CONCRETE MIX SCHEDULE

	STRENGTH AT 28 DAYS (Mpa)	SLUMP AT DELIVERY (mm)	AIR ENTRAINMENT	MAXIMUM W/C RATIO	EXPOSURE CLASSIFICATION
FOOTINGS & INTERIOR FOUNDATION WALLS	25	80 ± 20	----	TO SUIT	N
(1) GROUT FOR MASONRY FILL / BOND BEAMS	15 MIN. (FINE GROUT)	TO SUIT CONFORMING TO CSA A179 SUPERPLASTICIZER MAY BE USED	----	----	----
EXTERIOR CONCRETE SLABS, SIDEWALKS, CURBS AND GUTTERS	32	80 ± 20	5 - 8 %	0.45	C - 2
(2) INTERIOR SLAB-ON-GRADE EXCEPT APPARATUS BAY	SUPERPLASTICIZED 25	BEFORE ADDITION OF SUPERPLASTICIZER 50 ± 20 AFTER ADDITION OF SUPERPLASTICIZER 150 ± 20	----	0.50	N
APPARATUS BAY SLAB-ON-GRADE	SUPERPLASTICIZED 32	BEFORE ADDITION OF SUPERPLASTICIZER 50 MAX AFTER ADDITION OF SUPERPLASTICIZER 150 ± 30	----	0.40	N
EXPOSED EXTERIOR WALLS, FOUNDATION WALLS	25	80 ± 20	4 - 7 %	0.55	F - 2
APRON SLABS	35	80 ± 20	5 - 8 %	0.40	C - 1

1) FINE GROUT TO CONSIST OF (BY VOLUME)
   1. PART PORTLAND CEMENT (MASONRY CEMENT IS NOT ACCEPTABLE)
   2. 1/2 TO 3 PARTS FINE AGGREGATE (SEND) AND NO COARSE AGGREGATE.
2) SYNTHETIC FIBRES ADDED AT BATCHING PLANT. REFER TO SPECIFICATION.
   NOTE. IF CONCRETE IS TO BE "PUMPED" INCLUDE DETAILS IN MIX DESIGN SUBMISSION.

DESIGN CRITERIA NOTES

1. GENERAL

1.1. THE PROJECT HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2012 OBC (O. REG. 332/12 AS AMENDED) INCLUDING CLAUSES 4.1.6.1(1), 4.1.6.4(3), 4.1.7 AND 4.1.8.

1.2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR WHO IS SUPPLYING AND INSTALLING EQUIPMENT, THAT ALL ELEMENTS OF STRUCTURES LISTED IN TABLE 4.1.8.18 OF THE OBC 2012 ARE DESIGNED IN ACCORDANCE WITH CLAUSE 4.1.8.18.

1.3. BUILDING IMPORTANCE CATEGORY (SNOW, WIND, AND EARTHQUAKE) IS POST DISASTER.

1.4. 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 PROFESSIONAL ENGINEER DEMONSTRATING COMPLIANCE. PROVIDE MINIMUM 15mm SEPARATION UNLESS NOTED OTHERWISE.

2. LATERAL LOADS ON STRUCTURE

2.1. WIND
q(1/50) = 0.44 kPa
Ce = (h/10)^1/5 NOT LESS THAN 0.9.
Cg = 2.0
Cp = AS PER FIGURE I-15 OF USER'S GUIDE - NBC 2010 STRUCTURAL COMMENTARIES (PART 4 OF DIVISION B).

2.2. EARTHQUAKE

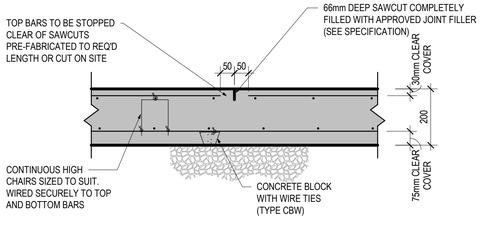
Sa(0.2) = 0.18	PGA = 0.061	Fa = 1.3
Sa(0.5) = 0.110	SITE CLASS = D	Fv = 1.4
Sa(1.0) = 0.067	Rd = 2.0	Ie = 1.5
Sa(2.0) = 0.022	Ro = 1.5	Ie Fa Sa (0.2) = 0.35

SFRS CONSISTS OF:
- MODERATELY DUCTILE MASONRY SHEAR WALLS
- LIMITED DUCTILITY MOMENT - RESISTING FRAMES
- METHOD OF ANALYSIS : STATIC

3. FOUNDATION WALLS

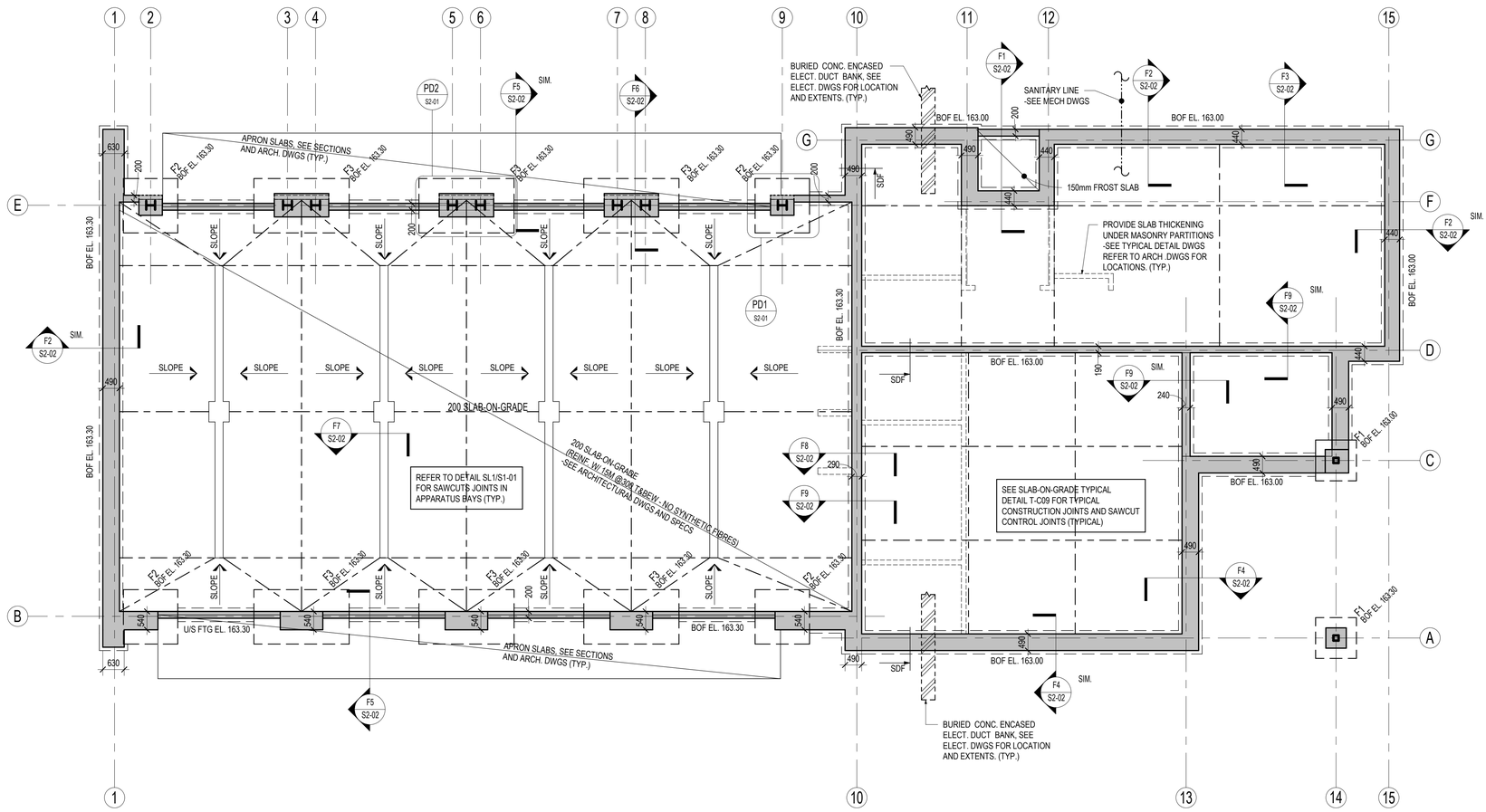
3.1. WALLS RETAINING EARTH ARE DESIGNED TO SAFELY WITHSTAND HORIZONTAL EARTH PRESSURE
(P=K (Wt.h+q)
K = 0.31
Wt = 20 kN/m^3
q = 12 kPa
h = DEPTH IN METRES

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.



NOTES:
1. MAXIMUM SPACING OF BOTTOM AND TOP CHAIRS 1200 o/c.
2. FOR JOINTS IN OTHER SLABS-ON-GRADE, SEE TYPICAL DETAILS.

SL1 / S1-01 DETAIL
1 : 10



WHERE MECHANICAL SERVICE PIPES PASS THROUGH LOAD BEARING FOUNDATION WALLS PROVIDE STEEL SLEEVES (MIN) 50Φ) LARGER THAN PIPE (TYPICAL)

LOWER ELEVATIONS AT UNDERSIDE OF COLUMN AND WALL FOOTINGS, WHERE REQUIRED, BUT NOT LIMITED TO STORM, SANITARY, WATER/FIRE LINES AND ELECTRICAL DUCT BANKS ETC.
THE MAXIMUM SLOPE FROM THE PIPE EXCAVATION TO THE UNDERSIDE OF ADJACENT FOOTING ELEVATIONS SHALL NOT EXCEED 7 VERTICAL TO 10 HORIZONTAL.

SITE PREPARATION NOTES FOR SLAB-ON-GRADE (WITHIN BUILDING ENVELOPE)

1. THE AREA WITHIN THE BUILDING SHALL BE STRIPPED OF THE UPPER LAYER SOIL, FILL, ORGANICALLY CONTAMINATED MATERIAL AND RUBBLE TO ELEVATIONS 600-1000mm BELOW EXISTING GRADE. SEE GEOTECHNICAL REPORT AND THE BOREHOLE LOGS FOR FURTHER DETAILS.
2. THE EXPOSED SUB-GRADE SHALL BE EXAMINED AND APPROVED BY THE SOIL CONSULTANT.
3. THE ENTIRE AREA SHALL BE PROOF ROLLED WITH A HEAVY COMPACTOR TO A MINIMUM OF **100%** STANDARD PROCTOR MAX. DRY DENSITY AND TO THE APPROVAL OF THE SOIL CONSULTANT.
4. ANY LOOSE OR SOFT SPOTS ENCOUNTERED SHALL BE SUB-EXCAVATED AND BACKFILLED WITH COMPACTED APPROVED MATERIAL.
5. FILL REQUIRED TO RAISE THE GRADES SHALL BE COMPRISED OF APPROVED ON-SITE MATERIAL **GRANULAR 'B' TYPE 1 CONFORMING TO OPSS 1010** PLACED IN SUCCESSIVE LOOSE 200mm(8") LAYERS EACH COMPACTED TO AT LEAST **100%** OF ITS STANDARD PROCTOR MAXIMUM DRY DENSITY.
6. THE LAYER IMMEDIATELY BELOW THE SLAB-ON-GRADE SHALL BE 200mm (8") OF **GRANULAR 'A'** COMPACTED TO MIN. **98%** STANDARD PROCTOR MAX. DRY DENSITY.
7. ALL PROCEDURES, EQUIPMENT AND MATERIALS SHALL BE APPROVED BY THE SOIL CONSULTANT WHO SHALL CONDUCT SUFFICIENT TESTS TO ENSURE THAT THE SPECIFIED MATERIALS AND DENSITIES ARE ACHIEVED.
8. THE CONTRACTOR SHALL CO-ORDINATE WITH THE SOIL CONSULTANT AND ARRANGE A SUITABLE PROGRAM FOR SAMPLING AND INSPECTIONS, ETC. AND NOTIFY THE ARCHITECT ACCORDINGLY.
9. EXISTING ON-SITE MATERIAL **SHALL NOT** BE USED WITHIN THE BUILDING AREA FOR BACKFILLING IN TRENCHES AGAINST FOUNDATION WALLS OR UNDER SLABS-ON-GRADE.
10. REFER TO THE SPECIFICATION AND THE SOIL REPORT FOR PREPARATION OF AREAS OUTSIDE THE BUILDING ENVELOPE.

FOOTING SCHEDULE

FOOTING NUMBER	SIZE	FOOTING REINF. B.E.W.
F1	1200x1200x300 DP.	5-15
F2	1600x1600x300 DP.	7-15 T&BEW
F3	2800x1600x400 DP.	9-20 T&B LONG HOOKED EE 9-20 T&B TRANS. HOOKED EE

FOUNDATION PLAN
1 : 75

1. TOP OF SLAB - ON - GRADE TO BE 0.0 BELOW FINISHED FLOOR DATUM ELEVATION 165.00m, EXCEPT AS NOTED. TOS = TOP OF SLAB
2. FOOTINGS SHALL FOUNDED ON VERY DENSE CLAY AND SILT TO CLAYEY SILT TILL CAPABLE OF SUSTAINING A MINIMUM SOIL BEARING VALUE OF 150 kPa (SLS).
3. REFER TO THE SOIL REPORT 5984-001, DATED APRIL 17, 2017 PREPARED BY CAMBIUM INC.
4. SOIL AT THE UNDERSIDE OF THE FOOTINGS IS TO BE INSPECTED AND APPROVED BY A REPRESENTATIVE OF A SOILS CONSULTANT BEFORE PLACING CONCRETE.
5. REFER ALSO TO SITE PREPARATION NOTES ON DRAWING S1-01.
6. CO-ORDINATE ALL DIMENSIONS WITH THE ARCHITECTURAL DRAWINGS AND REPORT ANY DISCREPANCIES TO ENGINEER PRIOR TO PROCEEDING WITH ANY WORK.
7. UNDERSIDE OF WALL FOOTINGS TO BE AT ELEVATIONS AS NOTED ON PLAN.
8. SDF = STEP DOWN FOOTING.
9. UNLESS OTHERWISE SHOWN, ALL WALL FOOTINGS TO BE 300mm DEEP WITH 150mm PROJECTIONS EACH SIDE.
10. FILL REQUIRED ON BOTH SIDES OF FOUNDATION WALLS SHALL BE PLACED AND COMPACTED SIMULTANEOUSLY ON EACH SIDE TO EQUALIZE SOIL PRESSURE.
11. PROVIDE SLAB DEPRESSIONS AND SLOPES, OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS, AS REQUIRED BY THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
12. THE PROJECT SUPERINTENDENT MUST CONTACT THIS OFFICE 24 HOURS PRIOR TO PLACING STRUCTURAL CONCRETE INCLUDING STRIP FOOTINGS.
13. GENERAL SLAB - ON - GRADE IS 100mm THICK REINFORCED WITH SYNTHETIC FIBRES (REFER TO CONCRETE SPECIFICATION), EXCEPT AS NOTED.
14. CONCRETE STRENGTHS - SEE CONCRETE SCHEDULE.
15. SEE TYPICAL NOTES, TYPICAL DETAILS, AND ALL OTHER DRAWINGS.

DRAWING LIST

Sheet Number	Sheet Name
S1-01	FOUNDATION PLAN
S1-02	ROOF FRAMING PLAN
S2-01	COLUMN SCHEDULE AND FOUNDATION PLAN DETAILS
S2-02	FOUNDATION SECTIONS
S3-01	ROOF SECTIONS
S3-02	ROOF SECTIONS
S4-01	GENERAL NOTES
S4-02	TYPICAL DETAILS
S4-03	TYPICAL DETAILS
S4-04	TYPICAL DETAILS
S4-05	TYPICAL DETAILS
S4-06	TYPICAL DETAILS
S4-07	TYPICAL DETAILS

The Contractor shall verify all dimensions prior to commencement of the work. All print and specifications are the property of the Structural Engineer and must be returned upon completion of the work.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT :
YORK REGION PRS STATION #29 T-18-137
107 GLEN CAMERON ROAD, MARKHAM

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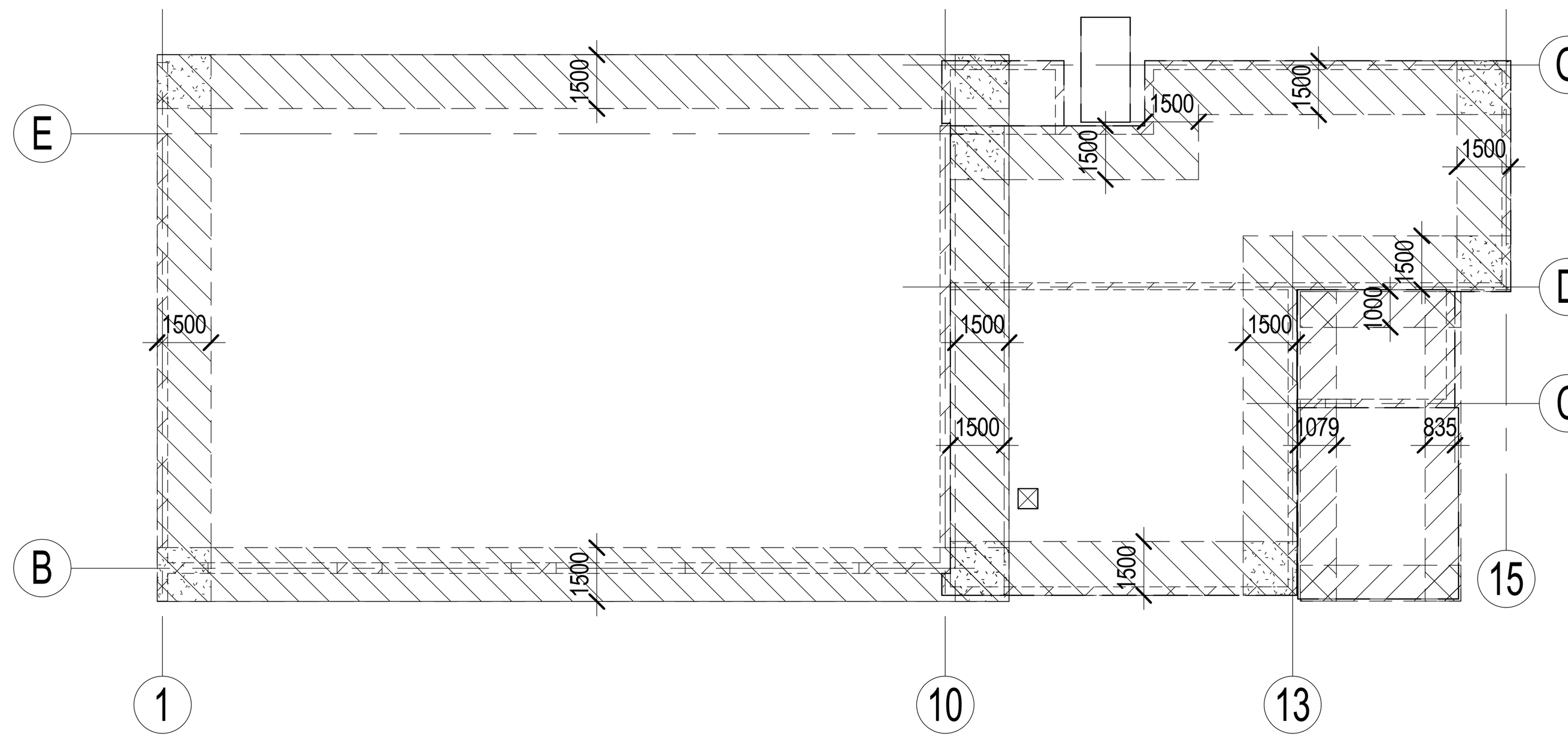
PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

DWG TITLE :
FOUNDATION PLAN

DATE : FEB. 2020
SCALE : As indicated
DRAWN BY: -
CHECKED BY : HAM / JG
DESIGNED BY: MM
DWG STATUS : IFC
PROJECT No. : 20160760
DRAWING No. : S1-01
REVISION

2020-02-18 3:08:55 PM



WIND UPLIFT DIAGRAM

1 : 200

1. LOADS NOTED ARE WIND UPLIFT VALUES AND ARE NOT FACTORED.
2. ROOF JOISTS AND THEIR ANCHORAGE SHALL BE DESIGNED FOR THE MINIMUM NET UPLIFT VALUES AND NO LESS THAN THAT REQUIRED IN PART 4 OF THE ONTARIO BUILDING CODE.

LEGEND:

- 0.85 kPa
- 1.14 kPa
- 1.42 kPa
- 2.85 kPa
- 3.13 kPa

ROOF LINTEL SCHEDULE

REFER TO LINTEL NOTES A07 ON TYPICAL DETAIL DRAWINGS
SEE ALSO SPECIFICATION

MARK	MATERIAL	TYPE	REMARKS
RL1	HSS 203x152x6.4 + 435x8mm BOTTOM PLATE		WP1 EACH END ** SEE DETAIL DL1/S1-02
RL2	HSS 203x203x8 + 485x8mm BOTTOM PLATE		WP2 EACH END ** SEE TO DETAIL DL2/S1-02
RL3	2-L89x89x6.4		
RL4	2-L102x102x6.4		
RL5	HSS 203x203x6.4 + 380x8mm BOTTOM PLATE		WP2 EACH END **
RL6	HSS 203x152x6.4 + 330x8mm BOTTOM PLATE		WP1 EACH END **
RL7	W200x27 + 270x8mm BOTTOM PLATE		WP2 EACH END **

LENGTHS MAY VARY

** = LINTEL WELDED TO WALL PLATE

NOTE:
ALL EXTERIOR LINTELS SUPPORTING FACE BRICK TO BE GALVANIZED

MASONRY CORE FILL SCHEDULE

TYPE	SIZE	REINF	REMARKS
C1	t x 400	2-15 VERT. CONT.	
C2	t x 600	3-15 VERT. CONT.	
C3	t x 800	4-15 VERT. CONT.	
C4	t x 400 x 400	4-15 VERT. CONT.	
C5	t x 1200	6-15 VERT. CONT.	hp = 1000mm ADDITIONAL HORIZ. REINF. WITHIN `hp' -BOND BEAM + 15M H.E.E. @600 O/C MAX.

t-DENOTES THE WALL THICKNESS

MASONRY CORE FILLS NOTES:

1. PROVIDE CORE FILLS AS NOTED ON PLAN.
2. CORE FILLS EXTEND FULL HEIGHT OF WALL, FLOOR TO FLOOR UNLESS NOTED.
3. INSTALL ALL REINFORCEMENT FULL HEIGHT BETWEEN FLOORS AND GROUT CORE SOLID FULL HEIGHT BETWEEN FLOORS UNLESS NOTED.
4. WHERE CORE FILL CONTINUES TO NEXT FLOOR ABOVE, EXTEND INDICATED VERTICAL REINFORCEMENT TO PROVIDE SPECIFIED LAP SPLICE WITH REINFORCEMENT OF CORE ABOVE.
5. PROVIDE 15M DOWELS IN FOUNDATION WALLS FOR ALL WALL REINFORCEMENT UNLESS NOTED OTHERWISE.
6. PROVIDE LAP SPLICE FOR: 15M 650 LAP
7. REFER TO CORE FILLS SCHEDULE FOR DETAILS AND REINFORCEMENT.
8. PROVIDE CORE FILL C1 AT EACH SIDE OF OPENINGS U/N OTHERWISE IN PLANS AND/OR SECTIONS.
   a) PROVIDE C1 AT UNSUPPORTED ENDS OF WALLS U/N.
   b) PROVIDE C1 AT EACH SIDE OF CONTROL JOINTS U/N.
9. PROVIDE CORE FILL C4 AT ALL WALL CORNERS U/N OTHERWISE IN PLANS AND/OR SECTIONS.
10. PROVIDE TITEWALL BL-A CONTROL JOINT BY BLOK-LOK OR EQUIVALENT FOR ALL VERTICAL CONTROL JOINTS IN EXTERIOR MASONRY WALLS EXCEEDING 4m IN HEIGHT.
11. SEISMIC MINIMUM REINFORCEMENT FOR WALLS.
    a) FOR WALLS DENOTED `*', PLASTIC HINGE HEIGHT `hp' = 1000mm. PROVIDE ADDITIONAL HORIZONTAL REINFORCING WITHIN `hp':
    BOND BEAM + 15M HOOK EACH END (H.E.E.) @600 O/C MAX.

