

STRUCTURAL ELEMENTS AND THEIR CONFIGURATION DETAILS ARE NOT PRESENTED IN THE 3D MODEL VIEW FOR TENDERING OR CONSTRUCTION PURPOSES AND ARE FOR INFORMATION ONLY.

Consultant:

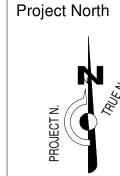
ARCHITECT:

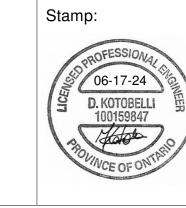
SAPLYS ARCHITECTS INC. 60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5 P: 905.510.0595

2 ISSUED FOR BUILDING PERMIT 1 ISSUED FOR 50% PROGRESS Description Issues / Revision CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT AND ENGINEER FOR ANY DISCREPANCIES. ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION. ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT.



AMR ENGINEERING LTD. STRUCTURAL ENGINEERS 920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611





WAREHOUSE AND OFFICE HEADQUARTERS

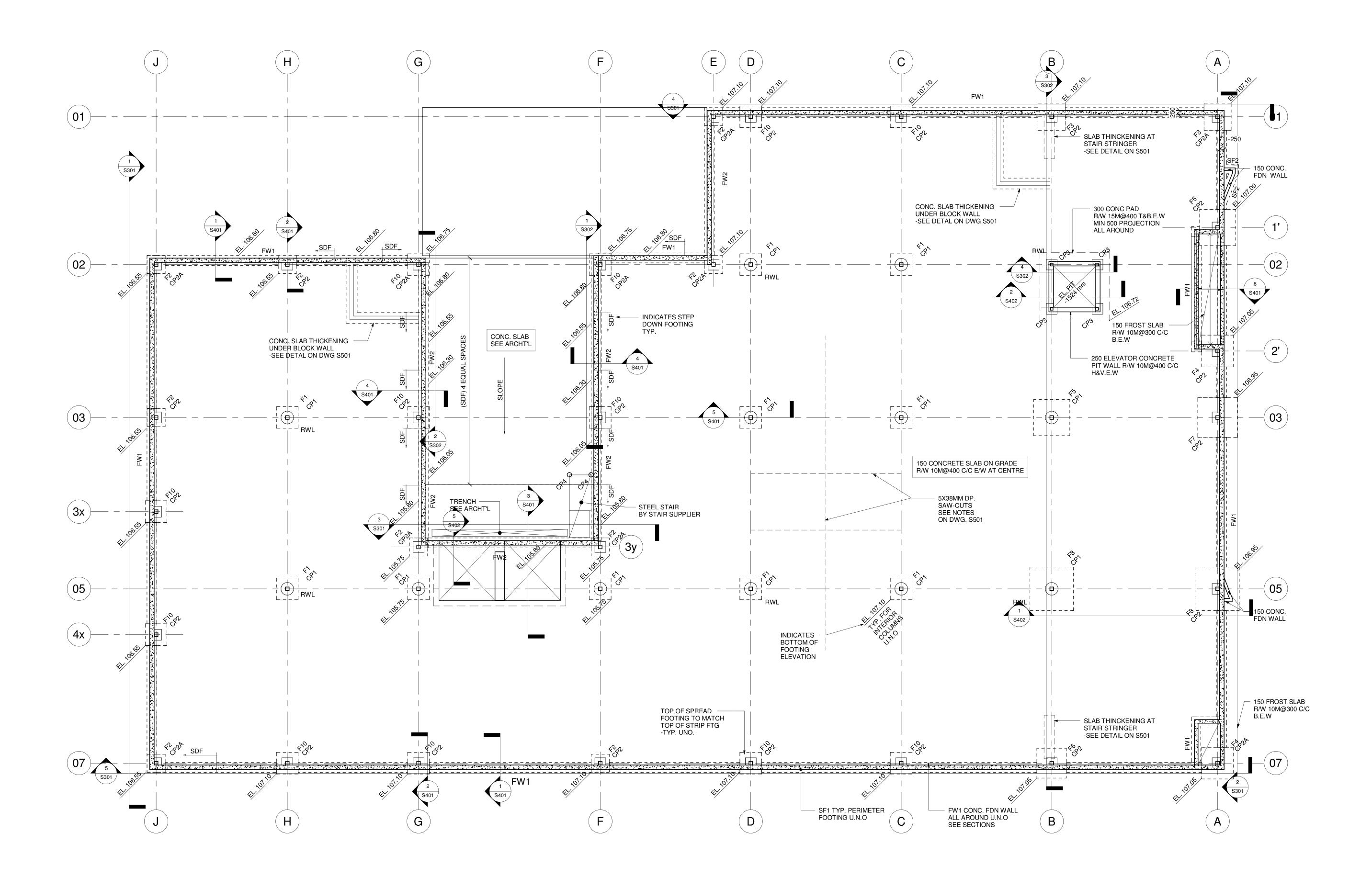
45 BLOWERS CRES AJAX, ON L1Z ON4

Drawing Title: COVER SHEET

Drawing No. Date: 30-05-2024 Scale: As Noted S000 Drawn By:

Job No: 2280

Checked By: DK



# FOUNDATION PLAN

S101

NOTES:

1. TOP OF CONCRETE ELEVATION IS 108.50 (0.0 DATUM) UNLESS CROSSED & NOTED OTHERWISE ON PLAN OR SECTIONS. CONFIRM TOP OF CONCRETE ELEVATON WITH ARCHT'L AND CIVIL DRAWINGS PRIOR TO FOOTING CONSTRUCTION.

2. SEE ARCHT'L DRAWINGS FOR DIMENSIONS, ELEVATIONS AND SLOPES.

3. PLACE SLAB ON GRADE ON COMPACTED GRANULAR BACKFILL AS RECOMMENDED BY THE SOIL CONSULTANT.

4. CENTER PIERS AND FOOTING UNDER CENTER LINE OF COLUMNS U.N.O. ON PLAN AND/OR SECTIONS. 5. STEP DOWN FOOTING (S.D.F.) AS REQUIRED TO SUIT MECH/ELEC. SERVICES SUCH THAT FOOTING ARE NOT UNDERMINED.

6. ACTUAL FOOTING ELEVATIONS TO BE CONFIRMED BY GEOTECHNICAL ENGINEER FOR THE DESIGN BEARING CAPACITY ON DWG. S501. 7. SEE ALSO GENERAL NOTES AND TYPICAL DETAILS ON DRAWINGS S501 & S502.

Consultant:

ARCHITECT:

SAPLYS ARCHITECTS INC. 60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5 P: 905.510.0595

2 ISSUED FOR BUILDING PERMIT 1 ISSUED FOR 50% PROGRESS MAY 30,24 Description Issues / Revision CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT AND ENGINEER FOR ANY DISCREPANCIES. ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION. ALL DRAWINGS REMAIN THE PROPERTY OF THE AMR ENGINEERING LTD. STRUCTURAL ENGINEERS 920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611 Stamp: Project North

WAREHOUSE AND

45 BLOWERS CRES AJAX, ON L1Z ON4

Drawing No.

S101

Job No: 2280

OFFICE HEADQUARTERS

FOUNDATION PLAN

As Noted

ОН

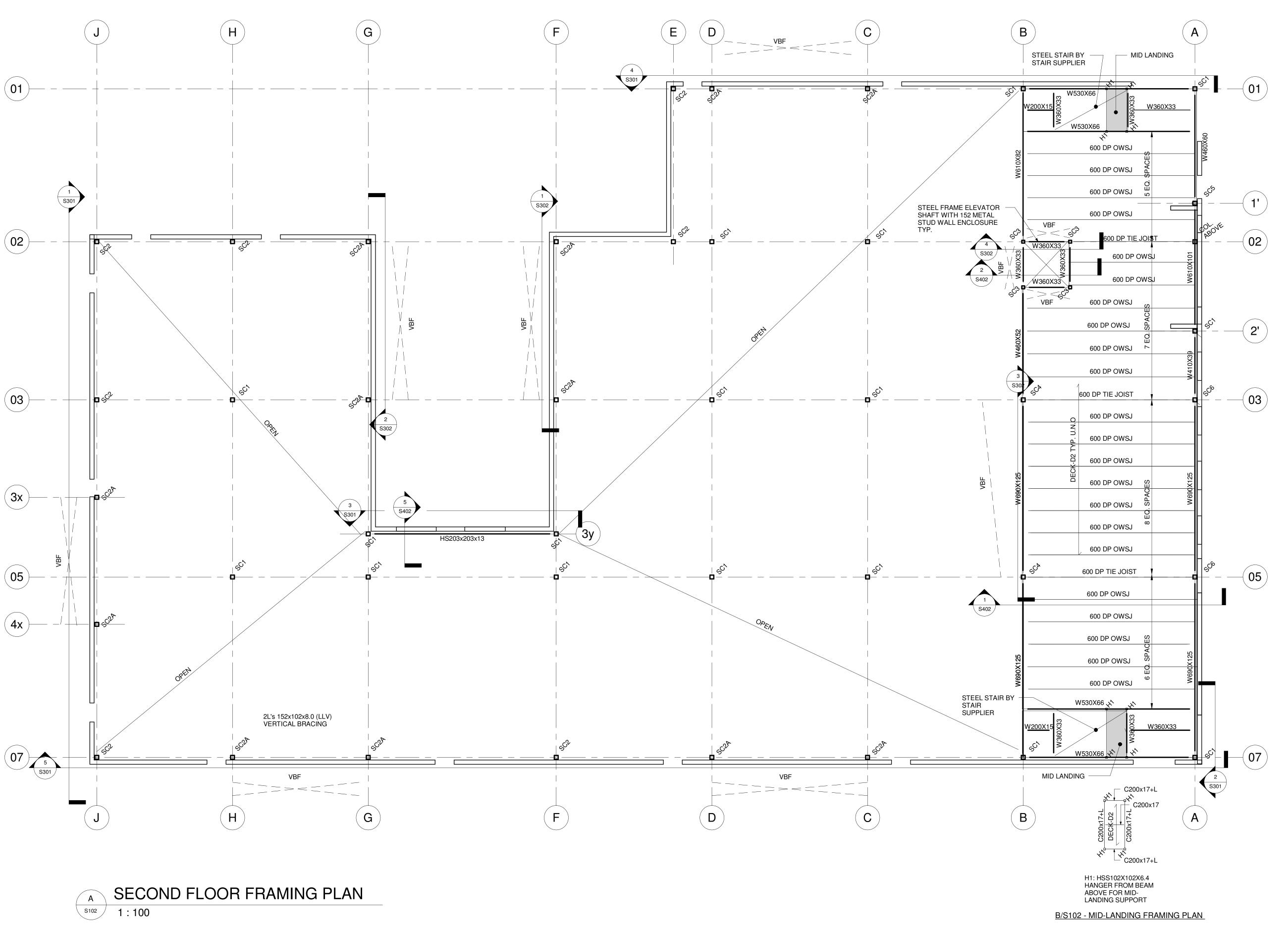
Drawing Title:

Date: 30-05-2024

Checked By: DK

Scale:

Drawn By:



### NOTES:

TOP OF CONCRETE AT SECOND FLOOR IS AT ELEVATION 13962mm ABOVE GROUND FLOOR SLAF

TOP OF CONCRETE AT SECOND FLOOR IS AT ELEVATION +3962mm ABOVE GROUND FLOOR SLAB.
 TOP OF OWSJ'S IS 100MM BELOW TOP OF CONCRETE.
 TOP OF STEEL BEAMS SUPPOTING OWSJ'S IS 200MM BELOW TOP OF CONCRETE UNLESS NOVED OTHER PICE ON PLAN AND/OR SECTIONS. TOP OF STEEL BEAMS SUPPORTING

STEEL DECK IS 100MM BELOW TOP OF CONCRETE.

