

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 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, edition, document numbers, etc. as per OBC 2012 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 supersedes 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 conditions and measurements of 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 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.
- Submit shop drawings as per Table 1. Shop drawings shall be certified by a professional engineer where required and reviewed by the contractor for dimensional correlation with the drawings and field conditions prior to submitting to Tacoma Engineers. Fabrication of elements and shop drawings may not proceed until shop drawings have been reviewed and approved by Tacoma Engineers.
- 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 ensure proper shoring and true alignment of 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 2012 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 (705) 735-1875. Liability by the Contractor for the following required construction review:
 - a. Structural Framing – Upon completion of joist and beam reinforcing
 - b. Final Framing – Upon completion of all structural elements
- Retain a certified independent testing or inspection company for testing & inspection for the items in Table 2.
- The design and review of secondary building elements (those elements not specifically included in these drawings) is the responsibility of the project architect. Elements include but are not limited to architectural features, non-loadbearing interior walls, interior partitions, windows, doors, masonry veneers, cladding, and supports for mechanical systems.
- All non-loadbearing interior walls and partitions (steel stud, concrete block, wood stud) shall be constructed to allow for 25mm (1") vertical, independent deflection below all floor and roof members, while still providing lateral support to the top of the partition, through the use of deflection tracks, clips, or other methods.

TABLE 1: SHOP DRAWING SUBMITTALS

ITEM	REQUIRED	ENGINEERS SUBMITTAL	NOTES
TEMPORARY SHORING	YES	YES	NEW OPENINGS AT EXTERIOR WALLS. REFER TO PLAN FOR DESIGN LOADS.
STRUCTURAL STEEL	YES	YES	JOIST AND BEAM REINFORCING CONNECTIONS

TABLE 2: REQUIRED TESTING & INSPECTION

RESULTS SHALL BE SUBMITTED DIRECTLY TO TACOMA ENGINEERS FROM THE TESTING COMPANY, FOR REVIEW

ITEM	REQ'D	NOTES
STRUCTURAL STEEL INSPECTION	YES	WELDING INSPECTION - PRIOR TO PAINTING

STRUCTURAL DESIGN LOADS:

- Design loads are unfactored unless noted otherwise.
 - A. Climatic design (Changrton - Zone 6, CN):
 - Snow Load: $S_s = 2.6 \text{ kPa}$
 $S_r = 0.4 \text{ kPa}$
 - Wind Pressure: $q(150) = 0.48 \text{ kPa}$
 - B. Building importance category: High
 - C. Roof:
 - Roof dead load: $DL = 1.0 \text{ kPa}$ (20 psf)
 - *Assumed weight of ex. roof for the design of new elements only shown in the structural drawings.
 - Snow Importance Factor: $I_s \text{ ULS} = 1.15$
 $I_s \text{ SLS} = 0.9$
 - Roof snow load: $S = I_s(S_s + C_{w/Ca/Ca})/S_f$
 $S = 1.15(2.6 + 0.1)(1.15)/1.0 = 3.3 \text{ kPa}$ (68 psf) Basic case
 - D. Wind:
 - Refer to plans for areas and magnitude of built-up snow loads.
 - Importance Factor: $I_w \text{ ULS} = 1.15$
 $I_w \text{ SLS} = 0.75$
 - Internal Pressure Category: $p_i = 2$
 - Unfactored Wind Internal Load $p_i = 0.48 \text{ kPa}$
- Wind loads in accordance with the procedure described in the OBC 2024 and the National Building Code of Canada (NBCC) Structural Commentary 1.

FOUNDATIONS:

- No geotechnical report has yet been supplied for this project. All bearing pressures have been assumed and must be verified on site, prior to placing footings.
- Design bearing pressures on unconsolidated native soil, or approved engineered fill are as follows:
 - SLS: 120 (kPa) 225 (kPa)
 - ULS: 120 (kPa) 225 (kPa)
- Soil areas uncovered during excavation shall be sub-graded 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 (kPa, c_u , 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.
- Do not exceed a size of 7 and a run of 10 in the line of slope between adjacent footing excavations or along sloping footings. Use steps not exceeding 600mm (24") in height and not less than 150mm (6") in length.
- Protect soil from freezing adjacent to and below all footings.
- Should underground water be encountered, provide dewatering facilities to keep water level below footings. Refer to geotechnical engineers recommendations for remedial measures.

