GENERAL STRUCTURAL NOTES

STRUCTURAL DRAWINGS

1. READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR DETAILED DIMENSIONS OF DOORS, WINDOWS, DUCTS, OPENINGS, REBATES, CHASES, NAILERS, ETC.
2. CHECK AND VERIFY ALL DIMENSIONS WITH THE ARCHITECTURAL DRAWINGS BEFORE COMMENCING WITH ANY WORK. NOTIFY THE DESIGNER OF ANY ERRORS OR OMISSIONS.
3. DRAWINGS SHOW COMPLETED STRUCTURES ONLY. TEMPORARY BRACING FOR CONSTRUCTION LOADING CONDITIONS IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION".
5. THESE SPECIFICATIONS ARE TO BE READ IN CONJUNCTION WITH THE CONSTRUCTION SPECIFICATIONS. WHERE THERE IS A CONFLICT, THE MOST STRINGENT SPECIFICATION WILL CONTROL.

INSPECTIONS

1. NOTIFY THE ENGINEER 24 HOURS IN ADVANCE FOR INSPECTION AND APPROVAL OF THE FOLLOWING:

FOUNDATION SOILS:	BEFORE BACKFILLING
REINFORCING STEEL:	BEFORE EACH CONCRETE POUR
MASONRY AND REINF STEEL:	BEFORE EACH GROUT POUR.
WOOD FRAMING:	BEFORE COVERING UP.
STRUCTURAL STEEL:	BEFORE COVERING UP.
STEEL DECKING:	BEFORE COVERING UP.
LIGHT GAUGE STEEL STUDS:	BEFORE COVERING UP.

DESIGN CRITERIA

1. ALL NEW STRUCTURAL WORK, INCLUDING REQUIREMENTS FOR EARTHQUAKES HAS BEEN DESIGNED IN ACCORDANCE WITH B.C. BUILDING CODE 2018, WITH THE NBC 2015 STRUCTURAL COMMENTARIES, AND TO LOCAL CITY BY-LAWS.
2. 2018 CODE IMPORTANCE FACTORS FOR NORMAL BUILDING:

ULTIMATE LIMIT STATES:	ROOF SNOW (Is)	1.0
	WIND (Iw)	1.0
	SEISMIC (Ie)	1.0
SERVICE LIMIT STATES:	ROOF SNOW (Is)	0.90
	WIND (Iw)	0.75
	SEISMIC (Ie)	N/A

3. DESIGN ROOF LIVE LOADS:
   ROOF SNOW LOAD (Ss = 31.4 PSF, Sr = 4.2 PSF, Cb = 0.80, Cw = 1.00)
   S = 29.0 psf
   FOR SNOW BUILD-UP ON THE ROOF, SEE THE ROOF FRAMING PLAN.
4. GROUND FLOOR DESIGN LOADS:
   LIVE LOAD 100 PSF (OFFICE AREA) 300 PSF (STORAGE AREA)
   DEAD LOAD 150 PSF
5. WIND LOADS (1:50) 9.5 PSF
   WIND LOAD (1:10) 7.5 PSF
   NET UPLIFT ON ROOF 15.0 PSF
   BUILDING CATEGORY = 1.0, Ce = 1.0, Cg = 2.0, Cpi = 0.00 TO -0.15
6. SEISMIC LOADS: FOR SITE CLASS E:
   Rd=1.5 Ro=1.3 (CONV. CONSTUCTION CONCRETE SHEARWALLS)
   SEISMIC DATA FOR RICHMOND:

S(0.2)	Sa(0.5)	Sa(1.0)	Sa(2.0)	Sa(5.0)	Sa(10.0)
0.885	0.787	0.443	0.226	0.083	0.027

   BUILDING PERIOD: T= 0.30 TO 0.35 SEC, Fv = 1.10, Fv = 1.17
   PGA = 0.383, PGV = 0.587, PGAref = 0.383

FOUNDATIONS

1. PREPARATION FOR FOUNDATIONS TO BE IN ACCORDANCE WITH THE GEOTECHNICAL CONSULTANTS REPORT BY: HORIZON ENGINEERING LTD. DATED: JULY 16, 2019 ; PROJECT FILE #: 119-4574
   COMPLY WITH REQUIREMENTS FOR STRUCTURAL BACKFILL, PAVING AND SLAB SUB-BASE. PROVIDE 1'-6" MINIMUM COVER FOR FROST PROTECTION.
2. SOIL BEARING PRESSURES:
   2.1 FACTORED ULTIMATE LIMIT STATES:
   MAT FOUNDATION 2,900 PSF (140 KPa)
   2.2 SERVICEABILITY LIMIT STATES:
   MAT FOUNDATION 1,450 PSF (70 KPa)
3. AFTER EXCAVATION BUT BEFORE BACKFILLING, ENSURE THAT THE GEOTECHNICAL ENGINEER INSPECTS THE BEARING SOILS AND CONFIRMS THE LOAD CARRYING CAPACITY.
4. BACKFILL WITH CLEAN GRANULAR SOIL, FREE OF ORGANIC OR OTHER HARMFUL IMPURITIES WITH MAXIMUM 5% PASSING #200 SIEVE. COMPACT ALL STRUCTURAL BACKFILL TO 98% STANDARD PROCTOR DENSITY UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS OR IN SOILS REPORT.
5. CENTER FOOTINGS UNDER COLUMNS OR WALLS UNLESS NOTED OTHERWISE ON DRAWINGS.
6. TIE ALL DOWELS AND ANCHOR BOLTS IN PLACE BEFORE POURING CONCRETE. USE TEMPLATES TO ENSURE CORRECT PLACEMENT.
7. PROVIDE 2" GROUND SEAL UNDER FOOTINGS AS REQUIRED BY SOIL CONDITIONS.
8. FOR GROUND ELEVATIONS AND DRAINAGE SLOPES, SEE ARCHITECT'S DRAWINGS.
9. VARY FOOTING ELEVATIONS WHERE REQUIRED IN ACCORDANCE WITH DETAIL FOR "TYPICAL STEPPED FOOTING", SHOWN ON STRUCTURAL DRAWINGS.
10. FOOTINGS MAY HAVE TO BE LOWERED TO ACCOMMODATE MECHANICAL OR ELECTRICAL SERVICES. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ELEVATIONS OF SAME. FOOTINGS ARE NOT TO BE UNDERMINED BY EXCAVATIONS FOR SERVICES, PITS, ETC.
11. FOOTINGS ELEVATIONS IF SHOWN ARE NOT FINAL AND MAY VARY ACCORDING TO SITE CONDITIONS. ALL FOOTINGS MUST BE TAKEN TO A BEARING LAYER APPROVED BY THE SOILS ENGINEER.
12. BEARING SURFACES MUST BE PROTECTED FROM FREEZING BEFORE AND AFTER FOOTINGS ARE POURED.
13. CONCRETE PLACED UNDER WATER SHALL CONFORM TO CAN3-A23.1 M94.

RECOMMENDATIONS FOR FLATWORK HOT WEATHER CONCRETE

SLABS ON GRADE, SUSPENDED SLABS, TILT-UP PANELS & STEEL DECK TOPPING

CONCRETE

1. REVIEW CONCRETE REQUIREMENTS WITH SUPPLIER PRIOR TO THE DAY OF THE POUR.
2. DO NOT USE RETARDERS OR ACCELERATORS IN THE CONCRETE MIX, UNLESS AUTHORIZED BY THE ENGINEER.
3. DO NOT ADD WATER AT THE JOB SITE UNLESS AUTHORIZED BY THE ENGINEER.
4. KEEP SUPERPLASTICIZERS AVAILABLE AT THE SITE TO INCREASE WORKABILITY. DO NOT EXCEED STANDARD DOSAGES.
5. REJECT ALL CONCRETE WHERE TRANSIT AND WAIT TIMES EXCEED 2 HOURS.

PLACING

6. DO NOT ATTEMPT LARGE POURS ON HOT DAYS.
7. SCHEDULE THE POUR FOR AN EARLY MORNING START SO THAT POURING IS COMPLETED BEFORE NOON.
8. FOR SLABS ON GRADE, DAMPEN THE SUBGRADE THE DAY BEFORE THE POUR.
9. POLY BENEATH THE SLAB IS SOMETIMES BENEFICIAL IN HOT WEATHER POURS.
10. ERECT WIND BREAKS TO PREVENT EXCESSIVE AND RAPID MOISTURE LOSS.
11. PLACE CONCRETE DIRECTLY FROM TRUCK CHUTE WHERE POSSIBLE.
12. ENSURE THAT THERE ARE SUFFICIENT PLACERS AND FINISHERS AVAILABLE ON SITE.
13. USE AN EVAPORATION RETARDANT SUCH AS "CONFILM" BY MASTER BUILDERS. DO NOT ATTEMPT TO PLACE FLATWORK ON SUNNY DAYS WHERE PREDICTED TEMPERATURES EXCEED + 30 DEGREES CELSIUS.

CURING

14. APPLY SURFACE SEALERS AS SOON AS POSSIBLE AFTER THE FINAL TROWEL.
15. WET CURE CONCRETE FOR AT LEAST 3 DAYS. USE CONTINUOUS SPRINKLING OR FLOODING. DO NOT CURE UNDER POLY SHEETING OR WITH WET BURLAP.

COLD WEATHER PROTECTION

RECOMMENDATIONS FOR CONCRETE

ALL CONCRETE

1. USE HOT WATER WHEN TEMPERATURE IS BELOW +3 C.
2. MAXIMUM 1/2% CALCIUM CHLORIDE MAY BE USED EXCEPT FOR P/T AND PARKING SLABS.
3. WHERE SUPPLEMENTARY HEAT IS PROVIDED, USE APPROVED CONCRETE HEATERS WITH EXHAUST VENTED AWAY FROM THE SURFACE OF THE CONCRETE.
4. FOR TEMPERATURES BELOW -10 C, CHECK WITH ENGINEER.

FOUNDATIONS

MIN. TEMP.	
ABOVE 0° C	NO SPECIAL REQUIREMENTS.
-3° C TO 0° C	COVER WITH INSULATION BLANKET FOR FIRST 24 HOURS.
BELOW -3° C	DO NOT POUR ON FROZEN SOIL, COVER AND PROVIDE SUPPLEMENTARY HEAT FOR FIRST 24 HOURS.

FLOOR SLAB ON GRADE & SUSPENDED SLABS

MIN. TEMP.	
0 C TO +3 C	COVER WITH POLY RAISED UP ON 2x4 SLEEPERS.
-3 C TO 0 C	COVER WITH INSULATION BLANKET FOR FIRST 36 HOURS.
BELOW -3 C	DO NOT POUR ON FROZEN SOIL. COVER WITH BLANKET & HEAT FOR FIRST 36 HOURS. FOR SUSPENDED SLABS, PROVIDE HEAT TO SPACE BELOW SLAB.

MASONRY

MIN. TEMP.	
0 C TO +3 C	USE HOT WATER IN GROUT.
-3 C TO 0 C	COVER WALL WITH POLY OR INSULATING BLANKET BEFORE & 36 HOURS AFTER GROUTING.
BELOW -3 C	COVER WALLS WITH BLANKET & PROVIDE HEATING FOR 36 HOURS AFTER GROUTING.

TILT-UP PANELS

MIN. TEMP.	
0 C TO +3 C	COVER WITH POLY RAISED UP ON 2x4 SLEEPERS @ 3' O/C.
-3 C TO 0 C	COVER WITH INSULATION BLANKET FOR 48 HOURS. PROVIDE HEAT WHERE EARLY STRENGTH IS REQUIRED.
BELOW -3 C	COVER WITH BLANKET AND PROVIDE HEAT UNTIL STRENGTH REACHES DESIRED LEVEL FOR LIFTING.

CONCRETE

1. PROVIDE CONCRETE AND PERFORM WORK TO CSA-A23.1-14.
2. MINIMUM 28 DAY COMPRESSIVE STRENGTHS AS INDICATED BELOW. ALL CONCRETE NORMAL WEIGHT, 150 PCF, TYPE 10 CEMENT, TYPE F FLYASH. MAXIMUM 3/4" AGGREGATE FOR ALL CONCRETE UNLESS NOTED OTHERWISE, EXCEPT 1 1/4" MAX. AGGREGATE FOR CHUTE PLACED SLAB ON GRADE.
   SUBMIT PROPOSED MIX DESIGN TO THE ENGINEER FOR APPROVAL:

LOCATIONS	CEMENT TYPE	STRENGTH MPa (PSI)	AIR %	SLUMP ±20 mm	EXPOSURE CLASS
Mat Foundation	GU	30 (4350)	1-4	70	F2
Retaining Wall	GU	30 (4350)	4-7	70	F2
Int'r S.O.G. General	GU	30 (4350)	1-4	80	N
Exposed S.O.G.	GU	32 (4640)	5-8	60	C2
Steel Deck Topping	GU	25 (3600)	1-4	60	N
Int/Ext Columns, Piers, Beams	GU	30 (4350)	4-7	70	F2
Precast (Tilt-up Panels)	GU	32 (4640)	4-7	70	F2
Precast Tilting (Flexure)	GU	4 (580)			

3. DO NOT USE ADMIXTURES OTHER THAN AIR ENTRAINMENT, STANDARD WATER REDUCERS, OR SUPER PLASTICIZERS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
4. REJECT ALL CONCRETE WHEN TIME BETWEEN BATCHING AND PLACING EXCEEDS 2 HRS.
5. DO NOT ADD WATER TO THE CONCRETE ON SITE UNLESS AUTHORIZED BY THE ENGINEER.
6. CONSOLIDATE ALL CONCRETE USING MECHANICAL VIBRATORS.
7. SAWCUT CONTROL JOINTS AS SOON AS POSSIBLE AT MAXIMUM 20' SPACING OR AT LOCATIONS SHOWN ON DRAWINGS.
8. CONSTRUCTION JOINTS: AS SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE ENGINEER.
9. PROTECT CONCRETE FROM ADVERSE WEATHER CONDITIONS IN ACCORDANCE WITH CSA A23.1 OR AS DETERMINED BY THE ENGINEER.
10. CONSTRUCT FORMWORK IN ACCORDANCE WITH WCB IH&S 34.28 AND CSA S269.1. FORMWORK DESIGN IS THE RESPONSIBILITY OF THE CONTRACTOR.

CONCRETE TESTING

11. TEST CONCRETE IN ACCORDANCE WITH CSA A23.2.
12. PROVIDE CONCRETE FOR AND CO-OPERATE IN THE PREPARATION OF TEST CYLINDERS. TAKE THREE CYLINDERS FOR EVERY 75 CU METERS OR LESS OF CONCRETE PLACED. MINIMUM ONE TEST OF THREE CYLINDERS FOR EACH POUR.

REINFORCEMENT

13. NEW DEFORMED BARS TO CSA G30.18 GRADE 400 (60 KSI). WELDED WIRE FABRIC TO CSA G30.5. ANCHOR BOLTS TO ASTM A307.
14. PLACE REINFORCING BARS TO CSA A23.1. TIE ALL BARS SECURELY IN PLACE TO PREVENT DISPLACEMENT. SUPPORT SLAB REINFORCING ON SUITABLE CHAIRS OR SUPPORTS AT MAXIMUM 4 FT. CENTRES. PROVIDE CORNER BARS FOR ALL WALL REBAR.
15. PROVIDE CLEAR CONCRETE COVER FOR REBAR AS FOLLOWS:

SURFACE POURED AGAINST GROUND	3"
FORMED SURFACES EXPOSED TO GROUND	2"
GROUND OR WEATHER:	
BEAMS	2" TO MAIN STEEL
COLUMNS	2" TO MAIN STEEL
SLABS, WALLS	1"

17. MINIMUM 2-15M REINFORCING AROUND OPENINGS LARGER THAN 12" AT EACH SIDE OF OPENING, EXTEND 2'-0" PAST CORNER.

MINIMUM SPLICE LENGTHS (UNLESS NOTED OTHERWISE):				
	COMPRESSION SPLICE	TENSION SPLICE		
		25MPa	30MPa	35MPa
10M	1'-4" (400mm)	1'-6" (450mm)	1'-4" (400mm)	1'-4" (400mm)
15M	1'-8" (500mm)	2'-0" (600mm)	1'-10" (550mm)	1'-10" (550mm)
20M	2-0" (600mm)	2'-6" (750mm)	2'-4" (700mm)	2'-2" (650mm)
25M	2-6" (750mm)	4'-0" (1200mm)	3'-8" (1100mm)	3'-4" (1000mm)
30M	3-0" (900mm)	4'-8" (1400mm)	4'-4" (1300mm)	4'-0" (1200mm)
35M	3-6" (1050mm)	6'-6" (1950mm)	5'-2" (1550mm)	4'-10"(1450mm)

MINIMUM EMBEDMENT LENGTHS FOR DOWELS (UNLESS NOTED OTHERWISE):				
	25MPa	30MPa	35MPa	
10M	1'-2" (350mm)	1'-0" (300mm)	1'-0" (300mm)	
15M	1'-8" (500mm)	1'-6" (450mm)	1'-4" (400mm)	
20M	2'-0" (750mm)	1'-10" (550mm)	1'-8" (500mm)	
25M	3'-0" (900mm)	2-10" (850mm)	2-8" (800mm)	
30M	3'-8" (1100mm)	3'-4" (1000mm)	3'-0" (900mm)	
35M	4'-4" (1300mm)	4'-0" (1200mm)	3'-8" (1100mm)	

SLAB ON GRADE - INTERIOR

RECOMMENDED PROCEDURE:

