

GENERAL NOTES:

- Unless noted otherwise on the drawings, the following notes shall govern.
- All work on this project shall conform to the current version of the 2024 Ontario Building Code (OBC 2024), any local regulations and bylaws, and the current Occupational Health and Safety Act (OHSA) and current regulations for construction projects. All codes and standards shall be those referenced in OBC 2024.
- All standards are to be the year, editions, document numbers, etc as per OBC 2024 Division B, T.1.3.1.2. Where discrepancies exist between our drawings and T.1.3.1.2, the table shall govern, unless noted otherwise.
- This set of drawings supercedes and replaces all previous drawings.
- Read these drawings in conjunction with all related contract documents and architectural, mechanical, electrical and civil drawings.
- The contractor shall verify all conditions and measurements at the site and verify all dimensions given on the structural drawings with the architectural drawings. Report to the engineer any discrepancies or unsatisfactory conditions which may adversely affect the proper completion of the project before proceeding with the work.
- If any structural discrepancies on the drawings exist, the most stringent shall apply.
- Drawings are not to be scaled.
- Construction and shop drawing review must be completed as per code.
- Construction loadings shall not exceed the specified design loads indicated on the drawings. The contractor shall make adequate provision for construction loads and temporary bracing to keep structure plumb and in true alignment at all phases of construction. Any bracing members shown on the drawings are required for the finished structure and may not be sufficient for erection purposes.
- OBC 2024 Division C, Subsection 12.2, requires general review of the construction by the design professional. Tacoma Engineers shall be given a minimum of 48 hours notice at (519) 763-2000 (Guelph) or (705) 735-1875 (Barrie) or (226) 647-0109 (Waterloo) by the Contractor for the following required construction reviews:
 - Foundations - Prior to pouring footings and foundation walls
 - Reinforced masonry - Prior to grouting
 - Underpinning - Prior to pouring each section of wall
 - Final framing - Upon completion of all structural elements
- Retain a certified independent testing or inspection company for testing & inspection for the items in Table 1.

TABLE 1: REQUIRED TESTING & INSPECTION

Results shall be submitted directly to Tacoma Engineers from the testing company for review.

ITEM	REQUIRED	NOTES
Concrete compressive tests	Yes	Minimum 1 set per pour or 100 cubic metres
Concrete air entrainment	Yes	

FOUNDATIONS:

- Design bearing pressures on undisturbed native soil, or approved engineered fill are as follows:

SLS, kPa (psf)	ULS, kPa (psf)	Locations
75 (1500)	112.5 (2250)	All Footings
- Soil areas uncovered during excavation shall be sub-excavated to sound material and filled with clean, free draining granular soil compacted to 100% Standard Proctor Dry Density (SPDD), placed under the direction and supervision of a geotechnical engineer.
- Soil bearing capacity, site class, and soil coefficients shown on the drawings (K_a, K_p, density, etc.) specified must be verified by a geotechnical engineer prior to the placing of foundations. Any non-conformance with the specified minimum capacities must be immediately reported to the structural engineer.
- Locate all footings and piers centrally under columns and walls, unless noted otherwise.
- Place footings which are exposed to freezing weather a minimum of 1200mm (48") below finished grade, unless specified otherwise.
- Do not exceed a rise of 7' and a run of 10 in the line of slope between adjacent footing excavations or along stepped footings. Use steps not exceeding 600mm (24") in height and not less than 1200mm (48") in length.
- Maintain unsupported sides of excavation only if safe inclination of the sides of the excavation is provided in accordance with the geotechnical engineers recommendations. If required, erect, maintain, and remove a supporting shoring system along the sides of the excavation, designed by a professional engineer, in accordance with the geotechnical report and OHSA.
- Protect soil from freezing adjacent to and below all footings.
- Backfill against foundation wall in such a manner that the level of backfilling on one side of the wall is never more than 450mm (18") higher than the level on the lower side of the wall, except where temporary support for the wall is provided or walls are designed for such uneven pressures.
- Should underground water be encountered, provide dewatering facilities to keep water level below footings. Refer to geotechnical engineers recommendations for remedial measures.
- Lateral earth pressure factors:

Density = 20.4 kN/m ³
q = 4.8 kPa
K _a = 0.5
Friction Coefficient = 0.35
- Do not backfill foundation walls with below-grade space until the upper / ground floor framing is in place, and if precast, grouted for 3 days.