4. COORDINATE CONNECTIONS OF P.C. PANELS TO STEEL BEAMS/COLUMNS WITH P.C. SUPPLIER.

5. SEE ALSO GENERAL NOTES AND TYPICAL DETAILS ON DRAWINGS S501 & S502.

DESIGN LOADS FOR SECOND FLOOR JOISTS:
DEAD LOAD = 3.86 KPa.

= 5.66 KPa. = LOAD = 4.80 KPa. = 8.66 KPa.

LIVE LOAD DEFLECTION OF FLOOR JOISTS SHALL NOT EXCEED L/480
 TOTAL LOAD DEFLECTION OF FLOOR JOISTS SHALL NOT EXCEED L/360

Consultant:

ARCHITECT:

SAPLYS ARCHITECTS INC. 60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5

P: 905.510.0595



2 ISSUED FOR BUILDING PERMIT
1 ISSUED FOR 50% PROGRESS
MAY 30,24
No. Description Date

ISSUES / Revision

CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS.
CONTACT ARCHITECT AND ENGINEER FOR ANY DISCREPANCIES.

ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION.
ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT.

AMR ENGINEERING LTD.
STRUCTURAL ENGINEERS
920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611

Project North

Stamp:

WAREHOUSE AND

45 BLOWERS CRES

AJAX, ON L1Z ON4

Drawing No.

S102

Job No: 2280

OFFICE HEADQUARTERS

Drawing Title:

Date: 30-05-2024

Checked By: DK

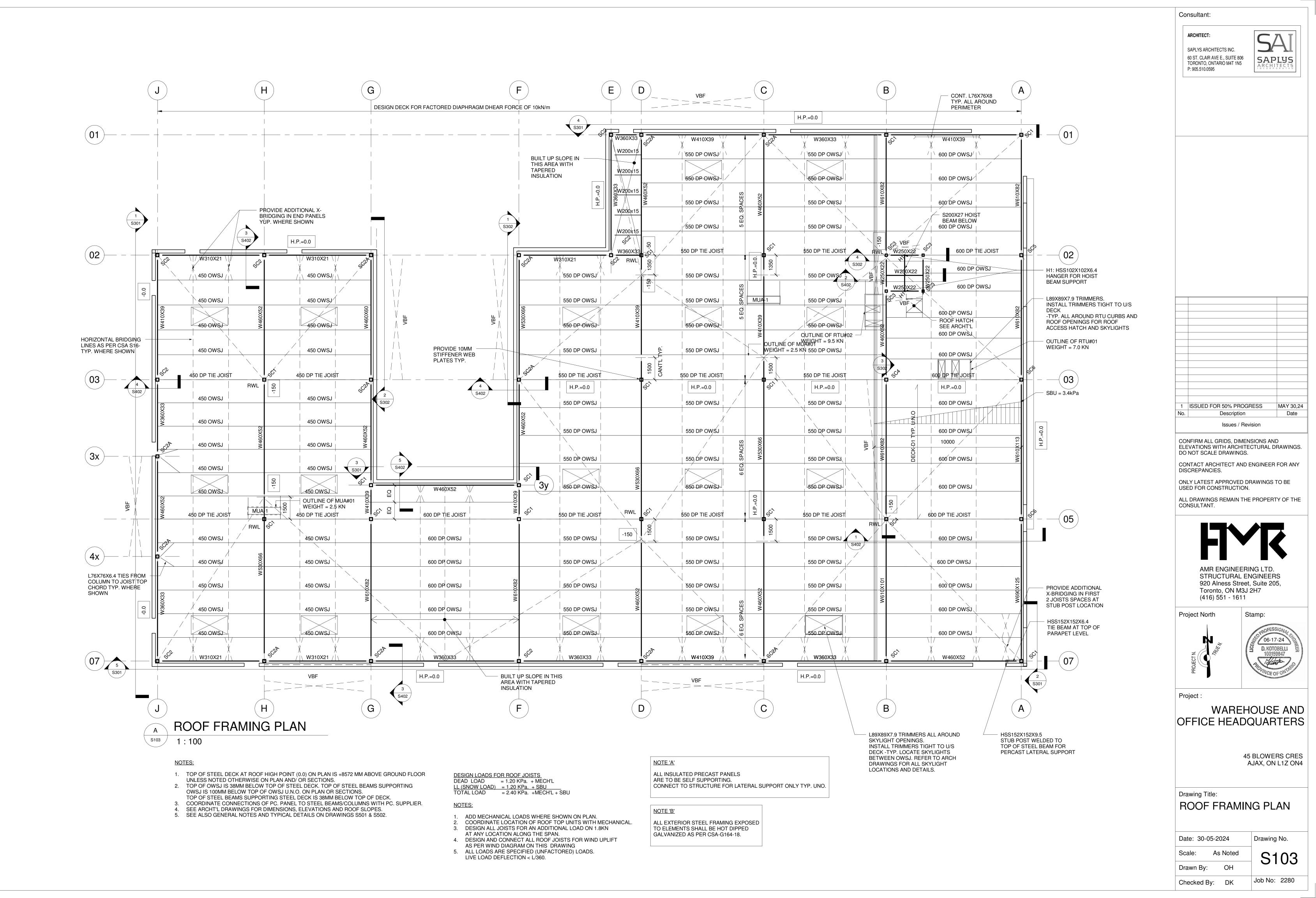
Scale:

Drawn By:

SECOND FLOOR

FRAMING PLAN

As Noted



	STRIP FOOTING SCHEDULE						
MARK							
SFI	600 X 250 DP. + 3-15M CONT.	PROVIDE 15M DOWELS TO FOUNDATION WALL ABOVE (SEE SECTIONS)					
SF2	500X 250 DP. + 2-15M CONT.	PROVIDE 15M DOWELS TO FOUNDATION WALL ABOVE (SEE SECTIONS)					

SPREAD FOOTING SCHEDULE						
MARK	SIZE	NOTES				
FI	250X   250X300 DP. RW/ 5-15M B.E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F2	1000X1000X300 DP. RW/ 4-15M B.E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F3	500X   500X350 DP. RW/ 6-   5M B.E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F4	1750X1750X350 DP. RW/ 7-15M B.E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F5	2000X2000X400 DP. RW/ 8-15M B E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F6	650X   650X350 DP. RW/ 6-   5M B E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F7	2200X2200X450 DP. RW/ 7-20M B E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F8	2400X2400X450 DP. RW/ 8-20M B.E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
F9	2000X2000X400 DP. RW/ 8-15M T&B E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				
FIO	200X   200X300 DP. RW/ 5-15M T¢B E.W.	PROVIDE DOWELS TO MATCH PIER VERTICALS (SEE SECTIONS)				

		PIER SCHEDULE					
MARK	SIZE						
СРІ	700Ø CONC. PIER +8-20M VERTICALS +10M@300 TIES +2 TIES AT TOP	BETWEEN HOOKS					
CP2	600X650 CONC. PIER + 8-20M VERTICALS +3-10M@300 TIES +2 TIES AT TOP						
CP2A	650X650 CONC. PIER + 8-20M VERTICALS +3-10M@300 TIES +2 TIES AT TOP						
CP3	600X600 CONC. PIER + 8-20M VERTICALS +3-10M@300 TIES +2 TIES AT TOP						
CP4	250 DIA. PIER (UNREINFORCED) I 50 ABOVE GARDE						

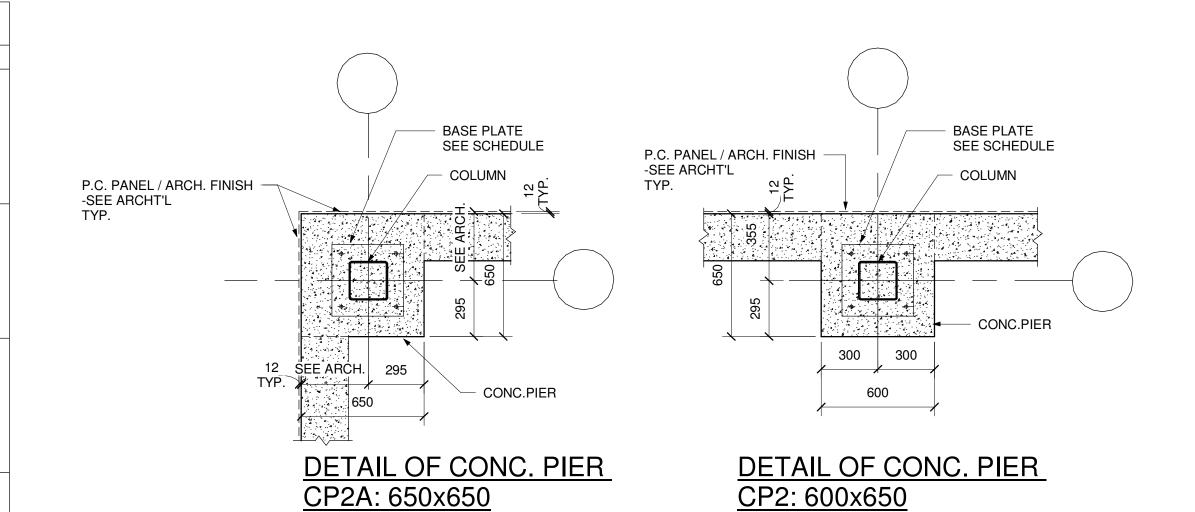
I. TOP OF PIERS IS 250MM BELOW FINISH FLOOR ELEVATION TYP. U.N.O. 2. TOP ON INTERIOR PIERS AT R.W.L. IS 450MM BELOW FINISH FLOOR ELEVATION TYP. U.N.O.