1. POUR STRIPS
   POUR STRIPS TO BE EITHER 18 FT. OR 36 FT. IN WIDTH, ALL CONSTRUCTION JOINTS WHENEVER POSSIBLE TO BE LOCATED UNDER THE SHELVING. SLABS TO BE POURED IN ALTERNATE STRIPS. LOCATION OF STRIPS WILL GENERALLY RUN PARALLEL TO THE SHELVING AND AISLES. A FLOOR PLAN INDICATING POUR LOCATIONS WILL BE PROVIDED.
2. POLY SLIP SHEETS
   THE POLYSLIP SHEET IS TO BE 6 MIL MINIMUM AND UV RATED
3. CONSTRUCTION JOINT FORMS
   FORMS MUST BE RIGID KEYED STEEL OR WOOD OR COMBI-FORMS TO PREVENT DISPLACEMENT DURING THE POWER SCREED OPERATION. THE FORMS ARE TO BE CHECKED FOR ELEVATIONS BY INSTRUMENT PRIOR TO ALL POURS.
4. CONTROL JOINTS
   PROVIDE SAWCUT CONTROL JOINTS AT 20 FT. MAX. PROVIDE 5/8"ø BY 20" LONG SMOOTH DOWELS, GREASED AT ALL CONTROL JOINTS AT THE AISLE WAYS ONLY. THE SMOOTH DOWELS MAY BE DELETED, IN WHICH CASE THE CONTROL JOINTS MUST BE SPACED AT 18 FT.
5. PLACEMENT
   a. VIBRATING SCREEDING SHALL BE FOLLOWED IMMEDIATELY BY HAND STRAIGHT-EDGING BOTH PARALLEL AND PERPENDICULAR TO THE SCREEDS.
   b. FILLING OF SURFACE DEFICIENCIES MAYBE REQUIRED DURING STRAIGHT-EDGE OPERATIONS. USE MORTAR SLURRY REMOVED DURING THE STRAIGHT-EDGE OPERATION OR SITE BATCH ADDITIONAL INFILL MORTAR.
   c. FOLLOWING MACHINE FLOATING, THE FLOATED SURFACE SHALL AGAIN BE STRAIGHT-EDGED IN BOTH DIRECTIONS, INFILLING WITH MORTAR SLURRY IF NECESSARY.
   d. NORMAL TROWELLING OPERATIONS SHALL PROCEED FOLLOWING FINAL STRAIGHTENING.
6. EQUIPMENT
   a. POWER SCREED
   b. TRANSVERSE STRAIGHT-EDGE - METALLIC STRAIGHT-EDGE TO SPAN BETWEEN THE SIDE FORMS.
   c. LONGITUDINAL STRAIGHT-EDGE - TO BE METALLIC HIGHWAY STRAIGHT-EDGE TOOL WITH A MAXIMUM LENGTH OF 12 FT.
7. SLUMP
   CONSISTENT SLUMP IS IMPORTANT DURING PLACEMENT. THE SPECIFIED SLUMP MAY BE CHANGED IF SO REQUESTED BY THE PLACING FOREMAN TO OBTAIN BETTER FINISHING. ONCE THE OPTIMUM SLUMP IS DETERMINED, IT SHOULD BE FIXED FOR SUBSEQUENT POURS. A TECHNICIAN MUST MONITOR EVERY TRUCK AND WILL HAVE THE AUTHORITY TO RETEMPER (TO RAISE SLUMP) OR TO HOLD/AGITATE (TO LOSE SLUMP) OR TO REJECT ANY TRUCK.
8. TOLERANCES - AS PER CSA SPECIFICATION
9. ALTERNATE POUR SEQUENCES AND PROCEDURES WILL BE CONSIDERED. HOWEVER, THE FINISHED PRODUCT MUST MEET THE CSA STANDARD SPECIFICATIONS IN TOLERANCES AND QUALITY.

TILT-UP PANELS

1. ALL CONCRETE WORK IN TILT-UP PANELS IN ACCORDANCE WITH CONCRETE NOTES.
2. PROVIDE MINIMUM 2-15M BARS AT EACH SIDE OF OPENINGS AND EXTEND 2'-0" PAST EDGE; PROVIDE 1-15M CORNER BAR x 4'-0" AT ALL OPENINGS LARGER THAN 2'-0". CHAIR ALL REINFORCING WITH PLASTIC TIPPED CHAIRS. DO NOT USE CARRY BARS.
3. TIE LIFTING AND BRACING INSERTS SECURELY TO REINFORCING STEEL.
4. PROVIDE SHOP DRAWINGS FOR EACH PANEL TYPE, SHOWING ALL CONSTRUCTION DETAILS INCLUDING:
   a. CONCRETE OUTLINE AND OPENING LOCATIONS.
   b. LOCATION AND DETAILS OF EMBEDDED ITEMS.
   c. REINFORCING DETAILS.
   d. LIFTING AND BRACING REQUIREMENTS (INCLUDING SEAL BY B.C. PROFESSIONAL ENGINEER).
5. PANEL LIFT DESIGN TO CONFORM TO THE FOLLOWING:
   a. USE COMPUTER BASED METHODS TO LOCATE LIFTING INSERTS FOR MINIMUM FLEXURAL STRESSES. CONFORM TO WCB IH&S 34.34.
   b. REQUIRED CONCRETE STRENGTH AT TIME OF LIFT:
      FLEXURAL 2.9 MPa (420 PSI)
      COMPRESSIVE 17 MPa (2500 PSI)
   c. MINIMUM SAFETY FACTOR ON LIFT INSERTS 2.5:1.
   d. PROVIDE REINFORCING STEEL TO CARRY LOADS WHEN WORKING FLEXURAL STRESSES EXCEED 250 PSI .
   e. INDICATE ON DRAWINGS WHERE FLEXURAL STRESS EXCEEDS 420 PSI .
6. PROVIDE TEMPORARY BRACING FOR PANELS UNTIL PERMANENTLY ATTACHED TO BUILDING AS DETAILED. DESIGN BRACING FOR 15 PSF WIND LOAD ON GROSS PANEL AREA WITH A MINIMUM SAFETY FACTOR OF 1.67

INSULATED TILT-UP PANELS

1. REFER TO NOTES FOR TILT-UP WALL PANELS.
2. CAST-IN-PLACE CONCRETE PANEL VENEER CONNECTORS TO THE REINFORCED WALL PANELS TO BE SPECIFIED, SPACED AND INSTALLED TO THE MANUFACTURER'S SPECIFICATIONS.
3. TILT-UP CONCRETE WALL PANELS INSULATION IN ACCORDANCE TO THE SPECIFICATIONS GIVEN IN THE ARCHITECTURAL DRAWINGS.

CONCRETE CRACKS IN FLOORS & PANELS

1. UNDER NORMAL CONDITIONS, CONCRETE WILL CRACK WHETHER IT IS REINFORCED WITH REBARS OR POST-TENSIONING. THE CRACKS FORMS AS A RESULT OF INTERNAL TENSION STRESSES IN THE CONCRETE DUE TO VARIOUS INFLUENCES INCLUDING SHRINKAGE AND CREEP OF THE CONCRETE AS IT CURES.
2. NUMEROUS FACTORS AFFECT THE SUSCEPTIBILITY OF THE CONCRETE TO CRACK AND THE PROPAGATION OF CRACKS ONCE FORMED, AND THEREFORE THE ACCURATE PREDICTION OF CRACKS IS IMPOSSIBLE.
3. PROPER REINFORCING DETAILS INCLUDING LIMITS ON SPACING OF REINFORCING. PLACEMENT OF CRACK CONTROL JOINTS, EDGE REINFORCING AROUND OPENINGS AND THE MINIMUM REINFORCING REQUIREMENTS AS NOTED ON THESE DRAWINGS HELP TO PREVENT LARGE CRACKS FROM OCCURING.
4. CRACKS NORMALLY DO NOT IMPAIR THE STRUCTURE FROM PROVIDING ITS FUNCTION, ALTHOUGH DUE TO COSMETIC REASONS OR OTHER CONCERNS, CRACKS MAY NEED TO BE REPAIRED. IT MAY ALSO NECESSARY TO EPOXY INJECT SOME CRACKS.
5. IF CRACKS OCCUR, PROVIDE DETAIL INFORMATION ON THE CRACKPATTERN FOR REVIEW BY ENGINEER AND THE ARCHITECT WHO MAY PROVIDE INSTRUCTIONS ON METHODS OF REPAIRING SOME OF THE CRACKS.

STRUCTURAL DEFLECTIONS

1. UNDER NORMAL CONDITIONS, CONCRETE SLABS AND BEAMS WILL DEFLECT WHETHER IT IS REINFORCED WITH REBARS OR POST-TENSIONING. STEEL STRUCTURES WILL DEFLECT UNDER LOAD AND VARIOUS ENVIRONMENTAL CONDITIONS. BECAUSE DEFLECTION RESULT FROM VARIOUS FACTORS. THE ACCURATE PREDICTION OF THE MAGNITUDE OF DEFLECTION IS DIFFICULT.
   DEFLECTIONS CAN BE DOWNWARD OR UPWARD AND CAN CHANGE OVERTIME, DEPENDING UPON VARIOUS CHARACTERISTICS OF THE STRUCTURE AND ENVIRONMENTAL CONDITIONS. PROPER ALLOWANCE MUST BE MADE IN FINISHES AND ATTACHED ELEMENTS TO PERMIT THE STRUCTURE TO DEFLECT WITHOUT DAMAGE TO THE COLLATERAL ELEMENTS. THE DETAILS FOR ATTACHMENTS FOR THESE ELEMENTS ARE PROVIDED BY OTHERS.
2. DEFLECTIONS DO NOT IMPAIR THE STRUCTURE FROM PROVIDING ITS FUNCTION, AND UNDER NORMAL CONDITIONS, ARE NOT AN INDICATION OF A WEAKNESS IN THE STRUCTURE.
3. DEFLECTIONS CAN BE COMPENSATED BY CAMBER AS NOTED ELSEWHERE AND UNDER CERTAIN CONDITIONS, TOPPING MATERIALS MATERIALS CAN BE USED TO LEVEL SLAB SURFACES.

SPECIAL REQUIREMENTS FOR INDUSTRIAL SLABS ON GRADE

1. ALL SLAB ON GRADE CONCRETE IN ACCORDANCE WITH CONCRETE NOTES.
2. FILL ALL DEPRESSIONS OR TRENCHES WITH CONCRETE OR ROAD MULCH TO PROVIDE A UNIFORM SLAB THICKNESS.
3. SUPPORT REINFORCING STEEL (WHERE SPECIFIED) ON BRICK SUPPORTS AT MAXIMUM 4'-0" SPACING. PROVIDE 1-15M BAR AROUND ALL SLAB BLOCKOUTS.
4. DISCONTINUE ALL SLAB REINFORCEMENT AT CONTROL OR CONSTRUCTION JOINTS. INSTALL SMOOTH, GREASED DOWELS WHERE DETAILED ON THE DRAWINGS. TIE DOWELS TO REINFORCING STEEL.
5. PLACE CONCRETE BY PUMP OR CHUTE. COMPACT AND LEVEL WITH VIBRATING POWER SCREED. FLOAT TO A LEVELNESS OF ±1/8" IN 10 FT.
6. STEEL TROWEL FINISH SLABS TO A SMOOTH HARD SURFACE, TAKING CARE TO AVOID BUMPS AT TRANSITIONS AT PREVIOUS POURS.
7. IMMEDIATELY AFTER THE FINAL TROWELING, APPLY CURING/SEALING COMPOUND (SILCOSEAL). KEEP SLAB WET FOR MINIMUM 5 DAYS AFTER POURING. USE SPRINKLERS OF FLOOD CURE.
8. PROVIDE ROAD MULCH BASE COURSE BENEATH INDUSTRIAL CONCRETE SLABS ON GRADE AS FOLLOWS:

SIEVE SIZE	% PASSING
25mm	100%
19mm	85-100%
9.5mm	60-85%
4.75mm	40-70%
1.18mm	20-50%
0.3mm	10-30%
0.075mm	5-15%

9. EXTERIOR SLAB ON GRADE FOR TRUCK APRONS AT LOADING DOCKS AND ALSO FOR GARBAGE COMPACTORS TO BE 8" SLAB ON GRADE REINFORCED WITH 15M @ 18" CHAIRED TO 3" CLEAR FROM BOTTOM OF SLAB. PROVIDE CONTROL JOINTS AT 20 FT. x 20 FT.

MASONRY

1. PLAIN AND REINFORCED CONCRETE BLOCK TO CONFORM TO CSA S304.1-04 "MASONRY DESIGN AND CONSTRUCTION AND BUILDINGS".
2. HOLLOW LOAD BEARING UNITS: CSA A165 NORMAL WEIGHT, CLASSIFICATION H/15/A/M 20MPa (2000 PSI) UNITS BASED ON NET AREA. HOLLOW CLAY UNITS: CSA-A82.2. MASONRY MORTAR: TYPE S TO CSA A179 MINIMUM 12.5MPa @ 28 DAYS
3. MASONRY GROUT: DESIGN STRENGTH 20 MPa (2900 PSI), WEIGHT 150 PCF, CEMENT TYPE GU, AIR 4-6%, SLUMP 6" - 8", 10mm AGGREGATE, EXPOSURE CLASS F-2.
4. REINFORCING STEEL: NEW DEFORMED BARS TO CSA G30.18, GRADE 400 (60 KSI) LAP SPLICE AS FOLLOWS:

BAR SIZE	10M	15M	20M	25M
LAP SPLICE	18"	24"	32"	48"

5. LADDER TYPE JOINT REINFORCING: CSA G30.14-M1983, CSA G30.15, GALVANIZED 9GA. (3.8mm) SIDE AND CROSS WIRES, CONTACT WELDED, MINIMUM LAP 12".
6. BRICK TIES ARE TO BE MINIMUM 6 OZ. HOT DIPPED GALVANIZED CONFORMING TO CAN3-A370. SPACE AT 16" HORIZONTAL AND 24" VERTICAL.
7. LINTEL REQUIREMENTS: 2-15M CONTINUOUS REINF. BOTTOM EXTEND MIN. 24" BEYOND EDGE OF OPENING UNLESS NOTED OTHERWISE ON DRAWINGS.

SPAN	LINTEL DEPTH
UP TO 4'-0"	8"
4'-0" TO 6'-0"	16"
6-0" TO 8'-0"	24"
GREATER THAN 8'-0"	REFER TO THE DRAWINGS

REINFORCEMENT

8. PROVIDE KNOCK-OUT TYPE BOND BEAMS AT ALL FLOOR AND ROOF LINES AND AT A MAX. OF 4'-0" O/C. PROVIDE A BOND BEAM REINF. WITH 2-15M AT TOP OF ALL PARAPETS. ALL HORIZONTAL REINF. IS TO BE CONTINUOUS AROUND CORNERS WITH 2-15M ELBOW BARS.
9. VERTICAL REINFORCED CORES: MINIMUM 1-20M REINFORCING FULL HEIGHT AT ENDS OF WALLS, CORNERS AND WALL INTERSECTIONS. 2-15M @ 8"o/c EACH SIDE OF DOOR OR WINDOW OPENINGS AND 4'-0"MIN. O/C. PROVIDE 15M OR 20M DOWELS TO MATCH WALL REINFORCING AT FOUNDATION LEVEL. TIE DOWELS IN PLACE BEFORE POURING CONCRETE.
10. INSTALL JOINT REINFORCING IN HORIZONTAL JOINTS AT 16" O/C.

CONSTRUCTION & WORKMANSHIP

11. BUILD MASONRY TRUE-TO-LINE, PLUMB, SQUARE AND LEVEL WITH VERTICAL JOINT IN PROPER ALIGNMENT.
12. MAXIMUM JOINT WIDTH 3/8". POINT AND COMPACT JOINTS WITH ROUND BAR TOOL.
13. CUT MASONRY UNITS WITH MASONRY SAW. BROKEN UNITS NOT ACCEPTABLE.
14. PLACE MASONRY UNITS IN RUNNING BOND UNLESS STATED OTHERWISE ON THE DRAWINGS. USE FACE SHELL BEDDING EXCEPT FIRST COURSES AND CELLS TO BE GROUTED WHERE FULL BED MORTARING IS TO BE USED.
15. HEAT MATERIALS AND PROTECT WORK IN ACCORDANCE WITH CSA-S304 WHEN TEMPERATURE BELOW 5 DEGREES C. AVOID EXCESSIVE MOISTURE LOSS FROM MORTAR AT TEMPERATURES HIGHER THAN 27 DEGREES C. DO NOT WET CONCRETE MASONRY BEFORE OR DURING CONSTRUCTION.
16. FILL ALL BOND BEAMS, REINFORCED CORES, CORES AT ANCHOR BOLTS OR EMBEDDED HARDWARE WITH MASONRY GROUT. PROVIDE CLEANOUTS AT THE BOTTOM OF CORE TO BE GROUTED. MAXIMUM LIFT IN ONE POUR IS 8'-0" UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
17. PROVIDE VERTICAL CONTROL JOINTS AT MAXIMUM 50'-0" SPACING, OR AS SHOWN ON THE DRAWINGS. DISCONTINUE BOND BEAM REINFORCING AT CONTROL JOINT EXCEPT AT ROOF OR FLOOR DECK LEVELS.
18. PROVIDE ADEQUATE BRACING FOR MASONRY WALLS UNTIL FULLY CONNECTED TO THE STRUCTURE AS DETAILED.
19. EXPANSION AND CONTROL JOINTS SHALL BE AT LEAST 2'-0" FROM A BEARING PLATE OR EDGE OF AN OPENING.