CONSTRUCTION JOINTS:

- Construction joints shall be made and located so as not to impair the strength of the structure.
- If construction joints are not specifically located on the drawings and there is any doubt concerning the location, the contractor must consult with the engineer.
- Control joints shall line up with other building joints (expansion, masonry, concrete etc.) where possible.

REINFORCING STEEL:

- All rebar shall be deformed bars conforming to CSA G30.18 with a minimum yield strength of 400 MPa.
- Reinforcing steel shall be fabricated by a supplier experienced in bar bending. All bend diameters shall conform to CSA A23.1.
- All rebar shall be detailed, fabricated and placed in accordance with the Reinforcing Steel Manual of Standard Practice (RISC).
- Maintain the following clear concrete cover to reinforcement, unless noted otherwise:
 - 40mm (1.5") for concrete placed in formwork for 15M or smaller bars
 - 75mm (3") for concrete placed against the earth (bottom of footings)Chairs shall be used to maintain the specified concrete cover.
- Minimum rebar tension lap length (25 MPa, normal density, uncoated bars) shall be Class B splices as listed below. Multiply by 1.3 for horizontal rebar with more than 300mm (12") of concrete below the lap, except in walls.
 - 600mm (24") for 15M bars
- Lap all horizontal bars at corners with bent dowels meeting the minimum lap requirements in both directions.
- See "MASONRY" notes for masonry rebar tension lap lengths.

STRUCTURAL DESIGN LOADS:

Structural design is to OBC 2024 Part 4

- Primary gravity structural systems (see seismic notes for lateral):

Foundations:

 - Poured concrete strip footings and pad footings
 - Masonry retaining walls and piers
- Design loads are unfactored unless noted otherwise.

A. Building Importance Category	=	Normal
B. Floor Loads		
Occupancy (Live)	=	4.8 kPa (100 psf)
Dead Load (DL)	=	1.2 kPa (25 psf)

CONCRETE:

- All reinforced concrete elements are designed in accordance with CSA A23.3.
- Concrete work shall conform to CSA A23.1,2,3 for materials and workmanship.
- Classes of concrete shall be placed in the locations noted:

Class of Concrete	Location
C-2	Exterior unreinforced slabs on grade, curbs
N-2	Footings
F-2	Exterior walls, columns and piers

Classes of concrete shall have the following mix requirements:

Class of Concrete	Strength	W/C Ratio	Air Entrainment	Chloride Ion
C-2	32 MPa	0.45	5% to 8%	
N-2	28 MPa			
F-2	25 MPa	0.55	4% to 7%	

Adjust air entrainment percentage for aggregate size based on A23.1 Table 4.
- Concrete design is based on the above mix requirements. Physical properties (slump, aggregate size, etc.) to suit installation is by others and shall not affect requirements specified.
- All concrete to be tested shall be tested by a CSA certified concrete testing laboratory. Copies of testing reports to be provided to Tacoma Engineers by testing agency. Not less than one strength test shall be made for each 100 m³ of concrete with at least three tests for each class of concrete used, per day.
- Use high frequency vibration to place all concrete.
- All concrete shall be kept moist during the first 3 days of curing.
- Take adequate measures to protect the concrete from exposure to freezing temperatures at least 7 days after concrete placement. Cold weather protection is required for all concrete placed where it is forecasted that the ambient temperature will drop below 5°C within 24 hours of placement. Protection provided, including insulated tarps, polyethylene covered straw, supplemental heat and/or chemical admixtures, is to be sufficient to maintain a minimum curing temperature of 10°C for 3 days.
- Do not add water to concrete on site.
- Calcium chloride or any admixture formulation containing chloride shall not be used in concrete containing reinforcement, or in concrete classifications S-1, S-2, or C-1, C-2, or for parking structures, floors receiving dry-shake metallic hardeners, or concrete containing embedded aluminum. Use only in dosages less than 2% by weight of cement.
- Rebar chairs (bar supports) are to be of precast concrete, plastic or steel. Wood, clay brick and concrete block are not acceptable. Steel chairs may not be used in corrosive environments, including parking garages.
- Do not hard trowel or machine trowel air entrained concrete slabs because it can lead to delamination and/or blistering.

