

1. General Requirements

1. GENERAL:

- ALL STRUCTURAL DOCUMENTS SHALL BE READ IN CONJUNCTION WITH ALL APPLICABLE ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS. ANY DISCREPANCIES BETWEEN THE STRUCTURAL DOCUMENTS AND THOSE OF OTHER DISCIPLINES SHALL BE BROUGHT TO WHM'S ATTENTION IMMEDIATELY FOR INTERPRETATION AND/OR CORRECTION.
- THE TERM 'CONTRACTOR' SHALL INCLUDE ANY OR ALL PARTIES RESPONSIBLE FOR THE CONSTRUCTION OF THE WORK.
- PROPOSED SUBSTITUTIONS AND/OR REVISIONS TO ANY SPECIFIED MATERIAL OR FRAMING ASSEMBLY SHALL BE SUBMITTED TO WHM FOR REVIEW AND ACCEPTANCE PRIOR TO BIDDING.

2. CODES:

- STRUCTURAL MATERIALS AND ASSEMBLIES SPECIFIED ON THESE DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH PART 4 OF THE BRITISH COLUMBIA BUILDING CODE 2024 (HEREINAFTER REFERRED TO AS 'THE CODE').
- ALL STRUCTURAL MATERIALS AND FRAMING ASSEMBLIES SHALL COMPLY WITH THE CODE AND THE MOST CURRENT CSA STANDARDS ENACTED IN THE JURISDICTION IN WHICH THE PROJECT IS TO BE BUILT.
- WHM IS RESPONSIBLE FOR THE STRUCTURAL RENOVATION AND ADDITION ONLY AND NOT FOR ANY OF THE PRE-EXISTING CONDITIONS OF THE EXISTING STRUCTURE, A NO NET LOSS APPROACH.

3. DESIGN PARAMETERS:

- $S_a(0.2) = 0.784$
- $S_a(0.5) = 0.61$
- $P_{SA} = 0.369$
- $q_{150} = 0.48kPa$

4. ARCHITECT:

- THESE STRUCTURAL DRAWINGS ARE BASED ON ARCHITECTURAL DRAWINGS BY THINKSPACE ARCHITECTURE PLANNING INTERIOR DESIGN LTD
- THE ARCHITECT IS THE PRIME CONSULTANT AND THE COORDINATING REGISTERED PROFESSIONAL (CRP) AND AS SUCH IS RESPONSIBLE FOR OVERALL COORDINATION OF THE DESIGN OF THE PROJECT. ALL WRITTEN COMMUNICATION FROM THE CONTRACTOR TO WHM SHALL BE ROUTED THROUGH OR COPIED TO THE ARCHITECT.

4. EXISTING DRAWINGS:

- INFORMATION REGARDING EXISTING FRAMING IN THIS DRAWING ARE BASED ON EXISTING DRAWINGS BY LONDON MAW & ASSOCIATES LTD DATED JULY 6, 2012

5. FIELD REVIEW BY WHM:

- WHM IS RESPONSIBLE FOR UNDERTAKING FIELD REVIEWS OF STRUCTURAL COMPONENTS IN THIS DRAWING.
- THE CONTRACTOR SHALL ARRANGE ADEQUATE OPPORTUNITY FOR WHM TO UNDERTAKE THE REVIEWS. ALL STRUCTURAL COMPONENTS AND ASSEMBLIES IN THIS DRAWING SHALL REMAIN UNCONCEALED AND VISIBLE UNTIL EITHER REVIEWED IN THE FIELD BY WHM AND TO WHM'S SATISFACTION, OR OTHERWISE PERMITTED BY WHM. WHM MAY REQUIRE ANY CONCEALMENT OR OBSTRUCTIONS TO BE REMOVED AS REQUIRED TO FACILITATE FIELD REVIEW. CONSEQUENT REPAIR COST WILL BE THE CONTRACTOR'S RESPONSIBILITY.
- THE CONTRACTOR SHALL SCHEDULE FIELD REVIEWS WITH WHM AT LEAST 48 HOURS IN ADVANCE.
- THE CONTRACTOR SHALL ENSURE THE WORK TO BE REVIEWED IS BUILT CORRECTLY PRIOR TO CALLING WHM TO SCHEDULE FIELD REVIEWS. THE CONTRACTOR SHALL NOT CONSIDER FIELD REVIEWS BY WHM AS A SUBSTITUTE FOR THEIR OWN INSPECTIONS OF THE WORK AND REMAINS COMPLETELY RESPONSIBLE FOR CONSTRUCTING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- INCOMPLETE AND/OR INCORRECT WORK MAY REQUIRE REPEAT FIELD REVIEWS BY WHM. WHM WILL INVOICE THE OWNER FOR SUCH REPEAT REVIEWS, THE COSTS OF WHICH MAY ACCRUE TO THE CONTRACTOR PURSUANT TO ITS CONTRACT WITH THE OWNER.

