

GENERAL

- DESIGN AND CONSTRUCTION OF THIS PROJECT SHALL COMPLY WITH THE ONTARIO BUILDING CODE LATEST EDITION AND NATIONAL BUILDING CODE LATEST EDITION.
- CONTRACTOR SHALL CHECK ALL DIMENSIONS ON WORKING DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. ANY CHANGES, ALTERATIONS OR REVISIONS MUST BE REPORTED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. DRAWINGS SHALL NOT BE SCALED.
- 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 OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.
- UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR THE STRESSES AND INSTABILITY OCCURRING FROM ANY CAUSE DURING CONSTRUCTION. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILITY FOR ALL SUCH MEASURES. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET, PILING OR STRUCTURES AFFECTED BY THIS WORK.
- DESIGN LIVE LOADS SHALL NOT BE EXCEEDED DURING CONSTRUCTION.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS - O-REG.213.
- THESE DRAWINGS SHALL BE COORDINATED AND READ IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS.
- WHERE THERE IS A CONFLICT IN THE SPECS AND/OR DRAWINGS THE MORE STRINGENT SHALL APPLY UNLESS APPROVED OTHERWISE IN WRITING BY THE ENGINEER.
- ALL SPECIFICATIONS LISTED ARE TO LATEST EDITIONS IN FORCE AT TIME OF TENDERING.

FOUNDATIONS

- REFER TO STRUCTURAL DESIGN DATA MATRIX ON DRAWING S1.1 FOR GEOTECHNICAL INVESTIGATION REPORT.
- REMOVE ALL TOPSOIL, ORGANIC AND LOOSE FILL MATERIAL FROM BUILDING AREA BEFORE STARTING CONSTRUCTION.
- PROOF ROLL EXISTING FILL MATERIAL. REMOVE ANY LOOSE OR SOFTENED AREAS BENEATH SLAB ON GRADE BEFORE PLACING GRANULAR FILL.
- ALL CONTINUOUS STRIP AND ISOLATED SPREAD FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR ENGINEERED FILL WITH A MINIMUM SERVICEABILITY LIMIT STATE (SLS) BEARING CAPACITY AND A MINIMUM FACTORED ULTIMATE LIMIT STATE (ULS) BEARING CAPACITY SPECIFIED IN STRUCTURAL DESIGN DATA MATRIX. THIS IS TO BE CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO POURING FOOTINGS.
- APPROVED ENGINEERED FILL UNDER FOOTINGS AND FLOOR SLABS SHALL BE COMPACTED IN 150mm LAYERS TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY.
- ALL EXTERIOR FOOTINGS SHALL BE MINIMUM 1200mm WITH NATURALLY INSULATED (I.E. SNOW COVER) AND 1400mm BELOW EXPOSED SURFACE (I.E. ADJACENT SIDEWALKS, ETC.) BELOW FINISHED EXTERIOR GRADE TO PROTECT THESE FOOTINGS FROM FROST ACTION. CONSULT GEOTECHNICAL ENGINEER FOR INSULATION REQUIREMENTS WHERE SOIL COVER CANNOT BE ATTAINED.
- ANY NECESSARY PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT EXISTING FOOTINGS ARE NOT DISTURBED OR UNDERMINED IN ANY WAY DURING EXCAVATION.
- SOIL CONDITIONS, REINFORCING STEEL AND FORMWORK SHALL BE INSPECTED BY THE ENGINEER BEFORE POURING CONCRETE. CONTRACTOR SHALL GIVE ENGINEER A MINIMUM 24 HOURS NOTICE TO CARRY OUT INSPECTION.
- THE LINE OF SLOPE BETWEEN ADJACENT FOOTING OR EXCAVATIONS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10 UNLESS APPROVED BY THE GEOTECHNICAL ENGINEER.
- DO NOT BACKFILL AGAINST FOUNDATION WALLS UNTIL SUPPORTING SLABS HAVE BEEN POURED. UNLESS BRACING DETAILS ARE SUBMITTED, WHERE POSSIBLE BACKFILL BOTH SIDES OF WALLS SIMULTANEOUSLY.

CONCRETE

- CONCRETE DESIGN AND CONSTRUCTION SHALL CONFORM TO CSA STANDARD A23.3:19.
- CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO CSA STANDARD A23.1:19/A23.2:19.
- FALSEWORK AND FORMWORK SHALL CONFORM TO CSA S269.1-16.
- CONCRETE EXPOSED TO THE WEATHER SHALL HAVE 5%-8% AIR ENTRAINMENT.
- REINFORCEMENT SHALL BE DEFORMED BARS AND CONFORM TO CAN/CSA G30.18, GRADE 400MPa.
- REINFORCING STEEL SHALL BE DETAILED, BENT, PLACED AND SUPPORTED TO CONFORM TO ACI STANDARDS 315 AND THE MANUAL OF STANDARD PRACTICE PUBLISHED BY THE REINFORCING STEEL INSTITUTE OF ONTARIO.
- WELDING OF REINFORCING STEEL SHALL NOT BE PERMITTED.
- UNLESS NOTED OTHERWISE MINIMUM REINFORCING STEEL TENSION / COMPRESSION LAP LENGTHS TO BE:
10M 450 mm (18") / 450 mm (18")
15M 600 mm (24") / 450 mm (18")
20M 800 mm (32") / 600 mm (24")
25M 1200 mm (48") / 750 mm (30")
30M 1400 mm (56") / 900 mm (36")
- ALL REINFORCING STEEL FABRICATION AND PLACEMENT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION.
- CONCRETE COVER FOR REINFORCEMENT SHALL CONFORM TO CSA STANDARD A23.3:19 TABLE 17 AS FOLLOWS UNLESS OTHERWISE NOTED:
"C" CLASSES PERTAIN TO CHLORIDE EXPOSURE:
"T" CLASSES PERTAIN TO FREEZING AND THAWING EXPOSURE WITHOUT CHLORIDE:
"N" CLASS IS EXPOSED NEITHER CHLORIDES NOR FREEZING AND THAWING:

	EXPOSURE CLASS	EXPOSURE CLASS	EXPOSURE CLASS
	N	F-1&F-2	C-1&C-3
FOOTINGS (CAST AGAINST & PERMANENTLY EXPOSED TO EARTH)	75 mm	75 mm	75 mm
BEAMS, GIRDERS & COLUMNS	30 mm	40 mm	60 mm
SLABS	20 mm	40 mm	60 mm
WALLS	30 mm	40 mm	60 mm
RATIO OF COVER TO NOMINAL BAR DIAMETER	1.0	1.5	2.0
RATIO OF COVER TO MAXIMUM AGGREGATE SIZE	1.0	1.5	2.0
- CONCRETE:
 - ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 25MPa MINIMUM AND CLASS OF EXPOSURE IS CLASS N UNLESS OTHERWISE SPECIFIED. DESIGN MIX SHALL BE SUBMITTED FOR PROJECT ENGINEER'S REVIEW PRIOR TO USE AT JOB SITE.
 - CONCRETE FOR EXTERIOR SLABS ON GRADE, GARAGE FLOORS, PORCHES, STEPS, PAVEMENTS, SIDEWALKS, CURBS AND GUTTERS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 32MPa C/W 5-8% AIR ENTRAINMENT AND CLASS OF EXPOSURE IS CLASS C-2. MAXIMUM WATER-TO-CEMENTING MATERIALS RATIO IS 0.45.
 - CONCRETE FOR INTERIOR SLABS ON GRADE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 25MPa AND CLASS OF EXPOSURE IS CLASS N. MAXIMUM WATER-TO-CEMENTING MATERIALS RATIO IS 0.50. IF SUPERPLASTICIZER ("SUPER P") IS USED SLUMP BEFORE ADDING "SUPER P" IS 50mm-100mm, AFTER "SUPER P" IS 125mm-175mm, "SUPER P" TO BE INCLUDED IN CONTRACT PRICE.
 - CONCRETE FOR EXTERIOR WALLS & COLUMNS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 25MPa C/W 4-7% AIR ENTRAINMENT AND CLASS OF EXPOSURE IS CLASS F-2. MAXIMUM WATER-TO-CEMENTING MATERIALS RATIO IS 0.55.
 - CONCRETE FOR FOOTINGS, INTERIOR WALLS & COLUMNS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 25MPa AND CLASS OF EXPOSURE IS CLASS N.
 - STRUCTURALLY REINFORCED CONCRETE EXPOSED TO CHLORIDES WITH OR WITHOUT FREEZING AND THAWING CONDITIONS SHALL HAVE A 56 DAY COMPRESSIVE STRENGTH OF 35MPa C/W 5-8% AIR ENTRAINMENT AND CLASS OF EXPOSURE IS CLASS C-1. MAXIMUM WATER-TO-CEMENTING MATERIALS RATIO IS 0.40. FOR EXAMPLE PARKING DECKS AND BRAMS.
 - SLUMP OF CONCRETE TO BE 50mm-100mm OR AS OTHERWISE SPECIFIED. CONCRETE (WITHOUT SUPERPLASTICIZER "SUPER P") WITH 110mm SLUMP OR MORE IS TO BE REJECTED.
 - SPACING OF CONTROL JOINTS IN CONCRETE SLABS SHALL NOT EXCEED 4.5m (15'-0") O.C.
 - ALL CONCRETE FORMS TO BE WET THOROUGHLY BEFORE POURING CONCRETE.
 - DO NOT ADD WATER TO CONCRETE ON SITE UNLESS WRITTEN APPROVAL GIVEN BY THE ENGINEER. IF HIGHER SLUMP CONCRETE IS DESIRED, CONCRETE SUPPLIER SHALL DESIGN AND SUPPLY ACCORDINGLY.
 - SLOPE ALL FLOORS AS SHOWN ON ARCHITECTURAL OR MECHANICAL DRAWINGS.
 - CONSTRUCTION JOINTS FOR FOUNDATION WALLS ARE BASED ON VERTICAL JOINTS AT A MAXIMUM SPACING OF 10m (32'-10"). CONSTRUCTION JOINTS IN FOUNDATION WALLS SHALL MATCH CONTROL JOINTS IN SLABS WHERE FOUNDATION WALLS ARE NOT SEPARATED FROM SLABS. CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION. GENERALLY, JOINTS IN SLABS SHALL BE AT RIGHT ANGLES TO THE SPANS. AT MID-SPAN IF POSSIBLE AND BE CLEAR OF SUPPORTS AND POINT LOADS.
 - INSTALL STANDARD ADJUSTABLE INSERT AND ALL OTHER CAST-IN INSERT AS REQUIRED BY THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS.
 - PROVIDE SLEEVES IN WALLS FOR MECHANICAL PIPING.

- INSERTS, FRAME-OUTS, SLEEVES, BRACKETS, CONDUITS AND FASTENING DEVICES, SHALL BE INSTALLED AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT SHALL NOT IMPAIR THE STRUCTURAL STRENGTH OF THE SYSTEM. BE SO INSTALLED THEY SHALL NOT REQUIRE THE CUTTING, BENDING OR DISPLACEMENT OF THE REINFORCING OTHER THAN AS SHOWN ON THE TYPICAL DETAILS.
- ELECTRICAL CONDUIT SHALL NOT PASS THROUGH A COLUMN. SHALL NOT BE LARGER THAN ONE-THIRD THE SLAB THICKNESS OR GRADE BEAM IN WHICH IT IS EMBEDDED, SHALL NOT BE SPACED CLOSER THAN THREE DIAMETERS ON CENTER UNLESS APPROVED AND HAVE A MINIMUM CONCRETE COVER OF 25mm (1") AND UNLESS SPECIFICALLY PERMITTED OTHERWISE, SHALL NOT RUN HORIZONTALLY IN A FOUNDATION WALL.
- PROVIDE OPENINGS OR DEPRESSIONS IN SLABS AS REQUIRED BY OTHER TRADES.
- OPENINGS AND DRIVEN FASTENERS REQUIRED IN THE CONCRETE AFTER THE CONCRETE IS PLACED IT SHALL BE APPROVED BY THE ENGINEER BEFORE PROCEEDING.
- WATER CURING OF CONCRETE SLAB ON GRADE IS REQUIRED, MINIMUM 7 DAYS.
- NON-SHRINK GROUT SHALL BE AN APPROVED PREMIXED PROPRIETARY PRODUCT.
- DRY-PACKED GROUT SHALL BE 1 PART PORTLAND CEMENT TO 1.5 PARTS OF SAND TO 2 PARTS OF 9mm PEA GRAVEL WITH ONLY SUFFICIENT WATER TO DAMPEN THE MIXTURE. COMPRESSIVE STRENGTH SHALL BE 50MPa AT 28 DAYS.
- REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR REQUIRED FINISH TO EXPOSED CONCRETE. FLOOR FINISHES SHALL CONFORM TO CSA STANDARD A23.1:19 CLASS A FINISH UNLESS NOTED.
- ALL HONEYCOMBING SHALL BE CUT OUT AND FILLED TO THE SATISFACTION OF THE ENGINEER.
- APPLY A HARDENER AS SPECIFIED TO ALL CONCRETE FLOOR SLABS THAT ARE TO REMAIN EXPOSED AS NOTED. APPLY CURING/SEALING COMPOUND, CONFORMING TO ASTM C309, AS SPECIFIED TO ALL FLOOR SLABS UNLESS A TOPPING IS TO BE APPLIED.

JOINTS

CONSTRUCTION JOINT

- SUBMIT PROPOSED JOINT LOCATION TO THE ENGINEER FOR APPROVAL UNLESS SHOWN ON DRAWINGS.
- DO NOT PLACE SLABS OR WALLS IN ONE CONTINUOUS POUR IN LENGTHS EXCEEDING 30.0m (100'-0").
- LOCATE SLAB CONSTRUCTIONS JOINTS AT HIGH POINTS.
- UNLESS NOTED, ALL WALLS AND COLUMNS SHALL BE POURED IN ONE LIFT (FLOOR TO FLOOR), FOR WALLS AND COLUMNS OVER 3.7m, SUBMIT SHOP DRAWINGS FOR FORMWORK AND PLACING.

CONTROL JOINT

IN CONCRETE WALLS:
CONTROL JOINTS IN PERIMETER FOUNDATION WALLS BELOW GRADE SHALL BE @ 9.0m (30'-0") MAXIMUM UNLESS SHOWN OTHERWISE ON ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS.

IN CONCRETE SLABS:
REFER TO SLAB NOTES AND DETAILS FOR SAWCUTS, WHERE NOT SHOWN, CONTROL JOINTS (SAWCUTS) IN CONCRETE SLABS SHALL NOT EXCEED 4.5m (15'-0") O.C.

EXPANSION JOINT

FILL JOINTS IN SLABS WITH SPECIFIED BACKING AND JOINT FILLER AS SOON AS POSSIBLE OR PROTECT JOINTS FROM DAMAGE AT SLAB EDGES DURING CONSTRUCTION.

SLAB ON GRADE (INTERIOR)

- SLAB ON GRADE TO BE PLACED ON COMPACTED GRANULAR MATERIAL. COMPACTION TESTS ON FILL MATERIAL TO BE CARRIED OUT PRIOR TO SLAB ON GRADE PLACEMENT.
- REINFORCEMENT TO SLAB ON GRADE MUST BE SUPPORTED BY CHAIRS AT MID-DEPTH UNLESS OTHERWISE LEVEL INDICATED ON DRAWINGS.
- PROVIDE SAWCUTS WITHIN 24 HOURS OF FINISHING AT LOCATIONS SHOWN ON DRAWINGS. SAWCUT DEPTH TO BE 1/4 OF SLAB THICKNESS. SAWCUT AS CLOSE TO COLUMNS OR WALLS AS PRACTICAL. FILL SAWCUTS WITH NON-METALLIC CONTROL JOINT FILLER (RIGID JOINT SEALANTS S&A LOAD-LEX OR SEMI-RIGID EPOXY JOINT FILLER R&Z-WELD FLEX BY W. R. MEADOWS OR ALTERNATE MATERIALS APPROVED EQUAL).
- PROVIDE 10mm ASPHALT IMPREGNATED FIBRE BOARD AND CAULKING AROUND ALL COLUMNS AND ALONG ALL WALLS.
- MAINTAIN MINIMUM SPECIFIED THICKNESS AT ALL DEPRESSION AND CHANGES IN ELEVATIONS.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXTENT AND LOCATIONS OF ALL FINISHES AND DEPRESSIONS.
- PROVIDE COLD WEATHER PROTECTION TO PREVENT SLAB ON GRADE FROM HEAVING AND FROZEN.

GENERAL SLAB NOTES

- ENSURE MINIMUM 1-15M TOP AND 1-15M BOTTOM CONTINUOUS AT ALL SLAB EDGES BY ADJUSTING BAR LENGTH OR PROVIDING ADDITIONAL TOP & BOTTOM EDGE BARS AS REQUIRED.
- LAP TEMPERATURE REINFORCEMENT (CLASS 'B' LAP) BUT NOT LESS THAN 300 mm; STAGGER LAPS OR LAP AT SUPPORTS.

REINFORCING STEEL

- REINFORCEMENT STEEL DETAILING TO BE IN ACCORDING WITH REINFORCING STEEL INSTITUTE OF ONTARIO (RSIO) MANUAL OF STANDARD PRACTICE AND WITH THE LATEST EDITION OF CSA CAN5-A23.1:19 AND CAN3 WITH THE FOLLOWING REQUIREMENTS FOR SPLICING NOTED:

SPLICES: ALL REINFORCING STEEL LAP SPLICES SHALL CONFORM TO LATEST CSA A23.3:19.

COLUMNS: COMPRESSION SPLICES UNLESS NOTED OTHERWISE.
WALLS & ALL OTHERS: CLASS 'B' TENSION SPLICES UNLESS NOTED OTHERWISE.
INCREASE HORIZONTAL SPlice LENGTHS BY 1.3 TIMES WHERE MORE THAN 300mm OF FRESH CONCRETE IS CAST BELOW SPLICE.

REINFORCING CHAIRS

- PROVIDE CHAIRS, SPACER BARS, SUPPORT BARS AND OTHER ACCESSORIES TO SUPPORT REINFORCING IN ACCORDANCE WITH THE LATEST EDITIONS OF CSA A23.1:19 AND A23.3:19. CHAIRS TO BE PLASTIC, PLASTIC TIPPED OR CONCRETE. ALL WIRE, CHAIRS AND BAR SUPPORTS USED FOR COATED REINFORCING SHALL BE NON-METALLIC OR PROTECTED WITH AN ACCEPTABLE COATING.
- CHAIRS SHALL BE SPACED AT 1200mm O.C. MAXIMUM. PROVIDE CONTINUOUS CHAIRS WHERE POSSIBLE.

OPENING AND SLEEVES

- REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND TO SHOP DRAWINGS OF ALL TRADES FOR EXACT LOCATION AND EXTENT OF OPENINGS AND SLEEVES REQUIRED BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- OBTAIN THE APPROVAL OF THE STRUCTURAL ENGINEER FOR OPENINGS REQUIRED BUT NOT SHOWN ON THE STRUCTURAL DRAWINGS. DO NOT CORE DRILLING OR OTHERWISE PRODUCE OPENINGS OF ANY SIZE, IN ANY STRUCTURAL MEMBER WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
- ALL REQUIRED OPENINGS SHALL BE SLEEVED OR FORMED PRIOR TO PLACING CONCRETE. CORING OR SAW CUTTING FOR OPENINGS AFTER CASTING SHALL NOT BE PERMITTED AS AN ALTERNATE METHOD OF PROVIDING OPENINGS. ALL DRAINS SHALL BE SET PRIOR TO CONCRETE PLACING.
- CAST IN SLEEVES SHALL GENERALLY NOT BE PERMITTED WITHIN 400mm OF A COLUMN FACE UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER. CORED OPENINGS SHALL GENERALLY NOT BE PERMITTED WITHIN 10 TIMES THE SLAB (PLUS DROP PANEL) THICKNESS FROM THE FACE OF THE COLUMNS OR WALLS. UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER, AND WILL REQUIRE VERIFICATION OF THE REINFORCING BAR LOCATION PRIOR TO CORING.
- ADDITIONAL REINFORCING AT OPENINGS IN FOUNDATION WALLS: FOR OPENING WIDTH 400-600 REINFORCE OPENING WITH ADDITIONAL 3-15M AT TOP AND BOTTOM, EXTEND 400 BEYOND EACH SIDE OF OPENING. FOR OPENING WIDTH 600-800 REINFORCE OPENING WITH ADDITIONAL 3-20M AT TOP AND BOTTOM, EXTEND 800 BEYOND EACH SIDE OF OPENING. FOR OPENING WIDTH 800-1000 REINFORCE OPENING WITH ADDITIONAL 3-25M AT TOP AND BOTTOM, EXTEND 1200 BEYOND EACH SIDE OF OPENING. UNLESS NOTED ON THE PLAN, IN NO CASE SHALL OPENING WIDTH EXCEED 1000. MINIMUM WALL HEIGHT ABOVE OPENING IS 600. MINIMUM WALL LENGTH BETWEEN ADJACENT OPENINGS IS 400.

MISCELLANEOUS CONCRETE

CONCRETE PADS

PROVIDE CAST IN PLACE EQUIPMENT BASES FOR MECHANICAL AND ELECTRICAL HARDWARE. CONTRACTOR TO COORDINATE EXTENT, LOCATION AND DIMENSION FROM MECHANICAL/ELECTRICAL SHOP DRAWINGS. SUBMIT LAYOUT DRAWING TO CONSULTANTS FOR REVIEW.

CONCRETE CURBS

PROVIDE CONCRETE CURBING AS SHOWN ON THE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS.

CHAMFERS AND REGLETS

PROVIDE CHAMFERS, REGLETS, REVETS, REVEALS, RECESSES AND THE LIKE AS SHOWN ON THE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS.