STEEL DECKING

1. DESIGN, FABRICATE AND INSTALL STEEL DECK TO CSA S136 AND CANADIAN SHEET STEEL BUILDING INSTITUTE STANDARDS UNLESS OTHERWISE NOTED.
2. DECKING PROFILE: 1.5" DEEP, MINIMUM 22 GA. STEEL CONFORMING TO ASTM A446. PROVIDE DEFORMED STEEL COMPOSITE DECKING FOR FLOORS. ZINC COATING TO ASTM A525 WIPE COAT, .25 OZ. FOR INTERIOR EXPOSURE, OR 1.25 OZ. FOR EXTERIOR EXPOSURE. SEE DRAWINGS FOR DESIGN LOAD, METAL GAUGE AND FASTENING SCHEDULE.
3. PROVIDE DRAIN HOLES AT 4' O/C OR AS REQUIRED TO PREVENT RAINWATER ACCUMULATION.
4. INSTALL DECKING CONTINUOUS OVER MINIMUM THREE SPANS EXCEPT WHERE OTHERWISE APPROVED.
5. WELD DECK TO SUPPORTING STEEL WITH 3/4" DIA. FUSION WELDS. SIDE LAPS FASTENED BY BUTTON PUNCHING 18" MAX. SPACING. WELD EACH SIDE OF SIDELAP AT SUPPORTS. WELDS AND BUTTON PUNCHES MUST BE APPROVED BY THE ENGINEER. MINIMUM PERIMETER WELDS 8" O/C. FOR FLOOR DECKING, WELD EACH LOW FLUTE AND BUTTON PUNCH @ 12" O/C.
6. PAINT ALL WELDS WITH GALVICON.
7. CUT AND FRAME OPENINGS BETWEEN 6" AND 18" WITH L2 x 2 X 3/16 PERPENDICULAR TO FLUTES. OPENINGS LARGER THAN 18" FRAMED BY STRUCTURAL STEEL ERECTOR.
8. SUBMIT FOUR SETS OF SHOP DRAWINGS TO THE ENGINEER AND RECEIVE APPROVAL PRIOR TO FABRICATION. SHOW ALL DETAILS, MATERIALS SPECIFICATIONS AND DESIGN LOADS.

THE CITY HAS RELIED EXCLUSIVELY ON THE UNDERSIGNED REGISTERED PROFESSIONAL FOR THE ADEQUACY OF THE PLANS IN CONFORMANCE WITH THE CURRENT EDITION OF THE B.C. BUILDING CODE IN REVIEWING THE PLANS SUBMITTED WITH THIS APPLICATION FOR A BUILDING PERMIT.

J R STEINER
REGISTERED PROFESSIONAL

PERMIT ISSUED BY DATE

STRUCTURAL WOOD AND PLYWOOD

1. SUPPLY AND INSTALL STRUCTURAL WOOD AND DECKING TO CSA 086 AND PART 9 OF N.B.C.
2. PROVIDE THE FOLLOWING GRADES UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.

TIMBER:	# 2 OR BETTER DOUGLAS FIR
JOISTS:	# 2 HEM-FIR OR D-FIR
PLATES:	# 2 DOUGLAS FIR
VERTICAL STUDS:	FINGER JOINTED KD S.P.F. OR # 2 HEM-FIR
HEADER:	# 2 HEM-FIR OR D-FIR
PLYWOOD:	FLOORS - 5/8" T & G DOUGLAS FIR
	ROOF - FLAT 5/8" T & G DOUGLAS FIR SLOPING 1/2" D-FIR

3. WHERE SLEEPERS ARE USED TO ATTAIN ROOF SLOPES. MINIMUM SIZE SHALL BE 2 X 3 AND SPACING IS TO BE AT 16" O.C.
4. NAIL PLYWOOD TO FRAMING MEMBERS WITH 2 1/2" NAILS @ 6" O.C. ON ALL PANEL EDGES AND 12" O.C. ON INTERMEDIATE FRAMING MEMBERS. BLOCK ALL EDGES UNLESS T & G JOINT IS PROVIDED.
5. NAIL 1 1/2" X 6" DECKING WITH 1-4" FACE NAIL AND 1-4" TOE NAIL AT EACH SUPPORT.
6. PROVIDE 16 GA. METAL FRAMING ANGLES EACH SIDE OF JOIST FRAMING INTO FLUSH BEAMS.
7. SUPPORT ALL BUILT UP BEAMS ON A MATCHING NUMBER OF STUDS NAILED TOGETHER AS A BUILT UP POST AND CARRIED DOWN TO FOUNDATIONS.
8. TREAT ALL WOOD IN CONTACT WITH CONCRETE OR GROUND WITH GREEN CUPRINOL OR EQUAL PRESERVATIVE.
9. NAILING TO BE AS PART 9 OF N.B.C. UNLESS NOTED OTHERWISE. STUD WALLS TO BE FASTENED TO CONCRETE WITH 5/8" DIAMETER ANCHOR BOLTS AT 48" o/c. ALONG BUILDING PERIMETER, AND WITH RAMSET ANCHORS OR EQUAL AT 16" o/c. FOR INTERIOR WALLS.
10. JOISTS AT ALL INTERIOR BEARING WALLS AND DROPPED BEAMS OR HEADERS SHALL BE BLOCKED SOLID AT THE FIRST AND SECOND LEVELS OF WOODFRAME CONSTRUCTION.
11. WHEN HANGERS ARE USED TO FRAME INTO THE SIDE OF SUPPORTING MEMBERS, THEY SHALL BE ADEQUATE TO CARRY THE APPLIED LOADING. FOR STRUCTURAL COMPOSITE LUMBER (SCL), WOOD JOISTS AND GLULAM, USE HANGERS SPECIFICALLY DESIGNED FOR USE WITH APPLICABLE MEMBER TYPE. DO NOT USE HANGERS WHICH ARE INTENDED FOR USE WITH SAWN LUMBER UNLESS APPROVED BY STRUCTURAL ENGINEER. WHEN FRAMING INTO THE SIDE OF A SCL BEAM COMPOSED OF MULTIPLE PLYS THE CONNECTION SHALL BE ADEQUATE TO TRANSFER LOADS TO ALL PLYS. UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS. PROVIDE HANGERS WITH THE FOLLOWING CAPACITY FOR SCL BEAMS:

BEAM WIDTH	LOAD
1 3/4"	2000 LBS
3 1/2"	3500 LBS
5 1/4"	4500 LBS

STRUCTURAL LIGHT GAUGE STEEL FRAMING

1. SUPPLY AND INSTALL LG (LIGHT GAUGE) STEEL FRAMING WHERE INDICATED ON STRUCTURAL AND ARCHITECTURAL DRAWINGS.
2. FRAMING MEMBERS TO BE COLD-FORMED STEEL TO ASTM A446 GRADE D AND HOT DIP GALVANIZED TO ASTM A525 G60. MINIMUM SIZE AS FOLLOWS:

CHANNEL JOISTS & STUDS	362S125-33
TRACK END CLOSURES	362T150-33
ANGLE SUPPORT MEMBERS	3"x3"-43

3. SIZE OF FRAMING MEMBER TO BE SUFFICIENT TO CARRY WEIGHT OF FINISHING MATERIALS (MINIMUM 10 PSF) PLUS A HORIZONTAL WIND LOAD AS PER EXTERNAL CLADDING NOTES OR A VERTICAL SNOW LOAD AS PER PLANS.
4. PROVIDE LAPPED CONNECTIONS AND FASTEN WITH MINIMUM 3-#8 TEK SCREWS.
5. SUPPORT HORIZONTAL AND VERTICAL MEMBERS AT MAX. 4'-0" O/C. USE CLIP ANGLES TO STRUCTURAL STEEL FRAMING, CONCRETE OR MASONRY. SECURE WITH 3/8" BOLT OR OTHER APPROVED FASTENER. WIRE HANGERS ARE PERMITTED WHERE ADEQUATE LATERAL BRACING IS USED.
6. INSTALL LG STEEL FRAMING PLUMB AND TRUE. WHERE STRUCTURAL SUPPORTING MEMBER IS CAMBERED, OR OTHERWISE MISALIGNED, ADJUST FRAMING ELEVATIONS TO PROVIDE A TOLERANCE OF + 1/4" TO DIMENSIONS SHOWN ON DRAWINGS.
7. SUBMIT 4 SETS OF SHOP DRAWINGS TO THE ENGINEER AND OBTAIN APPROVAL PRIOR TO FABRICATION. SHOW ALL SIZES, CONNECTION DETAILS AND MATERIAL SPECIFICATIONS.

STRUCTURAL STEEL

1. FABRICATE AND ERECT STRUCTURAL STEEL TO CAN/CSA S16-14, AND SUPPLEMENT NO.1 "LIMIT STATES DESIGN OF STEEL STRUCTURES".
2. PROVIDE STRUCTURAL STEEL TO CSA G40.20/21 "STRUCTURAL QUALITY STEELS", TO THE FOLLOWING GRADES:

FLANGE BEAMS AND COLUMNS (WWF, W & HP SHAPES)	350W
CHANNELS AND ANGLES:	300W
HSS SECTIONS (CLASS C):	350W
STRUCTURAL BARS AND PLATES:	300W
MISCELLANEOUS STEEL:	300W
PIPE COLUMNS:	ASTM A53, Fy = 29.7 psi MIN.
STEEL CONNECTION BOLTS - MIN 3/4" DIA.	ASTM A325
ANCHOR BOLTS	ASTM A307

3. DESIGN OF CONNECTIONS BY STEEL FABRICATOR UNLESS DETAILED ON THE DRAWINGS. USE MIN. 2 BOLTS PER CONNECTION AND DESIGN FOR BEARING CONNECTIONS WITH THREADS INCLUDED IN SHEAR PLANE.
4. TIGHTEN ALL BOLTS WITH IMPACT WRENCH.
5. PROVIDE CONTINUOUS 35 MPa (5000 PSI) GROUT BED BENEATH COLUMN BASE PLATES AND OTHER STEEL CONNECTIONS BEARING ONTO CONCRETE.
6. FRAME OPENINGS IN STEEL DECK GREATER THAN 18" WITH STEEL ANGLE L3 x 3 x 1/4 ALL SIDES.
7. PAINT STEEL SURFACES WITH ONE COAT GREY STANDARD PRIMER TO CISC/CPMA 1-73A EXCEPT WHERE SPECIFICALLY EXCLUDED BY THE OWNER.
8. SUBMIT FOUR SETS SHOP DRAWINGS TO THE ENGINEER AND RECEIVE APPROVAL PRIOR TO FABRICATION. SHOW ALL DETAILS AND MATERIAL SPECIFICATIONS. SHOP DRAWINGS TO BE SEALED BY A B.C. PROFESSIONAL ENGINEER FOR DESIGN OF CONNECTIONS.

WELDING

9. WELD TO CSA STANDARD W59.03 BY FABRICATORS QUALIFIED TO CSA W47.1.
10. WELD REINFORCING STEEL TO CSA W186. USE WELDABLE REBAR TO CSA G30.18.
11. MINIMUM SIZE OF FIELD WELDS, 1/16" LESS THAN THE THICKNESS OF MATERIAL BUT NOT LESS THAN 1/4".
12. TOUCH UP ALL FIELD WELDS WITH PRIMER AFTER SLAG HAS BEEN REMOVED.

HANDRAILS AND GUARDS

1. DESIGN ALL GUARDS TO RESIST LOADS AS SPECIFIED IN SECTION 4.1.5.14 OF THE B.C. BUILDING CODE 2018.
   - HORIZONTAL DESIGN LOADS:
     EXITS, STAIRS, WALKWAYS & MISC. - 50 PLF OR 225 Lb. MINIMUM AT ANY LOCATION.
     ELEMENTS WITHIN GUARDRAIL - 110 Lb. AT ANY LOCATION NOT IN COMBINATION WITH FOREGOING LOADS.
   - VERTICAL DESIGN LOADS:
     VERTICAL AT TOP OF GUARDRAIL - 110 PLF NOT IN COMBINATION WITH FOREGOING LOADS
2. PROVIDE SHOP DRAWINGS, SEALED BY A B.C. PROFESSIONAL ENGINEER. INCLUDE MEMBER SIZES, SPACING AND CONNECTIONS TO STRUCTURE. ALSO INCLUDE ALL DETAILS FOR REINFORCING OF SUPPORTING STRUCTURAL ELEMENTS TO RESIST GUARD FORCES.

SCOPE OF FIELD REVIEW

BIANCO LAM PROVIDES FIELD REVIEW ONLY FOR THE WORK SHOWN ON THE STRUCTURAL DRAWINGS PREPARED BY BIANCO LAM. THIS REVIEW IS A PERIODIC REVIEW AT THE PROFESSIONAL JUDGEMENT OF BIANCO LAM. THE PURPOSE IS TO ASCERTAIN THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE PLANS AND SUPPORTING DOCUMENTS PREPARED BY BIANCO LAM, AND TO FACILITATE COMPLETION OF THE LETTERS OF ASSURANCE BY BUILDING CODE AUTHORITIES. FIELD REVIEWS BY BIANCO LAM ARE NOT CARRIED OUT FOR THE BENEFIT OF THE CONTRACTOR(S) WORK. NOR DOES THE FIELD REVIEW MAKE BIANCO LAM GUARANTORS OF THE CONTRACTOR(S) WORK. IT REMAINS THE CONTRACTOR(S) SOLE RESPONSIBILITY TO PROVIDE HIS OWN QUALITY CONTROL AND TO PERFORM THE WORK WITH GOOD WORKMANSHIP AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

City of Richmond Building Approvals
City review of documents stamped:
Permit No.: 19-875824-00

1. does not relieve the Owner of Lands referred to in this document from full responsibility for work being carried out in compliance with City and Provincial enactments:
2. is subject to terms and conditions printed on the permit and prescribed in the City bylaws.

Reviewed by: GCW Date: Nov 6/19

CITY OF RICHMOND
OCT 11 2019
RECEIVED

STRUCTURAL DRAWING LIST:

S1	GENERAL NOTES & SPECIFICATIONS
S2	BUILDING FOUNDATION PLAN
S3	BUILDING ROOF FRAMING PLAN & ROOF DIAPHRAGM
S4	BUILDING WALL PANEL ELEVATIONS
S5	BUILDING SECTIONS
S6	BUILDING SECTIONS

No.	DATE	DESCRIPTION
3	OCT.04'19	ISSUED FOR TENDER
2	SEPT.20'19	ISSUED FOR BUILDING PERMIT
1	JUL.15'19	COORDINATION ISSUE

REVISIONS

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855 WEST 23rd AVENUE
VANCOUVER, BC, V5Z 2B1

PROJECT
INDIA CULTURAL CENTRE OF CANADA
KITCHEN/BLDG ADDITION
STRUCTURAL
8600 NO. 5 ROAD
RICHMOND, BC

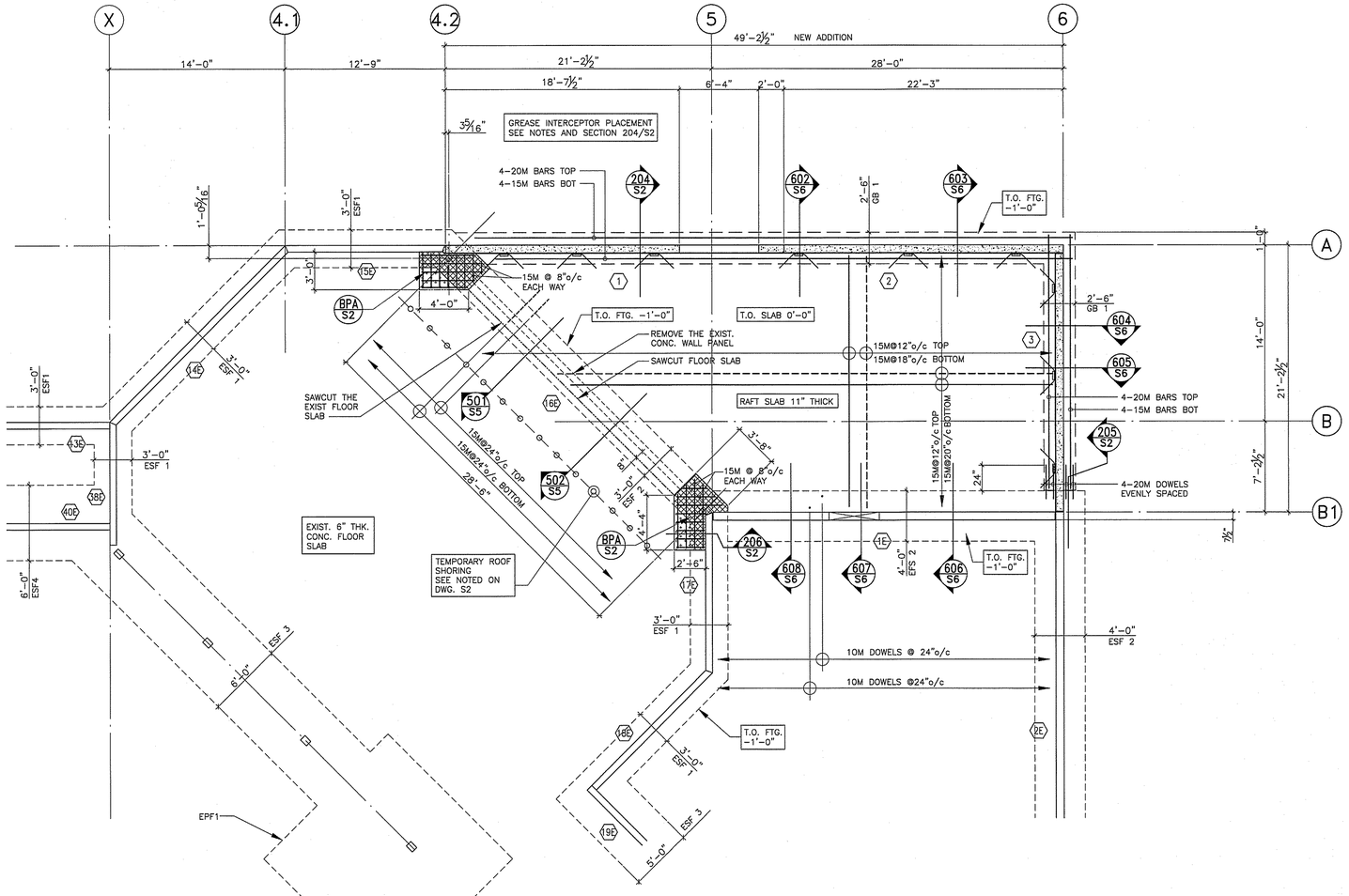
DRAWING
SPECIFICATIONS AND NOTES

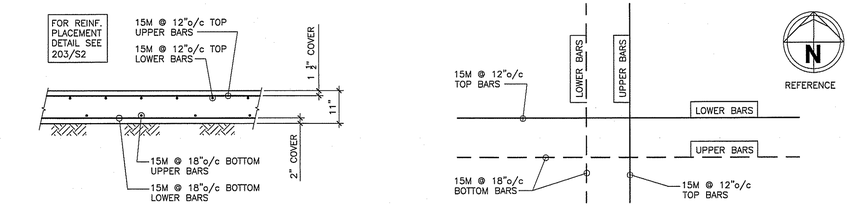
THESE PLANS MUST BE KEPT ON THE JOB SITE FOR INSPECTIONS

SEAL
PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, J. R. STEINER
Sept. 2019