CONCRETE:

- All reinforced concrete elements are designed in accordance with CANCSA-A23.3.
- Concrete work shall conform to CANCSA-A23.1, 2.3 for materials and workmanship.
- Classes of concrete shall be placed in the locations noted:
 - Class of Concrete: Location
 - N-CF: Interior concrete floor slabs that are not subjected to freezing or chlorides
 - Classes of concrete shall have the following mix requirements:
 - Class of Concrete: Strength: W/C Ratio: Air Entrainment: Chloride Ion: C_{max}
 - N-CF: 25 MPa: 0.45: 0.05: 0.05
- 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 report 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 when it is forecasted 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.
- Finish exposed concrete work as per architectural drawings.
- Do not add water to concrete on site.
- 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 towel or machine towel air entrained concrete slabs because it can lead to delamination and/or blistering.

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).
- See architectural drawings for recesses and depressions in slab on grade and maintain slab thickness indicated on structural drawings in all cases.
- 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-to-center spacing for sawcuts shall be 24 times the depth unless noted otherwise.
- Fill sawcuts and construction joints with semi-rigid, flexible epoxy joint filler, to the manufacturer's specifications. Acceptable fillers (interior joints): W.R. Meadows Flex-Weld Flex, Sikaflex, or approved alternate.
- All slabs on grade shall be reinforced with welded wire fabric (WVF) 152x152xMM 18.7 (WVF) 152x152xMM 18.7 (WVF) 152x152xMM 18.7.
- Slabs on grade to bear on materials suitable for 25 MPa (3600 psi) SLS allowable bearing pressures.
- Specified soil bearing capacity for slabs on grade must be verified by a geotechnical engineer prior to placing the slabs. Any non-conformance with the specified minimum capacities must be immediately reported to the structural engineer.
- Where slab on grade is used to be the top of a wall retaining earth, that wall shall be adequately shored until the slab has been placed and attained 75% of its design strength.

REINFORCING STEEL:

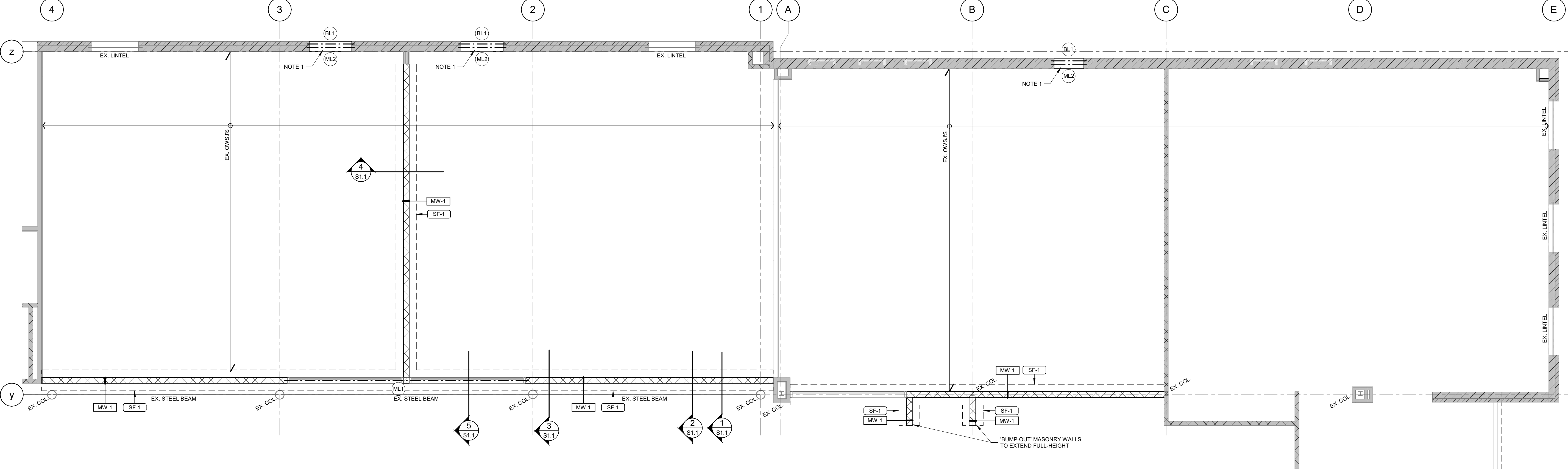
- All rebar shall be in accordance with CSA G40.21 with a minimum yield strength of 400 MPa.
- Reinforcing steel shall be fabricated by a supplier experienced in bar bending. All bend diameters shall conform to CSA A23.3.
- All rebar shall be detailed, fabricated and installed in accordance with the Reinforcing Steel Manual of Standard Practice (RSC).
- Maintain the following clear concrete cover to reinforcement, unless noted otherwise:
 - a. 40mm (1 1/2") for concrete placed in formwork for 15M or smaller bars
- 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:
 - a. 450mm (18") for 15M bars
 - b. 600mm (24") for 19M bars