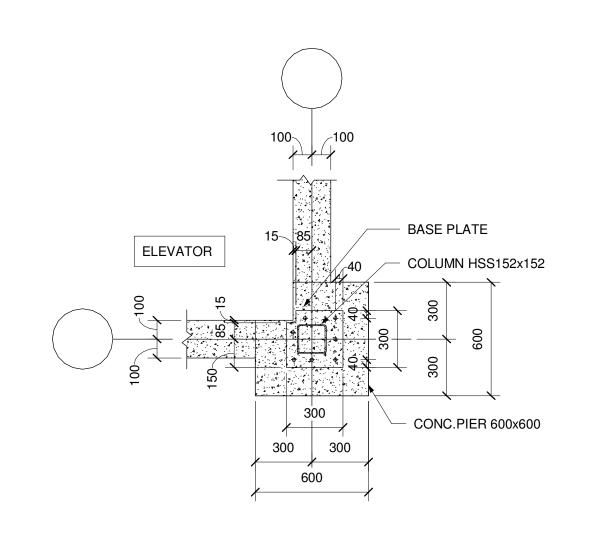
STEEL COLUMN SCHEDULE							
MARK	SIZE	BASEPLATE	ANCHOR BOLTS	BASEPLATE DETAIL			
SCI	HSS 203X203X8.0	380X25X380	4- 25Ø X 600 LONG. ANCHOR BOLTS ( 75 HOOK)	300			
5C2	HSS 203X203X6.4	380X20X380	4- 25Ø X 600 LONG. ANCHOR BOLTS ( 75 HOOK)	380 4 4			
SC2A	HSS 203X203X6.4	380X25X380	8- 25Ø X 600 LONG. HEADED ANCHOR BOLTS.	380			
5C3	HSS 152X152X6.4	320X20X320	4- 25Ø X 600 LONG. ANCHOR BOLTS (75 HOOK)	240 07 07 07 07 07 07 07 07 07 0			
5C4	HSS 203X203X8.0	380X25X380	8- 25Ø X 600 LONG. HEADED ANCHOR BOLTS	380 380 4			
<b>5</b> C5	HSS 203X203X9.5	380X25X380	4- 25Ø X 600 LONG. ANCHOR BOLTS ( 75 HOOK)	300			
506	HSS 203X203X13	380X25X380	4- 25Ø X 600 LONG. ANCHOR BOLTS ( 75 HOOK)	300			

- I. UNDER ALL COLUMN BASE PLATE PROVIDE GMM LEVELING PLATE AND 44MM NON-SHRINK GROUT.
- LEVELING PLATE SHALL PROJECT I 2MM BEYOND COLUMN BASE PLATE ALL AROUND. 2. ALL EXTERIOR STEEL COLUMNS BASE PLATE, ANCHOR BOLTS ETC. SHALL BE HOT DIPPED GALVANIZED DURING STEEL FABRICATION.

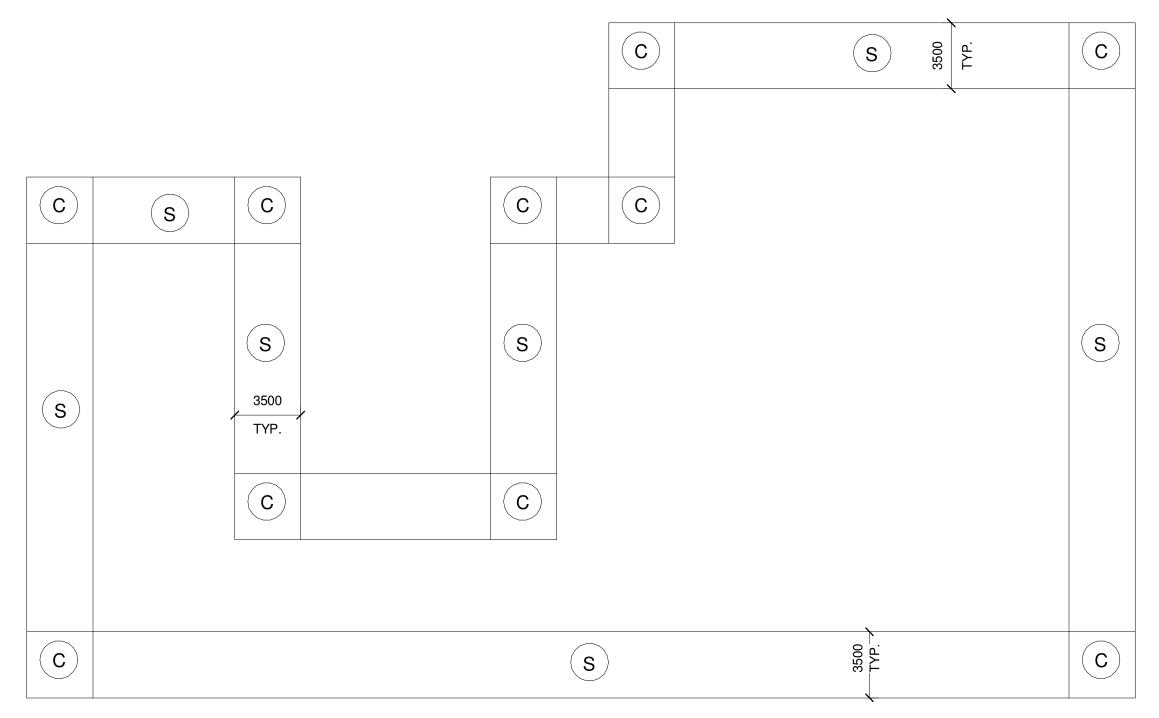
STEEL DECK SCHEDULE						
MARK	SIZE	NOTES				
DI	38MM STEEL DECK - MIN 22 GA. (0.76mm)	- MIN. 3 SPAN CONTINUOUS WHEREVER POSSIBLE  - DESIGN DECK FOR A FACTORED DIAPHRAGM SHEAR FORCES SHOWN ON ROOF FRAMING PLAN				
D2	62MM CONC. RW 152X152 MW18.7 X MW18.7 WWF + 38MM STEEL DECK - MIN 22 GA. (0.76MM COMPOSITE DECK)	- MIN. 3 SPAN CONTINUOUS				

	FOUNDATION WALL SCHEDULE						
MARK	SIZE	REINFORCING					
FWI	250 CONCRETE WALL	2-15M TOP & BOTTOM & MIDDLE SEE ALSO PLAN, SECTIONS AND GENERAL NOTES.					
FW2	250 CONCRETE WALL	I 5M@400 C/C V & H E.F. SEE ALSO PLAN, SECTIONS AND GENERAL NOTES.					





# CONC. PIER CP3 DETAIL



ROOF WIND UPLIFT (GROSS) DIAGRAM

R =0.72 KPa. S =1.20 KPa. C =1.62 KPa

FOR CALCULATION OF NET UPLIFT ROOF DEAD LOAD = 0.72 KPa.



ROOF WIND UPLIFT DIAGRAM

Consultant: ARCHITECT: SAPLYS ARCHITECTS INC.

P: 905.510.0595

60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5

Issues / Revision CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT AND ENGINEER FOR ANY DISCREPANCIES. ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION. ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT. AMR ENGINEERING LTD. STRUCTURAL ENGINEERS 920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611

2 ISSUED FOR BUILDING PERMIT 1 ISSUED FOR 50% PROGRESS

Description

MAY 30,24

Date

Stamp:

Project North

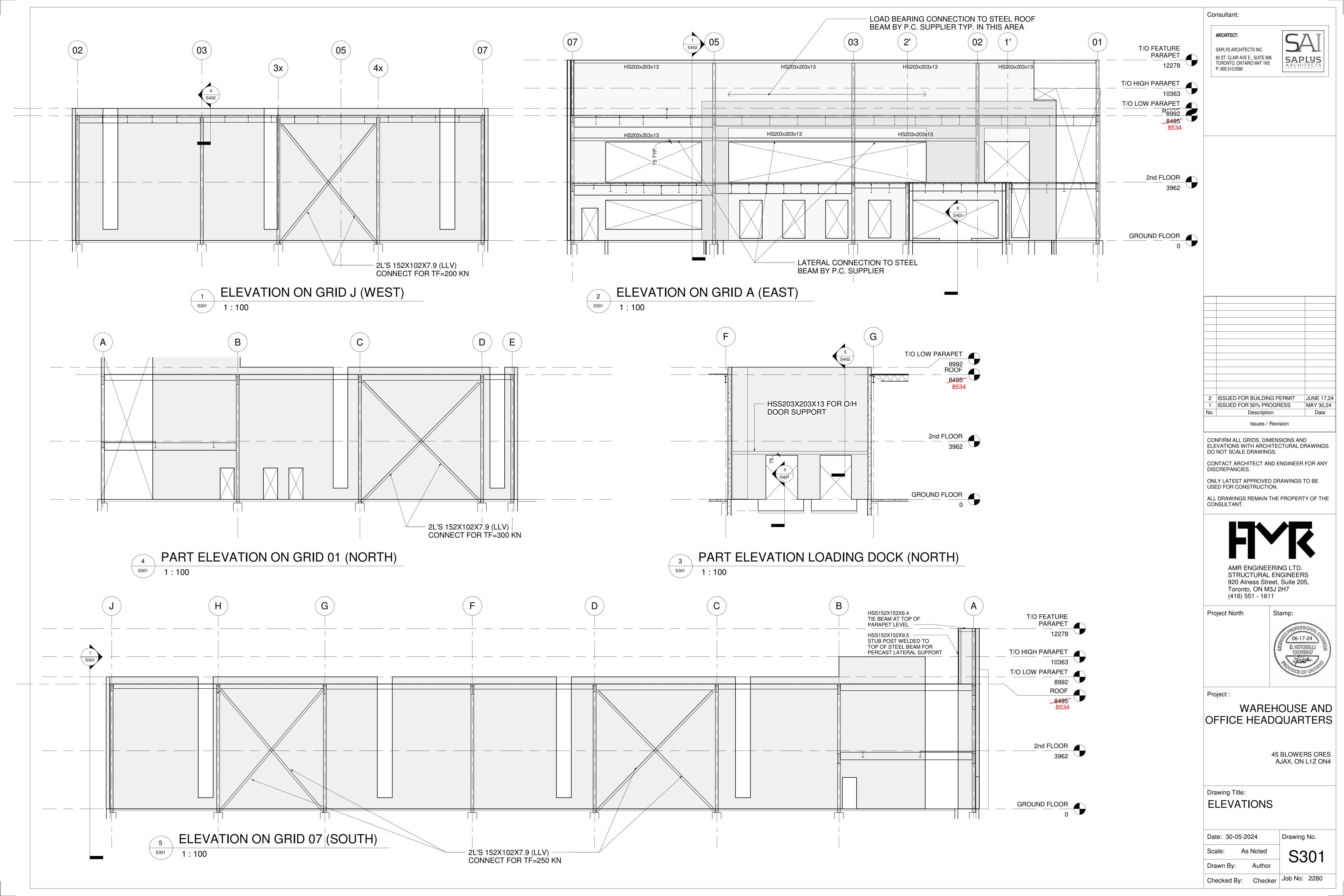
WAREHOUSE AND OFFICE HEADQUARTERS

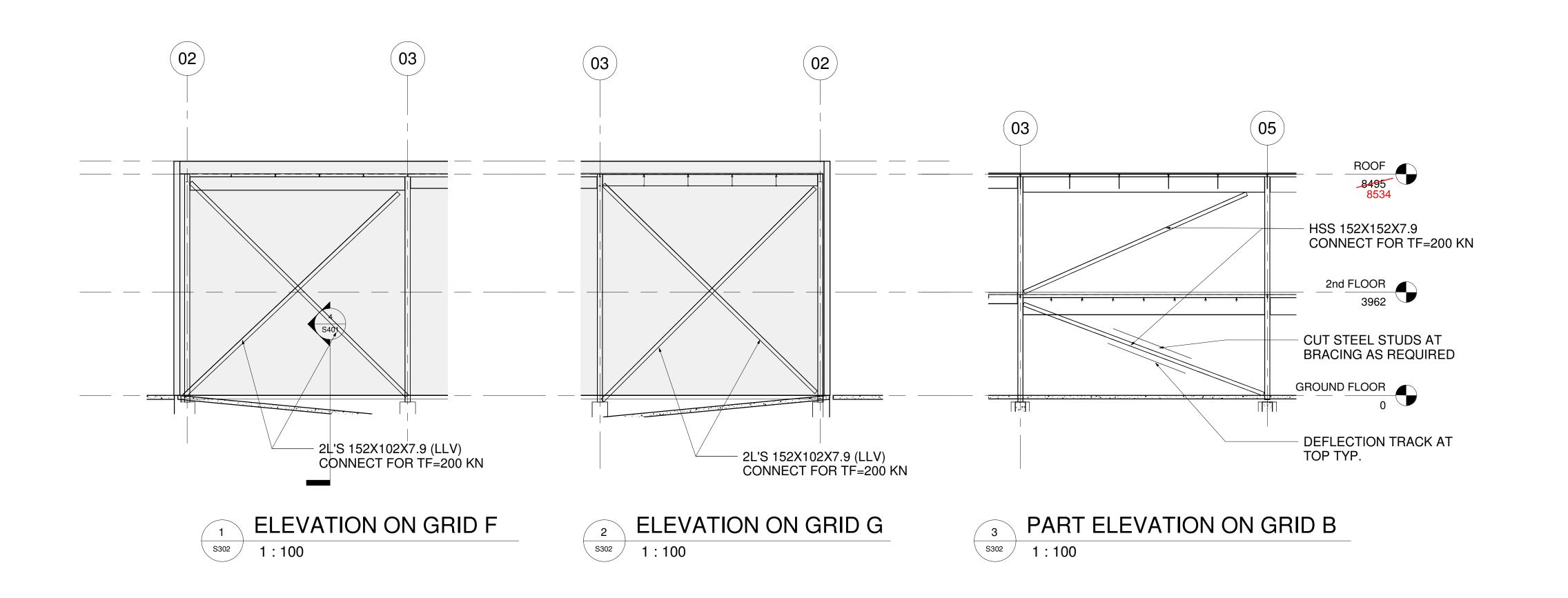
> 45 BLOWERS CRES AJAX, ON L1Z ON4

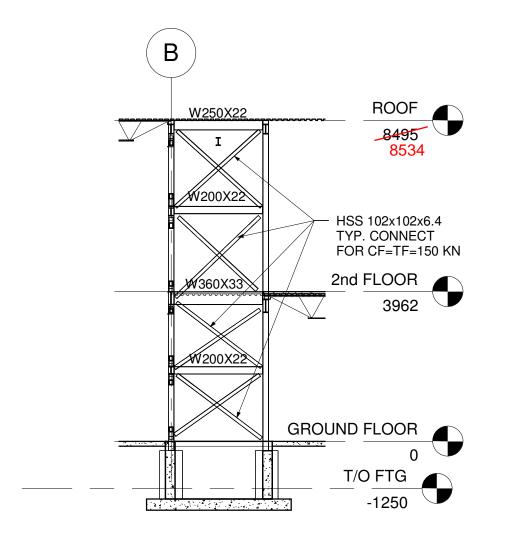
Drawing Title: SCHEDULES & PIER DETAILS

Date: 30-05-2024 Drawing No. As Noted Scale: S201 Author Drawn By:

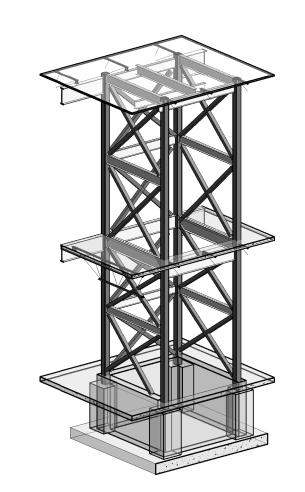
Checked By: Checker Job No: 2280











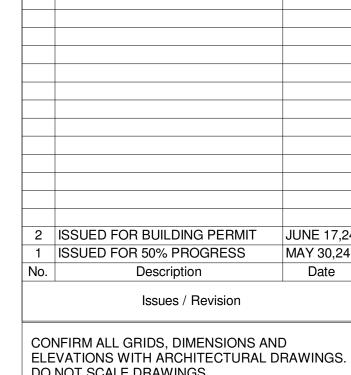
3D VIEW ELEVATOR

Consultant:

ARCHITECT:

SAPLYS ARCHITECTS INC. 60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5 P: 905.510.0595





DO NOT SCALE DRAWINGS. CONTACT ARCHITECT AND ENGINEER FOR ANY

DISCREPANCIES.

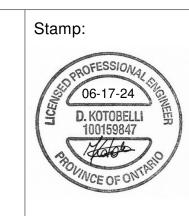
ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION.

ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT.



AMR ENGINEERING LTD. STRUCTURAL ENGINEERS 920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611

Project North



WAREHOUSE AND OFFICE HEADQUARTERS

45 BLOWERS CRES AJAX, ON L1Z ON4

Drawing Title: ELEVATIONS

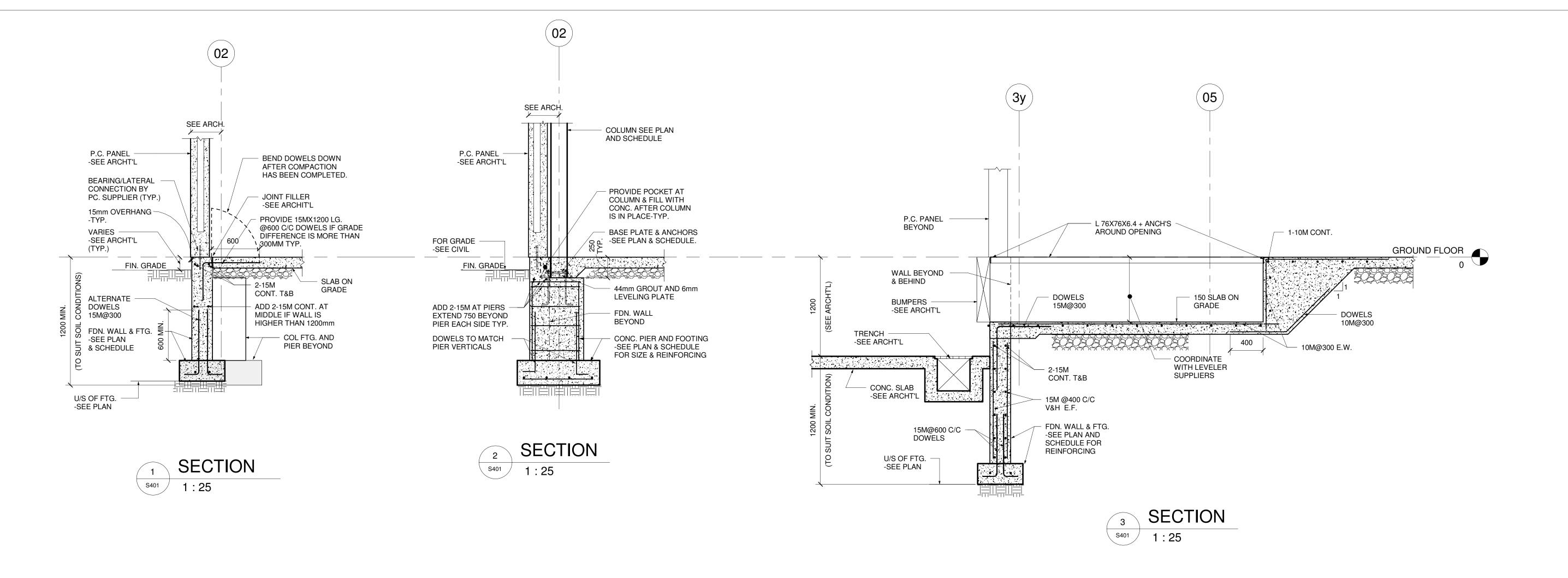
Date: 30-05-2024

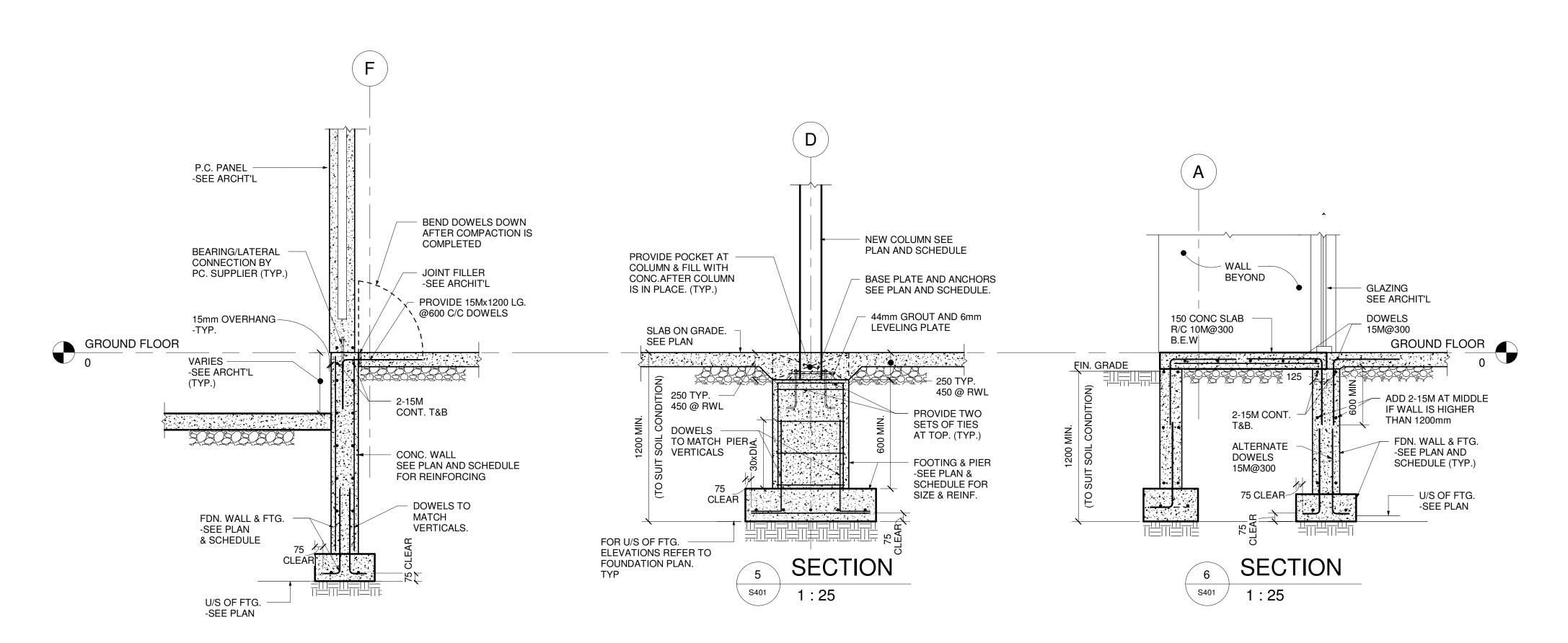
As Noted Scale:

S302 Author Drawn By:

Checked By: Checker Job No: 2280

Drawing No.