MASONRY

- ALL MASONRY WALLS SHALL BE REINFORCED WITH DUK-O-WALL LADDER DESIGN (OR APPROVED EQUAL) HOT DIPPED GALVANIZED CONTINUOUS REINFORCEMENT AT EVERY SECOND COURSE 400mm. REINFORCEMENT SHALL BE INSTALLED IN THE FIRST AND SECOND BED JOINTS 200mm APART, IMMEDIATELY ABOVE UNTELS AND BELOW SILLS. REINFORCEMENT IN THE SECOND BED JOINT ABOVE UNTELS AND BELOW SILLS SHALL EXTEND 400mm BEYOND THE JAMB. ALL OTHER REINFORCEMENT SHALL BE CONTINUOUS AND SIDE RODS SHALL BE LAPPED AT LEAST 150mm AT SPICES. REINFORCEMENT SHALL BE PLACED AS TO ASSUME 16mm MORTAR COVER ON THE EXTERIOR FACE OF WALL AND 12mm COVER ON THE INTERIOR FACE OF WALL. (SEE CONCRETE BLOCK WALL REINFORCING SCHEDULE).
- TYPE S MORTAR SHALL BE USED THROUGHOUT FOR ALL LOAD BEARING WALLS.
TYPE N MORTAR SHALL BE USED FOR NON-LOAD BEARING PARTITIONS AND BRICK OR BLOCK VENEER.
- MORTAR COMPRESSIVE STRENGTHS: (JOB PREPARED MIX)
TYPE S: MINIMUM 28 DAY STRENGTH = 8.5MPa, MAXIMUM 28 DAY STRENGTH = 12.5MPa
TYPE N: MINIMUM 28 DAY STRENGTH = 3.5MPa, MAXIMUM 28 DAY STRENGTH = 7.5MPa
MORTAR MIX PROPORTIONS:
MIX ACCORDING TO CURRENT CSA STANDARD A179-14.
MORTAR MIX SHALL BE TESTED FOR STRENGTH AND APPROVED BY THE ENGINEER PRIOR TO USE ON THE JOB.
FOR EXTERIOR BRICK VENEER ONLY USE PORTLAND CEMENT LIME MORTAR TYPE N. 1 PART PORTLAND PORTLAND-LIMESTONE, OR BLENDED CEMENT; 1 PART HYDRATED LIME OR LIME PUTTY; 6 PARTS SAND MEASURED IN DUMP. LOOSE STATE (1:1.6 BY VOLUME) IN ACCORDANCE WITH TABLE 3.
FOR EXTERIOR BLOCK VENEER USE REGULAR TYPE N.
- ALL MASONRY WALL TO BE CONSTRUCTED WITH FULL MORTAR JOINTS.
- SPACING OF MASONRY CONTROL JOINTS IN ALL WALLS SHALL NOT EXCEED 6.0m (20'-0") O.C.
- MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF LOAD BEARING CONCRETE BLOCK MASONRY UNITS SHALL BE: 20MPa FOR HOLLOW UNITS, BASED ON NET AREA.
- ALL MASONRY UNDER CONCENTRATED LOADS SHALL HAVE VOIDS FILLED WITH 20MPa GROUT FOR WIDTH AND DEPTH EQUAL TO 3 TIMES THE LENGTH OF BEARING, MINIMUM 600mm WIDE x 400mm DEEP.
- FOR MASONRY OPENINGS NOT SHOWN ON DRAWINGS PROVIDE 1L-89x89x6.4 FOR EACH 100mm THICKNESS OF WALL OPENINGS UP TO 600mm AND 1L-89x89x9.5 FOR OPENINGS UP TO 1200mm, IF OPENING IS WIDER THAN 1200mm NOTIFY ENGINEER FOR LITELE SIZE VERIFICATION PRIOR TO FABRICATION AND INSTALLATION.
- ALL MASONRY WALL SHALL BE PROPERLY SHORED DURING CONSTRUCTION UNTIL STRUCTURAL STEEL AND SLABS ARE IN PLACE.
- PROVIDE BEARING PLATES FOR BEAMS SUPPORTED BY MASONRY WALLS. ALL BEARING PLATES SHALL BE DESIGNED ACCORDING TO THE REQUIREMENTS OF CSA S16.1. THEY SHALL BE ANCHORED WITH MINIMUM 1-20mm DIAMETER x450mm HOOKED RODS WELDED TO PLATES AND EMBEDDED INTO GROUT FILL WITH A MINIMUM STRENGTH OF 20MPa. ALLOWABLE BEARING STRESS ON MASONRY FOR DESIGN OF BEARING PLATES SHALL NOT EXCEED 175PSI (1.2MPa).
- TESTING: MORTAR AND GROUT SHALL BE TESTED IN ACCORDANCE WITH CSA STANDARD A179-14.
CONCRETE MASONRY UNITS SHALL BE TESTED IN ACCORDANCE WITH CSA STANDARD A165 SERIES-1.4.

STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL CONFORM TO CSA G40.21 WITH ONE SHOP COAT AND FIELD TOUCH-UP OF ZINC CHROMATE PRIMER, CONFORMING TO CISC/CPMA STANDARD 1-73A ONE-COAT PAINT AND CISC/CPMA STANDARD 2-75 PRIMER. AND IT SHALL BE PAINTED TO OWNERS SPECIFICATION.
ALL W-SHAPES & S-SHAPES SECTIONS SHALL CONFORM TO ASTM A992 & ASTM A572 GRADE 50 Fy=345MPa.
ALL C-SHAPES SECTIONS & ANGLES SHALL CONFORM TO G40.21-350W Fy=350MPa.
ALL HSS HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO G40.21-350W CLASS C Fy=350MPa.
ALL OTHERS (PLATES, RODS) SHALL CONFORM TO G40.21-300W Fy=300MPa.
- FABRICATION AND ERECTION SHALL CONFORM TO LATEST EDITION OF CSA STANDARD S16:19. NO SPLICING WILL BE PERMITTED UNLESS OTHERWISE NOTED ON STRUCTURAL DRAWINGS.
- DESIGN AND INSTALLATION OF ALL BRIDGING SHALL BE IN ACCORDANCE WITH LATEST EDITION OF CSA STANDARD S16:19. COMBINED DIAGONAL AND HORIZONTAL BRIDGING SHALL BE PROVIDED AT THE ENDS OF BRIDGING LINES AS REQUIRED. ENDS OF BRIDGING LINES SHALL BE ANCHORED TO STEEL, MASONRY OR OTHERWISE SHOWN.
- ALL FIELD BOLTS SHALL BE ASTM A325 HIGH STRENGTH BOLTS IN BEARING TYPE CONNECTIONS.
- ALL BEAM-TO-BEAM CONNECTIONS AND BEAM-TO-COLUMN CONNECTIONS SHALL HAVE DOUBLE ANGLE CONNECTIONS UNLESS NOTED OTHERWISE AND BE IN ACCORDANCE TO CSA STANDARD CONNECTIONS.
- WELD ALL BEAMS TO BEARING PLATES OR SUPPORTING MEMBERS WITH MINIMUM 50mm x5mm FILLET WELDS ON BOTH SIDES OF MEMBER, UNLESS NOTED OTHERWISE.
- WELDING OF STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF LATEST EDITION OF CSA STANDARD W59-18 AND SHALL BE UNDERTAKEN BY A FABRICATOR AND ERECTOR FULLY APPROVED BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF LATEST EDITION OF CSA STANDARD W47.1:19, DIVISION 1 OR DIVISION 2.1.
- SUBMIT SHOP DRAWINGS, INCLUDING CONNECTIONS DETAILS AND LOCATIONS OF ALL SPLICES FOR REVIEW BEFORE PROCEEDING WITH FABRICATION. ALL SHOP DRAWINGS SHALL BE STAMPED BY A PROFESSIONAL ENGINEERING LICENSED IN THE PROVINCE OF ONTARIO.
- ALL CONNECTIONS SHALL BE DESIGNED FOR MIN. 50% OF THE FULL SHEAR CAPACITY OF THE MEMBER UNLESS MEMBER CONNECTION LOADS ARE SHOWN ON THE DRAWINGS.
- STEEL BEAMS AND UNTELS SHALL HAVE 200mm MINIMUM END BEARING ON MASONRY AND 65mm MINIMUM BEARING ON STEEL UNLESS INDICATED OTHERWISE.
- ALL BEAMS CANTILEVERED OR CONTINUOUS OVER A COLUMN OR OTHER SUPPORT SHALL HAVE A MINIMUM OF 2-10mm STIFFENERS EACH SIDE FULL HEIGHT & FULL WIDTH UNLESS OTHERWISE NOTED.
- UNDERSIDE OF COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL BE GROUTED WITH 40mm NON-SHRINK GROUT.
- ALL COLUMNS BUILT INTO MASONRY WALLS SHALL HAVE ADJUSTABLE ANCHORS @ 400mm O.C.
- TOP OF COLUMNS WHICH ARE NOT BRACED BY JOISTS SHALL BE BRACED DIAGONALLY TO THE ROOF OR FLOOR BY A MINIMUM OF 4-7x67x6x6.4 ANGLES. BRACING SHALL BE BETWEEN TOP OF COLUMN AND TOP CHORD OF JOISTS OR TOP FLANGE OF BEAM.
- WHERE STRUCTURAL STEEL MEMBERS ARE CALLED FOR ON ARCHITECTURAL DRAWINGS BUT NOT ON STRUCTURAL DRAWINGS USE 6.4mm THICKNESS MIN. FOR ANGLES AND PLATES AND MIN. BEAM WEIGHT FOR TENDERING PURPOSES.
- U.N.O. FLOOR DECK SHALL BE 7x60.7x.22 GAUGE, GRADE 275 (Fy=275MPa) CANAM GROUP INC. P-2432 COMPOSITE (LFS) OR APPROVED EQUAL. MINIMUM 3 SPANS CONTINUOUS. WELD DECK TO SUPPORTING STEEL WITH 19mm DIAMETER PUDDLE WELDS @300mm O.C. MAXIMUM. MARGINAL (PERIMETER) WELDS @150mm O.C. MAXIMUM. BUTTION PUNCH SIDE LAPS @600mm O.C.
- U.N.O. ROOF DECK SHALL BE 38x60.91, 20 GAUGE, GRADE 275 (Fy=275MPa) CANAM GROUP INC. P-3415 (1.58) OR APPROVED EQUAL. MINIMUM 3 SPANS CONTINUOUS. WELD DECK TO SUPPORTING STEEL WITH 19mm DIAMETER PUDDLE WELDS @300mm O.C. MAXIMUM. MARGINAL (PERIMETER) WELDS @150mm O.C. MAXIMUM. BUTTION PUNCH SIDE LAPS @600mm O.C. ROOF DECK IS DESIGNED AS A DIAPHRAGM.

INSPECTIONS AND TESTING

THE FOLLOWING ITEMS SHALL BE INSPECTED OR TESTED BY INDEPENDENT INSPECTION/TESTING AGENCIES DESIGNATED BY THE CLIENT. MATERIALS AND WORKMANSHIP NOT CONFORMING TO THE SPECIFICATIONS SHALL BE REJECTED BY THE CONTRACTOR. REPORTS AND TEST RESULTS SHALL BE PROMPTLY SUBMITTED TO THE ENGINEER FOR REVIEW. TESTING SHALL INCLUDE BUT NOT BE LIMITED TO:

SOILS

ALL TESTING AND INSPECTION (COMPACTION, BEARING CAPACITY ETC.) AS PER THE REQUIREMENTS OF THE GEOTECHNICAL ENGINEER.

CONCRETE

CONCRETE AND GROUT TESTING IN ACCORDANCE WITH CSA A23.2 LATEST EDITION AND THE SPECIFICATIONS, INCLUDING THE REQUIREMENTS OF SLUMP, AIR AND AGE PRIOR TO BEING USED. CONTRACTOR TO KEEP RECORDS OF FOUR DATES, TESTING PERFORMED, CLASS OF CONCRETE USED AND TEST RESULTS FOR ALL ITEMS POURED.

TESTING TO DETERMINE THE IN-SITU STRENGTH OF CONCRETE FOR EARLY FORM REMOVAL PURPOSE WITH THE TYPE OF TEST BEING DETERMINED ON THE ADVICE OF THE TESTING AGENCY. REPAIRS NECESSARY TO THE STRUCTURE AS A RESULT OF THESE TESTS SHALL BE MADE BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

APPROVAL OF CONCRETE

TESTING AS REQUIRED AND SPECIFIED BY THE ENGINEER TO DETERMINE THE IN-SITU STRENGTH OF CONCRETE WHICH FAILS TO MEET THE SPECIFIED REQUIREMENTS OR WHICH, DUE TO APPEARANCE, DAMAGE OR DEFECTS MAY BE DEEMED REJECTABLE. CORES SHALL BE ACQUIRED AND TESTED BY THE DESIGNATED TESTING AGENCY BUT ANY REPAIRS NECESSARY TO THE STRUCTURE AS A RESULT OF THESE TESTS SHALL BE PERFORMED AT NO COST TO THE OWNER.

STRUCTURAL STEEL

VISUAL INSPECTION OF ALL WELDS, TESTING OF BOLTED CONNECTIONS AND CHECK ON BEARING, PLUMBNESS AND ALIGNMENT OF STEEL STRUCTURES. INSPECTIONS SHALL CONFORM TO CSA STANDARD S16:19.

NON-DESTRUCTIVE TESTING TO VERIFY THE QUALITY OF WELDING, WHERE DEEMED QUESTIONABLE BY VISIBLE DEFECTS OR WHERE REQUIRED BY THE ENGINEER.

REINFORCING STEEL

CONTRACTOR SHALL ADVISE THE ENGINEER OF REQUIRED REINFORCING STEEL INSPECTIONS AT LEAST 24 HOURS PRIOR TO CLOSING OF COLUMN OR WALL FORMS AND 24 HOURS PRIOR TO PLACING OF CONCRETE IN SLABS, FOOTING, ETC.

SHOP DRAWINGS AND SUBMITTALS

GENERAL

- SHOP DRAWINGS SHALL BE SUBMITTED. THE ERECTION DRAWINGS SHALL BE DRAWN USING THE MINIMUM SCALE THAT WAS USED FOR THE TENDER DRAWINGS. DETAILS MUST BE OF A SCALE THAT IS LEGIBLE.
- PRIOR TO SUBMITTING TO CONSULTANTS, CONTRACTOR'S REVIEW STAMP TO BE ON ALL SHOP DRAWINGS.
- REVIEW OF SHOP DRAWINGS APPLIES TO THE GENERAL ARRANGEMENT FOR THE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT AND COMPLIANCE WITH OBC REQUIREMENTS. THIS REVIEW DOES NOT IMPLY APPROVAL OF DETAIL DESIGN OR QUANTITIES IN SUBMITTED DRAWINGS, NOR DOES IT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR MAKING THE WORK COMPLETE, ACCURATE AND IN ACCORDANCE WITH THE STRUCTURAL DRAWINGS AND COMPLIANCE WITH OBC REQUIREMENTS. ALLOW 10 WORKING DAYS FOR SHOP DRAWING REVIEW.
- DO NOT FABRICATE MATERIALS BASED ON REJECTED OR DISAPPROVED SHOP DRAWINGS.
- SHOP DRAWING SUBMITTALS SHALL ALSO INCLUDE CLADDING CONNECTION DETAILS AND SAFETY GUARDS, WHICH SHALL SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH THE CURRENT ONTARIO BUILDING CODE.

REINFORCED CONCRETE

- SUBMIT FOR REVIEW REINFORCEMENT PLACING DRAWINGS AND BAR LISTS FOR EVERY PORTION OF THE STRUCTURE. SHOW WALLS IN FULL ELEVATION. SHOW TOP STEEL AND BOTTOM STEEL FOR SLABS ON SEPARATE PLANS WITH REINFORCING STEEL CALLED UP DIRECTLY ON PLAN.
- PROVIDE DETAILS OF DESIGN AND CONSTRUCTION OF FORMS AND FALSEWORK, SHORING AND RE-SHORING AND ANY SPECIAL REQUIREMENTS FOR STRIPPING OF FORMWORK. ALL SUCH DESIGN SHEETS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER.
- SUBMIT FOR REVIEW ALL PROPOSED CONCRETE MIX DESIGNS. SUBMIT AT LEAST 10 WORKING DAYS PRIOR TO START OF WORK.
- SUBMIT FOR REVIEW DRAWINGS OF ALL PROPOSED CONSTRUCTION JOINTS LOCATIONS, AND LAYOUT DRAWINGS OF CONCRETE ISOLATION AND HOUSEKEEPING PADS.
- REGULARLY SUBMIT REPORTS OF ALL CONCRETE TESTING AS SOON AFTER TESTING IS PERFORMED AS POSSIBLE.

STRUCTURAL STEEL AND STEEL DECK

- SUBMIT WITH SHOP DRAWINGS: DECKING PLAN, PROFILE, DIMENSIONS, CORE THICKNESS, CONNECTIONS TO SUPPORTS, REQUIRED BEARINGS, CLOSURES AND ACCESSORIES.
- SUBMIT FOR REVIEW 3 PRINTS AND 1 SET OF ERECTION DRAWINGS FOR ALL STRUCTURAL STEEL ELEMENTS. ALL MOMENT CONNECTIONS AND STEEL DECK SHALL BE DESIGNED AND DRAWINGS SHALL BE STAMPED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER.
- SHOP DRAWING SUBMITTALS SHALL INCLUDE STEEL BEAM, COLUMN CONNECTIONS, STEEL DECK SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO.

CLADDING

SUBMIT FOR REVIEW THE PROPOSED INSERT LOADS TRANSMITTED BY PREFABRICATED EXTERIOR CLADDING SYSTEM TO THE STRUCTURE.

RECORD DRAWINGS

GENERAL CONTRACTOR SHALL MAINTAIN TWO SETS OF RECORD DRAWINGS WHICH SHOW AS-BUILT DETAILS OF ALL ASPECTS OF THE STRUCTURE, FOR REVIEW DURING CONSTRUCTION AND FOR SUBMISSION AT THE END OF THE PROJECT.

STEEL STUDS LIGHTWEIGHT, COLD-FORMED GALVANIZED STRUCTURAL STEEL STUDS

- SHOP DRAWINGS FOR STRUCTURAL STEEL STUDS SHALL BE SUBMITTED TO PROJECT ENGINEER FOR REVIEW PRIOR TO FABRICATION IN ACCORDANCE WITH DETAILS PROVIDED ON ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS. DRAWINGS ARE TO INCLUDE JAMB (POST), UNTEL (HEADER & SILL), BRIDGING DETAILS, CONNECTIONS AND DEFLECTION HEADS. DRAWINGS ARE TO BE STAMPED BY AN ENGINEER REGISTERED IN PROVINCE OF ONTARIO.
- MINIMUM DEPTH OF STUD IS AS DETAILED ON THE ARCHITECTURAL DRAWINGS.
- MINIMUM THICKNESS OF LOAD BEARING STUD SHALL NOT BE LESS THAN 0.8788mm, 0.0346", 33mil 20GAUGE, 50ksi OR 1.1455mm, 0.0451", 43mil 18GAUGE, 33ksi.
- STEEL STUD DESIGN & CONSTRUCTION SHALL CONFORM TO CSA STANDARD S136-14 COLD FORMED STEEL STRUCTURAL MEMBERS.
- ALL EXTERIOR STUD WALLS ARE LOAD BEARING STUD WALLS UNLESS NOTED OTHERWISE. MAXIMUM LATERAL DEFLECTION SHALL NOT EXCEED L/400 FOR EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS) OR OTHER CLADDING SYSTEMS & L/420 FOR MASONRY VENEER EXCEPT AS NOTED ON DRAWINGS.

TEMPORARY SHORING & BRACING

GENERAL CONTRACTOR IS RESPONSIBLE TO PROVIDE PROPER TEMPORARY SHORING & BRACING FOR NEW OR EXISTING MASONRY WALLS AND ALL OTHER STRUCTURAL ELEMENTS IN ACCORDANCE WITH RECOGNIZED CONSTRUCTION PRACTICE.
1. BRACING IS REQUIRED UNTIL EXTERIOR SLAB AND/OR ROOF DECK ARE IN PLACE AND PROPERLY SECURED TO BEAMS AND/OR JOISTS.
2. SHORING IS REQUIRED UNTIL PROPOSED STRUCTURE IS PROPERLY IN PLACE.
3. SHORING & BRACING SHALL BE DESIGNED, REVIEWED AND APPROVED BY CONTRACTOR'S ENGINEER.
4. SHORING SHOP DRAWINGS SHALL BE SUBMITTED WITH ENGINEER'S STAMP FOR OUR REVIEW PRIOR TO CONSTRUCTION.

STRUCTURAL DRAWING LIST

1	S1.1	STRUCTURAL NOTES
2	S1.2	STRUCTURAL NOTES, SCHEDULES AND DETAILS
3	S1.3	STRUCTURAL DETAILS
4	S1.4	STRUCTURAL DETAILS
5	S2.1	FOUNDATION PLAN
6	S2.2	LEVEL 2 FLOOR FRAMING PLAN
7	S2.3	ROOF FRAMING PLAN
8	S2.4	SNOW DRIFT DIAGRAMS
9	S3.1	STRUCTURAL DETAILS
10	S3.2	STRUCTURAL DETAILS
11	S3.3	STRUCTURAL DETAILS
12	S3.4	STRUCTURAL DETAILS
13	S3.5	STRUCTURAL DETAILS
14	S4.1	MASONRY WALL DETAILS AND SCHEDULES
15	S5.1	LEVEL 1 FLOOR CONCRETE WALL LAYOUT
16	S5.2	LEVEL 2 FLOOR CONCRETE WALL LAYOUT

REVISIONS

NO.	DATE	PARTICULAR
1	2026.08.07	ISSUED FOR FINAL REVIEW
2	2026.08.13	ISSUED FOR TENDER
3		

STRUCTURAL DESIGN DATA MATRIX									
NO.	ITEM	DESCRIPTION							
1.	STRUCTURAL SYSTEM	METAL ROOF DECK & PRECAST HOLLOW-CORE FLOOR SLAB ON STEEL BEAMS ON MODERATELY DUCTILE SHEAR WALLS ON CAST-IN-PLACE CONCRETE FOUNDATION WALLS AND PIERS ON FOOTINGS.							
2.	DESIGN CODE	2024 O.B.C., PART 4							
		BUILDING IMPORTANCE CATEGORY: POST DISASTER							
3.	SNOW/RAIN LOADS	HANOVER							
a)	IMPORTANCE (Is)	1.25 ULS, 0.9 SLS							
b)	GROUND SNOW (Ss)	2.6 KPa (1/50)							
c)	ASSOCIATED RAIN (Sr)	0.4 KPa (1/50)							
d)	ONE DAY RAINFALL	103 mm (1/50)							
4.	WIND LOAD	HANOVER							
a)	IMPORTANCE (Iw)	1.25 ULS, 0.75 SLS							
b)	WIND PRESSURE (q)	0.44 KPa (1/50)							
c)	TERRAIN	OPEN, $C_e=(h/10)^{0.2}$ BUT NOT LESS THAN 0.9							
d)	INTERNAL PRESSURE	COEFFICIENT $C_{pi}=-0.45$ to 0.3 USING CATEGORY 2							
5.	SEISMIC LOAD	HANOVER 44.151 690, -81.026139							
a)	IMPORTANCE (Ie)	1.5 ULS							
b)	SEISMIC DATA	So(0.2XC)	So(0.5XC)	So(1.0XC)	So(2.0XC)	So(5.0XC)	So(10.0XC)	PGA(XC)	PGV(XC)
		0.158	0.1	0.057	0.028	0.007	0.003	0.0622	0.0635
c)	SITE DATA	SITE CLASS: C FOR SEISMIC SITE RESPONSE							
		AVERAGE SHEAR WAVE VELOCITY $V_{s30}=$ 496 m/s							
d)	DESIGN SPECTRAL ACCELERATION	S(0.2)	S(0.5)	S(1.0)	S(2.0)	S(5.0)	S(10.0)		
		0.158	0.1	0.057	0.028	0.007	0.003		
e)	METHOD OF ANALYSIS	EQUIVALENT STATIC FORCE PROCEDURE							
		$T_a=0.24$ SEC, $M_v=1$, $J=1$							
f)	TYPE OF SFRS	MODERATELY DUCTILE OF CONCRETE SHEAR WALLS DUCTILITY-RELATED FORCE MODIFICATION FACTOR $R_d=$ 2.0 , OVERSTRENGTH-RELATED FORCE MODIFICATION FACTOR $R_o=$ 1.4 :							
g)	SEISMIC CATEGORY	AS PER SENTENCE 4.1.8.5 (2), $\{S(0.2)\}=1.5\alpha(0.158)+0.237+0.35$, $\{S(1.0)\}=1.5\alpha(0.0567)+0.085+0.1$ BUILDING SEISMIC CATEGORY = SC2							
h)	SEISMIC RESTRAINT	AS PER SENTENCES 4.1.8.18 (1), FOR POST-DISASTER BUILDING, SEISMIC RESTRAINTMENT IS REQUIRED . MECHANICAL AND ELECTRICAL CONTRACTORS MUST SUBMIT STAMPED PRE-ENGINEERED SEISMIC RESTRAINT DRAWINGS, AND/OR LETTER FROM REGISTERED PROFESSIONAL ENGINEER FROM THE PROVINCE OF ONTARIO) TO ENGINEER OF RECORD FOR APPROVAL. THIS APPLIES TO ALL MECHANICAL UNITS, PIPING, CABLE TRAYS, LIGHTING, FIXTURES, etc. IN ACCORDANCE WITH SECTION 4.1.8.18 IN CURRENT ONTARIO BUILDING CODE.							
6.	FOUNDATION								
	DESCRIPTION	CONVENTIONAL SPREAD & STRIP CONCRETE FOOTINGS							
	SUBGRADE	NATIVE UNDISTURBED COMPETENT SAND DEPOSIT OR APPROVED ENGINEERED FILL							
	BEARING (ULS)	225 KPa							
	BEARING (SLS)	150 KPa							
	SLAB ON GRADE	SUBGRADE MODULUS K :185pci[(lbs/in³)=50MPa/m(MN/m³)							
	RETAINING STRUCTURE	$K_o=0.50$ (AT REST) $K_a=0.30$ (ACTIVE) SOIL DENSITY=21KN/m³							
	SOIL REPORT	FILE NUMBER: 3163G-1v0 BY CHUNG & VANDER DOELN ENGINEERING LTD. DATED AUGUST 10, 2026							