DRAWN	JRS
CHECKED	JRS
SCALE	AS NOTED
DATE	JUNE 2019

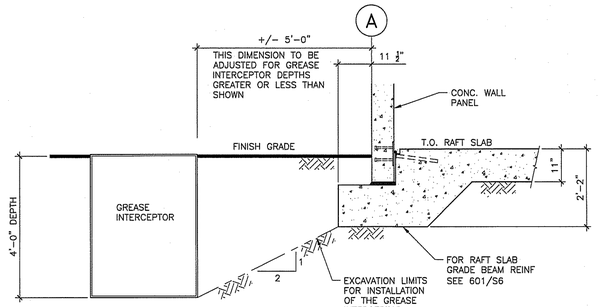
PROJECT - DRAWING NUMBER	REV.
19-059 - S1	3



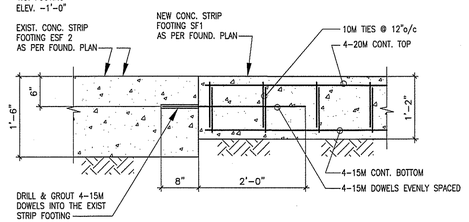


202 S2 SECTION—RAFT SLAB REINF.
SCALE: 1/2"=1'-0"

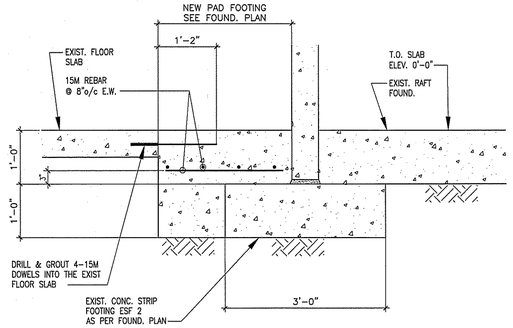
203 S2 PLAN—RAFT SLAB REINF. PLACEMENT
SCALE: 1/2"=1'-0"



204 S2 SECTION—GREASE INTERCEPTOR PLACEMENT
SCALE: 1/2"=1'-0"



205 S2 SECTION — EXIST/NEW FOUND.
SCALE: 3/4"=1'-0"



206 S2 SECTION — NEW PAD FOOTING
SCALE: 3/4"=1'-0"

FOUNDATION PLAN — EXISTING BUILDING & NEW ADDITION
SCALE: 3/16" = 1'-0"

NATIVE SOIL BEARING PRESSURE:
FACTORED (ULS): MAT FOUND. — 2,000 PSF
SERVICE (SLS): MAT FOUND. — 1,400 PSF

CONCRETE RAFT SLAB:
- TOP OF SLAB @ EL. 100'-0"
- 11" THK. SLAB ON GRADE
- 15M @ 12" EACH WAY (TOP)
- 15M @ 20" EACH WAY (BOTTOM)
- FOR REINFORCEMENT PLACEMENT AND COVER REFER TO SECTION 202/S1 & PLAN 203/S2
- 6 MIL (UV-RATED) POLY VAPOUR BARRIER (LAP EDGES MINIMUM 12")
- SEE SOILS REPORT FOR SUBGRADE PREPARATION AND RECOMMENDATIONS.

EXIST. FOOTING SCHEDULE:

TYPE	FOOTING SIZE
ESF 1	3'-0" W x 12" DP
ESF 2	4'-0" W x 18" DP
ESF 3	5'-0" W x 12" DP
ESF 4	6'-0" W x 21" DP

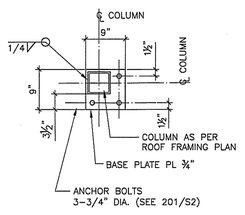
NEW GRADE BEAM SCHEDULE:

TYPE	GB SIZE	REINFORCING
GB 1	2'-6" W x 14" DP	SEE 601/S6

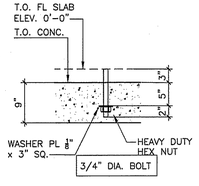
NEW PAD FOOTING
12" DEEP
24" DEEP
— SEE 204/S2

LEGEND — WALL PANELS:
- 3E TO 9E — EXIST. CONC. WALL PANELS ERECTED IN 1992
- 1E & 2E — EXIST. CONC. WALL PANELS ERECTED IN 2006
- 1 TO 3 — ADDITION NEW CONC. WALL PANELS

TEMPORARY SHORING OF ROOF STRUCTURE
1. TEMPORARY SHORING OF THE BUILDING STRUCTURE IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
2. THE CONTRACTOR IS TO PROVIDE SIGNED AND SEALED SHOP DRAWINGS (3 COPIES) OF THE TEMPORARY SHORING SYSTEM TO THE ENGINEER OF RECORD FOR REVIEW AND ACCEPTANCE.
3. SHOP DRAWINGS TO BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN B.C.
4. SHOP DRAWINGS ARE TO INCLUDE LAYOUT DIMENSIONS, SHORING POST AND SHORING BEAM SPECIFICATIONS, AND DETAILS OF THE SHORING SYSTEM INSTALLATION.
5. SHOP DRAWINGS ARE TO INCLUDE THE ESTIMATED SHORING LOADS. THE SHORING LOADS ARE TO SHOW THE EXISTING BUILDING LIVE AND DEAD LOADS, AND THE CONSTRUCTION LIVE AND DEAD LOADS.
6. AFTER THE SHORING SYSTEM HAS BEEN INSTALLED, AND PRIOR TO DEMOLITION OF THE EXIST. BUILDING, THE SHORING IS TO BE INSPECTED BY THE ENGINEER FOR REVIEW AND APPROVAL IN WRITING.



BPA S2 PLAN — BPL A
SCALE: 3/4"= 1'-0"
U/S BASE PL ELEV. -0'-3"



201 S2 ANCHOR BOLT DETAIL
SCALE: 3/4"= 1'-0"

CITY OF RICHMOND
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REVISIONS

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PROJECT
INDIA CULTURAL CENTRE OF CANADA
KITCHEN/BLDG ADDITION
STRUCTURAL
8600 NO. 5 ROAD
RICHMOND, BC

DRAWING
FOUNDATION PLAN
EXSIT. & NEW ADDITION
SECTION & DETAILS
& NOTES

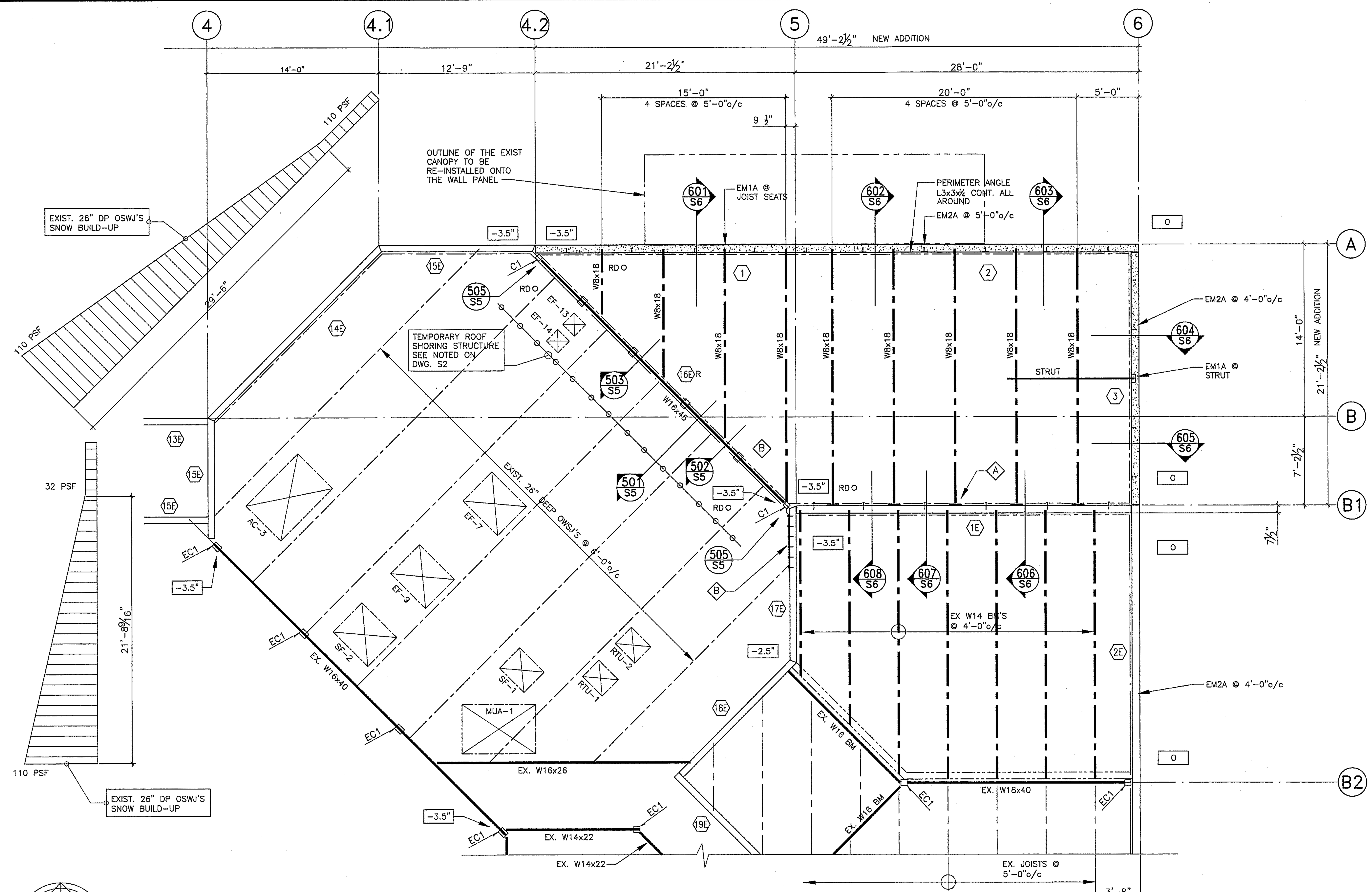
SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. R. STEINER
Sept. 2019

DRAWN	JRS
CHECKED	JRS
SCALE	AS NOTED
DATE	JUNE 2019

PROJECT — DRAWING NUMBER: 19-059 — S2
REV.: 3

19-875824-00

THESE PLANS MUST BE KEPT ON THE JOB SITE FOR INSPECTIONS



BUILDING B – ROOF FRAMING PLAN

SCALE: 3/16" = 1'-0"

EXIST. BLDG ROOF DESIGN LOADS:

ROOF LIVE LOAD – 36 PSF + SNOW B/UP
ROOF DEAD LOAD – 20 PSF
NET ROOF UPLIFT – 14 PSF
ROOF TOP UNIT LOADS AS PER THE ROOF FRAMING PLAN
SNOW BUILD-UP LOADS AS PER THE ROOF FRAMING PLAN

NEW ADD. BLDG ROOF DESIGN LOADS:

ROOF LIVE LOAD – 32 PSF
ROOF DEAD LOAD – 20 PSF
NET ROOF UPLIFT – 14 PSF

EXIST. CANOPY DESIGN LOADS:

LIVE LOAD 50 PSF
DEAD LOAD 5 PSF

COLUMN SCHEDULE:

TYPE	COLUMN SIZE
C1	HSS 5 x 5 x 0.25

KEY NOTES:

A — NEW W8 ROOF BEAMS TO BE BOLTED TO THE EXIST. WALL PANEL SEE 606/S6 AND 609/S6 FOR DETAILS.

B — DRAG STRUT PL 3/8x8" CONT. C/W ¾" DIA. ADHESIVE BOLTS REFER TO PLAN 506/S5 & SECTION 507/S5

GENERAL NOTES:

- U/S OF DECKING ELEVATIONS AS SHOWN ON PLAN TYPICAL ALL AROUND PERIMETER & RIDGES UNLESS NOTED OTHERWISE.
- FOR RTU'S SEE MECHANICAL DRAWINGS FOR LOCATIONS & WEIGHTS. FRAME OPENINGS WITH L 4x4x1/4. SEE DRAWING S2A FOR SUPPORT.
- ROOF TOP PAVERS LOCATED ON ROOF AS PER THE ARCHITECTURAL DWGS.

ROOF DECKING:

1. 1½" DP. ROOF DECKING. SEE ROOF DIAPHRAGM FOR DECK THICKNESS & FASTENING SCHEDULE.
2. FOR DECK FASTENING DETAILS SEE DWG. S6.

EXISTING CANOPY NOTES:

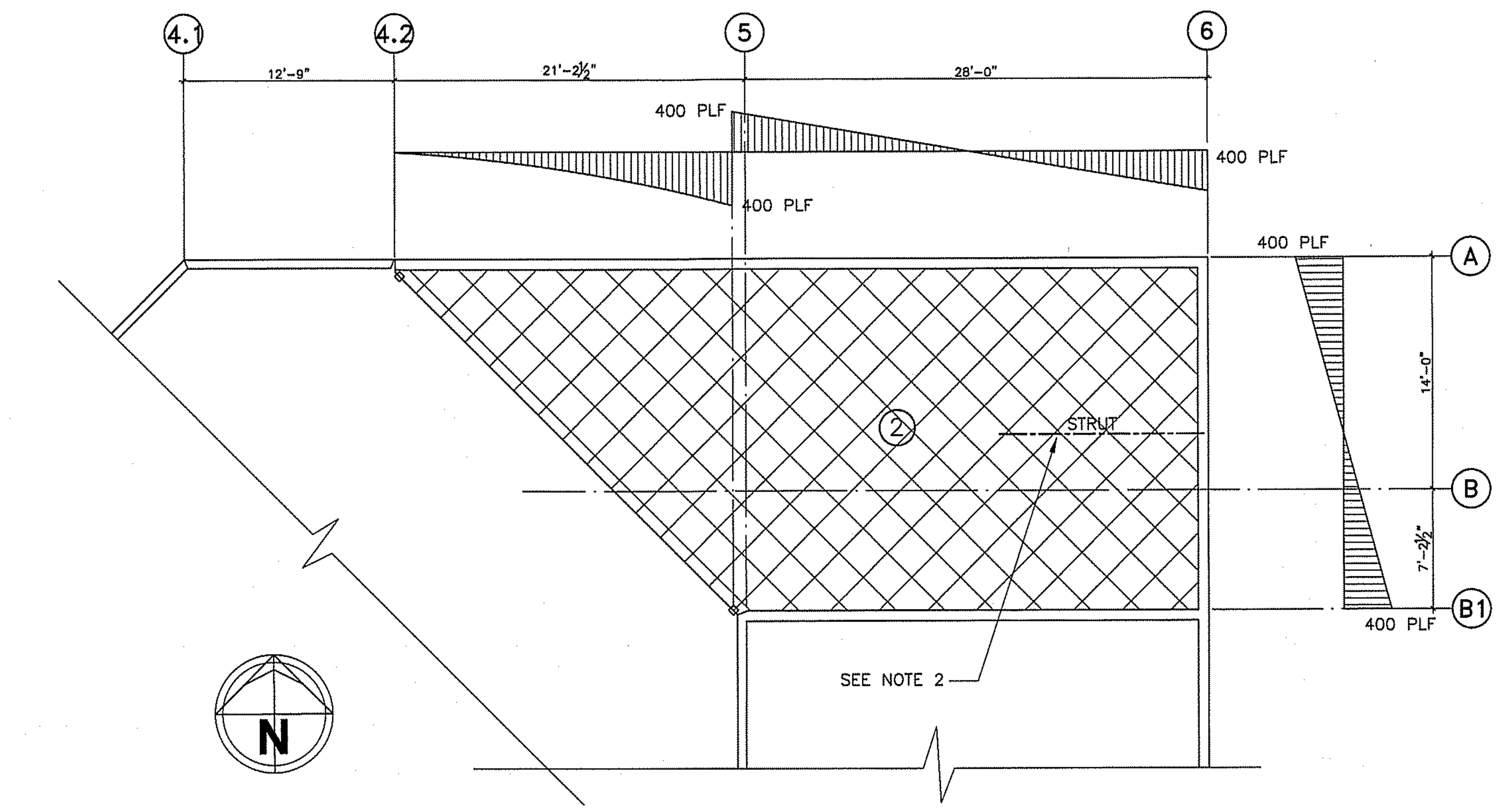
1. ATTACH THE CANOPY FRAME TO THE WALL PANEL WITH 2 ROWS OF ½" DIA. MECH. BOLTS @ 24"o/c. EMBED BOLTS MINIMUM 3".
2. MECH. BOLTS TO BE INSTALLED TO ACHIEVE ALLOWABLE PULLOUT (TENSION) CAPACITY OF 1,500 LBS.
3. THE 2 ROWS OF BOLTS TO BE INSTALLED ALONG THE TOP AND BOTTOM HORIZ. STEEL FRAMES OF THE CANOPY.
4. THE CANOPY IS TO BE HAVE WEATHER-PROOF FLASHING AND THE BOLTS TO BE SEALED WITH CAULKING AS REQUIRED TO KEEP THE BOLTS FREE OF MOISTURE.