4 SECTION

S401 1:25

Consultant:

ARCHITECT:

SAPLYS ARCHITECTS INC.

60 ST. CLAIR AVE E., SUITE 806
TORONTO, ONTARIO M4T 1N5
P: 905.510.0595

SAPLUS
ARCHITECTS
INCORPORATED

2	ISSUED FOR BUILDING PERMIT	JUNE 17,24
1	ISSUED FOR 50% PROGRESS	MAY 30,24
No.	Description	Date
	Issues / Revision	

CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS.

CONTACT ARCHITECT AND ENGINEER FOR ANY

DISCREPANCIES.

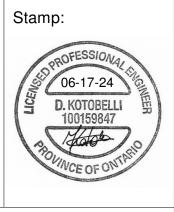
ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION.

ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT.



AMR ENGINEERING LTD. STRUCTURAL ENGINEERS 920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611

Project North



Projec

WAREHOUSE AND OFFICE HEADQUARTERS

45 BLOWERS CRES AJAX, ON L1Z ON4

Drawing Title:
SECTIONS

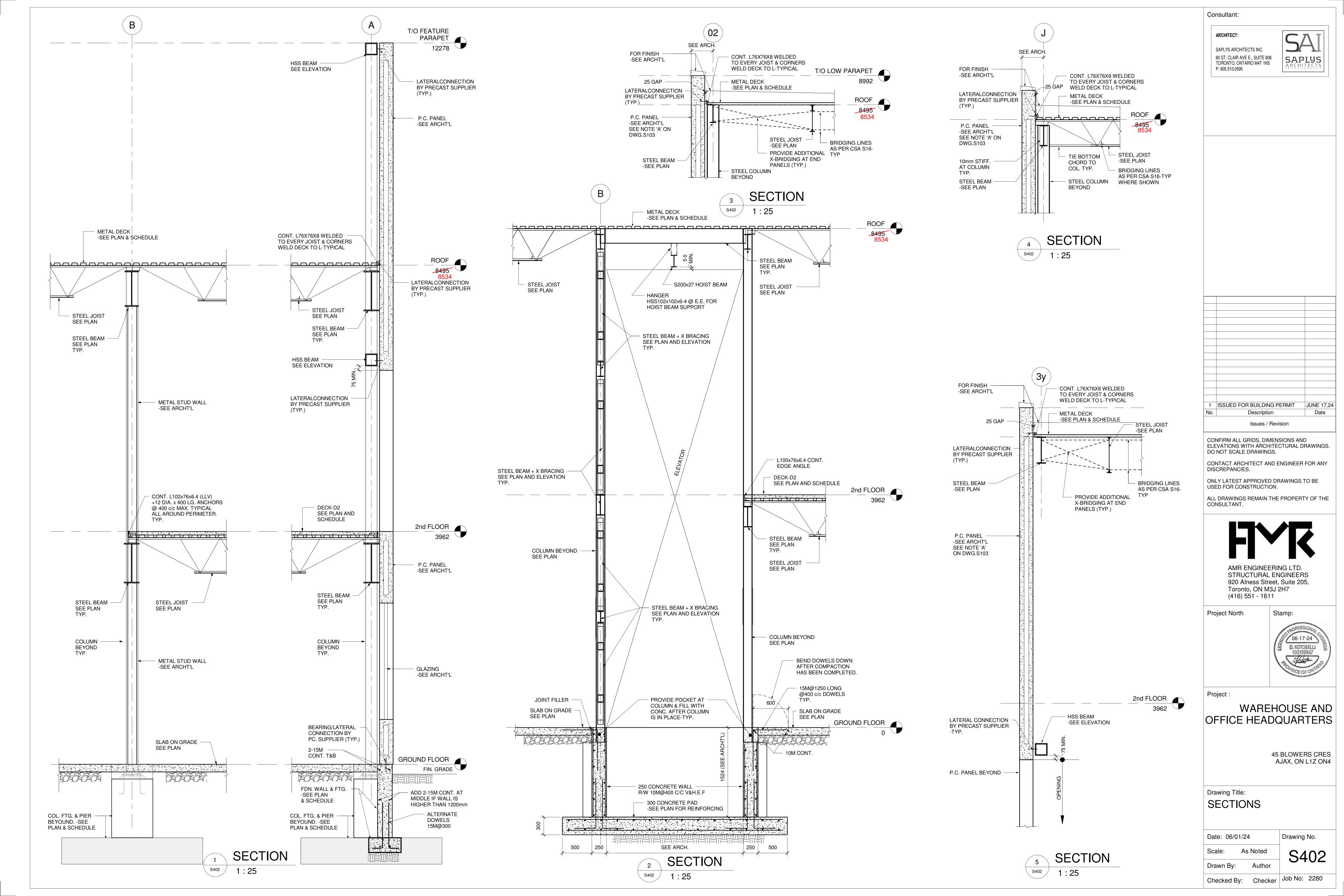
Date: 06/08/21

Scale: As Noted

Drawn By: Author

Checked By: Checker

ted By: Checker Job No: 2280



# LIST OF STRUCTURAL DRAWINGS

S101 - FOUNDATION PLAN S102 - SECOND FLOOR FRAMING PLAN S103 - ROOF FRAMING PLAN S201 - SCHEDULES S302 - FLEVATIONS

S401 - SECTIONS S501 - GENERAL NOTES AND TYPICAL DETAILS S502 - GENERAL NOTES AND TYPICAL DETAILS

### **DESIGN CODE**

THE COMPLETED BASE BUILDING STRUCTURE SHOWN ON THE STRUCTURAL DRAWINGS HAS BEEN DESIGNED IN SUBSTANTIA ACCORDANCE WITH THE AMENDED ONTARIO BUILDING CODE 2012 WHICH IS BASED ON THE NATIONAL BUILDING CODE OF CANADA 2015.

#### **GENERAL NOTES**

- THE USE OF THESE DRAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISIONS COLUMN.
- THE INFORMATION ON THESE DRAWINGS SHALL NOT BE USED FOR ANY OTHER PROJECT OR WORKS. THE INFORMATION ON THESE DRAWINGS APPLIES SOLELY TO THIS PROJECT. THE DRAWINGS DO NOT SHOW COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE GENERAL CONTRACTOR IS
- RESPONSIBLE FOR SAFETY IN AND ABOUT THE JOB SITE DURING CONSTRUCTION, AND THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES, FORMWORK, FALSE WORK, SHORING, ETC. REQUIRED TO "NON-STRUCTURAL" OR "SECONDARY STRUCTURAL" ELEMENTS ARE NOT PART OF THE STRUCTURAL DESIGN SHOWN ON THESE DRAWINGS. SUCH ELEMENTS ARE DESIGNED, DETAILED AND REVIEWED IN THE FIELD BY

AMR ENGINEERING LIMITED. WHERE STRUCTURAL ENGINEERING

RESPONSIBILITY IS REQUIRED FOR THESE ELEMENTS. THIS SHALL BE

PROVIDED BY SPECIALTY STRUCTURAL ENGINEERS, WHO SHALL ALSO

THE EFFECT OF THE ELEMENT ON THE PRIMARY STRUCTURAL SYSTEM.

OTHERS, THEY APPEAR ON DRAWINGS OTHER THAN THESE DRAWINGS OF

PROVIDE ANY LETTERS REQUIRED BY BUILDING PERMIT AUTHORITIES. SHOP DRAWINGS FOR NON-STRUCTURAL ELEMENTS WHICH MAY AFFECT THE PRIMARY STRUCTURAL SYSTEM SHALL BE SUBMITTED TO AMR ENGINEERING LIMITED. THESE DRAWINGS WILL BE REVIEWED ONLY FOR

### **DESIGN CRITERIA**

- FLOOR AND ROOF PLAN LOADING IS SHOWN ON PLANS. CONTRACTOR CONSTRUCTION LOADS MUST NOT EXCEED THE SPECIFIED DESIGN LOADS. DESIGN LOADS MAY ONLY BE APPLIED AFTER CONCRETE REACHES IT'S DESIGN STRENGTH.
- SPECIFIED CONCENTRATED LOADS ARE AS FOLLOWS U.N.O.
- FLOORS
- **CLIMATIC DATA:**
- EARTHQUAKE DESIGN PARAMETERS (AJAX, ONTARIO)

Sa (0.2) = 0.21 Sa (5.0) = 0.0071SITE CLASSIFICATION: SITE CLASS "C Sa (0.5) = 0.114 Sa (10.0) = 0.0028le = 1.0Fa = 1.0Sa (1.0) = 0.06 PGA = 0.134Rd = 1.5Fv = 1.0Sa(2.0) = 0.029PGV = 0.091Ro = 1.3leFaSa(0.2) = 0.21

ALL NON-STRUCTURAL COMPONENTS AND EQUIPMENT ARE TO BE LATERALLY RESTRAINED FOR SEISMIC LOADING IN ACCORDANCE WITH OBC2012 ARTICLE 4.1.8.18. CONTRACTOR TO SUBMIT SHOP DRAWINGS STAMPED BY P.ENG. LICENSED IN ONTARIO, FOR THE SUPPORT OF ALL NON STRUCTURAL BUILDING COMPONENTS AND EQUIPMENT.

WIND DESIGN PARAMETERS: Ce, Cg, and Cp ARE BASED ON OBC CL.4.1.7. Ct=1.0 WIND DESIGN CATEGORY - 2; TERRAIN - OPEN  $q(\frac{1}{50}) = 0.48 \text{ kPa}, \text{ Iw} = 1.0 \text{ ULS}, 0.75 \text{ SLS}$ 

WIND UPLIFT LOADS ON STEEL ROOFS SHALL BE 0.5 KPa. NET UNLESS OTHERWISE ON PLAN.