2. Existing Conditions

1. SITE VERIFICATION:

- THE STRUCTURAL DESIGN INTENT DEPENDS ON ASSUMED AS-BUILT DIMENSIONS FOR THE EXISTING BUILDING STRUCTURE AND ON ASSUMED DETAILING AND PLACING PRACTICES CURRENT AT THE TIME THE EXISTING STRUCTURE WAS BUILT. THESE ASSUMPTIONS MAY VARY FROM THE ACTUAL ON-SITE CONDITIONS. THE CONTRACTOR SHALL DOCUMENT WITH PHOTOGRAPHS OR SKETCHES ANY ACTUAL VARIATIONS FROM THE ASSUMED CONDITIONS AND SHALL IMMEDIATELY INFORM THE ARCHITECT AND WHM.
- THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY AND SAFETY OF THE EXISTING STRUCTURE AND IS RESPONSIBLE FOR ALL TEMPORARY WORKS.
- THE CONTRACTOR SHALL REPORT TO WHM ANY EXISTING CONDITIONS THAT APPEAR UNSAFE OR OTHERWISE INADEQUATE WITH RESPECT TO THE CODE OR THE STRUCTURAL DESIGN INTENT. SUCH CONDITIONS INCLUDE BUT ARE NOT LIMITED TO:
 - CORROSION
 - SPALLING OR DECAYED CONCRETE
 - ROT
 - EXCESSIVE DEFLECTIONS
 - LARGE OR UNUSUAL CRACKS IN CONCRETE OR TIMBER
 - ANY OTHER EVIDENCE OF STRUCTURAL FAILURE
- PRIOR TO FABRICATION OF ANY STRUCTURAL MEMBERS, THE CONTRACTOR SHALL COMPLETE A SITE REVIEW OF CRITICAL 'TIE-IN' DIMENSIONS AND CONFIRM ALL DIMENSIONS TO ENSURE PROPER FIT OF NEW WORK TO EXISTING. REPORT ANY DISCREPANCIES TO WHM PRIOR TO STARTING WORK.
- THE CONTRACTOR SHALL ENSURE THAT ALL NECESSARY AS-BUILT AND TIE-IN DIMENSIONS ARE RECORDED FOR THE PURPOSE OF COORDINATING ALL WORK INCLUDING THAT OF SUBCONTRACTORS. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF SUCH DIMENSIONS, AND FOR COORDINATION.
- DUE TO ACTUAL SITE CONDITIONS, MINOR MODIFICATIONS TO THE WORK INDICATED ON THESE DRAWINGS MAY BE REQUIRED.

3. Concrete

1. RESPONSIBILITY:

- THE CONTRACTOR SHALL ENSURE CONCRETE AND REINFORCEMENT IS DELIVERED, INSTALLED, AND CURED TO ALL CODE REQUIREMENTS AND TO REQUIREMENTS ON THESE DRAWINGS.
- THE CONTRACTOR SHALL COORDINATE ALL CONCRETE AND REINFORCEMENT WORK WITH THE REQUIREMENTS OF OTHER DISCIPLINES INCLUDING BUT NOT LIMITED TO INSERTS, CANS, SLEEVES, CONDUIT, PIPES, DUCTS, CHASES, OPENINGS, NAILERS, REGLES, REVEALS, ETC.

2. CODE:

- CONCRETE AND REINFORCEMENT WORK SHALL CONFORM IN ALL RESPECTS TO THE CODE AND ALL REFERENCED DOCUMENTS.
 - CONCRETE CONSTRUCTION METHODS AND DESIGN: CSA—A23.1, A23.2, A23.3
 - PARKING STRUCTURES: CSA S413
 - NON-WELDABLE REINFORCEMENT: CSA G30.18
 - WELDABLE REINFORCEMENT: CSA G30.18W
 - WELDED WIRE MESH: CSA G30.5

3. WORKMANSHIP:

- ALL CONCRETE SHALL BE FULLY AND ADEQUATELY CONSOLIDATED BY VIBRATION WITH SPECIAL CARE AND ATTENTION GIVEN TO AREAS OF CONGESTED REINFORCEMENT AND EMBEDDED HARDWARE, INSERTS, DUCTS, PIPES, ETC.
- BUILT LEVEL, PLUMB AND TO THE DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS.
- MINOR HONEYCOMBING SHALL BE REPAIRED WITH NON-SHRINK GROUT/PATCHING MATERIAL TO THE SATISFACTION OF THE ARCHITECT AND OWNER.
- MAJOR HONEYCOMBING (EXPOSED REINFORCEMENT OR AREAS GREATER THAN ONE SQ. FT.) SHALL BE REPORTED TO WHM FOR REVIEW.
- FORMWORK PATTERNS, QUALITY, TIE LAYOUT/TYPE, FINISHES ETC. MUST BE DETERMINED BY THE CONTRACTOR IN CONSULTATION WITH AND TO THE SATISFACTION OF THE ARCHITECT AND OWNER.
 - SHALL BE CHAIRED AND TIED SECURELY IN PLACE SUCH THAT IT WILL NOT DISPLACE AT ALL DURING CONCRETE PLACEMENT.
 - SHALL USE PLASTIC OR RUBBER COATED CHAIRS.
 - SHALL BE CONTINUOUS, WHERE LAP SPICES ARE REQUIRED USE TENSION LAPS, LAPPED BARS SHALL BE IN CONTACT WITH EACH OTHER.