SPECIFIED DESIGN WIND LOAD TABLE - UPLIFTING ON ROOF SYSTEM				
	SPECIFIED WIND UPLIFTING PRESSURE OVER ROOF "W"			
ROOF HEIGHT	CORNER AND OVERHANG	AT END ZONE	END ZONE WIDTH	REMAINING AREA
8,100 mm	-1.37 KPa	-1.37 KPa	1,900 mm	-1.11 KPa
4,200 mm	-1.29 KPa	-1.29 KPa	1,900 mm	-1.04 KPa

NOTES (ALL LOADS ARE UN-FACTORED)/SPECIFIED LOADS):

1. DESIGN LOAD - THE NET WIND UPLIFT FOR ROOF SYSTEM (OPEN WEB STEEL JOIST AND METAL DECK)= $1.4 "W" - 0.9 "D" = 1.4 \times$ (SPECIFIED WIND UPLIFTING PRESSURE OVER ROOF "W") - $0.9 \times$ (DEAD LOAD "D")
2. THE NET WIND UPLIFT INCLUDES INTERIOR PRESSURES, DESIGN DEAD LOAD "D" TO COUNTERACT WIND UPLIFT IS THE SPECIFIED DEAD LOAD (THE SELF-WEIGHT OF THE STRUCTURE) + 50% OF SPECIFIED SUPERIMPOSED DEAD LOAD. THIS LOAD IS FOR THE DESIGN OF STRUCTURAL ELEMENTS, AND IS NOT APPLICABLE TO SMALL ROOF/CLADDING AREAS.

	$p = I_w^* q^* C_e C_{it} [C_g C_p \pm C_{gi} C_{pi}]$			
	ULS* (KPa)		SLS (KPa)	
LEVEL	PRESSURE	SUCTION	PRESSURE	SUCTION
0000 TO 4200	1.09	-1.04	0.65	-0.62
4200 TO 8100	1.16	-1.11	0.70	-0.67

* ULS LOAD FACTOR OF 1.4 NOT INCLUDED IN SPECIFIED ULS LOADS NOTED IN THE TABLE ABOVE.

NOTE (ALL LOADS ARE UN-FACTORED/SPECIFIED LOADS):
IN ADDITION TO THE SEISMIC PROVISIONS OF THE ONTARIO BUILDING CODE THE TABLE ABOVE PROVIDE THE MINIMUM SPECIFIED WIND LOADS TO BE USED IN THE DESIGN OF THE NOTED WALL SYSTEMS (STEEL STUDS, CURTAIN WALL). IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THE CONTRACTOR'S ENGINEER TO ENSURE THE WALL SYSTEM HAS BEEN DESIGNED TO RESIST THE WIND LOADS IN ACCORDANCE WITH CURRENT ONTARIO BUILDING CODE BUT NOT LESS THAN THE VALUES GIVEN HERE.

SUMMARY OF LATERAL FORCES				F_x (KN) = LATERAL SEISMIC FORCE APPLIED TO LEVEL x. AS DEFINED IN SENTENCE 4.1.8.11.(6) W_i (KN) = WEIGHT LOCATED AT LEVEL i
	BUILDING	MAIN		
	DIRECTION	N/S	E/W	
WIND	M (KN*m)	1,105	471	W3=2,065 → F3=352 W2=5,380 → F2=474
	V (KN)	202	86	
SEISMIC	M (KN*m)	4,842		W3=2,065 → F3=352 W2=5,380 → F2=474
	V (KN)	826		

NOTE: ALL LOADS IN TABLE ARE SPECIFIED (UNFACTORED) LOADS AND INCLUDE IMPORTANCE FACTORS $I_E = 1.5$ AND $I_W = 1.25$

WALL TYPE	CLEAR OPENING LENGTH	LINTEL
190 BLOCK	UP TO 300	BLOCK LINTEL C/W 2-15M.
	300 - 600	2L-89x89x6.4
	600 - 900	2L-127x89x9.5 (LLV)
	900 - 1200	W200x27 + 180x6 BOTTOM PLATE
90 BRICK OR BLOCK [ANGLE VERTICAL LEG AT BACKSIDE OF BRICK OR BLOCK]	UP TO 900	L-89x89x6.4 HOT DIPPED GALVANIZED
	900 - 1200	L-102x89x7.5(LLV) HOT DIPPED GALVANIZED

NOTES:

1. WHERE LATELS ARE FOR MECHANICAL OPENINGS OR LATELS IN LOAD BEARING WALLS AND NON-LOAD BEARING PARTITION WALLS ARE NOT SHOWN ON STRUCTURAL FRAMING PLANS OR LATEL LAYOUTS PROVIDE LATELS IN ACCORDANCE WITH MISCELLANEOUS LATEL SCHEDULE ABOVE. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF THESE OPENINGS.
2. ALL EXTERIOR LATELS TO BE HOT DIPPED GALVANIZED.
3. BACK TO BACK ANGLES SHALL BE STITCH WELDED OR BOLTED @ 400 C/C MAXIMUM.
4. MINIMUM JOINT LENGTH = 150mm UNLESS NOTED OTHERWISE.
5. NOTIFY PROJECT ENGINEER PRIOR TO FABRICATION & PLACEMENT OF BLOCK.

MARK	DESCRIPTION	MARK	DESCRIPTION
WF6	600 WIDE x 200 DEEP C/W 2-15M BOTTOM CONTINUOUS	WF10	1000 WIDE x 400 DEEP C/W 4-15M BOTTOM CONTINUOUS
WF8	800 WIDE x 300 DEEP C/W 3-15M BOTTOM CONTINUOUS		

NOTES:

1. ALL INTERIOR FOOTINGS ARE TYPE W8B UNLESS NOTED OTHERWISE.
2. ALL EXTERIOR FOOTINGS ARE TYPE W8B UNLESS NOTED OTHERWISE.
3. WET SET 10M DOWELS x 450mm LONG AT 450mm O/C ALONG CENTER LINE OF WALL, WITH 125mm LONG INTO FOOTINGS, TYPICAL FOR ALL TYPES OF WALL FOOTINGS UNLESS NOTED OTHERWISE.

MARK	DESCRIPTION	MARK	DESCRIPTION
CF1	900 x 900 x 300 DEEP C/W 4-10M BOTTOM EACH WAY	CF5	2100 x 2100 x 400 DEEP C/W 10-20M BOTTOM EACH WAY
CF2	1200 x 1200 x 300 DEEP C/W 5-15M BOTTOM EACH WAY	CF6	2400 x 2400 x 450 DEEP C/W 8-25M BOTTOM EACH WAY
CF3	1500 x 1500 x 300 DEEP C/W 8-15M BOTTOM EACH WAY	CF7	2700 x 2700 x 500 DEEP C/W 9-25M BOTTOM EACH WAY
CF4	1800 x 1800 x 350 DEEP C/W 8-20M BOTTOM EACH WAY		

NOTES:

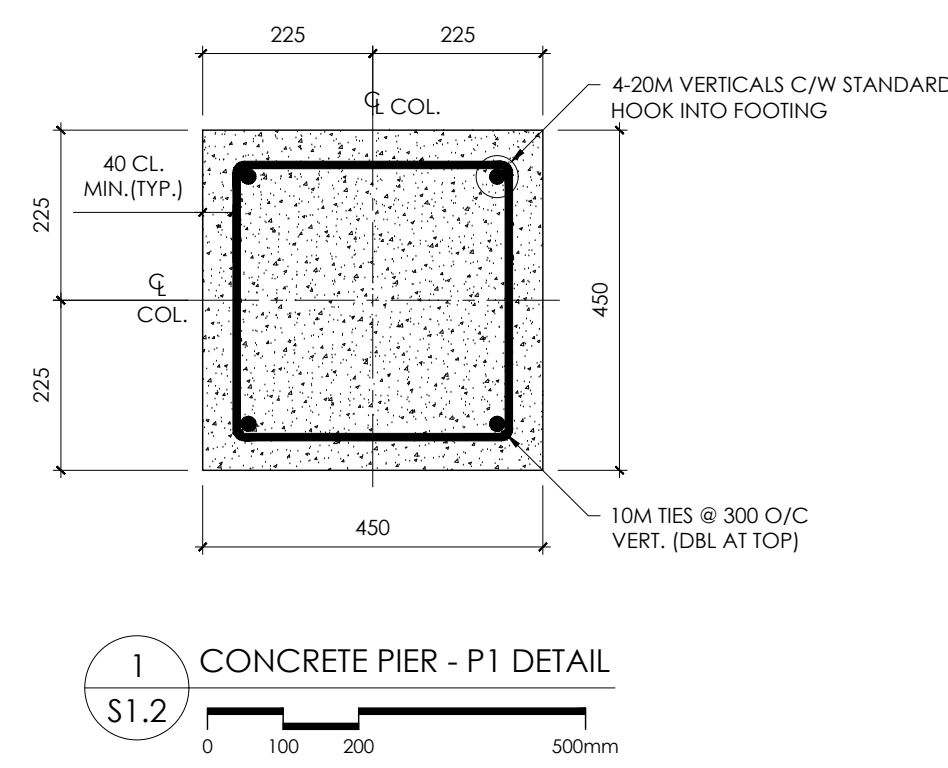
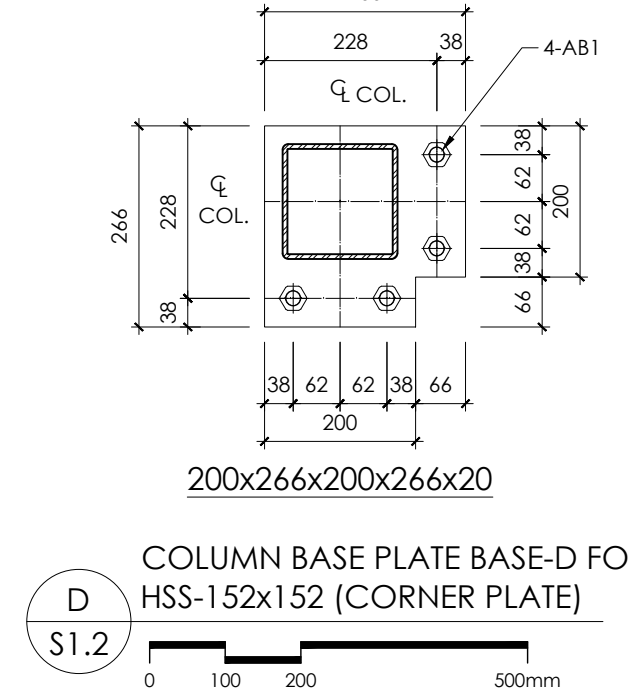
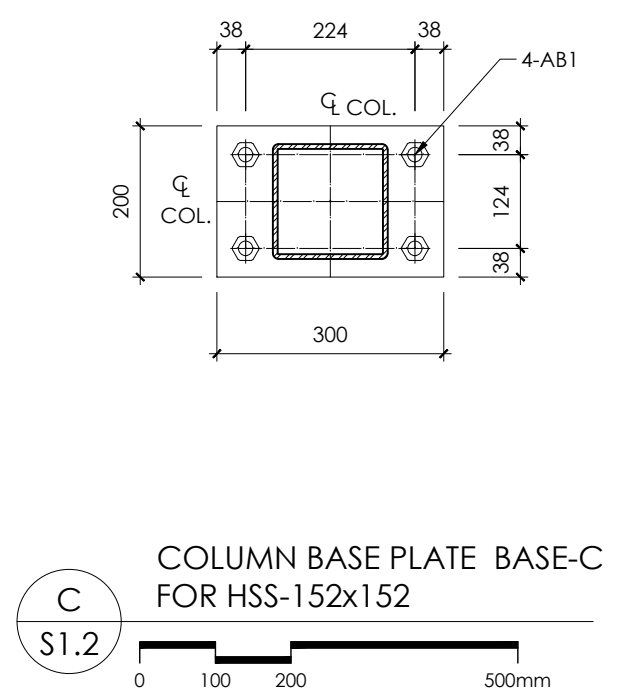
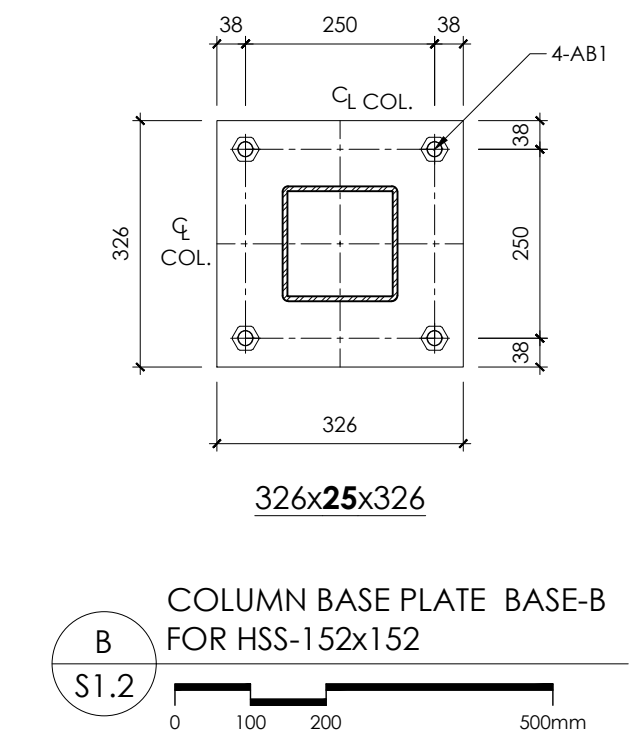
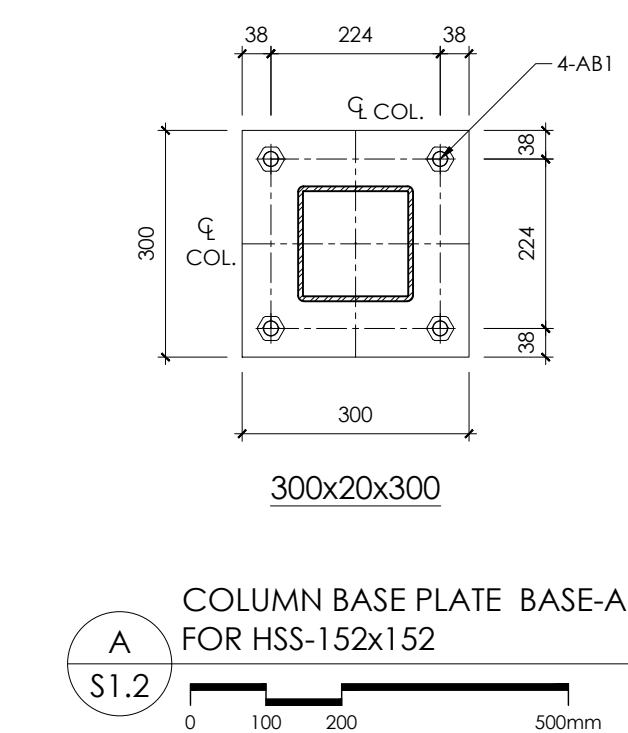
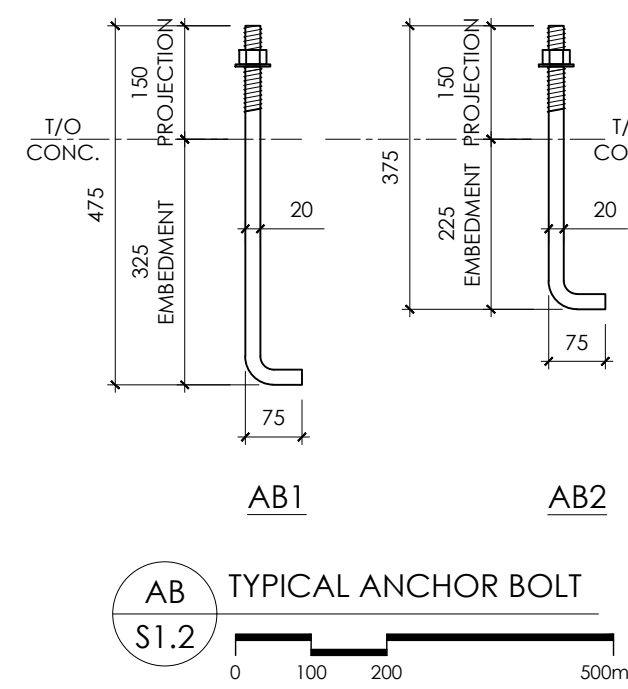
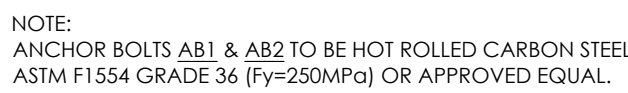
1. AT ALL FOOTINGS PROVIDE DOWELS FOR PIERS (WHERE APPLICABLE). SIZE AND NUMBER TO MATCH PIER VERT. DOWELS SHOULD BE IN PLACE PRIOR TO POURING CONCRETE, WET SETTING L-SHAPE DOWELS IS NOT ACCEPT.
2. COLUMN (AND PIER) CENTER TO BE AT FOOTING CENTER U.N.O. ON FOUNDATION PLAN.

CONCRETE PIER SCHEDULE			
MARK	DESCRIPTION	T/O PIER	
P1	450 x 450 C/W 4-20M VERTICAL 10M TIES @ 300 (DOUBLE @ TOP) REFER TO DETAIL ON I/S1.2	400 BELOW FINISHED FLOOR	
P2			

MARK	SIZE	BASE PLATE	W/S BASE PLATE	T/O COL.
C1A	HSS-152x152x9.5	BASE-A 300x20x300 C/W 4-A#1 DETAIL A/S1.2	360 BELOW FINISHED LEVEL 1 FLOOR	MAIN ROOF
C1B	HSS-152x152x9.5	BASE-B 326x325x326 C/W 4-A#1 DETAIL B/S1.2	360 BELOW FINISHED LEVEL 1 FLOOR	MAIN ROOF
C1C	HSS-152x152x9.5	BASE-C 200x20x300 C/W 4-A#1 DETAIL C/S1.2	360 BELOW FINISHED LEVEL 1 FLOOR	MAIN ROOF
C1D	HSS-152x152x9.5	BASE-D CORNER PLATE 200x266x200x266x20 C/W 4-A#1 DETAIL D/S1.2	40 ABOVE FINISHED LEVEL 1 FLOOR	MAIN ROOF
C2A	HSS-152x152x9.5	BASE-A 300x20x300 C/W 4-A#1 DETAIL A/S1.2	360 BELOW FINISHED LEVEL 1 FLOOR	LEVEL 2 FLOOR
C2D	HSS-152x152x9.5	BASE-D CORNER PLATE 200x266x200x266x20 C/W 4-A#1 DETAIL D/S1.2	40 ABOVE FINISHED LEVEL 1 FLOOR	LEVEL 2 FLOOR
C3	HSS-152x152x6.4	T/O STEEL BEAM NOTE4	LEVEL 2 FLOOR	MAIN ROOF
C3A	HSS-152x152x13	T/O STEEL BEAM NOTE4	LEVEL 2 FLOOR	MAIN ROOF

NOTES:

1. SEE ANCHOR BOLT (AB) AND BASE PLATE (BP) DETAILS ON S1.2.
2. CONSIDER OF COLUMN BASE PLATE TO 40mm ABOVE TOP OF FOUNDATION WALL OR CONCRETE PIER TO ALLOW FOR NON-SHRINK GROUT UNLESS NOTED OTHERWISE.
3. WHERE COLUMN IS NOT FITTED WITH AT LEAST 4 ANCHOR BOLTS, FOR ERECTION SAFETY REQUIREMENT, SPECIAL PRECAUTIONS SHALL BE TAKEN BY THE CONTRACTOR.
4. CONNECT BOTTOM OF COLUMN TO TOP OF STEEL BEAM, FIELD WELD WHERE REQUIRED.
5. WELD COLUMN TO BASE PLATE ALL AROUND USING CONTINUOUS MINIMUM WELD SIZE 4mm FILET WELD.
6. WELD NOT NOTED OTHERWISE.
7. ALL HOLLOW SECTION STEEL (HSS) TO HAVE END ENCLOSURE PLATE U.N.O.
8. WELD COLUMNS EXPOSED TO WEATHER OR IN CONTACT WITH GROUND TO BE HOT DIPPED GALVANIZED (H.D.G.).