Sc. SNOW AND RAIN DESIGN PARAMETERS: BASIC ROOF SNOW LOAD: S=1.00 KPa FACTORS Cb=0.8, Cw=1.0, Cs=1.0, Ca=1.0 Ct=1.0 SNOW LOADING  $(\frac{1}{50})$  DESIGN DATA: Ss=1.20 KPa; Iw = 1.0 ULS, 0.90 SLS RAIN LOADING ( 1/50) DESIGN DATA: Sr=0.40 KPa 24 HOUR RAIN: 92m

ADDITIONAL SNOW ACCUMULATION AROUND MECHANICAL UNIT AND ADJACENT HIGHER ROOFS AS REQUIRED/INDICATED ON THE DRAWINGS.

### NON-STRUCTURAL ELEMENTS

- "NON-STRUCTURAL" OR "SECONDARY STRUCTURAL" ELEMENTS ARE NOT ART OF THE STRUCTURAL DESIGN SHOWN ON THESE DRAWINGS. SUCH ELEMENTS ARE DESIGNED, DETAILED AND REVIEWED IN THE FIELD BY OTHERS. THEY APPEAR ON DRAWINGS OTHER THAN THESE DRAWINGS OF AMR ENGINEERING LIMITED WHERE STRUCTURAL ENGINEERING RESPONSIBILITY IS REQUIRED FOR THESE ELEMENTS. THIS SHALL BE PROVIDED BY SPECIALTY STRUCTURAL ENGINEERS, WHO SHALL ALSO PROVIDE ANY LETTERS REQUIRED BY BUILDING PERMIT AUTHORITIES.
- EXAMPLES OF NON-STRUCTURAL ELEMENTS INCLUDE, BUT ARE NOT
- A. ARCHITECTURAL COMPONENTS SUCH AS GUARDRAILS, HANDRAILS, FLAG POSTS, CANOPIES, CEILINGS, MILLWORK, ETC. LANDSCAPE ELEMENTS SUCH AS BENCHES, LIGHT POSTS, PLANTERS, ETC. CLADDING, GLAZING, WINDOW MULLIONS, INTERIOR STUD WALLS AND
- EXTERIOR STUD WALLS. ARCHITECTURAL PRECAST, PRECAST CLADDING.
- MECHANICAL AND ELECTRICAL EQUIPMENT.
- WINDOW WASHING EQUIPMENT AND ITS ATTACHMENTS. ESCALATORS, ELEVATORS, AND CONVEYING SYSTEMS. BRICK OR BLOCK VENEERS AND THEIR ATTACHMENTS
- NON-LOAD BEARING MASONRY NON-STRUCTURAL CONCRETE TOPPINGS.
- SHOP DRAWINGS FOR NON-STRUCTURAL ELEMENTS WHICH MAY AFFECT THE PRIMARY STRUCTURAL SYSTEM SHALL BE SUBMITTED TO AMR ENGINEERING LIMITED. THESE DRAWINGS WILL BE REVIEWED ONLY FOR THE EFFECT OF THE ELEMENT ON THE PRIMARY STRUCTURAL SYSTEM.
- THE DESIGN WIND LOAD TO BE USED FOR INTERIOR STUDS AND PARTITIONS IS 0.25 kPa (UNFACTORED) UNLESS NOTED OTHERWISE.

#### **FOUNDATIONS**

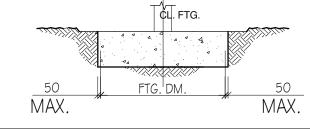
- IN ACCORDANCE WITH SOIL REPORT #310414 PREPARED BY PINCHIN LTD. DATED JUNE 17, 2022, FOOTINGS HAVE BEEN DESIGNED FOR THE FOLLOWING BEARING RESISTANCES:
- A. STRIP FOOTINGS: ULS: 300 KPa, SLS: 200 KPa B. SPREAD FOOTINGS: ULS: 300 KPa, SLS: 200 KPa BEARING SURFACES MUST BE APPROVED BY THE SOILS ENGINEER IMMEDIATELY BEFORE FOOTING CONCRETE IS PLACED, AMB IS NOT RESPONSIBLE FOR CONFIRMING BEARING CAPACITIES OF SOILS.
- UNLESS OTHERWISE SHOWN, CENTER FOOTINGS UNDER COLUMNS AND
- DOWELS SHALL BE PLACED BEFORE CONCRETE IS PLACED. TEMPLATES SHALL BE USED TO ENSURE CORRECT PLACEMENT OF DOWELS.
- PROVIDE 50 mm GROUND SEAL/ SKIM COAT, MUD SLAB UNDER FOOTINGS
- AS REQUIRED BY SOIL CONDITIONS. FOR GROUND ELEVATIONS AND DRAINAGE SLOPES, SEE ARCHITECT'S
- VARY FOOTING ELEVATIONS WHERE REQUIRED IN ACCORDANCE WITH DETAIL FOR "TYPICAL STEPPED FOOTING"(S.D.F.), SHOWN ON STRUCTURAL DRAWINGS
- FOOTINGS MAY HAVE TO BE LOWERED LOCALLY TO ACCOMMODATE MECHANICAL OR ELECTRICAL SERVICES. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ELEVATIONS OF SAME. FOOTINGS ARE NOT TO BE UNDERMINED BY EXCAVATIONS FOR SERVICES, PITS, ETC
- FOOTING ELEVATIONS. IF SHOWN. ARE FOR PRICE ESTIMATING PURPOSES ONLY, ARE NOT FINAL, AND MAY VARY ACCORDING TO SITE CONDITIONS OR AS REQUIRED BY SERVICES. ALL FOOTINGS MUST BE TAKEN TO A BEARING LAYER APPROVED BY SOILS ENGINEER. 10. BEARING SURFACES MUST BE PROTECTED FROM FREEZING BEFORE AND AFTER FOOTINGS ARE POURED.
- 11. SUB-BASE DESIGN OF SOIL UNDER THE SLAB ON GRADE SHALL BE IN ACCORDANCE WITH THE SOIL REPORT.
- 12. CONCRETE PLACED UNDER WATER SHALL CONFORM TO CAN/CSA-A23.1.
- FOLINDATION WALLS RETAINING EARTH RETWEEN SLARS AT DIFFERENT LEVELS SHALL BE SHORED UNTIL THE SLAB AT HIGHER LEVEL IS IN PLACE AND HAS REACHED ITS REQUIRED STRENGTH.

13. WHERE A FOUNDATION WALL RETAINS SOIL ON EACH SIDE, PLACE BACKFILL

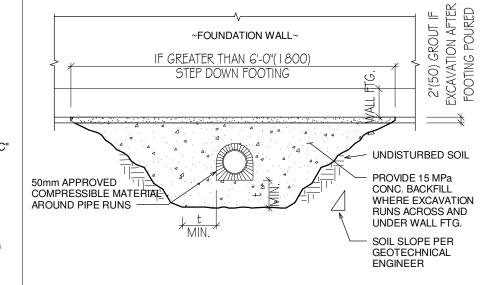
15. DESIGN AND FIELD REVIEW OF EXCAVATION SHORING AND BACKFILL IS NOT DONE BY AMR.

ON BOTH SIDES SIMULTANEOUSLY.

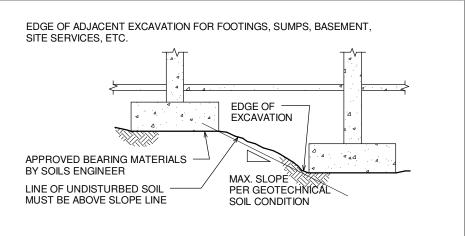
FOOTINGS CAST DIRECTLY INTO EXCAVATIONS (WITHOUT SIDE FORMS) SHALL NOT BE LARGER THAN SHOWN BELOW:



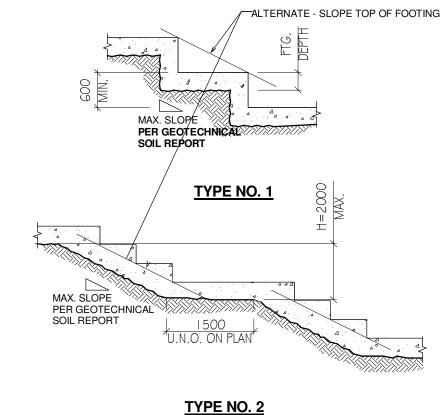
### TYPICAL PIPE UNDER WALL FOOTING DETAIL



### TYPICAL FOOTING ADJACENT TO **EXCAVATION**



### TYPICAL STEPPED FOOTINGS ON SOIL (WALLS)



NOTE: IF TOTAL STEPPING 'H' EXCEEDED PROVIDE INTERMEDIATE FLAT HORIZONTAL SECTION BETWEEN SLOPED FOOTINGS U.N.O. ON PLAN

#### CONCRETE

- CONCRETE IS SPECIFIED AS PER THE "PERFORMANCE" ALTERNATE AS DUTLINED IN TABLE 5 OF CAN/CSA-A23.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR WORKING WITH THE CONCRETE SUPPLIER TO ENSURE THAT THE PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING, AND THE OWNERS' SPECIFIED PERFORMANCE REQUIREMENTS. THE GENERAL CONTRACTOR SHALL MEET THE DOCUMENTATION AND QUALITY CONTROL REQUIREMENTS OUTLINED UNDER THE "PERFORMANCE" ALTERNATE OF TABLE 5 OF CAN/CSA-A23.
- THE SUPPLIER SHALL MEET ALL CERTIFICATION AND DOCUMENTATION REQUIREMENTS AS OUTLINED UNDER THE "PERFORMANCE" ALTERNATE OF TABLE 5 OF CAN/CSA-A23.
- THE CONCRETE SUPPLIER SHALL BE CERTIFIED BY THE READY MIXED CONCRETE ASSOCIATION OF ONTARIO.
- PORTLAND CEMENT SHALL BE TYPE GU UNLESS NOTED OTHERWISE.
- CONCRETE SHALL HAVE A UNIT WEIGHT OF 23±1 kN/m³ (145±5 PCF) UNLESS CONCRETE PROPERTIES:

STRUCTURAL CONCRETE REQUIREMENTS

	MIN. 28 DAY STRENGTH	EXPOSURE CLASS	AIR CONTENT	W/C RATIO		
FOOTINGS	25 MPA	N	N.A.	N.A.		
FOUNDATION W	ALLS 25 MPA	F-2	4-7%	0.55		
	IN	TERIOR				
SLAB ON GRADE	25 MPA	N	N.A.	0.45		
COLUMNS	25 MPA	C-1	N.A.	0.55		
INTERIOR FOUNDATION WALLS	25 MPA	N.	N/A	N/A		
	EX	CTERIOR				
SLAB ON GRADE	32 MPA	C-2	5-8%	0.45		
FOUNDATION W	ALLS 25 MPA	F-2	4-7%	0.55		
SIDE WALK / PAVEMT	32 MPA	C-2	5-8%	0.45		
SLABS / BEAMS / COL. / WALLS	25 MPA	C-1	5-8%	0.45		
NOTES:  1. THE ABOVE REPRESENT MINIMUM REQUIREMENTS.  2. HIGHER GRADES OF CONCRETE WILL BE NOTED ON STRUCTURAL						

