" long nelson studs welded to beam at 24" o/c unless noted otherwise on Drawings.
- Provide minimum S8x18.4 Elevator Hoist beam c/w end bearing connections unless noted otherwise.
- 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.

## STEEL DECK & LIGHT GAUGE METAL FRAMING

- Steel deck and light gauge metal framing to be designed in accordance with the latest issue of CSA 136-07 and CSA 136.1-07 to support the loads indicated on the Drawings.
- Steel deck work to be performed in accordance with the latest edition of Canadian Sheet Steel Building Institute Standards for Roof and Floor Decks.
- Steel deck to be manufactured from ASTM A525 Grade A structural quality sheet steel; hot-dip galvanized to ZF75 wiped coat designation.
- Submit Shop Drawings sealed by a Professional Engineer registered in the Province of Manitoba, indicating decking plan, profiles, supports and design loads.
- Mechanically fasten side laps at 300 o/c.
- Fasten deck to support members with 19mm fusion welds at 300 o/c.
- Reinforce deck openings up to 450 square with L55 x 55 x 5 each side. Extend reinforcing angles a minimum of two flutes beyond opening each side.

## MISCELLANEOUS METAL

- Refer to Architectural Drawings for miscellaneous metal details.
- All steel shall conform to CSA G40.21-04
- Welded rebar anchors to be grade 300 weldable.
- All exposed miscellaneous metal to be reviewed for Architectural appearance as per AISC. Specification for Architecturally Exposed Structural Steel.

## MASONRY

- Concrete blocks to conform to CSA A165.1-04.
- Masonry walls to be built with type "S" mortar having a minimum strength of 13 MPa @ 28 days. Mortar to be in accordance CSA A179-04.
- Use Dur-O-Wall (or equal) spaced vertically at 400 o/c.
- Cold weather construction of masonry shall conform to the 2010 National Building Code of Canada, with adequate preheating of Materials, hoarding and heating during construction and thereafter as specified. THE "TORCHING TECHNIQUE" WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.
- Masonry Subcontractor shall be responsible for temporary bracing of all masonry components until all related structural framing has been erected and completely installed.
- Provide expansion joints at maximum of 6 metres o/c unless noted. Submit Drawing with locations of expansion joints for review prior to construction.
- Provide continuous bond beams with 2-15M bars bottom in concrete fill at top of all exterior walls, bearing walls or as indicated on Drawings.
- Inspection holes shall be left at the base of concrete filled cores.
- Masonry cores shall be filled in lifts not exceeding 3m.
- Concrete blocks to be min. H/15A/M unless noted.
- Ensure masonry cores filled with concrete at expansion anchor locations.
- All cores of elevator shaft to be filled solid with concrete.
- Typical masonry lintels unless noted on Drawings:

spans up to 1200: 200 U-block
2-15M cont. bottom
spans up to 2000: 400 U-block
2-15M cont. bottom
- Provide minimum 200 bearing u/n at each end.
- Brick ties to be 'FERO' block shear connectors spaced as follows:

Horizontal:	450 o/c
Vertical:	1st row @ 200 from top & bottom
	2nd row @ 400 from top & bottom
	Balance @ 600 o/c
- Provide minimum 100 x 100 x 8 angles for brick or stone support over recessed units in masonry walls for spans up to 1220mm. For larger spans refer to Drawings.
- All bond coursing to be running bond unless noted otherwise.

## STRUCTURAL WOOD

- All wood framing shall be in accordance with CSA 086-09.
- All lumber shall conform to 2014 N.L.G.A. standard grading rules for Canadian lumber.
- All lumber exposed to weathering shall be pressure treated unless noted.
- Wall studs to be minimum #2 Spruce-Pine-Fir or better unless noted on Drawings, kiln-dried to a maximum moisture content of 19%.
- Joists, lintels, and built-up beams to be minimum #2 Spruce-Pine-Fir or better unless noted on Drawings, properly seasoned to a maximum moisture content of 19%.
- The Carpentry Subcontractor in conjunction with the Contractor shall be responsible for supplying and installing all temporary and permanent bracing required to provide the stability of the structure.
- All OSB/Plywood sheathing to be exterior grade. All sheathing shall conform to CAN/CSA 0325-07 "Construction Sheathing".
- All wall and roof sheathing to be nailed secure in a controlled random pattern as follows:

Non-shear walls & roof:	Panel edges - 3" nails @ 6" o/c
Intermediate supports & blocking - 3" nails @ 10" o/c	
Shear walls: Unless noted on Drawings	Panel edges - 3" nails @ 3" o/c
Intermediate supports & blocking - 3" nails @ 5" o/c	
- The Floor and/or Roof system supplier shall be responsible for the design and supply of all floor and/or roof systems, gable end trusses, bridging and hardware required for the connections.
- The Floor and/or Roof system supplier shall Submit Drawings bearing the seal of an Engineer, registered in the Province of Manitoba for review of:
  - fabrication Drawings of each wood floor system and/or roof system type c/w member sizes, dimensions, and design information.
  - an erection Drawing, showing the location of all wood floor systems and/or roof systems and other information required by the Contractor for the proper installation of the floor and/or roof systems.
- Wood floor system and/or roof system layouts indicated on Drawings is for diagrammatic purposes only. Actual floor and/or roof system layouts to be determined by supplier.
- Floor and/or Roof system supplier to provide matching depth rimboard all vertical faces of floor framing along exterior and corridor walls, minimum 11/4" thick, nailed to each joist/truss top & bottom.
- No Site modifications to be made to trusses and/or joists without prior approval of supplier and Contract Administrator.
- All repairs made to damaged floor and/or roof members to be approved by supplier and Contract Administrator.
- All built-up wood columns and post to be continuously blocked down to foundation with minimum (2" x material matching wall or post width) squash blocks or approved alternate.
- Provide additional studs (cripples) below bearing points of built-up beams and lintels. Number of studs to equal number of plies of beam or lintel unless noted.
- Provide joist cross-bridging at intervals not exceeding 8 times the member depth.
- Provide continuous horizontal solid blocking @ maximum 4'-0" o/c vertically in all exterior stud walls and at plywood joints.
- Minimum lintels for stud bearing walls unless noted on Drawings:

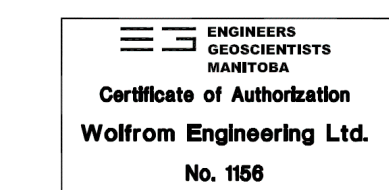
openings up to 3'-4"	use 2 ply 2 x 8 S-P-F
openings up to 5'-0"	use 2 ply 2 x 10 S-P-F
- Provide additional bracing @ maximum 24" o/c between floor joists below partition walls parallel to joist spans.
- Provide double joist below perpendicular partition walls where possible & block at spacing to match joists all other areas.
- All double joists to have filler and backed blocks.
- All load-bearing or brace/shear walls above perpendicular floor joists to be continuously blocked below. Floor joists below wall to have web stiffeners each side.

The existing building superstructure and foundation have been reviewed by existing document review, visual inspection and non-destructive testing, and it is our professional judgement that they can safely support all new loading conditions in accordance with part 4 of the 2011 MBC. Any areas exposed during construction where existing conditions require repair shall be addressed appropriately and made good.

#	ISSUED FOR CONSTRUCTION	2017.11.28	JCR
#	REVISION	DATE	BY

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SEAL



JOB TITLE

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ADDITION**

DRAWING TITLE

**GENERAL NOTES**

DRAWN BY	SCALE	DRAWING NO.
FILE NO.	DATE	REVISION NO.
MNF		S-0
W15151	NOV. 28, 2017	0