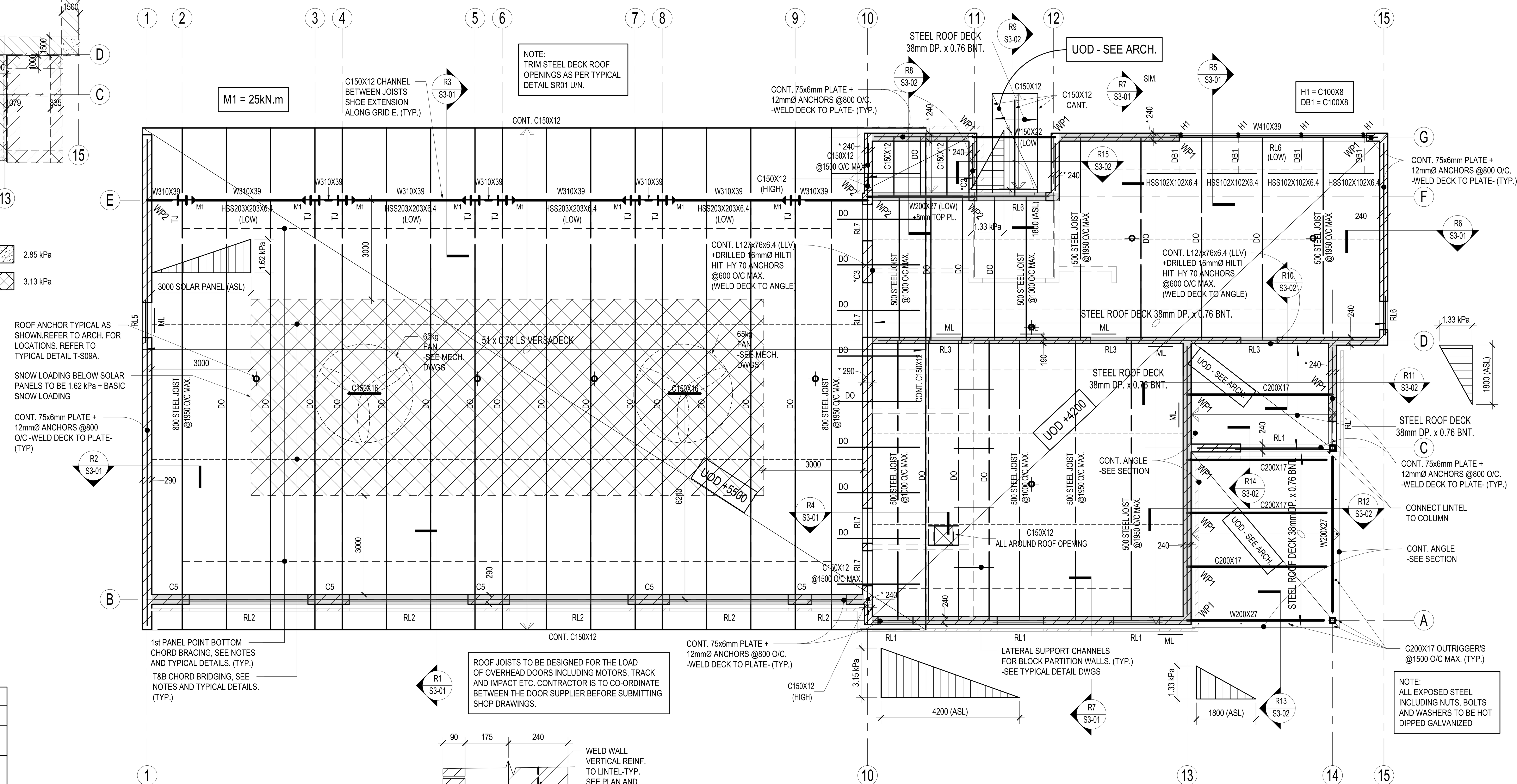
TYPICAL MASONRY WALL REINFORCING SCHEDULE

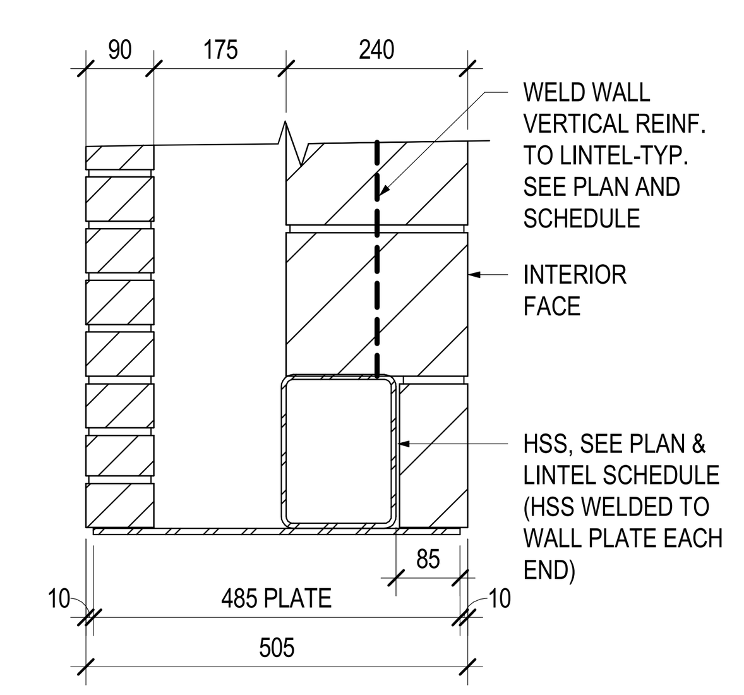
VERTICAL BLOCK WALL REINFORCING LOAD BEARING AND NON-LOAD BEARING WALLS SCHEDULE:(TYP. U/N NOTED)

140mm 10M @ 1200 o/c MAX.
190mm 15M @ 800 o/c MAX.
240mm 15M @ 600 o/c MAX.
290mm 2-15M @ 1000 o/c MAX.

HORIZONTAL WALL REINFORCING FOR MASONRY BLOCK WALLS:

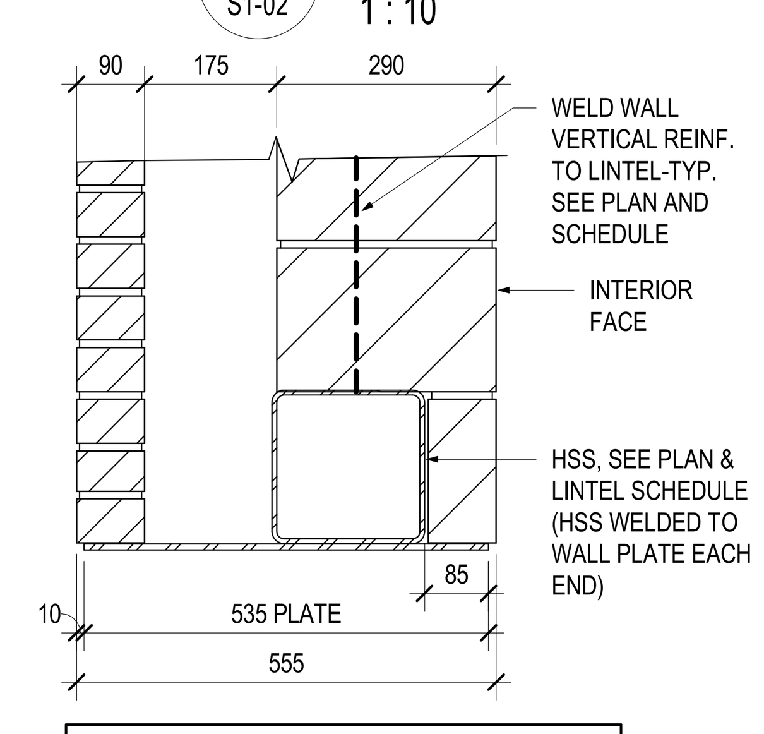
190mm - EXTRA HEAVY BLOK-LOK BL10 OR EQUIV. @ 200 o/c MAX.
240mm - EXTRA HEAVY BLOK-LOK BL10 OR EQUIV. @ 200 o/c MAX.
290mm - EXTRA HEAVY BLOK-LOK BL30 OR EQUIV. @ 200 o/c MAX.





NOTE:
BOTTOM PLATES TO TERMINATE 10mm CLEAR OF SUPPORTING MASONRY-VERIFYWITH ARCH.

DL1 DETAIL (S1-02)
1 : 10



NOTE:
BOTTOM PLATES TO TERMINATE 10mm CLEAR OF SUPPORTING MASONRY-VERIFYWITH ARCH.

DL2 DETAIL (S1-02)
1 : 10

MECHANICAL LINTEL SCHEDULE

LINTELS IN LOAD BEARING WALLS OVER MECHANICAL DUCTS ETC.

MARK	WALL THICKNESS	CLEAR SPAN	MATERIAL	TYPE	NOTES
ML1	190	200-550	175x8 PLATE		
ML2	190	550-1220	2-L90x90x6		
ML3	240	200-550	225x8 PLATE		
ML4	240	550-1220	2-L100x100x8		
ML5	290	200-550	275x8 PLATE		
ML6	290	550-1220	3-L90x90x6		
ML7	190 + 90	200-550	175x8 PLATE + 80x8 PLATE		CAVITY WALLS EXTERIOR ANGLES & PLATES GALVANIZED UNLESS NOTED
ML8	190 + 90	550-1220	2-L90x90x6 + 1-L90x90x6		
ML9	240 + 90	200-550	225x8 PLATE + 80x8 PLATE		
ML10	240 + 90	550-1220	2-L100x100x8 + 1-L90x90x6		
ML11	290 + 90	200-550	275x8 PLATE + 80x8 PLATE		
ML12	290 + 90	550-1220	3-L90x90x6 + 1-L90x90x6		

1 FOR LINTELS MARKED ML ON DRAWINGS.
2 FOR SPANS LESS THAN 200mm - NO LINTEL REQUIRED.
3 FOR SPANS GREATER THAN 1200mm, SEE PLANS AND MAIN LINTEL SCHEDULE.

WHILE EVERY EFFORT HAS BEEN MADE TO SHOW ALL LINTELS WHICH OCCUR IN LOAD BEARING MASONRY WALLS, IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE CORRECT SIZES AND QUANTITY OF LINTELS ARE PROVIDED

LINTELS IN NON-LOAD BEARING WALLS AND PARTITIONS ARE GENERALLY NOT SHOWN ON THE DRAWINGS. ALL SUCH LINTELS SHALL BE PROVIDED AS REQUIRED AND SHALL CONFORM TO THE NOTES & TYPICAL DETAILS ON THE STRUCTURAL DRAWINGS

PROVIDE MECHANICAL LINTELS IN ACCORDANCE WITH TYPICAL DETAILS AND NOTES FOR ALL DUCTS AND PIPES PASSING THROUGH MASONRY WALLS

ROOF LOADING SCHEDULE

ROOF LOAD	DECK kPa	JOIST kPa	BEAMS & COLS. kPa
ROOFING	0.72	0.72	0.72
STEEL DECK	0.1	0.1	0.1
JOISTS	0.1	0.1	0.1
MECH. / ELEC. CEILING	0.19	0.29	0.19
BEAMS AND COLUMNS			0.1
SOLAR PANELS (WHERE SHOWN ON PLAN)	1.2	1.2	1.2
TOTAL DL (kPa)	2.31	2.41	2.41
SNOW (LIVE *)	1.8	1.8	1.8

* STEEL JOISTS SHALL BE DESIGNED TO SUPPORT SNOW LOADS AND DEAD LOADS.
IN ADDITION STEEL JOISTS SHALL BE DESIGNED FOR THE ACCUMULATED SNOW LOADS (ASL) AS SHOWN ON DRAWINGS AND FOR POINT LOADS OF BRACING AND MECHANICAL EQUIPMENT.
ALL LOADS SHOWN ARE UNFACTORED.

WALL PLATE SCHEDULE

(LAST DIMENSION PARALLEL TO WEB)

MARK	MATERIAL	REMARKS
WP1	200x15x200	(2)13Ø A.BOLTS x 150 LG.
WP2	250x20x250	(2)13Ø A.BOLTS x 150 LG.

ROOF FRAMING PLAN

1 : 75

1. UNDERSIDE OF ROOF DECK AT PERIMETER AND HIGH POINTS TO BE 0.0 BELOW ROOF DATUM ELEVATION AS NOTED ON PLAN U.O.D. = UNDERSIDE OF DECK.
2. ROOF DECK TO SLOPE TO DRAINS AS SHOWN ON ARCHITECTURAL DRAWINGS.
3. TOP OF STEEL BEAMS SUPPORTING STEEL DECK ARE 0.0mm BELOW U.O.D. TOP OF STEEL BEAM SUPPORTING JOISTS ARE 150mm BELOW U.O.D EXCEPT AS SHOWN THUS ± ON PLAN.
4. OWSJ SHOES TO BE 150mm DEEP UNLESS NOTED.
5. FOR LOADING SEE ROOF LOADING SCHEDULE ON THIS DRAWINGS.
6. OPEN WEB STEEL JOISTS SHALL BE DESIGNED TO SUPPORT TOTAL DEAD, SNOW AND SPACING AS SHOWN ON PLAN. LOADS. IN ADDITION, OWSJ SHALL BE DESIGNED FOR ADDITIONAL LOADS SHOWN ON PLAN, ACCUMULATED SNOW DRIFT LOADS (ASL) AND FOR POINT LOADS OF BRACING AND MECHANICAL EQUIPMENT, IN EXCESS OF 0.8 kN PER JOIST.
7. JOISTS AND BEARING ANCHORAGES SHALL BE DESIGNED TO RESIST UPLIFT DUE TO WIND AS REQUIRED BY THE ONTARIO BUILDING CODE AND IN NO CASE LESS THAN THE GREATER OF THOSE INDICATED ON THE WIND UPLIFT KEY PLAN.
8. OWSJ SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER, SHOP DRAWINGS AND CALCULATIONS BEARING THE STAMP AND SIGNATURE OF THE PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION AND ERECTION.
9. PROVIDE CONTINUOUS TOP AND BOTTOM CHORD BRIDGING FOR OWSJ IN ACCORDANCE WITH CSA-S16.1 IN NO CASE LESS THAN AS SHOWN ON PLAN.
10. PROVIDE BOTTOM CHORD BRACING FOR ALL JOISTS NEAR THE FIRST BOTTOM CHORD PANEL POINT. BRIDGING CANNOT BE CONSIDERED AS BRACING.
11. "TJ" NOTED AGAINST JOIST DENOTES "TIE JOIST" I.E EXTEND BOTTOM CHORD AND CONNECT TO SUPPORT. TIE JOIST TO BE DESIGNED FOR 1% OF THE COLUMN AXIAL LOAD. SEE COLUMN SCHEDULE.
12. LIVE LOAD DEFLECTION OF ROOF JOISTS SHALL NOT EXCEED 1/240 OF SPAN UNLESS OTHERWISE NOTED.
13. STEEL ROOF DECK SHALL BE DESIGNED TO SUPPORT SPECIFIED TOTAL DEAD AND LIVE LOADS. MINIMUM BASE NOMINAL THICKNESS (BNT) OF STEEL DECK SHALL BE 0.76 MM.
14. NO HANGERS OR BRACKETS SUPPORTING MECHANICAL EQUIPMENT OR PIPING SHALL BE HUNG FROM ROOF DECK.
15. STEEL ROOF DECK SHALL BE INSTALLED FOR DIAPHRAGM ACTION IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE CANADIAN SHEET STEEL BUILDING INSTITUTE AND TYPICAL NOTES.
16. LOCATION OF MECHANICAL EQUIPMENT AND MECHANICAL EQUIPMENT LOADS ARE TO BE CONFIRMED BY MECHANICAL CONTRACTOR BEFORE STRUCTURAL STEEL IS FABRICATED. REFER TO MECHANICAL DRAWINGS. UNLESS OTHERWISE APPROVED, MECHANICAL EQUIPMENT AND PIPING MUST BE HUNG FROM OWSJ PANEL POINTS AND HANGER SPACING SHALL NOT EXCEED 3.0 M.
17. FRAME ALL ROOF OPENINGS AND MECHANICAL UNITS AS SHOWN ON TYPICAL DETAILS UNLESS NOTED.
18. SUBMIT DETAILS TO STRUCTURAL CONSULTANT FOR REVIEW FOR ALL OPENINGS OTHER THAN THOSE SHOWN ON STRUCTURAL DRAWINGS.
19. "M" DENOTES MOMENT CONNECTION. FACTORED MOMENT AS SPECIFIED ON DRAWINGS IS IN kN METRES.
20. MOMENT CONNECTIONS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER. SHOP DRAWINGS AND CALCULATIONS BEARING THE STAMP AND SIGNATURE OF THE LICENSED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION AND ERECTION.
21. AN INDEPENDENT INSPECTION AND TESTING COMPANY IS TO INSPECT STRUCTURAL STEEL AND STEEL DECK IN THE SHOP AND IN THE FIELD FOR WELDING, CONNECTIONS, BOLT TORQUES, AND GENERAL CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
22. NON-LOAD BEARING PARTITIONS SHALL BE A MINIMUM OF 25 mm CLEAR OF STRUCTURE.
23. WALL PLATES (WP) SHALL HAVE LAST DIMENSION PARALLEL TO BEAM OR JOIST WEB. SEE SCHEDULE ON DRAWINGS.
24. SEE ROOF LINTEL SCHEDULE ON THIS DRAWING.
25. REFER TO GENERAL NOTES AND SPECIFICATION FOR GRADES OF STRUCTURAL STEEL AND STEEL DECK.
26. SEE TYPICAL NOTES, TYPICAL DETAILS, COLUMN AND FOOTING SCHEDULES AND ALL OTHER DRAWINGS.
27. FOR LOCATION OF ROOF ANCHORS AND DAVIT SUPPORTS, REFER TO ARCHITECTURAL DRAWINGS. REFER TO TYPICAL DETAILS FOR CONNECTION DETAILS. SUBMIT SHOP DRAWINGS FOR REVIEW AND COORDINATION.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/18/20

PROJECT : YORK REGION PRS STATION #29 T-18-137
107 GLEN CAMERON ROAD, MARKHAM

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PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

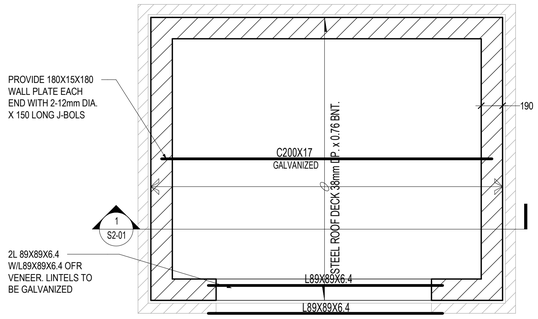
DWG TITLE : ROOF FRAMING PLAN

DATE :	FEB. 2020
SCALE :	As indicated
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S1-02
REVISION	

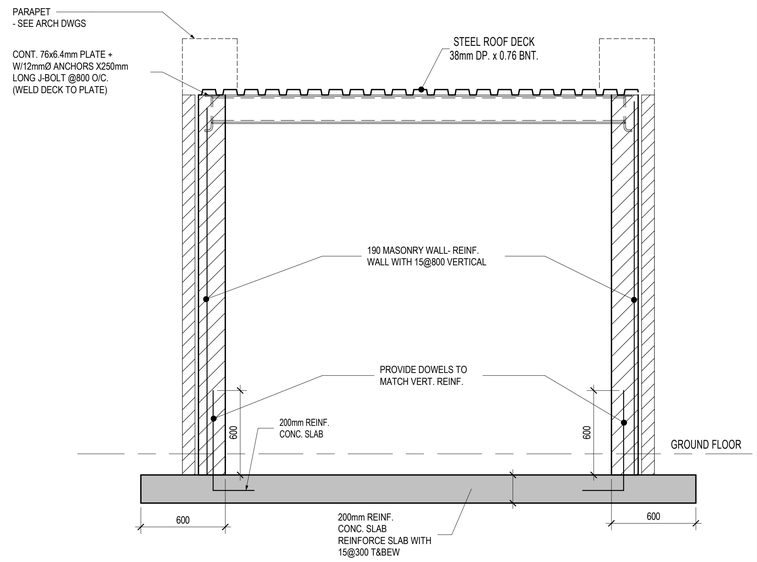
2020-02-18 3:08:58 PM

STEEL COLUMN SCHEDULE

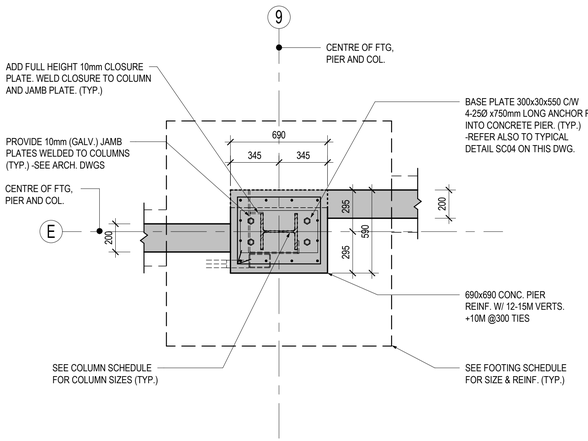
U/S VEHICLE ROOF DECK										
U/S LOW ROOF DECK										
U/S CANOPY ROOF DECK										
.										
T/O GROUND FLOOR / S.O.G.	HSS152X152X6.4	HSS152X152X6.4	W250X89	W250X89	W250X89	W250X89	W250X89	W250X89	W250X89	W250X89
U/S B.PL. (350mm U.N.O.)										
BASE PLATE ANCHOR RODS	350x20x350 4-20Ø	350x20x350 4-20Ø	SEE DETAIL SEE PD1/S2-01	SEE DETAIL SEE PD2/S2-01	SEE DETAIL SEE PD2/S2-01	SEE DETAIL SEE PD2/S2-01	SEE DETAIL SEE PD2/S2-01	SEE DETAIL SEE PD2/S2-01	SEE DETAIL SEE PD2/S2-01	SEE DETAIL SEE PD1/S2-01
PIER SIZE REIFORCING TIES	550x550 8-15V 10@300T	640x640 8-15V 10@300T								
LOAD IN kN (FACTORED)	50	50	125	125	125	125	125	125	125	125
MOMENT COLUMN (NOTED 'M')			M	M	M	M	M	M	M	M
Column Locations	**A-14**	**C-14**	**E-2**	**E-3**	**E-4**	**E-5**	**E-6**	**E-7**	**E-8**	**E-9**



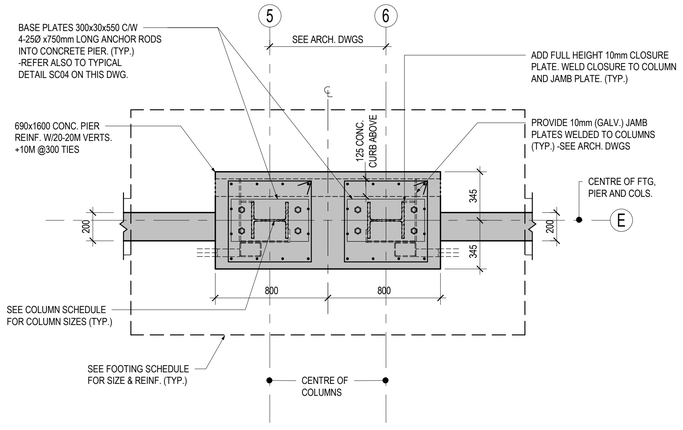
GARBAGE ENCLOSURE FRAMING PLAN
1 : 25



1 S2-01 SECTION
1 : 20



PD1 S2-01 PLAN DETAIL
1 : 20



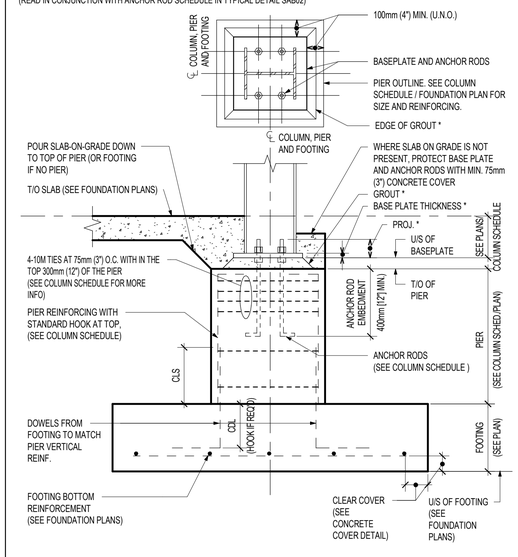
PD2 S2-01 PLAN DETAIL
1 : 20

COLUMN SCHEDULE NOTES:

1. FOR GRADE OF STRUCTURAL STEEL SEE GENERAL NOTES AND SPECIFICATION.
2. LOADS FOR COLUMNS REPRESENT THE FACTORED LOAD IN KILONEWTONS APPLIED AT THE BASE OF THE COLUMN AND DO NOT INCLUDE THE WEIGHT OF THE FOUNDATION.
3. BASE PLATE AND / OR CAP PLATE DIMENSION GIVEN LAST TO BE PARALLEL WITH COLUMN WEB.
4. REFER ALSO TO TYPICAL NOTES AND DETAIL DRAWINGS.
5. REFER TO STEEL COLUMN SCHEDULE FOR ANCHOR RODS AND FOR COLUMN BASE PLATE SIZES
6. FOR ALL COLUMNS ABUTTING MASONRY, PROVIDE ADJUSTABLE MASONRY ANCHORS AS PER TYPICAL DETAIL. SEE TYPICAL DETAIL DRAWINGS.