[illegible]

NOTES:

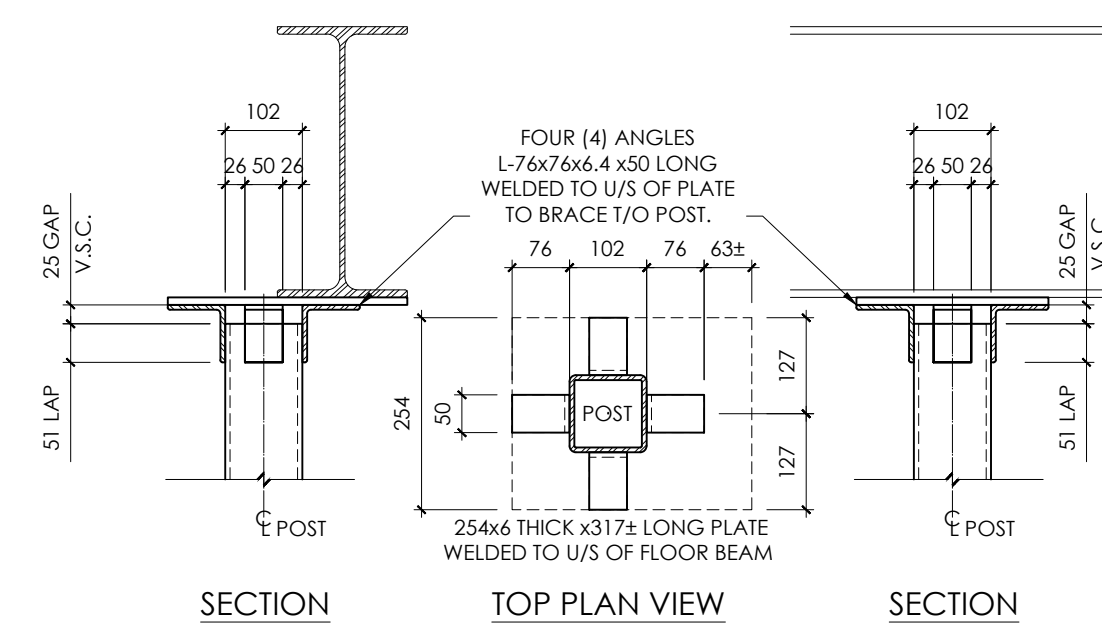
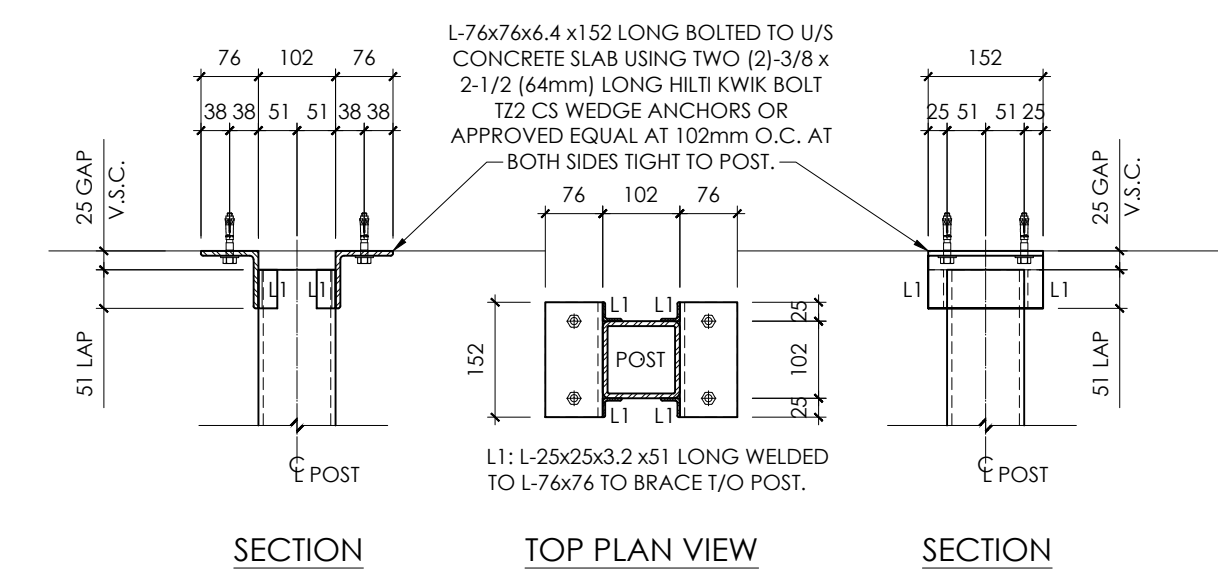
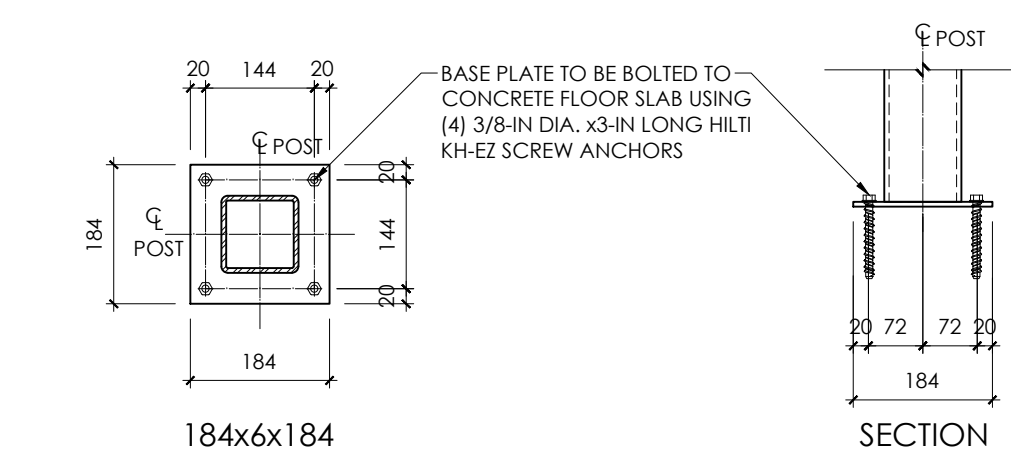
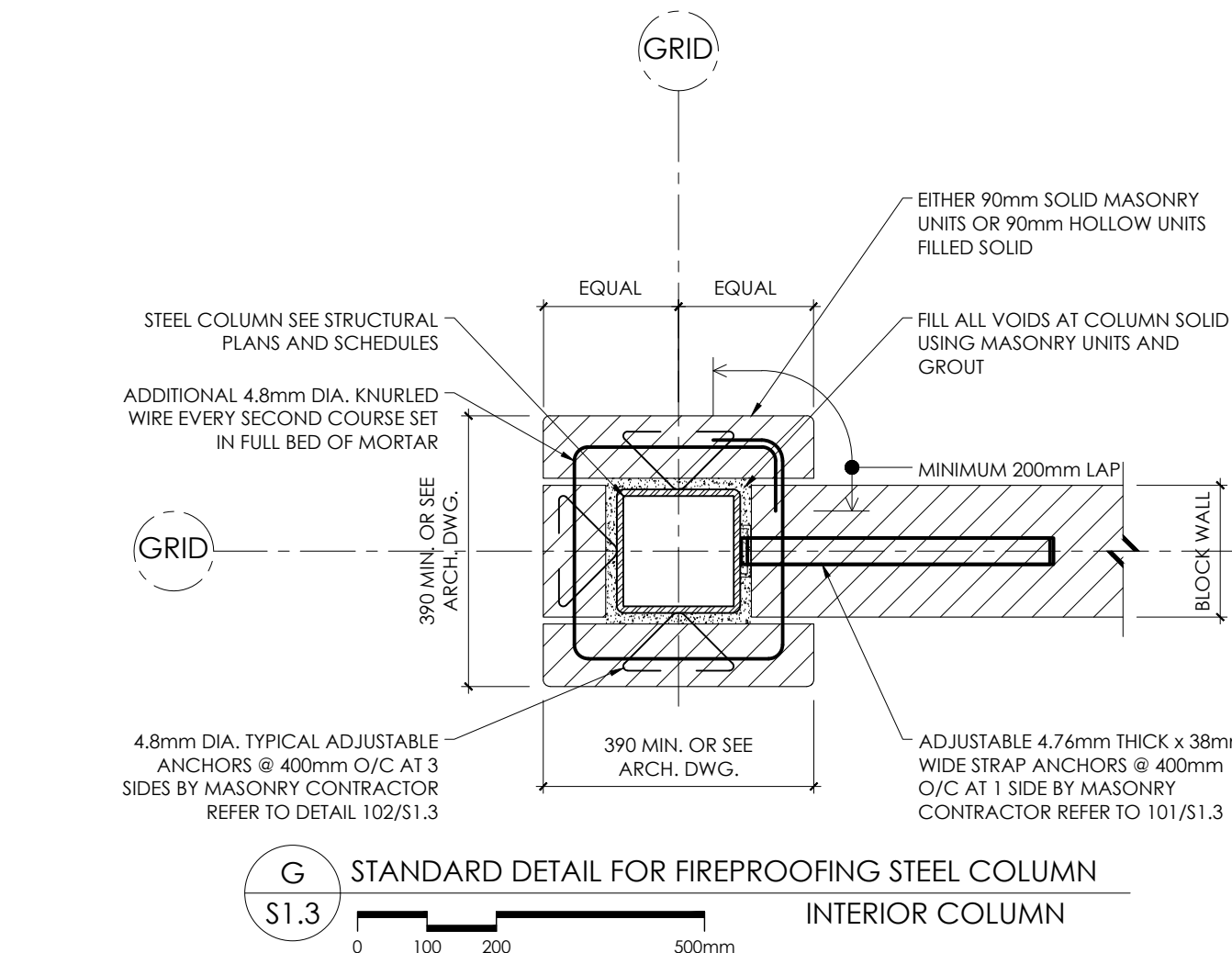
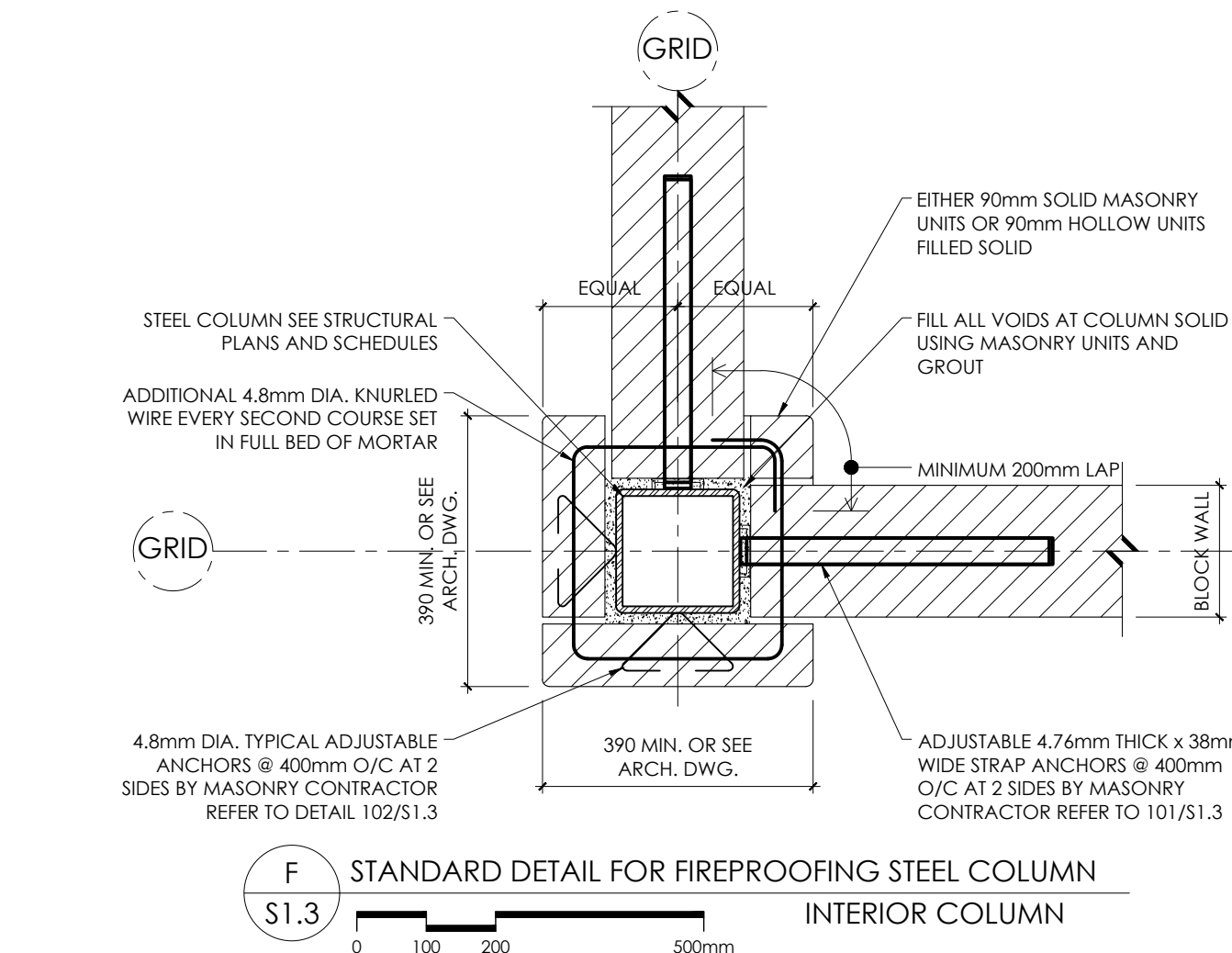
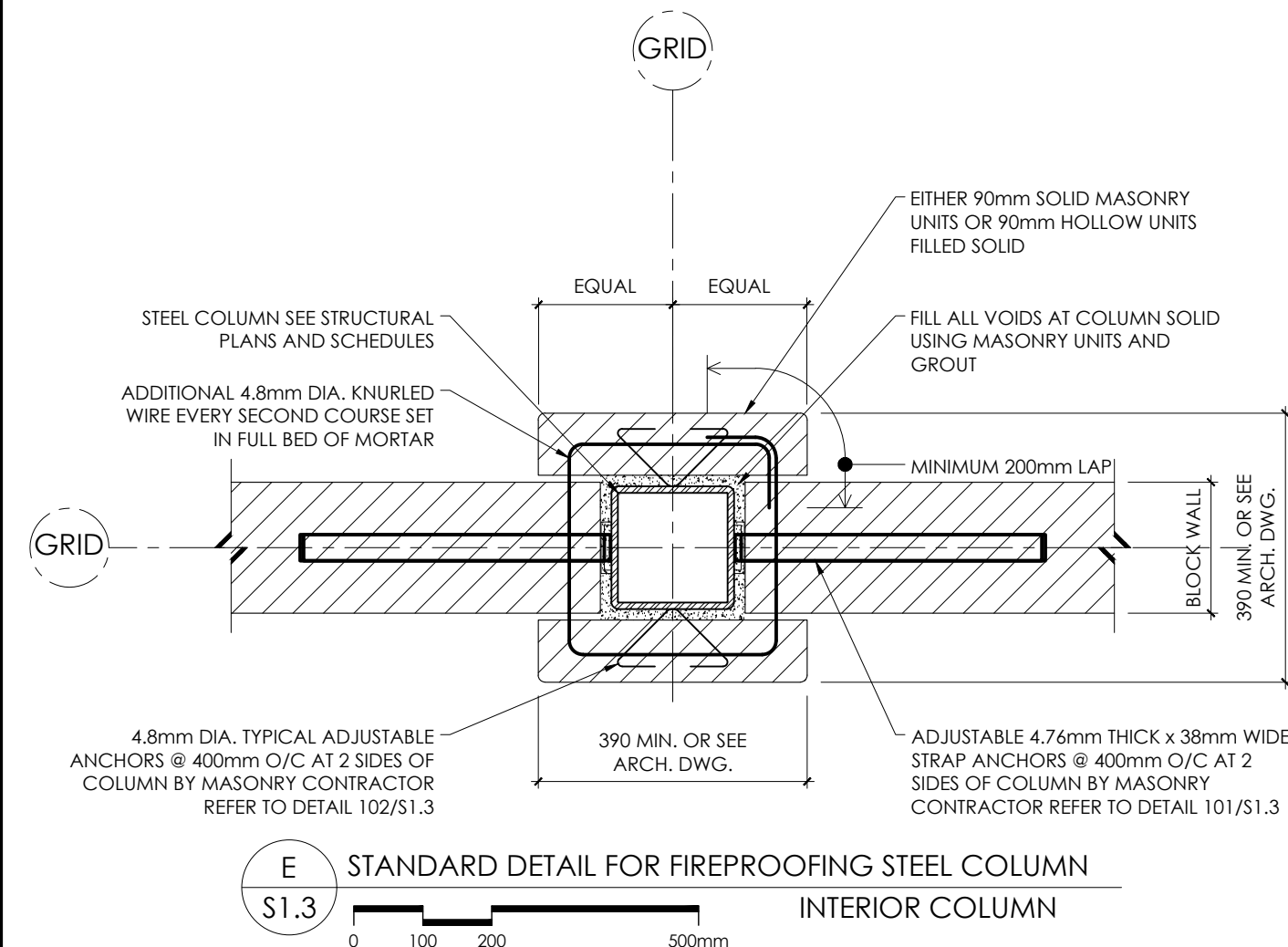
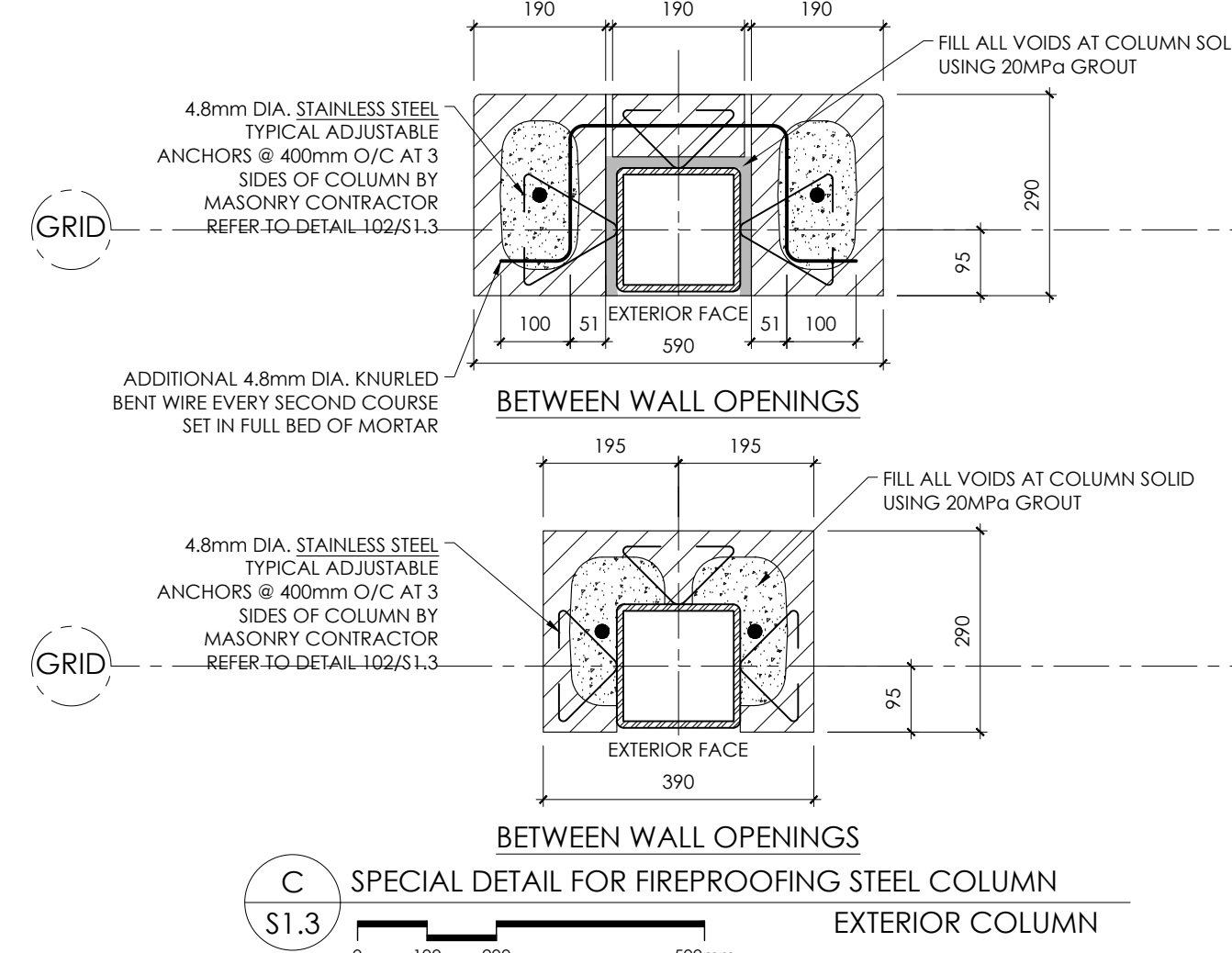
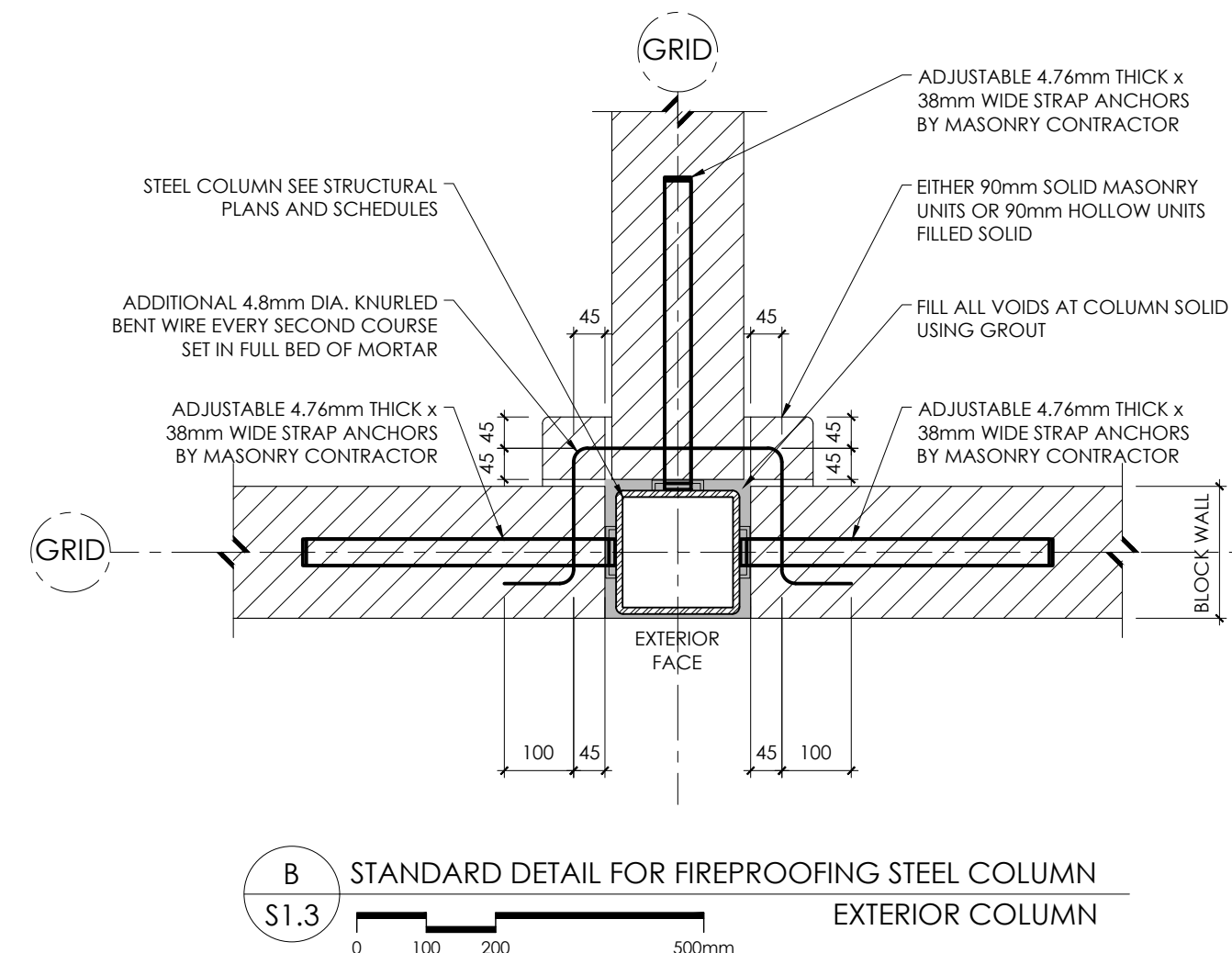
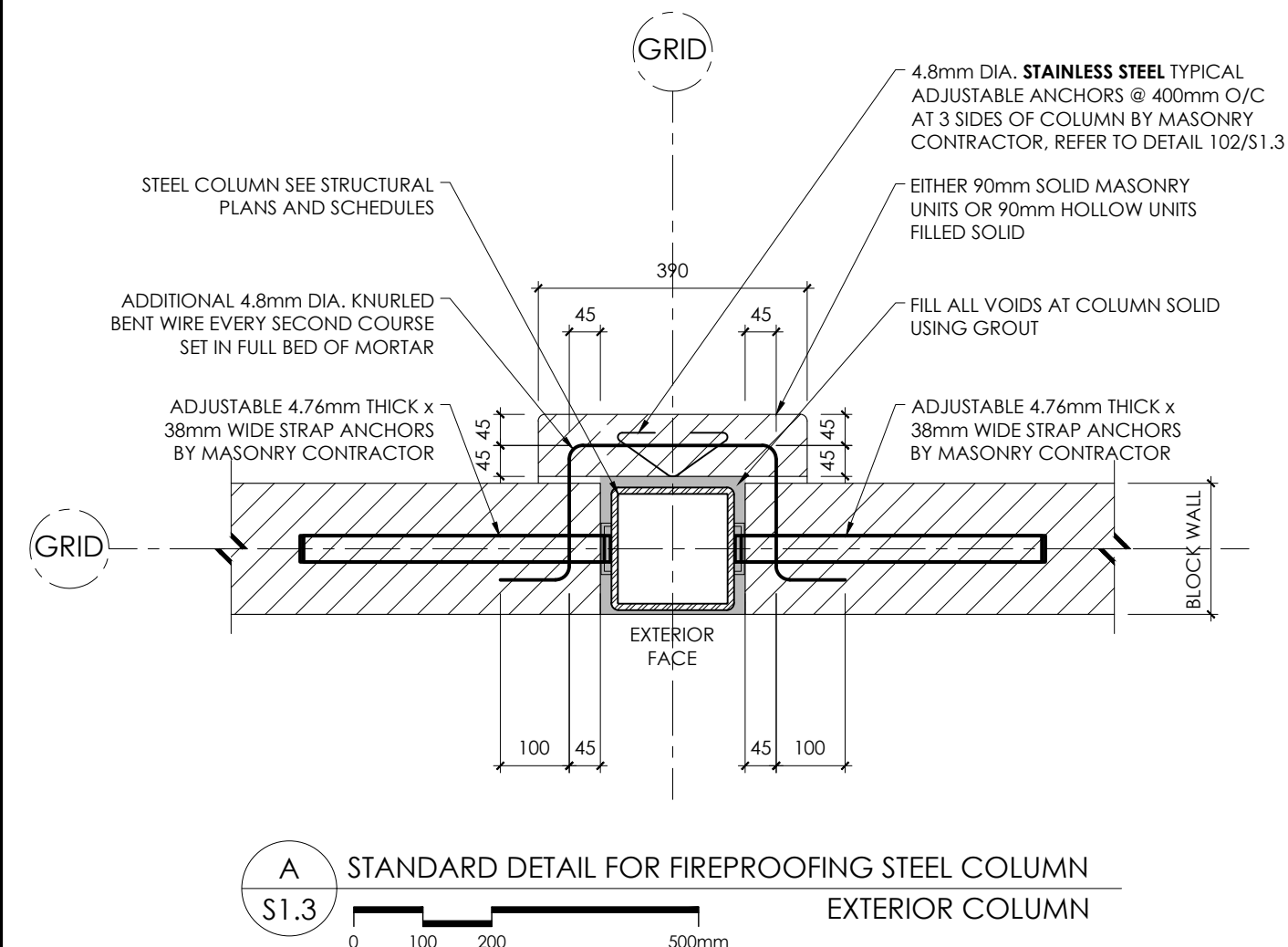
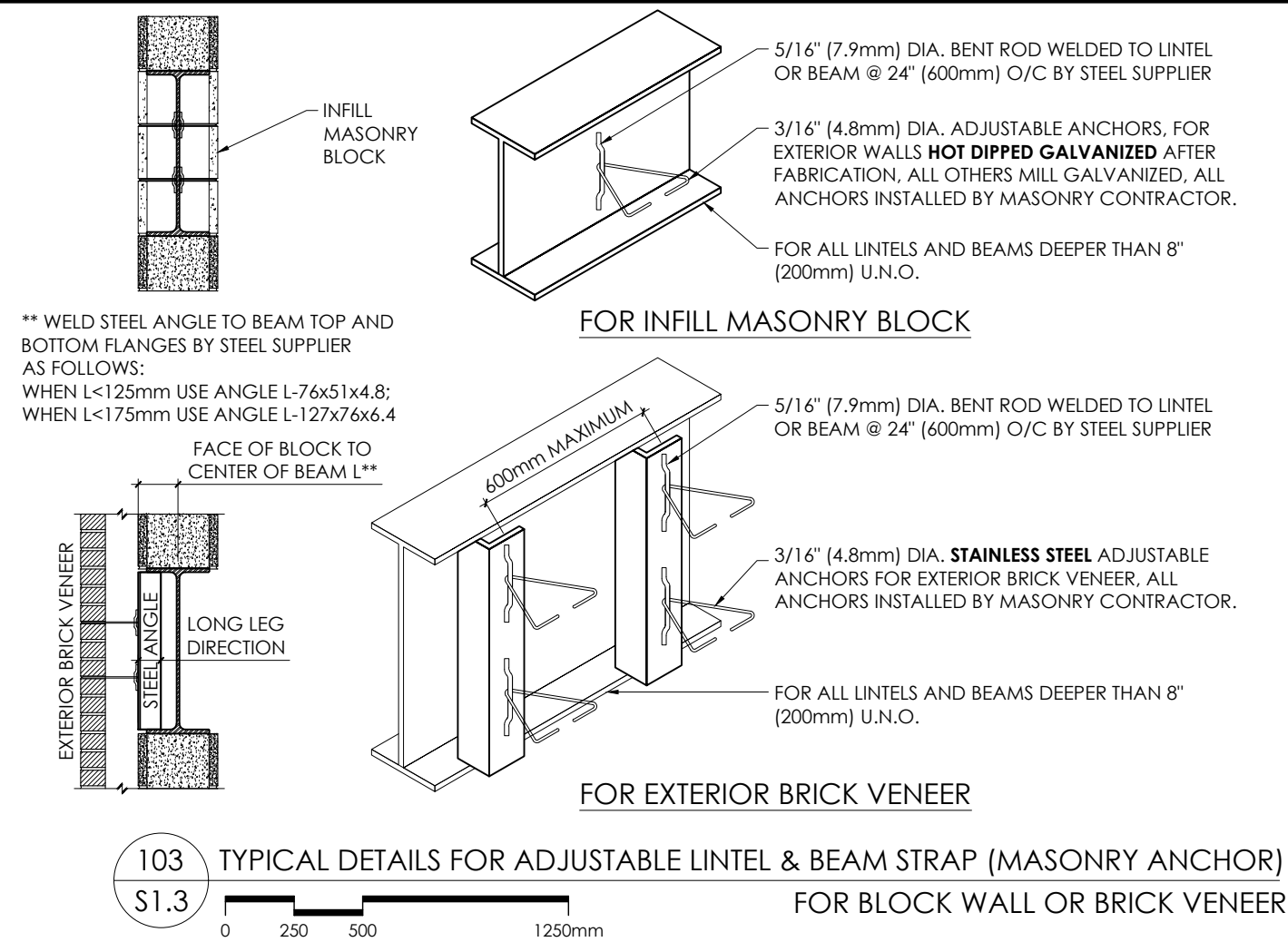
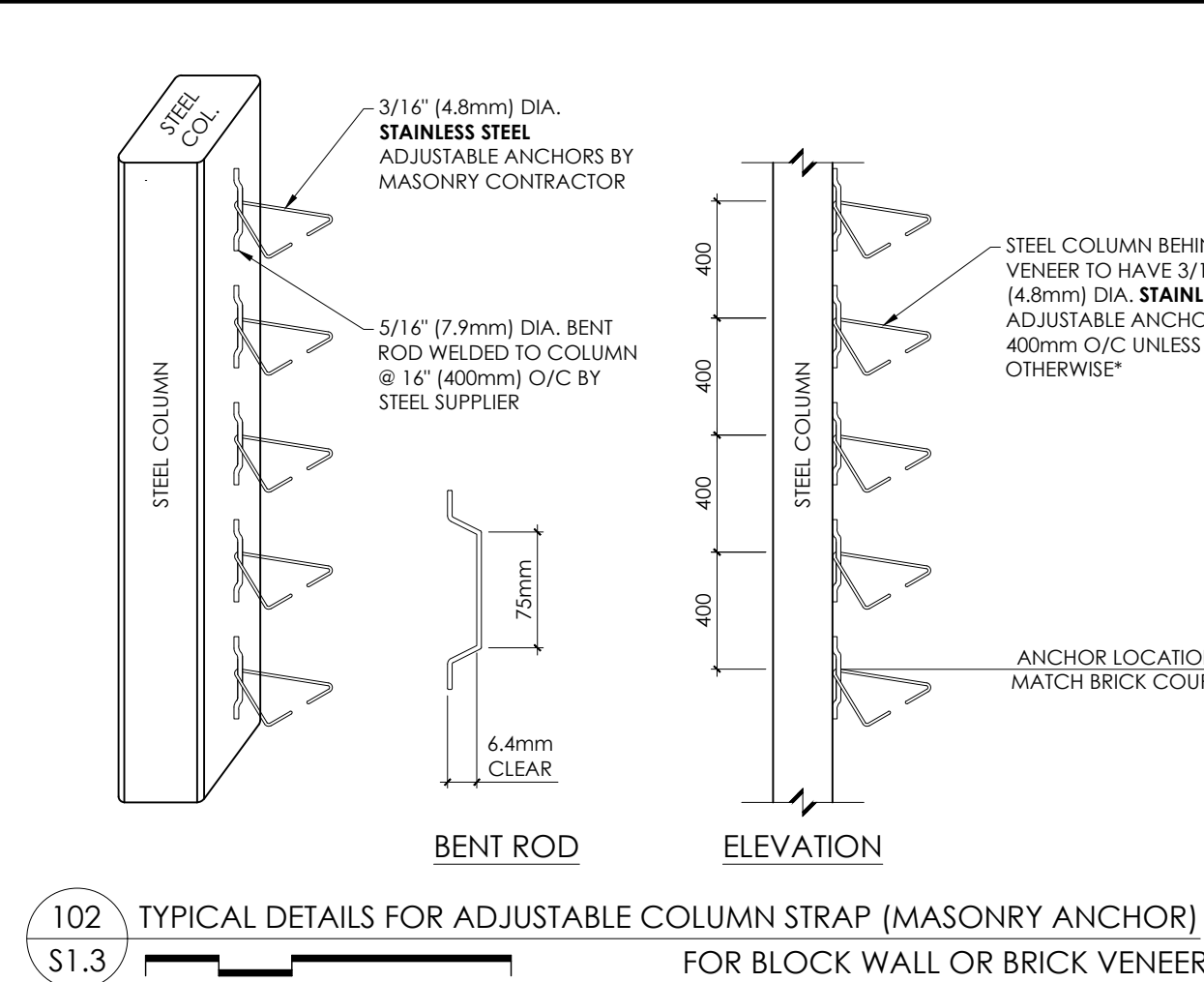
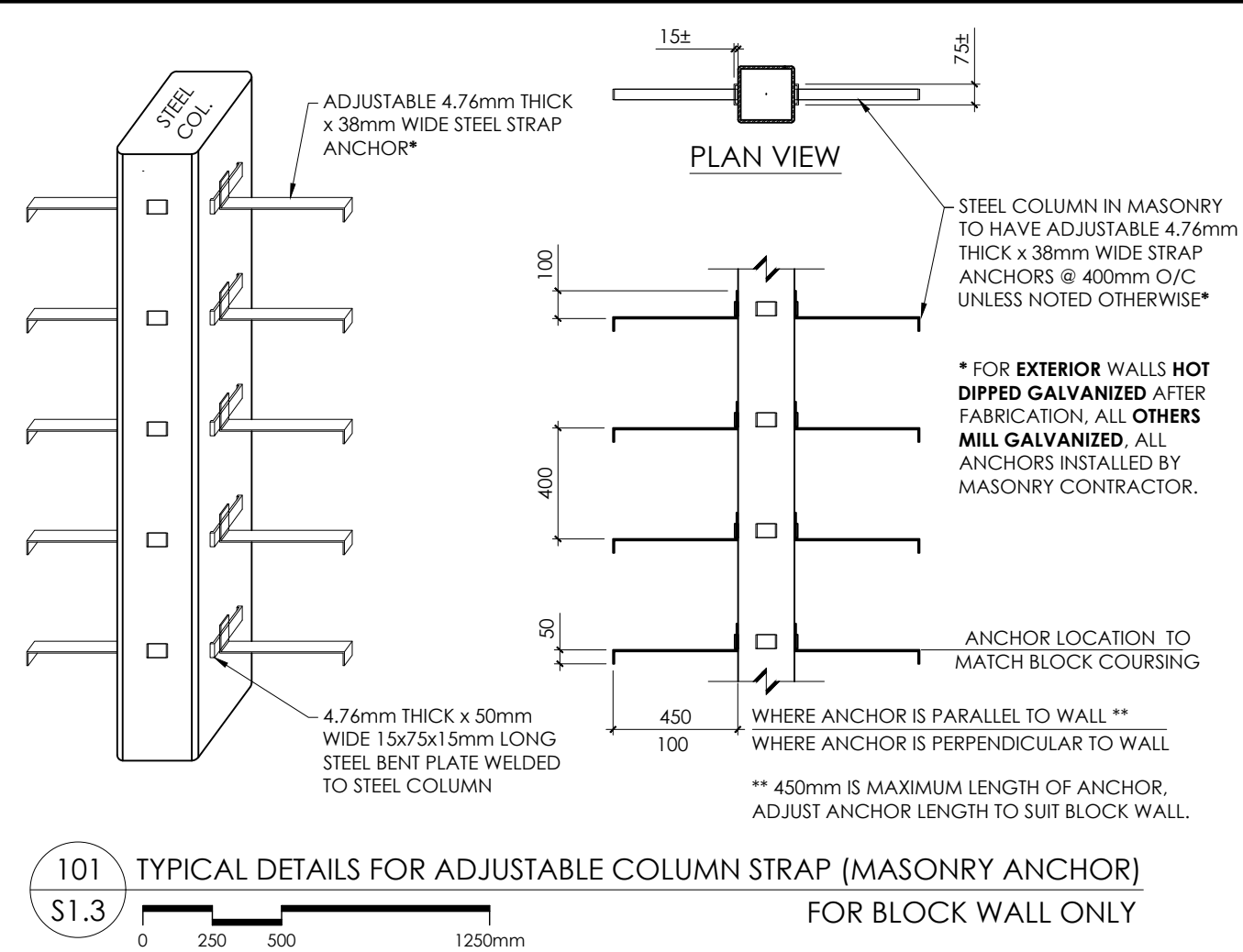
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PROJECT:
22539
HANOVER POLICE STATION