ROOF TOP UNITS SCHEDULE

TYPE	EXIST/NEW	COMMENTS
AC-3	EXISTING	–
SF-1	NEW	TO REPLACE THE EXIST. UNIT
SF-2	NEW	TO REPLACE THE EXIST. UNIT
EF-7	NEW	TO REPLACE THE EXIST. UNIT
EF-9	NEW	TO REPLACE THE EXIST. UNIT
MAU-1	NEW	TO REPLACE THE EXIST. UNIT
RTU-1	EXISTING	–
RTU-2	EXISTING	–
EF-13	NEW	TO REPLACE THE EXIST. UNIT
EF-14	NEW	DECK OPN'G TO BE REINFORCED REFER TO SECTION 508/S5

LEGEND:

BCE – ROOF JOIST BOTTOM CHORD EXTENSION
RD – ROOF DRAIN
RS – ROOF SCUPPER
RTU1 – ROOF TOP UNIT
STRUT – PANEL TIE STRUT L3x5x3/8 AS PER 404/S4A
SC1 – SHEAR COLLECTOR ANGLE CONT. AS PER 402/S4A
SC2 – SHEAR COLLECTOR ANGLE L3x3x1/4 CONT. AS PER 903/S9A
1 – NEW CONCRETE TILT-UP WALL PANELS AS PER DWG. S4 SEE DWG. S5 AND S6 FOR WALL SECTIONS
1E – EXIST. 6 1/4" THK. CONC. WALL PANELS
1E R – EXIST. 6 1/4" THK. CONC. WALL PANEL TO BE REMOVED



BUILDING A – ROOF DECKING DIAPHRAGM PLAN

1/8" = 1'-0"

NOTES

1. ALL SHEAR LOADS SHOWN FACTORED
2. INSTALL POWDER-ACTUATED DRIVE NAILS @ 6"o/c ALONG ALL STRUTS. REFER TO THE ROOF FRAMING PLAN FOR STRUT LOCATIONS.

ROOF DECKING NOTES

ROOF METAL DECKING

1. APPROVED DECK PROFILES: VICWEST CL38, MERCURY CL900, CANAM P39=615 B.
2. DECK PROFILE: 1/2" DEEP, MINIMUM 22 GA.
3. LZC GALVINIZED (ZF 075) FOR INTERIOR AREAS, G90 (Z275) FOR EXTERIOR OR UNHEATED AREAS.

ROOF DECKING FASTENING DETAILS

1. USE POWDER-ACTUATED DRIVE NAILS FOR ALL DECK CONNECTIONS TO THE STEEL FRAME (JOISTS, BEAMS, STRUTS) EXCEPT FOR DECK SHEET END LAPS AS NOTED BELOW.
2. APPROVED POWDER-ACTUATED DRIVE NAILS:
   2.1 JOISTS AND PURLINS: HILTI X-HSN 24 FOR FRAME THICKNESS 3/16" TO 3/8" MAXIMUM.
   2.2 SECONDARY (LIGHT) STEEL FRAMING: HILTI X-HSN 24 FOR STEEL FRAME THICK 3/16" TO 3/8" MAXIMUM.
   2.3 STRUCTURAL STEEL: HILTI X-ENP-19 L15 FOR FRAME THICKNESS 1/4" OR GREATER
   2.4 STEEL EMBED PLATES: HILTI X-ENP-19 L15 FOR EMBED PLATE THICKNESS 1/4" OR GREATER
3. INSTALL POWDER-ACTUATED DRIVE NAILS TO THE SUPPLIERS RECOMMENDATIONS.
4. DECK SHEET SIDE LAPS FASTENERS:
   4.1 DECK GAUGES 22 TO 18 – FASTENER TYPE = HILTI S-SLC 01 M HWH.
   4.2 DECK GAUGES 16 – FASTENER TYPE = HILTI S-SLC 02 MHWH.
   4.3 SEE ROOF DECK FASTENING SCHEDULE FOR SPACING OF SCREW FASTENERS.
5. DECK SHEET END LAPS:
   5.1 SCREW FASTEN ALL END LAPS WITH HILTI S-MD 12-24x1 5/8 M HWH5 SELF TAPPING SCREWS
   5.2 FASTEN DECK SHEET END LAPS WITH 36/9 PATTERN.

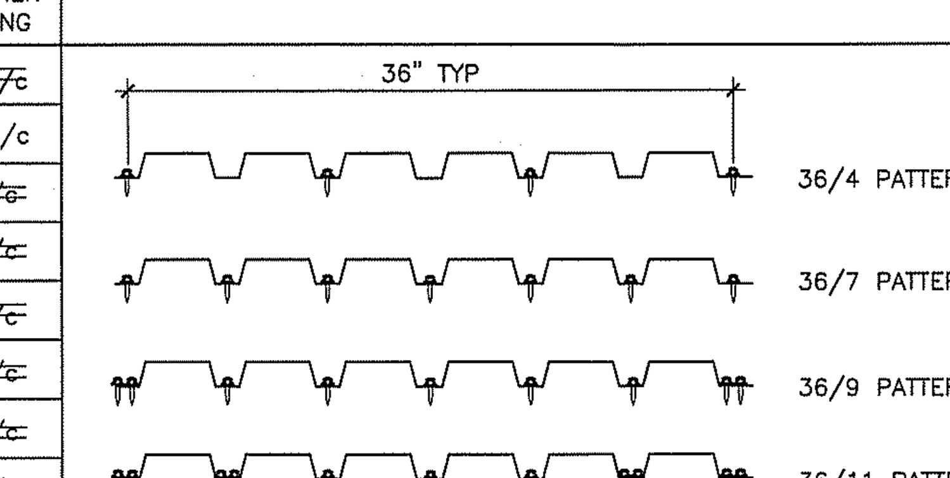
ROOF DECK PERIMETER ANGLE FASTENING SCHEDULE

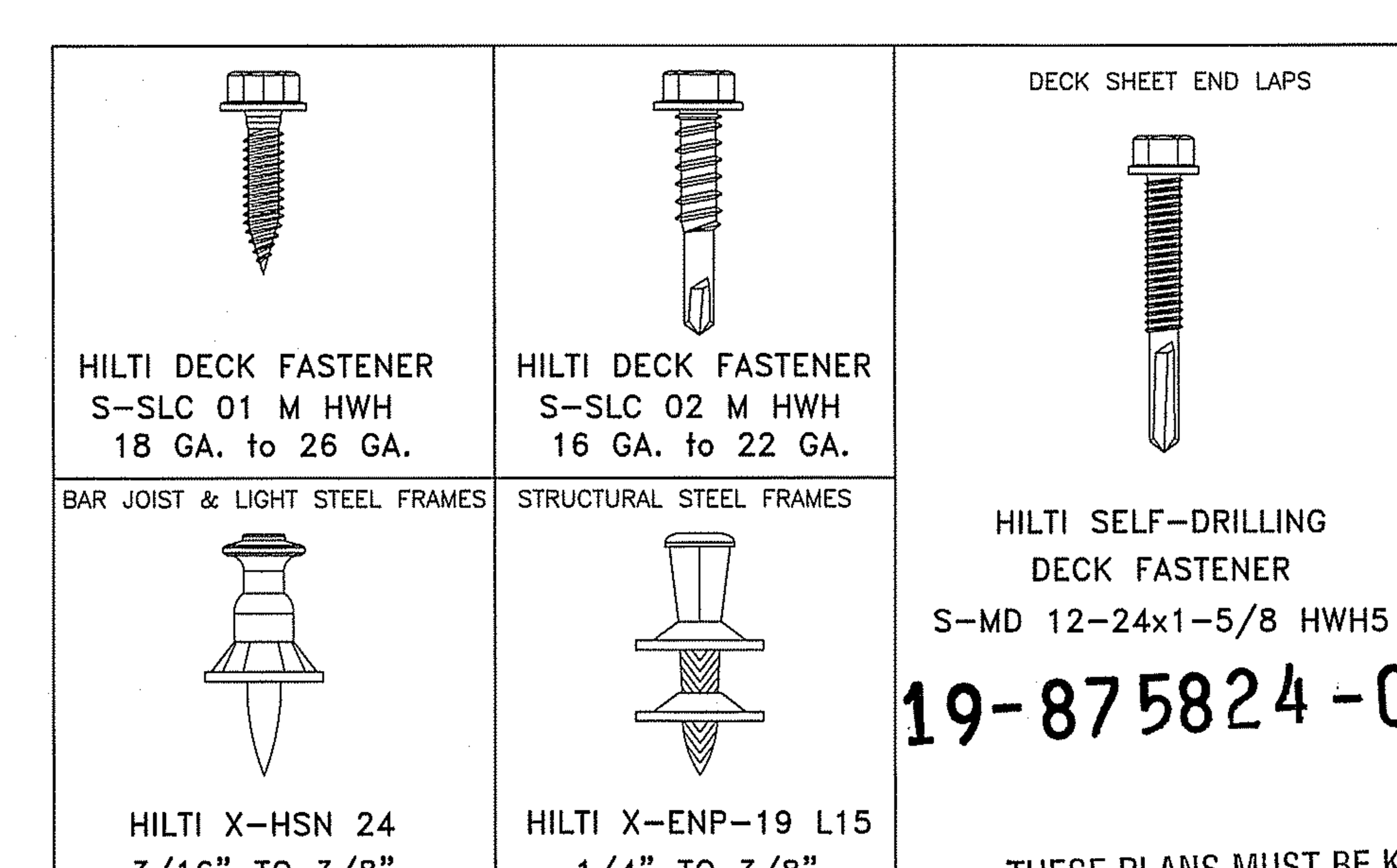
1. PERPENDICULAR TO DECK FLUTES: FASTEN DECK WITH POWDER-ACTUATED DRIVE NAILS AT MINIMUM 36/9 PATTERN.
2. PARALLEL TO DECK FLUTES: FASTEN DECK WITH POWDER-ACTUATED DRIVE NAILS @ 6" o/c MAXIMUM SPACING.

ROOF DECK FASTENING SCHEDULE

ZONE	DECK GAUGE	POWDER ACTUATED NAILS FASTENING PATTERN	SIDE LAP SCREW FASTENER SPACING
~~1~~	~~22 (0.030")~~	~~36/4~~	~~12" o/c~~
2	22 (0.030")	36/7	12" o/c
~~3~~	~~22 (0.030")~~	~~36/7~~	~~6" o/c~~
~~4~~	~~22 (0.030")~~	~~36/9~~	~~4" o/c~~
~~5~~	~~20 (0.036")~~	~~36/7~~	~~6" o/c~~
~~6~~	~~20 (0.036")~~	~~36/9~~	~~4" o/c~~
~~7~~	~~18 (0.043")~~	~~36/7~~	~~8" o/c~~
~~8~~	~~18 (0.043")~~	~~36/7~~	~~4" o/c~~

ROOF DECK POWDER-ACTUATED DRIVE NAILS FASTENING PATTERNS





19-875824-00

THESE PLANS MUST BE KEPT ON THE JOB SITE FOR INSPECTIONS

CITY OF RICHMOND
OCT 11 2019
RECEIVED

No.	DATE	DESCRIPTION
3	OCT.04,19	ISSUED FOR TENDER
2	SEPT.20'19	ISSUED FOR BUILDING PERMIT
1	JUL.15'19	COORDINATION ISSUE

REVISIONS

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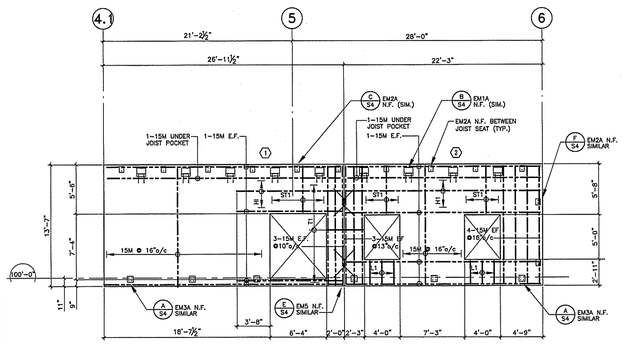
PROJECT
INDIA CULTURAL CENTRE OF CANADA
KITCHEN/BLDG ADDITION
STRUCTURAL
8600 NO. 5 ROAD
RICHMOND, BC

DRAWING
ROOF FRAMING PLAN & ROOF DIAPHRAGM SECTION & DETAILS & NOTES

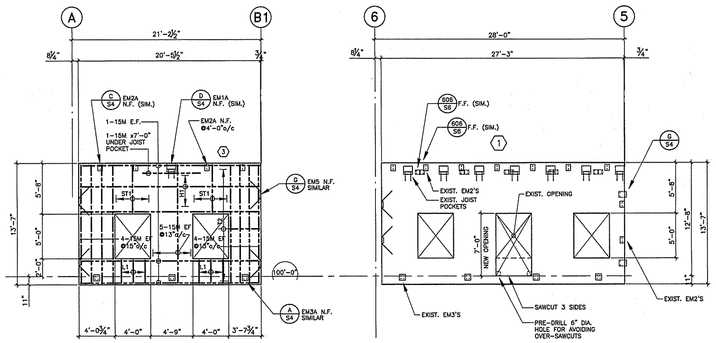
SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. R. STEINER
[illegible]

DRAWN	CHECKED	SCALE	DATE
JRS	JRS	AS NOTED	APRIL 2019

PROJECT – DRAWING NUMBER	REV.
19-059 – S3	3

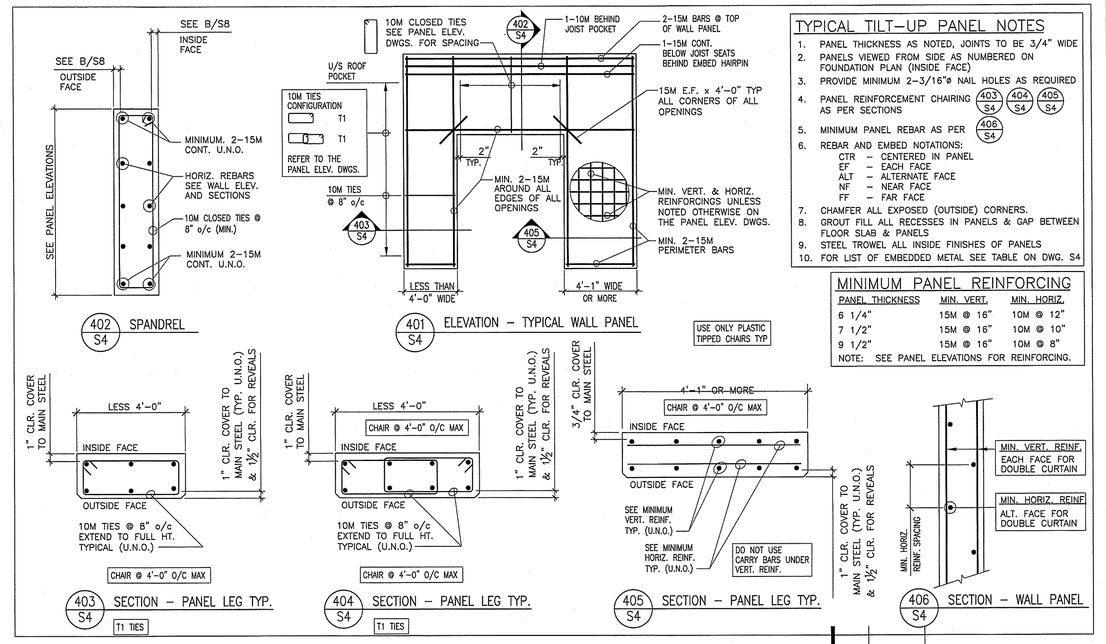


NEW 7 1/2" THK. PANEL ALONG LINE 'A'
(LOOKING FROM THE INSIDE)
1/8" = 1'-0"



NEW 7 1/2" THK. PANEL ALONG LINE '6'
(LOOKING FROM THE INSIDE)
1/8" = 1'-0"

EXIST. 7 1/2" THK. PANEL ALONG LINE 'B1'
(LOOKING FROM THE INSIDE)
1/8" = 1'-0"



TYPICAL TILT–UP PANEL NOTES

1. PANEL THICKNESS AS NOTED, JOINTS TO BE 3/4" WIDE
2. PANELS VIEWED FROM SIDE AS NUMBERED ON FOUNDATION PLAN (INSIDE FACE)
3. PROVIDE MINIMUM 2–3/16"ø NAIL HOLES AS REQUIRED
4. PANEL REINFORCEMENT CHAIRING AS PER SECTIONS 403 S4, 404 S4, 405 S4, 406 S4
5. MINIMUM PANEL REBAR AS PER
6. REBAR AND EMBED NOTATIONS:
   - CTR – CENTERED IN PANEL
   - EF – EACH FACE
   - ALT – ALTERNATE FACE
   - NF – NEAR FACE
   - FF – FAR FACE
7. CHAMFER ALL EXPOSED (OUTSIDE) CORNERS.
8. GROUT FILL ALL RECESSES IN PANELS & GAP BETWEEN FLOOR SLAB & PANELS
9. STEEL TROWEL ALL INSIDE FINISHES OF PANELS
10. FOR LIST OF EMBEDDED METAL SEE TABLE ON DWG. S4

MINIMUM PANEL REINFORCING

PANEL THICKNESS	MIN. VERT.	MIN. HORIZ.
6 1/4"	15M @ 16"	10M @ 12"
7 1/2"	15M @ 16"	10M @ 10"
9 1/2"	15M @ 16"	10M @ 8"

NOTE: SEE PANEL ELEVATIONS FOR REINFORCING.

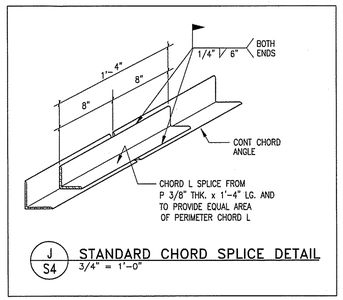
NOTE:

- SEE ARCHITECTURAL DWGS. FOR REVEALS.
- SEE PLANS AND SECTIONS FOR ADDITIONAL EMBEDDED MATERIALS NOT SHOWN ON TILT–UP WALL PANEL ELEVATIONS.
- SEE PANEL ELEVATIONS TO MATCH TOTAL NUMBERS OF SLAB EMBEDDED MATERIALS.
- ALLOW 3/4" GAP FOR ALL PANEL JOINTS; END DIMENSIONS ARE FROM CONCRETE EDGES.
- ALL PANELS ARE VIEWED FROM THE INSIDE OR FROM SIDE AS NUMBERED ON PLANS.