STEEL GRAVITY COLUMN BASE DETAIL — SC02

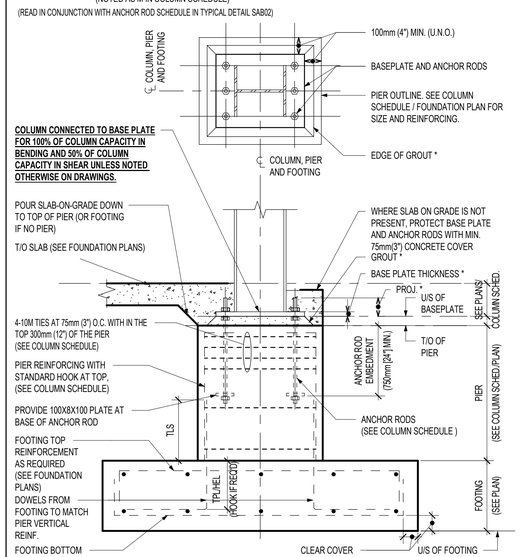
(READ IN CONJUNCTION WITH ANCHOR ROD SCHEDULE IN TYPICAL DETAIL SAB02)



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. ANCHOR RODS (265 MPa U.N.O.) TYPICAL
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

STEEL MOMENT COLUMN BASE DETAIL — SC04

(NOTED AS M IN COLUMN SCHEDULE)
(READ IN CONJUNCTION WITH ANCHOR ROD SCHEDULE IN TYPICAL DETAIL SAB02)



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. ANCHOR RODS (265 MPa U.N.O.) TYPICAL
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).

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT :
YORK REGION PRS
STATION #29 T-18-137
107 GLEN CAMERON ROAD, MARKHAM

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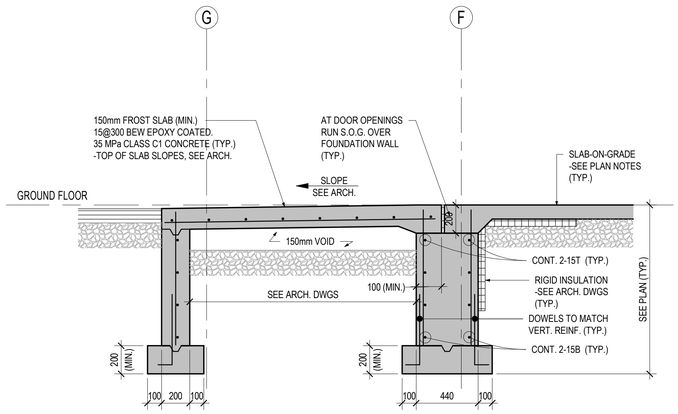
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

DWG TITLE :
COLUMN SCHEDULE AND FOUNDATION PLAN DETAILS

DATE :	FEB. 2020
SCALE :	As indicated
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S2-01
REVISION	

2020-02-18 3:08:59 PM



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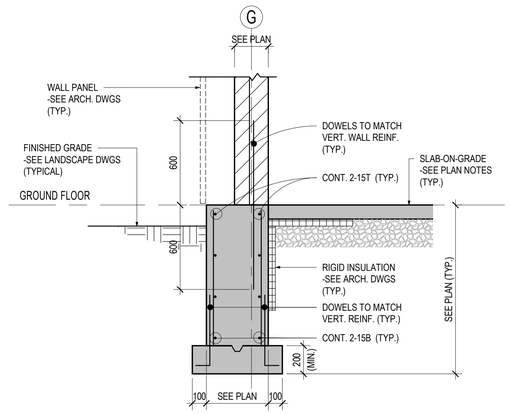
S2-02 1 : 20



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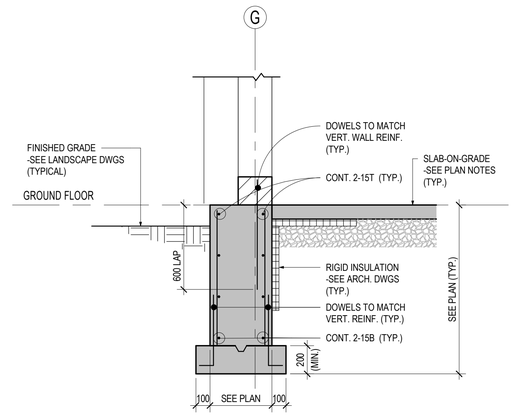
S2-02 1 : 20



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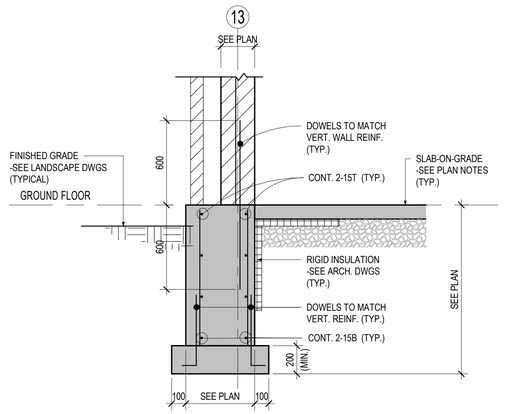

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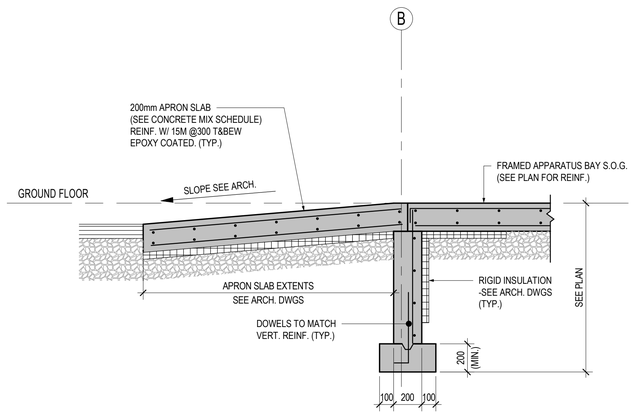

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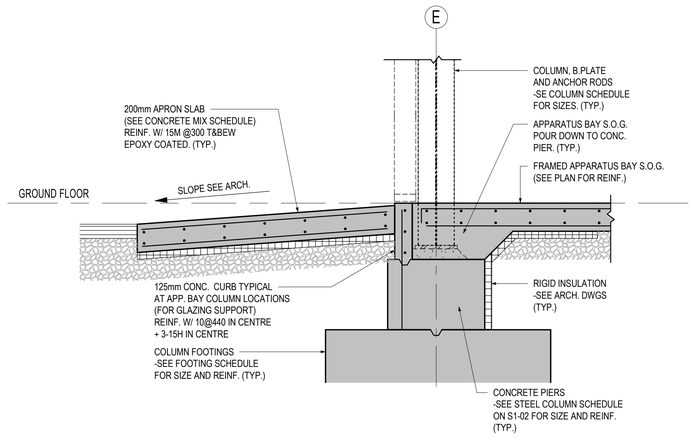

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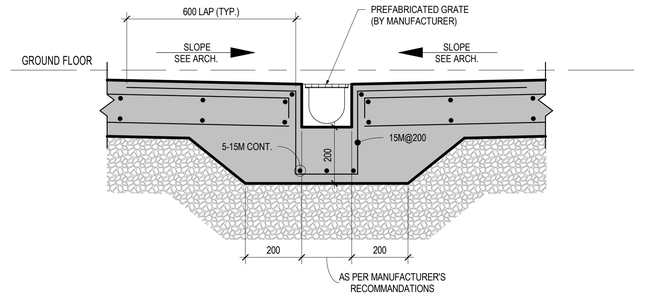

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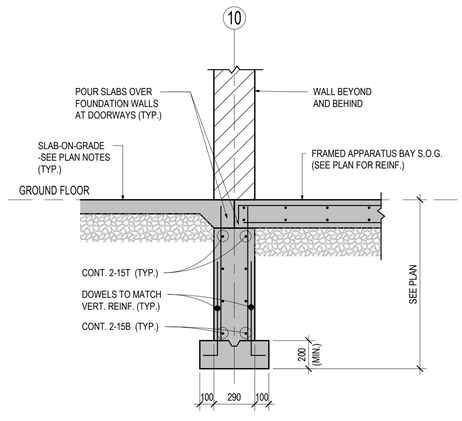
S2-02 1 : 10



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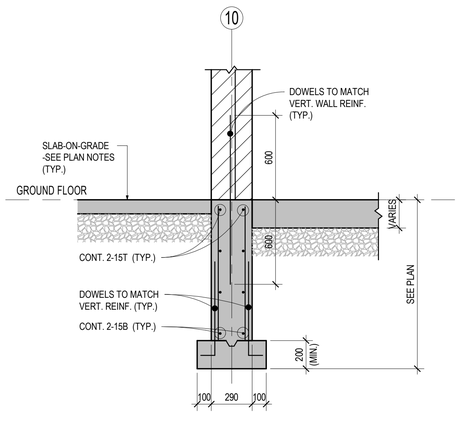

F9 SECTION
S2-02 1 : 20

NOTE:
TYPICAL FOUNDATION WALL REINFORCING
(UNLESS NOTED OTHERWISE ON
SECTIONS
OR SHEAR WALL ELEVATIONS)
10M @460 VEF
10M @320 HEF

FOR 190mm/200mm WALLS:
10M @320 VERT. CENTRE OF WALL
10M @200 HORIZ. CENTRE OF WALL

ISSUED or REVISION

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20-02-18
H.A. McCALLUM
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
20-02-18
J. C. GASDIA
100169574
PROVINCE OF ONTARIO

DWG TITLE :
FOUNDATION SECTIONS

DATE :	FEB. 2020
SCALE :	As indicated
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S2-02
REVISION	

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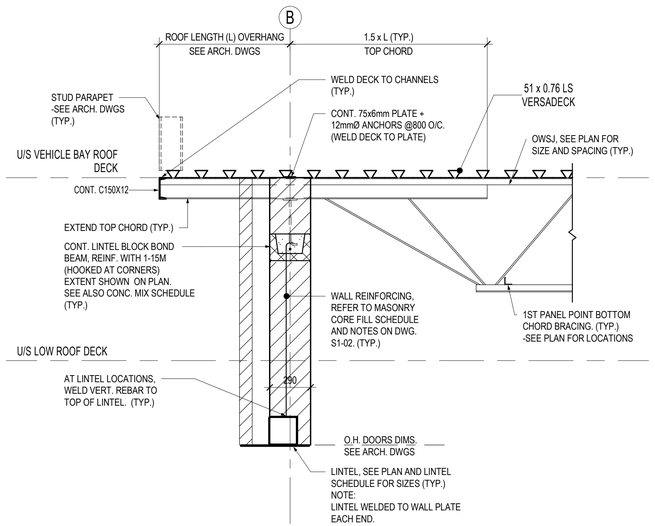
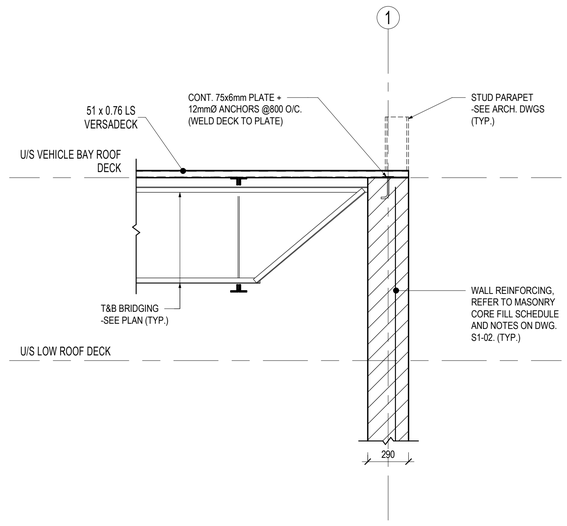


R1 S3-01 SECTION 1 : 20



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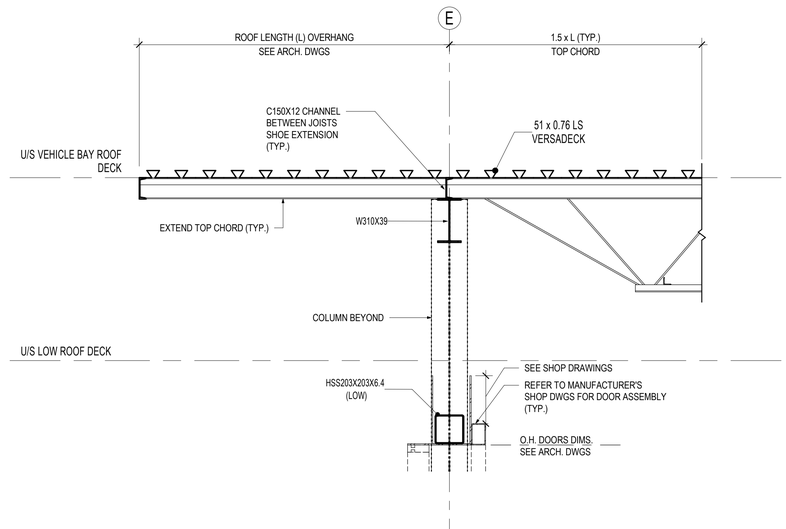

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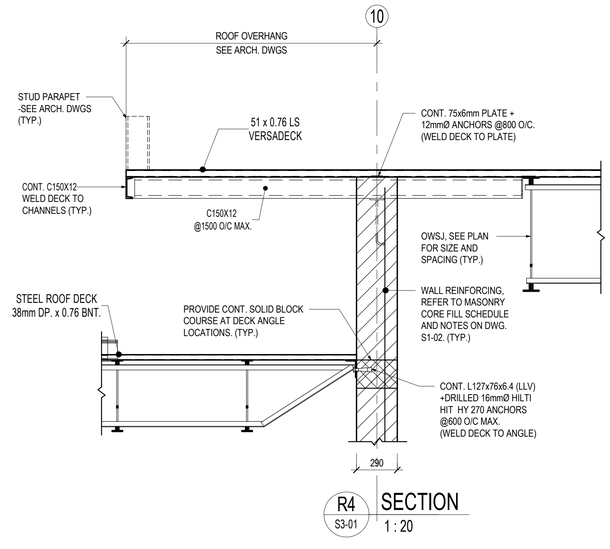

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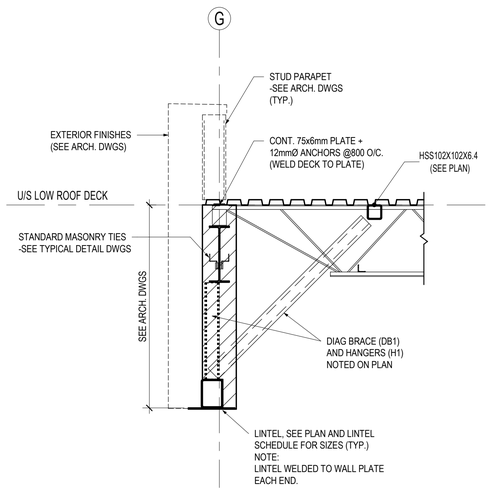

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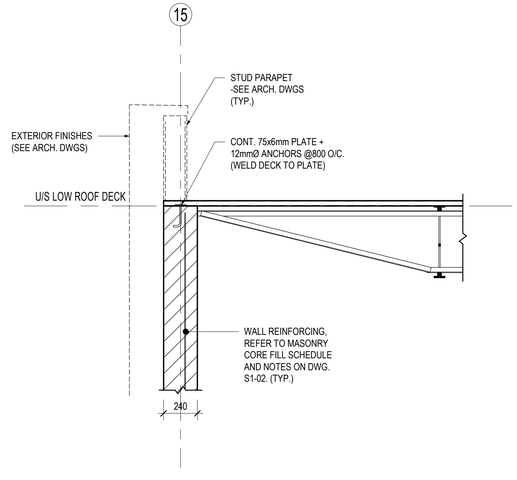

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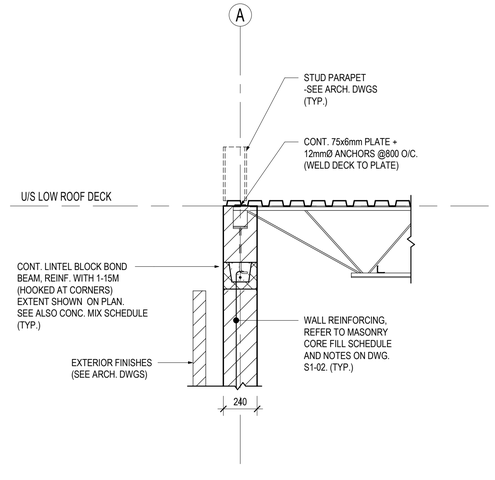

R7 S3-01 SECTION 1 : 20

The Contractor shall verify all dimensions prior to commencement of the work. All print and specifications are the property of the Structural Engineer and must be returned upon completion of the work.

ISSUED or REVISION

No.	Description	Date
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PROJECT :
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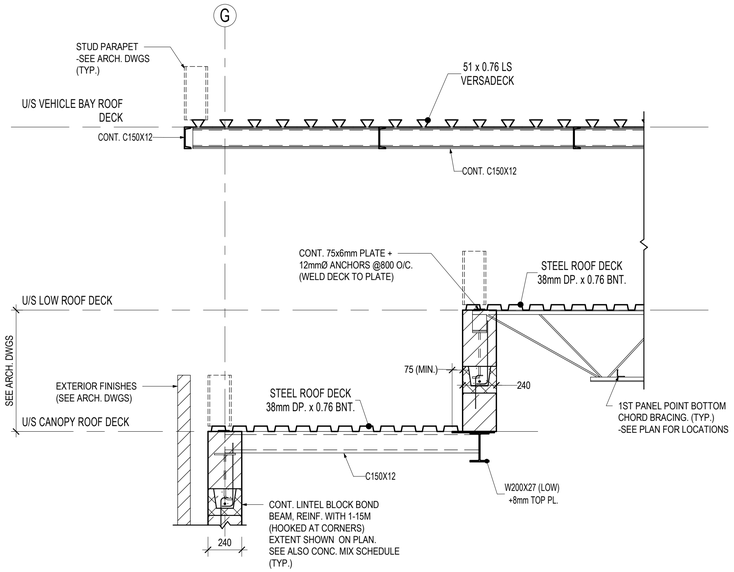
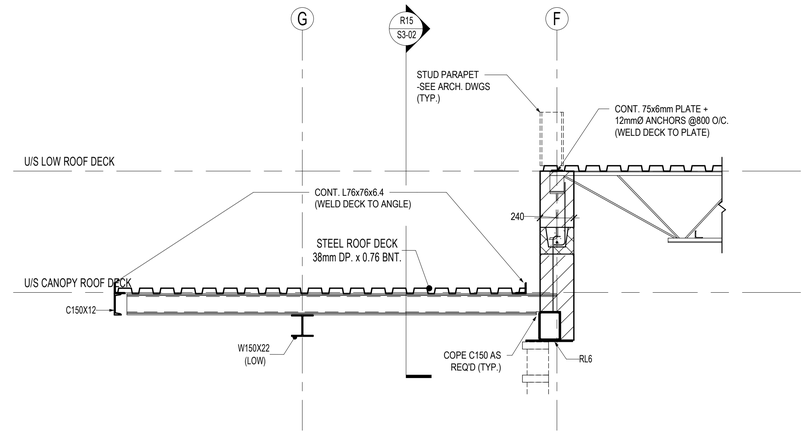
DWG TITLE :
ROOF SECTIONS

DATE :	FEB. 2020
SCALE :	1 : 20
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S3-01
REVISION	

2020-02-18 3:09:01 PM



R8 S3-02 SECTION 1 : 20



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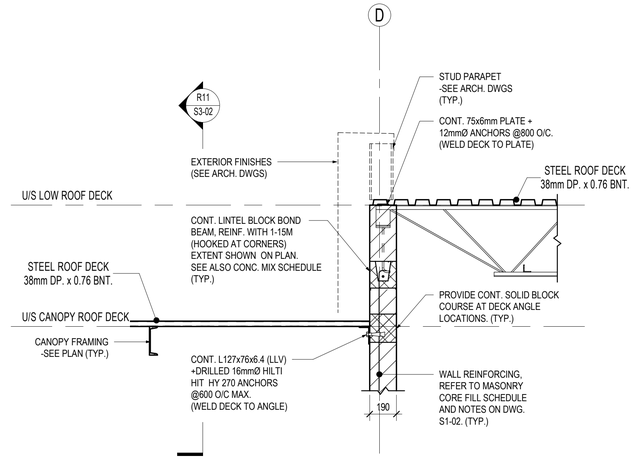

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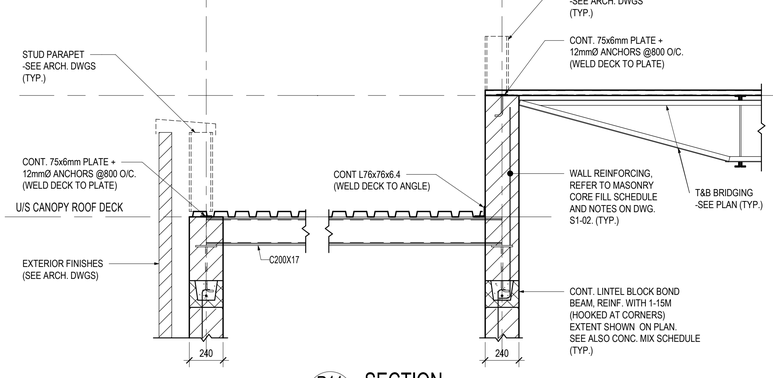

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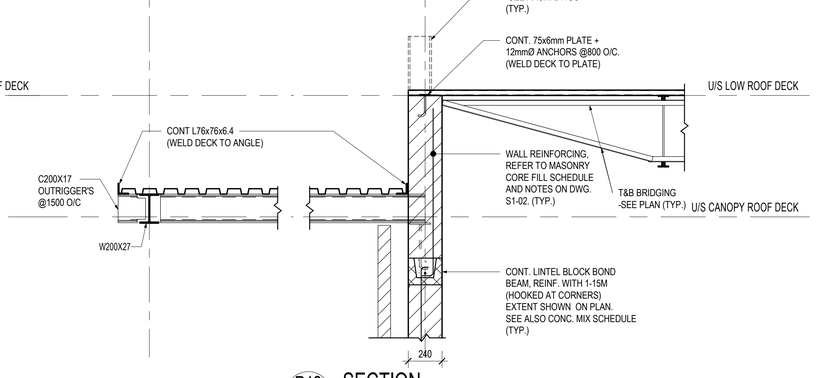

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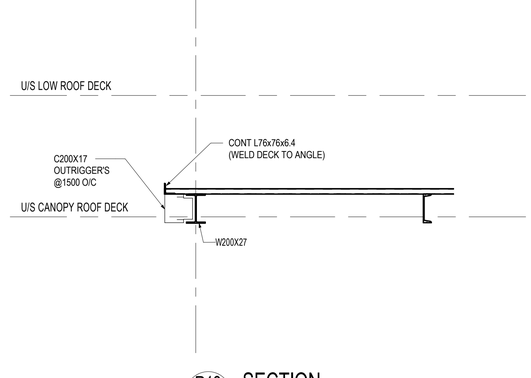