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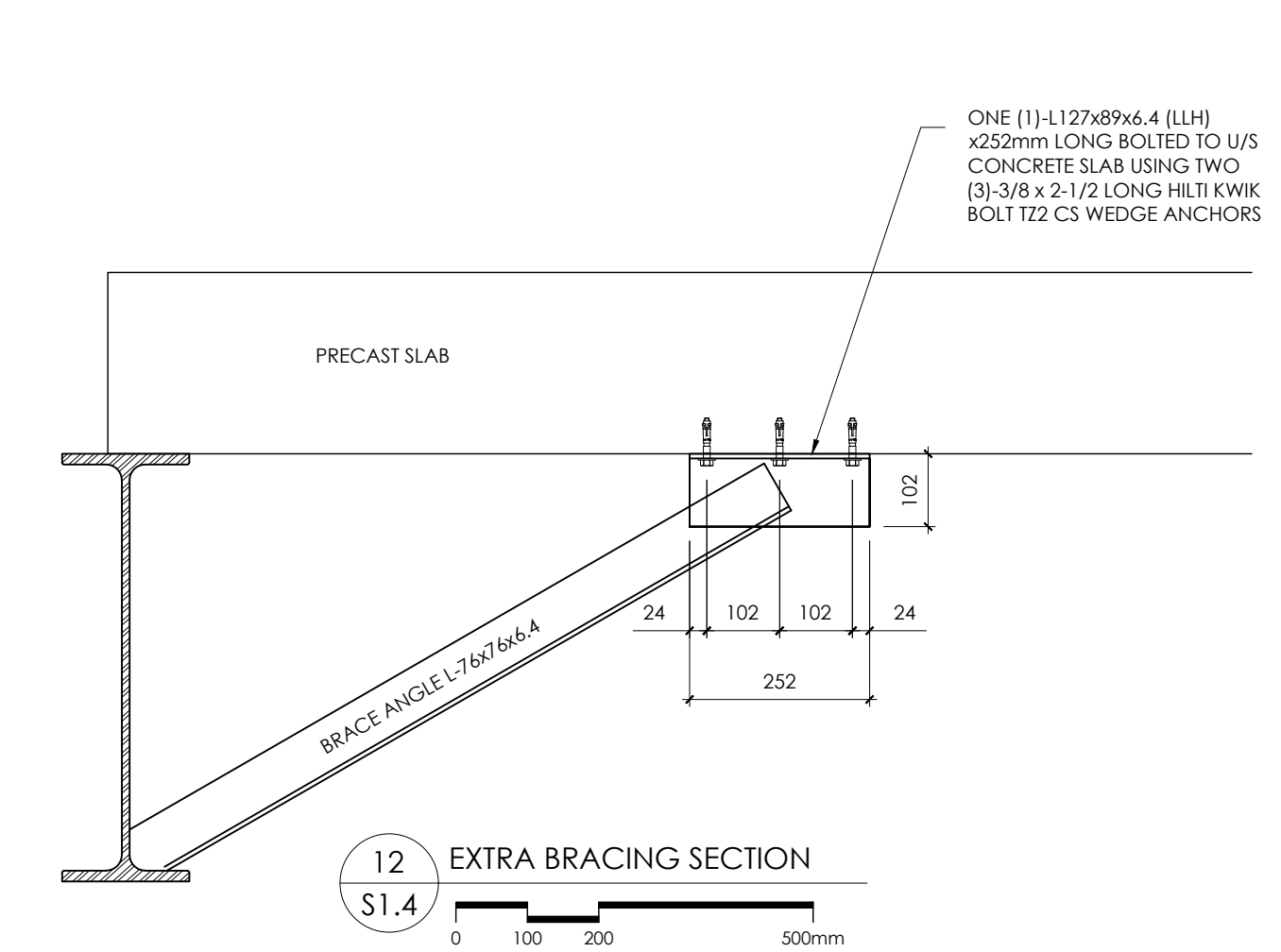
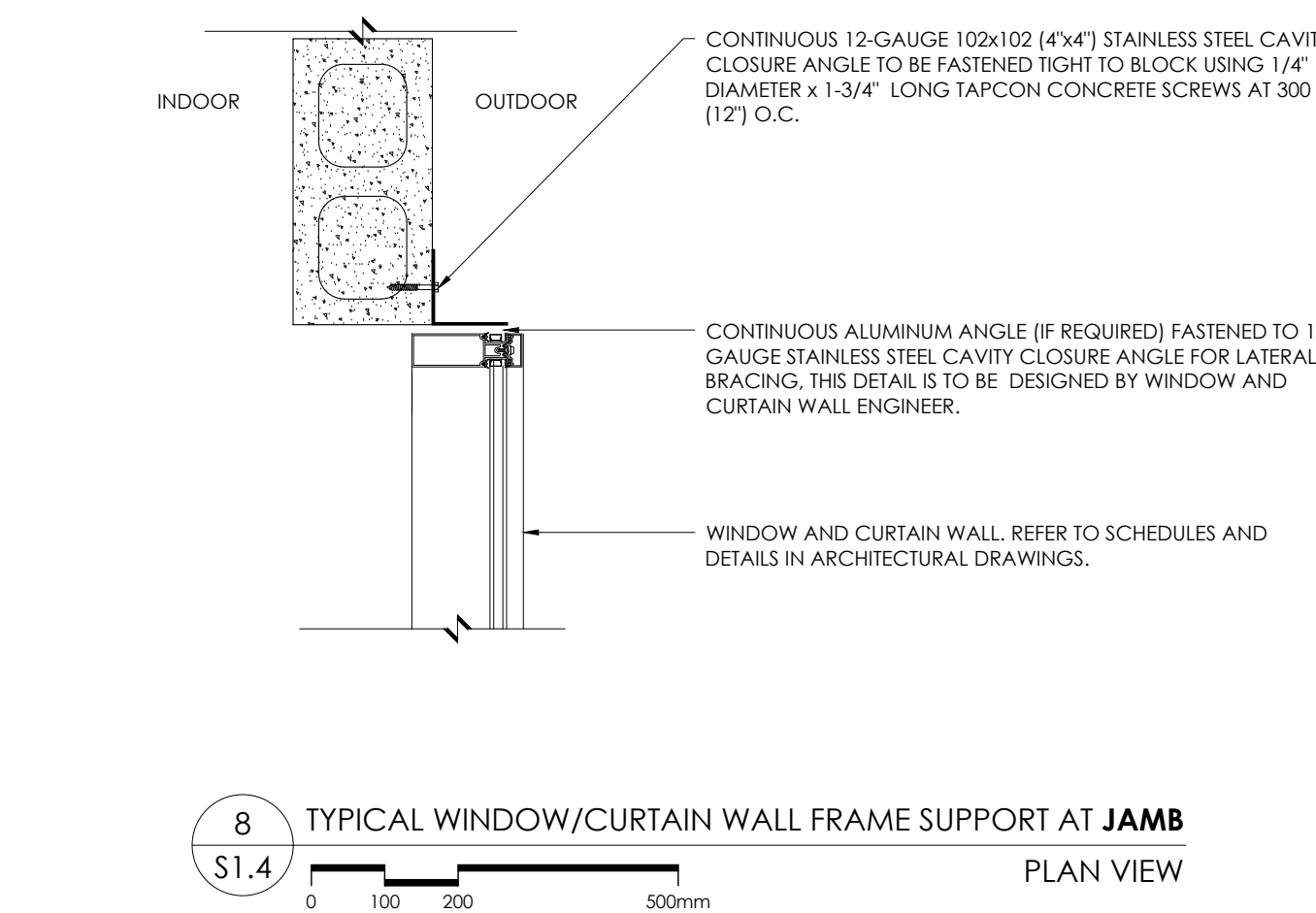
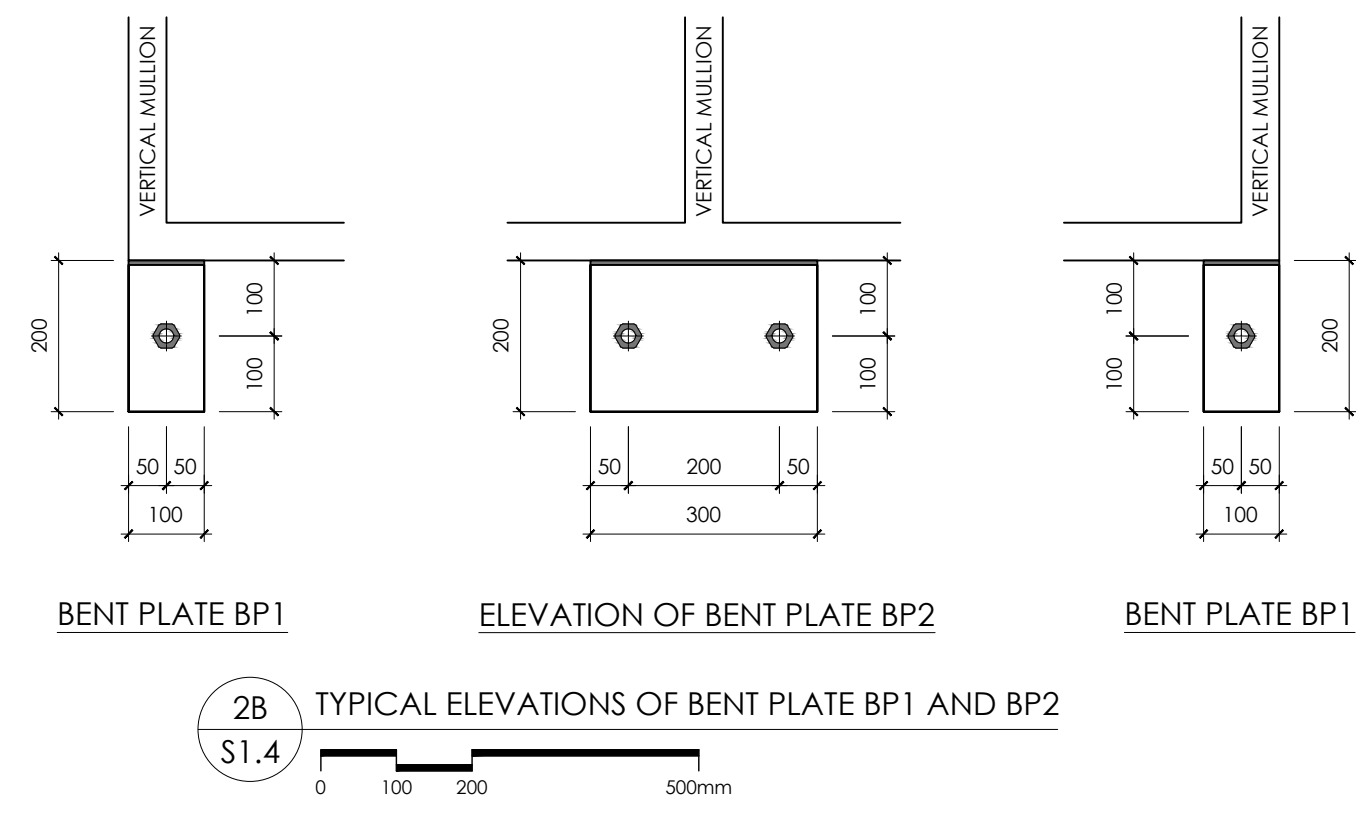
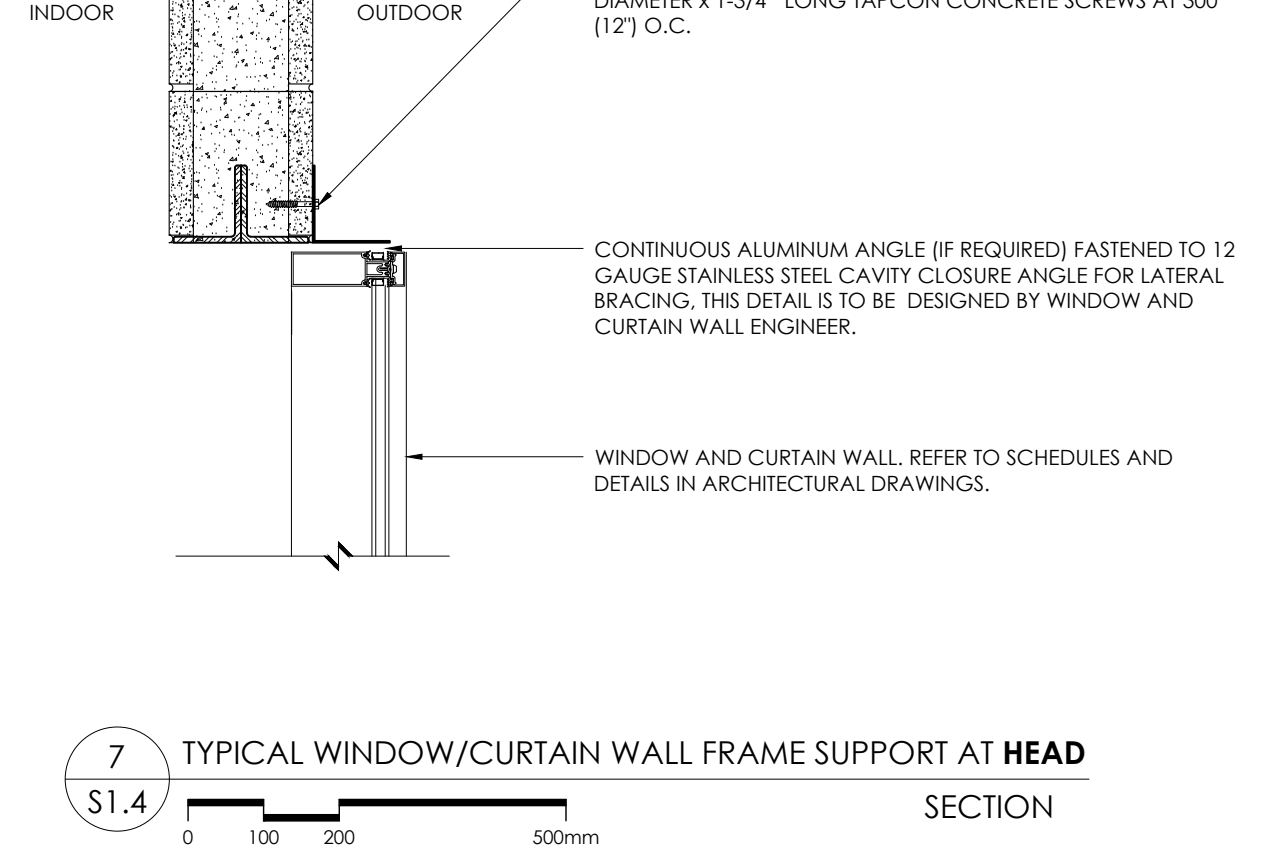
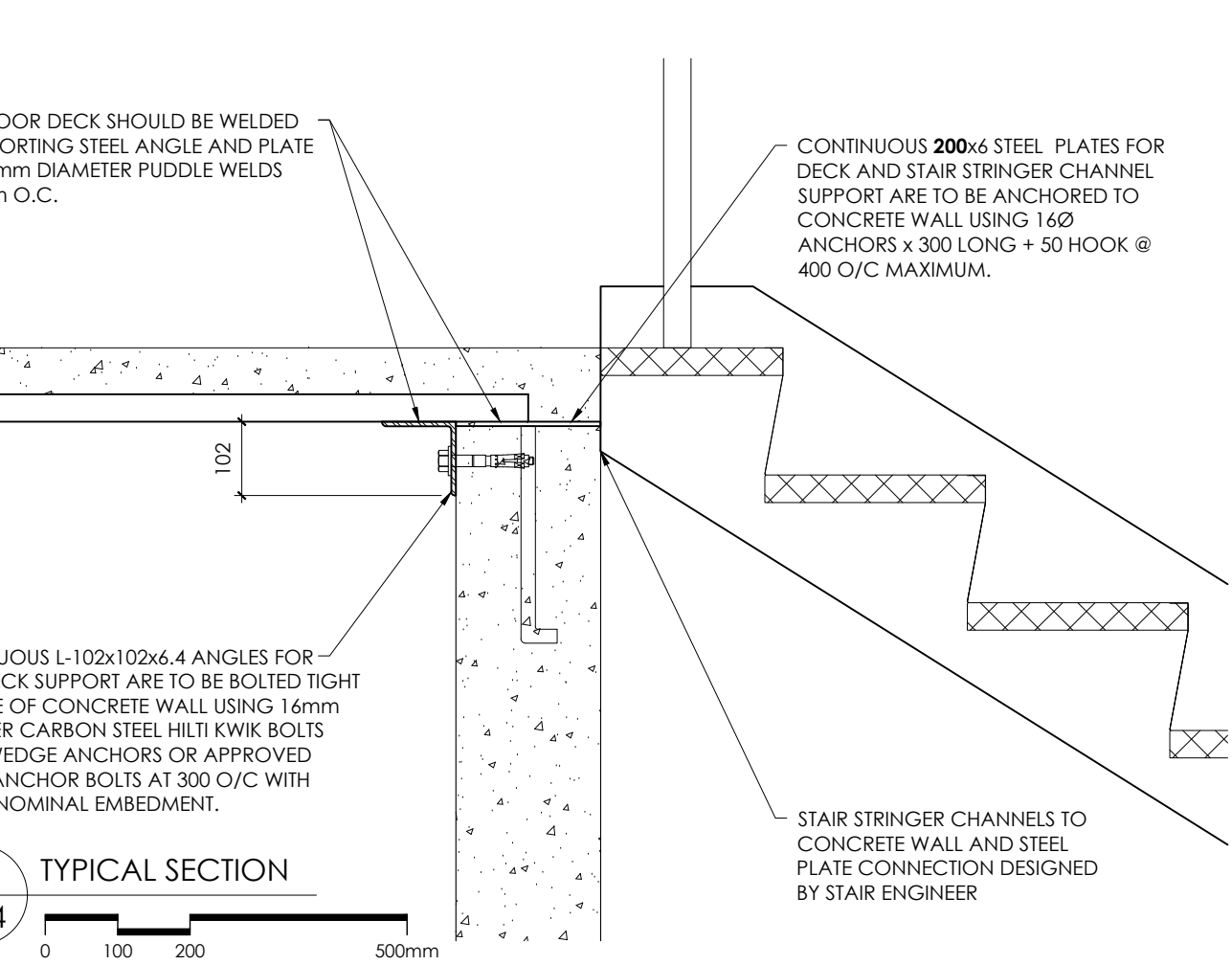
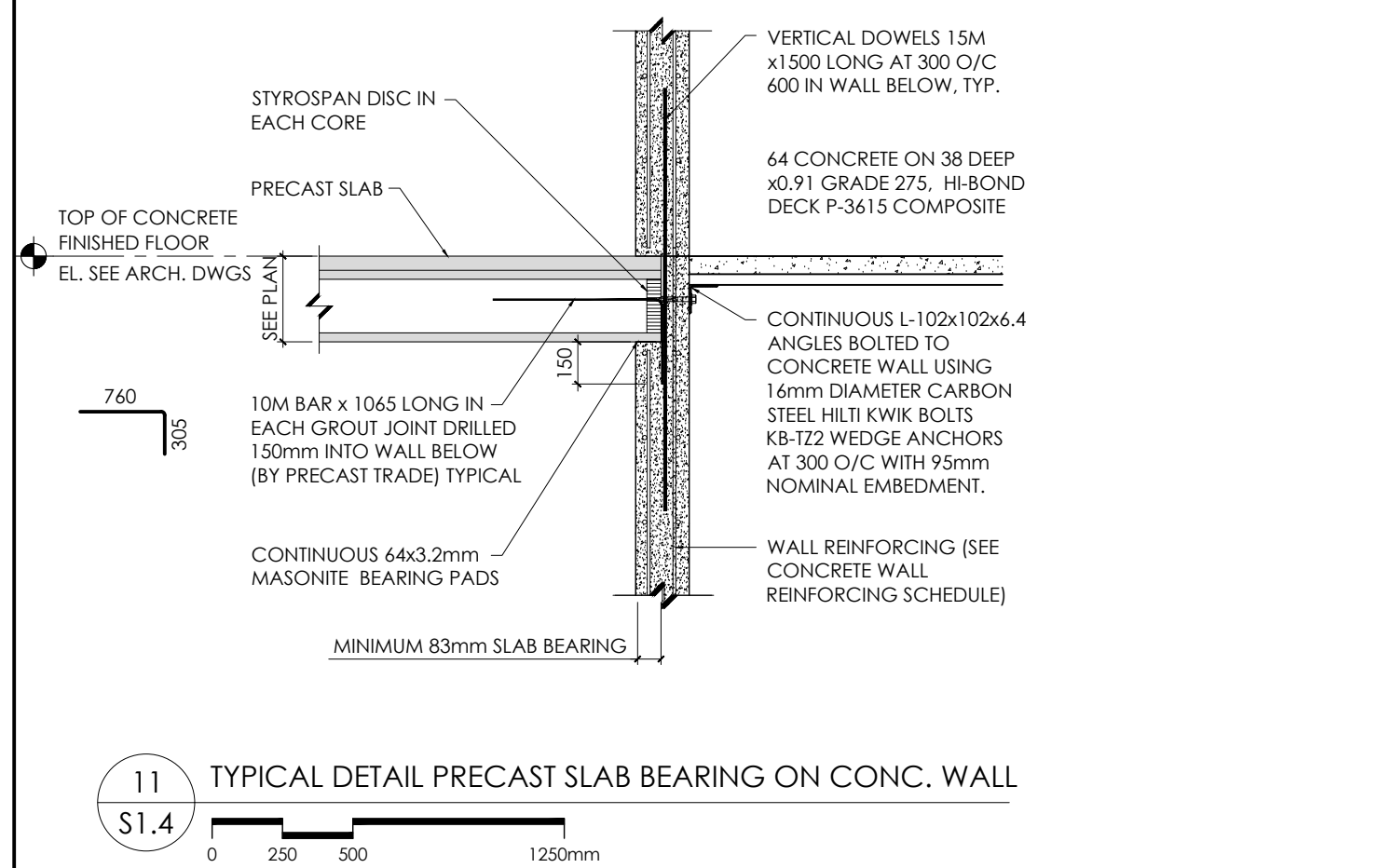
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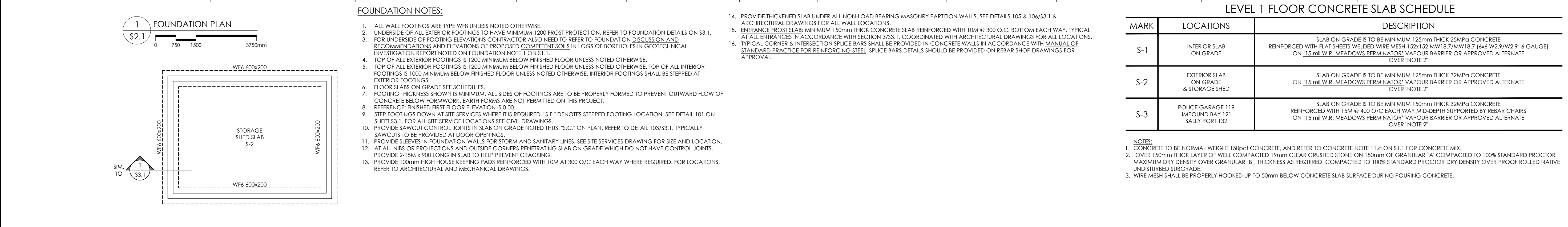
S1.4

