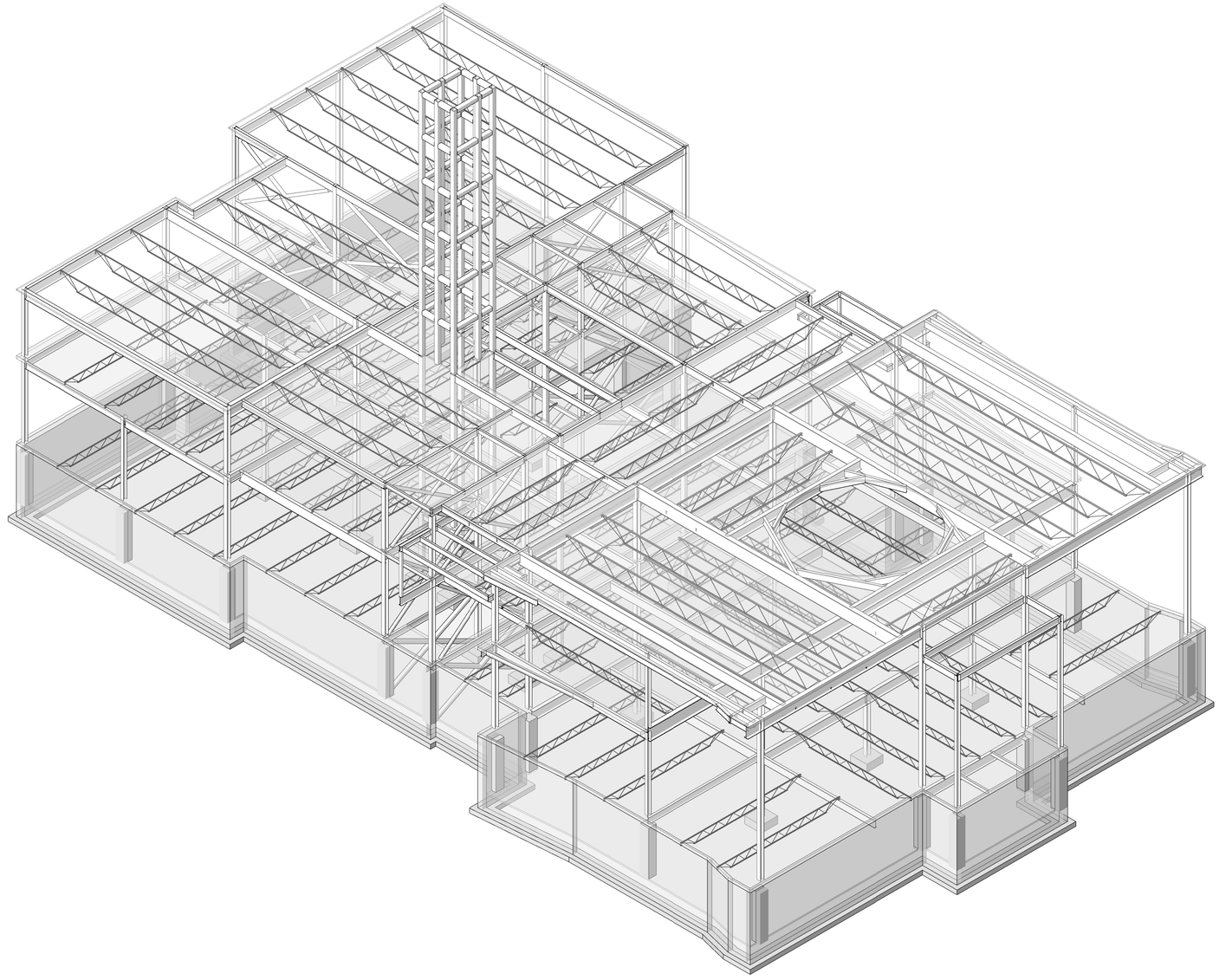

AL-RAHMAH MOSQUE

THIS COVER SHEET IS A DIAGRAMATIC 3D VIEW AND DOES NOT FORM PART OF THE DOCUMENTS

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DESIGN CRITERIA NOTES:

1. GENERAL

1.1. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2012 ONTARIO BUILDING CODE (OBC). ALL CODES, MANUALS, STANDARDS, AND SPECIFICATIONS REFERRED TO SHALL BE THE LATEST EDITIONS INCLUDING ALL REVISIONS AND ADDENDA AS REFERENCED IN THE OBC.

1.2 BUILDING IMPORTANCE CATEGORY (TABLE 4.1.2.1B OF OBC) IS: LOW / NORMAL / HIGH / POST DISASTER

1.3. THE PARKING GARAGE HAS BEEN DESIGNED IN ACCORDANCE TO THE STRUCTURAL REQUIREMENTS OF CSA-S413 PARKING STRUCTURES. SEE ARCHITECTURAL DRAWINGS FOR WATERPROOFING, SEALERS, ETC... DETAILED IN ACCORDANCE WITH CSA-S413. SEE ALSO MECHANICAL DRAWINGS FOR COMPLIANCE WITH THE MECHANICAL REQUIREMENTS OF CSA-S413.

1.4. THE AREAS OF THE STRUCTURE ACCESSIBLE TO VEHICULAR TRAFFIC HAVE BEEN DESIGNED FOR CLAUSES 4.1.5.5, 4.1.5.9, APPENDIX A OF OBC AND WHERE APPLICABLE GARAGE ROOF SLABS HAVE BEEN DESIGNED FOR THE REQUIREMENTS OF THE CITY OF TORONTO GUIDELINES FOR GARBAGE TRUCK AND FIRE TRUCK WHEEL LOADING.

1.5. MISCELLANEOUS METAL, PRECAST AND STAIR FABRICATORS SHALL:

1.5.1. PROVIDE SHOP DRAWINGS TO THE ARCHITECT PRIOR TO FABRICATION; STAMPED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER.

1.5.2. DESIGN ALL GUARDS TO MEET LATERAL LOADS DESCRIBED IN OBC CLAUSE 4.1.5.14.

1.5.3. DESIGN ALL HANDRAILS TO MEET LOADS DESCRIBED IN OBC CLAUSE 3.4.6.5(12).

1.5.4. DESIGN ALL STAIRS TO SUPPORT A MINIMUM LIVE LOAD OF 4.8kPa.

1.6. ARCHITECTURAL FAÇADE (PRECAST AND INSULATED METAL PANEL, ETC.) FABRICATORS SHALL:

1.6.1. PROVIDE SHOP DRAWINGS TO THE ARCHITECT PRIOR TO FABRICATION, STAMPED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER.

1.6.2. WHERE THE FAÇADE IS USED AS A GUARD AS MENTIONED ABOVE THE DESIGN OF ALL COMPONENTS AND CONNECTIONS SHALL MEET LATERAL LOADS DESCRIBED IN OBC CLAUSE 4.1.5.14.

1.7. IT IS THE RESPONSIBILITY OF THE CONTRACTOR WHO IS SUPPLYING AND INSTALLING NON-STRUCTURAL COMPONENTS AND EQUIPMENT, THAT ALL NON-STRUCTURAL ELEMENTS AND EQUIPMENT (AND THEIR CONNECTIONS TO THE STRUCTURE) LISTED IN TABLE 4.1.8.18 OF THE OBC ARE DESIGNED IN ACCORDANCE WITH CLAUSE 4.1.8.18.

1.8 CONTRACTOR IS TO DESIGN AND DETAIL ALL MASONRY PARTITION WALLS, TAKING INTO ACCOUNT SLEEVES, DUCT PENETRATIONS AND DOOR OPENINGS. CONTRACTOR SHALL DESIGN, PROVIDE AND INSTALL ANY ANCILLIARY STEEL (POSTS, TOP OF WALL RESTRAINTS, ETC.) AND MASONRY REINFORCEMENT (REBAR), AS REQUIRED TO SATISFY THE DESIGN OF MASONRY PARTITIONS. THE MASONRY REINFORCEMENT PROVIDED SHALL NOT BE LESS THAN THAT INDICATED ON THE TYPICAL DETAILS. CONTRACTOR SHALL SUBMIT TO THE ARCHITECT MASONRY PARTITION DESIGN CALCULATIONS AND DRAWINGS, STAMPED AND SIGNED BY LICENSED PROFESSIONAL ENGINEER.

2. FIRE SAFETY

2.1 REFER TO ARCHITECTURAL DRAWINGS FOR ALL FIRE SAFETY RATING REQUIREMENTS FOR STRUCTURAL COMPONENTS.

2.1.1. ALL REINFORCED CONCRETE SLABS, BEAMS, COLUMNS, AND SHEAR WALLS SHALL BE DETAILED TO ACHIEVE THE FIRE RATINGS SHOWN IN THE ARCHITECTURAL DRAWINGS, IN CONJUNCTION WITH CONCRETE COVER TYPICAL DETAIL.

2.1.2. WHERE APPLICABLE, REFER TO STRUCTURAL STEEL FRAMING PLANS FOR THE ASSUMED FLOOR ASSEMBLY ULC RATINGS. PROVIDE FIRE PROOFING AS REQUIRED INCLUDING ALL VERTICAL AND LATERAL RESISTING STRUCTURAL FRAMING (COLUMNS, BRACING, ETC.)

2.1.4. HOLLOW CORE SLABS SHALL BE DESIGNED TO MEET THE FIRE RATING AS NOTED ON THE ARCHITECTURAL DRAWINGS.

3. LATERAL LOADS ON STRUCTURE

3.1 WIND LOADING

3.1.1 WIND PARAMETERS
THE WIND LOADING PARAMETERS INDICATED BELOW HAVE BEEN CALCULATED IN ACCORDANCE TO CLAUSE 4.1.7 OF NBC 2015 AND COMMENTARY I - "WIND LOAD AND EFFECTS" OF USER'S GUIDE -NBC 2015 STRUCTURAL COMMENTARIES (PART 4 OF DIVISION B).
Ce and Cg HAVE BEEN COMPUTED ACCORDING TO THE [STATIC PROCEDURE FOR [OPEN TERRAIN], [ROUGH TERRAIN] [INTERMEDIATE VALUE BETWEEN OPEN AND ROUGH TERRAINS]] [DYNAMIC PROCEDURE FOR EXPOSURE [A – OPEN] [B- ROUGH]].
IMPORTANCE FACTOR FOR WIND LOADING, Iw = _____
q(1/50) = _____ kPa
Cp VALUES PER FIGURE CLAUSE 4.1.7.5 OR 4.1.7.6 OF NBC 2015 AND NBC 2015 USER'S GUIDE
CPi, VALUES FROM CLAUSE 4.1.7.7 IN NBC 2015 AND NBC 2015 USER'S GUIDE.

3.1.2 BASE SHEARS
WIND BASE SHEAR = _____ kN (EAST-WEST DIRECTION)
WIND BASE SHEAR = _____ kN (NORTH-SOUTH DIRECTION)

3.1.3 IT IS THE RESPONSIBILITY OF THE SUBCONTRACTOR'S ENGINEER TO CALCULATE WIND PRESSURES ON NON-STRUCTURAL COMPONENTS (CLADDING, ROOFING, ETC.) BASED ON COMMENTARY I OF NBC 2015 USER'S GUIDE.

3.2 EARTHQUAKE LOADING

3.2.1 EARTHQUAKE PARAMETERS
IMPORTANCE FACTOR FOR EARTHQUAKE LOAD Ie = _____
SITE CLASS FOR SEISMIC SITE RESPONSE = _____ (REFER TO GEOTECHNICAL REPORT)
THE EARTHQUAKE SEISMIC HAZARD INDEX [Ie Fa Sa(0.2)] = _____
Sa(0.2) = 0._____ Sa(5.0)= _____
Sa(0.5) = 0._____ Sa(10.0) = _____
Sa(1.0) = 0._____ PGA= _____
Sa(2.0) = 0._____ F(T)=Fa=_____
SFRS CONSISTS OF: _____ AND CORRESPONDING DUCTILITY-RELATED MODIFICATION FACTORS ARE:
Rd = _____ Ro = _____
STRUCTURAL IRREGULARITIES CONSIDERED IN THE DESIGN PER OBC CLAUSE 4.1.8.6. CONSIST OF TYPES: _____
METHOD OF LATERAL ANALYSIS: _____ [STATIC] [DYNAMIC]

3.2.2 BASE SHEARS
EARTHQUAKE BASE SHEAR = _____ kN (EAST-WEST DIRECTION)
EARTHQUAKE BASE SHEAR = _____ kN (NORTH-SOUTH DIRECTION)

3.2.3 STIFF ELEMENTS NOT PART OF SFRS SHALL BE SEPARATED FROM THE STRUCTURE AS PER OBC CLAUSE 4.1.8.3 (6a). EXAMPLES INCLUDE, BUT NOT LIMITED TO MASONRY PARTITIONS, BRICK VENEER, PRECAST CLADDING ETC. IT IS THE RESPONSIBILITY OF THE SUBCONTRACTOR TO PROVIDE SHOP DRAWINGS, STAMPED, SIGNED AND DATED BY A LICENSED PROFESSIONAL ENGINEER DEMONSTRATING COMPLIANCE. PROVIDE MINIMUM 15mm SEPARATION UNLESS NOTED OTHERWISE.

3.3 LATERAL FORCES ON FOUNDATION / RETAINING WALLS

3.3.1 WALLS RETAINING EARTH ARE DESIGNED TO SAFELY WITHSTAND HORIZONTAL EARTH PRESSURE (P IN kPa) AT A DEPTH (h IN m) GIVEN BY THE EQUATION BELOW.
P = K x (Wt.h+q)
Where: K__ = 0._____ [ACTIVE/PASSIVE/AT REST]
Wt = _____ kN/m^3
q = _____ kPa (SURFACE PRESSURE SURCHARGE)
h = DEPTH (m)

3.3.2 THE WALLS HAVE BEEN DESIGNED ASSUMING FREE DRAINING BACKFILL OR THE USE OF A DRAINAGE CORE TO PREVENT THE BUILD-UP OF HYDROSTATIC PRESSURE. (SEE TYPICAL DETAILS)

4. SUPERIMPOSED DEAD AND LIVE LOADS

4.1 SEE FLOOR/ROOF PLANS, NOTES, AND/OR LOADING SCHEDULES FOR DESIGN SUPERIMPOSED DEAD AND LIVE LOADING ASSUMPTIONS.

4.2 APPLICABLE LIVE LOAD REDUCTION FACTORS HAVE BEEN USED IN ACCORDANCE WITH THE ONTARIO BUILDING CODE [FOR THE DESIGN OF COLUMNS, WALLS AND FOUNDATION ONLY].

4.3 THE STRUCTURE HAS BEEN DESIGNED TO RESIST THE FOLLOWING VERTICAL CLADDING DEAD LOADS:

CURTAIN WALL	_____ kPa.
PRECAST CONCRETE	_____ kPa.
BRICK VENEER AND BLOCK [STUD] BACK-UP	_____ kPa.
METAL CLADDING	_____ kPa.

5. OTHER LOADS ON ROOFS

5.1 SNOW LOADING

5.1.1 THE SPECIFIED SNOW LOADING HAS BEEN CALCULATED BASED ON THE FOLLOWING PARAMETERS, MODIFIED TAKING INTO ACCOUNT FACTORS SUCH AS ROOF SIZE, WIND EXPOSURE, SLOPE AND SNOW DRIFTS:
IMPORTANCE FACTOR FOR SNOW LOAD Is = _____
GROUND SNOW LOAD, Ss = _____ kPa
ASSOCIATED RAIN LOAD, Sr = _____ kPa

5.1.2 SEE ROOF PLANS AND ACCUMULATED SNOW LOADING PLANS FOR LOCALIZED INCREASES AND DRIFTS CALCULATED IN ACCORDANCE WITH PART 4.1.6 OF NBCC 2015 AND NBC 2015 STRUCTURAL COMMENTARIES.

5.2 RAIN LOADING

5.2.2 THE BUILDING ROOF STRUCTURE HAS BEEN DESIGNED ON THE ASSUMPTION THAT FLOW CONTROL ROOF DRAINS SATISFY ALL REQUIREMENTS OF THE 2015 NATIONAL PLUMBING CODE OF CANADA.

5.2.2 THE TOTAL RAIN LOAD ASSOCIATED WITH THE ONE DAY (24 HR) RAINFALL, IN ACCORDANCE WITH CLAUSE 4.1.6.4.(1) OF NBC 2015 AND COMMENTARY H IN USER'S GUIDE - NBC 2015 STRUCTURAL COMMENTARIES (PART 4 OF DIVISION B) IS: ONE DAY RAIN (1/50) = _____ mm

5.3 WIND UPLIFT

5.3.1 SEE ROOF PLANS, NOTES OR ROOF UPLIFT LOADING SCHEDULE FOR DESIGN LOAD VALUES FOR WIND UPLIFT. THE VALUES PRESENTED ON THESE DRAWINGS ARE UNFACTORED LOADS.

5.3.2 UPLIFT PRESSURES HAVE BEEN CALCULATED IN ACCORDANCE WITH FIGURE 4.1.7.6. OF NBCC 2015.

5.3.3 FOR WIND PARAMETERS REFER TO SECTION 3.1 - WIND LOADING.

6. SERVICEABILITY

6.1 TYPICAL HORIZONTAL ELEMENTS (NOT SUPPORTING CLADDING) HAVE BEEN DESIGNED SO THAT THE CALCULATED DEFLECTIONS DO NOT EXCEED THE FOLLOWING LIMITS:

MEMBER TYPE	DEFLECTION COMPONENT	DEFLECTION LIMIT
REINFORCED CONCRETE MEMBERS		
FLAT ROOFS NOT SUPPORTING OR ATTACHED TO NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	IMMEDIATE DEFLECTION DUE TO SPECIFIED LIVE LOAD OR SNOW LOAD	L/180
FLOORS NOT SUPPORTING OR ATTACHED TO NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	IMMEDIATE DEFLECTION DUE TO SPECIFIED LIVE LOAD	L/360
ROOF OR FLOOR CONSTRUCTION SUPPORTING OR ATTACHED TO NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	PORTION OF TOTAL DEFLECTION OCCURRING AFTER ATTACHMENT OF NON-STRUCTURAL ELEMENTS	L/480
ROOF OR FLOOR CONSTRUCTION NOT SUPPORTING OR ATTACHED TO NON-STRUCTURAL ELEMENTS LIKELY TO BE DAMAGED BY LARGE DEFLECTIONS	PORTION OF TOTAL DEFLECTION OCCURRING AFTER ATTACHMENT OF NON-STRUCTURAL ELEMENTS	L/240
STRUCTURAL STEEL MEMBERS		
FLOOR MEMBERS	LIVE	L/360
FLOOR MEMBERS	TOTAL = DEAD + LIVE (MINUS CAMBER)	L/300
ROOF MEMBERS SUPPORTING CONSTRUCTION AND FINISHES SUSCEPTIBLE TO CRACKING	LIVE OR SNOW LOAD	L/360
ROOF MEMBERS SUPPORTING CONSTRUCTION AND FINISHES NOT SUSCEPTIBLE TO CRACKING	LIVE OR SNOW LOAD	L/300
ROOF MEMBERS	TOTAL = DEAD + LIVE (MINUS CAMBER)	L/240
WOOD MEMBERS		
FLOOR AND ROOF MEMBERS	TOTAL LOAD	L/240
FLOOR MEMBERS	LIVE LOAD	L/360
ROOF MEMBERS	LIVE OR SNOW LOAD	L/360

6.2 PERIMETER OR SPANDREL ELEMENTS SUPPORTING CLADDING HAVE BEEN DESIGNED FOR AN ALLOWABLE DEFLECTION OF 1/480, OR [ ] mm, WHICHEVER IS LESS.