4. CURING AND PROTECTION:

- WHM IS NOT RESPONSIBLE FOR DEFINING CURING AND PROTECTION METHODS AND PROCESSES. THIS IS THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR IS TO RETAIN A PROFESSIONAL MATERIALS ENGINEERING CONSULTANT TO ADVISE ON APPROPRIATE CURING AND PROTECTION METHODS TO ENSURE ALL CONCRETE WORK MEETS ALL STRUCTURAL AND ARCHITECTURAL REQUIREMENTS.
- ALL CONCRETE SHALL BE CURED AND PROTECTED FROM ADVERSE CONDITIONS SUCH AS RAIN, WIND, COLD AND HEAT UNDER THE GUIDANCE OF A QUALIFIED MATERIALS ENGINEER AND IN CONFORMANCE WITH CSA A23.1.
- WHEN TEMPERATURES ARE FORECASTED TO REACH ABOVE 25C OR BELOW 5C, EXTRA PROTECTION TO CONCRETE IS REQUIRED. CONTRACTOR TO RETAIN A MATERIALS ENGINEER TO PROVIDE GUIDANCE.
- UNDER NO CIRCUMSTANCES SHALL CONCRETE BE CAST ON OR AGAINST FROZEN SOIL, FORMWORK OR REINFORCEMENT.

WHEN TEMPERATURES ARE FORECAST TO BE BELOW 5C, THE CONTRACTOR IS TO PROVIDE COLD WEATHER PROTECTION AS PER A23.1 AND THE MATERIALS CONSULTANT. AS A MINIMUM, THE FOLLOWING SHALL BE PROVIDED:

- USE HEATED WATER AND AGGREGATES
- REMOVE ALL SNOW AND ICE FROM FORMS AND REINFORCING. CALCIUM CHLORIDE OR DE-ICING SALTS SHALL NOT BE USED AS A DE-ICING AGENT
- FOR CONCRETE <100MM (3'-4") THICK, FORMS, SOIL AND REINFORCING SHALL BE MAINTAINED AT 10C MINIMUM. FOR CONCRETE >100MM (3'-4"), FORMS, SOIL AND REINFORCING SHALL BE MAINTAINED AT 5C MINIMUM. CONCRETE TEMPERATURES SHALL BE MAINTAINED FOR THE DURATION NOTED IN A23.1 TABLE 19 FOR THE SPECIFIC CURING TYPES NOTED IN A23.1, TABLE 2. AS MINIMUM, FOR N, C1, C2, F1 EXPOSURE CLASSES, MAINTAIN 10C TO 20C UNTIL THE CONCRETE REACHES 40% SPECIFIED STRENGTH BUT FOR 72 HOURS MINIMUM. FOR F2, C3 AND C4 EXPOSURE CLASSES AND ANY CONCRETE USING HVS/CM, MAINTAIN 10C TO 20C UNTIL THE CONCRETE REACHES 70% SPECIFIED STRENGTH BUT FOR 7 DAYS MINIMUM. PROVIDE HOARDING, INSULATED BLANKETS AND HEAT AS REQUIRED TO MAINTAIN CONCRETE TEMPERATURES AS PER A23.1 TABLE 19 AND AS DIRECTED BY THE MATERIALS CONSULTANT.
- SHOTCRETE SHALL BE PLACED AND CURED UNDER THE SUPERVISION OF A MATERIALS CONSULTANT.
- PARKING SLABS AND CLASS C1 CONCRETE REQUIRE SPECIAL CURING PROCEDURES INCLUDING SUBSTANTIAL WET-CURING AT CONTROLLED TEMPERATURES. CONTRACTOR TO CONSULT WITH A MATERIALS ENGINEER.
- MASS CONCRETE ELEMENTS GREATER THAN 100MM (3'-4") THICK SHALL BE PROTECTED TO LIMIT THE INTERNAL CORE AND SURFACE TEMPERATURE DIFFERENTIAL TO WITHIN 20C. CURING PROTECTION IS REQUIRED WHEN TEMPERATURES ARE FORECAST TO BE BELOW 5C OR ABOVE 20C. CONTRACTOR SHALL CONSULT WITH A MATERIALS ENGINEER FOR MONITORING EQUIPMENT, PROCEDURES AND PROCESSES FOR SUCH ELEMENTS.

5. MATERIALS - CONCRETE:

- CEMENT SHALL BE GENERAL USE HYDRAULIC CEMENT—TYPE GU, "EcoCem PLC" BY LEHIGH CEMENT IS AN ACCEPTABLE ALTERNATIVE. PROVIDED ALL OTHER REQUIREMENTS ON THESE DRAWINGS ARE MET.
- USE OF HIGH-EARLY-STRENGTH HYDRAULIC CEMENT—TYPE HE, IS PERMITTED AT THE CONTRACTOR'S DISCRETION FOR CONSTRUCTION SCHEDULING PURPOSES.
- MAXIMUM AGGREGATE SIZE SHALL CONFORM TO THE TABLES. SMALLER AGGREGATE SHALL BE UTILIZED IN REGIONS OF CONGESTED REINFORCEMENT, FORMWORK, OR EMBEDDED HARDWARE.
- WATER SHALL BE POTABLE, HEATED IF NECESSARY FOR APPROPRIATE CURING.
- CONCRETE SHALL BE REGULAR WEIGHT.
- ADMIXTURES MAY BE UTILIZED AT THE DISCRETION OF THE CONCRETE SUPPLIER HOWEVER, RESISTERS OF THE ADMIXTURES USED, THE CONCRETE SUPPLIER SHALL REMAIN SOLELY RESPONSIBLE FOR PROVIDING CONCRETE MIXES THAT MEET ALL REQUIREMENTS OF THESE AND OTHER DISCIPLINE DRAWINGS.
- ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL NOT BE USED.
- MIX DESIGNS SHALL BE PREPARED BY THE CONCRETE SUPPLIER.
- NON-SHRINK GROUT SHALL BE NON-METALLIC CEMENTITIOUS PASTE WITH A MINIMUM 7-DAY COMPRESSIVE STRENGTH OF 50 MPa.
- TESTING:**
 - ALL CONCRETE SHALL BE TESTED IN CONFORMANCE WITH THE CODE BY A TESTING AGENCY OR CERTIFIED BY THE TESTING AGENCY. TESTING PERSONNEL SHALL BE CSA CERTIFIED. THE TESTING AGENCY SHALL BE INDEPENDENT FROM THE CONTRACTOR, CONCRETE SUPPLIER, PLACER OR FINISHER.
 - THE TESTING AGENCY SHALL BE RETAINED BY THE CONTRACTOR UNLESS ALTERNATIVE ARRANGEMENTS ARE MADE IN ADVANCE BETWEEN THE OWNER AND CONTRACTOR.
 - WHM IS NOT RESPONSIBLE FOR DEFINING THE SCOPE AND METHODS OF TESTING. THIS IS THE SOLE RESPONSIBILITY OF THE TESTING AGENCY.