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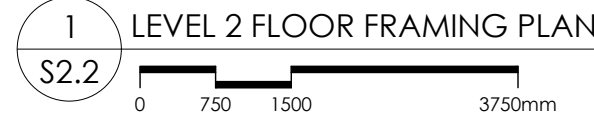
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NOTES:

1. CONCRETE TO BE NORMAL WEIGHT 150pcf CONCRETE, AND REFER TO CONCRETE NOTE 11.c. ON S.I. FOR CONCRETE MIX.

2. OVER 150mm THICK LAYER OF WELL COMPACTED 19mm CLEAR CRUSHED STONE OR 150mm OF GRANULAR "A" COMPACTED TO 100% STANDARD PROCTOR MAXIMUM DRY DENSITY OVER GRANULAR "B" THICKNESS AS REQUIRED, COMPACTED TO 100% STANDARD PROCTOR DRY DENSITY OVER PROOF ROLLED NATIVE UNDISTURBED SUBGRADE.

3. WIRE MESH SHALL BE PROPERLY HOOKED UP TO 50mm BELOW CONCRETE SLAB SURFACE DURING POURING CONCRETE.



1. DESIGN LOADS (ALL LOADS ARE UN-FACTORED) USE LOAD TABLE.
2. PROVIDE BEARING PLATE @22" AT ALL FLOOR BEAM BEARING LOCATIONS UNLESS NOTED OTHERWISE. SEE BEARING PLATE SCHEDULE.
3. FLOOR FRAMING SHALL BE 15" DEEP MINIMUM. PROVIDE 1" DIAMETER STEEL RODS 300 LONG - 50 HOOK.
4. WHERE BEAMS SUPPORT MASONRY ABOVE PROVIDE 15" HIGH x 20" LONG WELDBOLTS AT 600 OC TO TOP FLOORING FOR BLOCK.
5. PROVIDE 2-1/4" AT EACH FACE OF OPENING FULL HEIGHT PAST END OF LINTEL BEARING FROM FLOOR TO ROOF FOR ALL OPENINGS.
6. PROVIDE 1" DIAMETER STEEL RODS 300 LONG TO FLOOR ABOVE EACH BLOCK WALL. PROVIDE 1" DIAMETER STEEL RODS 300 LONG TO ROOF ABOVE EACH BLOCK WALL.
7. WHERE BLOCK WALL IS REINFORCED WITH 15M VERTICALS, GROUT CORES SOLD WITH 20MGP GROUT. USE THESE VERTICALS TO BE 15" ON CENTER.
8. PROVIDE CONTINUOUS BLOCK BEAM C/W 2-1/4" 15M CONTINUOUS AT TOP OF BLOCK WALL.
9. PROVIDE ADJUSTABLE STRAPS FOR MASONRY ANCHORS TO SIDE OF BEAM @ 400 OC FOR LINTELS OR BEAMS DEEPER THAN 18". PROVIDE ADJUSTABLE STRAPS FOR MASONRY ANCHORS TO TOP OF BEAM @ 400 OC. SEE DETAIL 1028.13.
10. PROVIDE 1" DIAMETER STEEL RODS 300 LONG TO TOP OF BEAM ABOVE EACH BLOCK WALL.
11. STAIR FLOOR AND LANDING DECK SUPPORT ANCHOR: CONTINUOUS 1-1024-1024-6 ANGLE DECK SUPPORT TO BE BOLTED TO CONCRETE WALL USING 1/4" DIAMETER CARBON STEEL HILTI KWIK BOLTS 9-12Z WEDGE ANCHORS OR APPROVED EQUAL H-BOND DECK REINFORCED WITH 152x152-MW18/17-MW18/17 PLATE SHEETS.
12. STAIR FLOOR AND LANDING DECK SUPPORT ANCHOR: CONTINUOUS 1-1024-1024-6 ANGLE DECK SUPPORT TO BE BOLTED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA TO AN ANGLE MASONRY FABRICATOR. SHOP DRAWINGS TO BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. STAIR STRINGER FLOOR WIDTH IS TO BE 64" MINIMUM.

REFER TO DETAIL 2/S1.4 FOR
CURTAIN WALL FRAME
SUPPORT AT SILL, TYPICAL.

CD1
 REINFORCING BARS SHALL BE EPOXY COATED (EPOXYED) AND SHALL BE 12mm (1/2") THICKNESS. 102mm
 REINFORCE SLAB USING WELDED MESH (MESH SIZE: M18x18 / (MM)18" (6x6 W/2.5" & 9 GAUGE) LATH SHEETS. WIRE MESH
 SHALL BE PROPERLY HOOKED UP TO 40mm (1 1/2") CONCRETE SLAB SURFACE DURING POURING CONCRETE. TYPICAL
 DETAIL NOTED OTHERWISE.
 WELDED MESH SHALL BE PLATE 50% (HORIZONTAL) X SLAB (VERTICAL H=OVERALL SLAB THICKNESS) TO TOP OF
 FLOOR BEAMS AS CONCRETE ENCLOSURE ALONG ALL EDGES OF FLOOR SLABS & ALL FACES OF FLOOR OPENINGS. ~~OR~~
 WELDED MESH SHALL BE PLATE 50% (HORIZONTAL) X SLAB (VERTICAL H=OVERALL SLAB THICKNESS) TO TOP OF
 STEPS OF SUFFICIENT STRENGTH TO REMAIN STATIONARY WITHOUT DISTURBANCE DURING CONCRETE POURS. TYPICAL
 UNLESS OTHERWISE NOTED.

FASTEN DETAIL TO ALL SUPPORTING STEEL USING 19mm DIAMETER PULLED WELDS OR APPROVED ELEV. FASTENER AT 150mm
 C/C. SIDE LAPS OF ADJACENT DECK SHALL BE MECHANICALLY FASTENED WITH BUTION PUNCH AT 600mm O/C.