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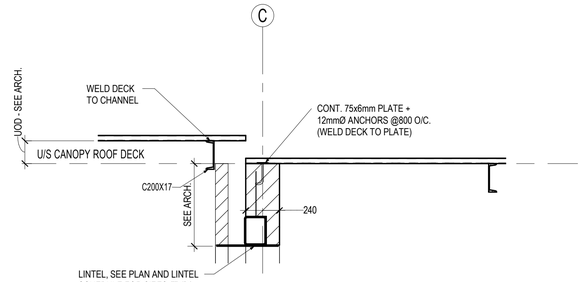

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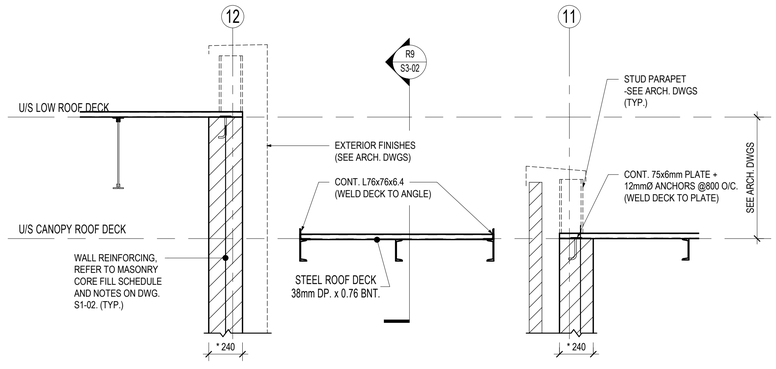

R15 S3-02 SECTION 1 : 20

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DWG TITLE :
ROOF SECTIONS

DATE :	FEB. 2020
SCALE :	1 : 20
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S3-02
REVISION	

2020-02-18 3:09:02 PM

STANDARD ABBREVIATIONS — A01

@ -At
ADJ -Adjustable
AIFB -Asphalt Impregnated Fibre Board
ALT -Alternate
ARCH -Architectural
A. ROD(A.R.) -Anchor Rod
ASL -Accumulated Snow Loading

B (BOT) -Bottom
BEW -Bottom Each Way
BLDG -Building
BLL -Bottom Lower Layer
BM -Beam
BML -Bottom Middle Layer
BNT -Base NominalThickness
B.O.F. -Bottom of Footing
BP -Baseplate
BSMT -Basement
BUL -Bottom Upper Layer

C -Standard Channel
CA -Column Above
CANT -Cantilever
C/C (o/c) -Centre to Centre
CJ -Control Joint
CL -Centreline
COL -Column
COMP -Compressible
CONC -Concrete
CONST -Construction
CONST JT (CJT) -Construction Joint
CONT (CONTIN) -Continuous
C/W -Complete With

D.FIR -Douglas Fir
DET -Detail
DIAG -Diagonal
Ø (DIA) -Diameter
DIM -Dimension
DJ -Double Joist
DL -Dead Load
DO -Ditto
DWG -Drawing
DWL -Dowel
DT -Double Tee

E-W -East-West
EA -Each
EE -Each End
EF -Each Face
ELECT -Electrical
ELEV (EL) -Elevation / Elevator
EQ -Equal
ES -Each Side
EW -Each Way
EXIST -Existing
EXP. JT. -Expansion Joint
EXT -Exterior

FDN -Foundation
FF -Far Face
FIN -Finished
FL -Floor
FMC -Full Moment Connection
FT -Foot / Feet
FTG -Footing

GA -Gauge
GALV -Galvanized
GEN -General

H (HOR) -Horizontal
HEF -Horizontal Each Face
HIF -Horizontal Inside Face
HOF -Horizontal Outside Face
HSC -Horizontally Slotted Connection
HSS -Hollow Structural Section

IF -Inside Face
INT -Interior
INV -Invert

JT -Joint

kg -Kilogram
kN.m -Kilo Newton Metres
kN/m² -Kilo Newton per Square Metre
kN/m -Kilo Newton per Metre
kPa -Kilo Pascals

L -Angle
LB. -Pounds
LG -Long
LL -Live Load / Lower Layer
LLH -Long Leg Horizontal
LLV -Long Leg Vertical
LSSJ -Long Span Steel Joists
LVL -Laminated Veneer Lumber

m -Metre
MAX -Maximum
MECH -Mechanical
MEZZ -Mezzanine
MIN -Minimum
MISC -Miscellaneous
ML -Middle Layer
MLL -Middle Lower Layer
mm -Millimetre
MOM, (M) -Moment
MPa -Mega Pascals
MUL -Middle Upper Layer

N -Newton
N-S -North-South
NF -Near Face
NIC -Not in Contract
No.(#) -Number
NTS -Not to Scale

OWSJ -Open Web Steel Joist

Pa -Pascal
PC -Precast
PL -Plate
PLF -Pounds per Lineal Foot
PREL -Preliminary
PROJ -Projection
PSF -Pounds per Square Foot
PSI -Pounds per Square Inch
PSL -Parallel Strand Lumber
PT -Pressure Treated

R -Reaction
RAD -Radius
REF -Reference
REINF -Reinforcing
REQ'D -Required
REV -Revision/Revised
Rf -Factored Vertical Reaction
R/W -Reinforced With

S -Standard Beam
SDF -Step Down Footing
SDL -Superimposed Dead Load
SECT -Section
SL -Slab
SQ -Square
SOG -Slab on Grade
S.P.F. -Spruce/Pine/Fir
SPEC -Specifications
ST -Steel
STD -Standard
STR -Straight
STRUCT -Structural

T -Top
TEMP -Temperature
Tf -Factored Tension Force
TJ -Tie Joist
TLL -Top Lower Layer
TMf -Factored Torsional Moment
TML -Top Middle Layer
TOD, T/D -Top of Deck
T.O.F. -Top of Footing
TOS, T/S -Top of Slab
TOST -Top of Steel
TSF -Tons per Square Foot
TUL -Top Upper Layer
TYP -Typical

UL -Upper Layer
U/N -Unless Noted
U.N.O. -Unless Noted Otherwise
U/S -Underside
USD -Underside of Deck

V (VERT) -Vertical
VBF -Vertically Braced Framing
VEF -Vertical Each Face
VIF -Vertical Inside Face
VOF -Vertical Outside Face
VSC -Vertically Slotted Connection

W -Wide Flange Beam
WP -Wall Plate
WWF -Welded WideFlange Beam
WWF (WWM) -Welded Wire Fabric/ Mesh

STANDARD LAP ABBREVIATIONS
CLS -Compression Lap Splice
CDL -Compression Development Length
HEL -Hook Embedment Length
TLS -Tension Lap Splice
TDL -Tension Development Length

STRUCTURAL STEEL AND STEEL JOIST NOTES — A04

1. GENERAL
1.1. STRUCTURAL STEEL AND JOIST DESIGN DETAILS AND CONNECTIONS SHALL CONFORM TO CSA STANDARD S16 AND SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER EXPERIENCED IN THIS TYPE OF WORK.
1.2. REFER ALSO TO GENERAL NOTES, NOTES UNDER PLANS AND TO THE SPECIFICATION.
1.3. WELDING SHALL CONFORM TO CSA STANDARD W59 AND BE PERFORMED BY A FABRICATOR CERTIFIED TO CSA W47.1.
1.4. BEAM CONNECTIONS SHALL BE DESIGNED FOR A MINIMUM OF FACTORED VERTICAL SHEAR FORCE OF 50% OF THE BEAM SHEAR CAPACITY. UNLESS OTHERWISE NOTED, AND IN NO CASE BE LESS THAN THE LOADS SHOWN ON OR IMPLIED BY THE DRAWINGS. WHERE BOLTED CONNECTIONS ARE UTILIZED, A MINIMUM OF TWO BOLTS PER CONNECTION SHALL BE USED.
1.5. MEMBER CONNECTIONS SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER FOR FORCES AND MOMENTS INDICATED. SHOP DRAWINGS AND CALCULATIONS BEARING THE STAMP AND SIGNATURE OF THE REGISTERED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION AND ERECTION.
2. PRODUCTS
2.1. STRUCTURAL STEEL SECTIONS SHALL CONFORM TO CSA-G40.20/G40.21 (UNLESS NOTED OTHERWISE ON PLANS OR SECTIONS).
2.1.1. S SHAPES, CHANNELS, ANGLES, PLATES AND RODS: - GRADE 300 W
2.1.2. HSS SECTIONS: - GRADE 350W (CLASS C U/N)
2.1.3. WWF SHAPES, W SHAPES, WT SHAPES: - GRADE 350W
2.2. JOIST CHORDS AND WEBS SHALL CONFORM TO CSA - S16.
2.3. BOLTS FOR CONNECTIONS TO CONFORM TO ASTM F3125/3125M, GRADE A325 OR A325M, UNLESS NOTED.
2.4. ANCHOR RODS FOR BASE PLATES, BEARING PLATES AND WELD PLATES TO CONFORM TO ASTM F1554, GRADE 36, UNLESS NOTED.
2.5. NUTS AND WASHERS TO CONFORM TO ASTM A563 AND ASTM F436.
2.6. SHEAR STUDS WHERE REQUIRED TO CONFORM TO ASTM A108, WELDING TO CONFORM TO CSA W59.
2.7. WELDING MATERIALS TO CONFORM TO CSA W48.
2.8. SURFACE PREPARATION AND PRIMER PAINT FOR STRUCTURAL STEEL MEMBERS AND JOISTS INSIDE VAPOUR BARRIER TO CONFORM TO CISC/CPMA 1.73a OR CISC/CPMA 2.75 (IF EXPOSED TO VIEW), UNLESS NOTED ON DRAWINGS OR SPECIFICATIONS.
2.9. HOT DIP GALVANIZING SHALL PROVIDE A MINIMUM ZINC COATING OF 600g/sq.m UNLESS OTHERWISE SPECIFIED.
2.11. BRIDGING AND BRACING FOR JOISTS BY JOIST DESIGNER: - SEE DRAWINGS AND TYPICAL DETAILS FOR MINIMUM REQUIREMENTS.
3. EXECUTION
3.1. FABRICATION, HANDLING AND ERECTION SHALL CONFORM TO CAN/ CSA - S16.
3.2. TOLERANCES: VARIATION FROM PLUMB AND LEVELNESS OF STRUCTURAL FRAMING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND TYPICAL DETAILS.
3.5. FIELD " TOUCH-UP " BOLTS, WELDS, BURNED OR SCRAPED SURFACES AFTER ERECTION.
3.6. NO HOLES OTHER THAN THOSE SHOWN ON REVIEWED SHOP DRAWINGS SHALL BE MADE IN ANY STEEL MEMBER WITHOUT WRITTEN PERMISSION OF THE STRUCTURAL CONSULTANT.
3.7. CO-ORDINATE WITH MECHANICAL AND ELECTRICAL CONSULTANTS AND SUB-TRADES WHOSE WORK MAY EFFECT DETAILING, FABRICATION AND ERECTION OF THE STEEL STRUCTURE.
3.8. WHEREVER ITEMS ARE TO BE HUNG FROM JOISTS, CONNECT TO THE TOP CHORDS AT PANEL POINTS, UNLESS OTHERWISE PERMITTED.
3.9 PROVIDE L76X76X6.4(MIN) ANGLE SEATS FOR ALL STEEL DECK AT LOCATIONS WHERE THE CONNECTION TO SUPPORTING FRAMING IS INTERRUPTED. (EG. AT COLUMNS)
3.10. PROVIDE ALL NECESSARY TEMPORARY BRACING TO KEEP STRUCTURE SAFE AND PLUMB. BRACING SHOWN ON STRUCTURAL DRAWINGS IS PERMANENT FOR FINISHED BUILDING ONLY.
3.11. PROVIDE A MINIMUM OF 2-12 mm (1/2") DIAMETER BY 250 (10") LONG WALL ANCHORS FOR ALL BEAM AND JOIST BEARING PLATES ON MASONRY, OR AN APPROVED EQUAL, UNLESS OTHERWISE NOTED. BEAMS AND JOIST SHOES TO BE WELDED TO BEARING PLATES.
3.12. PROVIDE ADJUSTABLE ANCHORS TO ALL STEEL TO BE BUILT INTO, ABUTTED BY, OR FACED WITH MASONRY (REFER ALSO TO TYPICAL DETAILS
FOR VERTICAL SPACING .... 600 (24") MAX. CENTRES.
FOR HORIZONTAL SPACING .... 10 TIMES WALL THICKNESS* (MAX. 2000 (6'-8") CENTRES)
(* NOTE, USE BACK-UP WYTHE THICKNESS ONLY, FOR CAVITY WALLS.)
3.13. WHERE STEEL PROVIDES LATERAL BRACING ONLY TO MASONRY (I.E. DOES NOT SUPPORT MASONRY) ANCHORS SHALL PERMIT DIFFERENTIAL VERTICAL MOVEMENT BETWEEN STRUCTURAL MEMBERS AND MASONRY.
4. QUALITY CONTROL
4.1. AN INDEPENDENT INSPECTION AND TESTING COMPANY IS TO INSPECT STRUCTURAL STEEL AND STEEL DECK IN THE SHOP AND IN THE FIELD FOR WELDING, CONNECTIONS, BOLT TORQUES, AND GENERAL CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
4.2 SEE SPECIFICATIONS FOR ADDITIONAL INSPECTION AND TESTING REQUIREMENTS.

GENERAL NOTES — A02

1. **GENERAL**
1.1. DESIGN AND CONSTRUCTION IS TO CONFORM TO THE REQUIREMENTS OF THE 2012 ONTARIO BUILDING CODE, AND ANY APPLICABLE REQUREMENTS OR BY-LAW OF THE AUTHORITY HAVING JURISDICTION. REFER ALSO TO TYPICAL DETAILS, NOTES UNDER PLANS AND SCHEDULES ON THE STRUCTURAL DRAWINGS, AND TO THE SPECIFICATION. ALL CODES, MANUALS, STANDARDS AND SPECIFICATIONS REFERRED TO SHALL BE THE SPECIFIC EDITION REFERENCED IN APPLICABLE BUILDING CODE INCLUDING ALL REVISIONS AND ADDENDA.
ALL DIMENSIONS, OTHER THAN PURELY STRUCTURAL DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS MUST BE CHECKED AGAINST THE ARCHITECTURAL DRAWINGS AND ANY INCONSISTENCIES REPORTED TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK. STRUCTURAL DRAWINGS MUST NOT BE SCALED.
1.2. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND SIZES OF OPENINGS, TRENCHES, PITS, SUMPS, EQUIPMENT, SLEEVES, DEPRESSIONS, GROOVES AND CHAMFERS NOT INDICATED ON THE STRUCTURAL DRAWINGS. UNLESS SPECIFICALLY NOTED OTHERWISE, THE ABOVE ITEMS WHERE SHOWN ON THE STRUCTURAL DRAWINGS ARE INDICATED ONLY APPROXIMATELY AS TO SIZE AND LOCATION.
1.3. UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS, NO PROVISION HAS BEEN MADE IN THE DESIGN FOR CONDITIONS OCCURRING DURING CONSTRUCTION. THE CONTRACTOR IS TO PROVIDE ALL NECESSARY BRACING AND SHORING REQUIRED FOR STRESSES AND INSTABILITY OCCURRING FROM ANY CAUSE DURING CONSTRUCTION. THE CONTRACTOR SHALL ACCEPT FULL RESPONSIBILTY FOR ALL SUCH MEASURES. IT SHALL ALSO BE THE RESPONSIBLITY OF THE CONTRACTOR TO PROVIDE ALL NECESSARY BRACING, SHORING, SHEET PILING OR OTHER TEMPORARY SUPPORTS OF SAFEGUARD ALL EXISTING OR ADJACENT STRUCTURES AFFECTED BY THIS WORK. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR CONSULTANTS REVIEW.
2. **SHOP DRAWINGS, PLACING DRAWINGS AND BAR LISTS**
2.1. FOR ALL STRUCTURAL COMPONENTS SHOWN ON THE STRUCTURAL DRAWINGS, SUBMIT COPIES OF SHOP DRAWINGS AS DIRECTED FOR REVIEW BY THE STRUCTURAL CONSULTANT.SHOP DRAWINGS TO SHOW COMPLETE INFORMATION FOR THE FABRICATION AND ERECTION OF THE STRUCTURAL COMPONENTS.
2.2. REVIEW OF SHOP DRAWINGS BY THE STRUCTURAL CONSULTANT IS ONLY TO ASSESS THAT THE SUBMITTED SHOP DRAWINGS REFLECT THE INTENT OF THE STRUCTURAL DESIGN.
2.3. REVIEW BY THE STRUCTURAL CONSULTANT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR SEEING THAT THE WORK IS COMPLETE, ACCURATE AND IN CONFORMITY WITH THE STRUCTURAL DRAWINGS AND SPECIFICATIONS.
3. **INSPECTION AND TESTING**
3.1. A SOILS CONSULTANT AND AN INDEPENDENT INSPECTION AND TESTING COMPANY ARE TO BE ENGAGED TO CARRY OUT THE FOLLOWING SERVICES
3.1.1. BEARING SOIL - REFER TO NOTES ON STRUCTURAL DRAWINGS AND ALSO TO THE SOIL REPORT.
3.1.2. FILL UNDER SLAB-ON-GRADE - CONFORM THAT FILL MATERIAL USED IS SATISFACTORY AND THAT THE REQUIRED DEGREE OF COMPACTION HAS BEEN ATTAINED.
3.1.3. CAST-IN-PLACE AND PRECAST CONCRETE - ROUTINE INSPECTION OF MATERIALS, INCLUDING SLUMP, CYLINDER AND AIR ENTRAINMENT TESTS AND REINFORCING ROD TESTS WHEN REQUIRED OR DIRECTED IN ACCORDANCE WITH CSA STANDARD A23.2.
3.1.4. THE PROJECT SUPERINTENDENT IS TO ADVISE THE STRUCTURAL CONSULTANT A MINIMUM OF 24 HOURS IN ADVANCE OF A CONCRETE POUR FOR A REVIEW OF PREPARATIONS.
3.1.5. STRUCTURAL STEEL AND OWSJ - ROUTINE SHOP AND FIELD INSPECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS CSA S16.
3.1.6. STEEL DECK - SEE STEEL DECK NOTES.
3.1.7. MASONRY - WHEN REQUIRED OR DIRECTED, CONCRETE BLOCKS SHALL BE TESTED IN ACCORDANCE WITH ASTM C140 BRICKS IN ACCORDANCE WITH CAN/CSA A82; AND MORTAR AND/OR GROUT IN ACCORDANCE WITH CSA A179.
3.2. ALL INSPECTION AND TESTING SERVICES ARE TO BE PERFORMED BY COMPANIES CERTIFIED BY THE CANADIAN STANDARDS ASSOCIATION AND FOR WELDING, INSPECTORS ARE TO BE CERTIFIED BY THE CANADIAN WELDING BUREAU.
4. **FOUNDATIONS**
4.1. REFER TO NOTES UNDER FOUNDATION PLANS. ALL EXTERIOR FOOTINGS OR OTHER FOOTINGS EXPOSED TO FREEZING IN THE FINISHED BUILDING SHALL BE FOUNDED AT A MINIMUM OF 1200mm (4'-0") BELOW FINISHED GRADE, UNLESS OTHERWISE NOTED. FOOTINGS EXPOSED TO FROST ACTION DURING CONSTRUCTION SHALL BE PROTECTED BY A MINIMUM OF 1200mm (4'-0") OF EARTH OR ITS EQUIVALENT SUFFICIENT TO PREVENT FREEZING.
4.2. THE LINE OF SLOPE BETWEEN ADJACENT EXCAVATIONS FOR FOOTINGS OR ALONG STEPPED FOOTINGS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10, MAXIMUM STEP APPROX. 600mm (2'-0").
4.3. PIER DEPTHS AND FOOTING ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE BASED UPON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THE STRUCTURAL DRAWINGS.
4.4. IF ACTUAL JOB SITE OR SOIL CONDITIONS VARY FROM THOSE ASSUMED, THEN WRITTEN DIRECTIONS MUST BE OBTAINED FROM THE STRUCTURAL CONSULTANT BEFORE PROCEEDING WITH THE WORK.
4.5. KEEP EXCAVATIONS CONTINUOUSLY DRY BEFORE CONCRETE IS PLACED. IF THE SOIL IS SOFTENED BY WATER, THE EXCAVATION SHALL BE EXTENDED BELOW THE SOFTENED MATERIAL AND THE BOTTOM OF THE FOOTINGS LOWERED TO SUIT.
5. **BACKFILLING AND COMPACTION**
5.1. SLABS-ON-GRADE AND ALL STRUCTURAL ELEMENTS FRAMING INTO WALLS WHICH RETAIN EARTH MUST BE IN PLACE BEFORE BACKFILLING.
5.2. AT FOUNDATION WALLS WITH GRADE BOTH SIDES, UNLESS ADEQUATELY SHORED, BACKFILL AND COMPACT EACH SIDE OF WALL SIMULTANEOUSLY.
5.3. UNDER SLAB-ON-GRADE, REMOVE SOFT SPOTS, ORGANIC AND FOREIGN MATTER IN THE SUB-GRADE. (WHERE SUB-GRADE CONSISTS OF COMPACTED FILL, REFER TO SPECIFIC NOTES ON THE DRAWINGS).
5.4. BACKFILL UNDER SLAB-ON-GRADE, IN FOOTING EXCAVATIONS AND IN TRENCHES ONLY WITH APPROVED MATERIAL. UNLESS SPECIFICALLY NOTED OTHERWISE, BACKFILLING SHALL BE CARRIED OUT IN MAXIMUM OF 200mm (8")THICK LIFTS OF LOOSE FILL EACH COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR MAXIMUM DRY DENSITY.
5.5. UNLESS OTHERWISE NOTED IN GEOTECHNICAL REPORT, PROVIDE IMMEDIATELY UNDER SLABS-ON-GRADE A MINIMUM OF 200mm (8") OF COMPACTED (MTC) GRANULAR 'B' MATERIAL.COMPACTION TO ACHIEVE A MINIMUM OF 98% STANDARD PROCTOR MAXIMUM DRY DENSITY.