SLUMP AND AGGREGATE SIZE TO BE DETERMINED BY THE GENERAL

- CONTRACTOR AND SUPPLIER TO MEET PLACEMENT. AND FINISHING REQUIREMENTS WITHOUT SEGREGATION WHILE MEETING ALL OWNER SPECIFICATIONS. MAXIMUM WATER/CEMENT RATIO AND AIR CONTENT TO MEET THE
- REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN TABLE 2, 4 AND 20 OF CAN/CSA-A23. 10. DO NOT USE CALCIUM CHLORIDE OR OTHER CHLORIDE PRODUCTS IN CONCRETE
- FOR CONCRETE TOPPING USE PEA SIZE AGGREGATE (MAX. 10mm DIAMETER) CURING OF CONCRETE TO MEET THE REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN CLAUSE 7.4.1.7 AS WELL AS TABLES 2 AND 20 OF
- CAN/CSA-A23. 13. CONCRETE REINFORCEMENT SHALL CONFORM TO THE FOLLOWING STANDARDS:
- CAN/CSA-G30.18R GRADE 400 MPa - 10M AND LARGER (U.N.O.) B. CSA STANDARD G30.5 GRADE 400 MPa - WELDED WIRE REINFORCEMENT GRADE 400 MPa - ALL BEINFORCING THAT C. CAN/CSA-G30.18W WILL BE WELDED OR IS PART OF THE
- SEISMIC RESISTING ELEMENTS: REINFORCING FOR SHEAR WALLS HEADERS AND ZONES (INCLUDING ZONE TIES AND HEADER TIES/STIRRUPS) AND MOMENT FRAME COLUMNS AND BEAMS (INCLUDING COLUMN TIES AND BEAM CSA STANDARD G279 PRESTRESSING STRANDS
- EPOXY REINFORCING ASTM A775M AND ASTM D3963 CONFORM TO CAN/CSA-A23.3
- 15. DO NOT SUBSTITUTE DEFORMED WIRE FOR REINFORCING BARS WITHOUT PRIOR APPROVAL OF THE AMR. 16. SUPPORT REINFORCING WITH CHAIRS, ACCESSORIES, OR REINFORCING BARS AS REQUIRED. BARS USED AS SUPPORT BARS SHALL BE CONSIDERED AS ACCESSORIES.
- PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN CONCRETE COVER AS SPECIFIED. ALL SUPPORTS AND BARS MUST BE TIED TOGETHER TO MAINTAIN REINFORCING STEEL SECURELY IN PLACE DURING CONCRETE PLACEMENT.

	TOP	50 MM
FOOTINGS	BOTTOM	75 MM
	SIDES	75 MM
TOURID ATION MALL C	INSIDE SIDE	30 MM
OUNDATION WALLS	SOIL SIDE	40 MM
COLUMNS	SIDES	40 MM
SLABS / BEAMS	UNDERSIDE (NOT EXPOSED)	25 MM
DLADO / DLAWIO	UNDERSIDE (EXPOSED)	40 MM

- 16. DETAIL REINFORCING IN ACCORDANCE WITH REINFORCING STEEL MANUAL OF
- STANDARD PRACTICE RSIC IAAC. SUBMIT SHOP DRAWINGS FOR CONCRETE REINFORCEMENT, BAR SUPPORT AND ACCESSORIES FOR REVIEW BY AMB PRIOR TO PLACEMENT OF REBAR. CLEARLY INDICATE BAR SIZES, GRADES, SPACING, LOCATION AND QUANTITIES OF REINFORCING MESH, BAR SUPPORTS AND ACCESSORIES AND IDENTIFYING CODE MARKS TO PERMIT CORRECT PLACEMENT WITHOUT REFERENCE TO STRUCTURAL DRAWINGS PLACING DRAWINGS AND BAR LISTS WILL BE REVIEWED FOR NUMBER AND SIZE OF BARS ONLY AND THIS REVIEW SHALL IN NO WAY RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR CARRYING OUT THE WORK IN ACCORDANCE WITH SUBSTITUTION OF IMPERIAL REINFORCING SIZES AND GRADES WILL ONLY BE ACCEPTED IF PLACING DRAWINGS SHOWING IMPERIAL SIZES ARE SUBMITTED TO THE CONSULTANT FOR REVIEW. APPROVAL MUST BE OBTAINED BEFORE ANY

### **EXCAVATIONS AND EARTHWORK**

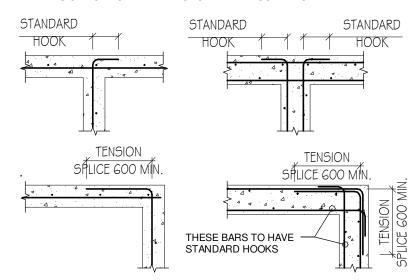
WORK IS COMMENCED

- ALL EXCAVATION WORK TO BE CARRIED OUT IN CONFORMANCE WITH SOILS REPORT NO: # 310414 PREPARED BY PINCHIN LTD. **DATED JUNE 17, 2022.**
- BEFORE COMMENCING WORK, CONTRACTOR SHALL ESTABLISH THE LOCATION OF ALL BURIED SERVICES ON THE SITE AND ARRANGE WITH APPROPRIATE AUTHORITY FOR RELOCATION OF BURIED SERVICES.
- SHORE AND BRACE EXCAVATIONS, PROTECT SLOPES AND BANKS AND PERFORM ALL WORK IN ACCORDANCE WITH PROVINCIAL AND MUNICIPAL REGULATIONS.
- PROTECT EXCAVATIONS FROM FREEZING, KEEP EXCAVATIONS CLEAN, FREE OF STANDING WATER AND LOOSE SOIL. BACKFILL MATERIAL AND SPACES TO BE REVIEWED AND APPROVED BY SOIL CONSULTANT. REMOVE SNOW, ICE, CONSTRUCTION DEBRIS, ORGANIC SOIL AND STANDING WATER FROM SPACES TO BE FILLED. MAINTAIN EVEN LEVELS OF
- 6. TESTING OF COMPACTION TO BE CARRIED OUT BY TESTING LABORATORY DESIGNATED BY THE SOIL CONSULTANT

BACKFILL AROUND STRUCTURES AS WORK PROGRESSES, TO EQUALIZE EARTH

#### CONCRETE WALLS

DETAILS OF HORIZONTAL REINFORCEMENT AT CORNERS

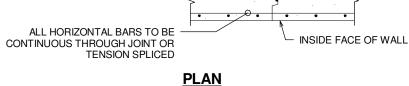


#### PLACE HORIZONTAL REINFORCEMENT IN OUTTER LAYERS OF THE CURTAINS AND VERTICALS AS 2ND INSIDE LAYER (BEHIND HORIZONTALS) ALL WALL REINFORCING SHALL BE CONTINUOUS. WITH HOOKS OR CORNER

- BARS USED AT ALL WALL JUNCTIONS. EXTEND HOOKS TO FAR FACE OF WALL CORNER BARS TO BE LOCATED ON OUTSIDE FACE OR CENTRE OF WALL. ENDS OF ALL WALLS SHALL HAVE 2-15M VERTICAL LAPPED 600 UNLESS
- ADD 2-15M PARALLEL TO ALL EDGES AND EXTENDING 625 BEYOND CORNERS AT OPENINGS IN WALLS.

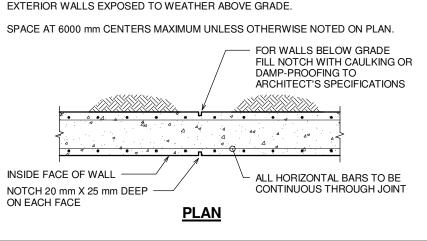
### WALL CONSTRUCTION JOINT

(CONSTRUCTION JOINT CAN REPLACE CONTROL JOINT) F ARCHITECTURAL DRAWINGS AND SPECIFICATIONS -DO NOT REQUIRE A WATERSTOP, FOR WALLS BELOW GRADE, PROVIDE A 20 mm WIDE X 25 mm DEEP NOTCH AND FILL NOTCH WITH CALILKING OR DAMP PROOFING KEY FROM 38x89 TO ARCHITECT'S REQUIREMENTS. WATERSTOP IF REQUIRED. SEE ARCHITECTURAL SPECIFICIATIONS • • • • •



### WALL CONTROL JOINT

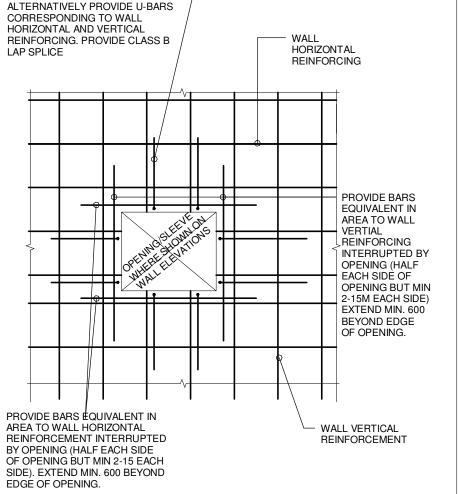
## UNLESS NOTED OTHERWISE FOR EXTERIOR WALLS BELOW GRADE AND



### TYPICAL ADDITIONAL REINFORCEMENT FOR WALL OPENINGS UP TO 750mm x 750mm SIZE

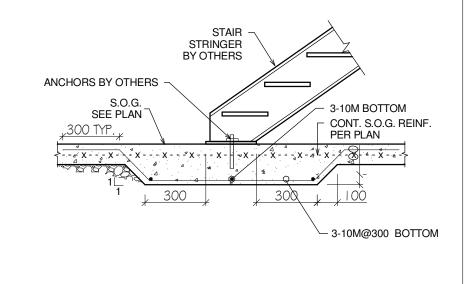
HOOK HORIZONTAL AND VERTICAL

TYPICAL REINFORCEMENT OR



NOTE: FOR LARGER OPENINGS SEE REINFORCEMENT ON WALL ELEVATIONS.

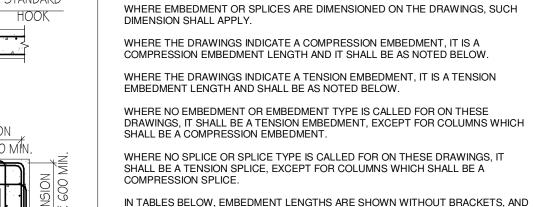
### THICKENING SLAB ON GRADE AT STAIRS



#### **EMBEDMENT / DEVELOPMENT LENGTHS** AND SPLICE LENGTHS

#### BASED ON CAN/CSA-A23.3-04

WHERE EMBEDMENT OR SPLICES ARE DIMENSIONED ON THE DRAWINGS, SUCH DIMENSION SHALL APPLY.



#### ALL LENGTHS ARE FOR Fy = 400 MPa REBAR. ALL TENSION SPLICE LENGTHS ARE CLASS "B" (1.3 ld). COMPRESSION EMBEDMENT AND SPLICE LENGTHS COMPRESSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO

SPLICE LENGTHS ARE SHOWN IN BRACKETS.