6. MATERIALS - BAR REINFORCEMENT:

- SHALL BE RATED FOR 400 MPa YIELD STRESS.
- SHALL BE STANDARD DEFORMED BILLET STEEL BARS.
- SHALL NOT BE WELDED IN ANY WAY EXCEPT AS SPECIFIED, IN WHICH CASE WELDABLE REINFORCEMENT SHALL BE USED.
- SHALL BE FREE OF DIRT, OIL, AND ANY OTHER MATERIAL THAT MAY INHIBIT PROPER BONDING WITH CONCRETE.
- THE CONTRACTOR SHALL OBTAIN MILL CERTIFICATES FOR ALL REINFORCEMENT AND SHALL PROVIDE THESE TO THE TESTING AGENCY FOR REVIEW UPON REQUEST.

8. MATERIALS - EMBEDDED HARDWARE:

- PRE-SET ALL EMBEDDED HARDWARE WITH TEMPLATES OR BY FASTENING SECURELY TO FORMS. WET-SETTING OF EMBEDDED HARDWARE IS NOT PERMITTED.
- SPECIAL CARE SHALL BE TAKEN TO VIBRATE AND CONSOLIDATE CONCRETE COMPLETELY AROUND ALL EMBEDDED HARDWARE.
- SHOP DRAWINGS SHALL BE PREPARED FOR ALL EMBEDDED HARDWARE EXCEPT PRE-DRILLED (EXPANSION AND ADHESIVE) ANCHORS.

9. MATERIALS - PRE-DRILLED (EXPANSION AND ADHESIVE) ANCHORS:

- CAST-IN-PLACE ANCHORS SHALL NOT BE SUBSTITUTED WITH PRE-DRILLED ANCHORS.
- HILTI CANADA CORP IS THE ONLY PRE-APPROVED SUPPLIER OF PRE-DRILLED ANCHORS. ALL ON-SITE PERSONNEL INSTALLING PRE-DRILLED ANCHORS SHALL HAVE OBTAINED A CERTIFICATE FOR HILTI'S ACCREDITED INSTALLERS PROGRAM. THE CONTRACTOR SHALL PROVIDE THESE CERTIFICATES TO WHM PRIOR TO INSTALLING ANY PRE-DRILLED ANCHORS.
- ALTERNATE SUPPLIERS PROPOSED BY THE CONTRACTOR TO BE APPROVED IN WRITING BY WHM PRIOR TO USE.
- SEE TABLES FOR ACCEPTABLE EXPANSION, ADHESIVE ANCHORS, AND PRE APPROVED ADHESIVES.
- ANCHORS SHALL BE CARBON STEEL WITH ELECTROPLATED ZINC FOR INTERIOR APPLICATIONS PROTECTED FROM MOISTURE, UNLESS OTHERWISE NOTED.
- THE LENGTH IDENTIFICATION MARK ON THE END OF EACH EXPANSION ANCHOR SHALL REMAIN CLEARLY VISIBLE UNTIL SATISFACTORY FIELD REVIEW IS COMPLETE. ANCHORS WITHOUT THE PROPER LENGTH IDENTIFICATION MARK WILL BE REJECTED.
- ADHESIVE ANCHORS CONSIST OF AN ANCHOR ROD AND AN ADHESIVE INSTALLED INTO SOLID CONCRETE SUBSTRATE IN STRICT ACCORDANCE WITH HILTI'S LATEST PUBLISHED RECOMMENDATIONS.
- ADHESIVE ANCHOR RODS SHALL COME COMPLETE WITH NUT AND STANDARD-CUT WASHER SIZED TO SUIT ROD DIAMETER. SEE TABLE AND PLANS FOR ACCEPTABLE ROD TYPES.
- USE HILTI PROFIT KIT FOR PROPER HOLE PREPARATION.
- OVERHEAD ANCHORS SHALL BE INSTALLED USING THE HILTI PROFIT ACCESSORIES TO ENSURE CORRECT ADHESIVE INJECTION.
- NUTS FOR ADHESIVE ANCHORS SHALL NEITHER BE TIGHTENED NOR THE ANCHOR OTHERWISE STRESSED OR DISTURBED UNTIL THE ADHESIVE IS FULLY CURED.
- TESTING:**
 - THE CONTRACTOR SHALL RETAIN AN INDEPENDENT TESTING AGENCY TO INSPECT AND TEST PRE-DRILLED ANCHORS. AS A MINIMUM THE FOLLOWING TESTING SCOPE SHALL BE PERFORMED:
 - ON-SITE INSPECTION OF THE INSTALLATION PROCESS OF THE FIRST 5% EACH ANCHOR TYPE
 - TORQUE TESTS OR PULL-TESTS ON A REPRESENTATIVE SAMPLE OF EXPANSION ANCHORS
 - PULL-TESTS ON A REPRESENTATIVE SAMPLE OF ADHESIVE ANCHORS
- PULL-TESTS SHALL EXERT A TENSION FORCE EQUAL TO 160% OF THE ALLOWABLE TENSION CAPACITY OF THE ANCHOR AS PUBLISHED BY HILTI.
- WHM MAY REQUIRE ADDITIONAL TESTS AT ITS SOLE DISCRETION. ADDITIONAL TESTS REQUIRED AS A RESULT OF FAILED TESTS SHALL BE AT THE CONTRACTOR'S EXPENSE.