MASONRY (CONCRETE BLOCK):

- Masonry shall conform to CSA S304.1 Design of Masonry Structures and CSA A371 "Masonry Construction for Buildings".
- Detail weather proofing. Protect all work from frost damage in accordance with CSA A371 and Canada Masonry Design Centre.
- Build in 1:1. 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 A271 and National Concrete Masonry Association TEK 03-01C. No masonry work shall be permitted with ambient temperature above 38°C or 32°C with wind speed greater than 10 km/h, unless adequate provisions are made.
- Concrete blocks shall be regular weight, 50% solid, with a minimum 10 MPa compressive strength, unless otherwise noted.
- Mortar shall conform to CSA A178. Mortar shall be type "S", with a minimum 28 day compressive strength of 5.5 MPa.
- GROUT shall conform to CSA A178. 28 day grout strength shall be 10 MPa (minimum) for fine grout and 12.5 MPa (minimum) for coarse grout unless noted.
- Aggregate for mortar and grout mixes shall be proportioned (measured) in a damp, loose state.
- Reinforcing for masonry units, mortar, and grout shall be performed in accordance with CSA S304.
- Vertical control joints shall be installed in all walls at 700mm (22") 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 reinforcement through.
- Install suitable damp course flashing with weepholes at 800mm (32") o.c. Repair all damage to flashing.
- Reinforce all masonry with 3.60mm (9 ga) "ladder" type wire reinforcing at 600mm (24") o.c. around where noted otherwise. Provide full overlap at all wall intersections and corners. Lap straight runs with 300mm (12") overlap.
- Beams and blocks shall have a minimum bearing length of 200mm (8"). Reinforcing shall lap with 150 mm at the 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 notes do not make it to masonry wall, all cores shall be filled solid from the bearing point down to the base of wall with grout.
- Where masonry bears on steel beams, weld 15M x 300mm (12") long weldable rebar dowels at 1200mm (48") o.c. to beams.
- 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. Provide 30mm x 4.6mm (1 1/2" x 3/16") masonry strap at every second course tying block walls to adjoining concrete walls and structural steel.
- Minimum rebar tension lap lengths (deformed, uncoated bars) shall be:
 - a. 450mm (18") for 10M bars
 - b. 600mm (24") for 15M bars
- See architectural drawings for fire-resistance ratings (FRR). Provide 60% solid block for 100mm (8") block requiring a 2-hour FRR.