REINF. SCHEDULE – TIES & STIRRUPS
T1 = 10M TIES @ 8"o/c
T2 = 10M TIES @ 8"o/c
ST1 = 10M STIRRUPS TIES @ 8"o/c
H1 = 4–10M HORIZONTAL CONT. E.F. EVENLY SPACED
L1 = 3–15M VERTICAL E.F. @ 16"o/c

SCHEDULE – TIE CONFIGURATION
T1 = ▭ OR T1 = ▭▭

FOR T1 – SEE SECTION 403/S4
FOR T2 – SEE SECTION 404/S4
FOR ST1 – SEE SECTION 402/S4
FOR H1 – SEE SECTION 402/S4
FOR L1 – SEE SECTIONS 405/S4 & 406/S4



J S4 STANDARD CHORD SPLICE DETAIL
3/4" = 1'–0"

A S4 PANEL TO FLOOR SLAB CONNECTION
3/4" = 1'–0"

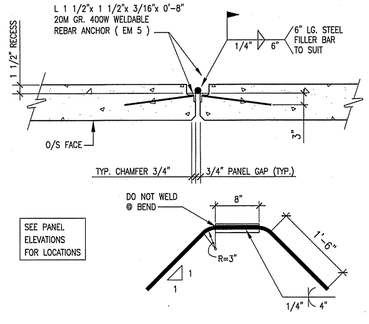
B S4 JOIST POCKETS
3/4" = 1'–0"

C S4 DECK CONNECTION
3/4" = 1'–0"

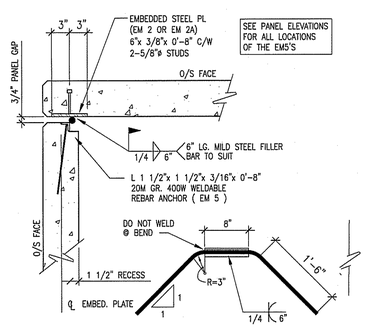
D S4 ROOF TIE STRUT
3/4" = 1'–0"

LIST OF EMBEDDED STEEL
(ALL REBAR GR 400 WELDABLE)

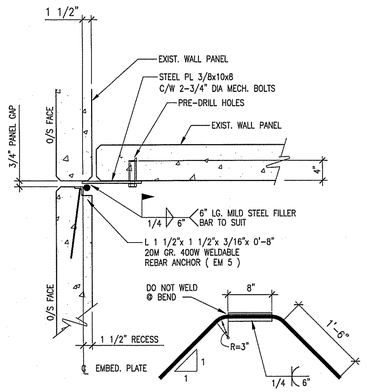
MARK	SECTION	ELEVATION	DESCRIPTION	REFERENCE / COMMENTS
EM 1	1'-0" 4"		L3 1/2"x 3 1/2"x 1/4"x 1'–0" C/W 2–15M GR. 400W WELDABLE REBAR	
EM 1A	1'-0" 6"		SAME AS EM 1	
EM 2 (EM 2A)			℄ 6"x 3/8"x 0'–8" 2–5/8"ø x 4" (6") STUDS	
EM 3 (EM 3A)			℄ 8"x 3/8"x 0'–8" 4–5/8"ø x 4" (6") STUDS	
EM 4 (EM 4A)			℄ 9"x 5/8"x 1'–6" 6–3/4"ø x 4" (6") STUDS	
EM 4B			℄ 9"x 5/8"x 1'–6" 8–20M x 48" LG REBAR	
EM 5			L1 1/2"x 1 1/2"x 3/16"x 0'–8" 1–20M REBAR ANCHOR GR. 400W (WELDABLE)	
EM 6	3"		BENT PL3/8"x 1'–0" LG 2–5/8"ø x 6" STUDS	
EM 7			L 3x 3x 1/4"x 4'–0" LG. C/W. 3–1/2"ø x 4" LG. STUDS	
EM 8	1'-0" 6" 1 1/2"		L3 1/2"x 3 1/2"x 1/4"x 2'–0" C/W 3–15M GR. 400W WELDABLE REBAR	
EM 9	3"		BENT PL. 6"x 3/16"x 8" LG. C/W. 1–20M REBAR ANCHOR SEE EM 5	
EM 10			℄ 6 1/4"x 3/8"x 1'–2" 4–5/8"ø x 8" LG. STUDS	
EM 13 (EM13A)			℄ 7 1/2"x 3/8"x 1'–0" 3–5/8"ø x 4" (12") LG. STUDS	
EM 15 (EM15A)			℄ 5" (7 1/2") x 1/4"x CONT. C/W 1/2"ø (5/8"ø) x 4" (6") STUDS @ 1'–4"	
EM 16 (EM16A)			℄ 10"x 3/8"x 12" c/w 4–5/8"ø x 5" (8") LG. STUDS	
EM 17			℄ 7 1/2"x 3/8"x 1'–6" c/w 5–3/4"ø x 12" LG. STUDS	
EM18			℄ 12"x 1/2"x 1'–2" C/W. 6–3/4"ø x 6" LG. STUDS	



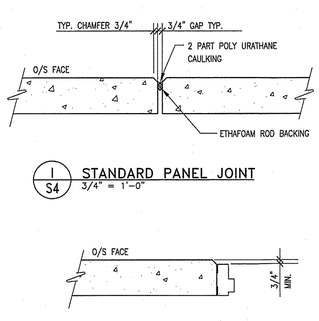
E S4 PANEL TO PANEL CONNECTION
3/4" = 1'–0"



F S4 PANEL TO PANEL CONNECTION
3/4" = 1'–0"



G S4 PANEL TO PANEL CONNECTION
3/4" = 1'–0"



I S4 STANDARD PANEL JOINT
3/4" = 1'–0"

H S4 MANDOOR FRAME DETAIL
3/4" = 1'–0"

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PROJECT
INDIA CULTURAL CENTRE OF CANADA
KITCHEN/BLDG ADDITION
STRUCTURAL
8600 NO. 5 ROAD
RICHMOND, BC

DRAWING
WALL PANEL ELEVATIONS AND DETAILS

19-875824-00

SEAL

DRAWN: JRS
CHECKED: JRS
SCALE: AS NOTED
DATE: JUNE 2019

PROJECT – DRAWING NUMBER: 19–059 – S4
REV.: 3

CITY OF RICHMOND
RECEIVED
OCT 11 2019

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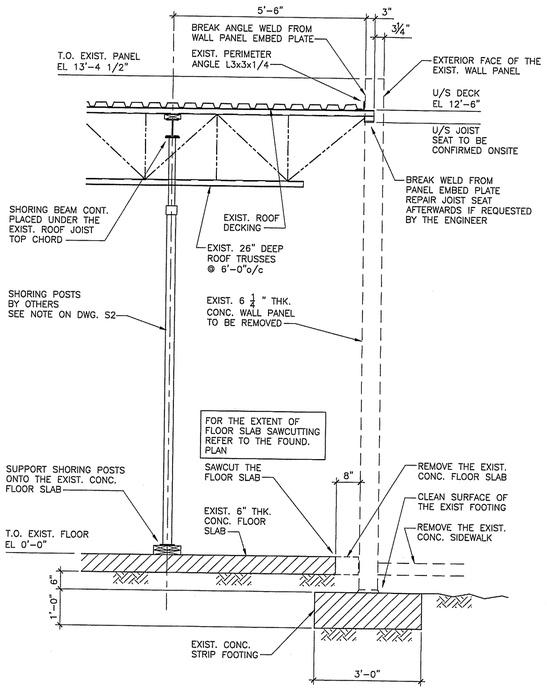
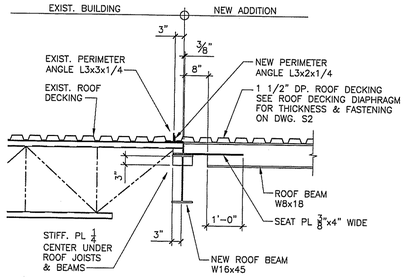
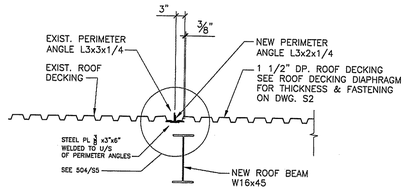
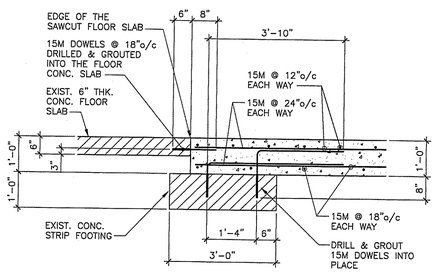


501 S5 SECTION – TEMPORARY SHORING OF ROOF
1/2" = 1'-0"

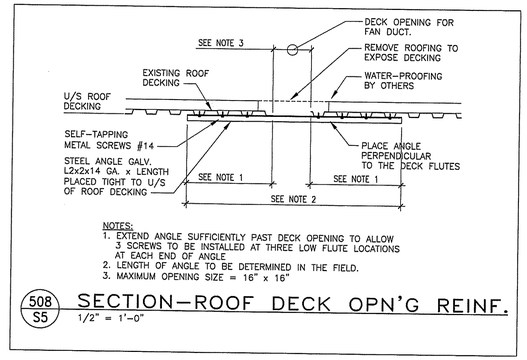


503 S5 SECTION
1/2" = 1'-0"



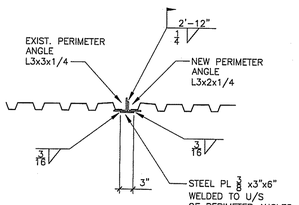


502 S5 SECTION
1/2" = 1'-0"

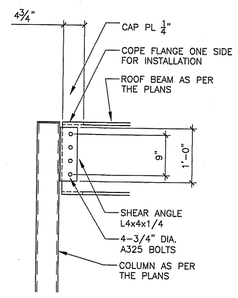


NOTES:
1. EXTEND ANGLE SUFFICIENTLY PAST DECK OPENING TO ALLOW 3 SCREWS TO BE INSTALLED AT THREE LOW FLUTE LOCATIONS AT EACH END OF ANGLE
2. LENGTH OF ANGLE TO BE DETERMINED IN THE FIELD.
3. MAXIMUM OPENING SIZE = 16" x 16"

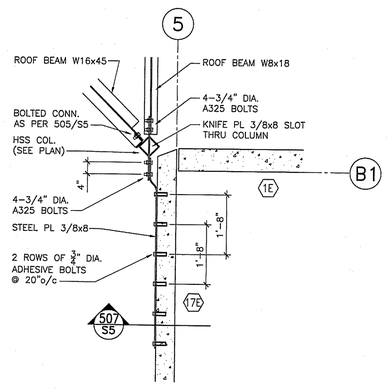
508 S5 SECTION–ROOF DECK OPN'G REINF.
1/2" = 1'-0"



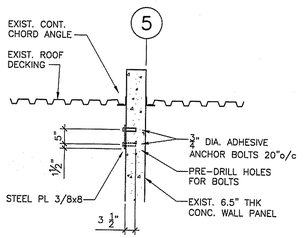
504 S5 SECTION
3/4" = 1'-0"



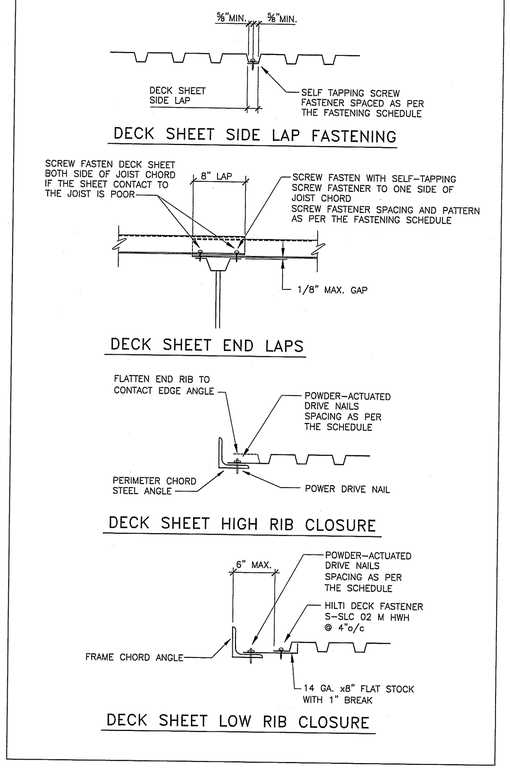
505 S5 SECTION
3/4" = 1'-0"



506 S5 PLAN DETAIL
1/2" = 1'-0"



507 S5 SECTION
1/2" = 1'-0"



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KITCHEN/BLDG ADDITION
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8600 NO. 5 ROAD
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DRAWING
WALL SECTIONS & DETAILS

19-875824-00

SEAL
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. R. STEINER
Sept.20/19