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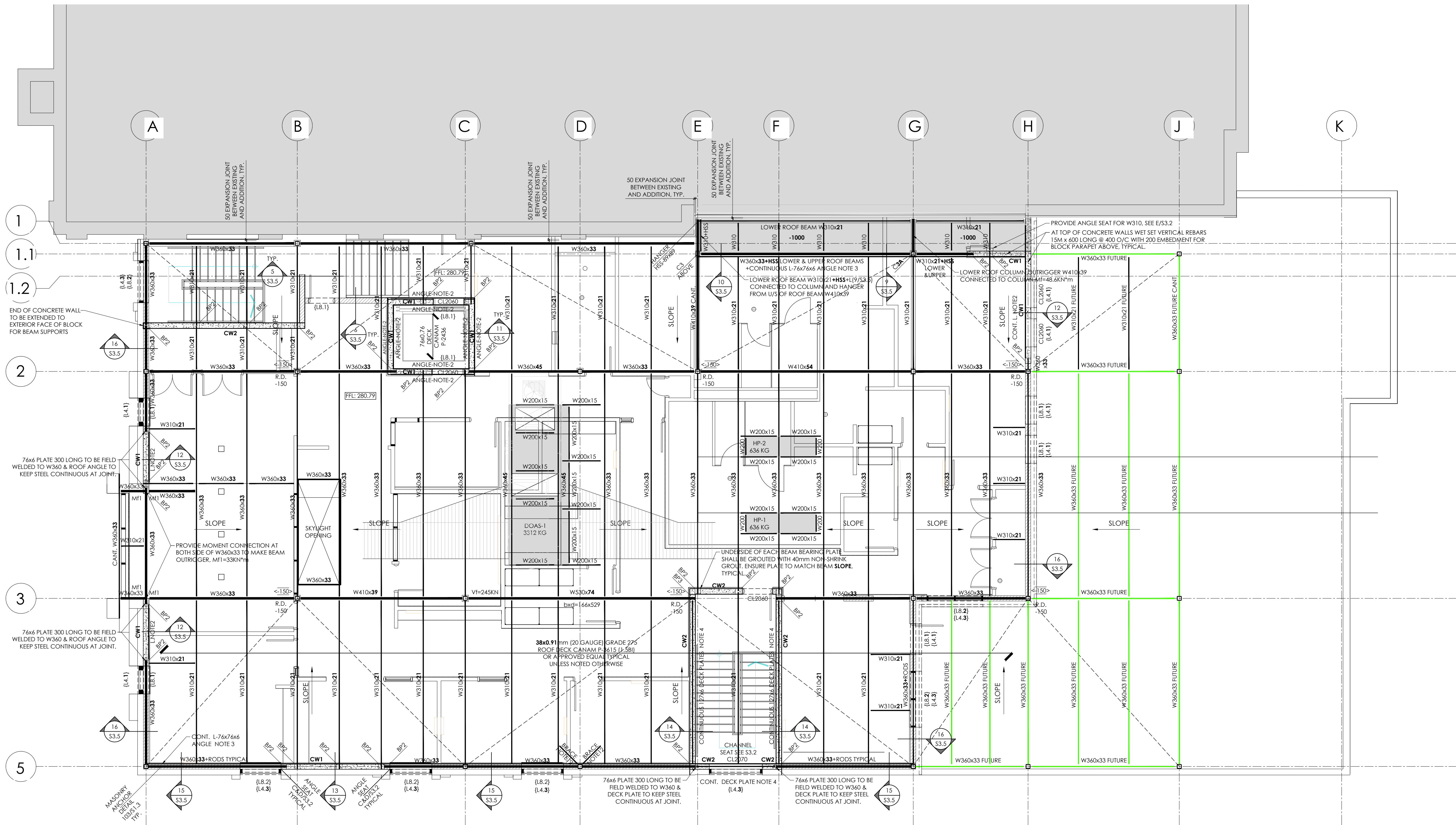
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ROOF FRAMING NOTES:

- DESIGN LOADS: (ALL LOADS ARE UNFACTORED LOADS) SEE LOAD TABLE.
- CONTINUOUS L-102x102x6.4 ANGLES FOR STEEL DECK SUPPORT ARE TO BE BOLTED TO CONCRETE/MASONRY BLOCK WALL USING 16mm DIAMETER CARBON STEEL HILTI KWIK BOLTS K8-T22 WEDGE ANCHORS OR APPROVED EQUAL ANCHOR BOLTS AT 400 O/C WITH 108mm NOMINAL EMBEDMENT. FILL BLOCK SOLID WITH 20MPa GROUT FULL LENGTH AT ANGLE LOCATIONS.
- CONTINUOUS L-76x76x6.4 ANGLES FOR ROOF DIAPHRAGM, WELD ANGLE TO TOP OF BEAM THEN WELD STEEL DECK TO ANGLE.
- CONTINUOUS 127x6 DECK PLATES FOR DECK SUPPORT ARE TO BE ANCHORED TO WALL USING 160 ANCHORS x 300 LONG + 50 HOOK @ 600 O/C MAXIMUM. TOP OF WALL TO SUIT ROOF SLOPES WHERE REQUIRED.
- PROVIDE BEARING PLATE B/P2 AT ALL ROOF BEAM BEARING LOCATIONS UNLESS NOTED OTHERWISE. REFER TO SHEET S4.1 FOR BEARING PLATE SCHEDULE. ALL ROOF FRAMING BEARING PLATES TO BE PROVIDED WITH 2-160 ANCHORS x 450 LONG + 50 HOOK.
- WHERE BEAMS SUPPORT MASONRY ABOVE PROVIDE 15M x 350 LONG WELDABLE RODS AT 600 O/C TO TOP FLANGE FOR BLOCK.
- WHERE WALL BETWEEN OPENINGS IS 600 OR LESS, PROVIDE 3-15M VERTICAL GROUT WALL SOLID FULL HEIGHT.
- PROVIDE 2-15M AT EACH FACE OF OPENING FULL HEIGHT BEARING FROM FLOOR TO ROOF FOR ALL EXTERIOR & INTERIOR OPENINGS. GROUT SOLID WITH 20MPa GROUT. DOWEL TO FOUNDATION WALL.
- PROVIDE CONTINUOUS BOND BEAM AT TOP OF ALL MASONRY BLOCK WALLS C/W 2-15M CONT. & GROUTED SOLID.
- INTELS FOR MECHANICAL OPENINGS MAY NOT BE SHOWN ON STRUCTURAL DRAWINGS. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS AND PROVIDE INTELS IN ACCORDANCE WITH MISCELLANEOUS INTEL SCHEDULE FOR MECHANICAL OPENINGS.
- GENERAL CONTRACTOR PLEASE CO-ORDINATE LOCATION OF MECHANICAL OPENINGS IN WALLS SO THAT THEY DO NOT OCCUR DIRECTLY BELOW BEAM BEARING LOCATIONS. IF OTHERWISE, NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF BLOCK.
- TOP OF COLUMNS WHICH ARE NOT BRACED BY BEAMS SHALL BE BRACED DIAGONALLY TO THE ROOF BY A MINIMUM OF 4-L76x76x6.4 ANGLES. BRACING SHALL BE BETWEEN TOP OF COLUMN AND TOP FLANGE OF BEAMS.

REVISIONS

NO.	DATE	PARTICULAR
1	2026.08.07	ISSUED FOR FINAL REVIEW
2	2026.08.13	ISSUED FOR TENDER
3		

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HANOVER POLICE STATION

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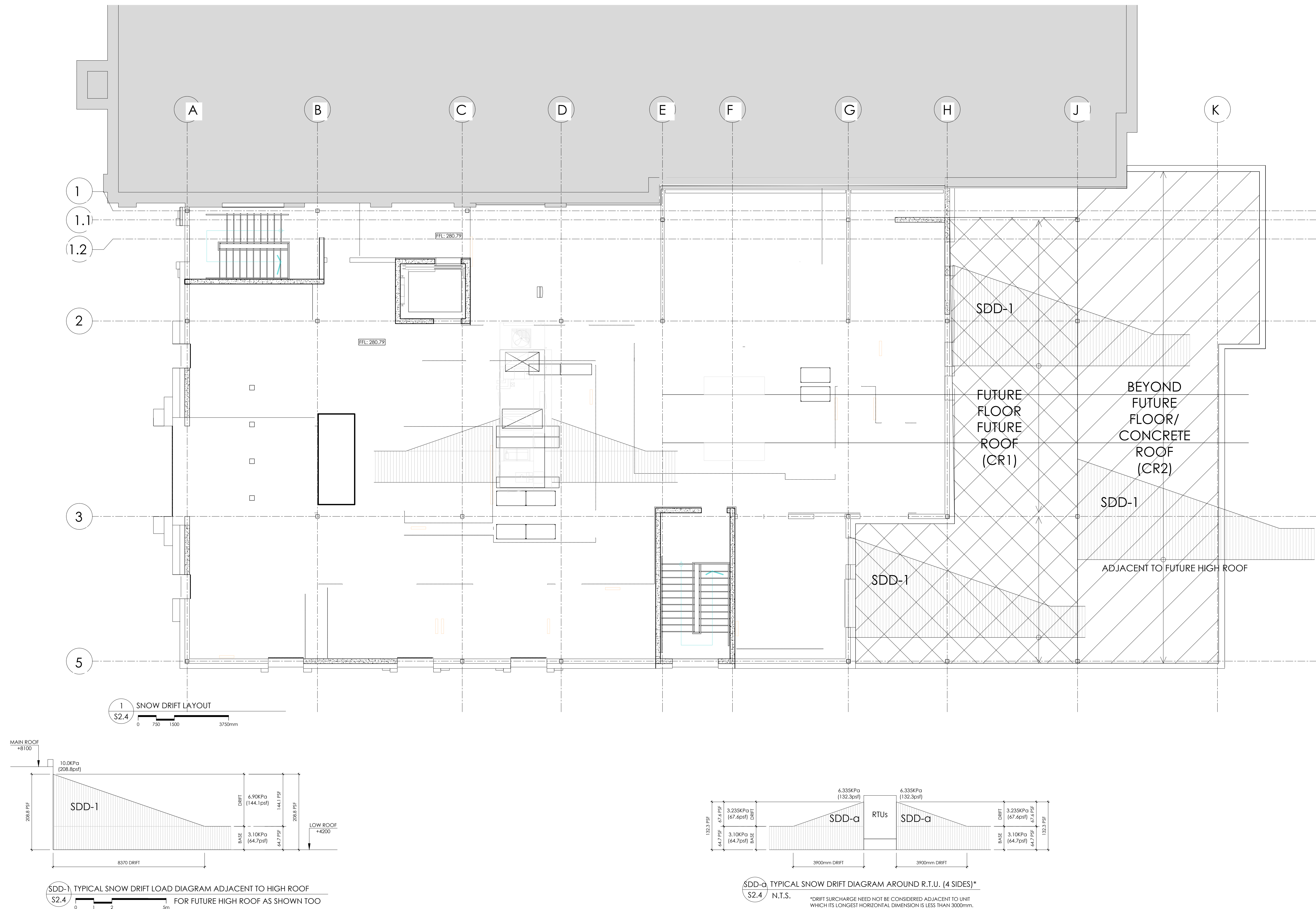
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ROOF FRAMING PLAN

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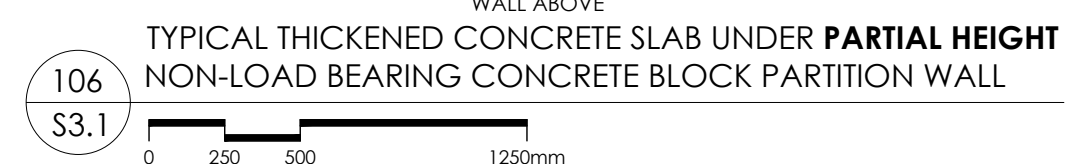
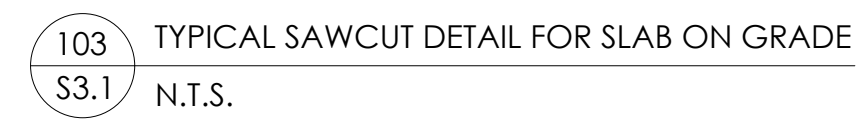
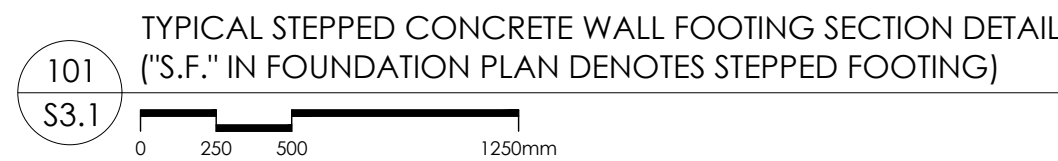
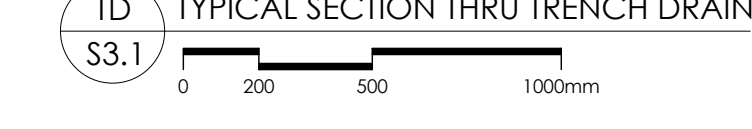
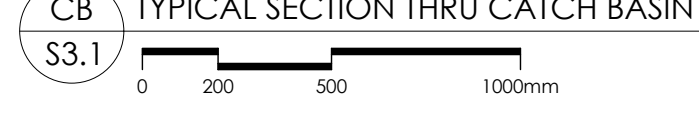
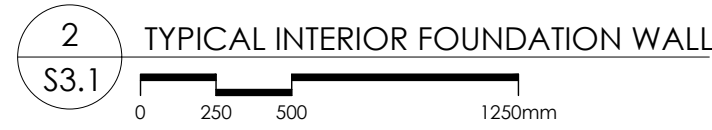
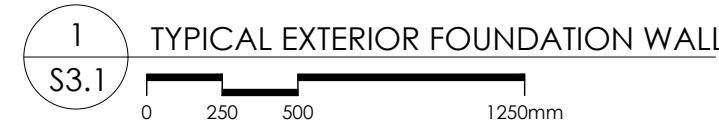
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SNOW DRIFT DIAGRAMS

S2.4

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Plot Date: Aug 13, 2026 - 1:13pm By: mlin

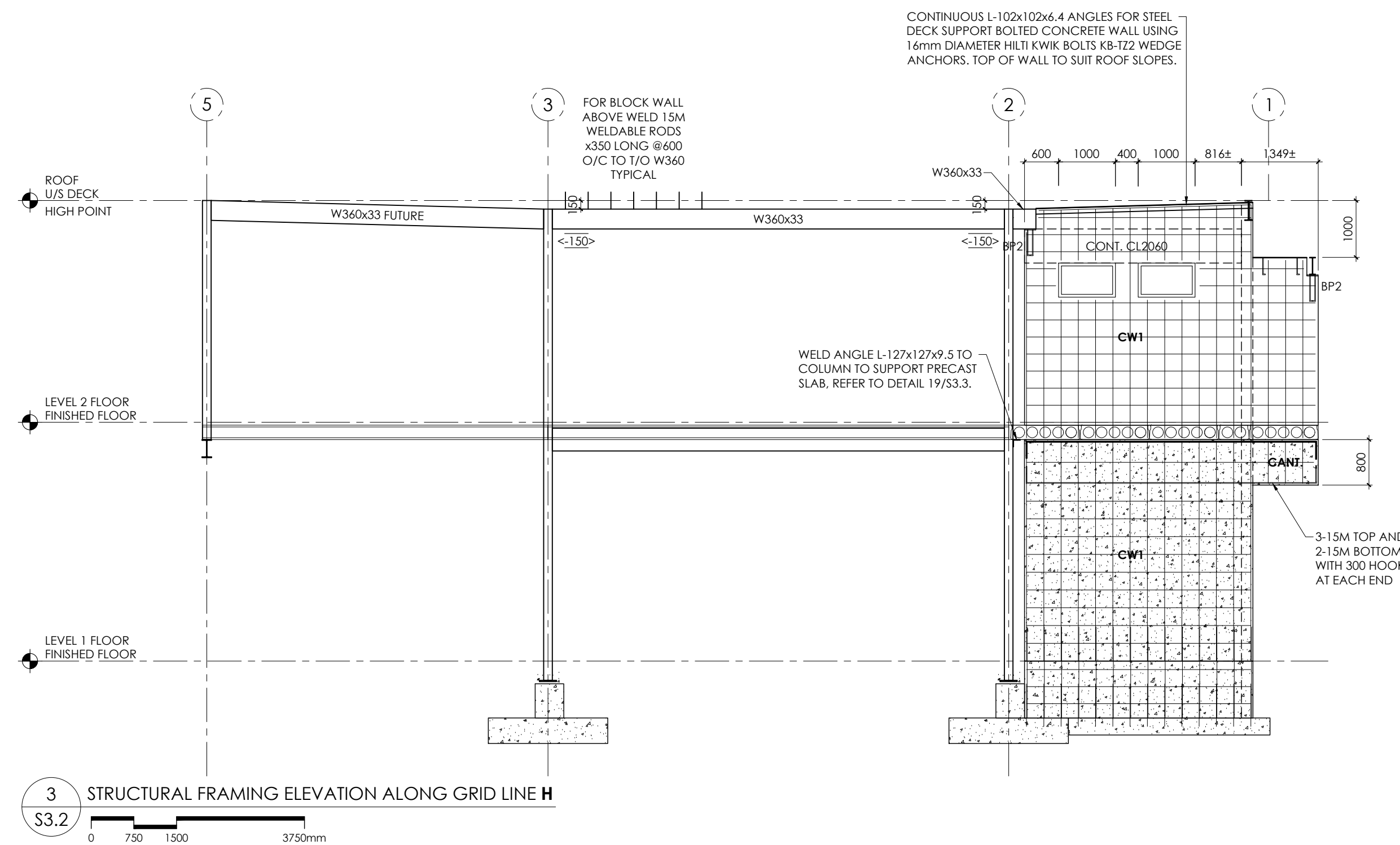
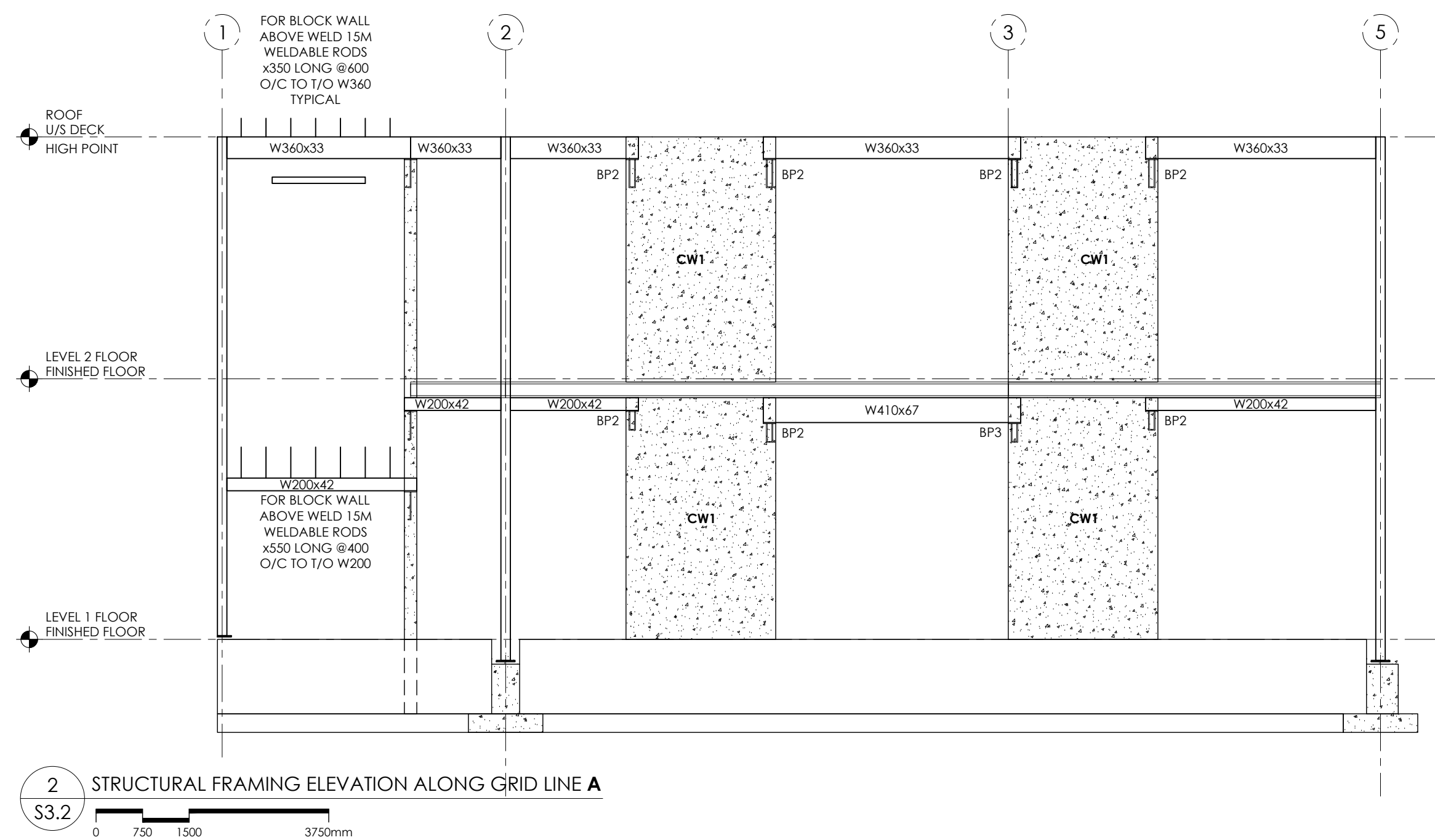
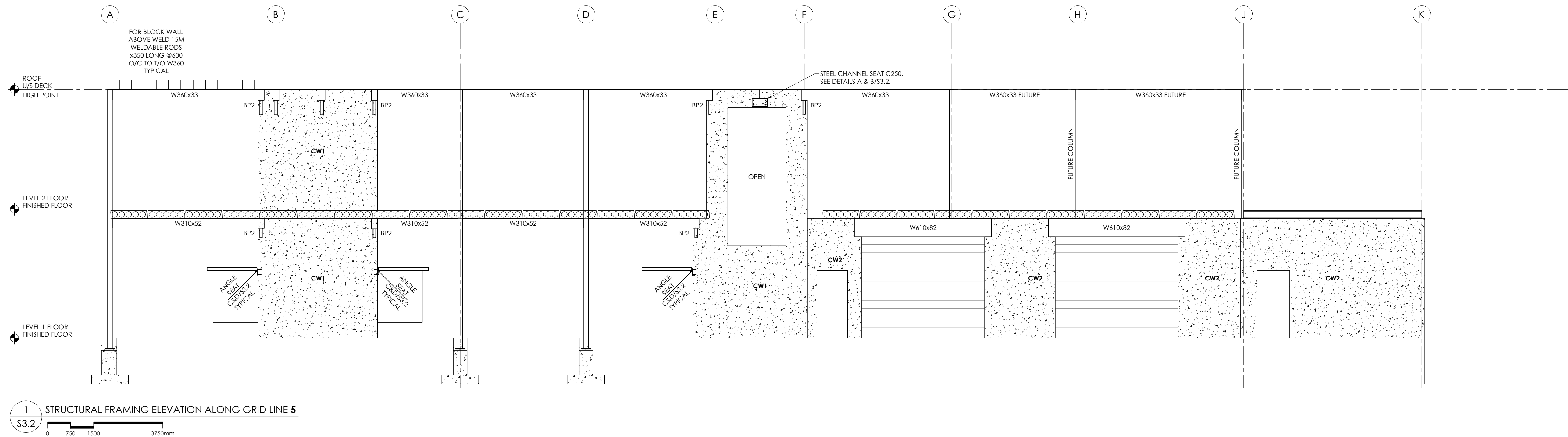
S3.1