STRUCTURAL STEEL:

- All structural steel elements are designed in accordance with CSA S16.
- Submit erection and shop drawings for review by the project engineer. Standard connections shall conform to the Handbook of Steel Construction. Non-standard connections (including moment connections) shall be designed and sealed by a professional engineer registered in the province of Ontario.
- Structural steel beams and columns shall conform to ASTM A992/992M grade 50 ($F_y = 345 \text{ MPa}$) unless noted.
- Structural steel channels and angles shall conform to CSA G40.21 grade 50 unless noted.
- All steel plate to be A36 ($F_y = 300 \text{ MPa}$) material (minimum), unless noted.
- Welding shall conform to CSA W17.1 and CSA W18.1 by the Canadian Welding Bureau. All welding shall be completed by CWB certified welders. Third party welding inspection shall be performed by firms certified to CSA W178.1 and W178.2.
- Bolter connections shall be in accordance with CSA S16, unless noted otherwise.
- Anchor rods shall conform to ASTM F1554 (formerly ASTM A307). Material shall be minimum grade 36 ($F_y = 414 \text{ MPa}$) (formerly ASTM A307 grade C), or CSA G40.21 300M ($F_y = 450 \text{ MPa}$).
- Structural steel shall be tested by an independent CSA certified testing company for erection tolerances, plumbness, alignment, connections, elevation, material, and workmanship.
- Galvanizing for metals shall conform to CSA G154 unless noted. Touch-up on site by grinding the surface to bright metal and applying zinc rich paint conforming to CAN/CSG-1181 (or ASTM A780).
- Coordinate with mechanical, electrical and all other trades whose work affects the detailing, fabrication and erection of the structural steel.
- Do not cut openings in structural steel members without approval from Tacoma Engineers.
- Where masonry bears on steel beams, weld 15M x 300mm (12") long weldable rebar dowels at 1200mm (48") o.c. to beams. If holes in base plates are oversized to suit site conditions, notify Tacoma Engineers and supply and install plate washers to cover the hole.
- Design steel connections to the maximum UOL loads in the Steel Handbook beam tables, provided no point loads act on the beam and when shears are not indicated.
- Connections shall be concrete and shall not introduce eccentricity into any elements, including beams into which beams frame.



FOUNDATION AND ROOF FRAMING PLAN

SCALE: 1: 50

REFER TO ARCHITECTURAL PLANS FOR ALL DIMENSIONS

LEGEND:

- WT- DENOTES SPAN OF STRUCTURAL MEMBERS, AS NOTED
- L DENOTES DROPPED LINTEL TYPE. REFER TO LINTEL TYPE SCHEDULE FOR SIZE AND REINFORCING.
- L DENOTES FLUSH LINTEL TYPE. REFER TO LINTEL TYPE SCHEDULE FOR SIZE AND REINFORCING.
- POST DENOTES POST OR COLUMN ABOVE.

GENERAL NOTES

- CONTRACTOR TO VERIFY EXISTING CONDITIONS AND REPORT BACK ANY DEFICIENCIES TO TACOMA ENGINEERS.
- CONTRACTOR TO PROVIDE TEMPORARY SHORING PRIOR TO THE REMOVAL OF EXISTING STRUCTURAL ELEMENTS DESIGN OF TEMPORARY SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DIMENSIONS SHOWN ON PLAN ARE APPROXIMATE. CONTRACTOR TO SITE CONFIRM DIMENSIONS PRIOR TO CONSTRUCTION.

CONSTRUCTION NOTES

(AS REFERENCED ON FRAMING PLAN)

- PROVIDE TEMPORARY SHORING FOR EXISTING OWSJ AT PROPOSED OPENINGS, TYPICAL. (PI = 35 kN)

STRIP FOOTING SCHEDULE

MARK	SIZE	REINFORCING
SF-1	150 WIDE x 150 DEEP CONC	2 - 15M CONTINUOUS BARS

- NOTES
- PROVIDE 75 CONCRETE COVER TO USE OR REINFORCING STEEL.
 - REFER TO WALL SCHEDULE FOR DOVELS REQUIREMENTS.

MASONRY WALL SCHEDULE

MARK	WALL TYPE	REINFORCING
MW-1	140 CONCRETE MASONRY UNITS	15 M VERTICAL @ 1200 O.C. 19a. LADDER-TYPE JOINT REINFORCING @ 800 O.C.