DRAWN	JRS
CHECKED	JRS
SCALE	AS NOTED
DATE	APRIL 2019

PROJECT – DRAWING NUMBER: 19–059 – S5
REV.: 3

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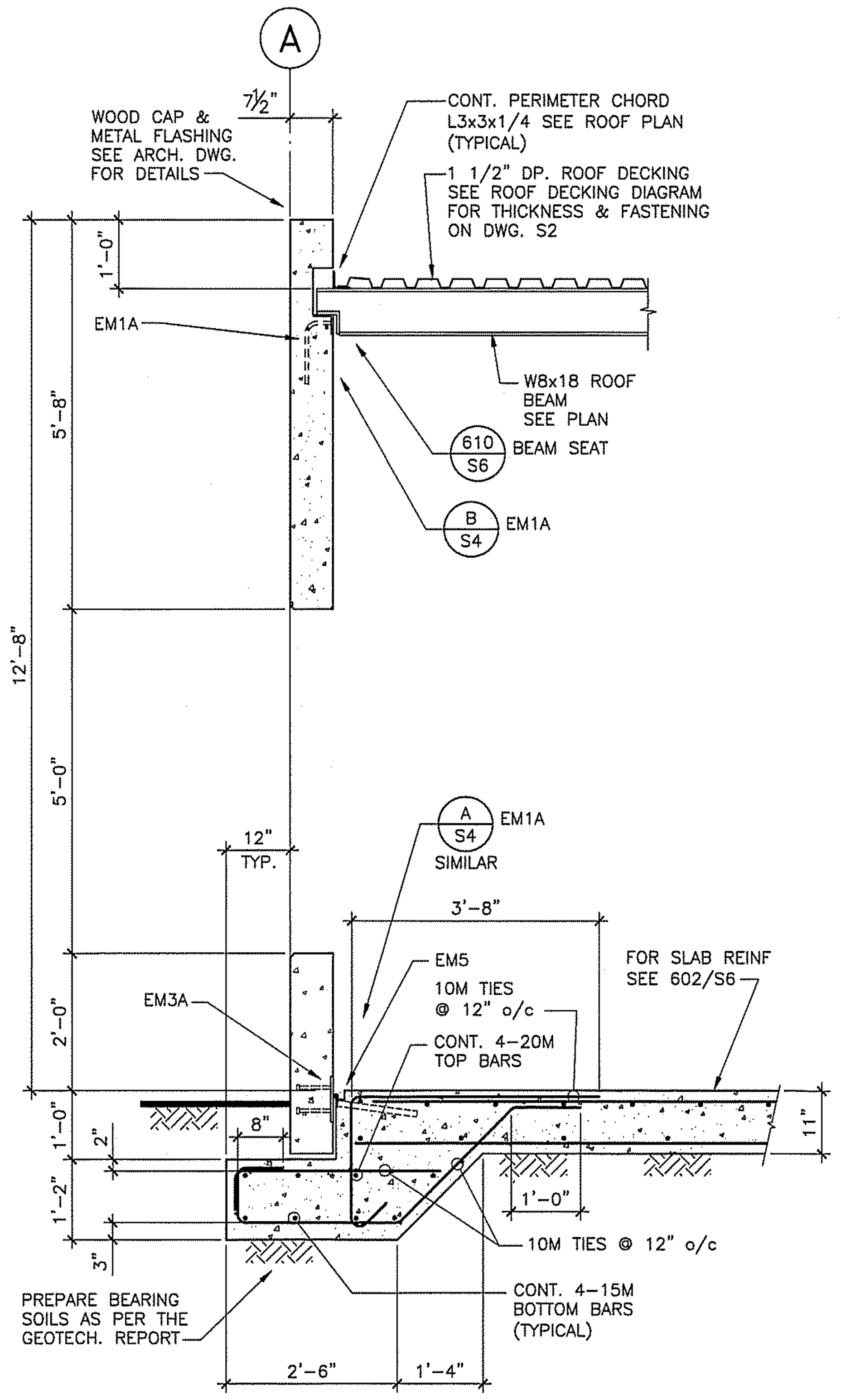
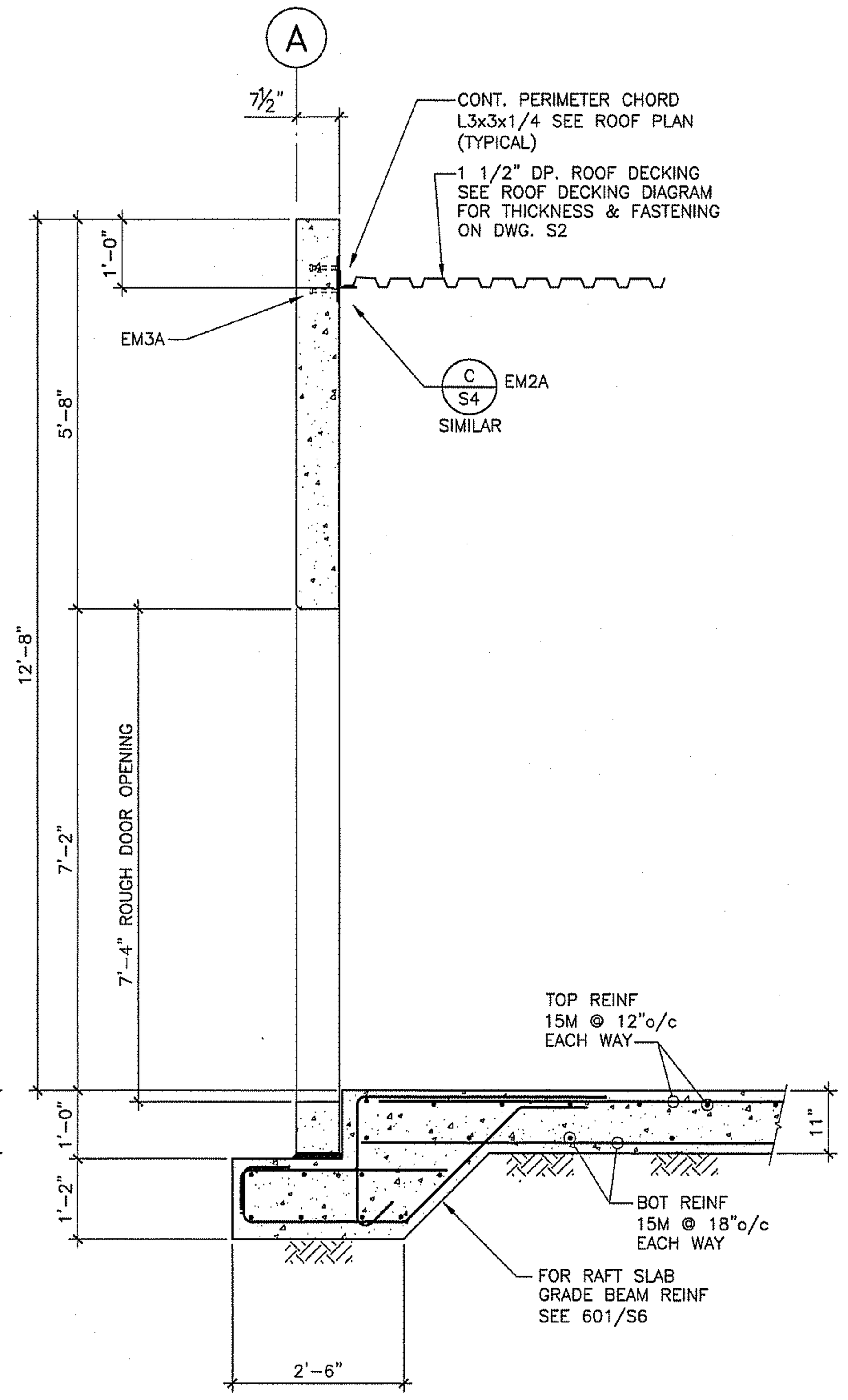
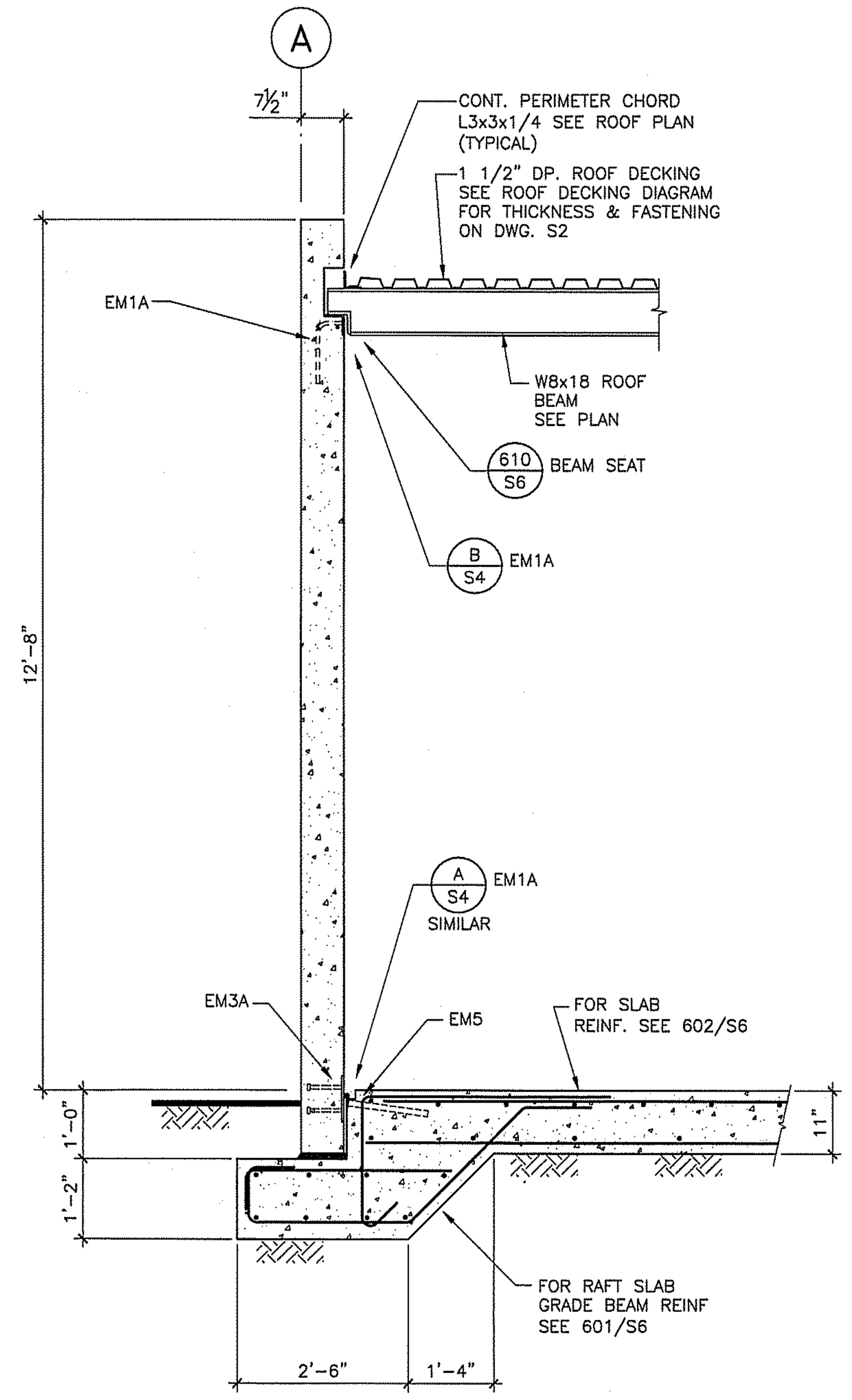

A
7½"
WOOD CAP & METAL FLASHING SEE ARCH. DWG. FOR DETAILS
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAGRAM FOR THICKNESS & FASTENING ON DWG. S2
EM1A
W8x18 ROOF BEAM SEE PLAN
610 S6 BEAM SEAT
B S4 EM1A
A S4 EM1A SIMILAR
12" TYP.
3'-8"
EM3A
EM5
10M TIES @ 12" o/c
CONT. 4-20M TOP BARS
FOR SLAB REINF SEE 602/S6
10M TIES @ 12" o/c
CONT. 4-15M BOTTOM BARS (TYPICAL)
PREPARE BEARING SOILS AS PER THE GEOTECH. REPORT
1'-0"
5'-8"
12'-8"
5'-0"
2'-0"
1'-0"
1'-2"
3"
2"
8"
11"
1'-0"
2'-6"
1'-4"

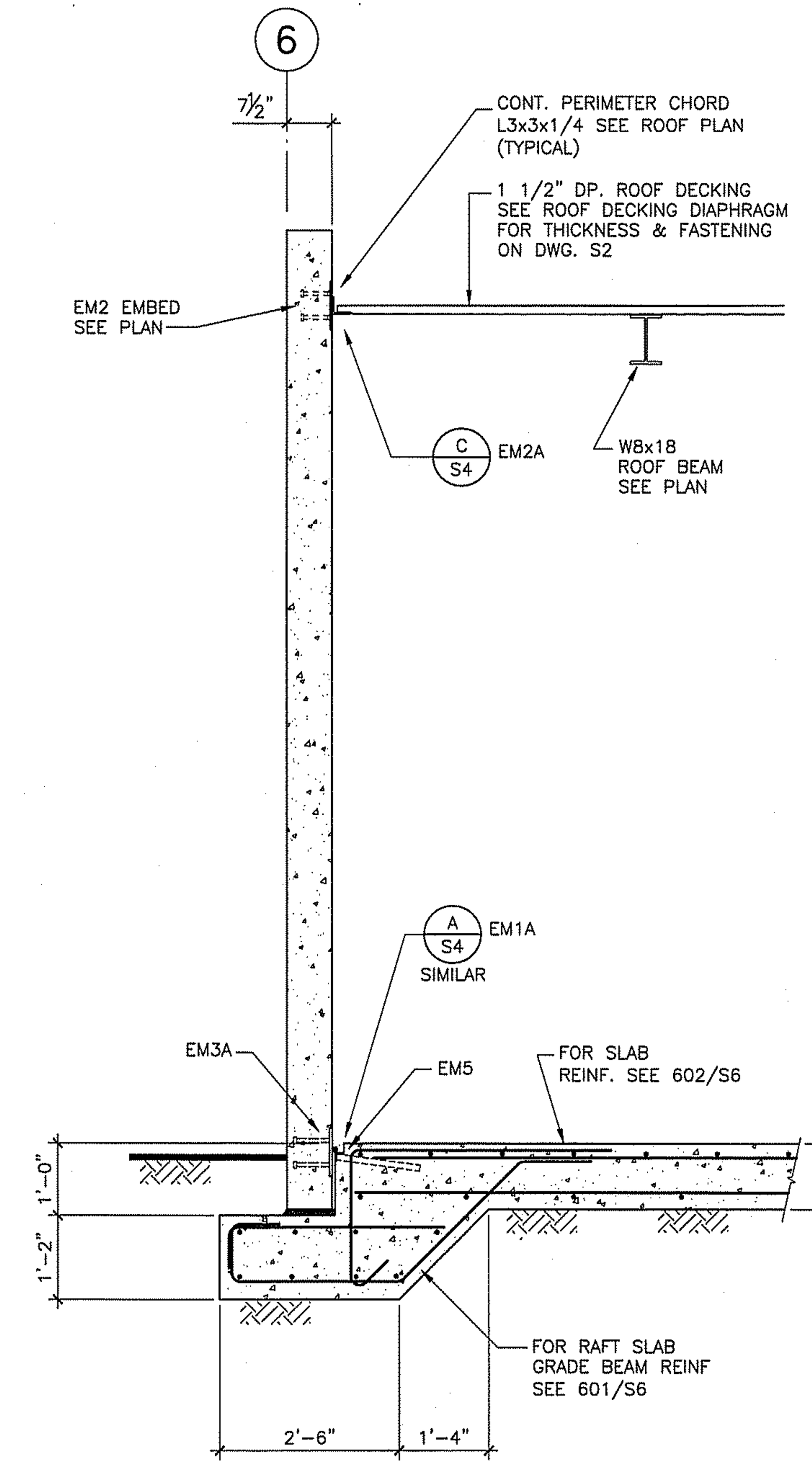
601 S6 SECTION
1/2" = 1'-0"


A
7½"
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAGRAM FOR THICKNESS & FASTENING ON DWG. S2
EM3A
C S4 EM2A SIMILAR
7'-4" ROUGH DOOR OPENING
TOP REINF 15M @ 12"o/c EACH WAY
BOT REINF 15M @ 18"o/c EACH WAY
FOR RAFT SLAB GRADE BEAM REINF SEE 601/S6
1'-0"
5'-8"
12'-8"
7'-2"
1'-0"
1'-2"
11"
2'-6"

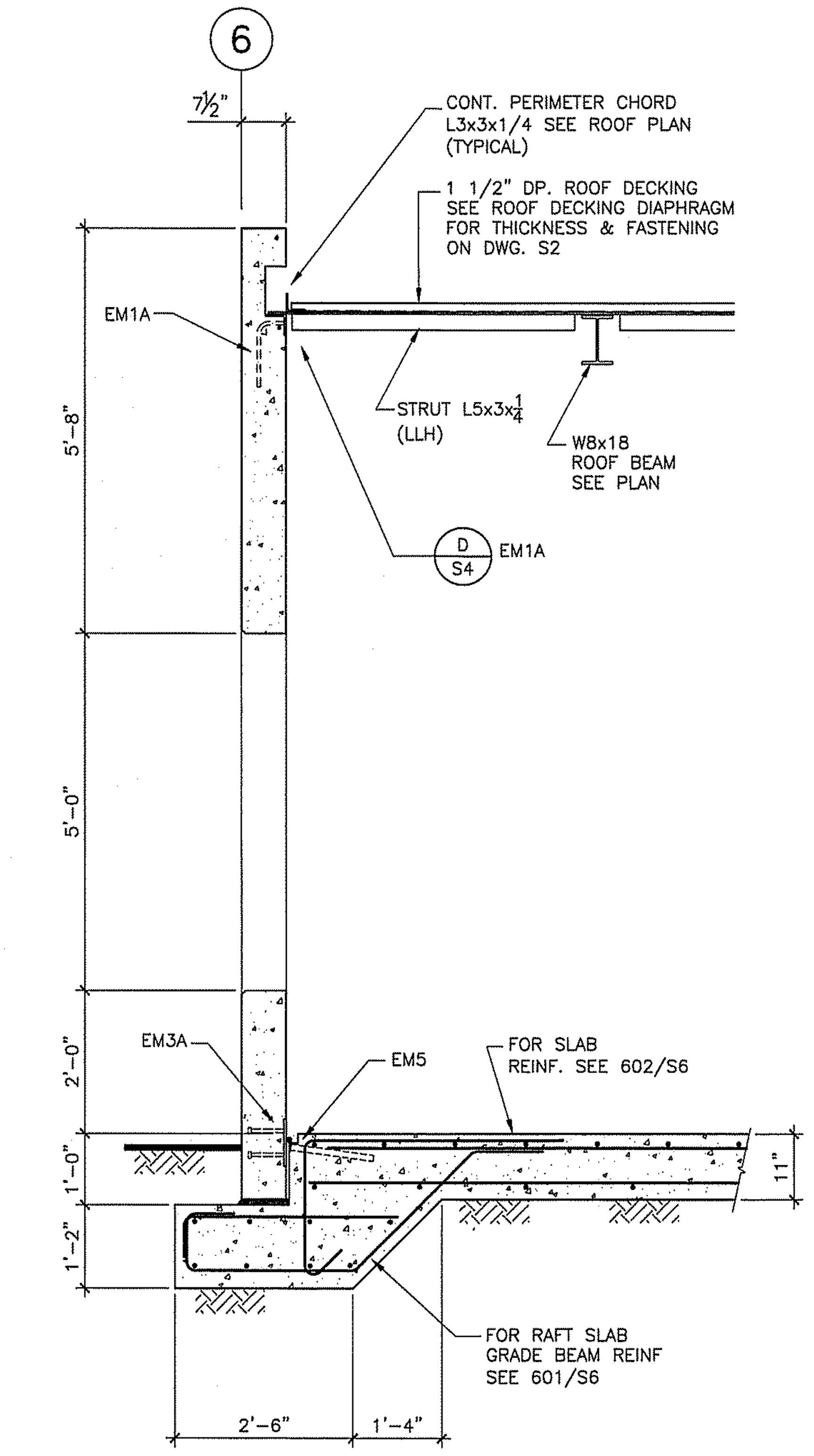
602 S6 SECTION
1/2" = 1'-0"


A
7½"
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAGRAM FOR THICKNESS & FASTENING ON DWG. S2
EM1A
W8x18 ROOF BEAM SEE PLAN
610 S6 BEAM SEAT
B S4 EM1A
A S4 EM1A SIMILAR
EM3A
EM5
FOR SLAB REINF. SEE 602/S6
FOR RAFT SLAB GRADE BEAM REINF SEE 601/S6
12'-8"
1'-0"
1'-2"
11"
2'-6"
1'-4"