6.3 REINFORCED CONCRETE FLOOR OR ROOF FRAMING MEMBERS HAVE BEEN DESIGNED ASSUMING THAT THE INSTALLATION OF NON-STRUCTURAL ELEMENTS SUPPORTED OR ATTACHED TO THEM WILL NOT COMMENCE UNTIL AT LEAST [THREE] MONTHS AFTER THE REINFORCED CONCRETE MEMBERS HAVE BEEN POURED AND THE RESHORES REMOVED.

6.4 THE BUILDING STRUCTURE HAS BEEN DESIGNED SUCH THAT THE TOTAL DRIFT PER STOREY UNDER SERVICE WIND AND GRAVITY LOADS DOES NOT EXCEED [1/500][1/450][1/400] OF THE STOREY HEIGHT.

6.5 THE BUILDING STRUCTURE HAS BEEN DESIGNED SUCH THAT THE CALCULATED INTERSTOREY DEFLECTIONS DUE TO SEISMIC SEISMIC LOADS PER OBC 4.1.8.13 DO NOT EXCEED 0.025 [0.02] [0.01] OF THE STOREY HEIGHT.

7. PROVISIONS FOR FUTURE EXTENSION / EXPANSION

7.1 THE STRUCTURE HAS BEEN DESIGNED FOR A FUTURE EXTENSION / EXPANSION [AS SHOWN ON DRAWING _____]

ADDITIONAL PARAMETERS FOR NOTES

EARTH PRESSURE DESIGN PARAMETERS
P = K [γ (h - hw) + γ' hw + q] + γw hw
Where: P = Lateral earth pressure in kPa acting at depth h
h = the depth below the ground surface (m)
K__ = 0._____ [ACTIVE/PASSIVE/AT REST]
hw = the depth below the ground water level (m)
γ = the bulk unit weight of soil = ___ kN/m³
γw = the bulk unit weight of water = ___ kN/m³
γ' = the submerge unit weight of the exterior soil = (γ - γw)
q = ____ kPa (SURFACE PRESSURE SURCHARGE)

OR

P = K (γ h + q)
Where: P = Lateral earth pressure in kPa acting at depth h
h = the depth below the ground surface (m)
K__ = 0._____ [ACTIVE/PASSIVE/AT REST]
γ = the bulk unit weight of soil = ___ kN/m³
q = ____ kPa (SURFACE PRESSURE SURCHARGE)

CONCRETE MIX SCHEDULE

EXPOSURE	ELEMENT	MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS (MPa[1])	EXPOSURE CLASSIFICATION	NOTES
GENERAL NON-EXPOSED CONCRETE (i.e., NOT EXPOSED TO CHLORIDES NOR FREEZE AND THAW)	FOOTINGS	25	N	
	CAISSONS AND CAISSON CAPS	25	N	
	COLUMNS		N	
	SHEAR WALLS		N	
	OTHER WALLS (NOT IDENTIFIED AS SHEAR WALLS)		N	
	SUSPENDED SLABS AND BEAMS		N	
	SLAB ON GRADE [2]	25	N	
	SLAB ON METAL DECK	25	N	
	LEAN MIX	5	N	
	FLOATING SLABS	25	N	
	HOUSEKEEPING PADS	25	N	
	TOPPINGS	25	N	
	UNSHRINKABLE FILL	0.4 MAX.	N	
EXTERIOR EXPOSED CONCRETE EXCLUDING PARKING (i.e., EXPOSED TO FREEZE AND THAW BUT NOT CHLORIDES)	FOUNDATION/RETAINING WALLS	25	F-2	
	COLUMNS		F-2	
	SHEAR WALLS		F-2	
	OTHER WALLS (NOT IDENTIFIED AS SHEAR WALLS)		F-2	
	SUSPENDED SLABS AND BEAMS		F-2	
	SLAB ON GRADE [2], SIDEWALKS	32	C-2	
	SLAB ON METAL DECK	25	F-2	
	EXPOSED BALCONY SLABS (NON-WATER PROOFED)	30	F-1	
PARKING AREAS (EXPOSED TO CHLORIDES)	FOOTINGS		[C-1/F-2/N]	
	GRADE BEAMS, PIERS		[C-1/F-2]	
	FOUNDATION/RETAINING WALLS		[C-1/F-2]	
	COLUMNS		C-1	
	SHEAR WALLS		C-1	
	OTHER WALLS (NOT IDENTIFIED AS SHEAR WALLS)		C-1	
	SUSPENDED SLABS, RAMPS AND BEAMS	35	C-1	
	SLAB ON GRADE [2] (HEATED AREAS)	25	C-4	
	SLAB ON GRADE [2] (UNHEATED AREAS)	32	C-2	
	FROST SLABS [2]	35	C-1	
	LOADING DOCKS	35	C-1	
GROUT	MASONRY FILL/BOND BEAMS	15 (FINE GROUT)		CONFORM TO REQUIREMENTS OF CSA A179

1) STRENGTH SPECIFIED AT 28 DAYS U.N.O IN DRAWINGS AND SCHEDULES. FOR COLUMNS AND WALLS ONLY, FOR 60MPa AND 65MPa CONCRETE ARE PERMITTED TO BE 56 DAY MIX, 70MPa AND ABOVE CONCRETE ARE PERMITTED TO BE AT 90 DAYS MIX.
2) REINFORCED WITH SYNTHETIC FIBERS ADDED AT BATCHING PLANT - SEE SPECIFICATIONS

DRAWING LIST

Sheet Number	Sheet Name
S0	COVER SHEET
S1-01	DESIGN NOTES
S1-02	FOUNDATION PLAN
S1-03	LEVEL 1 FRAMING PLAN
S1-04	LEVEL 2 FRAMIN PLAN
S1-05	ROOF FRAMING PLAN
S1-06	CANOPY FRAMING PLAN
S4-01	VERTICAL BRACING ELEVATIONS
S7-01	ROOF SECTIONS
S9-01	GENERAL NOTES AND TYPICAL DETAILS
S9-02	GENERAL NOTES AND TYPICAL DETAILS
S9-03	GENERAL NOTES AND TYPICAL DETAILS
S9-04	GENERAL NOTES AND TYPICAL DETAILS
S9-05	GENERAL NOTES AND TYPICAL DETAILS
S9-06	GENERAL NOTES AND TYPICAL DETAILS

NO.	REVISIONS	DATE
1	ISSUED FOR COORDINATION	2023-02-08

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Owner

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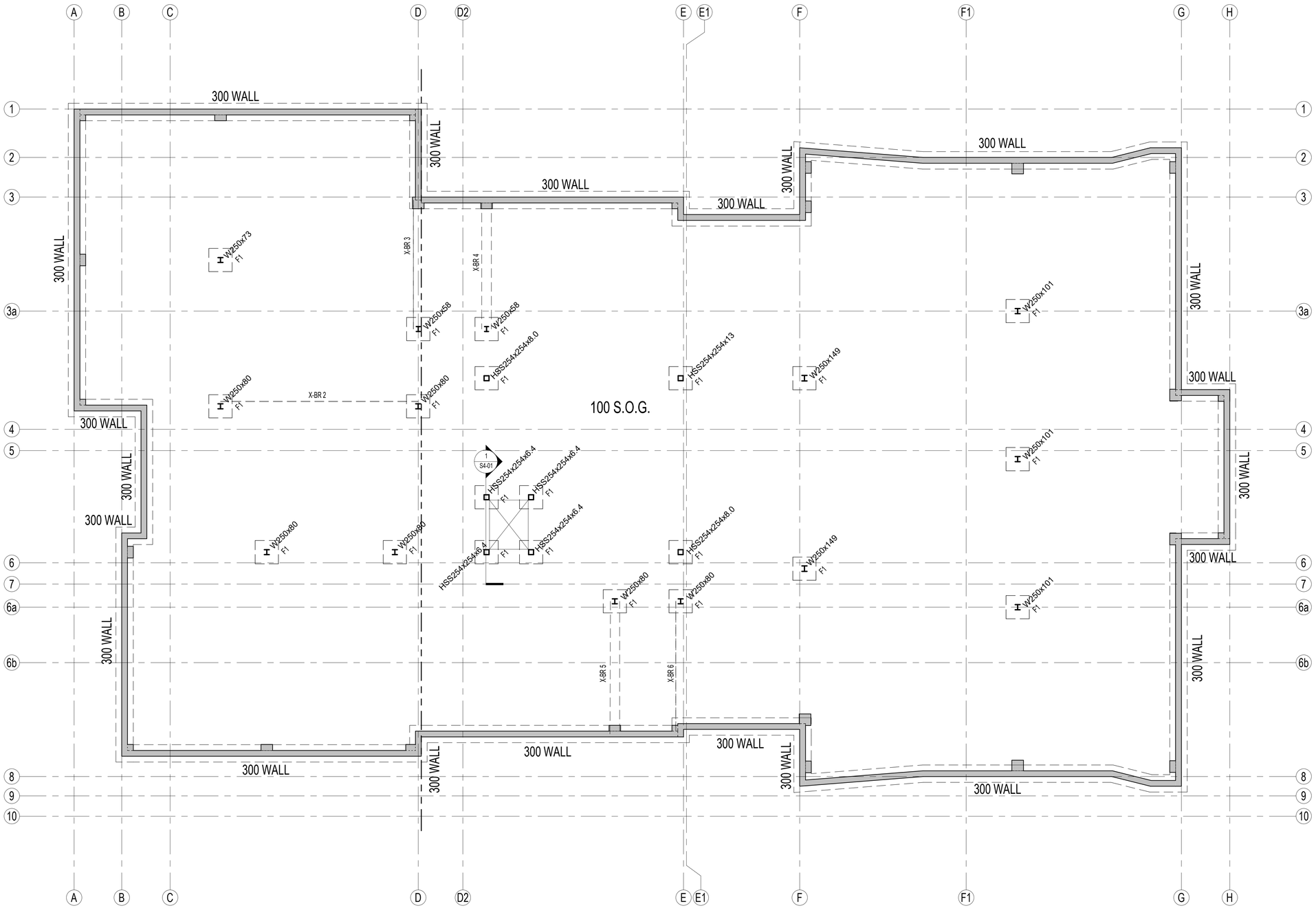
SCALE: 1 : 1
CHECKED: Checker
DATE: Issue Date

TITLE: DESIGN NOTES

PROJECT NO.: 20220714
DRAWING NO.: **S1-01**

DATE/TIME PRODUCED:2/8/2023 12:06:40 PM



FOUNDATION PLAN
1 : 100

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Checker	Issue Date

TITLE
FOUNDATION PLAN

PROJECT NO.	DRAWING NO.
20220714	S1-02

DATE/TIME PRODUCED:2/8/2023 12:06:40 PM

114 (190mm TOTAL) CONCRETE ON 76mm COMPOSITE DECK

LEVEL 1 FRAMING PLAN

1 : 100

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TITLE: LEVEL 1 FRAMING PLAN

PROJECT NO.	DRAWING NO.
20220714	S1-03

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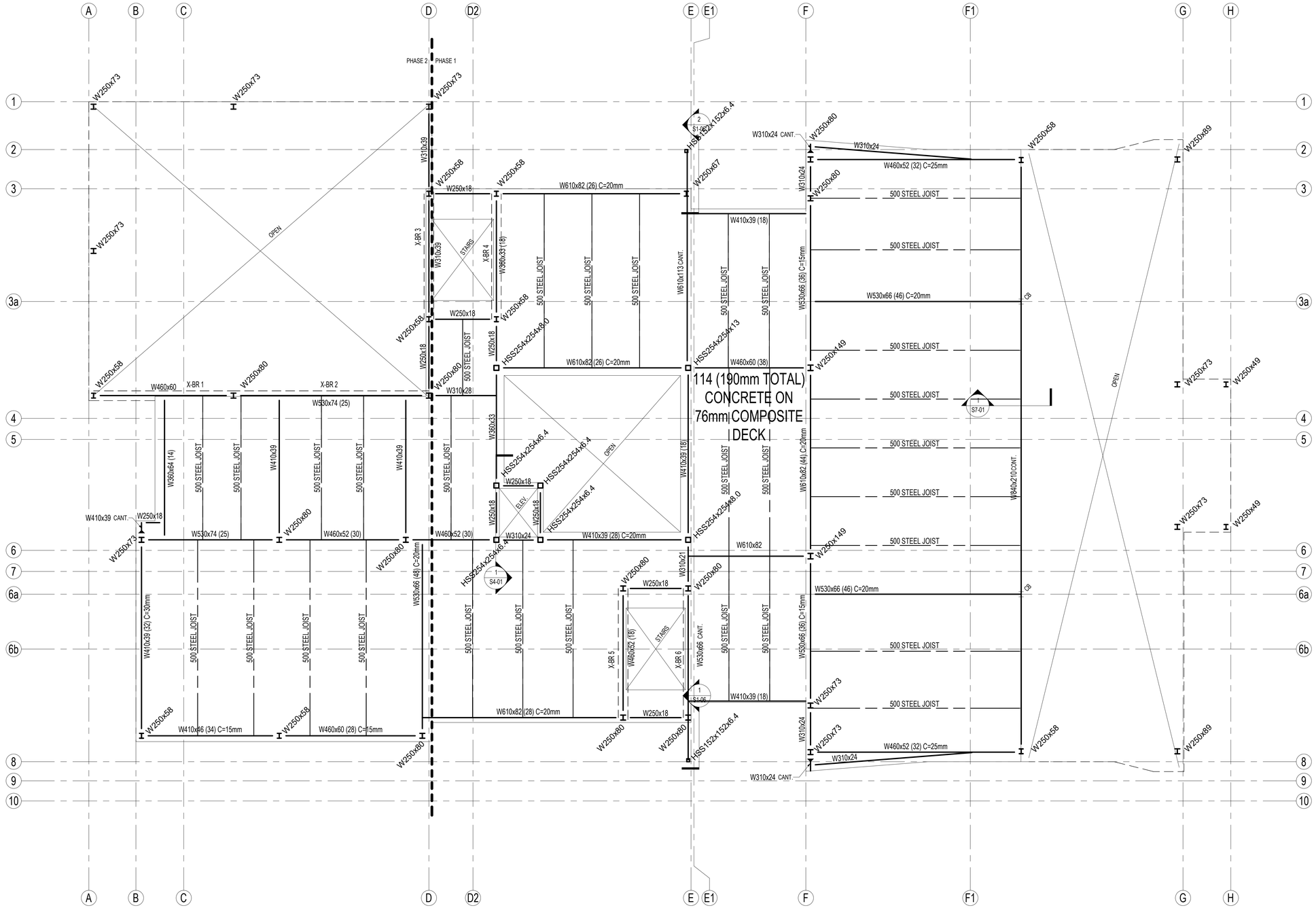

LEVEL 2 FRAMING PLAN
1 : 100

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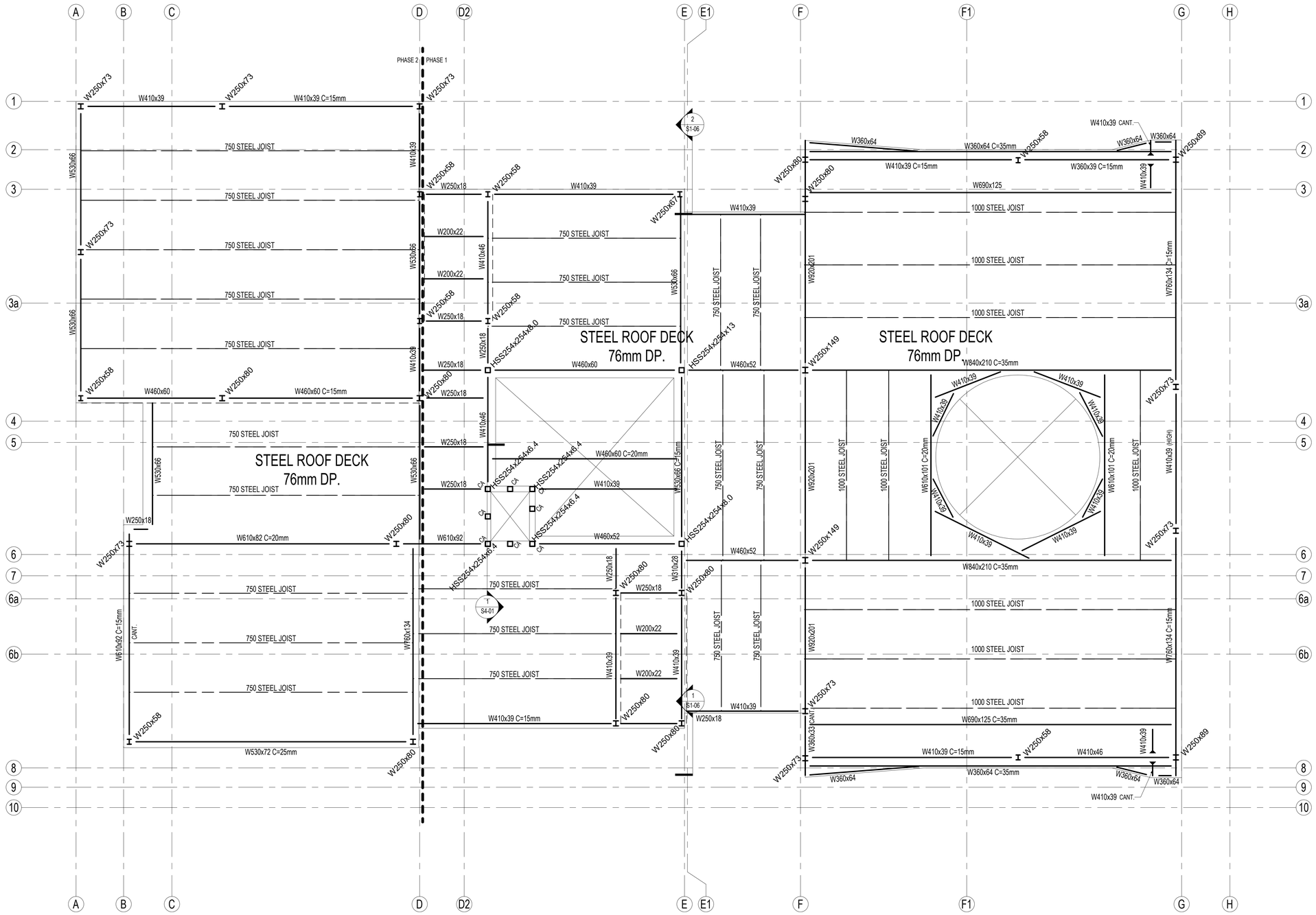
TITLE: LEVEL 2 FRAMIN PLAN