MASONRY (CONCRETE BLOCK):

- Masonry shall conform to CSA S304 "Design of Masonry Structures" and CSA A371 "Masonry Construction for Buildings".
- Cold weather protection: Protect all work from frost damage in accordance with CSA A371 and Canada Masonry Design Centre, Bulletin No.1. No masonry work shall be permitted with temperature below 5°C unless adequate provisions are made for heating materials and protecting completed work.
- Hot weather protection: Protect all work from hot weather in accordance with CSA A371 and National Concrete Masonry Association TEK 03-07C. No masonry work shall be permitted with ambient temperature above 38°C or 32°C with wind speed greater than 15 km/h, unless adequate provisions are made.
- Concrete blocks shall be regular weight, 50% solid, with a minimum 15 MPa compressive strength, unless noted otherwise.
- Mortar shall conform to CAN/CSA A179. Mortar shall be type 'S', with a minimum 28 day compressive strength of 8.5 MPa.
- Grout shall conform to CAN/CSA A179. 28 day grout strength shall be 10 MPa (minimum) for fine grout and 12.5 MPa (minimum) for coarse grout, unless noted otherwise.
- Aggregate for mortar and grout mixes shall be proportioned (measured) in a damp, loose state.
- Testing for masonry units, mortar, and grout shall be performed in accordance with CSA S304.
- Vertical control joints shall be installed in all walls at 7600mm (25'-0") o.c. maximum, unless noted otherwise. Do not install vertical control joints through bond beams or tension / compression chords; instead stop the control joint below and above the bond beam and run the bond beam rebar through.
- Install suitable damp course flashing with weepholes at 800mm (32") o.c. Repair all damage to flashing.
- Reinforce all masonry with 3.66mm (9 ga.) "ladder" type wire reinforcing at 600mm (24") o.c. except where noted otherwise. Provide full overlap at all wall intersections and corners. Lap straight runs with 300mm (12") overlap.
- Beams and lintels shall have a minimum bearing length of 200mm (8"). Build masonry right into webs at the bearing points.
- Grout masonry solid below all lintel ends and point loads for all cores beneath bearing points. For openings exceeding 900mm (20"), install 1-15M bar and grout full height in the first full height core adjacent to all bearing points.
- Filling of block units with mortar instead of grout is not acceptable.
- Where masonry walls are noted as being reinforced with vertical bars, minimum lap lengths shall be provided and the cores containing the vertical bars shall be filled with grout.
- Where note is made to fill masonry solid, all cores shall be filled solid from the bearing point down to the base of wall with grout.
- All masonry installed above roof deck elevation or below grade shall be grouted 100% solid.
- Use running bond block construction. Key all masonry joints at wall corners and intersections. Rake back wall construction when turning wall corners.
- Minimum rebar tension lap lengths (deformed, uncoated bars) shall be:
 - 650mm (26") for 15M bars

CONCRETE SLABS ON GRADE:

- Place slab on 150mm (6") granular fill compacted to 98% SPDD founded on native soils or approved engineered fill, unless noted otherwise (refer to geotechnical engineers report for recommendations).
- Concrete floors shall be covered with plastic and kept moist for the first 3 days of curing.
- Install sawcuts to a minimum of 1/4 the slab depth in the floor slab within 24 hours of pour. The maximum center/center spacing for sawcuts shall be 24 times the depth, unless noted otherwise.
- Slabs on grade to bear on materials suitable for 25 kPa (500 psf) SLS allowable bearing pressures.

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NOTES

Project No: TE-44545-24	Drawn By: J.LEROSE
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