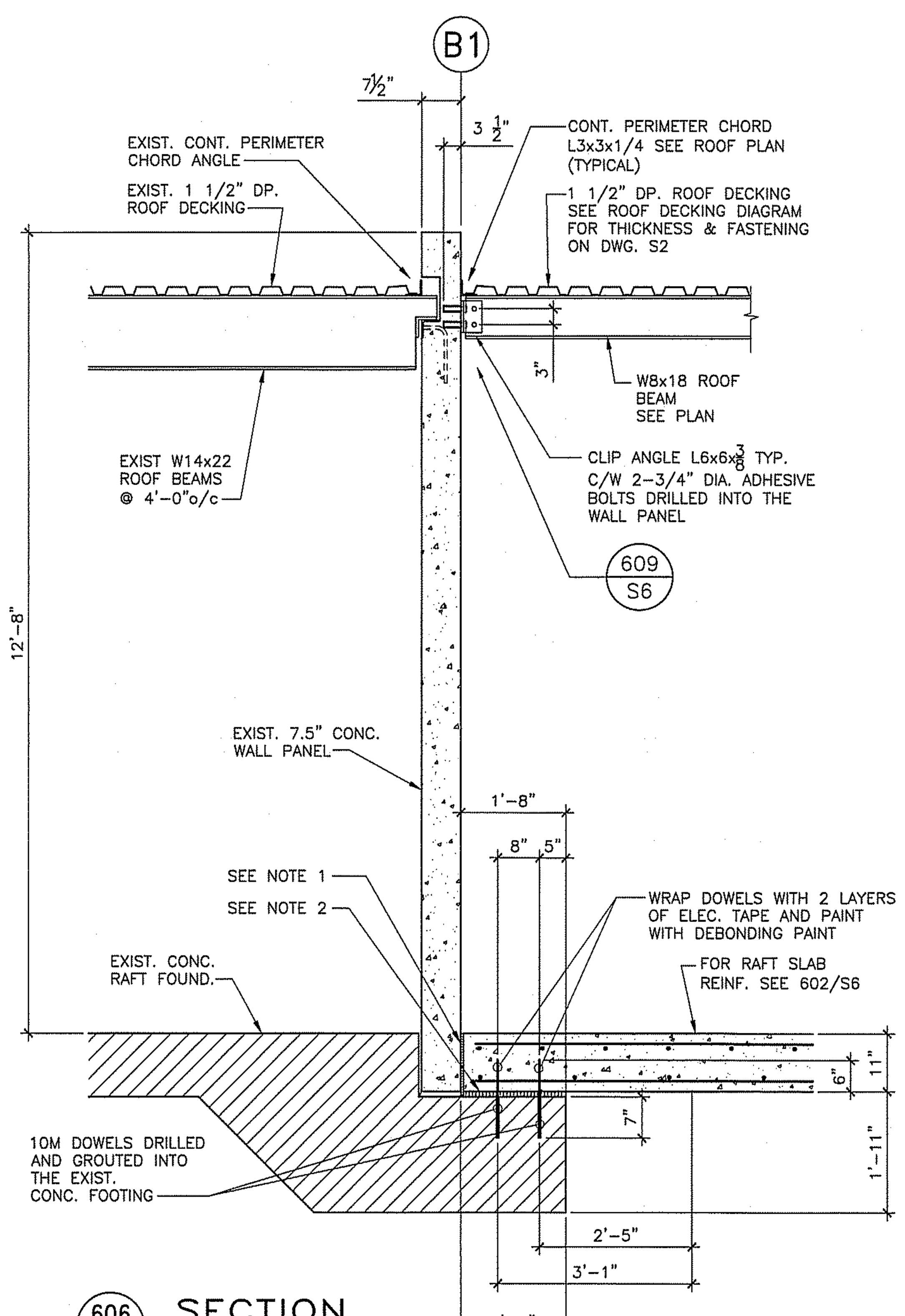
603 S6 SECTION
1/2" = 1'-0"


6
7½"
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAPHRAGM FOR THICKNESS & FASTENING ON DWG. S2
EM2 EMBED SEE PLAN
C S4 EM2A
W8x18 ROOF BEAM SEE PLAN
A S4 EM1A SIMILAR
EM3A
EM5
FOR SLAB REINF. SEE 602/S6
FOR RAFT SLAB GRADE BEAM REINF SEE 601/S6
1'-0"
1'-2"
2'-6"
1'-4"

604 S6 SECTION
1/2" = 1'-0"

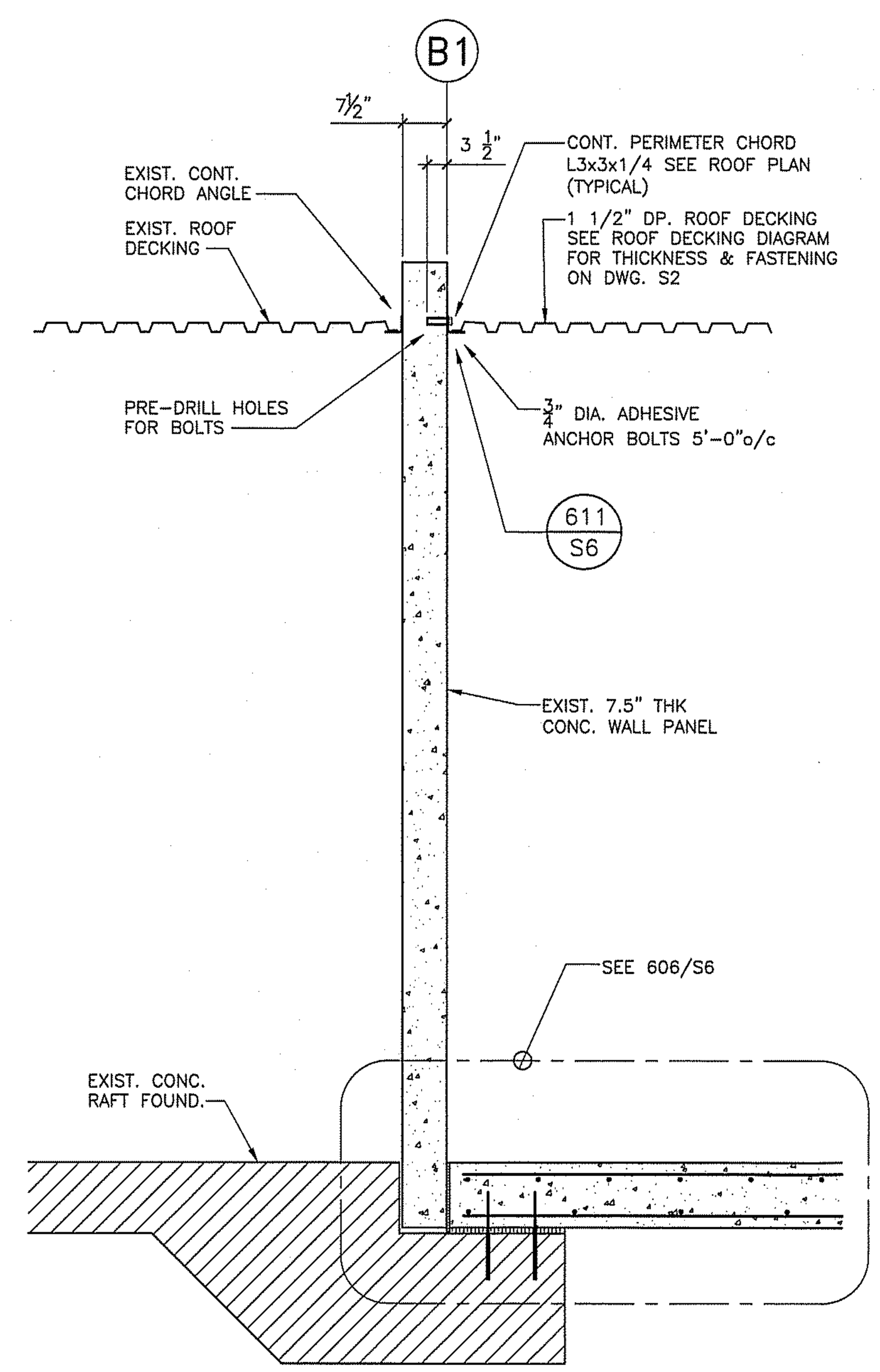

6
7½"
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAPHRAGM FOR THICKNESS & FASTENING ON DWG. S2
EM1A
STRUT L5x3x¼ (LLH)
W8x18 ROOF BEAM SEE PLAN
D S4 EM1A
EM3A
EM5
FOR SLAB REINF. SEE 602/S6
FOR RAFT SLAB GRADE BEAM REINF SEE 601/S6
5'-8"
5'-0"
2'-0"
1'-0"
1'-2"
11"
2'-6"
1'-4"

605 S6 SECTION
1/2" = 1'-0"

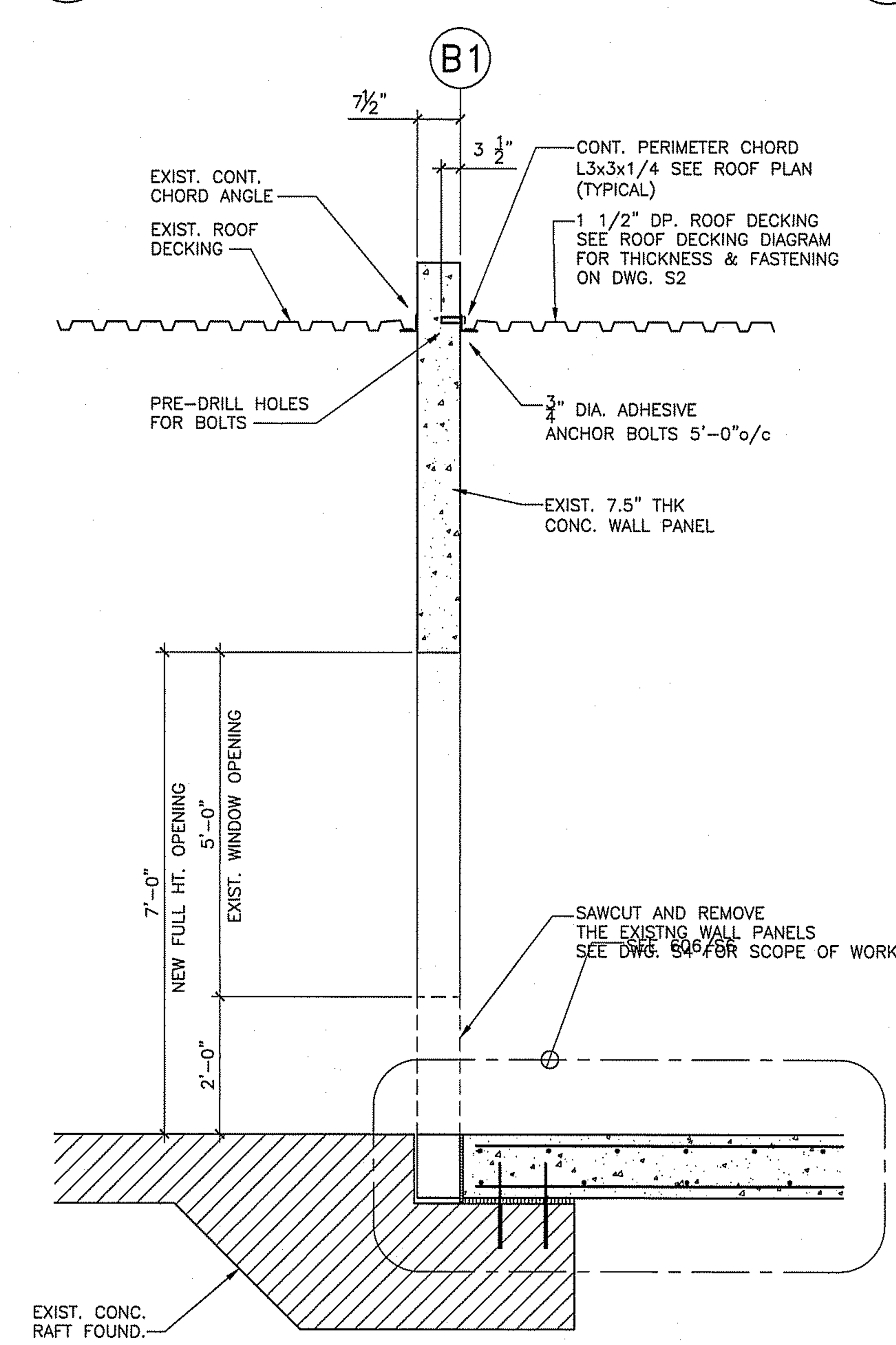

B1
7½"
3 ½"
EXIST. CONT. PERIMETER CHORD ANGLE
EXIST. 1 1/2" DP. ROOF DECKING
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAGRAM FOR THICKNESS & FASTENING ON DWG. S2
W8x18 ROOF BEAM SEE PLAN
EXIST W14x22 ROOF BEAMS @ 4'-0"o/c
CLIP ANGLE L6x6x⅜ TYP. C/W 2-3/4" DIA. ADHESIVE BOLTS DRILLED INTO THE WALL PANEL
609 S6
EXIST. 7.5" CONC. WALL PANEL
SEE NOTE 1
SEE NOTE 2
WRAP DOWELS WITH 2 LAYERS OF ELEC. TAPE AND PAINT WITH DEBONDING PAINT
FOR RAFT SLAB REINF. SEE 602/S6
EXIST. CONC. RAFT FOUND.
10M DOWELS DRILLED AND GROUTED INTO THE EXIST. CONC. FOOTING
12'-8"
3"
1'-8"
8"
5"
6"
11"
7"
1'-11"
2'-5"
3'-1"
1'-8"

606 S6 SECTION
1/2" = 1'-0"

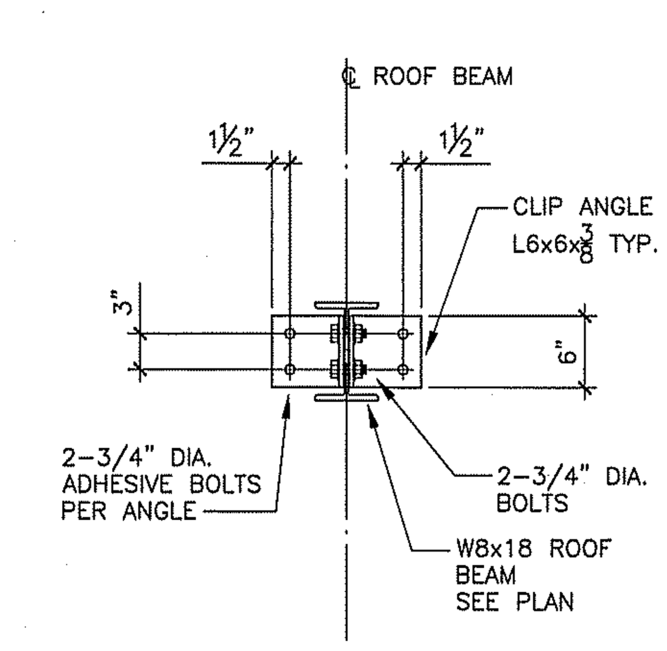
1. INSTALL ½" RIGID INSULATION GLUED TO FACE OF WALL PANEL SEE DWG. S1 FOR SPECIFICATIONS


B1
7½"
3 ½"
EXIST. CONT. CHORD ANGLE
EXIST. ROOF DECKING
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAGRAM FOR THICKNESS & FASTENING ON DWG. S2
PRE-DRILL HOLES FOR BOLTS
¾" DIA. ADHESIVE ANCHOR BOLTS 5'-0"o/c
611 S6
EXIST. 7.5" THK CONC. WALL PANEL
SEE 606/S6
EXIST. CONC. RAFT FOUND.

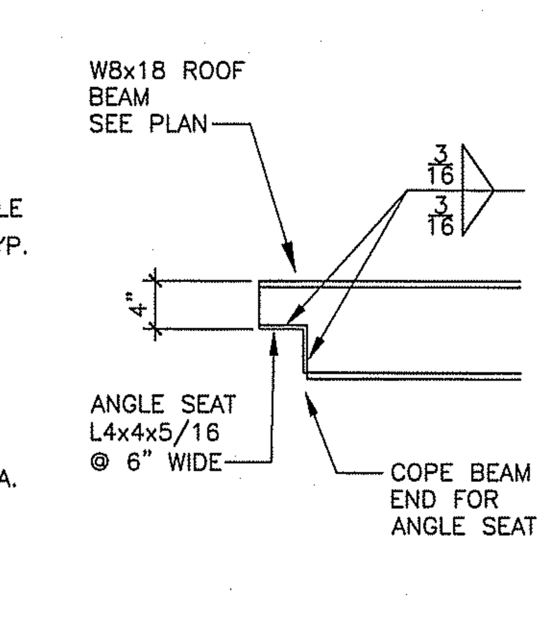
607 S6 SECTION
1/2" = 1'-0"


B1
7½"
3 ½"
EXIST. CONT. CHORD ANGLE
EXIST. ROOF DECKING
CONT. PERIMETER CHORD L3x3x1/4 SEE ROOF PLAN (TYPICAL)
1 1/2" DP. ROOF DECKING SEE ROOF DECKING DIAGRAM FOR THICKNESS & FASTENING ON DWG. S2
PRE-DRILL HOLES FOR BOLTS
¾" DIA. ADHESIVE ANCHOR BOLTS 5'-0"o/c
EXIST. 7.5" THK CONC. WALL PANEL
NEW FULL HT. OPENING
EXIST. WINDOW OPENING
7'-0"
5'-0"
2'-0"
SAWCUT AND REMOVE THE EXISTNG WALL PANELS SEE DWG. S4 FOR SCOPE OF WORK
SEE 606/S6
EXIST. CONC. RAFT FOUND.

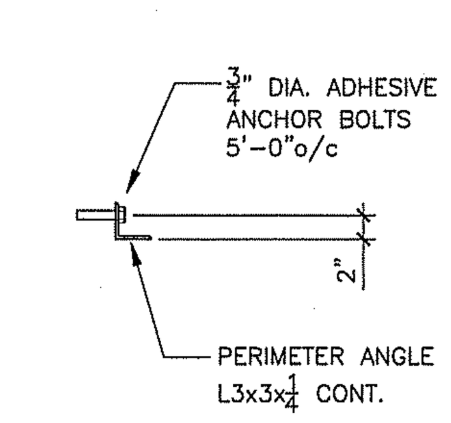
608 S6 SECTION
1/2" = 1'-0"



609 S6 SECTION
3/4" = 1'-0"



610 S6 SECTION
3/4" = 1'-0"



611 S6 SECTION
3/4" = 1'-0"

CITY OF RICHMOND
OCT 11 2019
RECEIVED

No.	DATE	DESCRIPTION
3	OCT.04'19	ISSUED FOR TENDER
2	SEPT.20'19	ISSUED FOR BUILDING PERMIT
1	JUL.15'19	COORDINATION ISSUE

REVISIONS

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PROJECT
INDIA CULTURAL CENTRE OF CANADA
KITCHEBN/BLDG ADDITION
STRUCTURAL
8600 NO. 5 ROAD
RICHMOND, BC

DRAWING
WALL SECTIONS & DETAILS

19-875824-00

SEAL
[illegible]
PROFESSIONAL PROVINCE OF BRITISH COLUMBIA J. R. STEINER ENGINEER
Sept. 2019

DRAWN JRS
CHECKED JRS
SCALE AS NOTED
DATE JUNE 2019

PROJECT - DRAWING NUMBER 19-059 - S6
REV. 3

THESE PLANS MUST BE KEPT ON THE JOB SITE FOR INSPECTIONS