PROJECT NO.	DRAWING NO.
20220714	**S1-04**



LEVEL ROOF FRAMING PLAN
1 : 100

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TITLE: ROOF FRAMING PLAN

PROJECT NO.	DRAWING NO.
20220714	S1-05

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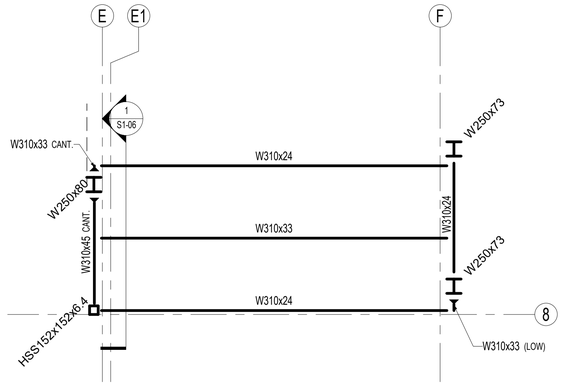
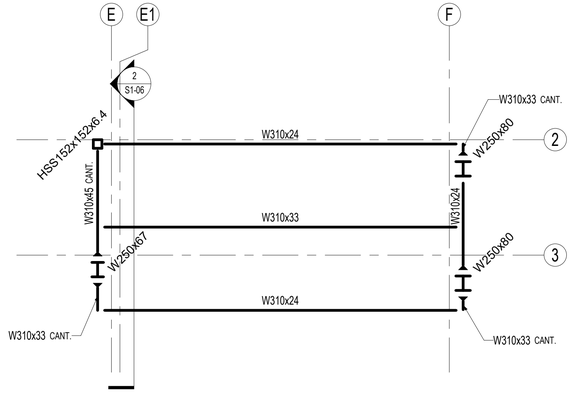
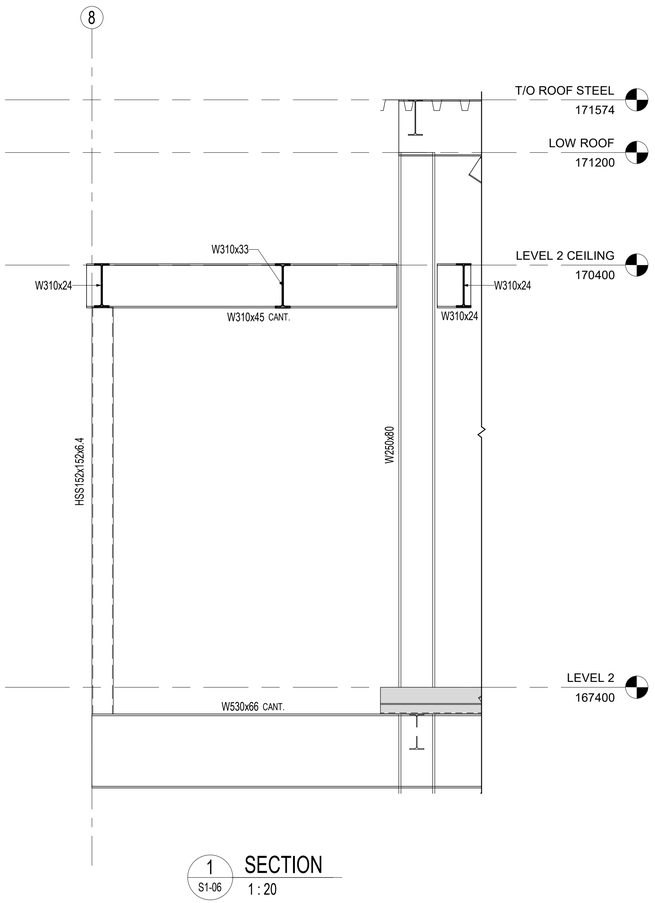


SOUTH CANOPY FRAMING PLAN
1 : 50



NORTH CANOPY FRAMING PLAN
1 : 50



1 S1-06 SECTION
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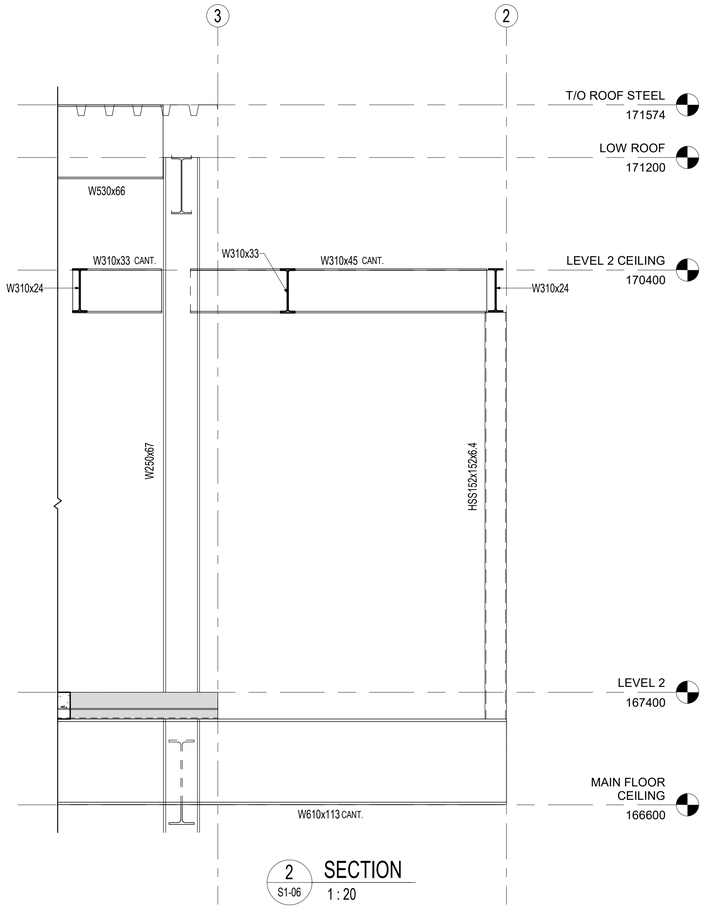

2 S1-06 SECTION
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TITLE
CANOPY FRAMING PLAN

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20220714	**S1-06**

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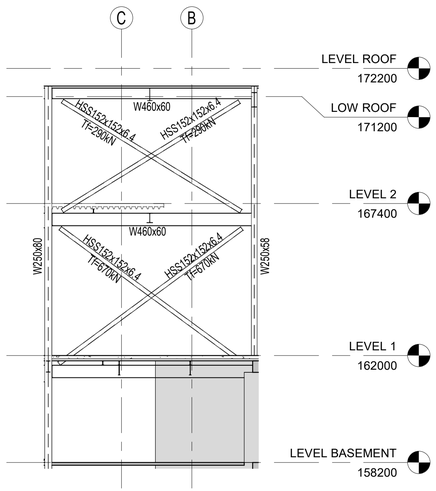
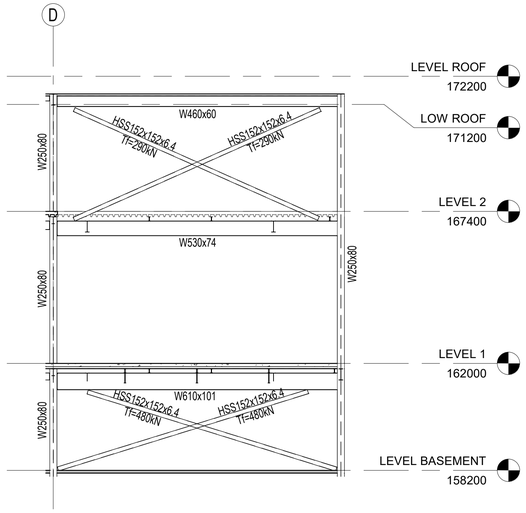


X-BR 1 FRAMING ELEVATION

S4-01 1 : 100



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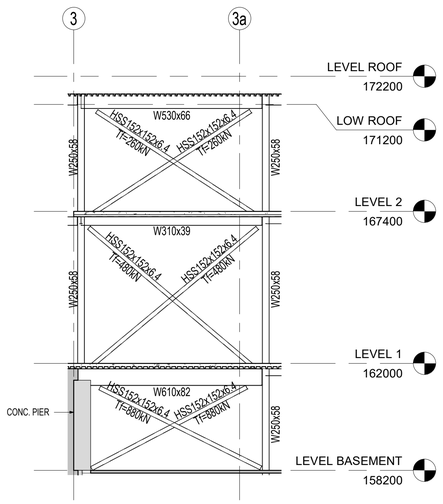

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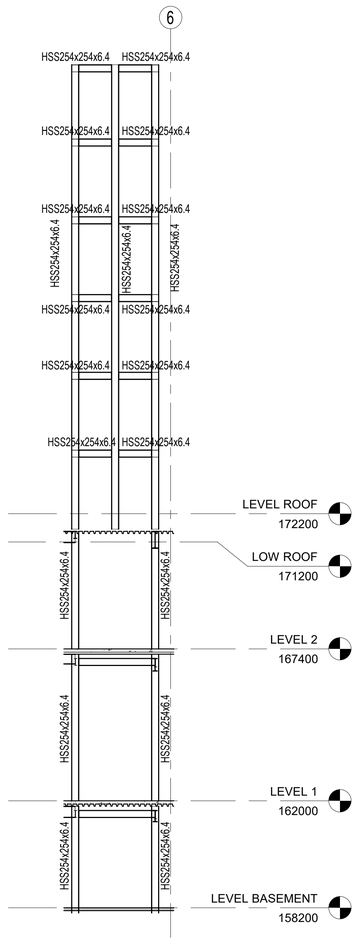
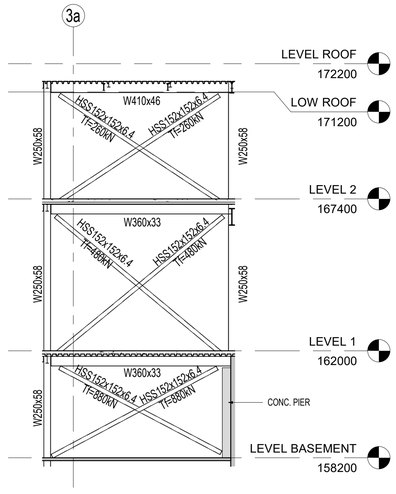


1 FRAMING ELEVATION

S4-01 1 : 100



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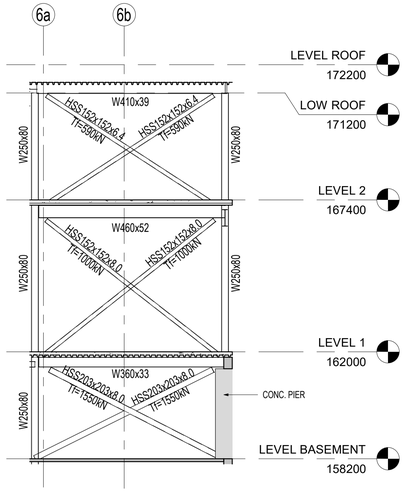
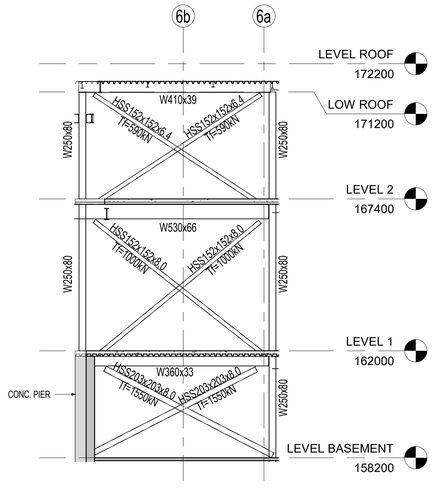


X-BR 5 FRAMING ELEVATION

S4-01 1 : 100



X-BR 6 FRAMING ELEVATION

S4-01 1 : 100

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1	ISSUED FOR COORDINATION	2023-02-08

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BUTLINGTON, ON

Owner

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DRAWN: Author	SCALE: 1 : 100
CHECKED: Checker	DATE: Issue Date

TITLE: VERTICAL BRACING ELEVATIONS

PROJECT NO.	DRAWING NO.
20220714	**S4-01**

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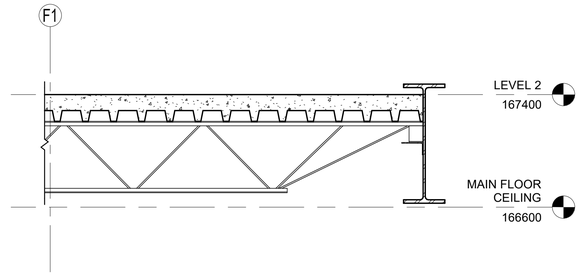

1 / S7-01 SECTION
1 : 20

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Owner

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DRAWN: Author
SCALE: 1 : 20
CHECKED: Checker
DATE: Issue Date

TITLE: ROOF SECTIONS

PROJECT NO.: 20220714
DRAWING NO.: **S7-01**

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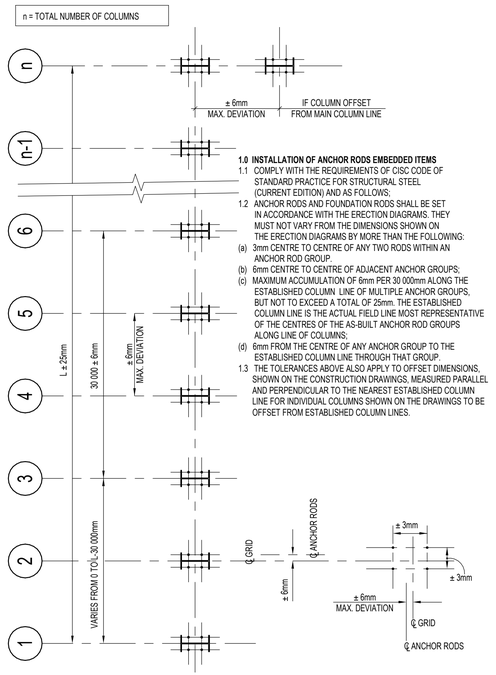
TOLERANCES ON ANCHOR ROD PLACEMENT — SAB01



1.0 INSTALLATION OF ANCHOR RODS EMBEDDED ITEMS

1.1 COMPLY WITH THE REQUIREMENTS OF CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL (CURRENT EDITION) AND AS FOLLOWS;

1.2 ANCHOR RODS AND FOUNDATION RODS SHALL BE SET IN ACCORDANCE WITH THE ERECTION DIAGRAMS. THEY MUST NOT VARY FROM THE DIMENSIONS SHOWN ON THE ERECTION DIAGRAMS BY MORE THAN THE FOLLOWING:

(a) 3mm CENTRE TO CENTRE OF ANY TWO RODS WITHIN AN ANCHOR ROD GROUP.

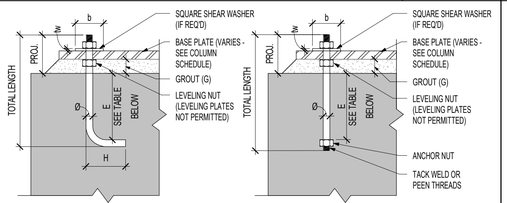
(b) 6mm CENTRE TO CENTRE OF ADJACENT ANCHOR GROUPS;

(c) MAXIMUM ACCUMULATION OF 6mm PER 30 000mm ALONG THE ESTABLISHED COLUMN LINE OF MULTIPLE ANCHOR GROUPS, BUT NOT TO EXCEED A TOTAL OF 25mm. THE ESTABLISHED COLUMN LINE IS THE ACTUAL FIELD LINE MOST REPRESENTATIVE OF THE CENTRES OF THE AS-BUILT ANCHOR ROD GROUPS ALONG LINE OF COLUMNS;

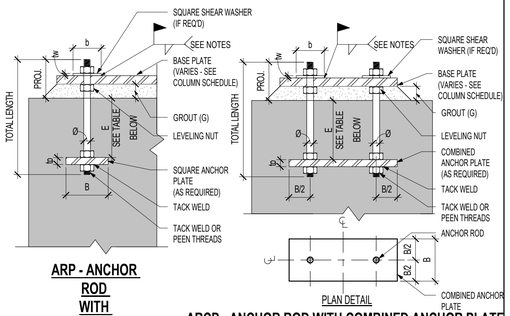
(d) 6mm FROM THE CENTRE OF ANY ANCHOR GROUP TO THE ESTABLISHED COLUMN LINE THROUGH THAT GROUP.

1.3 THE TOLERANCES ABOVE ALSO APPLY TO OFFSET DIMENSIONS, SHOWN ON THE CONSTRUCTION DRAWINGS, MEASURED PARALLEL AND PERPENDICULAR TO THE NEAREST ESTABLISHED COLUMN LINE FOR INDIVIDUAL COLUMNS SHOWN ON THE DRAWINGS TO BE OFFSET FROM ESTABLISHED COLUMN LINES.

ANCHOR ROD DETAILS — SAB02



AR - ANCHOR ROD WITH L-HOOK **ARN - ANCHOR ROD WITH ANCHOR NUT**



ARP - ANCHOR ROD WITH ANCHOR PLATE **ARCP - ANCHOR ROD WITH COMBINED ANCHOR PLATE**

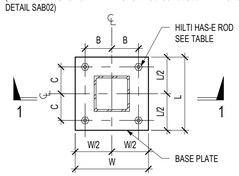
ANCHOR		ANCHOR ROD					GROUT THICKNESS (G)	ANCHOR PLATE		PROJ. (MIN)	SHEAR WASHER	
MARK	TYPE	DIA (Ø)	EMBED (E)	HOOK (H)	GRADE (KSI)	Hf (kN)		WIDTH (B)	THICK (tp)		WIDTH (b)	THICK (tw)
AR1												
AR2												
AR3												
AR4												
AR5												
AR6												

NOTES:
1. DESIGN CONNECTION OF SHEAR WASHER TO BASE PLATE FOR Hf NOTED IN TABLE IN EACH PLAN DIRECTION. IF NO FORCE NOTED, CONNECT FOR FULL SHEAR CAPACITY OF ANCHOR ROD.