LOAD BEARING MASONRY NOTES — A06

1. **GENERAL**
1.1. UNLESS OTHERWISE NOTED OR SHOWN ON THE DRAWINGS, THE FOLLOWING INDICATES THE MINIMUM REQUIREMENTS APPLICABLE TO STRUCTURAL LOAD BEARING MASONRY.
1.2. REFER ALSO TO ARCHITECTURAL DRAWINGS AND / OR THE SPECIFICATION FOR REQUIREMENTS OTHER THAN STRUCTURAL, AND FOR NON-LOAD BEARING WALLS AND PARTITIONS.
1.3. MASONRY CONSTRUCTION TO CONFORM TO CSA STANDARD S304.1.
2. **PRODUCTS**
2.1. CONCRETE BLOCKS TO BE MODULAR UNITS AS SHOWN ON THE ARCHITECTURAL DRAWINGS AND /OR SPECIFICATION, AND UNLESS ` OTHERWISE NOTED SHALL BE:
2.1.1. FOR BELOW GRADE AND EXTERIOR EXPOSED WALLS USE NORMAL WEIGHT LOAD BEARING UNITS:
STANDARD HOLLOW: ....TYPE H / 15 / A / M.
75% SOLID: ....TYPE S / 15 / A / M.
100% SOLID: ....TYPE S / 15 / A / M.
2.1.2. FOR INTERIOR ABOVE GRADE WALLS USE EITHER:
2.1.2.1. LIGHTWEIGHT LOAD BEARING BLOCKS:
STANDARD HOLLOW: ......TYPE H / 15 / C / M.
75% AND 100% SOLID: ......TYPE S / 15 / C / M.
2.1.2.2. ULTRA LIGHT (OR EQUIVELANT) BLOCKS:
STANDARD HOLLOW: ....TYPE H / 15 / D / M.
(REFER TO ARCHITECTURAL DRAWINGS AND SCHEDULES FOR LOCATIONS AND TYPES).
2.2. CLAY BRICKS:
TO CONFORM TO ONE OR MORE OF CSA STANDARDS A82.(SERIES) SEE ARCHITECTURAL DRAWINGS AND / OR SPECIFICATIONS FOR TYPES AND STYLES OF BRICKS REQUIRED. UNLESS OTHERWISE NOTED, THE MINIMUM COMPRESSIVE STRENGTH (BRICK FLATWISE) GROSS AREA SHALL BE 20 MPa.
2.3. MORTAR:
TO CONFORM TO CSA A179
FOR LAYING ALL LOAD BEARING CONCRETE BLOCKS ....USE TYPE "S" MORTAR UNLESS NOTED.
FOR LAYING ALL CLAY BRICKS ....USE TYPE "N" MORTAR UNLESS NOTED.
2.4. MASONRY GROUT:
TO CONFORM TO CSA A179. THE SLUMP SHALL BE 200mm TO 250mm (8"TO10") AND THE MINIMUM 28 DAY COMPRESSIVE STRENGTH FOR "FINE" GROUT SHALL BE 15MPa.
2.5. MASONRY CONNECTORS (ANCHORS, FASTENERS AND TIES):
SHALL CONFORM TO CSA A370, AND BE INSTALLED TO COMPLY WITH CSA A371.
SPACING, STRENGTH AND GALVANIZING OF STRIP TIES, DOVETAIL ANCHORS, BAR ANCHORS, ROD ANCHORS, STRAP ANCHORS, WALL AND PARTITION ANCHORS SHALL COMPLY WITH CSA A370.
2.6. HORIZONTAL JOINT REINFORCEMENT FOR ALL MASONRY WALLS:
THE FOLLOWING ARE MINIMUM REQUIREMENTS:
2.6.1. CONFORM TO CSA STANDARDS A370 AND A371.
2.6.2. REINFORCEMENT SHALL BE AN APPROVED CONTINUOUS "LADDER" TYPE, PREFABRICATED WITH 3.66mm DIAMETER (9 GAUGE) LONGITUDINAL AND CROSS WIRES.
2.6.3. SPACING:- PROVIDE REINFORCING IN THE TOP COURSE IMMEDIATELY BELOW FLOOR AND ROOF BEARING LEVELS AND THE FIRST TWO COURSES ABOVE AND BELOW EVERY WALL OPENING.THE REINFORCING SHALL EXTEND 600mm (24") BEYOND SUCH OPENINGS. FOR THE REMAINDER OF WALLS, THE VERTICAL SPACING SHALL NOT EXCEED 400mm (16").
2.6.4. OVERLAP SPLICES:
SHALL BE A MIN. OF 150mm (6") FOR KNURLED WIRE AND 300mm (12") FOR PLAIN WIRE.
LAPS SHALL BE STAGGERED A MINIMUM OF 750mm (30") FROM COURSE TO COURSE.
REINFORCING SHALL NOT PASS THROUGH A VERTICAL CONTROL JOINT UNLESS OTHERWISE SHOWN.
2.6.5. CORROSION RESISTANCE:
JOINT REINFORCING FOR ALL WALLS IN CONTACT WITH SOIL, EXTERIOR WALLS AND WALLS IN A MOIST ENVIRONMENT SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION TO ASTM A153,458 gm/sq.meter (1.5 oz. / sq. foot).
2.6.6. COMPOSITE AND CAVITY WALLS:
WHERE COURSING OF WYTHES DO NOT ALIGN OF WHERE IT IS DESIRABLE AND PERMITTED TO BUILD ONE WYTHE BEFORE THE OTHER, REINFORCING SHALL BE AN APPROVED ADJUSTABLE TYPE WITH A BOX OR EYE SECTION WHICH EXTENDS INTO THE COLLAR JOINT OR CAVITY AND RESTRAINS THE TRANSVERSE MOVEMENT OF THE TWO WYTHES. FOR CAVITY WALLS WITH RIGID INSULATION, EXTENSION SHALL BE DESIGNED TO HOLD THE INSULATION IN PLACE BY USE OF PLASTIC WEDGES OR APPROVED EQUAL. GALVANIZED HOOK STYLE "BOX TIES" OR "PIN-TIES" SHALL EXTEND INTO THE FACE WYTHE TO COMPLETE THE ASSEMBLY.
2.6.7. PROVIDE ALL PREFABRICATED CORNER AND TEE SECTIONS.
2.7. COMPOSITE WALLS:- SHALL HAVE THE VERTICAL COLLAR JOINTS BETWEEN WYTHES COMPLETELY FILLED WITH MORTAR OR GROUT.
2.8. BOND BEAMS:- MADE FROM LINTEL BLOCKS, OR HALF WEB BLOCKS, WHERE SHOWN ON STRUCTURAL DRAWING SHALL CONFORM TO CSA A371.
2.9. GROUTING:- BY FILLING VOIDS OF HOLLOW UNITS AND REINFORCED HOLLOW UNITS SHALL CONFORM TO CSA A179 (MORTAR IS NOT ACCEPTABLE).
2.10. EXPANSION AND CONTROL JOINTS:
SHALL BE PROVIDED. SEE ARCHITECTURAL DRAWINGS AND/ OR SPECIFICATION FOR DETAILS.

CAST-IN-PLACE CONCRETE NOTES — A03.1

1. **GENERAL**
1.1. PROVIDE ALL LABOUR, MATERIALS, TOOLS AND EQUIPMENT REQUIRED TO CARRY OUT THE WORK.
1.2. REFER ALSO TO GENERAL NOTES, NOTES UNDER PLANS AND SCHEDULES, TYPICAL DETAILS AND SPECIFICATION.
2. **PRODUCTS**
2.1. PORTLAND CEMENT, WATER AND AGGREGATES SHALL CONFORM TO CSA STANDARD A23.1.
2.2. PROVIDE AN APPROVED WATER REDUCING ADDITIVE IN ALL CONCRETE. PROVIDE AN APPROVED AIR ENTRAINING ADDITIVE IN ALL CONCRETE WHICH WILL BE EXPOSED TO A FREEZE/THAW CYCLE AND/OR THE ACTION OF DE-ICING SALT. ADMIXTURES SHALL CONFORM TO CSA STANDARD A23.1.
2.3. FORMWORK SHALL CONFORM TO CSA STANDARD A23.1 AND CSA STANDARD S269.1 AND FALSEWORK SHALL CONFORM TO CSA S269.1.
2.4. IF SO INSTRUCTED, THE DESIGNS FOR THE FORMWORK SHALL BE SUBMITTED FOR REVIEW BEFORE CONSTRUCTION. FORMWORK DRAWINGS AND DESIGN SHALL BEAR THE STAMP OF A LICENSED PROFESSIONAL ENGINEER.
2.5. PROVIDE SLAB AND BEAM FORMS WITH AN UPWARD CAMBER AS INDICATED ON PLANS THUS __mm WHERE CAMBERS ARE NOT NOTED ON PLANS, CAMBER SLABS AND BEAMS FOR SPAN/500 AT INTERIOR BAYS, AND CANTILEVER LENGTH/250 AT CANTILEVER. CAMBER BOTH THE UNDERSIDE AND TOP OF CONCRETE IN A PARABOLIC PROFILE, WHILE MAINTAINING THE INDICATED STRUCTURAL THICKNESS OF MEMBERS.
2.6. PROVIDE STANDARD ADJUSTABLE MASONRY ANCHOR SLOTS FOR ALL MASONRY FACING OR ABUTTING CONCRETE FACES.
2.7. PROVIDE AND/OR INSTALL STANDARD ADJUSTABLE INSERTS AND ALL OTHER CAST-IN INSERTS AS REQUIRED BY THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATION.
2.8. REINFORCING STEEL UNLESS SPECIFICALLY NOTED, SHALL BE DEFORMED BARS CONFORMING TO CAN/CSA -G30.18-M GRADE 400 (58000 PSI).
2.9. WELDED WIRE FABRIC TO BE SUPPLIED IN FLAT SHEETS ONLY, UNLESS APPROVED OTHERWISE.
2.10. REINFORCING SHALL BE DETAILED, BENT, PLACED AND SUPPORTED TO CONFORM TO ACI DETAILING MANUAL AND THE MANUAL OF STANDARD PRACTICE PUBLISHED BY THE REINFORCING STEEL INSTITUTE OF CANADA.
2.11. DRY-PACK GROUT TO BE 1 PART PORTLAND CEMENT TO 1 1/2 PARTS SAND TO 2 PARTS OF 8 mm PEA GRAVEL WITH ONLY SUFFICIENT WATER TO DAMPEN MIXTURE. COMPRESSIVE STRENGTH 50MPa AT 28 DAYS.
2.12. NON-SHRINK GROUT TO BE AN APPROVED PRE-MIXED PROPRIETARY PRODUCT.
2.13. PROVIDE APPROVED EXTRUDED PVC WATERSTOPS OF SIZE AND STYLE INDICATED, WITH PRE-WELDED CORNERS AND INTERSECTIONS. SEE ALSO TYPICAL DETAILS.
2.14. CURING AND SEALING COMPOUNDS WHERE APPROVED FOR USE TO CONFORM TO ASTM STANDARD C309. GENERALLY ALL CONCRETE SURFACES ARE TO BE SEALED UNLESS NOTED OTHERWISE. COMPOUNDS ARE TO BE COMPATIBLE WITH APPLIED FINISHES.
2.15. SHEAR REINFORCMENT AT SLAB CONNECTION AS SHOWN ON DRAWINGS AND DETAILS, SHALL BE STUDRAILS® AS MANUFACTURED BY DECON®. THE COMPLETE AND FINISHED STUDRAIL® SHALL BE ICC ES EVALUATED AND WELDING SHALL TAKE PLACE IN A ICC ES APPROVED AND AUDITED FACILITY. STUDRAILS® SHALL CONFORM TO THE LATEST UPDATE OF ASTM A1044.
3. **EXECUTION**
3.1. MINIMUM COMPRESSIVE STRENGTH FOR CONCRETE @ 28 DAYS SHALL BE AS NOTED ON THE DRAWINGS (20MPa MINIMUM).
3.2. SLUMP AT THE POINT OF DISCHARGE SHALL BE CONSISTENT AT 80 mm ±30mm (3" ±1 1/8") UNLESS NOTED OTHERWISE.GREATER SLUMPS ARE NOT ACCEPTABLE.
3.3. CONCRETE MIXING, TRANSPORTATION, HANDLING AND PLACING SHALL CONFORM TO CSA STANDARD A23.1.
3.4. CONSTRUCTION JOINTS FOR WALLS ARE BASED UPON VERTICAL JOINTS AT A MAXIMUM SPACING OF 10000mm (30'-0") .UNLESS CONTROL JOINTS ARE PROVIDED AS PER DETAIL CFW02. TOTAL LENGTH OF POUR TO BE DISCUSSED WITH ENGINEER PRIOR TO PROCEEDING.
3.5. CONSTRUCTION JOINTS FOR WALLS, SLABS, AND BEAMS NOT SHOWN ON THE DRAWINGS SHALL BE APPROVED BY THE STRUCTURAL CONSULTANT BEFORE CONSTRUCTION. GENERALLY JOINTS IN SLABS SHALL BE AT RIGHT ANGLES TO THE SPANS, AT MID-SPAN IF POSSIBLE AND BE CLEAR OF SUPPORTS AND POINT LOADS.
3.6. INSERTS, FRAME-OUTS, SLEEVES, BRACKETS, CONDUITS AND FASTENING DEVICES, SHALL BE INSTALLED AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS IN A MANNER THAT SHALL NOT IMPAIR THE STRUCTURAL STRENGTH OF THE SYSTEM, BE SO INSTALLED THAT THEY SHALL NOT REQUIRE THE CUTTING, BENDING, OR DISPLACEMENT OF THE REINFORCING OTHER THAN AS SHOWN ON THE TYPICAL DETAILS.
3.7. ELECTRICAL CONDUIT SHALL NOT PASS THROUGH A COLUMN, SHALL NOT BE LARGER IN OUTSIDE DIAMETER THAN 1/3 SLAB THICKNESS OR WALL OR BEAM IN WHICH IT IS EMBEDDED, SHALL NOT BE SPACED CLOSER THAN 3 DIAMETERS ON CENTRE UNLESS APPROVED AND HAVE A MINIMUM CONCRETE COVER OF 25 mm (1") AND UNLESS SPECIFICALLY PERMITTED OTHERWISE, SHALL NOT RUN HORIZONTALLY IN A CONCRETE WALL.
3.8. OPENINGS AND DRIVEN FASTENERS REQUIRED IN THE CONCRETE AFTER THE CONCRETE IS PLACED SHALL BE APPROVED BY THE STRUCTURAL CONSULTANT BEFORE PROCEEDING.
3.9. FINISHING, REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR REQUIRED FINISH TO EXPOSED CONCRETE. ALL HONEYCOMBING SHALL BE CUT OUT AND FILLED. FLOOR FINISHES SHALL BE AS REQUIRED BY THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS AND SHALL CONFORM TO CSA STANDARD A23.1.
3.10. TOLERANCES FOR PLACING STRUCTURAL CONCRETE, REINFORCING STEEL, CAST-IN HARDWARE AND FOR FLOOR AND ROOF FINISHES SHALL BE AS SPECIFIED IN CSA STANDARD A23.1.
3.11. MINIMUM REINFORCING FOR ANY CONCRETE WALL TO BE AS SHOWN ON TYPICAL DETAIL FOR CONCRETE WALLS.
3.12. MINIMUM REINFORCING FOR ANY SUSPENDED SLAB SHALL BE TEMPERATURE BARS BOTTOM EACH WAY PLUS 10M @ 400 (16") DOWELS 600x600 (2'-0" x 2'-0") TOP AROUND PERIMETER. REFER TO TYPICAL DETAIL OF ONE WAY SLABS.
3.13 PERFORM SURVEYS OF SLABS AS INDICATED IN SPECIFICATIONS.

LOAD BEARING MASONRY NOTES — A06

3. **EXECUTION**
3.1. BEARING ON MASONRY:
3.1.1. MINIMUM BEARING ON MASONRY UNLESS OTHERWISE NOTED:-
BEAMS (STEEL, CONC., WOOD)...................... 200mm (8") NOMINAL
LINTELS (STEEL, CONC., WOOD) .... 150mm (6") NOMINAL
JOISTS (STEEL, WOOD) .... 100mm (4") NOMINAL
SLABS (CAST-IN-PLACE, PRECAST) ....100mm (4") NOMINAL
STEEL DECKING (ON WELD PLATE) ....100mm (4") NOMINAL
3.1.2. MASONRY BEARINGS SHALL BE OF SOLID BLOCKS (OR GROUTED SOLID) OR BRICKS LAID IN MORTAR. ALL JOINTS ARE TO BE FULLY FILLED WITH TYPE 'S' MORTAR.
3.1.3. MIN. SIZE OF SOLID BEARINGS AT BEAMS AND LINTELS UNLESS NOTED SHALL BE EQUAL TO TWICE THE BEARING / WALL PLATE (WP) LENGTH AND FOR A DEPTH EQUAL TO THE BEARING / WALL PLATE (WP) LENGTH, AND IN NO CASE LESS THAN 400 LONG x 200 DEEP (16" x 8"), SYMMETRICAL UNDER BEARING POINT.
3.1.4. PROVIDE A MINIMUM OF ONE CONTINUOUS COURSE 200mm (8") OF SOLID OR GROUTED VOID BLOCKS OR BRICKS LAID IN MORTAR AT THE TOP COURSE IMMEDIATELY BELOW ALL FLOOR AND ROOF BEARING LEVELS.
3.2. TOLERANCES:
UNLESS OTHERWISE NOTED ON THE ARCHITECTURAL DRAWINGS AND / OR SPECIFICATION, SHALL CONFORM TO CSA A371.
3.3. COLD WEATHER CONSTRUCTION:- REQUIREMENTS AND PROTECTION SHALL CONFORM TO CSA A371 AND UNDER NO CIRCUMSTANCES SHALL MASONRY CONSTRUCTION BE PERMITTED WHEN THE AIR TEMPERATURE FALLS BELOW -12°C.
4. **QUALITY CONTROL**
4.1. WHEN REQUESTED SAMPLING AND TESTING SHALL CONFORM TO CSA STANDARDS S304.1 AND ASTM C140. REFER ALSO TO GENERAL NOTES.

LINTEL NOTES — A07

UNLESS OTHERWISE SHOWN OR NOTED ON THE STRUCTURAL DRAWINGS, PROVIDE LINTELS OVER ALL OPENINGS IN MASONRY WALLS, AS FOLLOWS:
1. FOR OPENINGS UP TO 1200 mm (4'-0") CLEAR;
1.1. ONE ANGLE 90 x 90 x 6 (3 1/2" x 3 1/2" x 1/4") FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
OR
1.2. 200mm (8") DEEP MASONRY LINTEL BLOCK REINFORCED WITH 1-10M BOTTOM FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
2. FOR OPENINGS FROM 1200mm (4'-0") CLEAR TO 1800mm (6'-0") CLEAR;
2.1. ONE ANGLE 125 x 90 x 8 LONG LEG VERTICAL (5"x 3 1/2" x 5/16") FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
OR
2.2. 200mm (8") DEEP MASONRY LINTEL BLOCK REINFORCED WITH 1-15M BOTTOM FOR EACH 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
3. ALL LINTELS TO BEAR 150mm (6") MINIMUM AT EACH END ON SOLID MASONRY, UNLESS SHOWN OTHERWISE.
4. PAIRS OF LINTEL ANGLES ARE TO BE BOLTED OR WELDED TOGETHER, PRIOR TO SHIPMENT, AT MAXIMUM 450mm (18") CENTRES.
5. MASONRY LINTEL BLOCKS MAY ONLY BE USED IN LOAD-BEARING WALLS WITH PERMISSION AND MUST BE FILLED WITH 20 MPa CONCRETE. MORTAR IS NOT ACCEPTABLE AND WILL BE REJECTED.
6. STEEL LINTELS ARE TO BE SUPPLIED BY STEEL CONTRACTOR BUT PLACED BY GENERAL CONTRACTOR OR MASONRY SUB- CONTRACTOR.
7. STEEL CONTRACTOR TO SUPPLY ALL NECESSARY DIRECTIONS REQUIRED FOR PLACING STEEL LINTELS.
8. WHILE EVERY EFFORT HAS BEEN MADE TO SHOW ON THE STRUCTURAL DRAWINGS EACH AND EVERY LINTEL OVER DOORS, MECHANICAL AND ELECTRICAL SERVICES, RECESSES AND POCKETS ETC., THROUGH LOAD-BEARING MASONRY WALLS, IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO CO-ORDINATE AND SUPPLY ALL LINTELS REQUIRED THROUGH ALL WALLS (INCLUDING NON-LOAD BEARING WALLS) THROUGHOUT THE PROJECT. UNLESS OTHERWISE DIRECTED, LINTELS SHALL CONFORM TO THE ABOVE REQUIREMENTS.
9. REFER ALSO TO TYPICAL DETAILS.

CAST-IN-PLACE CONCRETE NOTES — A03.2

3.14 GENERAL REQUIREMENTS FOR CUTTING AND DRILLING INTO CONCRETE
(A) DO NOT DRILL INTO, CORE THROUGH, SAW-CUT OR CHIP THE CONCRETE STRUCTURE WITHOUT WRITTEN AUTHORIZATION BY THE STRUCTURAL CONSULTANT.
(B) UNLESS NOTED OTHERWISE, PRIOR TO CUTTING, CORING OR DRILLING INTO THE CONCRETE STRUCTURE, LOCATE EXISTING CONCRETE REINFORCEMENT AND EMBEDDED SERVICES AT THAT LOCATION USING SUITABLE SCANNING DEVICE (I.E. X-RAYS, GROUND PENETRATION RADAR (GPR), LOCAL CHIPPING OF SLAB - ONLY WHERE APPROVED BY THE STRUCTURAL CONSULTANT, ETC), AS AUTHORIZED BY PROPERTY MANAGER IF APPLICABLE
(C) GPR SCANNING MUST BE DONE BY TRAINED TECHNICIANS WITH AT LEAST 5 YEARS OF EXPERIENCE AS SUCH.
(D) GPR SCANNING DEVICES MUST BE CAPABLE OF ACCURATELY LOCATING REBAR IN A CONCRETE SLAB TO A MINIMUM DEPTH OF 300 mm, WITHIN A HORIZONTAL TOLERANCE OF +- 25 mm AND A VERTICAL (DEPTH) TOLERANCE OF THE LARGER OF +-25 mm OR +- 15% OF THE REBAR DEPTH.
(E) AFTER ALL THE EXISTING REINFORCEMENT AND SERVICES HAVE BEEN LOCATED, NOTIFY THE STRUCTURAL CONSULTANT, WHO WILL REVIEW AND APPROVE THE PROPOSED LOCATION OF OPENINGS, CORES OR DRILLED HOLES. MAKE ANY NECESSARY ADJUSTMENTS TO THE HOLE LOCATIONS AS DIRECTED BY THE STRUCTURAL CONSULTANT.
(F) THE REVIEW BY THE STRUCTURAL CONSULTANT IS LIMITED ONLY TO THE LOCATION OF THE PROPOSED CORES OR DRILLED HOLES THROUGH THE EXISTING STRUCTURE AND IT IS BASED ON THE ASSUMPTION THAT THE X-RAY OR SCAN RESULTS LOCATING SLAB REINFORCEMENT AND EMBEDDED SERVICES ARE COMPLETE AND ACCURATE. STEPHENSON EGINEERING LTD. TAKES NO RESPONSIBILITY FOR THE ACCURACY OF THE X-RAY OR SCAN RESULTS.
(G) CORE DRILL NEW HOLES FOR PIPES TO A DIAMETER NOT LARGER THAN THE OUTSIDE PIPE DIAMETER PLUS 25MM. DO NOT CUT EXISTING REINFORCEMENT OR SERVICES WITHOUT PRIOR APPROVAL OF THE CONSULTANT.
(H) WHERE RECTANGULAR OPENINGS ARE TO BE CUT, PRE-DRILL THE CORNERS USING A 100 MM DIAMETER CORE DRILL OR DRILL A SERIES OF HOLES TO PREVENT OVER CUTTING OF THE CORNERS.