- NOTES
- HORIZONTAL JOINT REINFORCING TO BE 3.6mm (18) LADDER JOINT REINFORCING IN BLOCK BED JOINTS AT 800 O.C. (EVERY THIRD COURSE).
 - GROUT ALL CONCRETE BLOCK CORES SOLID TO CONFORM TO THE REMOVAL OF EXISTING STRUCTURAL ELEMENTS DESIGN OF TEMPORARY SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DIMENSIONS SHOWN ON PLAN ARE APPROXIMATE. CONTRACTOR TO SITE CONFIRM DIMENSIONS PRIOR TO CONSTRUCTION.
 - PROVIDE 1-15M FULL HEIGHT IN CELL BESIDE BEARING PLATES, TYPICAL AT EACH SIDE OF ALL OPENINGS. REFER TO DETAIL.
 - 19M x 5' LONG DOVELS AT 48" O.C. CW 24" EMBEDMENT INTO FOUNDATION.
 - FULL HEIGHT NON-LOADBEARING CONCRETE BLOCK WALLS. PROVIDE TOP OF WALL LATERAL SUPPORT. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION AND SIZE.

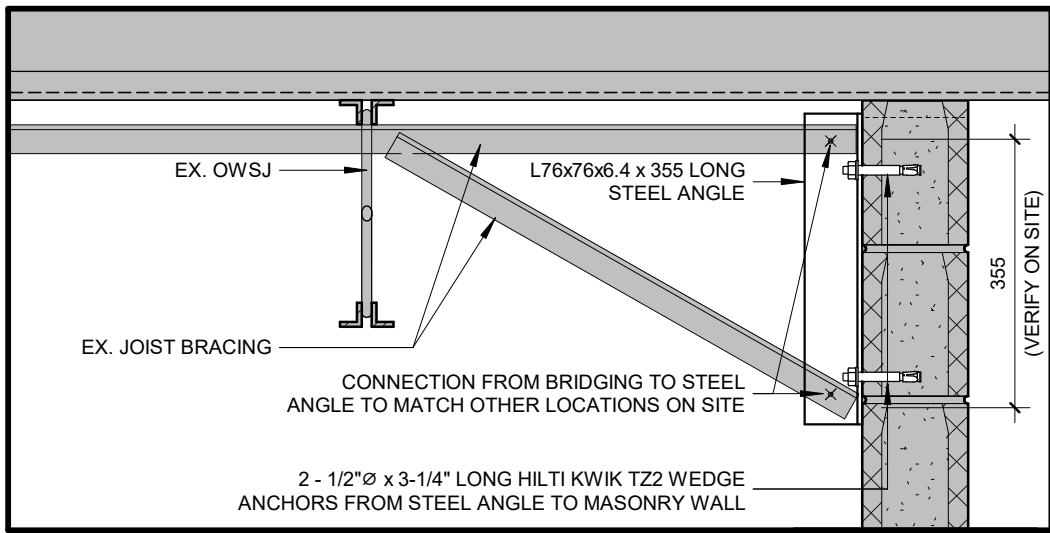
MASONRY BLOCK LINTEL SCHEDULE

MARK	TYPE	SIZE
ML1		2 - 1.89x6x47 9 (LLV)
ML2		2 - 1.89x8x47 9

BRICK LINTEL SCHEDULE

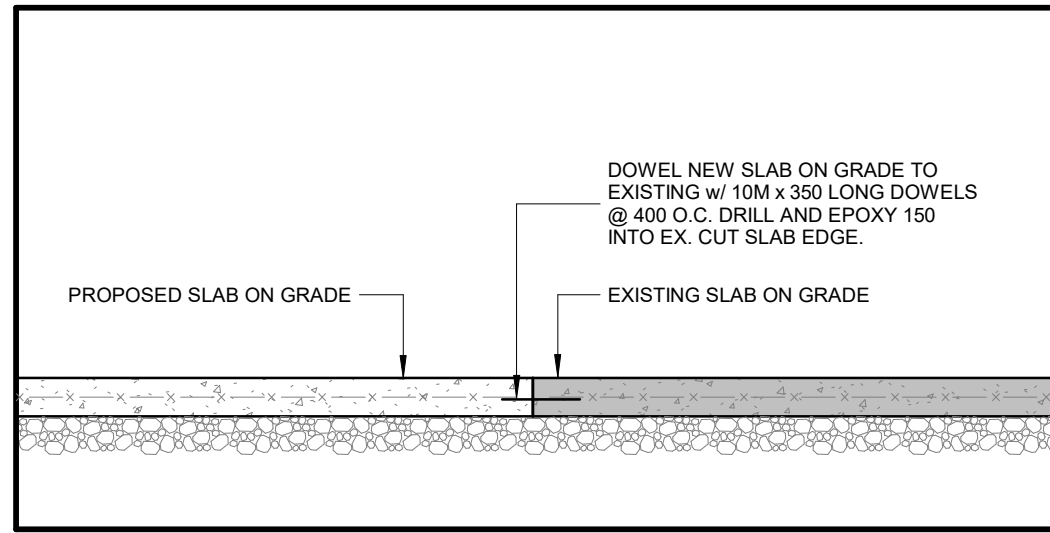
MARK	TYPE	SIZE
BL-1		1.89x8x47 9

- NOTES
- PROVIDE MIN. 300 BEARING AT EACH END FOR ALL LINTELS. U.N.O.
 - GROUT ALL CONCRETE BLOCK CORES SOLID TO CONFORM TO THE REMOVAL OF EXISTING STRUCTURAL ELEMENTS DESIGN OF TEMPORARY SHORING IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL DIMENSIONS SHOWN ON PLAN ARE APPROXIMATE. CONTRACTOR TO SITE CONFIRM DIMENSIONS PRIOR TO CONSTRUCTION.
 - STEEL BEAM LINTELS: WELD 15M x 300mm (12") LONG DOVELS @ 1200mm (48") O.C. TO TOP FLANGE.