SECONDARY FRAMING HSS BASE PLATE DETAIL — SAB04B

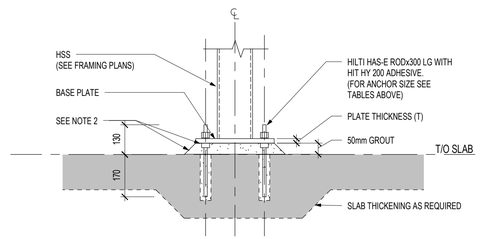
(SEE NOTE 1 PRIOR TO USING INFORMATION ON THIS DETAIL)

(READ IN CONJUNCTION WITH ANCHOR ROD SCHEDULE IN TYPICAL DETAIL SAB02)



HSS BASE PLATE DETAILS

Type	Vertical Member Size	Base Plate Dimensions (L x W x T)mm	Anchor Rod Spacing B (mm)	Anchor Rod Spacing C (mm)	HILTI HAS-E Rod Ø (mm)	MAX SHEAR @ BASE (kN) (SEE NOTE 3)
HS1	HSS 152x152	320x320x25	115	115	20	140
HS2	HSS 127x127	290x290x20	100	100	20	140
HS3	HSS 114x114	280x280x20	95	95	20	140
HS4	HSS 102x102	270x270x20	90	90	20	140
HS5	HSS 89x89	250x250x20	80	80	20	140
HS6	HSS 76x76	240x240x16	75	75	16	95
HS7	HSS 64x64	230x230x16	70	70	16	95
HS8	HSS 51x51	220x220x13	65	65	16	95
HS9	HSS 38x38	200x200x13	55	55	16	95
HS10	HSS 254x152	350x350x25	130	130	25	250
HS11	HSS 203x152	300x350x25	105	130	25	250
HS12	HSS 203x102	300x300x25	105	105	25	250
HS13	HSS 178x127	340x290x20	125	100	25	250
HS14	HSS 152x102	320x270x20	115	90	20	140
HS15	HSS 152x76	320x240x20	115	75	20	140
HS16	HSS 127x76	290x240x20	100	75	20	140
HS17	HSS 102x76	270x240x20	90	75	20	140
HS18	HSS 102x51	270x220x16	90	65	20	140
HS19	HSS 89x64	250x230x16	80	70	16	95
HS20	HSS 76x51	240x220x13	75	65	16	95
HS21	HSS 51x25	220x190x13	65	50	16	95

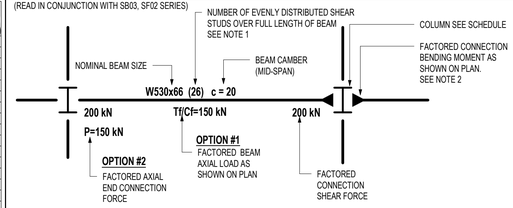


SECTION 1

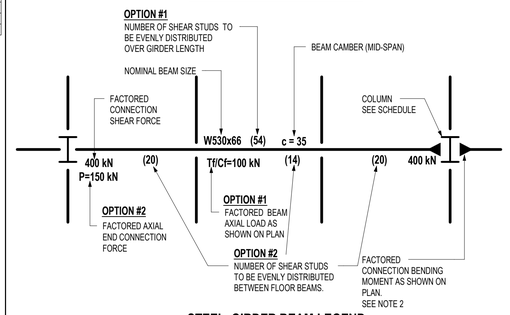
NOTE:
1. THE BASE PLATES SHOWN ABOVE ARE ONLY TO BE USED FOR SECONDARY STRUCTURE FRAMING MEMBERS SUCH AS OPENING JAMBS AND MISCELLANEOUS FRAMING. MEMBERS SHOWN ON THE COLUMN SCHEDULE WITH AXIAL FORCES GREATER THAN 25kN ARE NOT APPLICABLE.
2. PLATE OFFSET AND GROUT PROJECTION MAY NEED TO BE REVISED AT DOOR OPENINGS TO NOT INTERFERE WITH FRAME.
3. THE SHEAR CAPACITY BASED ON UNCRACKED CONCRETE COMPRESSIVE STRENGTH OF 25MPa AND MINIMUM EDGE DISTANCE OF 650mm FOR 16Ø, 910mm FOR 20Ø, AND 1660mm FOR 25Ø.

STEEL BEAM AND GIRDER DESIGNATIONS — SB01

(READ IN CONJUNCTION WITH SB03, SF02 SERIES)



STEEL FLOOR BEAM LEGEND



STEEL GIRDER BEAM LEGEND

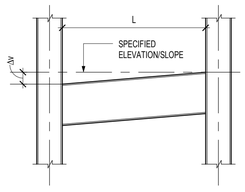
NOTE:
1. REFER TO DETAIL SF02 FOR PLACEMENT OF STUD SHEAR CONNECTORS ON BEAM/GIRDER TOP FLANGES.
2. REFER TO DETAIL SB01 FOR MOMENT CONNECTION REQUIREMENTS.
3. OPTION #2 FOR AXIAL LOAD USED WHERE REACTIONS AT EACH END OF BEAM ARE NOT EQUAL, OPTION #1 USED WHERE AXIAL LOADS ARE EQUAL AT EACH END.

ERECTION TOLERANCES FOR STEEL BEAMS — SB02A

(READ IN CONJUNCTION WITH SB02B)

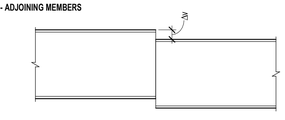
1. VERTICAL DEVIATION FROM SPECIFIED ELEVATION/SLOPE.

FLOOR BEAMS:	Δv = ± 10mm (3/8") OR = L/500
MEMBERS WITH ADJUSTABLE CONNECTIONS:	Δv =± 6mm (1/4") OR = L/1000



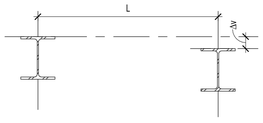
2. VERTICAL DEVIATION FROM SPECIFIED ELEVATION - ADJOINING MEMBERS

FLOOR BEAMS:	Δv = ±6mm (1/4")
MEMBERS WITH ADJUSTABLE CONNECTIONS:	Δv = ±2mm (3/32")



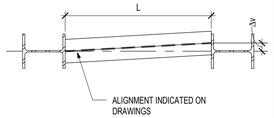
3. VERTICAL DEVIATION FROM ADJACENT BEAMS

FLOOR BEAMS:	Δv = L/1000



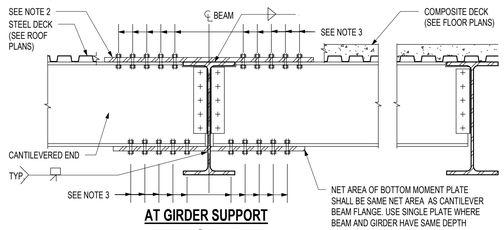
4. HORIZONTAL DEVIATION FROM INDICATED POSITION

FLOOR BEAMS:	ΔH = ±12mm (1/2") OR L/500
SPANDREL BEAMS:	ΔH = ±6mm (1/4") OR L/1000

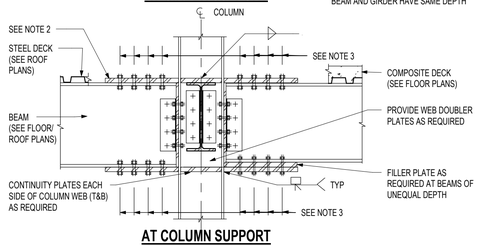


NOTES
1. TOLERANCES PROVIDED IN THE DETAIL ABOVE SHALL NOT SUPERSEDE THE VALUES INDICATED IN CSA S16 AND REFERENCED DOCUMENTS.

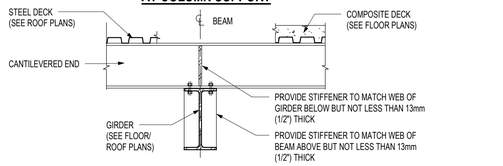
STEEL BEAM AND GIRDER MOMENT CONNECTIONS — SB03



AT GIRDER SUPPORT



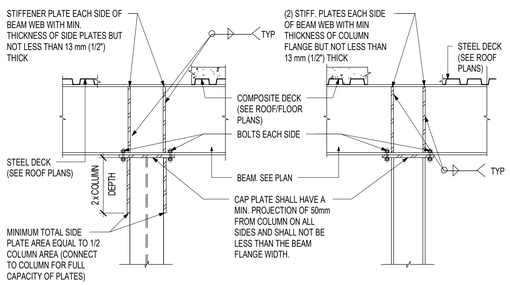
AT COLUMN SUPPORT



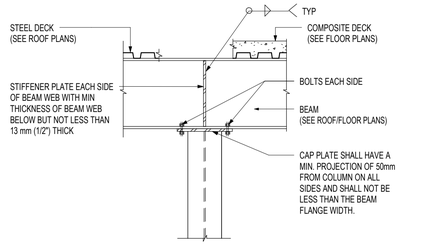
CANTILEVER OVER GIRDER SUPPORT

NOTE:
1. THE STRUCTURAL STEEL CONTRACTOR IS SOLELY RESPONSIBLE FOR THE FINAL CONNECTION CONFIGURATION, DESIGN AND DETAILING OF THE CONNECTION DETAILED DESIGN CALCULATIONS SHALL BE SUBMITTED FOR REVIEW WITH THE SUBMISSION OF THE SHOP DRAWINGS.
2. PROVIDE DECK SUPPORT IN AREA OF MOMENT CONNECTION AS REQUIRED
3. PRE-TENSIONED BOLTS IN SLIP CRITIAL CONNECTION TO DEVELOP FULL MOMENT CAPACITY OF BEAM, UNLESS NOTED OTHERWISE

STEEL BEAM BEARING ON STEEL COLUMN — SB04



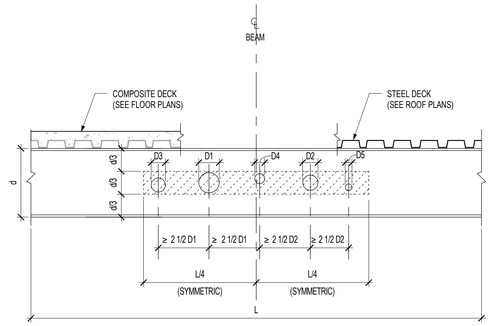
COLUMN WEB PERPENDICULAR TO BEAM WEB **COLUMN WEB PARALLEL TO BEAM WEB**



COLUMN WEB PERPENDICULAR TO BEAM WEB

NOTES:
1. THE DESIGN OF THE STRUCTURAL STEEL CONNECTIONS ARE THE RESPONSIBILITY OF THE STEEL CONTRACTOR. DESIGN CALCULATIONS SHALL BE SUBMITTED ALONG WITH THE SHOP DRAWINGS FOR REVIEW. ANY ALTERATIONS TO THE BASIC CONFIGURATIONS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL CONSULTANT.
2. PROVIDE SQUARED MILL END OF COLUMNS MEETING CODE REQUIREMENTS FOR TOLERANCE LIMIT.

UNREINFORCED OPENINGS IN STEEL BEAM WEBS — SB06



NOTES:

1. UNREINFORCED CIRCULAR HOLES MAY BE PLACED WITHIN HATCHED ZONE WITHOUT AFFECTING THE STRENGTH OF THE BEAM FOR DESIGN PURPOSES PROVIDED:
   - A. BEAM SUPPORTS UNIFORMLY DISTRIBUTED LOAD ONLY.
   - B. BEAM SECTIONS HAS AN AXIS OF SYMMETRY IN PLANE OF BENDING.
   - C. SPACING MUST BE ≥ 2 ½ TIMES THE DIAMETER OF THE LARGER OF ANY TWO ADJACENT OPENINGS, AS SHOWN IN DIAGRAM ABOVE. (D1, D2, D3, D4, D5)
   - D. MUST BE CLASS 1 OR CLASS 2 W SECTION BEAMS
2. ALL OPENINGS TO BE SHOWN ON SHOP DRAWINGS SUBMITTED FOR REVIEW.

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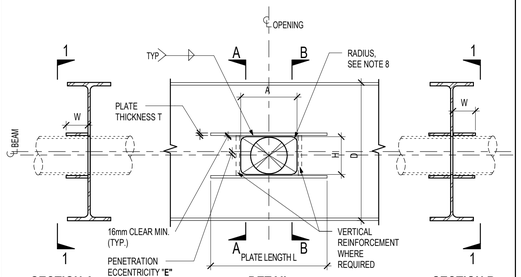
DRAWN	SCALE
Author	1 : 1
CHECKED: Checker	DATE: Issue Date

TITLE: GENERAL NOTES AND TYPICAL DETAILS

PROJECT NO.	DRAWING NO.
20220714	S9-01

DATE/TIME PRODUCED:28/2023 12:06:45 PM

WEB OPENING REINFORCEMENT IN STEEL BEAMS — SB07



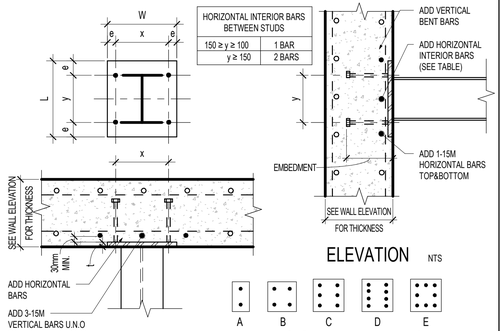
NOTES:
1. SEE SCHEDULE FOR REINFORCEMENT DETAILS.
2. FILLET WELD TO CONFORM TO S16 MINIMUM, BUT NOT LESS THAN 6mm. WELD TO BE CONTINUOUS BOTH SIDES OF PLATE, PORTION OF WELD BEYOND EXTEND OF OPENING SIZED TO DEVELOP FULL TENSILE CAPACITY OF REINFORCING PLATES TYP.
3. NEGATIVE VALUES OF "E" INDICATE HOLE CENTRE LINE ABOVE BEAM CENTERLINE.
4. DIMENSIONS ARE IN mm
5. PROVIDE HORIZONTAL REINFORCEMENT ONE SIDE ONLY AS PER SECTION 1/S26, U/N TWO SIDES IN SCHEDULE.
6. VERTICAL REINFORCEMENT, WHERE REQUIRED, TO BE SAME SIZE AS HORIZONTAL.
7. IF TABLE BELOW IS NOT POPULATED, WEB OPENINGS SHALL NOT BE PROVIDED IN BEAMS WITHOUT CONSENT OF ENGINEER.

NOTE TO ENGINEER: SCHEDULE TO BE REVISED FOR PROJECT SPECIFIC OPENINGS IN BEAMS DETAIL - SHOULD NOT BE INCLUDED OTHERWISE.

OPENING REINFORCEMENT SCHEDULE

Beam Mark	A	E	H	L	T	W	No. OF SIDES (1 OR 2)
----	----	----	----	----	----	----	----

TYPICAL CAST IN PLACE SHEAR PLATE DETAIL — SB08



WALL PLATE	WALL PLATE DIMENSIONS W	x	L	x	t	WALL PLATE TYPE	ANCHORS #	Ø	EMBED	COL	ROW	x	y	e
WP1	100		150		8	A	2	16	150	1	2	0	90	30
WP2	150		200		8	B	4	16	150	2	2	90	140	30
WP3	150		250		10	B	4	19	150	2	2	80	180	35
WP4	"		"		"	B	4	19	200	2	2	80	180	35
WP5	150		300		10	B	4	19	150	2	2	80	230	35
WP6	150		350		12	C	6	19	150	2	3	80	140	35
WP7	"		"		"	C	6	19	200	2	3	80	140	35
WP8	"		"		"	C	6	19	250	2	3	80	140	35
WP9	200		250		10	B	4	19	150	2	2	130	180	35
WP10	250		250		10	B	4	19	150	2	2	180	180	35
WP11	250		300		0	C	6	19	150	2	3	180	110	35
WP12	200		350		12	C	6	19	150	2	3	130	140	35
WP13	250		350		12	C	6	19	150	2	3	180	140	35
WP14	"		"		"	C	6	19	200	2	3	180	140	35
WP15	250		450		16	D	8	19	150	2	4	180	125	35
WP16	300		500		20	E	8	19	150	3	3	120	220	35
WP17	"		"		"	E	8	19	200	3	3	120	220	35
WP18	"		"		"	E	8	19	250	3	3	120	220	35

NOTES:
1. CONCRETE STRENGTH TO BE f'c' = 25 MPa. (MIN)
2. ANCHORS TO BE NELSON SHEAR STUD Fu = 450MPa (MIN)
3. NO LATERAL ECCENTRICITY HAS BEEN ASSUMED, IF THERE ARE CONSTRUCTION ERRORS THIS TABLE IS NOT VALID.
4. THIS TABLE DOES NOT ACCOUNT FOR ANY STANDOFF OF THE PLATE FROM THE CONCRETE SURFACE.

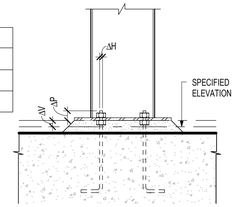
ERECTION TOLERANCES FOR STEEL COLUMNS — SC01A

(READ IN CONJUNCTION WITH SC01B, SAB02)

1. VERTICAL DEVIATION FROM SPECIFIED ELEVATION.

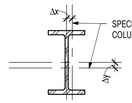
ANCHOR BOLTS:	ΔP = + 30mm (1-3/16") = - 5mm (3/16")
	ΔH = 3mm (1/8")
BASE PLATE:	ΔV = ± 5mm (3/16") 'SIMPLE CONSTRUCTION
	= ± 3mm (1/8") 'CONTINUOUS CONSTRUCTION

NOTE:
1. SEE TYPICAL DETAIL SAB02 FOR ADDITIONAL INFORMATION.



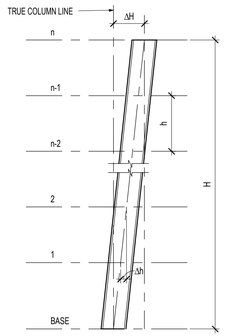
2. HORIZONTAL DEVIATION FROM SPECIFIED POSITION.

AT COLUMN BASE:	Δx/Δy = ± 5mm (3/16")



ABOVE COLUMN BASE:

EXTERIOR COLUMN/	ΔH < H/1000 TOTAL
COLUMN ADJACENT TO ELEVATOR SHAFTS:	ΔH < ± 25mm (1") TOTAL, Δh < 2mm (3/32") STOREY
ALL OTHER COLUMNS:	ΔH < H/500 AND, ΔH < ± 50mm (2") TOTAL, Δh < 4mm (3/16") STOREY



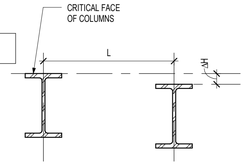
NOTES
1. TOLERANCES PROVIDED IN THE DETAIL ABOVE SHALL NOT SUPERSEDE THE VALUES INDICATED IN CSA S16 AND REFERENCED DOCUMENTS.

ERECTION TOLERANCES FOR STEEL COLUMNS — SC01B

(READ IN CONJUNCTION WITH SC01A)

3. HORIZONTAL DEVIATION FROM ADJACENT COLUMNS.

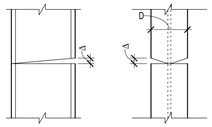
BASE LEVEL OR SPLICE LEVEL: OR = L/1000	ΔH = 10mm (3/8")



4. GAP BETWEEN BEARING SURFACES.

ΔMAX = 6mm (1/4)"

* PACK GAP WITH NON TAPERED STEEL SHIMS UNTIL AT LEAST 85% OF THE CROSS SECTIONAL AREA IS BEARING.