4. QUALITY CONTROL
4.1 FOR INSPECTION AND TESTING, SEE GENERAL NOTES AND/OR SPECIFICATION.

STEEL DECK NOTES — A05

1. GENERAL
1.1. DESIGN, FABRICATION, HANDLING AND ERECTION SHALL CONFORM TO THE FOLLOWING STANDARDS:
1.1.a. CSA-S136
1.1.b. CSSBI 10M .... STANDARD FOR STEEL ROOF DECK.
1.1.c. CSSBI 12M .... STANDARD FOR COMPOSITE STEEL DECK.
1.1.d. ASTM A653 .... SPECIFICATIONS FOR STEEL SHEET, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY COATED (GALVANNEALED) BY THE HOT DIP PROCESS.
1.1.e. WELDING SHALL CONFORM TO CSA STANDARD W59 AND BE PERFORMED BY A FABRICATOR CERTIFIED TO CSA STANDARD W47.1.
1.2. THE STEEL DECK SHALL BE DESIGNED BY A LICENSED PROFESSIONAL ENGINEER. SHOP DRAWINGS AND CALCULATIONS BEARING THE STAMP AND SIGNATURE OF THE PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION AND ERECTION.
1.3. NO HANGERS OR BRACKETS SHALL BE HUNG DIRECTLY FROM THE FLOOR OR ROOF DECK. ALL POINT LOADS MUST BE APPLIED DIRECTLY TO STRUCTURAL STEEL FRAMING UNLESS OTHERWISE SHOWN OR APPROVED BY THE STRUCTURAL CONSULTANT.
1.4 WHEREVER STRUCTURAL FRAMING PERMITS, STEEL DECK SHALL BE DESIGNED AND FABRICATED TO SPAN CONTINUOUSLY OVER AT LEAST 4 SUPPORTS (3 SPANS). PROVIDE AN ADEQUATE INCREASE IN THICKNESS OF METAL TO COMPENSATE FOR CONTINUITY WHEREVER FEWER SUPPORTS MAY OCCUR. END LAPS TO BE 50mm (2") MIN. AND BE LOCATED OVER SUPPORTS.
1.5. ROOF DECK SHALL BE FORMED WITH INTEGRAL RIBS IN ORDER TO SAFELY SUPPORT THE LOADS GIVEN ON THE DRAWINGS OVER THE SPANS REQUIRED. DECK THICKNESS GIVEN ON DRAWINGS IS MINIMUM ASSUMED ALLOWABLE THICKNESS AND MUST BE DESIGNED BY THE DECK SUPPLIER.
1.5.a. DEFLECTION OF ROOF DECK UNDER LIVE OR SNOW LOAD ONLY SHALL NOT EXCEED 1/300TH OF SPAN.
1.6. FLOOR DECK SHALL BE FORMED WITH INTEGRAL RIBS AND EMBOSSMENTS FOR COMPOSITE ACTION WITH CONCRETE SLAB IN ORDER TO SAFELY SUPPORT THE LOADS GIVEN ON THE DRAWINGS OVER THE SPANS REQUIRED. IN ADDITION, THE DECK SHALL SAFELY SUPPORT ALL CONSTRUCTION LOADS WITH NO SHORING UNTIL CONCRETE IS SET. DECK THICKNESS GIVEN ON DRAWINGS IS MINIMUM ALLOWED.
1.6.a. DEFLECTION OF COMPOSITE FLOOR UNDER LIVE LOAD ONLY SHALL NOT EXCEED 1/360TH OF SPAN.
1.7. DESIGN AND DETAIL ON SHOP DRAWINGS ALL CONNECTIONS TO SUPPORTING MEMBERS FOR ALL COMBINATIONS OF DIAPHRAGM SHEAR AND UPLIFT FORCES ACTING ON THE ROOF DECK.
2. PRODUCTS
2.1. UNLESS OTHERWISE NOTED ROOF DECK AND / OR COMPOSITE DECK SHALL BE FORMED OF METALLIC COATED SHEET STEEL CONFORMING TOASTM A653/ A653M, STRUCTURAL QUALITY GRADE ' 230' WITH A ZF75 ZINC COATING, (GALVANNEAL).
2.2. UNLESS OTHERWISE NOTED DECK SHALL BE SINGLE FLUTED ELEMENT WITH INTEGRAL RIBS OF DEPTH AND MIN. BASE NOMINAL THICKNESS (BNT) AS NOTED ON THE DRAWINGS. DECK SHALL HAVE INTERLOCKING SIDE JOINTS BETWEEN PANELS. (MIN.. BNT. 0.76mm (0.30")).
2.3. COVER PLATES, CELL CLOSURES, FLASHINGS AND REINFORCING STIFFENERS FOR UNSUPPORTED EDGES TO BE SUPPLIED OF SIMILAR MATERIAL AND ZINC COATING TO THAT FOR DECK, UNLESS NOTED.
2.4. PRIMER PAINT TO BE ZINC RICH, READY MIX TO CAN/ CGSB-1.181 FOR FIELD "TOUCH-UP" OF WELD BURNS AFTER DECK IS INSTALLED.
2.5. UNLESS OTHERWISE SHOWN FOR OPENINGS THROUGH ROOF DECK FROM 150mm TO 450mm (6" TO 18") ACROSS THE FLUTES THE DECK SUPPLIER SHALL PROVIDE NOT LESS THAN A 51x51X6.4 ANGLE (2"x2"x 1/4 L). REINFORCEMENT TO FRAME ACROSS EACH SIDE OF THE OPENING PERPENDICULAR TO THE FLUTES, WELDED TO AT LEAST TWO FLUTES EACH SIDE OF THE OPENING.
2.6. FOR ROOF OPENINGS OVER 450mm (18") ACROSS THE FLUTES AND FOR AREAS OF CONCENTRATED LOAD, REINFORCE IN ACCORDANCE WITH STRUCTURAL FRAMING DETAILS SHOWN ON PLANS OR TYPICAL DETAILS.
3. EXECUTION
3.1. SUPPLY AND PLACE STEEL PACKING AS REQUIRED TO PRODUCE AN EVEN BEARING PRESSURE AT SUPPORTS.
3.2. FOR STEEL ROOF DECK, UNLESS OTHERWISE DETERMINED DURING THE DIAPHRAGM AND UPLIFT CONNECTION DESIGN OR SPECIFIED OTHERWISE IN THE SPECIFICATIONS OR ENGINEERING DRAWINGS, THE MINIMUM ATTACHMENT OF THE DECK TO THE BEARING SURFACES AND THE MINIMUM SIDE LAP CONNECTIONS BETWEEN DECK UNITS SHALL BE:
3.2.A. FOR 38mm DEEP DECK PROFILES, CONNECT THE FIRST, THIRD, FIFTH AND SEVENTH LOW CORRUGATIONS (36/4 CONFIGURATION), AND EACH SUPPORT PARALLEL TO FLUTE DIRECTION AT 300mm [12"] MAXIMUM CENTERS. CONNECTIONS SHALL BE MADE USING EITHER AN ARC SPOT WELD WITH 20mm [3/4"] NOMINAL TOP DIAMETER, OR MECHANICALLY FASTENED USING HILTI POWDER ACTUATED FASTENERS (X-HSN24, HILTI X-ENP19, OR EQUIVALENT).
3.2.B. FOR 76mm DEEP DECK PROFILES, CONNECT THE FIRST, THIRD AND FIFTH LOW CORRUGATIONS (24/3 CONFIGURATION), AND EACH SUPPORT PARALLEL TO FLUTE DIRECTION AT 300mm [12"] MAXIMUM CENTERS. CONNECTIONS SHALL BE MADE USING EITHER AN ARC SPOT WELD WITH 20mm [3/4"] NOMINAL TOP DIAMETER, OR MECHANICALLY FASTENED USING HILTI POWDER ACTUATED FASTENERS (X-HSN24, HILTI X-ENP19, OR EQUIVALENT).
3.2.C. FOR ROOF DECKS, SIDE LAPS OF ADJACENT NESTABLE UNITS SHALL BE CRIMPED TOGETHER AT 900mm [36"] CENTRES, OR FASTENED WITH HILTI M HWH SCREWS (SLC01, SLC02, OR EQUIVALENT).
3.3. FOR STEEL FLOOR DECK, UNLESS OTHERWISE DETERMINED DURING THE DIAPHRAGM CONNECTION DESIGN OR SPECIFIED OTHERWISE IN THE SPECIFICATIONS OR ENGINEERING DRAWINGS, THE MINIMUM ATTACHMENT OF THE DECK TO THE BEARING SURFACES AND THE MINIMUM SIDE LAP CONNECTIONS BETWEEN DECK UNITS SHALL BE:
3.3.A. SIDE LAPS OF ADJACENT FLOOR UNITS SHALL BE CRIMPED TOGETHER AT 600mm [24"] MAXIMUM ON CENTRE, BUT NOT EXCEEDING THE SPACING REQUIRED FOR THE APPLICABLE ULC FIRE RATED ASSEMBLY.
3.3.B. DECK SUPPORTS PARALLEL AND PERPENDICULAR TO FLUTES SHALL BE WELDED WITH 20mm [3/4"] WELDS AT 300mm [12"] MAXIMUM SPACING, BUT NOT EXCEEDING THE SPACING REQUIRED FOR THE APPLICABLE ULC FIRE RATED ASSEMBLY.
3.3.C. THE REQUIRED PUDDLE WELDS AT SUPPORTS MAY BE SUBSTITUTED WITH POWDER ACTUATED FASTENERS THAT PROVIDE EQUIVALENT DIAPHRAGM SHEAR CAPACITY PER METRE.
3.4. INSTALL ALL POWDER ACTUATED AND SCREW FASTENERS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
3.5. WELD STUD SHEAR CONNECTORS THROUGH DECK WHERE REQUIRED BY DRAWINGS.
3.6. "TOUCH-UP" GALVANIZED OR GALVANNEALED SURFACES WITH SPECIFIED PRIMER AT WELDS AND SCRAPES, ETC., BOTH UPPER AND LOWER SURFACES.
3.7. DO NOT SUSPEND CEILING OR MECHANICAL/ELECTRICAL SERVICES FROM U/S OF STEEL DECK.
4. QUALITY CONTROL
4.1. AN INDEPENDENT INSPECTION AND TESTING COMPANY IS TO BE ENGAGED TO CARRY OUT AND REPORT ON THE FOLLOWING INSPECTION SERVICES:
4.1.a. SECTION PROFILE, GAUGE AND STEEL GRADE.
4.1.b. ZINC COATING.
4.1.c . WELDED JOINTS.
4.1.d. BEARINGS.
4.1.e. SIDE LAP CONNECTIONS.
4.1.f. TOUCH-UP PRIMER.
4.1.g. FIELD CUTTING AND/OR ALTERATIONS.
4.2. REFER ALSO TO THE GENERAL NOTES, SPECIFICATIONS, AND TERMS OF REFERENCE FOR ADDITIONAL INFORMATION.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/18/20

PROJECT :
YORK REGION PRS STATION #29 T-18-137
107 GLEN CAMERON ROAD, MARKHAM

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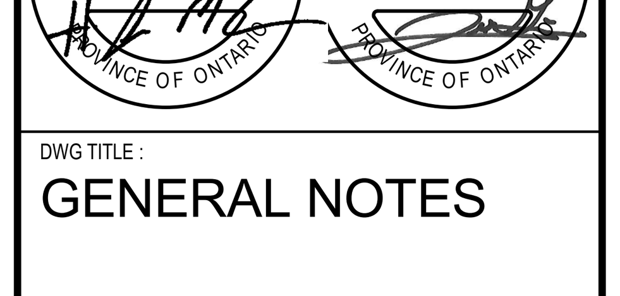
PROFESSIONAL SEAL :


DWG TITLE :
GENERAL NOTES

DATE : FEB. 2020
SCALE : 1 : 1
DRAWN BY: -
CHECKED BY : HAM / JG
DESIGNED BY: MM
DWG STATUS : IFC
PROJECT No. : 20160760
DRAWING No. : S4-01
REVISION

2020-02-18 3:09:02 PM

TYPICAL CONCRETE COVER TABLE — C01

ELEMENTS EXPOSED TO EARTH	PROJECT SPECIFIC COMMENTS	BAR SIZE	COVER (mm)
PERMANENTLY EXPOSED TO SOIL (SIDE AND TOP OF FOOTINGS)		ALL SIZES	50
CAST AGAINST AND PERMANENTLY EXPOSED TO SOIL (UNDERSIDES OF FOOTINGS)		ALL SIZES	75

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 VERTICAL ELEMENTS 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

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.

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

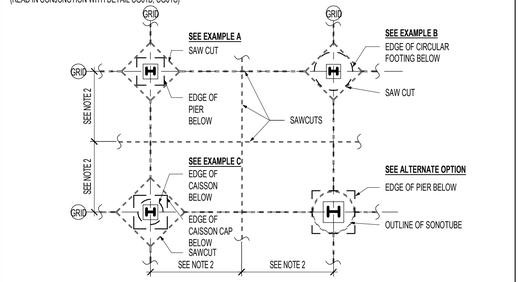
TDL: TENSION DEVELOPMENT LENGTH (mm) CLASS "A" LAP SPLICE

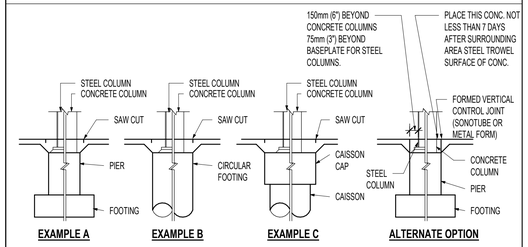
f'c	UNCOATED BLACK BAR											
	10M		15M		20M		25M		30M		35M	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
20MPa	420	330	630	490	840	650	1310	1010	1570	1210	1840	1410
25MPa	380	300	570	440	750	580	1170	900	1410	1080	1640	1260
30MPa	350	300	520	400	690	530	1070	830	1290	990	1500	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)

SLAB ON GRADE DETAILS — CG01A

(READ IN CONJUNCTION WITH DETAIL CG01B, CG01C)

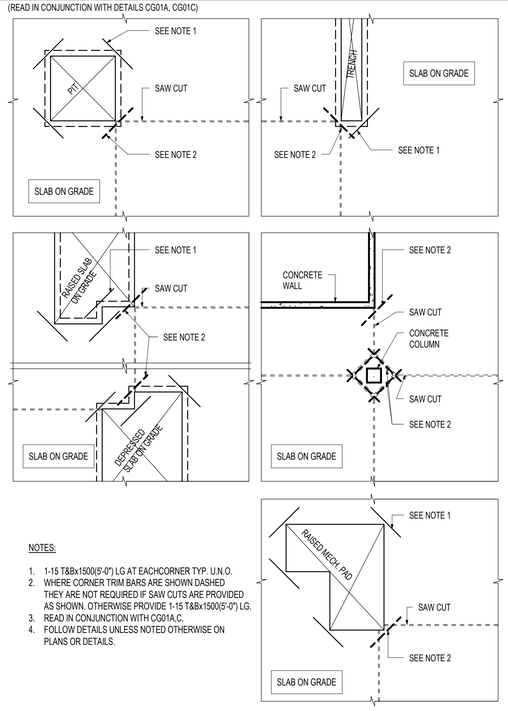




NOTES:
1. SAWCUTTING TO BE DONE AS SOON AS POSSIBLE AFTER SLAB IS PLACED. (MAX. 24 HOURS).
2. JOINTS TO BE AT MAX. 24x SLAB THICKNESS FOR MAXIMUM AGGREGATE SIZE SMALLER THAN 19mm(¾") AND 30 TIMES SLAB THICKNESS FOR AGGREGATE SIZE LARGER THAN 19mm (¾"),BUT NOT MORE THAN 4500mm (14'-9")
3. MAXIMUM RATIO 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.

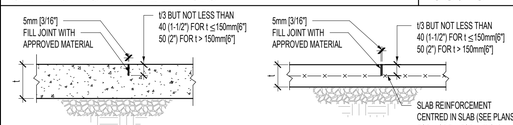
SLAB ON GRADE DETAILS — CG01B

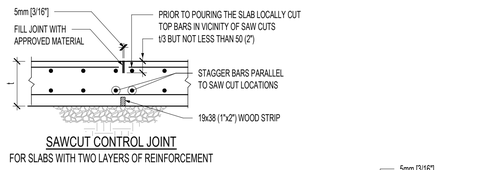
(READ IN CONJUNCTION WITH DETAILS CG01A, CG01C)

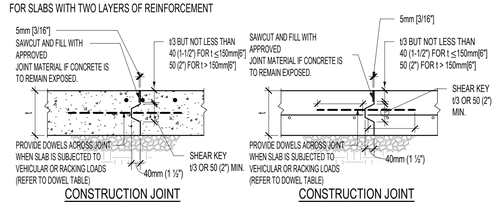


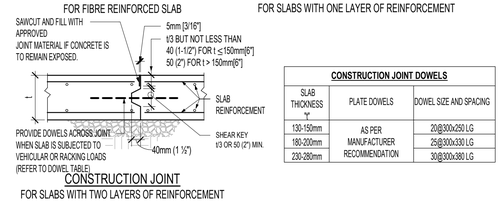
NOTES:
1. 1-15 T&Bx1500(5'-0") LG AT EACHCORNER TYP. U.N.O.
2. WHERE CORNER TRIM BARS ARE SHOWN DASHED THEY ARE NOT REQUIRED IF SAW CUTS ARE PROVIDED AS SHOWN. OTHERWISE PROVIDE 1-15 T&Bx1500(5'-0") LG.
3. READ IN CONJUNCTION WITH CG01A,C.
4. FOLLOW DETAILS UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.

SLAB ON GRADE DETAILS — CG01C





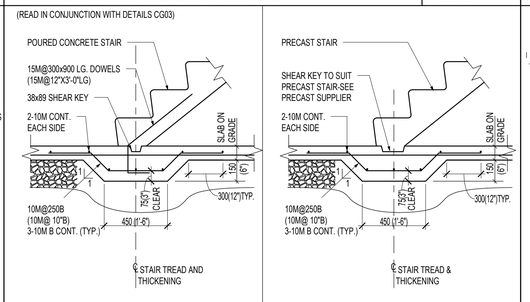


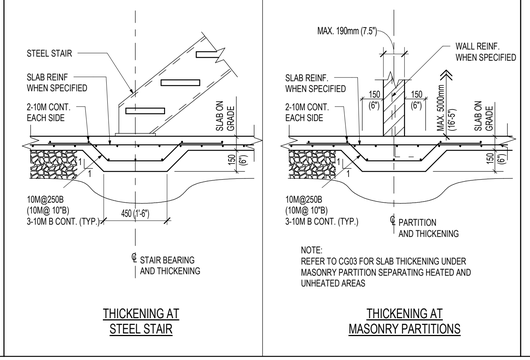


CONSTRUCTION JOINT DOWELS		
SLAB THICKNESS 'T'	PLATE DOWELS	DOWEL SIZE AND SPACING
130-150mm	AS PER MANUFACTURER RECOMMENDATION	20@300x250 LG
180-200mm		25@300x330 LG
230-280mm		30@300x380 LG

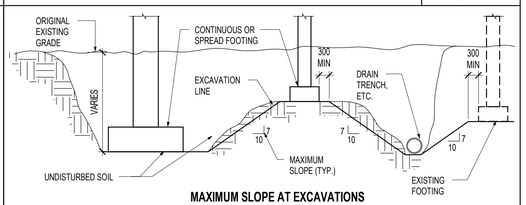
THICKENING OF SLAB ON GRADE — CG02

(READ IN CONJUNCTION WITH DETAILS CG03)

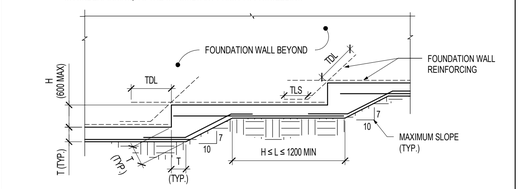




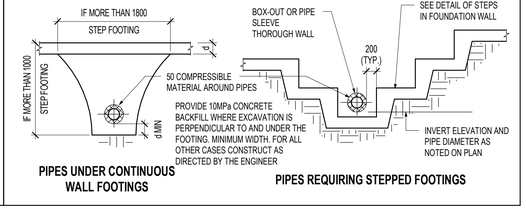
STEPPED FOUNDATION AND CONSTRUCTION EXCAVATION — T-F09



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



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



The Contractor shall verify all dimensions prior to commencement of the work. All print and specifications are the property of the Structural Engineer and must be returned upon completion of the work.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT: YORK REGION PRS STATION #29 T-18-137
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PROFESSIONAL SEAL:
LICENSED PROFESSIONAL ENGINEERS 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

DWG TITLE: TYPICAL DETAILS

DATE:	FEB. 2020
SCALE:	1 : 1
DRAWN BY:	-
CHECKED BY:	HAM / JG
DESIGNED BY:	MM
DWG STATUS:	IFC
PROJECT No.:	20160760
DRAWING No.:	S4-02
REVISION	

2020-02-18 3:09:05 PM

NON-LOAD BEARING BLOCK WALL LINTELS — M01A

STRUCTURAL STEEL LINTELS

WALL OPENING CLEAR SPAN	MASONRY BLOCK THICKNESS				
	90 (4")	140 (6")	190 (8")	240 (10")	290 (12")
300mm TO 500mm (12" TO 22")	75mm X 8mm PL (3"x5/16" PL)	125mm X 8mm PL (5"x5/16" PL)	175mm X 8mm PL (7"x5/16" PL)	225mm X 8mm PL (9"x5/16" PL)	275mm X 8mm PL (11"x5/16" PL)
550mm TO 1200mm (22" TO 4'-0")	1-L89x89x6.4 OR 2-L44x44x4.8	1-L127x89x6.4 (LLH) OR 2-L64x44x6.4	2-L89x89x6.4	2-L102x89x6.4 (LLH)	3-L89x89x6.4
1200mm TO 1830mm (4'-0" TO 6'-0")	1-L127x89x7.9 (LLV) OR 2-L51x38x6.4(LLV)	1-L127x127x7.9 OR 2-L89x64x6.4 (LLV)	2-L127x89x7.6 (LLV)	2-L102x102x7.9	3-L127x89x7.9 (LLV)
1830mm TO 2440mm (6'-0" TO 8'-0")	1-L127x89x7.9 (LLV)	1-L127x127x7.9 OR 2-L89x64x6.4 (LLV)	2-L127x89x7.6 (LLV)	2-L152x102x7.9 (LLV)	N/A
2440mm TO 3080mm (8'-0" TO 10'-0")	1-L127x89x9.5 (LLV)	1-L127x127x7.9	W200x27 + 175x6.4 PL. BOTTOM	W200x27 + 225x6.4 PL. BOTTOM	N/A
3080mm TO 3660mm (10'-0" TO 12'-0")	N/A	N/A	W200x27 + 175x6.4 PL. BOTTOM	W200x27 + 225x6.4 PL. BOTTOM	N/A

STRUCTURAL STEEL LINTEL NOTES:

1. WHEN PROVIDING MULTIPLE ANGLES SEE DIAGRAMS FOR ORIENTATION. BOLT DOUBLE ANGLES BACK TO BACK USING 16mmØ BOLTS OR PROVIDE 6mmX50mm (1/4"x2") LONG WELDS @450mm (18") O/C STARTING AT 100mm (4") MAX FROM THE EACH END OF THE LINTEL.
2. SAWCUT WEBS OF BLOCK IN COURSE OF BLOCK OVER OPENING AS NECESSARY TO INSTALL ANGLES.
3. ALTERNATIVES PROVIDED FOR CASES WHERE EXPOSED FACE OF SINGLE ANGLE IS NOT ACCEPTABLE.

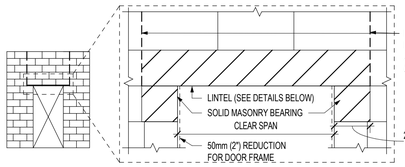
MASONRY BEAM LINTELS

WALL OPENING CLEAR SPAN	MASONRY BLOCK THICKNESS				
	90 (4")	140 (6")	190 (8")	240 (10")	290 (12")
0mm TO 1200mm (0" TO 4'-0")	190 (8") DEEP 1-10M T&B	190 (8") DEEP 1-10M T&B	190 (8") DEEP 2-10M T&B	190 (8") DEEP 2-10M T&B	190 (8") DEEP 2-10M T&B
1200mm TO 1830mm (4'-0" TO 6'-0")	190 (8") DEEP 1-15M T&B	190 (8") DEEP 1-15M T&B	190 (8") DEEP 2-10M T&B	190 (8") DEEP 2-10M T&B	190 (8") DEEP 2-10M T&B
1830mm TO 2440mm (6'-0" TO 8'-0")	N/A	190 (8") DEEP 1-15M T&B	190 (8") DEEP 2-15M T&B	190 (8") DEEP 2-15M T&B	190 (8") DEEP 2-15M T&B
2440mm TO 3080mm (8'-0" TO 10'-0")	N/A	390 (16") DEEP 2-15M T&B	390 (16") DEEP 2-15M T&B	390 (16") DEEP 2-15M T&B	390 (16") DEEP 2-15M T&B

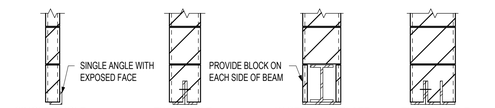
MASONRY BEAM LINTEL NOTES:

1. BEAM MUST BE FILLED WITH 20MPa TYPE N CONCRETE OR APPROVED GROUT EQUIVALENT (MORTAR IS NOT ACCEPTABLE).
2. TEMPORARILY SHORE LINTEL UNTIL GROUT HAS REACHED FULL DESIGN STRENGTH.