10. CRACKING:

- ALL CONCRETE WILL CRACK, WHETHER REINFORCED OR NOT AND ARE DUE TO A VARIETY OF STRESSES INCLUDING SHRINKAGE, CREEP, TEMPERATURE FLUCTUATIONS, AND TENSILE STRESSES DUE TO BENDING, SHEAR, OR AXIAL LOADS AND THEREFORE CANNOT BE ACCURATELY PREDICTED.
- CRACKS TYPICALLY DO NOT IMPAIR THE INTENDED FUNCTION OF THE STRUCTURE. HOWEVER, SOME CRACKS MAY NOT MEET THE AESTHETIC REQUIREMENTS OF THE ARCHITECT. IN WHICH CASE PATCHING OR GROUT/EPXY INJECTIONS MAY BE REQUIRED.
- CRACK-CONTROL JOINTS SHALL BE PROVIDED IN WALLS AND SLABS-ON-GRADE.

11. CONSTRUCTION POUR JOINTS:

- SHALL BE ROUGHENED USING HYDRODEMOLITION OR BUSH-HAMMERING TO A MINIMUM AMPLITUDE OF 6mm (1/4") (13mm (1/2") FOR SHEARWALLS).
- HIGH-PRESSURE COMPRESSED AIR PRIOR TO CASTING NEW CONCRETE AGAINST IT.
- CONTINUOUS REINFORCEMENT OR DOWELS SHALL BE PROVIDED AT ALL POUR JOINTS TO MATCH REINFORCEMENT IN THE NEW OR EXISTING POUR, WHICHEVER IS GREATER.
- TENSION LAPS WITH EXISTING REINFORCING SHALL BE PROVIDED.
- THE CONTRACTOR SHALL PREPARE A DRAWING INDICATING ALL LOCATIONS OF POUR JOINTS.
- SEE DETAIL DRAWINGS FOR TYPICAL DETAILS OF POUR JOINTS.
- THE FOLLOWING POUR JOINTS ARE NOT PERMITTED UNLESS SPECIFIC DETAILS ARE PROVIDED IN ADVANCE BY WHM:
 - VERTICAL POUR JOINTS IN SHEARWALLS AND COLUMNS.
 - HORIZONTAL POUR JOINTS IN COLUMNS AND WALLS NOT LOCATED IMMEDIATELY AT THE TOP OR BOTTOM OF FOOTINGS, SLABS, BEAMS, OR SLABBANDS.
 - HORIZONTAL POUR JOINTS IN SLABS, SLABBANDS, AND BEAMS.

12. FORMWORK, SHORING AND RESHORING

- FORMWORK FOR SLABS, SLABBANDS AND BEAMS ARE TO REMAIN IN PLACE UNTIL TESTS CONFIRM THE CONCRETE HAS REACHED 70% OF ITS SPECIFIED DESIGN STRENGTH. THEREAFTER, RE-SHORING SHALL BE MAINTAINED UNTIL TESTS CONFIRM FULL STRENGTH HAS BEEN REACHED AND THE CONCRETE IS AT LEAST 28-DAYS OLD.

FORMWORK FOR COLUMNS, WALLS AND PEDESTALS SHALL REMAIN IN PLACE UNTIL THE CONCRETE HAS REACHED 35% OF ITS SPECIFIED DESIGN STRENGTH. AT NO TIME SHALL COLUMN, WALL OR PEDESTAL FORMS BE REMOVED IN LESS THAN 24 HOURS FROM CASTING.

FORMWORK SHORING AND RE-SHORING:

- SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.
- SHALL TRANSFER LOADS TO A SUFFICIENT NUMBER OF LOWER LEVELS TO ENSURE LOADS DO NOT EXCEED THE LIVE LOADS FOR WHICH THE STRUCTURE WAS DESIGNED.
- FLASH OR OTHER ADDITIVES IN CONCRETE MIXES CAN DELAY STRENGTH AND STIFFNESS DEVELOPMENT. THE FORMWORK AND RESHORING DESIGN SHALL ACCOMMODATE FOR THIS DELAYED DEVELOPMENT.
- SHALL UTILIZE A DUAL-TABLE SYSTEM (MINIMUM) FOR ALL SLAB FORMWORK TO ENSURE ONLY MAXIMUM HALF SPAN OF FORMWORK IS REMOVED BEFORE RESHORING. UNDER NO CIRCUMSTANCES SHALL A FULL SLAB SPAN OF FORMWORK BE REMOVED AT ANY ONE TIME PRIOR TO RESHORING.
- THE SEQUENCE OF FORM REMOVAL AND SUBSEQUENT PLACEMENT OF SHORING AND RE-SHORING SHALL CONFORM STRICTLY TO THE RECOMMENDATIONS OF THE TEMPORARY WORKS ENGINEER. NOTWITHSTANDING, THE LENGTH OF TIME BETWEEN REMOVAL OF FORMS AND THE PLACEMENT OF RE-SHORING SHALL BE OF THE MINIMUM POSSIBLE DURATION. IN CONSIDERATION OF CREEP AND DEFLECTIONS, IT MAY BE NECESSARY TO RELEASE AND PREPARE ALL SHORES PRIOR TO ADDING CONSTRUCTION LOADS. THIS SHALL BE CONSIDERED IN THE SEQUENCE DETERMINED BY THE TEMPORARY WORKS ENGINEER.
- PROVIDE 3/4" x 2/4" CHAMFERS AT ALL EDGES LEFT EXPOSED TO VIEW UNLESS THE ARCHITECT INDICATES OTHERWISE.

13. COLUMNS, PEDESTALS, AND WALLS:

- NO CONDUIT, CANS, PIPES, OR EMBEDDED HARDWARE OF ANY SORT ARE PERMITTED IN COLUMNS, PEDESTALS OR WALLS UNLESS SPECIFICALLY DETAILED BY WHM.
- COLUMNS, PEDESTALS, AND WALLS SHALL NOT BE CORED OR DRILLED IN ANY WAY UNLESS PRIOR CONSENT IS OBTAINED FROM WHM.
- CRACK CONTROL JOINTS SHALL BE PROVIDED IN ALL WALLS. SEE TYPICAL DETAILS. SEE PREVIOUS NOTES ON POUR JOINTS.

6. Light-Gauge Steel Framing

1. RESPONSIBILITY:

- THE CONTRACTOR SHALL ENSURE ALL LIGHT-GAUGE STEEL WORK IS FABRICATED, DELIVERED, ERECTED, INSTALLED, AND TESTED TO ALL CODE REQUIREMENTS AND TO REQUIREMENTS ON THESE DRAWINGS.
- WHM'S DRAWINGS ILLUSTRATE THE DESIGN INTENT OF THE COMPLETED STRUCTURE. ERECTION SEQUENCING AND ANY TEMPORARY BRACING, GUYING, COUNTERBALANCING, ETC., REQUIRED TO MAINTAIN THE UNFINISHED STRUCTURE IN STABLE, SAFE, PLUMB, AND LEVEL CONDITIONS AT ALL TIMES SHALL BE DETERMINED, SUPPLIED, AND INSTALLED BY THE CONTRACTOR AND AT ITS SOLE RESPONSIBILITY. THE CONTRACTOR SHALL PROVIDE INDEPENDENT DOCUMENTATION AND/OR FIELD REVIEW BY AN INDEPENDENT PROFESSIONAL ENGINEER AS REQUIRED BY THE BUILDING OFFICIAL OR OTHER GOVERNING AUTHORITY.
- THE CONTRACTOR SHALL COORDINATE ALL LIGHT-GAUGE STEEL WORK WITH THE REQUIREMENTS OF OTHER DISCIPLINES INCLUDING BUT NOT LIMITED TO SLEEVES, CONDUIT, PIPES, DUCTS, CHASES, OPENINGS, INSERTS, ETC.

2. CODE:

- LIGHT-GAUGE STEEL FRAMING SHALL CONFORM IN ALL RESPECTS TO THE CODE AND ALL REFERENCED DOCUMENTS.
 - PART 4 OF THE BRITISH COLUMBIA BUILDING CODE.
 - CAN/CSA-S136 "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
 - ASTM A653

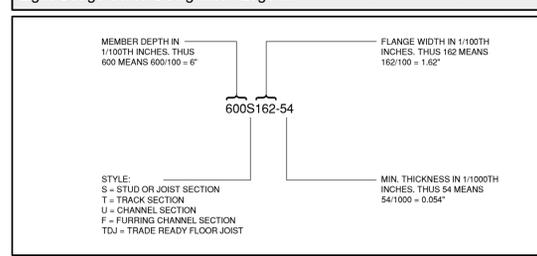
3. MATERIALS:

- APPROVED SUPPLIER IS CLARKDIETRICH BUILDING SYSTEMS OR BAILEY METAL PRODUCTS LTD.
- ALTERNATIVE SUPPLIERS PROPOSED BY THE CONTRACTOR WILL NOT BE ACCEPTED UNLESS PRE-APPROVED IN WRITING BY WHM.
- SHEET STEEL TO BE ASTM 653/653M GRADE A (230 MPa (33 ksi) MINIMUM YIELD STRENGTH) FOR THICKNESS LESS THAN OR EQUAL TO 0.045" AND GRADE D (345 MPa (50 ksi) MINIMUM YIELD STRENGTH) FOR THICKNESS GREATER THAN 0.045".
- VERIFY THAT ALL MATERIALS ATTACHED TO LIGHT GAUGE FRAMING CAN SAFELY SPAN AT SPACINGS SHOWN