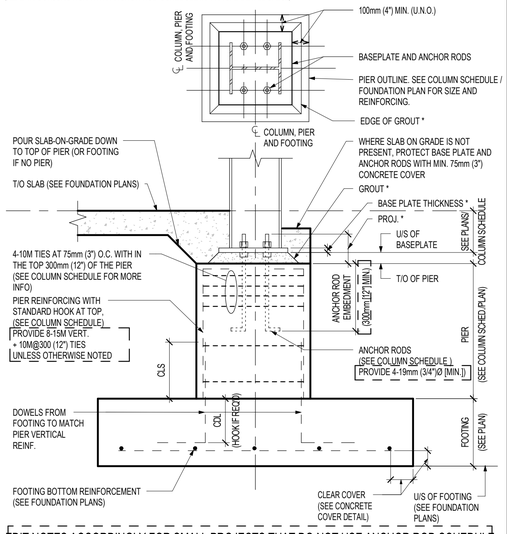


NOTES

1. TOLERANCES PROVIDED IN THE DETAIL ABOVE SHALL NOT SUPERSEDE THE VALUES INDICATED IN CSA S16 AND REFERENCED DOCUMENTS.
2. FOR ERECTION TOLERANCES OF SPECIAL MEMBERS SUCH AS CRANE GIRDERS, CRANE RAILS AND MONORAIL BEAMS, SEE THE APPROPRIATE CODE RECOMMENDATIONS.
3. DEVIATIONS SHOWN FOR W-SHAPES ALSO APPLY TO BUILT-UP SECTIONS, HOLLOW STRUCTURAL SECTIONS, CHANNEL AND ANGLE SHAPES.
4. ERECTION TOLERANCES ARE TO BE MEASURED IN CALM WEATHER. RECORD AMBIENT TEMPERATURE AT TIME TOLERANCES ARE VERIFIED.

STEEL GRAVITY COLUMN BASE DETAIL — SC02

(READ IN CONJUNCTION WITH ANCHOR ROD SCHEDULE IN TYPICAL DETAIL SAB02)

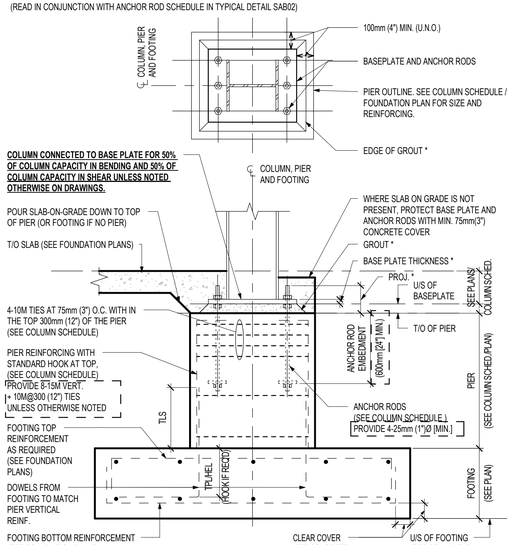


EDIT NOTES ACCORDINGLY FOR SMALL PROJECTS THAT DO NOT USE ANCHOR ROD SCHEDULE

NOTES:
1 FOOTINGS SHALL BE PLACED ON UNDISTURBED SOIL WITH A MINIMUM BEARING CAPACITY AS NOTED ON THE DRAWINGS.
2 GROUT UNDER BASE PLATES SHALL BE AN APPROVED PROPRIETARY BRAND PRE-MIXED, NON-METALLIC, NON-SHRINK GROUT UNLESS OTHERWISE APPROVED.
3. LEVELING PLATES ARE NOT PERMITTED.
4. REFER TO COLUMN SCHEDULE/FOUNDATION PLAN FOR BASE PLATES, ANCHOR ROD, PIER, FOOTING DIMENSIONS AND REINFORCEMENT.
5. REFER TO A04, SAB02 FOR ANCHOR ROD GRADE
6. REFER ALSO TO GENERAL NOTES, STEEL NOTES AND CAST-IN-PLACE CONCRETE NOTES.
7. REFER TO SPLICE AND DEVELOPMENT TABLES IN C02A, C02B, C03A AND C03B.
8. REFER TO SAB02 FOR ALL ITEMS MARKED WITH *

STEEL MOMENT COLUMN BASE DETAIL (NOTED AS M IN COLUMN SCHEDULE) — SC04

(READ IN CONJUNCTION WITH ANCHOR ROD SCHEDULE IN TYPICAL DETAIL SAB02)

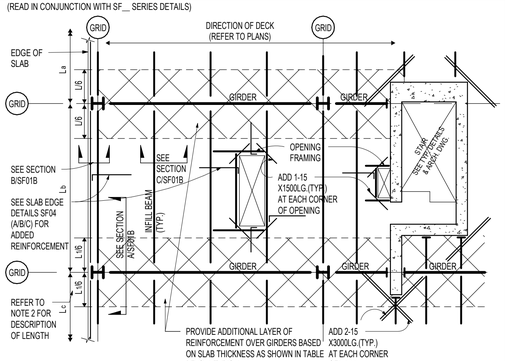


EDIT NOTES ACCORDINGLY FOR SMALL PROJECTS THAT DO NOT USE ANCHOR ROD SCHEDULE

NOTES:
1 FOUNDATION DESIGN MOMENT Mf NOTED IN COLUMN SCHEDULE.
2 GROUT UNDER BASE PLATES SHALL BE AN APPROVED PROPRIETARY BRAND PRE-MIXED, NON-METALLIC, NON-SHRINK GROUT UNLESS OTHERWISE APPROVED.
3. LEVELING PLATES ARE NOT PERMITTED.
4. REFER TO COLUMN SCHEDULE/FOUNDATION PLAN FOR BASE PLATES, ANCHOR ROD, PIER, FOOTING DIMENSIONS AND REINFORCEMENT.
5. REFER TO E04, SAB02 FOR ANCHOR ROD GRADE.
6. REFER ALSO TO GENERAL NOTES, STEEL NOTES AND CAST-IN-PLACE CONCRETE NOTES.
7. REFER TO SPLICE AND DEVELOPMENT TABLES IN C02A, C02B, C03A AND C03B.
8. THIS DETAIL APPLIES FOR CONVENTIONAL CONSTRUCTION ONLY (Rd=1.5).
9. REFER TO SAB02 FOR ALL ITEMS MARKED WITH *.

COMPOSITE DECK REINFORCEMENT DETAILS — SF01A

(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)

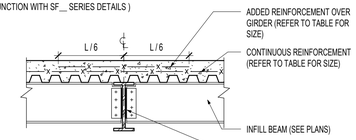


COMPOSITE SLAB REINFORCEMENT			
STEEL DECK PROFILE DEPTH	TOTAL SLAB THICKNESS (mm)	WELDED WIRE MECH REINFORCEMENT	EQUIVALENT REINFORCEMENT (BAR SIZE AND SPACING)
38mm	90	152x152 M W13.3 x M W13.3 OR 102x102 M W9.1 x M W9.1	10 @ 400 mm [1]
	100		
	115		
	125	152x152 M W18.7 x M W18.7 OR 102x102 M W13.3 x M W13.3	
	140		
	150		
76mm	125	152x152 M W18.7 x M W18.7 OR 102x102 M W13.3 x M W13.3	
	140		
	150		
	165		
	190	152x152 M W25.8 x M W25.8 OR 102x102 M W18.7 x M W18.7	
	200		

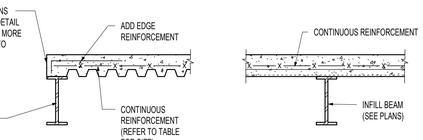
NOTES
1. ALTERNATE REINFORCEMENT CAN BE SUBSTITUTED FOR THE WELDED WIRE MESH IF REQUIRED.
2. LENGTH OF ADDITIONAL REINFORCEMENT OVER GIRDERS TO BE CALCULATED BY DIVIDING THE LONGER OF THE TWO SPANS ON EITHER SIDE OF THE GIRDER BY 6. EXAMPLE: L=MAX (La OR Lb) / 6 AND L1=MAX (Lb OR Lc) / 6

COMPOSITE DECK REINFORCEMENT DETAILS — SF01B

(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)

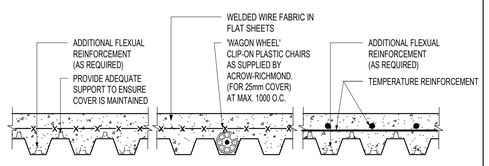


A: SECTION THROUGH GIRDER



B: SECTION THROUGH PERIMETER EDGE BEAM

C: SECTION THROUGH INFILL BEAM



OPTION #1 WELDED WIRE MESH ON CHAIR SUPPORTS

OPTION #2 WELDED WIRE MESH ON WAGON WHEEL

NOTE:
DO NOT USE WHERE ADDITIONAL FLEXUAL REINF. IS REQUIRED.

OPTION #3 DEFORMED BARS ON CHAIR SUPPORTS

CONCRETE ON DECK REINFORCEMENT

NO.	REVISIONS	DATE
1	ISSUED FOR COORDINATION	2023-02-08

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A SALASOBRIEN COMPANY
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AL-RAHMAH MOSQUE

4721, PALLADIUM WAY, BUTLINGTON, ON

Owner

N

DRAWN	SCALE
Author	1 : 1
CHECKED: Checker	DATE: Issue Date

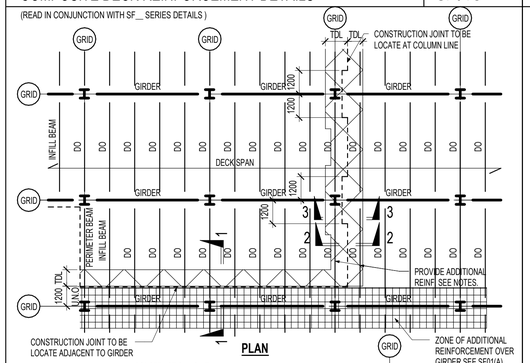
TITLE: GENERAL NOTES AND TYPICAL DETAILS

PROJECT NO.	DRAWING NO.
20220714	S9-02

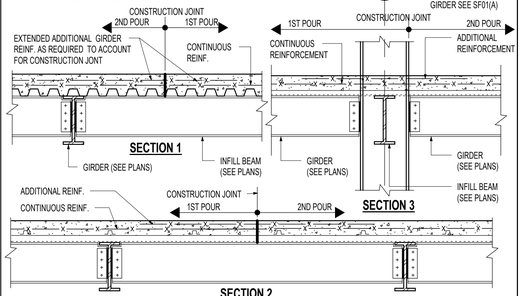
DATE/TIME PRODUCED:2/8/2023 12:06:47 PM

COMPOSITE DECK REINFORCEMENT DETAILS — SF01C

(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)



PLAN

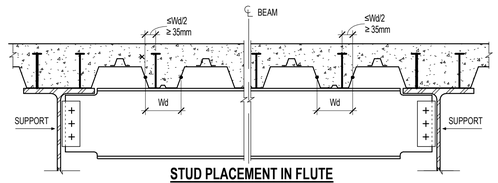


SECTION 1 | SECTION 3 | SECTION 2

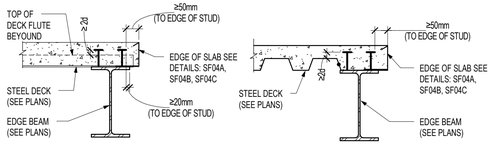
NOTES:
1. PROVIDE ADDITIONAL TOP REINFORCEMENT IN THE FORM OF 10M@400mm x 1200mm LG OR A SECOND LAYER OF WELDED WIRE MESH AS PER DETAIL SF01A.
2. ADDED CONSTRUCTION JOINT REINFORCEMENT IS NOT REQUIRED IN ADDITION TO THAT ADDED OVER GIRDERS.
3. SHOP DRAWINGS SHOWING THE PROPOSED CONSTRUCTION JOINT LOCATIONS AND ADDITIONAL REINFORCEMENT SHALL BE SUBMITTED TO THE STRUCTURAL CONSULTANT FOR REVIEW.

COMPOSITE BEAM STUD DETAILS — SF02A

(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)



STUD PLACEMENT IN FLUTE



EDGE BEAM (DECK PERPENDICULAR)

EDGE BEAM (DECK PARALLEL)

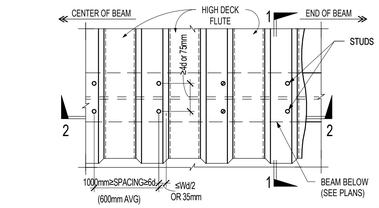
NOTES

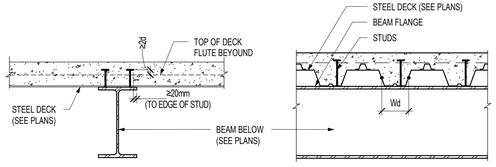
d = STUD DIAMETER
Wd = MID HEIGHT FLUTE WIDTH

1. STUDS TO BE EQUALLY SPACED ALONG BEAM (OR BEAM SEGMENT) AS PER THE REQUIREMENTS ABOVE.
2. FOR BEAMS PERPENDICULAR TO DECK, DIVIDE THE NUMBER OF STUDS BY THE NUMBER OF FLUTES CROSSING THE BEAM TO DETERMINE THE NUMBER OF ROWS OF STUDS. DIVIDE THE NUMBER OF STUDS IN EXCESS OF FULL ROWS IN HALF. PLACE EACH HALF AS AN ADDITIONAL STUD/FLUTE STARTING AT THE BEAM ENDS TOWARDS THE CENTER.
3. STUDS MAY BE WELDED THROUGH A MAXIMUM OF TWO STEEL SHEETS IN CONTACT, EACH NOT MORE THAN 1.71mm IN OVERALL THICKNESS. BEAM FLANGE THICKNESS TO BE A MIN. OF 7.6mm (d/2.5).
4. FOR BEAMS PERPENDICULAR TO DECK, PLACE STUDS AT THE HALF OF THE FLUTE CLOSER TO THE CLOSEST SUPPORT AND AWAY FROM THE CENTER OF THE SPAN OR THE POINT OF ZERO SHEAR.
5. Wd SHOULD BE AT LEAST TWO TIMES THE DEPTH OF THE DECK.
6. REFER TO DETAILS SF01A,B,C,FOR REINFORCEMENT REQUIRED FOR DECK.

COMPOSITE BEAM STUD DETAILS — SF02B

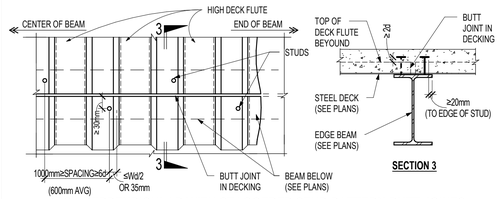
(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)





SECTION 1 | SECTION 2

DECK PERPENDICULAR WITH ALIGNED STUD PATTERN

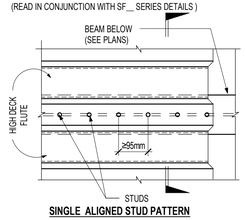


SECTION 3

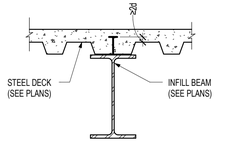
DECK PERPENDICULAR WITH STAGGERED STUD PATTERN BUTT JOINTS

COMPOSITE BEAM STUD DETAILS — SF02C

(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)

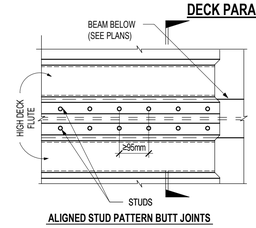


SINGLE ALIGNED STUD PATTERN

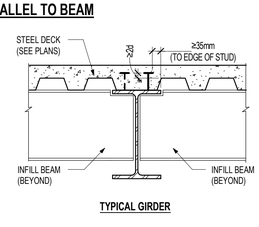


INFILL BEAM

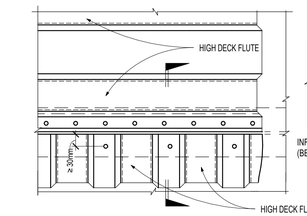
DECK PARALLEL TO BEAM



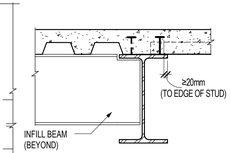
ALIGNED STUD PATTERN BUTT JOINTS



TYPICAL GIRDER



CHANGE OF DECK DIRECTION

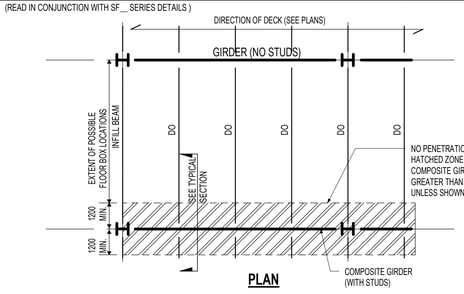


TYPICAL GIRDER

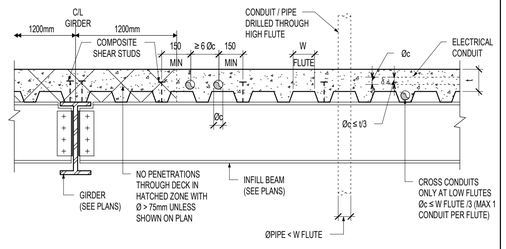
ISSUED FOR COORDINATION	2023-02-08
NO. REVISIONS	DATE

PENETRATIONS AND CONDUIT LOCATIONS IN CONCRETE ON DECK FLOORS — SF03

(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)



PLAN



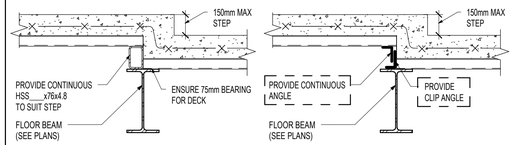
SECTION

NOTES

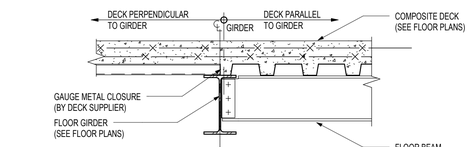
1. THIS DETAIL SHALL BE USED FOR FLOOR DRAINS, PIPE PENETRATIONS AND ELECTRICAL CONDUIT. WRITTEN CONSENT FROM ENGINEER IS REQUIRED FOR PENETRATIONS TO BE LOCATED IN AREAS CONTRADICTING THIS DETAIL
2. DO NOT BUNDLE CONDUITS IN CONCRETE ON DECK.
3. REFER TO FLOOR PLANS FOR LARGER ITEMS TO BE FRAMED AS OPENINGS (ELECTRICAL BOXES, ETC.)