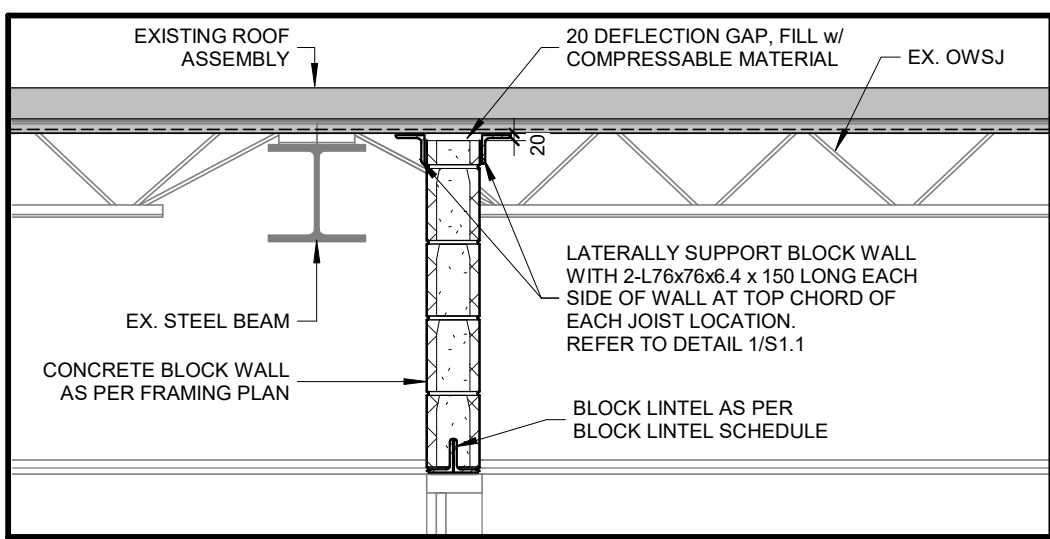
OWSJ BRIDGING CONNECTION

SCALE: 1: 10



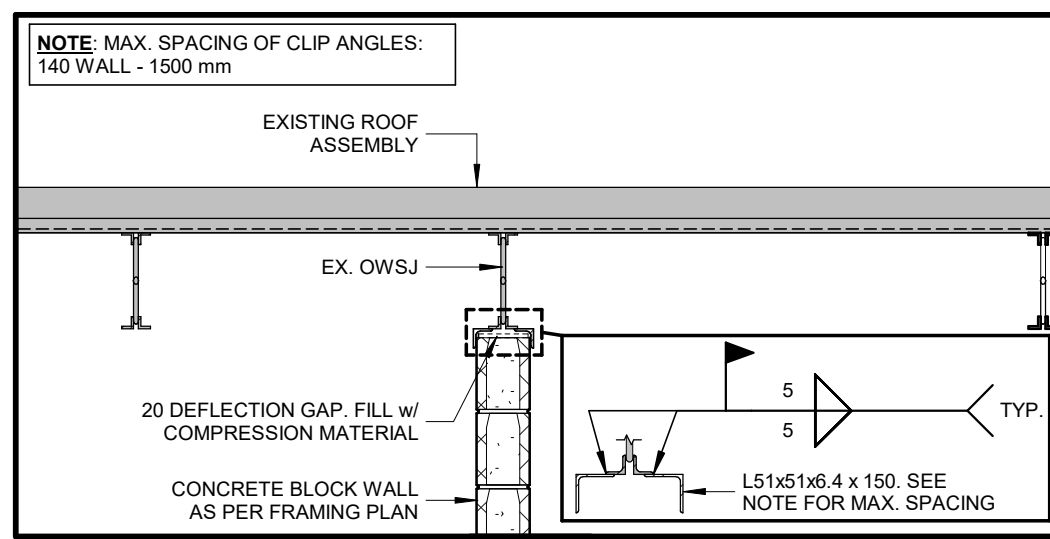
DETAIL - TYPICAL FLOOR SLAB @ EXISTING

SCALE: 1: 20



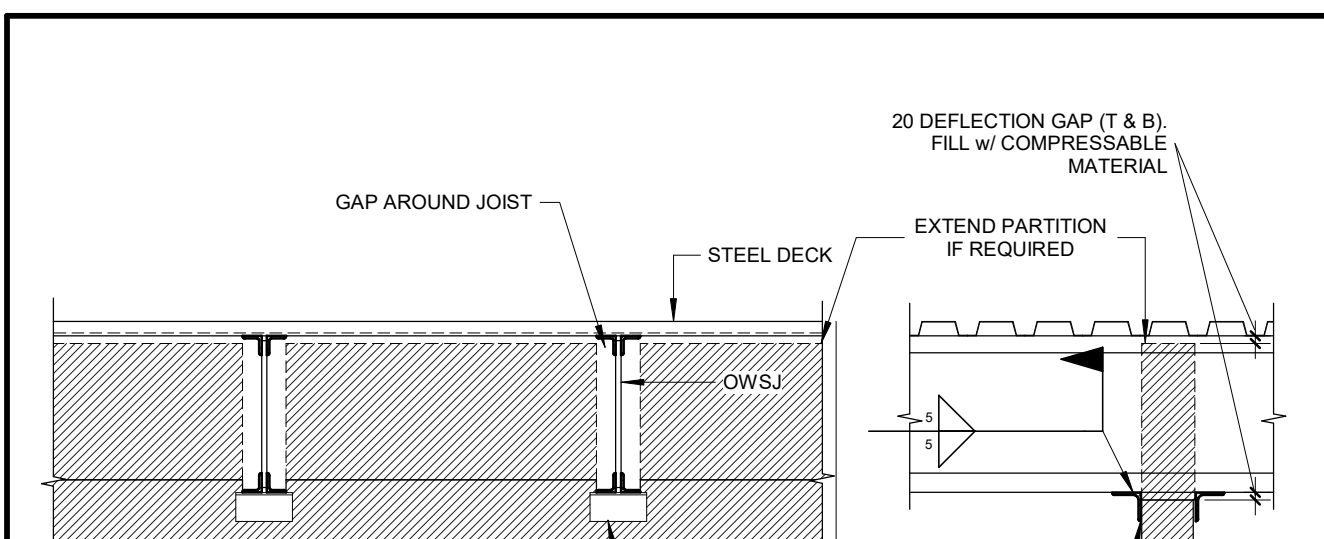
SECTION - ABOVE NEW DOOR

SCALE: 1: 20

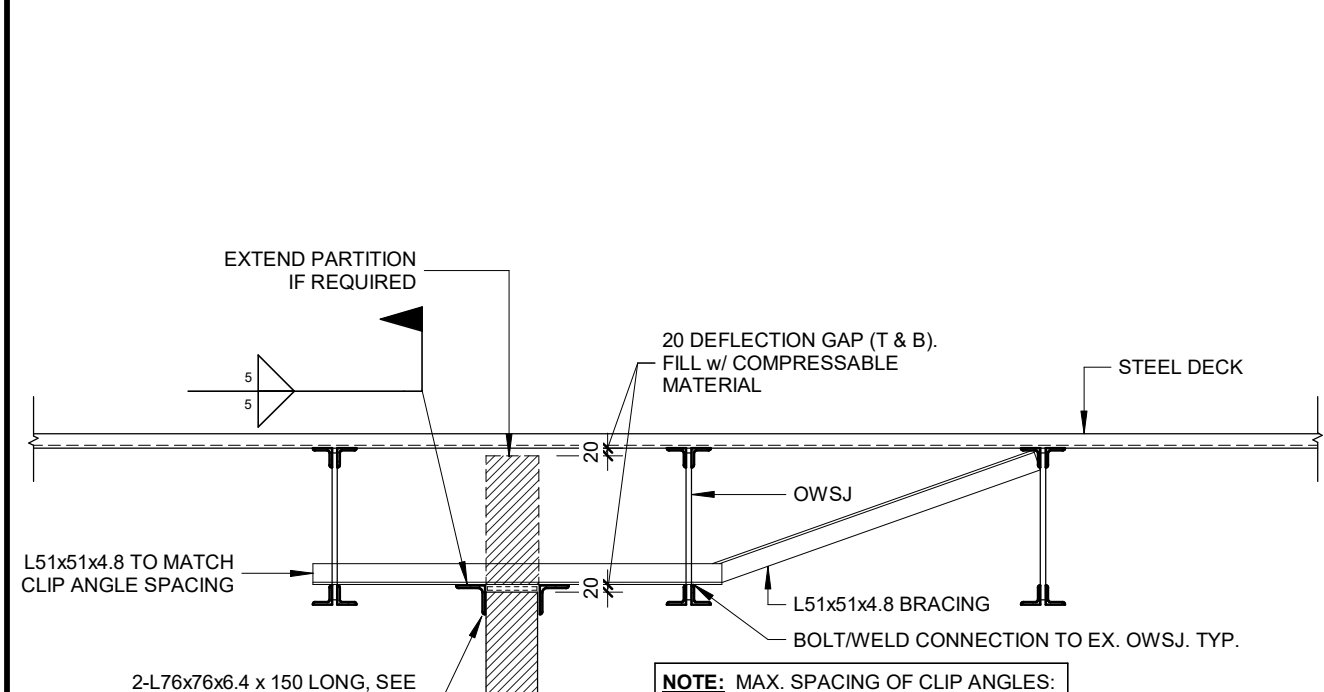


SECTION - PARTITION DIRECTLY BELOW OWSJ

SCALE: 1: 20



PARTITION PERPENDICULAR TO OWSJ



PARTITION PARALLEL TO OWSJ



SECTION - LATERAL SUPPORT FOR PARTITIONS, U.N.O.

SCALE: 1: 20



STRIP FOOTING AT EXISTING PIER

SCALE: 1: 20



TYPICAL SLAB THICKENING

SCALE: 1: 20



KEY PLAN

SCALE: 1: 500

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No.	Date	Revised / Issued for
2025-01-29		ISSUED FOR REVIEW

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Drawn by J. HUTCHINGS

FOUNDATION AND ROOF FRAMING PLAN

REVIEWED

By Simon M. Terry at 3:21 pm, Feb 04, 2025

S1.1