4. CONNECTIONS:

- ALL SCREWS SHALL BE #10-16x5/8" HWH BULDEX TEKS OR HILTI SELF-DRILLING SELF-TAPPING SHEET METAL SCREWS OR PRE-APPROVED EQUIVALENT.
- USE 2 SCREWS MIN. AT ALL FRAMING CONNECTIONS.
- SCREW SPACING AND EDGE DISTANCE SHALL NOT BE LESS THAN 3 x D (D = NOMINAL SCREW DIAMETER). PENETRATION OF SCREWS THROUGH CONNECTED MATERIALS SHOULD NOT BE LESS THAN 3 EXPOSED THREADS. ALL SCREW HEADS SHALL BE LOW-PROFILE TYPE.
- CONNECTIONS OF FRAMING TO OTHER MATERIALS ARE AS FOLLOWS, UNO:
 - TO CONCRETE/GROUTED MASONRY: HILTI X-U PINS @ 12" O/C WITH MINIMUM 1" EMBEDMENT INTO CONCRETE/GROUTED MASONRY (NOT APPLICABLE FOR TENSION LOADS)
 - TO STEEL: HILTI X-U PINS @ 16" O/C. (NOT APPLICABLE FOR TENSION LOADS)
 - TO WOOD: #10-24x1 1/4" SCREWS @ 10" O/C.
 - ATTACHMENT OF PLYWOOD SHEATHING: #10-24x1 1/4" SCREWS @ 6" O/C AT PANEL EDGES AND @ 12" O/C AT INTERMEDIATE SUPPORT

Light Gauge Steel: Designation Legend



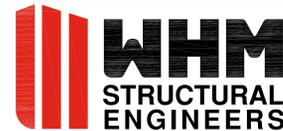
Exterior Non Load-Bearing Stud Walls - Non-Composite (Unsheathed)

STUD	SPACING	MAX. HEIGHT	
		MAX. DEFLECTION L/240	MAX. DEFLECTION L/360
362 S137-33	16"	10'-7"	10'-5"
362 S137-43	16"	12'-7"	11'-4"
362 S162-33	16"	11'-5"	10'-11"
362 S162-43	16"	13'-6"	11'-10"
600 S137-33	16"	14'-0"	14'-0"
600 S137-43	16"	16'-9"	16'-9"
600 S137-54	16"	20'-9"	19'-1"
600 S162-33	16"	15'-1"	15'-1"
600 S162-43	16"	18'-1"	17'-7"
600 S162-54	16"	21'-7"	18'-10"
600 S200-43	16"	19'-4"	18'-9"
600 S200-54	16"	22'-9"	19'-10"

- THIS TABLE APPLIES TO WALLS WITH NO SHEATHING OR WITH SHEATHING ON ONE SIDE ONLY OR WITH WALL SHEATHING ON BOTH SIDES THAT DOES NOT EXTEND TO THE SUPPORTING STRUCTURE ABOVE.
- PROVIDE BRIDGING @ 5'-0" O/C PER DETAILS
- CONFIRM DEFLECTION LIMITS WITH ARCHITECT OR ENGINEER
- * DENOTES WEB STIFFENERS REQUIRED

Thickness Conversion Table

DESIGNATION THICKNESS (mils)	THICKNESS (in.)	THICKNESS (mm)	GAUGE
18	0.016	0.46	25
33	0.033	0.84	20
43	0.043	1.09	18
54	0.054	1.37	16
68	0.068	1.73	14



Head Office, Burnaby, BC
t: 604 484 2859

whmengineers.com

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NO.	ISSUE / REVISION	DATE	BY
3	ISSUED FOR RFP	JAN. 24, 2025	
2	ISSUED FOR TENDER	DEC. 20, 2024	
1	ISSUED FOR BUILDING PERMIT	DEC. 4, 2024	