CONCRETE SLAB ON STEEL DECK. STEPS AND TRANSITIONS DETAILS — SF05

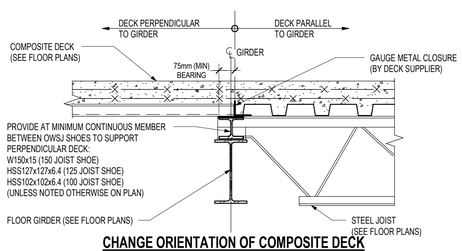
(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)



STEP IN SLAB (UNLESS NOTED OTHERWISE) | STEP IN SLAB (UNLESS NOTED OTHERWISE)



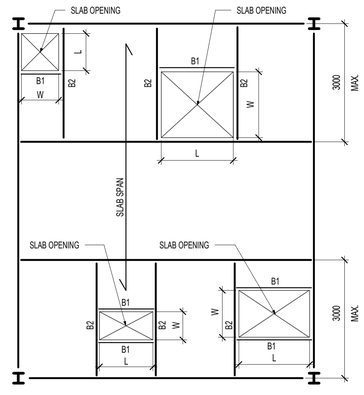
CHANGE ORIENTATION OF STEEL DECK
(STEEL BEAM FRAMING)



CHANGE ORIENTATION OF COMPOSITE DECK
(OWSJ FRAMING)

FRAMING AT OPENINGS IN COMPOSITE FLOOR — SF06

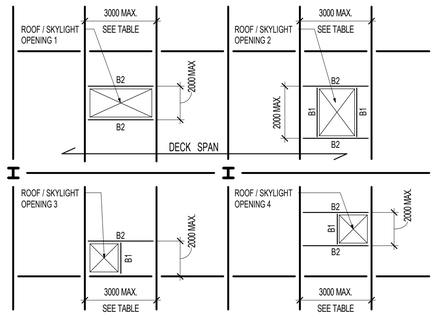
(READ IN CONJUNCTION WITH SF__ SERIES DETAILS)



Opening Length (mm)	Opening Width (mm)	Beam 1 Connection Force (kN)	Beam 1 Beam	Beam 2 Connection Force (kN)	Beam 2 Beam
1000	W<=500	15	C100x7	25	C150x12
	W>=500	15	C100x7	25	C150x12
2000	W<=500	25	C150x12	35	C200x17
	W>=500	25	C150x12	30	C200x17

NOTES:
1. TOP OF ALL TRIMMING STEEL AT UNDERSIDE OF STEEL DECK ELEVATION UNLESS OTHERWISE NOTED.
2. OPENINGS FRAMES ARE DESIGNED FOR THE FOLLOWING LOADS (MAX.)
   DL=3.5kPa
   LL=4.8kPa
   SDL=1.25kPa
   ENGINEER TO REVIEW AND REVISE
3. LOCATION OF ALL MECHANICAL UNITS AND OPENINGS THROUGH ROOF IS BASED ON INFORMATION SHOWN ON MECHANICAL DRAWINGS. THE STRUCTURAL STEEL SUB-CONTRACTOR MUST CONFIRM ALL DIMENSIONS AND SIZES WITH THE MECHANICAL CONTRACTOR.
4. O.W.S.J MUST BE DESIGNED FOR ADDITIONAL LOADS FROM MECHANICAL UNITS.
5. IF ACTUAL LOCATIONS OR DETAILS VARY FROM THOSE SHOWN, THE STRUCTURAL CONSULTANT MUST BE INFORMED AND INSTRUCTIONS RECEIVED BEFORE PROCEEDING WITH THE WORK.
6. THE STRUCTURAL STEEL SUB-CONTRACTOR IS TO SUBMIT ERECTION DRAWINGS TO THE MECHANICAL ENGINEER AND/ OR CONTRACTOR FOR APPROVAL OF SIZE AND LOCATION OF OPENINGS FOR MECHANICAL UNITS

ROOF FRAMING AT OPENINGS IN ROOF DECK — SR01



TYPICAL ROOF OPENINGS IN DECK

SPAN (mm)	ROOF OPENING BEAM 1 (B1) SIZE	BEAM 1 (B1) CONNECTION	BEAM 2 (B2) SIZE	BEAM 2 (B2) CONNECTION
0-1500	C100x8	5 kN	C100x8	10 kN
1500-3000	C100x8	10 kN	C150x12	20 kN

TYPICAL SKYLIGHT OPENINGS IN DECK

SPAN (mm)	SKYLIGHT OPENING 2 BEAM 1 (B1) SIZE	BEAM 1 (B1) CONNECTION	BEAM 2 (B2) SIZE	BEAM 2 (B2) CONNECTION
0-1500	C100x8	10 kN	C150x12	15 kN
1500-3000	C100x8	10 kN	C200x17	20 kN

NOTES:
1. TOP OF ALL TRIMMING STEEL AT UNDERSIDE OF STEEL DECK UNLESS OTHERWISE NOTED.
2. OPENINGS FRAMES ARE DESIGNED FOR THE FOLLOWING LOADS (MAX.)
   DL=0.50kPa
   SDL=0.50kPa
   SNOW=1.50kPa
   THE FRAMING ABOVE HAS BEEN DESIGNED FOR THE FOLLOWING LOADS. IF THE PROJECT LOADS ARE GREATER ENGINEER TO REVIEW AND REVISE
3. LOCATION OF ALL MECHANICAL UNITS AND OPENINGS THROUGH ROOF IS BASED ON INFORMATION SHOWN ON MECHANICAL DRAWINGS. THE STRUCTURAL STEEL SUB-CONTRACTOR MUST CONFIRM ALL THESE DIMENSIONS AND SIZES WITH THE MECHANICAL CONTRACTOR.
4. O.W.S.J MUST BE DESIGNED FOR ADDITIONAL LOADS FROM MECHANICAL UNITS.
5. IF ACTUAL LOCATIONS OR DETAILS VARY FROM THOSE SHOWN, THE STRUCTURAL CONSULTANT MUST BE INFORMED AND INSTRUCTIONS RECEIVED BEFORE PROCEEDING WITH THE WORK.
6. THE STRUCTURAL STEEL SUB-CONTRACTOR IS TO SUBMIT ERECTION DRAWINGS TO THE MECHANICAL ENGINEER AND/ OR CONTRACTOR FOR APPROVAL OF SIZE AND LOCATION OF OPENINGS FOR MECHANICAL UNITS.

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AL-RAHMAH MOSQUE

4721, PALLADIUM WAY, BUTLINGTON, ON

Owner

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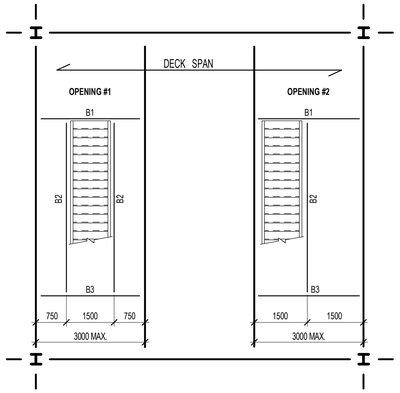
DRAWN	SCALE
Author	1 : 1
CHECKED	DATE
Checker	Issue Date

TITLE: GENERAL NOTES AND TYPICAL DETAILS

PROJECT NO.	DRAWING NO.
20220714	S9-03

DATE/TIME PRODUCED:2/8/2023 12:06:59 PM

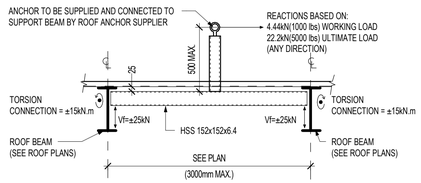
FRAMING AT ROOF STAIR ACCESS OPENINGS — SR02



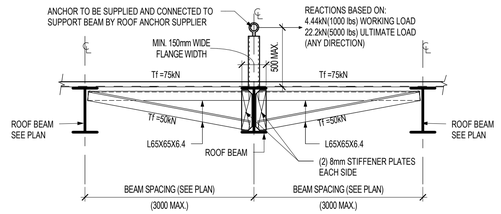
STAIR OPENING						
FLOOR HEIGHT	BEAM 1 (B1)		BEAM 2 (B2)		BEAM 2 (B2)	
	SIZE	CONNECTION	SIZE	CONNECTION	SIZE	CONNECTION
h ≤ 4000	C200x17	20 kN	W310x21	50 kN	C200x17	20 kN
4000 < h ≤ 5000	C200x17	20 kN	W310x21	60 kN	C200x17	20 kN
5000 < h ≤ 6000	C200x17	20 kN	W310x21	70 kN	C200x17	20 kN
6000 < h ≤ 7000	C200x17	20 kN	W310x21	80 kN	C200x17	20 kN
7000 < h ≤ 8000	C200x17	20 kN	W310x21	90 kN	C200x17	20 kN

NOTES:
1. TOP OF ALL TRIMMING STEEL AT UNDERSIDE OF STEEL DECK UNLESS OTHERWISE NOTED.
2. OPENINGS FRAMES ARE DESIGNED FOR THE FOLLOWING LOADS (MAX.)
   DL=0.50kPa, SDL=0.50kPa, SNOW=1.50kPa — ENGINEER TO REVIEW AND REVISE
3. LOCATION OF ALL MECHANICAL UNITS AND OPENINGS THROUGH ROOF IS BASED ON INFORMATION SHOWN ON MECHANICAL DRAWINGS. THE STRUCTURAL STEEL SUB-CONTRACTOR MUST CONFIRM ALL THESE DIMENSIONS AND SIZES WITH THE MECHANICAL CONTRACTOR.
4. O.W.S.J MUST BE DESIGNED FOR ADDITIONAL LOADS FROM MECHANICAL UNITS.
5. IF ACTUAL LOCATIONS OR DETAILS VARY FROM THOSE SHOWN, THE STRUCTURAL CONSULTANT MUST BE INFORMED AND INSTRUCTIONS RECEIVED BEFORE PROCEEDING WITH THE WORK.
6. THE STRUCTURAL STEEL SUB-CONTRACTOR IS TO SUBMIT ERECTION DRAWINGS TO THE MECHANICAL ENGINEER AND/ OR CONTRACTOR FOR APPROVAL OF SIZE AND LOCATION OF OPENINGS FOR MECHANICAL UNITS.

ANCHOR ASSEMBLY (STEEL BEAM) — SR07A



ANCHOR LOCATED BETWEEN ROOF BEAMS NTS

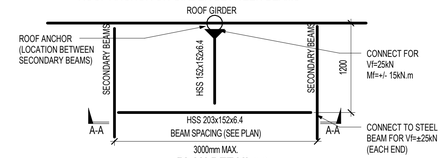


ANCHOR LOCATED ON ROOF BEAM NTS

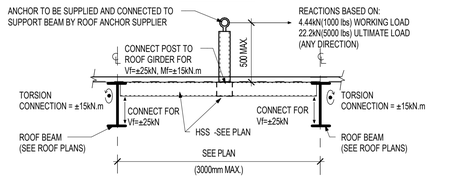
NOTE:
1. SAFETY ANCHOR LOAD NEED NOT TO BE CONSIDERED TO ACT SIMULTANEOUSLY WITH SNOW LOAD.
2. SEE ARCHITECTURAL AND SUPPLIER SHOP DRAWINGS FOR LOCATIONS.

ANCHOR ASSEMBLY (STEEL BEAM) ANCHOR ON GIRDER — SR07B

ROOF ANCHOR ON GIRDER BETWEEN BEAMS

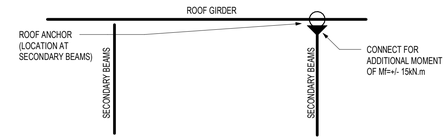


PLAN DETAIL NTS



SECTION A-A NTS

ANCHOR LOCATED ON GIRDER BETWEEN ROOF BEAMS



PLAN DETAIL NTS

ANCHOR LOCATED ON GIRDER AT SECONDARY BEAMS

NOTE:
1. SAFETY ANCHOR LOAD NEED NOT TO BE CONSIDERED TO ACT SIMULTANEOUSLY WITH SNOW LOAD.
2. SEE ARCHITECTURAL AND SUPPLIER SHOP DRAWINGS FOR LOCATIONS.

COMPRESSION-TENSION DEVELOPMENT AND LAP LENGTHS Fy = 400 MPa — C02A

NOTES
1. STANDARD ABBREVIATIONS ON PLANS AND SCHEDULES SHOULD BE AS FOLLOWS
   CLS - COMPRESSION LAP SPLICE
   CDL - COMPRESSION DEVELOPMENT LENGTH
   HEL - HOOK EMBEDMENT LENGTH

COMPRESSION LAP SPLICE AND DEVELOPMENT LENGTHS (Fy = 400 MPa)

CLS: COMPRESSION LAP SPLICE LENGTH (mm)

UNCOATED BLACK BAR							
10M	15M	20M	25M	30M	35M	45M	55M
300	440	590	730	880	1030	NOT PERMITTED	

CDL: COMPRESSION DEVELOPMENT LENGTH

(mm) f'c	UNCOATED BLACK BAR							
	10M	15M	20M	25M	30M	35M	45M	55M
20MPa	250	340	420	540	640	770	940	1210
25MPa	220	310	370	600	570	690	840	1080
30MPa	200	280	340	440	530	630	770	990
35MPa	200	280	340	440	530	630	770	990
40MPa	200	280	340	440	530	630	770	990
> 40 MPa	SEE MINIMUM VALUES FOR f'c = 40 MPa							

NOTES:
1. IF BUNDLED BARS ARE USED THE VALUES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.1 (TWO BAR BUNDLES) b. MULTIPLY BY 1.2 (THREE BAR BUNDLES) c. MULTIPLY BY 1.33 (FOUR BAR BUNDLES)
2. FOR EMBEDMENTS ENCLOSED IN SPIRALS, MULTIPLY BY 0.75, BUT NOT LESS THAN 200mm.

HEL: MINIMUM TENSION EMBEDMENT LENGTH WITH STANDARD HOOK

(mm) f'c	UNCOATED BLACK BAR							
	10M	15M	20M	25M	30M	35M	45M	55M
20MPa	220	340	450	560	670	780	1010	1230
25MPa	200	300	400	500	600	700	900	1100
30MPa	180	270	370	460	550	640	830	1010
35MPa	170	250	340	420	510	590	770	930
40MPa	160	240	320	400	470	550	720	870
45MPa	150	220	300	370	450	520	680	820
50MPa	150	210	280	350	420	490	640	780
55MPa	150	200	270	340	400	470	610	750

NOTES:
1. FOR EPOXY COATED BARS THE VALUES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.2 (WHEN CLEAR COVER GREATER THAN 3 X BAR DIAMETER AND CLEAR SPACING GREATER THAN 6 X BAR DIAMETER)
   b. MULTIPLY BY 1.5 (WHEN COVER OR SPACING ARE LESS THAN ABOVE)
2. VALUES PROVIDED ARE BASED ON NORMAL WEIGHT CONCRETE AND MUST BE INCREASED FOR LIGHTWEIGHT CONCRETES:
   a. MULTIPLY BY 1.2 (FOR SEMI-LOW DENSITY CONCRETE)
   b. MULTIPLY BY 1.3 (FOR LOW-DENSITY CONCRETE)
3. FOR 35M AND SMALLER BARS MULTIPLY THE VALUES IN THE TABLE BY 0.7 (BUT NOT LESS THAN 150mm) WHERE THE SIDE COVER (NORMAL TO THE PLANE OF THE HOOK) IS AT LEAST 60mm, AND FOR 90° HOOKS WHERE COVER ON THE BAR EXTENSION BEYOND THE HOOK IS AT LEAST 50mm.
4. FOR 35M AND SMALLER BARS MULTIPLY THE VALUES IN THE TABLE BY 0.8 (BUT NOT LESS THAN 150mm) WHERE THE HOOK IS ENCLOSED WITHIN AT LEAST THREE(3) TIES OR STIRRUPS SPACED ALONG A LENGTH EQUAL TO THE INSIDE DIAMETER OF THE HOOK AT A SPACING NOT MORE THAN 3 TIMES THE BAR DIAMETER.

NO.	REVISIONS	DATE
1	ISSUED FOR COORDINATION	2023-02-08

TYPICAL CONCRETE COVER TABLE — C01

VERTICAL ELEMENTS		PROJECT SPECIFIC COMMENTS	BAR SIZE	CONCRETE EXPOSURE: CHLORIDES WITH / WITHOUT FREEZE THAW — COVER TO ALL FACES (mm) — FIRE RATING (7)		
				≤ 2 HR	3 HR	4 HR
WALLS	ANY WALLS EXPOSED TO FIRE ON ONE SIDE ONLY (FOUNDATION, ELEVATOR AND STAIRS, DEMISING WALLS, FIRE SEPARATION WALLS)		Ø ≤ 25M	40 / 60 (2)	40 / 60 (2)	60
			30M	45 / 60 (2)	45 / 60 (2)	60
			35M	55 / 70 (2)	55 / 70 (2)	60 / 70 (2)
			45M	70 / 90 (2)	70 / 90 (2)	70 / 90 (2)
			55M	85 / 110 (2)	85 / 110 (2)	85 / 110 (2)
	INTERIOR WALLS EXPOSED TO FIRE ON BOTH SIDES SIMULTANEOUSLY		Ø ≤ 25M	40 / 60 (2)	40 / 60 (2)	60
			30M	45 / 60 (2)	45 / 60 (2)	60
			35M	55 / 70 (2)	55 / 70 (2)	60 / 70 (2)
			45M	70 / 90 (2)	70 / 90 (2)	70 / 90 (2)
			55M	85 / 110 (2)	85 / 110 (2)	85 / 110 (2)
COLUMNS			Ø ≤ 25M	40 / 60 (2)	40 / 60 (2)	60
			30M	45 / 60 (2)	45 / 60 (2)	60
			35M	55 / 70 (2)	55 / 70 (2)	60 / 70 (2)
			45M	70 / 90 (2)	70 / 90 (2)	70 / 90 (2)
			55M	85 / 110 (2)	85 / 110 (2)	85 / 110 (2)

HORIZONTAL ELEMENTS		PROJECT SPECIFIC COMMENTS	BAR SIZE	CONCRETE EXPOSURE: CHLORIDES WITH / WITHOUT FREEZE THAW (7) — TOP COVER (mm) — FIRE RATING			BOTTOM & SIDE COVER (mm) — FIRE RATING		
				≤ 2 HR	3 HR	4 HR	≤ 2 HR	3 HR	4 HR
BEAMS			Ø ≤ 20M	45	45	45	30	35	40
			25M	45	45	45	40	40	40
			30M	45	45	45	45	45	45
			35M	55	55	55	55	55	55
			45M	70	70	70	70	70	70
			55M	85	85	85	85	85	85
SLABS			Ø ≤ 20M	45	45	45	30	35	40
			25M	45	45	45	40	40	40
			30M	45	45	45	45	45	45
			35M	55	55	55	55	55	55
			45M	70	70	70	70	70	70
			55M	85	85	85	85	85	85