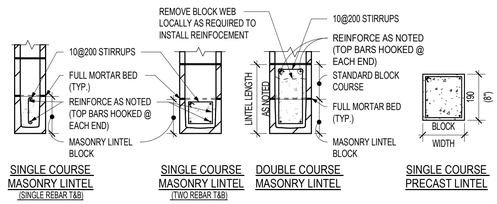
NON-LOAD BEARING BLOCK WALL LINTEL DETAILS — M01B



LINTEL DETAILS

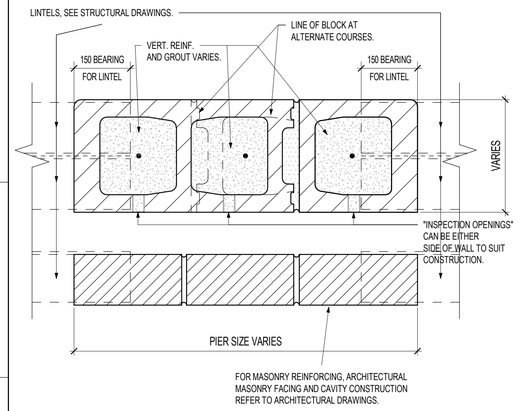


STRUCTURAL STEEL LINTEL DETAILS



MASONRY AND PRECAST BEAM LINTEL DETAILS

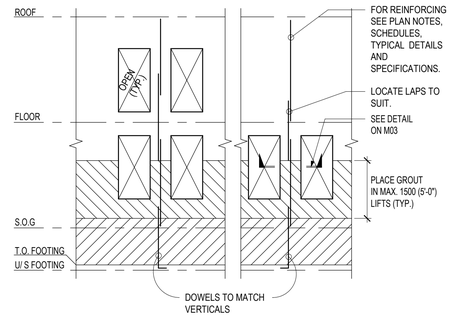
TYPICAL REINFORCED EXTERIOR MASONRY WALLS AND PIERS PLAN DETAIL — M03



NOTE:

1. GROUT TO CONFORM TO REQUIREMENTS OF CSA STANDARD A179-M CLAUSE 8.1 TABLE 3 "FINE GROUT". SLUMP SHALL BE ≥200mm AND COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 15 MPa @ 28 DAYS.
2. COMPRESSIVE TESTING OF GROUT SHALL BE CARRIED OUT BY THE APPROVED INSPECTION AND TESTING COMPANY IN ACCORDANCE WITH CSA STANDARD A179-M. PREPARE A MINIMUM 3 TESTS FOR EACH STOREY OF CONSTRUCTION. 1 TEST SHALL COMPRISE OF 3 CUBES FOR TESTING, 1 AT 7 DAYS AND 2 AT 28 DAYS.
   NOTE: - MORTAR IS NOT ACCEPTABLE FOR USE AS GROUT , AND IF USED PIERS SHALL BE REJECTED AND RE-CONSTRUCTED.
3. ALL CELLS CONTAINING VERTICAL REINFORCING SHALL BE COMPLETELY FILLED WITH GROUT IN LIFTS NOT EXCEEDING 2400mm.GROUT SHALL BE CONSOLIDATED BY PUDDLING OR VIBRATING DURING POURING.
4. AT EACH LIFT "INSPECTION" OPENINGS SHALL BE PROVIDED AT THE BOTTOMS OF CELLS TO BE FILLED. THE CLEANOUTS SHALL BE INSPECTED BY THE ENGINEER BEFORE BEING SEALED.
5. SEE TYPICAL DETAIL ELEVATION M04.

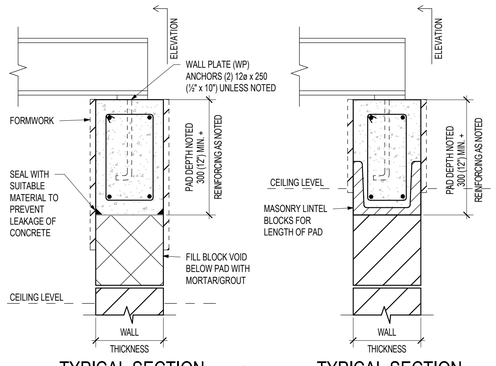
TYPICAL ELEVATION REINFORCED MASONRY WALLS AND PIERS — M04



NOTE:

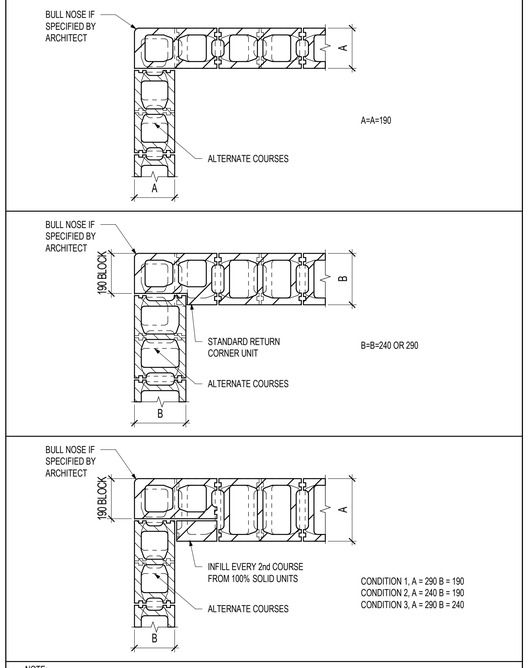
- PROVIDE MINIMUM LAP SPLICES FOR VERTICAL REINFORCING (BASED ON 15MPa GROUT):
  - 10M - 500mm (20")
  - 15M - 700mm (2'-4")
  - 20M - 1000mm (3'-4")
- LAP ALL HORIZONTAL LADDER TYPE REINFORCING 500mm.
  - ANY CROSSWIRES WITHIN LAP LENGTH SHALL BE REMOVED.
  - LAPS SHALL BE STAGGERED A MINIMUM OF 750mm FROM COURSE TO COURSE.

TYPICAL CONCRETE PAD UNDER STEEL BEAM BEARING ON MASONRY WALL — M05



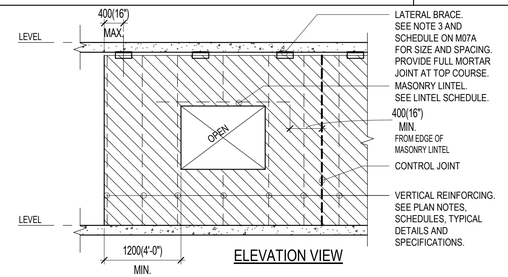
NOTE:
1. REFER TO PLANS FOR LOCATION OF PADS.
2. CONCRETE STRENGTH 25 MPa (CLASS N) UNLESS NOTED.

TYPICAL DETAIL OF CONSTRUCTED CORNERS IN SINGLE WYTHE MASONRY WALLS (NO CONTROL JOINT) — M06



NOTE:
1. PROVIDE PREFABRICATED CORNERS FOR HORIZONTAL JOINT REINFORCING (TYPICAL).
2. REFER TO TYPICAL LOAD BEARING MASONRY NOTES AND TO THE SPECIFICATION FOR MASONRY MATERIALS AND FOR HORIZONTAL JOINT REINFORCING

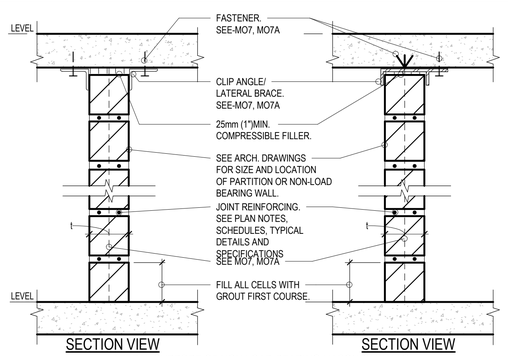
TYPICAL MASONRY WALL REINFORCING SCHEDULE NOTES AND DETAIL — M07



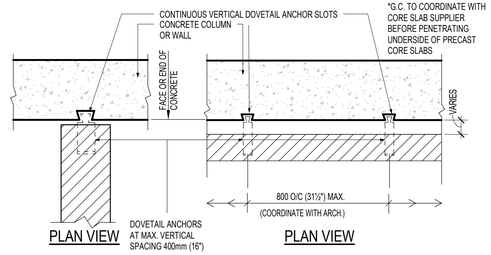
NOTES:

1. PROVIDE ADDITIONAL REINFORCING IN THE TOP COURSE AND THE FIRST TWO COURSES ABOVE AND BELOW WALL OPENING. THE REINFORCING SHALL EXTEND 600mm (24") BEYOND SUCH OPENINGS. COORDINATE WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR TYPE AND FINISHES.
2. PROVIDE VERTICAL REINFORCEMENT AS NOTED ABOVE AND ADD 1-15M AT END OR CORNER OF WALL, SIDES OF DOOR AND WINDOW OPENINGS, AND CONTROL AND EXPANSION JOINTS. VERTICAL REINFORCEMENT TO BE FULL HEIGHT OF WALL AND ALL CELLS WITH VERTICAL REINFORCEMENT TO BE FILLED SOLID WITH GROUT.
3. SEE SCHEDULE ON DETAILS M14 OR M07B FOR THICKNESS AND SPACING OF LATERAL BRACE AT TOP OF WALL. ALL WALL BRACES SHALL BE GALVANIZED LATERAL BRACES 200mm(8") LONG WITH 75mm(3") VERTICAL LEG.
4. REFER TO M14 FOR TYPICAL LATERAL SUPPORT DETAIL AT PARTITIONS FOR STEEL STRUCTURES AND M07B FOR TYPICAL LATERAL SUPPORT DETAIL AT PARTITIONS FOR CONCRETE STRUCTURES.
5. REFER TO TYPICAL DETAIL M07B FOR CONNECTION OF MASONRY WALL ABUTTING CONCRETE OR MASONRY WALL FACING CONCRETE.
6. PROVIDE DOWELS, 1200mm (4'-0")LONG. SIZE AND SPACING TO MATCH VERTICAL WALL REINFORCEMENT.
7. COMPLETELY FILL REINFORCED CELLS WITH GROUT HAVING MINIMUM 28 DAYS STRENGTH OF 15MPa.
8. ADD HORIZONTAL BOND BEAM AT EACH FLOOR AND ROOF LEVEL.

DETAILS OF NON LOAD-BEARING MASONRY WALLS AT CONCRETE SLAB AND WALL — M07B



LATERAL SUPPORT OF NON LOAD-BEARING MASONRY WALLS AT UNDERSIDE OF CONCRETE SLABS/PRECAST CORE SLABS*



ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT : YORK REGION PRS STATION #29 T-18-137

107 GLEN CAMERON ROAD, MARKHAM

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PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO

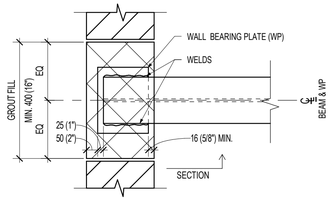
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

DWG TITLE : TYPICAL DETAILS

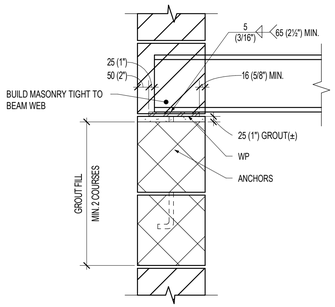
DATE :	FEB. 2020
SCALE :	1 : 1
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S4-03
REVISION	

2020-02-18 3:09:06 PM

TYPICAL STEEL BEAM BEARING ON MASONRY WALL (PERPENDICULAR) — M08



PLAN VIEW



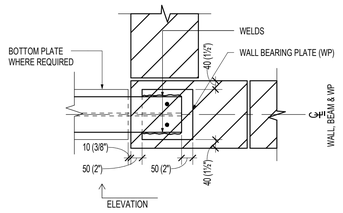
TYPICAL SECTION

NOTE:

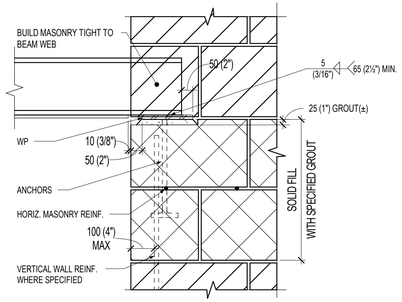
REFER TO TYPICAL DETAILS, TYPICAL NOTES, SPECIFICATION PLANS AND SCHEDULES FOR:

- WP SIZE AND SIZE/NUMBER OF ANCHORS
- VERTICAL WALL REINFORCING
- GROUT MIX AND EXTENT OF GROUT

TYPICAL STEEL BEAM BEARING ON END OR CORNER OF MASONRY WALL (MINIMUM REQUIREMENTS) — M09



PLAN VIEW



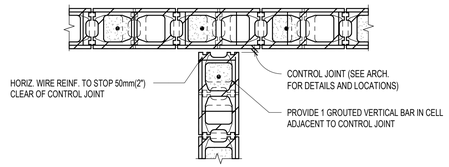
ELEVATION

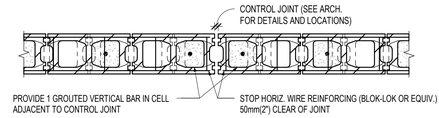
NOTE:

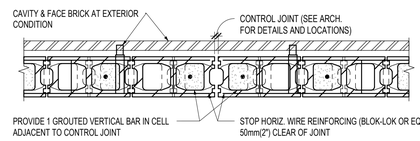
REFER TO TYPICAL DETAILS, TYPICAL NOTES, SPECIFICATION PLANS AND SCHEDULES FOR:

- WP SIZE AND SIZE/NUMBER OF ANCHORS
- VERTICAL WALL REINFORCING
- GROUT MIX AND EXTENT OF GROUT

TYPICAL DETAIL AT CONTROL JOINT IN REINFORCED MASONRY WALL — M10

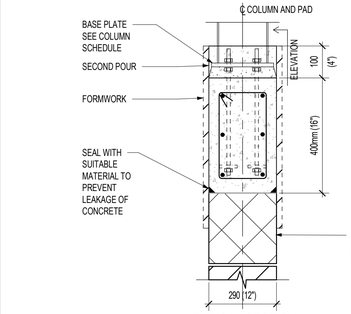






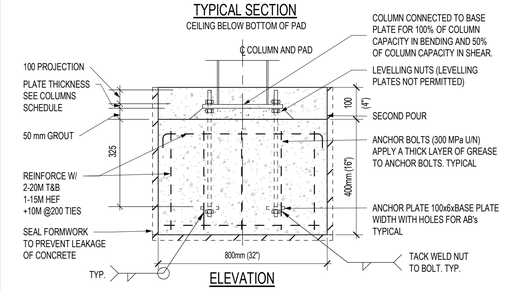
NOTE:
1. AT MASONRY LINTEL BOND BEAM STOP HORIZ. BARS 50mm (2") CLEAR OF CONTROL JOINT. UNLESS OTHERWISE NOTED.
2. SEE PLANS AND TYPICAL NOTES FOR VERTICAL REINFORCING AND GROUT

TYPICAL CONCRETE PAD UNDER STEEL COLUMN BEARING ON MASONRY WALL — M11



TYPICAL SECTION

CEILING BELOW BOTTOM OF PAD



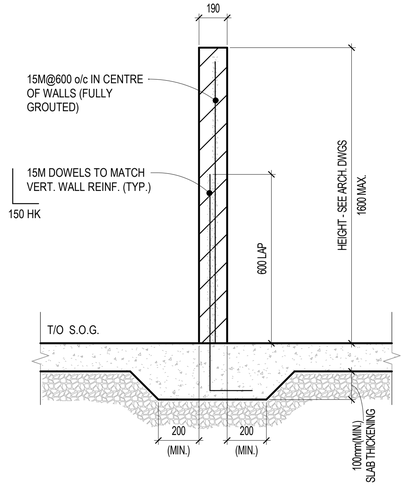
ELEVATION

TYPICAL CONCRETE PAD AT COLUMN BEARING ON MASONRY WALL

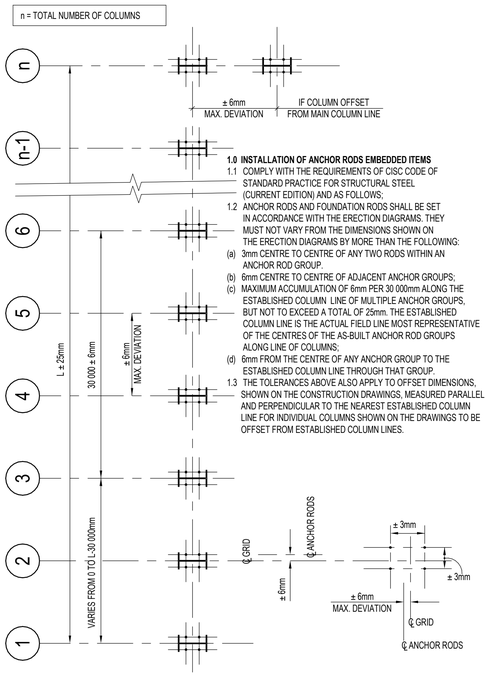
NOTE:
1. REFER TO PLANS FOR LOCATION OF PADS.
2. CONCRETE STRENGTH 25 MPa (CLASS N) UNLESS NOTED.

TYPICAL LOW BLOCK PARTITION WALL SUPPORT DETAIL — M12

ENGINEER TO CONFIRM MAXIMUM HEIGHT OF WALL. REVISE VERTICAL REINFORCING TO SUIT HEIGHT AND BLOCK WIDTH



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.

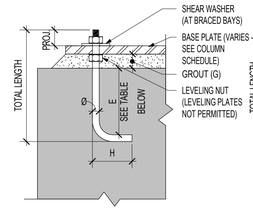
(b) 6mm CENTRE TO CENTRE OF ADJACENT ANCHOR GROUPS;

(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.

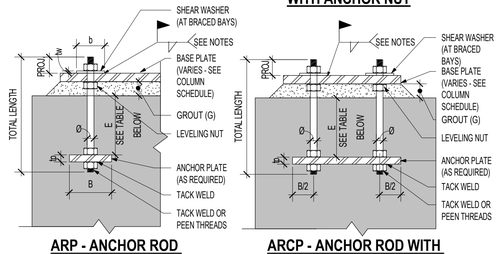
1.3 THE TOLERANCES ABOVE ALSO APPLY TO OFFSET DIMENSIONS, SHOWN ON THE CONSTRUCTION DRAWINGS, MEASURED PARALLEL AND PERPENDICULAR TO THE NEAREST ESTABLISHED COLUMN LINE FOR INDIVIDUAL COLUMNS SHOWN ON THE DRAWINGS TO BE OFFSET FROM ESTABLISHED COLUMN LINES.

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 (G)	ANCHOR PLATE		PROJ.	SHEAR WASHER	
MARK	TYPE	DIA (Ø)	EMBED (E)	HOOK (H)	THICKNESS	WIDTH (B)	THICK (tp)	(MAX)	WIDTH (b)	THICK (tw)
AR1										
AR2										
AR3										
AR4										
AR5										
AR6										
AR7										
AR8										
AR9										
AR10										

NOTES:
1. DESIGN CONNECTION OF SHEAR WASHER TO BASE PLATE FOR ANCHOR ROD SHEAR CAPACITY IN BOTH DIRECTIONS.

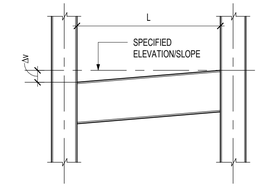
ERECTION TOLERANCES FOR STEEL BEAMS — SB02A

(READ IN CONJUNCTION WITH SB02B)

1. VERTICAL DEVIATION FROM SPECIFIED ELEVATION/SLOPE.

FLOOR BEAMS: Δv = ± 10mm (3/8") OR = L/500

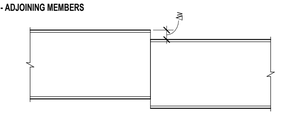
MEMBERS WITH ADJUSTABLE CONNECTIONS: Δv = ± 6mm (1/4") OR = L/1000



2. VERTICAL DEVIATION FROM SPECIFIED ELEVATION - ADJOINING MEMBERS

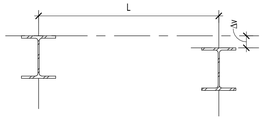
FLOOR BEAMS: Δv = ±6mm (1/4")

MEMBERS WITH ADJUSTABLE CONNECTIONS: Δv = ±2mm (3/32")



3. VERTICAL DEVIATION FROM ADJACENT BEAMS

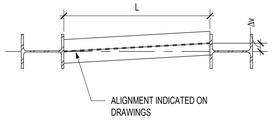
FLOOR BEAMS: Δv = L/1000



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.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT : YORK REGION PRS STATION #29 T-18-137

107 GLEN CAMERON ROAD, MARKHAM

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PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

DWG TITLE : TYPICAL DETAILS

DATE : FEB. 2020

SCALE : 1 : 1

DRAWN BY: -

CHECKED BY : HAM / JG

DESIGNED BY: MM

DWG STATUS : IFC

PROJECT No. : 20160760

DRAWING No. : S4-04

REVISION

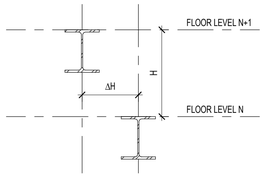
2020-02-18 3:09:07 PM

ERECTION TOLERANCES FOR STEEL BEAMS — SB02B

(READ IN CONJUNCTION WITH SBB02A)

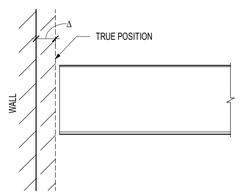
5. HORIZONTAL DEVIATION FROM ADJACENT BEAMS

FOR H < 3000mm (10'-0"): ΔH = ±5mm (3/16")
FOR H > 3000mm (10'-0"): ΔH = H/600



6. HORIZONTAL DEVIATION FROM SUPPORT POINT AT VERTICAL WALL

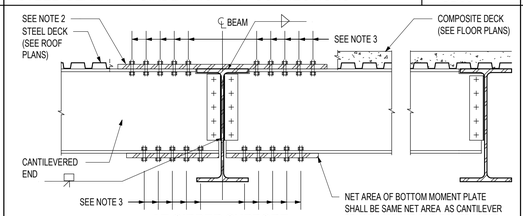
Δ = ±25mm (1")



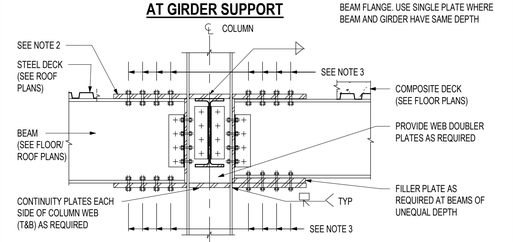
NOTES

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.

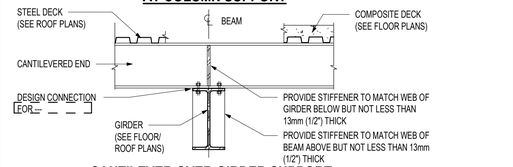
STEEL BEAM AND GIRDER MOMENT CONNECTIONS — SB03



AT GIRDER SUPPORT



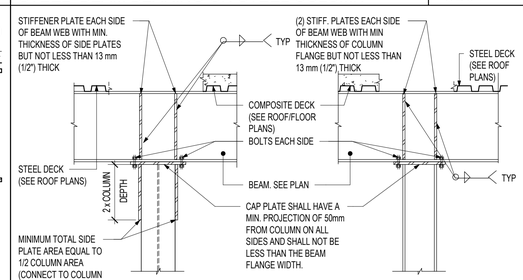
AT COLUMN SUPPORT



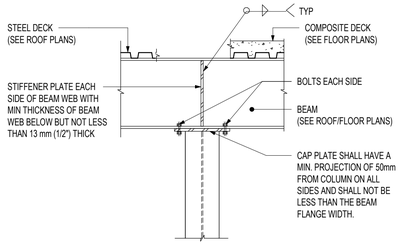
CANTILEVER OVER GIRDER SUPPORT

NOTE:
1. THE STRUCTURAL STEEL CONTRACTOR IS SOLELY RESPONSIBLE FOR THE FINAL SPLICE 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. SLIP CRITICAL BOLTS TO DEVELOP FULL MOMENT CAPACITY OF BEAM, UNLESS NOTED OTHERWISE

STEEL BEAM BEARING ON STEEL COLUMN — SB04



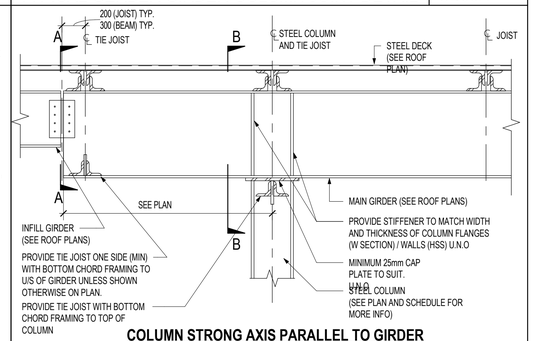
COLUMN WEB PERPENDICULAR TO BEAM WEB | **COLUMN WEB PARALLEL TO BEAM WEB**



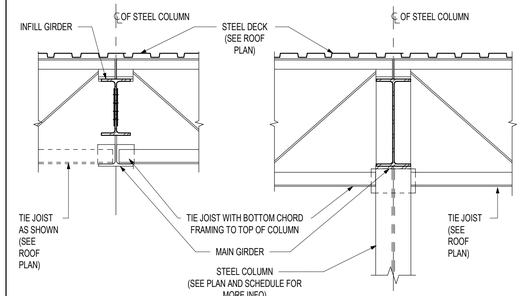
COLUMN WEB PERPENDICULAR TO BEAM WEB

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.