Seal



Project Title

Austin Works Yard
Fleet Building Phase 2

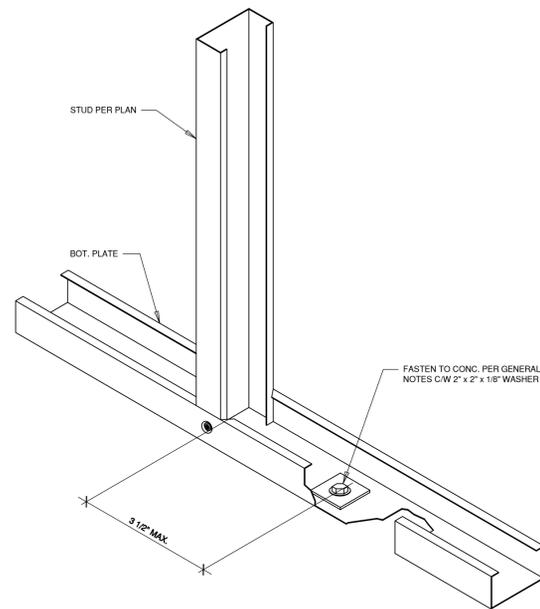
Drawing Title

General Notes And Tables

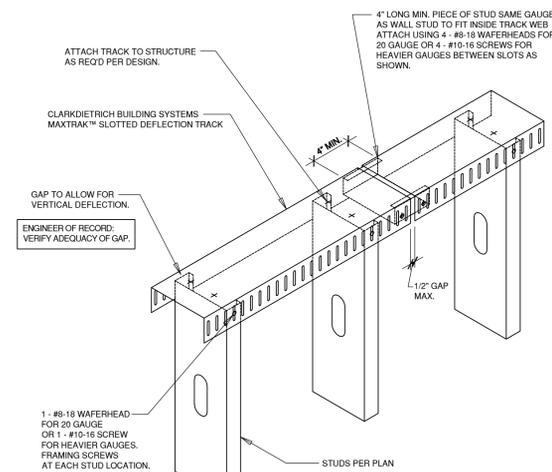
Project No: 24055 Scale: N/A

Project Drafter: MS Project Engineer: JD

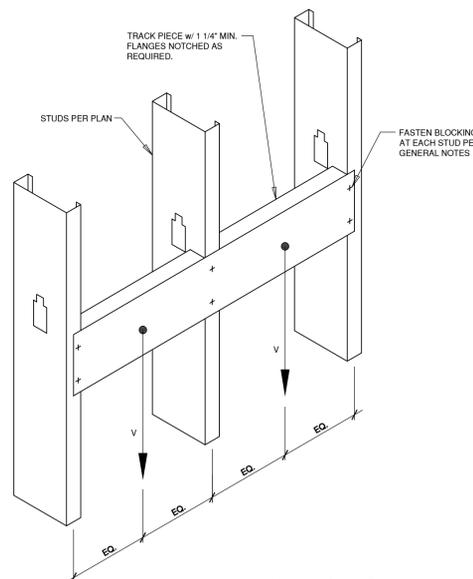
Dwg. No. S101



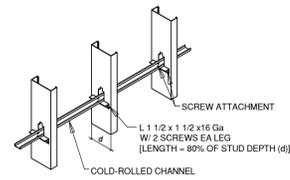
1 Bottom Plate Connection To Concrete
S201 SCALE: NTS



2 Slotted Deflection Track
S201 SCALE: NTS

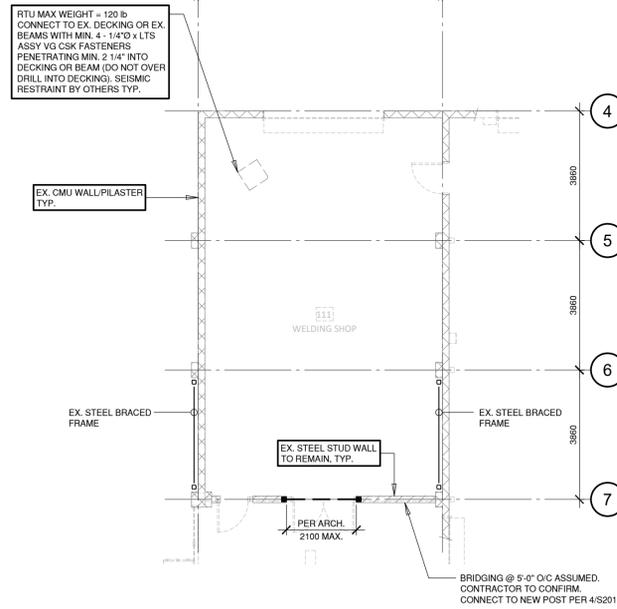


3 Backing Plate At Steel Studs
S201 SCALE: NTS



4 Typical Bridging Cold-rolled Channel w/ Clip Angle
S201 SCALE: NTS

RTU MAX WEIGHT - 120 lb
CONNECT TO EX. DECKING OR EX.
BEAMS WITH MIN. 4 - 1/4\"/>



A Level 1 Plan
S201 SCALE: 1:100

Plan Notes

DIMENSIONS AND ELEVATIONS:

- CONTRACTOR TO THOROUGHLY REVIEW ALL DIMENSIONS AND ELEVATIONS SHOWN ON THIS DWG. COMPARE THEM WITH ARCH. AND REPORT ANY DISCREPANCIES TO WHM AND THE ARCH IMMEDIATELY.
- "MAX" OR "MIN" INDICATES STRUCTURAL REQUIREMENTS. BUILD TO THE ARCH. DIMENSIONS AND ELEVATIONS PROVIDED THE STRUCTURAL REQUIREMENTS ARE MET.

TABLES, SCHEDULES AND LEGEND:

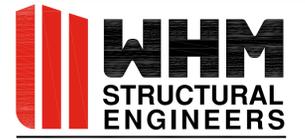
- REFER TO S110 SERIES DRAWINGS FOR TABLES, SCHEDULES AND LEGEND WHEN NOT SHOWN ON PLAN SHEETS.

LIGHT GAUGE STEEL BEAMS:

- HEADERS AND BEAMS UNLESS NOTED OTHERWISE ARE:
 - 2-600S162-54 - 2-800T125-33 BOXED BEAM
 - W/8 ROWS OF #10 SCREWS @ 6\"/>

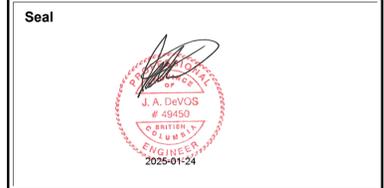
LIGHT GAUGE STEEL POSTS:

- POSTS UNLESS NOTED OTHERWISE ARE:
 - 2-600S162-54 W/ 2 ROWS OF #10 SCREWS @ 12\"/>
 - PROVIDE EXTRA CRIPPLE STUD AS REQUIRED AT HEADERS



Head Office, Burnaby, BC
t: 604 484 2859 whmengineers.com
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Project Title
Austin Works Yard
Fleet Building Phase 2

Drawing Title
Level 1 Floor Plan
And Details

Project No: 24055 Scale: AS NOTED

Project Drafter: MS Project Engineer: JD

Dwg. No. S201