ELEMENTS EXPOSED TO EARTH	PROJECT SPECIFIC COMMENTS	BAR SIZE	CONCRETE EXPOSURE: COVER (mm)	
PERMANENTLY EXPOSED TO SOIL		ALL SIZES	GREATER OF 60mm OR 2.0Ø	GREATER OF 40mm OR 1.5Ø
CAST AGAINST AND PERMANENTLY EXPOSED TO SOIL		ALL SIZES	75	

EDIT NOTES FOR PROJECT, DELETE CONDITIONS AND NOTES THAT DO NOT

TABLE NOTES
1. CONCRETE COVER SHALL BE MEASURED FROM THE DEEPEST POINT OF TEXTURED CONCRETE SURFACE TO THE NEAREST DEFORMATION OF REINFORCEMENT. REINFORCEMENT INCLUDES TIES, STIRRUPS AND MAIN BARS.
2. THE SMALLER NUMBER IN THE TABLE CELL APPLIES TO PARKING GARAGE STRUCTURE WHERE VERTICAL ELEMENTS ARE PROTECTED BY 100mm EXTENSION OF MEMBRANE ABOVE THE FLOOR OR APPROVED SEALER. OTHERWISE THE LARGER NUMBER SHALL BE USED.
3. FOR COLUMNS THAT ARE FIRE RATED MORE THAN 3HRS AND WITH CONCRETE COVER EXCEEDING 53mm, PROVIDE WIRE MESH REINFORCEMENT WITH MINIMUM 1.57mm DIAMETER WIRE WITH 100mm OPENINGS AT MID-POINT OF COVER.
4. FOR CONCRETE COVER FOR BUNDLED BARS, REFER TO THE DESIGN DRAWINGS.
5. FOR FIRE RATING INFORMATION, REFER TO ARCHITECTURAL DRAWINGS
6. ALL CONCRETE BEAMS AND SLABS IN PARKING GARAGE SHALL BE PROTECTED BY MEMBRANE ("M" PROTECTION SYSTEM PER CSA S413). REMAINDER OF STRUCTURE ASSUMED TO BE UNPROTECTED. STAIRS IN PARKING AREAS ARE TO INCLUDE DCI AT DOSAGE OF 10L/m³
7. CONCRETE SLABS AND BEAMS WITH NO MEMBRANE (NON-PARKING), COVER = GREATER OF 60mm OR 2Ø
8. ALL LOAD BEARING ELEMENTS (WALLS AND COLUMNS) IMMEDIATELY BELOW A FLOOR ASSEMBLY MUST HAVE A FIRE-RESISTANCE RATING NOT LESS THAN THAT FOR THE SUPPORTED ASSEMBLY.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS Fy = 400 MPa — C02B

NOTES
1. STANDARD ABBREVIATIONS ON PLANS AND SCHEDULES SHOULD BE AS FOLLOW
   TLS - TENSION LAP SPLICE
   TDL - TENSION DEVELOPMENT LENGTH

TENSION LAP SPLICE AND DEVELOPMENT LENGTHS (Fy = 400 MPa)

TLS: TENSION LAP SPLICE LENGTH (CLASS B) (mm)

f'c	UNCOATED BLACK BAR											
	10M		15M		20M		25M		30M		35M	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
20MPa	550	420	820	630	1090	840	1710	1310	2050	1570	2390	1840
25MPa	490	380	740	570	980	750	1530	1170	1830	1410	2130	1640
30MPa	450	350	670	520	890	690	1390	1070	1670	1290	1950	1500
35MPa	420	320	620	480	830	640	1290	990	1550	1190	1800	1390
40MPa	390	300	580	450	770	600	1210	930	1450	1110	1690	1300
45MPa	370	300	550	420	730	560	1140	880	1370	1050	1590	1230
50MPa	350	300	520	400	690	530	1080	830	1300	1000	1510	1160
55MPa	330	300	500	380	660	510	1030	790	1240	950	1440	1110
60MPa	320	300	480	370	630	490	990	760	1180	910	1380	1060
64MPa	310	300	460	360	610	470	960	740	1150	880	1340	1030

TDL: TENSION DEVELOPMENT LENGTH (mm) CLASS "A" LAP SPLICE

f'c	UNCOATED BLACK BAR											
	10M		15M		20M		25M		30M		35M	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
20MPa	420	330	630	490	840	650	1310	1010	1570	1210	1840	1410
25MPa	380	300	570	440	750	580	1170	900	1410	1080	1640	1260
30MPa	350	300	520	400	690	530	1070	830	1290	990	1500	1160
35MPa	320	300	480	370	640	490	990	770	1190	920	1390	1070
40MPa	300	300	450	350	600	460	930	720	1110	860	1300	1000
45MPa	300	300	420	330	560	430	880	680	1050	810	1230	940
50MPa	300	300	400	310	530	410	830	640	1000	770	1160	900
55MPa	300	300	380	300	510	390	790	610	950	730	1110	850
60MPa	300	300	370	300	490	380	760	590	910	700	1060	820
64MPa	300	300	360	300	470	360	740	570	880	680	1030	790

NOTES:
1. FOR EPOXY COATED BARS THE VALUES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.2 (WHEN CLEAR COVER GREATER THAN 3 X BAR DIAMETER AND CLEAR SPACING GREATER THAN 6 X BAR DIAMETER)
   b. MULTIPLY BY 1.5 (WHEN COVER OR SPACING ARE LESS THAN ABOVE)
2. VALUES PROVIDED ARE BASED ON NORMAL WEIGHT CONCRETE AND MUST BE INCREASED FOR LIGHTWEIGHT CONCRETES:
   a. MULTIPLY BY 1.2 (FOR SEMI-LOW DENSITY CONCRETE)
   b. MULTIPLY BY 1.3 (FOR LOW-DENSITY CONCRETE)
3. IF BUNDLED BARS ARE USED THE VAULES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.1 (TWO BAR BUNDLES)
   b. MULTIPLY BY 1.2 (THREE BAR BUNDLES)
   c. MULTIPLY BY 1.33 (FOUR BAR BUNDLES)

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AL-RAHMAH MOSQUE

4721, PALLADIUM WAY, BUTLINGTON, ON

Owner

N

DRAWN	SCALE
Author	1 : 1
CHECKED: Checker	DATE: Issue Date

TITLE: GENERAL NOTES AND TYPICAL DETAILS

PROJECT NO.	DRAWING NO.
20220714	S9-04

DATE/TIME PRODUCED:2/8/2023 12:06:53 PM

TENSION AND COMPRESSION DEVELOPMENT AND LAP LENGTHS Fy = 500 MPa — C03A

NOTES
1. STANDARD ABBREVIATIONS ON PLANS AND SCHEDULES SHOULD BE AS FOLLOWS
   CLS - COMPRESSION LAP SPLICE
   CDL - COMPRESSION DEVELOPMENT LENGTH
   HEL - HOOK EMBEDMENT LENGTH

COMPRESSION LAP SPLICE AND DEVELOPMENT LENGTHS (Fy = 500 MPa)

CLS: COMPRESSION LAP SPLICE LENGTH (mm)

UNCOATED BLACK BAR							
10M	15M	20M	25M	30M	35M	45M	55M
430	640	850	1070	1280	1490	NOT PERMITTED	

CDL: COMPRESSION DEVELOPMENT LENGTH (mm)

f'c	UNCOATED BLACK BAR							
	10M	15M	20M	25M	30M	35M	45M	55M
20MPa	310	430	530	680	810	960	1180	1520
25MPa	270	380	470	300	720	860	1050	1350
30MPa	250	350	430	550	660	790	960	1240
35MPa	250	350	430	550	660	790	960	1240
40MPa	250	350	430	550	660	790	960	1240
> 40 MPa	SEE MINIMUM VALUES FOR fc = 40 MPa							

NOTES:
1. IF BUNDLED BARS ARE USED THE VALUES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.1 (TWO BAR BUNDLES) b. MULTIPLY BY 1.2 (THREE BAR BUNDLES) c. MULTIPLY BY 1.33 (FOUR BAR BUNDLES)

2. FOR EMBEDMENTS ENCLOSED IN SPIRALS, MULTIPLY BY 0.75, BUT NOT LESS THAN 200mm.

HEL: MINIMUM TENSION EMBEDMENT LENGTH WITH STANDARD HOOK (mm)

f'c	UNCOATED BLACK BAR							
	10M	15M	20M	25M	30M	35M	45M	55M
20MPa	280	420	560	700	840	980	1260	1540
25MPa	250	380	500	630	750	880	1130	1380
30MPa	230	350	460	580	690	800	1030	1260
35MPa	220	320	430	530	640	740	960	1170
40MPa	200	300	400	500	600	700	890	1090
45MPa	190	280	380	470	560	660	840	1030
50MPa	180	270	360	450	530	620	800	980
55MPa	170	260	340	430	510	590	760	930

NOTES:
1. FOR EPOXY COATED BARS THE VALUES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.2 (WHEN CLEAR COVER GREATER THAN 3 X BAR DIAMETER AND CLEAR SPACING GREATER THAN 6 X BAR DIAMETER)
   b. MULTIPLY BY 1.5 (WHEN COVER OR SPACING ARE LESS THAN ABOVE)
2. VALUES PROVIDED ARE BASED ON NORMAL WEIGHT CONCRETE AND MUST BE INCREASED FOR LIGHTWEIGHT CONCRETES:
   a. MULTIPLY BY 1.2 (FOR SEMI-LOW DENSITY CONCRETE)
   b. MULTIPLY BY 1.3 (FOR LOW-DENSITY CONCRETE)
3. FOR 35M AND SMALLER BARS MULTIPLY THE VALUES IN THE TABLE BY 0.7 (BUT NOT LESS THAN 150mm) WHERE THE SIDE COVER (NORMAL TO THE PLANE OF THE HOOK) IS AT LEAST 60mm, AND FOR 90° HOOKS WHERE COVER ON THE BAR EXTENSION BEYOND THE HOOK IS AT LEAST 50mm.
4. FOR 35M AND SMALLER BARS MULTIPLY THE VALUES IN THE TABLE BY 0.8 (BUT NOT LESS THAN 150mm) WHERE THE HOOK IS ENCLOSED WITHIN AT LEAST THREE(3) TIES OR STIRRUPS SPACED ALONG A LENGTH EQUAL TO THE INSIDE DIAMETER OF THE HOOK AT A SPACING NOT MORE THAN 3 TIMES THE BAR DIAMETER.

TENSION AND COMPRESSION DEVELOPMENT AND LAP SPLICE LENGTHS Fy = 500 MPa — C03B

NOTES
1. STANDARD ABBREVIATIONS ON PLANS AND SCHEDULES SHOULD BE AS FOLLOW
   TLS - TENSION LAP SPLICE
   TDL - TENSION DEVELOPMENT LENGTH

TENSION LAP SPLICE AND DEVELOPMENT LENGTHS (Fy = 500 MPa)

TLS: TENSION LAP SPLICE LENGTH (CLASS B) (mm)

f'c	UNCOATED BLACK BAR											
	10M		15M		20M		25M		30M		35M	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
20MPa	690	530	1030	790	1370	1050	2130	1640	2560	1970	2980	2290
25MPa	610	470	920	710	1220	940	1910	1470	2290	1760	2610	2050
30MPa	560	430	840	650	1120	860	1740	1340	2090	1610	2430	1870
35MPa	520	400	780	600	1030	800	1610	1240	1930	1490	2250	1740
40MPa	490	370	730	560	970	740	1510	1160	1810	1390	2110	1620
45MPa	460	350	690	530	910	700	1420	1100	1710	1990	1950	1530
50MPa	440	340	650	500	870	670	1350	1040	1620	1250	1890	1450
55MPa	420	320	620	480	830	640	1290	990	1540	1190	1800	1390
60MPa	400	310	590	460	790	610	1230	950	1480	1140	1720	1330
64MPa	390	300	580	440	770	590	1190	920	1430	1100	1670	1280

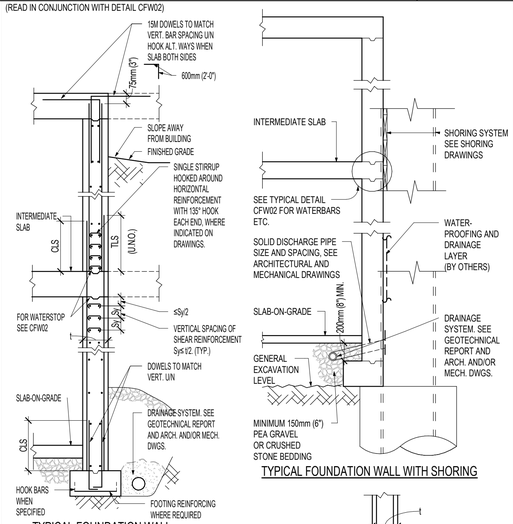
TDL: TENSION DEVELOPMENT LENGTH (mm) CLASS "A" LAP SPLICE

f'c	UNCOATED BLACK BAR											
	10M		15M		20M		25M		30M		35M	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
20MPa	530	410	790	610	1050	810	1640	1260	1970	1510	2290	1770
25MPa	470	360	710	540	940	720	1470	1130	1760	1350	2050	1580
30MPa	430	330	650	500	860	660	1340	1030	1610	1240	1870	1440
35MPa	400	310	600	460	800	610	1240	960	1490	1150	1740	1340
40MPa	370	300	560	430	740	570	1160	890	1390	1070	1620	1250
45MPa	350	300	530	410	700	540	1100	840	1310	1010	1530	1180
50MPa	340	300	500	390	670	510	1040	800	1250	960	1450	1120
55MPa	320	300	480	370	640	490	990	760	1190	920	1390	1070
60MPa	310	300	460	350	610	470	950	730	1140	880	1330	1020
64MPa	300	300	440	340	590	450	920	710	1100	850	1280	990

NOTES:
1. FOR EPOXY COATED BARS THE VALUES IN THE TABLES MUST BE INCRESED:
   a. MULTIPLY BY 1.2 (WHEN CLEAR COVER GREATER THAN 3 X BAR DIAMETER AND CLEAR SPACING GREATER THAN 6 X BAR DIAMETER)
   b. MULTIPLY BY 1.5 (WHEN COVER OR SPACING ARE LESS THAN ABOVE)
2. VALUES PROVIDED ARE BASED ON NORMAL WEIGHT CONCRETE AND MUST BE INCREASED FOR LIGHTWEIGHT CONCRETES:
   a. MULTIPLY BY 1.2 (FOR SEMI-LOW DENSITY CONCRETE)
   b. MULTIPLY BY 1.3 (FOR LOW-DENSITY CONCRETE)
3. IF BUNDLED BARS ARE USED THE VAULES IN THE TABLES MUST BE INCREASED:
   a. MULTIPLY BY 1.1 (TWO BAR BUNDLES)
   b. MULTIPLY BY 1.2 (THREE BAR BUNDLES)
   c. MULTIPLY BY 1.33 (FOUR BAR BUNDLES)

CONCRETE WALLS AND FOUNDATION WALLS (NOT SPECIFIED AS SHEAR WALLS) — CFW01

(READ IN CONJUNCTION WITH DETAIL CFW02)



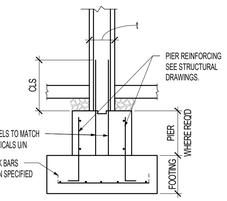
TYPICAL FOUNDATION WALL

1. LAP HORIZ. WALL REINF WITH TLS (TOP)
2. WALLS AND FOOTINGS ARE DESIGNED ASSUMING BOTH FACES ARE FORMED. IF WALL AND/OR FOOTINGS ARE TO BE PLACED DIRECTLY AGAINST SOIL (i.e., NO FORM USED), PERMISSION AND INSTRUCTIONS MUST BE OBTAINED FROM THE STRUCTURAL CONSULTANT.

MINIMUM REINFORCEMENT FOR CONCRETE WALLS TO BE AS FOLLOWS UNLESS NOTED †					
t	150	200	250	300	350
VERT.	10@440¢	10@460EF	10@460EF	10@440 EF	10@380EF
HORIZ.	10@320¢	10@460EF	10@400EF	10@320 EF	10@280EF
t	6"	8"	10"	12"	14"
VERT.	10@17¢	10@18EF	10@18EF	10@17 EF	10@14EF
HORIZ.	10@12¢	10@18EF	10@18EF	10@12 EF	10@11EF

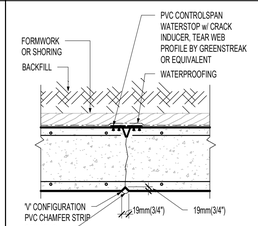
† REDUCE SPACING OF HORIZ. BARS BY 20% FOR UNHEATED AREAS

TYPICAL FOUNDATION WALL WITH SHORING



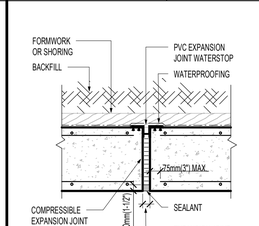
TYPICAL WALL FOUNDATION

TYPICAL JOINTS IN EXTERIOR CONCRETE FOUNDATION WALLS — CFW02A

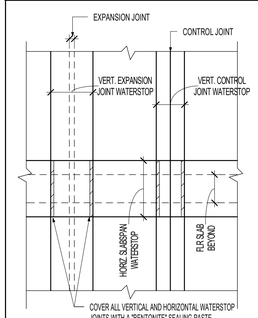


NOTES:
1. EVERY OTHER HORIZONTAL BAR TO BE CUT ACROSS CONTROL JOINT ON BOTH INSIDE AND OUTSIDE FACES.
2. CONTROL JOINTS ARE NOT TO BE PLACED IN AIR SHAFTS.

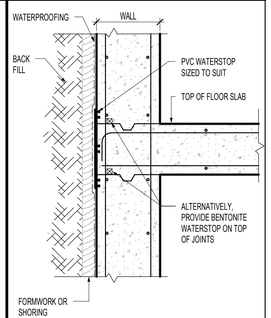
VERTICAL CONTROL JOINT AT EXTERIOR CONCRETE WALL
JOINTS @ 4500mm (15'-0") CENTERS MAX.



VERTICAL EXPANSION JOINT AT EXTERIOR CONCRETE WALL
FOR LOCATIONS SEE PLAN



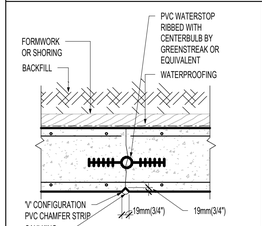
ELEVATION OF EXTERIOR CONCRETE WALL AT WATERSTOP LAP JOINTS



HORIZONTAL CONSTRUCTION JOINT AT EXTERIOR CONCRETE WALL AND SLAB

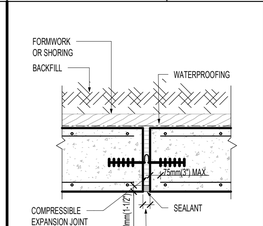
1	ISSUED FOR COORDINATION	2023-02-08
NO.	REVISIONS	DATE

TYPICAL JOINTS IN EXTERIOR CONCRETE FOUNDATION WALLS — CFW02B



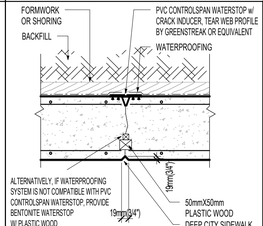
NOTES:
1. EVERY OTHER HORIZONTAL BAR TO BE CUT ACROSS CONTROL JOINT ON BOTH INSIDE AND OUTSIDE FACES.
2. CONTROL JOINTS ARE NOT TO BE PLACED IN AIR SHAFTS.