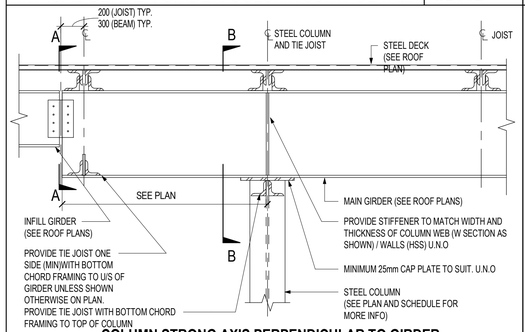
TYPICAL GERBER GIRDER-COLUMN JOINT DETAIL — SB05A



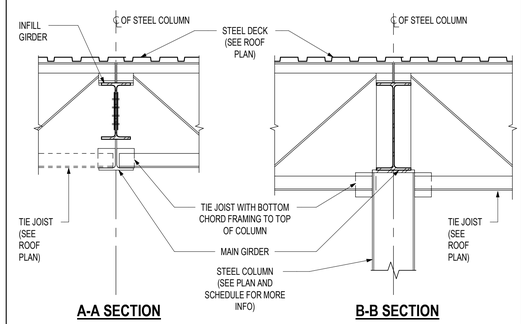
COLUMN STRONG AXIS PARALLEL TO GIRDER



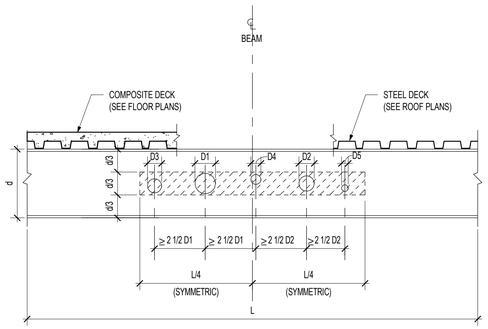
TYPICAL GERBER GIRDER-COLUMN JOINT DETAIL — SB05B



COLUMN STRONG AXIS PERPENDICULAR TO GIRDER



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)
2. ALL OPENINGS TO BE SHOWN ON SHOP DRAWINGS SUBMITTED FOR REVIEW.

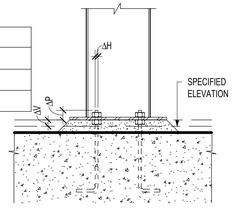
ERECTION TOLERANCES FOR STEEL COLUMNS — SC01A

(READ IN CONJUNCTION WITH SC01B, SAB02)

1. VERTICAL DEVIATION FROM SPECIFIED ELEVATION.

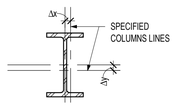
ΔP = + 30mm (1 3/16") = - 5mm (3/16")
ANCHOR BOLTS: ΔH = 3mm (1/8")
ΔV = ± 5mm (3/16") "SIMPLE CONSTRUCTION
BASE PLATE: = ± 3mm (1/8") "CONTINUOUS CONSTRUCTION

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

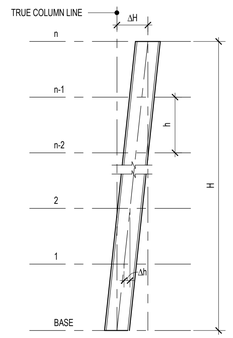


2. HORIZONTAL DEVIATION FROM SPECIFIED POSITION.

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

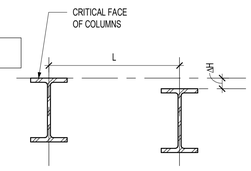
1. TOLERANCES PROVIDED IN THE DETAIL ABOVE SHALL NOT SUPERSEDE THE VALUES INDICATED IN CSA S16 AND REFERENCED DOCUMENTS.

ERECTION TOLERANCES FOR STEEL COLUMNS — SC01B

(READ IN CONJUNCTION WITH SC01A)

3. HORIZONTAL DEVIATION FROM ADJACENT COLUMNS.

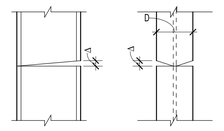
BASE LEVEL OR SPLICE LEVEL: OR = L/1000	ΔH = 10mm (3/8")



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.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT :
YORK REGION PRS
STATION #29 T-18-137
107 GLEN CAMERON ROAD, MARKHAM

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PROFESSIONAL SEAL :

LICENSED PROFESSIONAL ENGINEER 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO

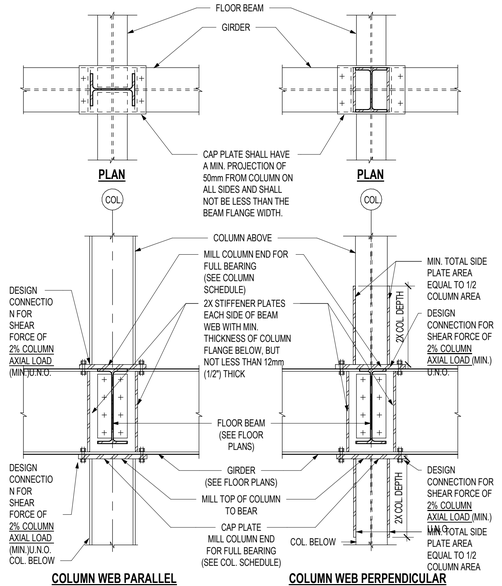
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

DWG TITLE :
TYPICAL DETAILS

DATE :	FEB. 2020
SCALE :	1 : 1
DRAWN BY:	-
CHECKED BY :	HAM / JG
DESIGNED BY:	MM
DWG STATUS :	IFC
PROJECT No. :	20160760
DRAWING No. :	S4-05
REVISION	

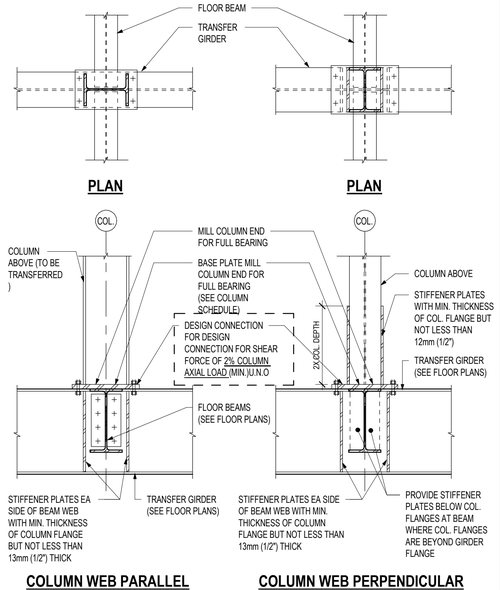
2020-02-18 3:09:08 PM

STEEL COLUMN BEARING THROUGH BEAM — SC06



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.

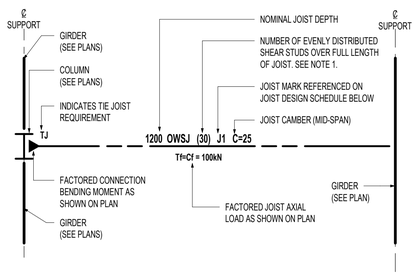
STEEL COLUMN BEARING ON STEEL BEAM — SC07



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.

OWSJ DESIGNATIONS AND DESIGN INFORMATION — SJ01A

(READ IN CONJUNCTION WITH SF AND SJ SERIES DETAILS)



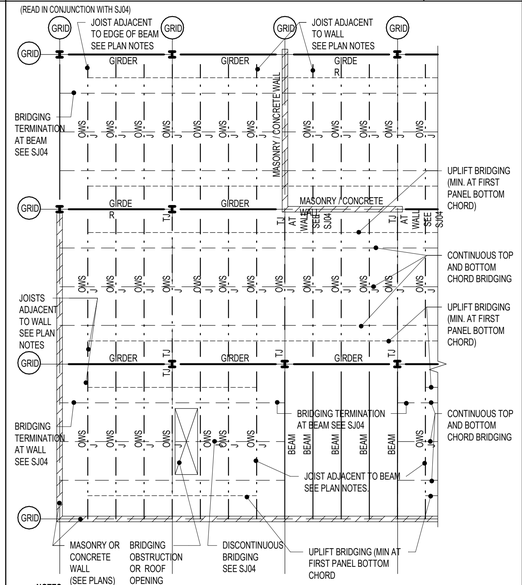
JOIST DESIGN SCHEDULE

MARK	ADDITIONAL JOIST LOADING REQUIREMENTS (READ IN CONJUNCTION WITH ROOF LOADING SCHEDULE)			ADDITIONAL GEOMETRIC REQUIREMENTS		
	TYPE	LOCATION	INFORMATION	ADDITIONAL NOTES	STIFFNESS AND SEVICEABILITY	GEOMETRIC VARIATIONS

NOTES:
1. REFER TO SF SERIES DETAILS FOR PLACEMENT OF STUD SHEAR COLLECTORS ON JOIST TOP CHORDS.

OWSJ ROOF FRAMING DETAILS — SJ01B

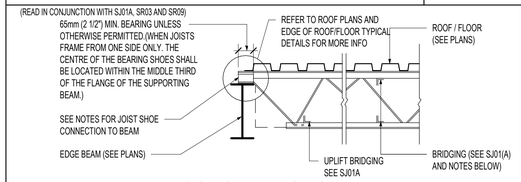
(READ IN CONJUNCTION WITH SJ04)



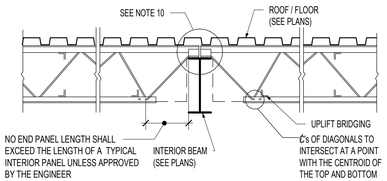
NOTES
1. THE REPRESENTATIVE BRIDGING SHOWN DOES NOT INCLUDE ERECTION OR CONSTRUCTION BRIDGING WHICH MAY BE REQUIRED BASED ON PROJECT SPECIFIC CONDITIONS.
2. EACH LINE OF BRIDGING SHALL BE ADEQUATELY ANCHORED AT EACH END TO BRACED WALLS OR TO MAIN COMPONENTS OF THE STRUCTURAL FRAME, IF PRACTICABLE. IF NOT PRACTICABLE, DIAGONAL AND HORIZONTAL BRIDGING SHALL BE PROVIDED IN COMBINATION BETWEEN ADJACENT JOISTS NEAR THE ENDS OF BRIDGING LINES.
3. SIZE AND SPACING OF BRIDGING SHALL BE AS REQUIRED BY THE ONTARIO BUILDING CODE (LATEST EDITION), BRIDGING INDICATED ON THE STRUCTURAL DRAWINGS TO BE CONSIDERED AS A REPRESENTATIVE MINIMUM ONLY.
4. BRIDGING SHALL BE COMPLETELY INSTALLED BEFORE ANY CONSTRUCTION LOADS ARE PLACED ON THE JOINTS.
5. ALL BRIDGING SHALL BE ADEQUATELY CONNECTED TO THE JOIST CHORDS BY WELD OR BY APPROVED MECHANICAL MEANS, CAPABLE OF RESISTING AN AXIAL FORCE OF AT LEAST 500 lbs. (2.22 kN), OR AS NOTED IN SECTIONS OR TYPICAL DETAILS.

OWSJ SUPPORTING DECKING — SJ01C

(READ IN CONJUNCTION WITH SJ01A, SR03 AND SR09)



CASE 1: STEEL BEAM SUPPORT

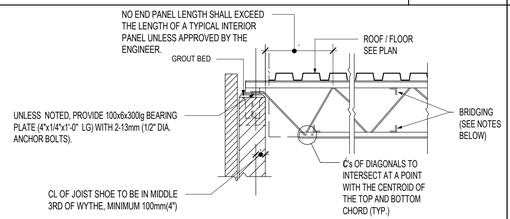


CASE 2: STEEL BEAM SUPPORT

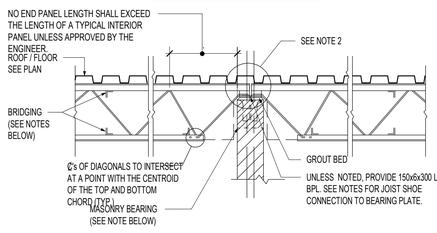
NOTES:
1. FABRICATION AND ERECTION OF O.W.S.J. SHALL CONFORM TO THE REQUIREMENTS OF THE ONTARIO BUILDING CODE (LATEST EDITION)
2. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS WHEN PLACING DECKING OVER O.W.S.J. TO AVOID LATERAL DEFLECTION AND TWISTING OF JOISTS. THIS APPLIES PARTICULARLY TO FREE ENDS OF JOINT RUNS.
3. METAL DECK SHALL BE INSTALLED DIRECTLY ON TOP OF JOISTS WITH FLAT TOP CHORDS ONLY.
4. EACH LINE OF BRIDGING SHALL BE ADEQUATELY ANCHORED AT EACH END TO STURDY WALLS OR TO MAIN COMPONENTS OF THE STRUCTURAL FRAME, IF PRACTICABLE. IF NOT PRACTICABLE, DIAGONAL AND HORIZONTAL BRIDGING SHALL BE PROVIDED IN COMBINATION BETWEEN ADJACENT JOISTS NEAR THE ENDS OF BRIDGING LINES.
5. SIZE AND SPACING OF BRIDGING SHALL BE AS REQUIRED BY THE ONTARIO BUILDING CODE (LATEST EDITION), BRIDGING INDICATED ON THE STRUCTURAL DRAWINGS TO BE CONSIDERED AS A REPRESENTATIVE MINIMUM ONLY.
6. BRIDGING SHALL BE COMPLETELY INSTALLED BEFORE ANY CONSTRUCTION LOADS ARE PLACED ON THE JOINTS.
7. ALL BRIDGING SHALL BE ADEQUATELY CONNECTED TO THE JOIST CHORDS BY WELD OR BY APPROVED MECHANICAL MEANS, CAPABLE OF RESISTING AN AXIAL FORCE OF AT LEAST 500 lbs. (2.22 kN), OR AS NOTED IN SECTIONS OR TYPICAL DETAILS.
8. WHEN BRIDGING IS INTERRUPTED BY OPENINGS THROUGH DECKING OR BY DUCTWORK, PROVIDE A COMBINATION OF HORIZONTAL AND DIAGONAL BRIDGING (AS NOTE No.5) IN FIRST BAYS BETWEEN JOINTS EACH SIDE OF INTERRUPTION.
9. ALTERNATIVE DETAILS ARE TO BE SUBMITTED FOR COMMENT BEFORE PROCEEDING.
10. IN CASE OF UNBALANCED JOIST REACTIONS ON SUPPORTING STRUCTURE (BEAMS, TRUSSES, WALLS) THE JOISTS ARE TO BE DESIGNED AND/OR STAGGERED SO THAT THEIR RESULTANT REACTIONS ARE LOCATED AT THE CENTRELINE OF SUPPORTING STRUCTURE.
11. REFER TO PLANS AND SR09 FOR SHEAR CONNECTION DETAILS WHERE APPLICABLE. ALSO SEE PLANS AND SR03 FOR CHANGE OF DECK DIRECTIONS DETAILS.
12. JOIST SHOES TO BE CONNECTED TO SUPPORTING BEAMS WITH THE FOLLOWING FILLET WELDS:

SUPPORTED AREA	FILLET WELDS
A < 10m² (100ft²)	2-3mm x 25
A > 10m² (100ft²)	2-5mm x 40

OWSJ SUPPORTING DECKING — SJ01D



CASE 3: MASONRY WALL SUPPORT

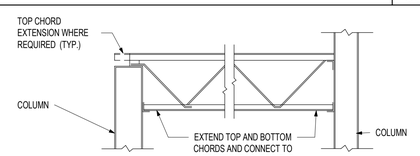


CASE 4: MASONRY WALL SUPPORT

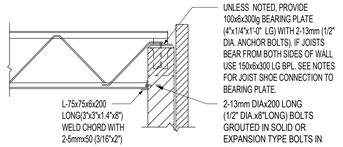
NOTES:
1. AS A MINIMUM AND UNLESS OTHERWISE NOTED, CENTERED UNDER EACH OWSJ BEARING PROVIDE ONE OF:-
   i) 3 COURSES OF BRICKS x 400mm (16") LONG MIN.
   ii) 1 COURSE OF SOLID BLOCK x 400mm (16") LONG MIN.
   iii) 1 COURSE OF GROUT FILLED BLOCK x 400mm (16") LONG MIN.
   iv) 1 COURSE OF GROUT FILLED MASONRY LINTEL BLOCK x 400mm (16") LONG MIN.
   GROUT TO HAVE MIN. 28 DAY COMPRESSIVE STRENGTH OF 20MPa.
2. IN CASE OF UNBALANCED JOIST REACTIONS ON SUPPORTING STRUCTURE (BEAMS, TRUSSES, WALLS) THE JOISTS ARE TO BE DESIGNED AND/OR STAGGERED SO THAT THEIR RESULTANT REACTIONS ARE LOCATED AT THE CENTRELINE OF SUPPORTING STRUCTURE.
3. JOIST SHOES TO BE CONNECTED TO SUPPORTING BEAMS WITH THE FOLLOWING FILLET WELDS:

SUPPORTED AREA	FILLET WELDS
A < 10m² (100ft²)	2-3mm x 25
A > 10m² (100ft²)	2-5mm x 40

TIE JOISTS — SJ01E

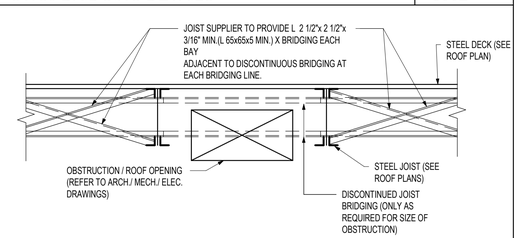


TIE JOISTS FOR STEEL STRUCTURES

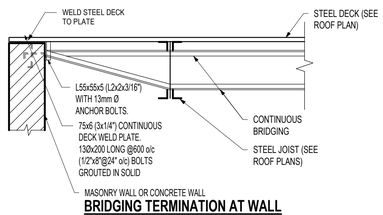


TIE JOISTS FOR MASONRY STRUCTURES

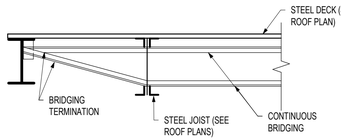
OWSJ BRIDGING DETAILS — SJ02



DISCONTINUOUS BRIDGING AT OBSTRUCTION / OPENINGS



BRIDGING TERMINATION AT WALL



BRIDGING TERMINATION AT BEAM (NOT SUBJECT TO TORSION)

The Contractor shall verify all dimensions prior to commencement of the work. All print and specifications are the property of the Structural Engineer and must be returned upon completion of the work.

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/19/20

PROJECT: YORK REGION PRS STATION #29 T-18-137
107 GLEN CAMERON ROAD, MARKHAM

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PROFESSIONAL SEAL :
LICENSED PROFESSIONAL ENGINEER 20-02-18 H.A. McCALLUM PROVINCE OF ONTARIO
LICENSED PROFESSIONAL ENGINEER 20-02-18 J. C. GASDIA 100169574 PROVINCE OF ONTARIO

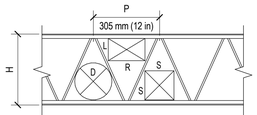
DWG TITLE : TYPICAL DETAILS

DATE : FEB. 2020
SCALE : 1 : 1
DRAWN BY: -
CHECKED BY : HAM / JG
DESIGNED BY: MM
DWG STATUS : IFC
PROJECT No. : 20160760
DRAWING No. : S4-06
REVISION :

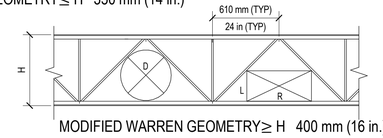
2020-02-18 3:09:09 PM

FREE OPENINGS IN STEEL JOISTS (SEE NOTE 1) — SJ03

CONFIGURATION (mm)		OPENING (mm)			
H	P	D	S	L	R
JOIST					
WARREN GEOMETRY					
200	250	110	95	70	150
250	250	150	120	90	182
300	305	190	150	110	232
350	305	220	175	120	258
MODIFIED WARREN GEOMETRY					
400	610	240	220	140	410
450	610	320	265	200	420
500	610	360	290	220	454
550	610	390	315	240	484
600	610	420	340	250	512
650	610	440	350	260	526
700	610	460	375	270	550
750	610	490	395	280	572
800	610	510	410	290	592
900	610	550	440	310	622
1,000	610	580	465	320	646
1,100	650	630	505	340	694
1,200	700	690	555	380	762
1,300	800	750	605	410	838
1,500	900	880	705	480	972
JOIST GIRDER					
750	600	430	345	240	586
900	600	500	400	280	564
1,050	600	560	450	300	616
1,200	600	610	490	330	658
1,350	600	650	530	340	694
1,500	600	680	560	360	726



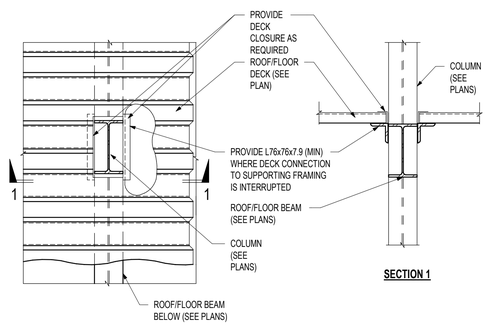
WARREN GEOMETRY≤ H 350 mm (14 in.)



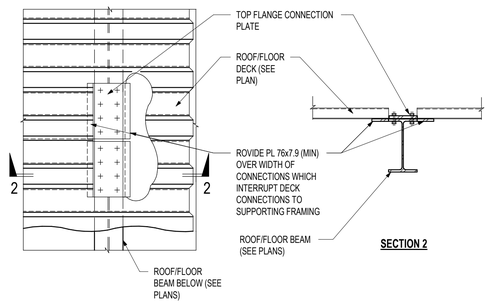
MODIFIED WARREN GEOMETRY≥ H 400 mm (16 in.)

NOTES:
1. THE TABLES ABOVE IS PROVIDED AS **PRELIMINARY** GUIDANCE FOR CONSULTANTS RUNNING SERVICES THROUGH TRUSSES. IF SERVICES ARE TO BE LOCATED WITHIN THE DEPTH OF THE JOISTS THIS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEERING DURING THE DESIGN PHASE AND THE JOIST SUPPLIER DURING SHOP DRAWING REVIEW.

DECK SUPPORT PLATES/ANGLES — SM01

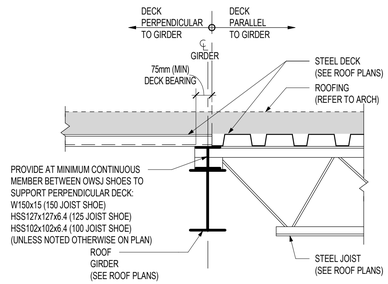


SECTION 1

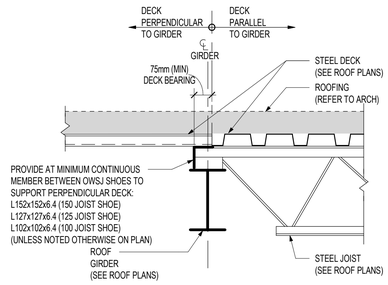


SECTION 2

CHANGE OF DECK DIRECTION DETAILS — SR03



OPTION 1



OPTION 2

(NOT TO BE USED WHERE DETAIL SR09 APPLIES OR WHERE SHEAR COLLECTORS ARE SHOWN ON PLAN)

ISSUED or REVISION

No.	Description	Date
1	ISSUED FOR PERMIT	JAN/31/19
2	ISSUED FOR CONSTRUCTION	FEB/18/20

PROJECT :
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DWG TITLE :
TYPICAL DETAILS

DATE : FEB. 2020
SCALE : 1 : 1
DRAWN BY: -
CHECKED BY : HAM / JG
DESIGNED BY: MM
DWG STATUS : IFC
PROJECT No. : 20160760
DRAWING No. : S4-07
REVISION

2020-02-18 3:09:09 PM