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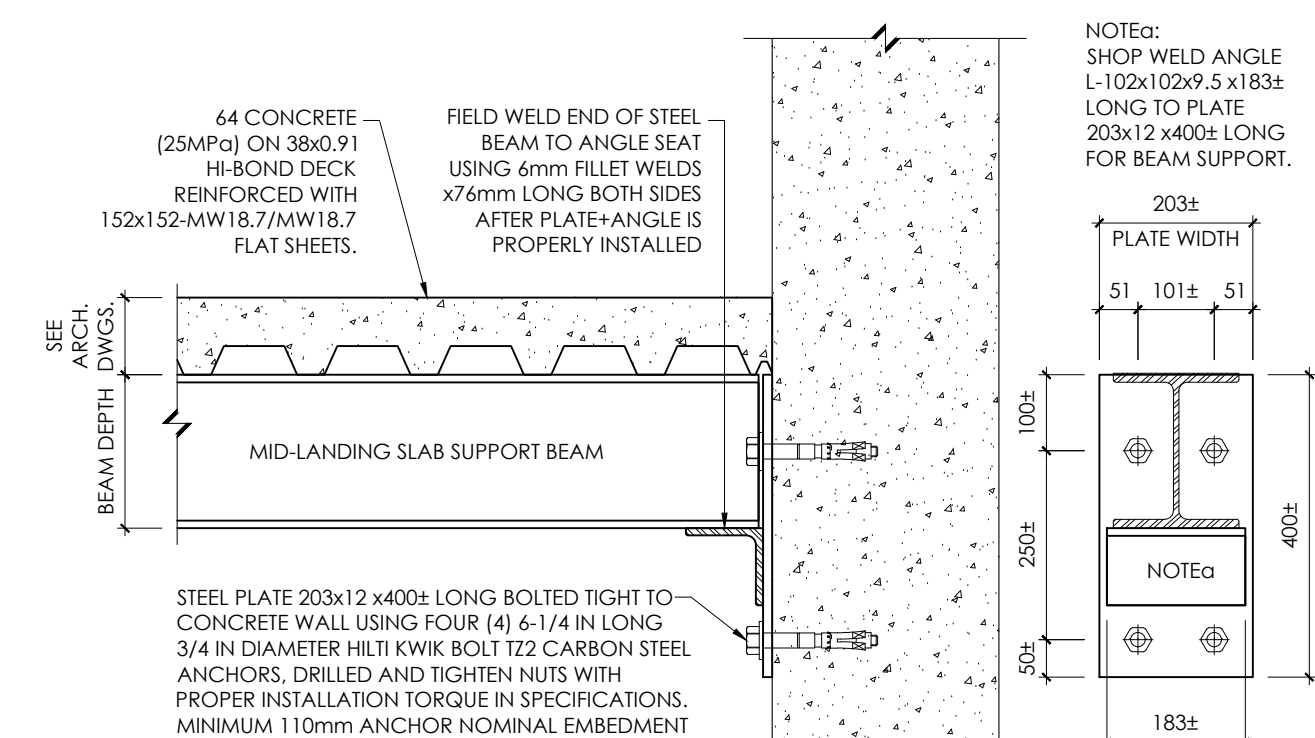
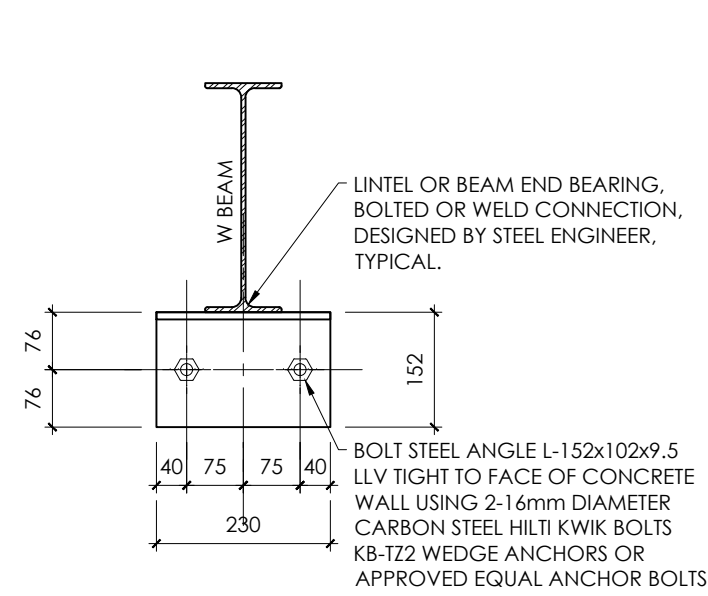
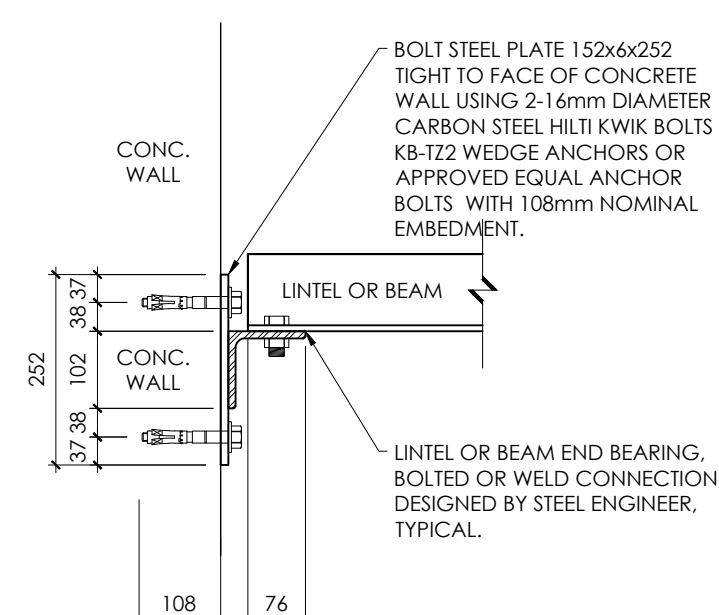
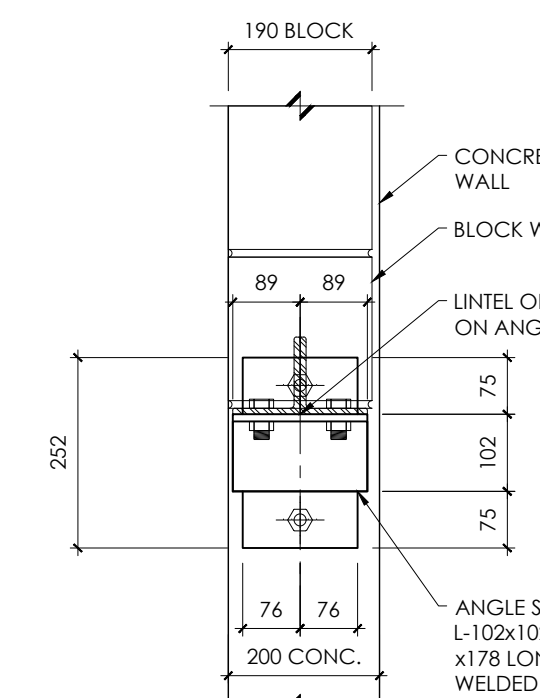
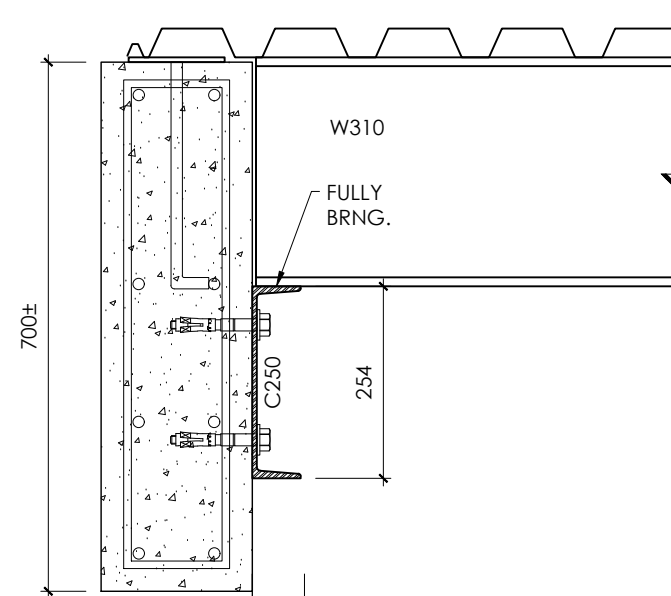
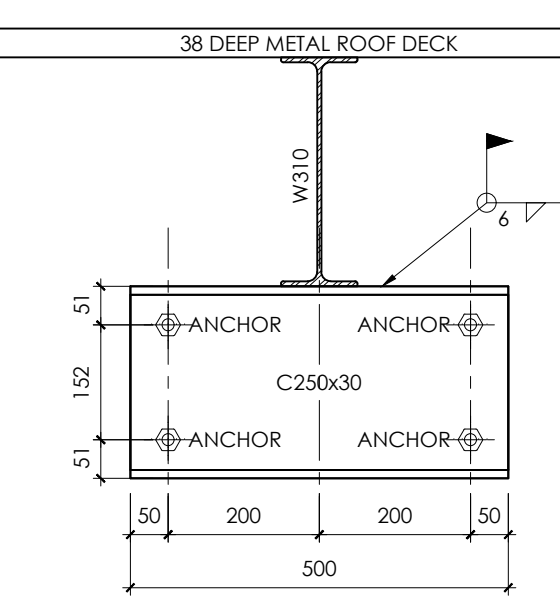
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NOTE:
BOLT STEEL CHANNEL SEAT TIGHT TO FACE OF CONCRETE
WALL USING 4-16mm DIAMETER CARBON STEEL HILTI KWIK
BOLTS KB-TZ2 WEDGE ANCHORS OR APPROVED EQUAL
ANCHOR BOLTS WITH 108mm NOMINAL EMBEDMENT, THEN
FIELD WELD STEEL BEAM TO INSTALLED CHANNEL SEAT BELOW
ALL AROUND.

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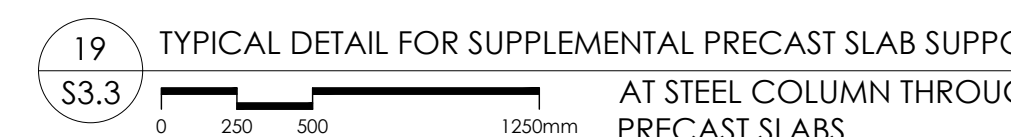
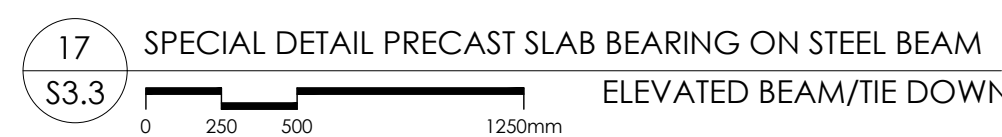
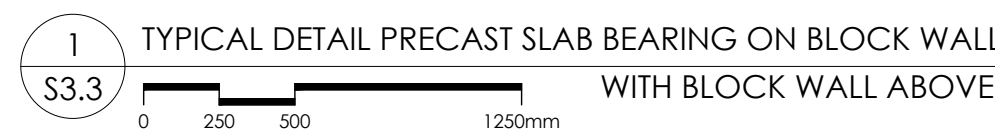
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MARK	REINFORCING	WALL TYPE	LENGTH	DETAIL
Z1	VERTICAL 2-15M	190	400	
Z2	VERTICAL 3-15M	190	600	

EXTERIOR MASONRY LOAD BEARING WALL REINFORCING SCHEDULE

EXTERIOR MASONRY LOAD BEARING WALL REINFORCING NOTES
(ALSO REFER TO MASONRY NOTES ON S1.1)

- | LINTEL SCHEDULE | | | |
|--|---------|---|--------|
| WALL TYPE | MARK | DESCRIPTION | DETAIL |
| 90
[4"]
BRICK OR
STONE VENEER | {L.4.1} | 1L-102x102x6.4
Sx=17.3x10"mm ²
HOT DIPPED GALVANIZED
ANGLE VERTICAL LEG AT BACKSIDE OF VENEER | |
| | {L.4.2} | 1L-102x102x7.9
Sx=21.3x10"mm ²
HOT DIPPED GALVANIZED
ANGLE VERTICAL LEG AT BACKSIDE OF VENEER | |
| | {L.4.3} | 1L-102x102x9.5
Sx=25.2x10"mm ²
HOT DIPPED GALVANIZED
ANGLE VERTICAL LEG AT BACKSIDE OF VENEER | |
| | {L.4.4} | 1L-152x102x9.5 (LLV)
Sx=54.2x10"mm ²
HOT DIPPED GALVANIZED
ANGLE VERTICAL LEG AT BACKSIDE OF VENEER | |
| 190
[8"]
BLOCK | {L.8.1} | 2L-89x89x6.4
Sx=26x10"mm ²
BACK TO BACK ANGLES | |
| | {L.8.2} | 2L-102x89x7.9 (LLV)
Sx=41.7x10"mm ²
BACK TO BACK ANGLES | |
| | {L.8.3} | 2L-127x89x9.5 (LLV)
Sx=75.2x10"mm ²
BACK TO BACK ANGLES | |
| | {L.8.4} | 2L-152x89x9.5 (LLV)
Sx=106x10"mm ²
BACK TO BACK ANGLES | |
| | {L.8.5} | W200x27 C/W 180x6 BOTTOM PLATE
+ RODS ON TOP | |
| | {L.8.6} | W410x39 C/W 180x6 BOTTOM PLATE
+ RODS ON TOP
+ ADJUSTABLE MASONRY ANCHORAGE | |
| 240
[10"]
BLOCK | {L10.1} | 2L-102x102x7.9
Sx=42.6x10"mm ²
BACK TO BACK ANGLES | |

WALL TYPE	HORIZONTAL	VERTICAL
190 BLOCK	STANDARD WEIGHT LADDER REINFORCEMENT @ 400mm O/C WIRE SIZE Ø3.65mm x Ø3.65mm CONTINUOUS BOND BEAM C/W 2-15M AT TOP	1-15M AT FACE OF EACH OPENING 1-15M AT ENDS OF EACH WALL

1. ALL VERTICAL BARS ARE TO BE FULL HEIGHT. THE BASE OF BLOCK WALL TO TOP OF CONCRETE FLOOR SLAB WITH 15M x 400 LONG DOWELS AT 1200 C/C U.N.O. WITH 100mm EMBEDMENT. EPOXY IN PLACE. GROUT CORES 100% SOLID W/ 20Mpa GROUT WHERE COURSE IS REINFORCED.
2. ALL NON-LOAD BEARING MASONRY WALLS ARE PARTITION WALLS.
3. TOP OF ALL MASONRY PARTITION WALLS SHALL BE LATERAL BRACED TO UNDERSIDE OF PRECAST SLABS OR ROOF STRUCTURE IN ACCORDANCE WITH DETAILS ON S3.5 OR APPROVED EQUAL DETAIL. BRACING TO BE SPACED AT 10 TIMES OF WALL THICKNESS MAXIMUM AND MAY BE PROVIDED BY STRUCTURAL COLUMNS OR BRACING WALLS. BRACING SHALL BE PROVIDED TO ALL PARTITION WALLS AND ALLOW FOR VERTICAL MOVEMENT FROM PARTITION WALLS (DO NOT LOAD ON PARTITION WALLS).

BACK-UP WALL	DESCRIPTION
NEW BLOCK WALL	90mm BRICK/BLOCK TO BE TIED TO BACK-UP WALL USING STAINLESS STEEL FERRO THERMAL BLOCK SHEAR CONNECTOR HOLED WITH 4.76mm DIAMETER V-BITE (OR APPROVED EQUAL CONNECTORS) SPACED AT 400mm HORIZONTAL x 400mm VERTICAL.
NEW CONCRETE WALL NEW C.F.S. STUD WALL	90mm BRICK/BLOCK TO BE TIED TO BACK-UP WALL USING STAINLESS STEEL FERRO THERMAL HEAVY DUTY HOLED PLATE WITH 4.76mm DIAMETER V-BITE (OR APPROVED EQUAL CONNECTORS) MINIMUM 2 FASTENERS PER PLATE, SPACED AT 400mm HORIZONTAL x 400mm VERTICAL.

BACK-UP WALL	DESCRIPTION
NEW CONCRETE WALL	90mm BRICK/BLOCK TO BE TIED TO BACK-UP WALL USING HOT-DIP GALVANIZED FERO HEAVY DUTY HOLED RAP-TIE WITH 4.76mm DIAMETER V-TIE (OR APPROVED EQUAL CONNECTORS) SPACED AT 800mm HORIZONTAL x 400mm VERTICAL.
NEW BLOCK WALL	

LINTEL SCHEDULE			
WALL TYPE	MARK	DESCRIPTION	DETAIL
OVERHEAD DOOR + 90 (4) BRICK OR STONE VENEER	{L84}	W610x82 + 10 STIFFENER PLATE @ 600 O/C WITH BEARING PLATE B72 EACH END +1L152x102x9.5 (LLV) S=54.2x101mm ² HOT DIPPED GALVANIZED ALL PARTS (NOTE1) ANGLE TO BEAR ON BRICK EACH END +6.4 THICK OVERHEAD OR TOP ENCL. STEEL STEEL PLATE (WIDE SEE ARCH. DRAWING DETAIL)	PRE-CAST SLAB STIFF. PL.
200 CONCRETE	CL2060	200 WIDE x 400 DEEP CONCRETE LINTEL REINFORCED W/ 2-15M TOP + 2-15M MID SKIN + 2-15M BOTTOM + STIRRUPS; 10M@300 O/C *PROVIDE LINTEL ABOVE OPENING	
200 CONCRETE	CL2070	200 WIDE x 700+ DEEP CONCRETE LINTEL REINFORCED W/ 2-15M TOP + 4-15M MID SKIN + 2-15M BOTTOM + STIRRUPS; 10M@300 O/C *PROVIDE LINTEL ABOVE OPENING	

1. ALL EXTERIOR UNITS TOP TO HOT DIPPED GALVANIZED, WHERE EXTERIOR UNITS ARE JOINED WITH STIFFENER PLATES ALL PARTS ARE TO BE HOT DIPPED GALVANIZED.
2. ALL 1/2" ANGLE SIZES SHALL BE STITCH WELDED OR BOLTED @ 600 C/M MAXIMUM.
3. BOTTOM PLATE SHALL BE SHOP WELDED TO UNDERSIDE OF BEAM USING MINIMUM WELD SIZE 6mm FILLET WELD x50mm LONG at 400mm c/c, BOTH SIDES. SEE DETAIL 101 FOR UNITS WITH BOTTOM PLATE.
4. MINIMUM ANGLE LENGTH IS 200mm MINIMUM AT EACH END UNLESS NOTED OTHERWISE.
5. ALL UNITS ON BRICK WALL ABOVE WELD 15mm WELDABLE ROSS X200 LONG @ 600 C/C TO TOP FLANGE OF UNITS.
6. ANGLE TO BEAR FOR EACH END WHERE IT'S POSSIBLE.
7. ALL UNITS TO BE PLANT WELDED TO BEARING PLATE. UNITS NOT SPECIFICALLY SHOWN IN SCHEDULE/ON PLAN, ALL UNITS SHALL BE FIELD WELDED TO BEARING PLATES USING MINIMUM 6mm FILLET WELDS ON BOTH SIDES OF MEMBER UNLESS NOTED OTHERWISE.
8. TYPICAL ADJUSTABLE MASONRY ANCHORAGE SEE DETAIL 102.
9. CONNECT UNITS TO COLUMNS WHERE APPLICABLE.
10. ALL ELEVATED ROOF UNITS TO HAVE LOWER UNITS (L.U.) FOR FLOOR OPENINGS & UPPER UNIT CL2060 FOR ROUGH OPENINGS AT ALL FLOORS UNLESS NOTED OTHERWISE.



MARK	PLATE SIZE WIDTH x LENGTH x THICKNESS	MINIMUM GROUTING WIDTH x DEPTH (b x d)	ANCHORAGE
BP1	190x190x12	600x400	2-16mm DIAMETER RODS
BP2	200x200x16	600x400	2-16mm DIAMETER RODS
BP3	200x250x20	600x400	2-16mm DIAMETER RODS
BP4	190x300x20	600x400	2-16mm DIAMETER RODS

The diagrams illustrate the required dimensions for a bearing plate on a concrete wall. The left diagram shows a bearing plate on a wall with a minimum grouting width 'b' indicated below. The right diagram shows a bearing plate on a wall with a minimum grouting depth 'd' indicated to the left and a minimum grouting width 'b' indicated below.

[illegible]

KEY PLAN:

PROJECT:

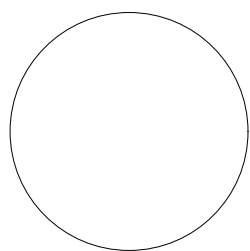
22539

HANOVER POLICE STATION

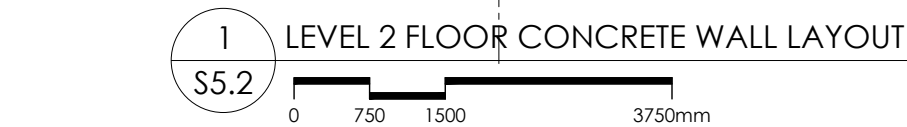
HANOVER, ON

ORIGINAL PAGE SIZE ARCH D - 24" x 36"

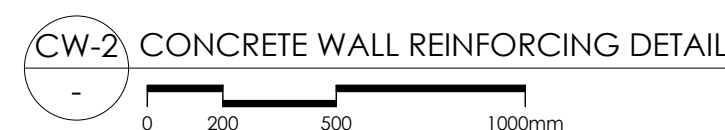
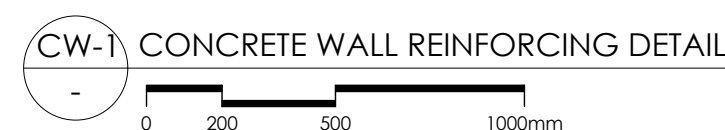
KEY TO DETAIL LOCATION:
 A - DETAIL NO.
 B - DETAIL NO. ORIG.



S4.1



NOTES:
1. WHERE THERE IS A CONFLICT IN THE SCHEDULES AND/OR DETAILS THE MORE STRINGENT SHALL APPLY UNLESS APPROVED OTHERWISE IN WRITING BY THE ENGINEER.
2. PROVIDE 2-15M EXTRA REBAR AT EACH FACE OF EACH OPENING, REBAR TO BE MINIMUM 600mm PASS EDGE OF OPENING.



NOTES:

KEY PLAN:

CLIENT:
TOWN OF HANOVER

PROJECT:
22539
HANOVER POLICE STATION
HANOVER, ON

ORIGINAL PAGE SIZE ARCH D - 24" x 36"
KEY TO DETAIL LOCATION:
 A - DETAIL NO.
B - DETAIL NO. ORIGIN

STRUCTURES+VG
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LEVEL 2 FLOOR CONCRETE WALL LAYOUT

S5.2

DRAWN BY : MI

CHECKED BY : M

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