VERTICAL CONTROL JOINT AT EXTERIOR CONCRETE WALL
JOINTS @ 4500mm (15'-0") CENTERS MAX.



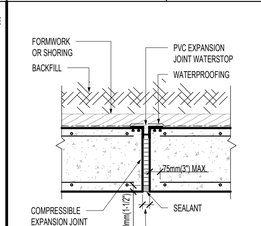
VERTICAL EXPANSION JOINT AT EXTERIOR CONCRETE WALL
FOR LOCATIONS SEE PLAN

TYPICAL JOINTS IN EXTERIOR CONCRETE FOUNDATION WALLS (SHOTCRETE APPLICATION) — CFW02C

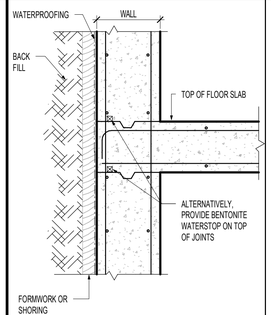


NOTES:
1. EVERY OTHER HORIZONTAL BAR TO BE CUT ACROSS CONTROL JOINT ON BOTH INSIDE AND OUTSIDE FACES.
2. CONTROL JOINTS ARE NOT TO BE PLACED IN AIR SHAFTS.

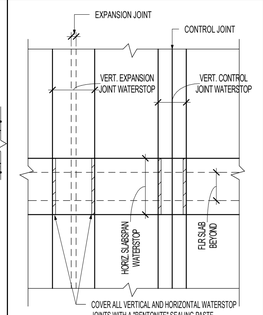
VERTICAL CONTROL JOINT AT EXTERIOR CONCRETE WALL (W/ SHOTCRETE APPLICATION)
JOINTS @ 3000mm (10'-0") CENTERS MAX.



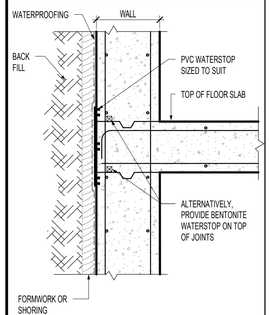
VERTICAL EXPANSION JOINT AT EXTERIOR CONCRETE WALL
FOR LOCATIONS SEE PLAN



HORIZONTAL CONSTRUCTION JOINT AT EXTERIOR CONCRETE WALL AND SLAB



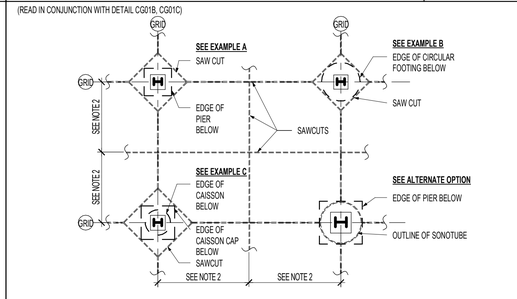
ELEVATION OF EXTERIOR CONCRETE WALL AT WATERSTOP LAP JOINTS

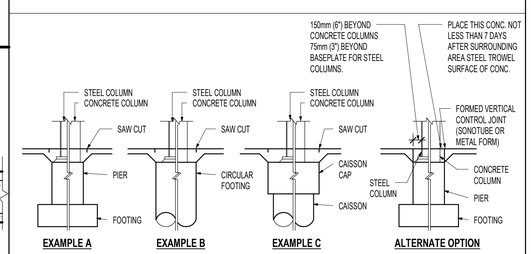


HORIZONTAL CONSTRUCTION JOINT AT EXTERIOR CONCRETE WALL AND SLAB

SLAB ON GRADE DETAILS — CG01A

(READ IN CONJUNCTION WITH DETAIL CG01B, CG01C)

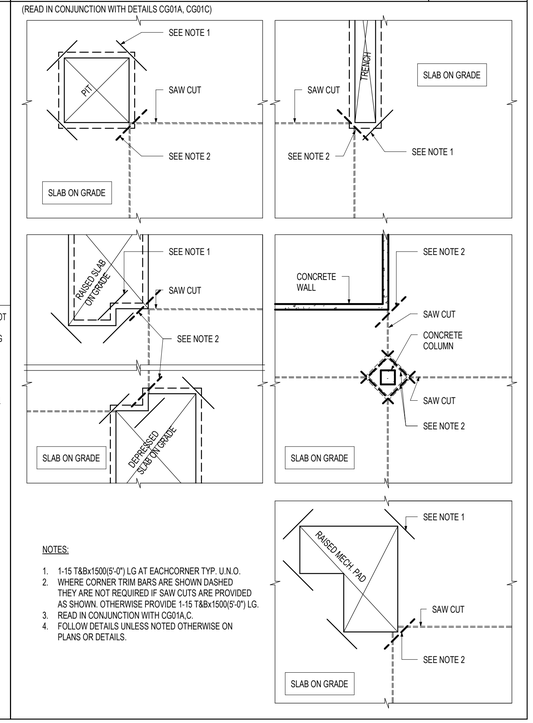




NOTES:
1. SAWCUTTING TO BE DONE AS SOON AS POSSIBLE AFTER SLAB IS PLACED. (MAX. 24 HOURS).
2. JOINTS TO BE AT MAX. 24x SLAB THICKNESS FOR MAXIMUM AGGREGATE SIZE SMALLER THAN 19mm(¾") AND 30 TIMES SLAB THICKNESS FOR AGGREGATE SIZE LARGER THAN 19mm (¾"),BUT NOT MORE THAN 4500mm (14'-9")
3. MAXIMUM RATIO BETWEEN LENGTH AND WIDTH OF ANY PANEL (CREATED BY SAWCUT) SHOULD NOT EXCEED 1.5
4. COORDINATE EXACT LOCATIONS OF SAWCUTS IN SLAB ON GRADE WITH ARCHITECTURAL REQUIREMENTS.
5. SAWCUT SLAB ON GRADE AT LOCATIONS SHOWN ON PLAN OR AS NOTED BELOW. ALTERNATE LOCATIONS SHALL BE SUBMITTED TO CONSULTANT FOR REVIEW, WELL IN ADVANCE OF POURING SLAB ON GRADE.
6. AFTER THE SLAB IS A MINIMUM 60 DAYS OLD, REMOVE ALL DEBRIS FROM THE SAW CUTS AND FILL WITH MORTAR CONTAINING CEMENT, SAND AND LATEX BONDING AGENT, OR AS NOTED IN SPECIFICATIONS.
7. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT ROUT ALL CRACKS IN THE SLAB ON GRADE AND FILL WITH MORTAR CONTAINING CEMENT, SAND AND LATEX BONDING AGENT OR AS NOTED IN SPECIFICATIONS.
8. REFER TO TYPICAL DETAIL CG01B, CG01C FOR SAW CUT DETAILS.

SLAB ON GRADE DETAILS — CG01B

(READ IN CONJUNCTION WITH DETAILS CG01A, CG01C)



NOTES:
1. 1-15 T&Bx1500(5'-0") LG AT EACHCORNER TYP. U.N.O.
2. WHERE CORNER TRIM BARS ARE SHOWN DASHED THEY ARE NOT REQUIRED IF SAW CUTS ARE PROVIDED AS SHOWN. OTHERWISE PROVIDE 1-15 T&Bx1500(5'-0") LG.
3. READ IN CONJUNCTION WITH CG01A,C.
4. FOLLOW DETAILS UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.

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4721, PALLADIUM WAY, BUTLINGTON, ON

Owner

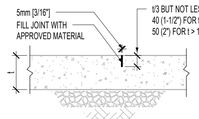
DRAWN: Author	SCALE: 1 : 1
CHECKED: Checker	DATE: Issue Date

TITLE: GENERAL NOTES AND TYPICAL DETAILS

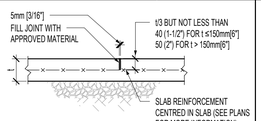
PROJECT NO.	DRAWING NO.
20220714	S9-05

DATE/TIME PRODUCED:28/2023 12:06:57 PM

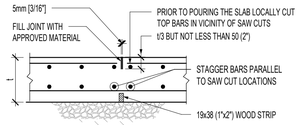
SLAB ON GRADE DETAILS — CG01C



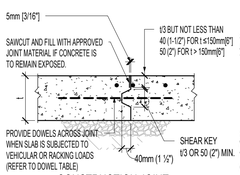
SAWCUT CONTROL JOINT
FOR FIBRE REINFORCED SLAB



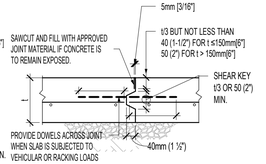
SAWCUT CONTROL JOINT
FOR SLABS WITH ONE LAYER OF REINFORCEMENT



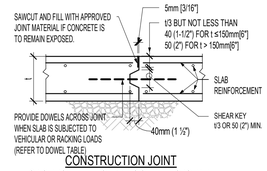
SAWCUT CONTROL JOINT
FOR SLABS WITH TWO LAYERS OF REINFORCEMENT



CONSTRUCTION JOINT
FOR FIBRE REINFORCED SLAB



CONSTRUCTION JOINT
FOR SLABS WITH ONE LAYER OF REINFORCEMENT



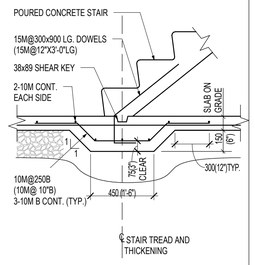
CONSTRUCTION JOINT
FOR SLABS WITH TWO LAYERS OF REINFORCEMENT

CONSTRUCTION JOINT DOWELS

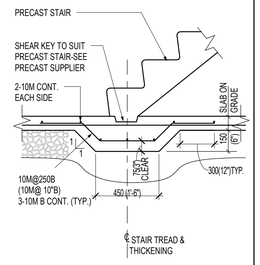
SLAB THICKNESS 't'	PLATE DOWELS	DOWEL SIZE AND SPACING
130-150mm	AS PER MANUFACTURER RECOMMENDATION	20@300x250 LG
180-200mm		25@300x330 LG
230-280mm		30@300x380 LG

THICKENING OF SLAB ON GRADE — CG02

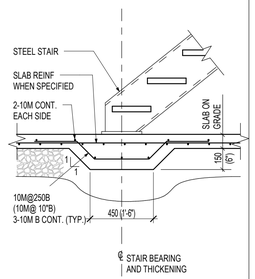
(READ IN CONJUNCTION WITH DETAILS CG03)



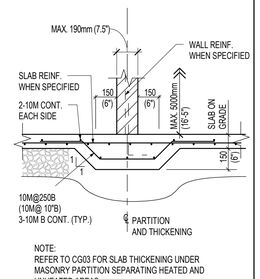
THICKENING AT POURED CONCRETE STAIR



THICKENING AT PRECAST CONCRETE STAIR



THICKENING AT STEEL STAIR

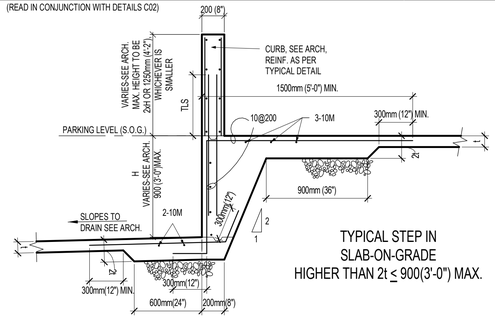


NOTE:
REFER TO CG03 FOR SLAB THICKENING UNDER MASONRY PARTITION SEPARATING HEATED AND UNHEATED AREAS

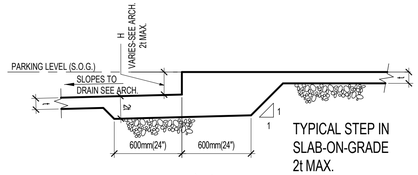
THICKENING AT MASONRY PARTITIONS

TYPICAL SLAB-ON-GRADE DETAILS — CG03

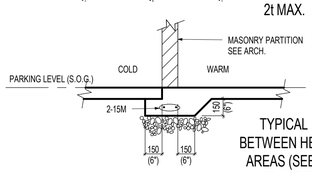
(READ IN CONJUNCTION WITH DETAILS C02)



TYPICAL STEP IN SLAB-ON-GRADE HIGHER THAN 2t ≤ 900(3'-0") MAX.

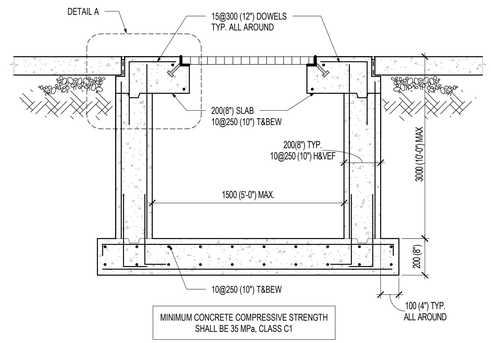


TYPICAL STEP IN SLAB-ON-GRADE 2t MAX.

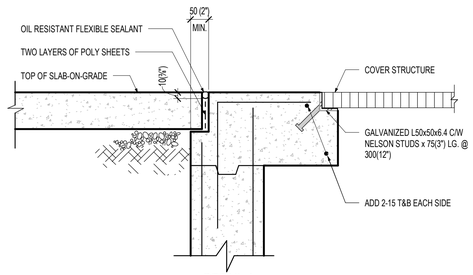


TYPICAL S.O.G THICKENING BETWEEN HEATED AND UNHEATED AREAS (SEE CG02 FOR SLAB-ON-GRADE THICKENING UNDER INTERIOR MASONRY PARTITION)

TYPICAL CAST-IN-PLACE SUMP PIT DETAIL — CG05



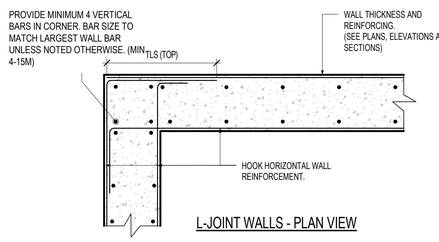
MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 35 MPa, CLASS C1



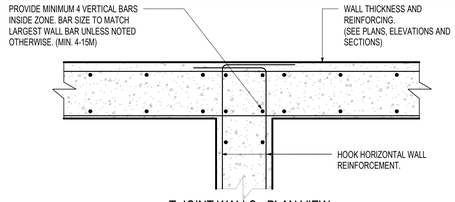
DETAIL A

NO.	REVISIONS	DATE
1	ISSUED FOR COORDINATION	2023-02-08

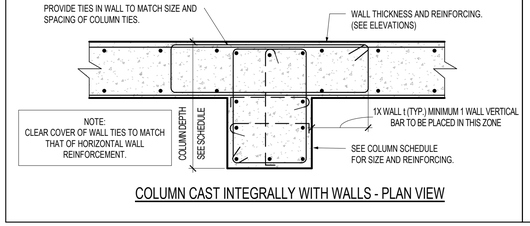
TYPICAL JOINTS IN CONCRETE WALLS (NOT SPECIFIED AS SHEARWALLS) — CW01



L-JOINT WALLS - PLAN VIEW



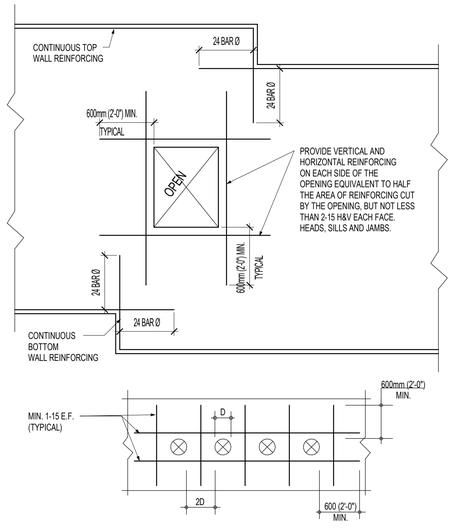
T-JOINT WALLS - PLAN VIEW



COLUMN CAST INTEGRALLY WITH WALLS - PLAN VIEW

TYPICAL DETAIL OF OPENINGS IN CONCRETE WALL — CW02

(NOT SPECIFIED AS SHEARWALLS)

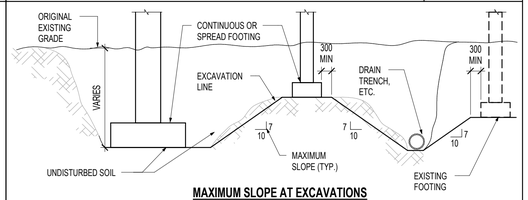


D = DIAMETER OF OPENING

TYPICAL DETAIL OF ADDITIONAL REINFORCEMENT AT WALL OPENINGS

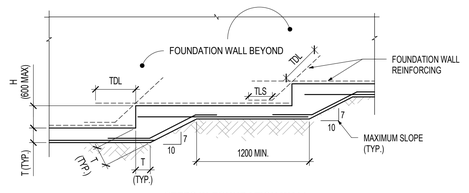
(TYPICAL UNLESS OTHERWISE SHOWN ON DRAWINGS)

STEPPED FOUNDATION AND CONSTRUCTION EXCAVATION — F09



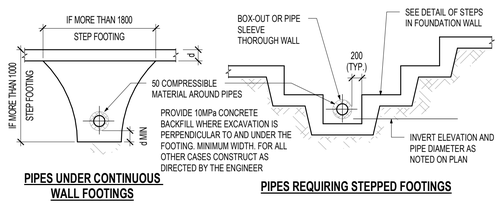
MAXIMUM SLOPE AT EXCAVATIONS

NOTES:
1. WHERE TRENCHING OR EXCAVATING AT ADJACENT FOOTING SATISFY THE MAXIMUM SLOPE REQUIREMENT SHOWN ABOVE.
2. IF EXCAVATION REQUIREMENTS VIOLATE SLOPE REQUIREMENTS PROVIDE PLANS FOR REMEDIAL MEASURES (BRACING OR UNDERPINNING) TO THE CONSULTANT PRIOR TO PROCEEDING



STEPS IN FOUNDATION WALL

NOTES:
1. STEPS IN FOUNDATION WALLS TO FOLLOW THE GEOMETRY SHOWN ABOVE UNLESS NOTED OTHERWISE ON PLANS



PIPES UNDER CONTINUOUS WALL FOOTINGS

PIPES REQUIRING STEPPED FOOTINGS

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Owner

N

DRAWN	SCALE
Author	1 : 1
CHECKED: Checker	DATE: Issue Date

TITLE: GENERAL NOTES AND TYPICAL DETAILS

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