PROVIDE THE "COMPRESSION DEVELOPMENT LENGTH" AS DEFINED IN SPLICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A COMPRESSION SPLICE AS DEFINED IN CAN/CSA-A23.3-04 CLAUSE 12.16.1

CONCRE	ETE	FUNCTION	REBAR DESIGNATION							
STRENG	HT	FUNCTION	10M	15M	20M	25M	30M	35M		
20 MP	а	EMBEDMENT	215	325	430	540	645	755		
		(SPLICE)	(300)	(440)	(585)	(730)	(880)	(1025)		
25 MP	а	EMBEDMENT	200	290	385	480	580	675		
		(SPLICE)	(300)	(440)	(585)	(730)	(880)	(1025)		
30 MPa	-	EMBEDMENT	200	265	355	440	530	620		
GREATER		(SPLICE)	(300)	(440)	(585)	(730)	(880)	(1025)		
TENCIO	TENCION EMPERMENT AND CRITICE I ENCLUC									

### TENSION EMBEDMENT AND SPLICE LENGTHS

TENSION EMBEDMENT REFERS TO THE LENGTH REQUIRED TO PROVIDE A "TENSION DEVELOPMENT LENGTH" AS DEFINED IN CAN/CSA-A23.3-04 SPLICE LENGTH REFERS TO THE MINIMUM LAP LENGTH REQUIRED FOR A CLASS 'B' TENSION SPLICE (1.3ld) AS PER CAN/CSA-A23.3-04 CLAUSE 12.15.

#### CASE 1 CONDITIONS

TENSION EMBEDMENT AND SPLICE LENGTHS CONFORMING TO CAN/CSA-A23.3-04 TABLE 12.1 (0.45  $k_1$   $k_2$   $k_3$   $k_4$   $f_y$   $d_b$  /  $\sqrt{f_c}$  ) ARE TO BE AS PER THE FOLLOWING TABLE FOR:

BEAM AND GIRDER TOP AND BOTTOM BARS. SLAB BAND TOP BARS TWO WAY SLAB TOP AND BOTTOM BARS. ONE WAY SLAB BOTTOM BARS. WALL HORIZONTAL AND VERTICAL DISTRIBUTED REINFORCING SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT MEMBERS WHICH DO NOT SATISFY THE ABOVE CONDITIONS SHALL HAVE TENSION EMBEDMENTS AND SPLICES AS PER CASE 2 TABLE BELOW.

20 MPa	CONCRETE	FUNCTION	REBAR DESIGNATION					
SPLICE	STRENGTH	FUNCTION	10M	15M	20M	25M	30M	35M
25 MPa         EMBEDMENT         300         435         580         900         1080         1260           30 MPa         EMBEDMENT         (390)         (565)         (750)         (1170)         (1405)         (1640)           30 MPa         EMBEDMENT         300         395         530         825         990         1150           (SPLICE)         (390)         (515)         (685)         (1070)         (1285)         (1500           35 MPa         EMBEDMENT         300         370         490         765         915         1065           (SPLICE)         (390)         (475)         (635)         (990)         (1190)         (1380)           40 MPa         EMBEDMENT         300         345         460         715         855         1000           (SPLICE)         (390)         (4445)         (595)         (925)         (1110)         (1225)           45 MPa         EMBEDMENT         300         325         430         675         805         940           (SPLICE)         (390)         (420)         (560)         (875)         (1050)         (1125)           55 MPa         EMBEDMENT         300         300	20 MPa	EMBEDMENT	325	485	645	1010	1210	1410
(SPLICE)         (390)         (565)         (750)         (1170)         (1405)         (1640)           30 MPa         EMBEDMENT         300         395         530         825         990         1156           (SPLICE)         (390)         (515)         (685)         (1070)         (1285)         (1500           35 MPa         EMBEDMENT         300         370         490         765         915         1066           (SPLICE)         (390)         (475)         (635)         (990)         (1190)         (1388)           40 MPa         EMBEDMENT         300         345         460         715         855         1000           (SPLICE)         (390)         (445)         (595)         (925)         (1110)         (1295           45 MPa         EMBEDMENT         300         325         430         675         805         940           (SPLICE)         (390)         (420)         (560)         (875)         (1050)         (1225           50 MPa         EMBEDMENT         300         310         410         640         765         895           (SPLICE)         (390)         (390)         (390)         (505) <t< td=""><td></td><td>(SPLICE)</td><td>(420)</td><td>(630)</td><td>(840)</td><td>(1310)</td><td>(1570)</td><td>(1835</td></t<>		(SPLICE)	(420)	(630)	(840)	(1310)	(1570)	(1835
SPLICE   (390)	25 MPa	EMBEDMENT	300	435	580	900	1080	1260
(SPLICE)         (390)         (515)         (685)         (1070)         (1285)         (1500)           35 MPa         EMBEDMENT         300         370         490         765         915         1068           40 MPa         EMBEDMENT         300         345         460         715         855         1000           45 MPa         EMBEDMENT         300         345         460         715         855         1000           45 MPa         EMBEDMENT         300         325         430         675         805         940           (SPLICE)         (390)         (420)         (560)         (875)         (1050)         (1225           50 MPa         EMBEDMENT         300         310         410         640         765         895           (SPLICE)         (390)         (400)         (530)         (830)         (995)         (1160           55 MPa         EMBEDMENT         300         300         390         610         730         850           (SPLICE)         (390)         (390)         (505)         (790)         (950)         (1106           65 MPa & GREATER         EMBEDMENT         300         300         360 </td <td></td> <td>(SPLICE)</td> <td>(390)</td> <td>(565)</td> <td>(750)</td> <td>(1170)</td> <td>(1405)</td> <td>(1640</td>		(SPLICE)	(390)	(565)	(750)	(1170)	(1405)	(1640
STAPA   EMBEDMENT   300   370   490   765   915   1065   (SPLICE)   (390)   (475)   (635)   (990)   (1190)   (1388	30 MPa	EMBEDMENT	300	395	530	825	990	1155
(SPLICE) (390) (475) (635) (990) (1190) (1388)  40 MPa		(SPLICE)	(390)	(515)	(685)	(1070)	(1285)	(1500
40 MPa         EMBEDMENT         300         345         460         715         855         1000           (SPLICE)         (390)         (445)         (595)         (925)         (1110)         (1295           45 MPa         EMBEDMENT         300         325         430         675         805         940           (SPLICE)         (390)         (420)         (560)         (875)         (1050)         (1225           50 MPa         EMBEDMENT         300         310         410         640         765         895           (SPLICE)         (390)         (400)         (530)         (830)         (995)         (1160           55 MPa         EMBEDMENT         300         300         390         610         730         850           (SPLICE)         (390)         (390)         (505)         (790)         (950)         (1105           65 MPa & GREATER         EMBEDMENT         300         300         375         585         700         815           GREATER         (SPLICE)         (390)         (390)         (485)         (760)         (910)         (1060           NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.         "TOP BAR" APPLIES	35 MPa	EMBEDMENT	300	370	490	765	915	1065
(SPLICE)         (390)         (445)         (595)         (925)         (1110)         (1295)           45 MPa         EMBEDMENT         300         325         430         675         805         940           (SPLICE)         (390)         (420)         (560)         (875)         (1050)         (1225)           50 MPa         EMBEDMENT         300         310         410         640         765         895           (SPLICE)         (390)         (400)         (530)         (830)         (995)         (1160)           55 MPa         EMBEDMENT         300         300         390         610         730         850           (SPLICE)         (390)         (390)         (505)         (790)         (950)         (1106)           60 MPa         EMBEDMENT         300         300         375         585         700         815           (SPLICE)         (390)         (390)         (485)         (760)         (910)         (1060)           65 MPa & GREATER         EMBEDMENT         300         300         360         565         675         790           MOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.         "TOP BAR" APPLIES TO HORIZONTAL REINFO		(SPLICE)	(390)	(475)	(635)	(990)	(1190)	(1385
45 MPa	40 MPa	EMBEDMENT	300	345	460	715	855	1000
(SPLICE) (390) (420) (560) (875) (1050) (1225)  50 MPa		(SPLICE)	(390)	(445)	(595)	(925)	(1110)	(1295
50 MPa         EMBEDMENT         300         310         410         640         765         895           (SPLICE)         (390)         (400)         (530)         (830)         (995)         (1160           55 MPa         EMBEDMENT         300         300         390         610         730         850           (SPLICE)         (390)         (390)         (505)         (790)         (950)         (1105           60 MPa         EMBEDMENT         300         300         375         585         700         815           (SPLICE)         (390)         (390)         (485)         (760)         (910)         (1060           65 MPa & GREATER         EMBEDMENT         300         300         360         565         675         790           NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.         "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF	45 MPa	EMBEDMENT	300	325	430	675	805	940
(SPLICE)         (390)         (400)         (530)         (830)         (995)         (1160)           55 MPa         EMBEDMENT         300         300         390         610         730         850           (SPLICE)         (390)         (390)         (505)         (790)         (950)         (1105)           60 MPa         EMBEDMENT         300         300         375         585         700         815           (SPLICE)         (390)         (390)         (485)         (760)         (910)         (1060)           65 MPa & GREATER         EMBEDMENT         300         300         360         565         675         790           (SPLICE)         (390)         (390)         (470)         (735)         (880)         (1025)           NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.           "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF		(SPLICE)	(390)	(420)	(560)	(875)	(1050)	(1225
55 MPa         EMBEDMENT         300         300         390         610         730         850           60 MPa         EMBEDMENT         300         300         375         585         700         815           65 MPa & GREATER         EMBEDMENT         300         300         375         585         700         815           65 MPa & GREATER         EMBEDMENT         300         300         360         565         675         790           NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.         "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF	50 MPa	EMBEDMENT	300	310	410	640	765	895
(SPLICE) (390) (390) (505) (790) (950) (1105  60 MPa		(SPLICE)	(390)	(400)	(530)	(830)	(995)	(1160
60 MPa         EMBEDMENT         300         300         375         585         700         815           (SPLICE)         (390)         (390)         (485)         (760)         (910)         (1060)           65 MPa & GREATER         EMBEDMENT         300         300         360         565         675         790           (SPLICE)         (390)         (390)         (470)         (735)         (880)         (1026)           NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.           "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF	55 MPa	EMBEDMENT	300	300	390	610	730	850
(SPLICE) (390) (390) (485) (760) (910) (1060) 65 MPa & EMBEDMENT 300 300 360 565 675 790 (SPLICE) (390) (390) (470) (735) (880) (1025)  NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS. "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF		(SPLICE)	(390)	(390)	(505)	(790)	(950)	(1105
65 MPa & GREATER         EMBEDMENT         300         300         360         565         675         790           NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS.           "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF	60 MPa	EMBEDMENT	300	300	375	585	700	815
GREATER (SPLICE) (390) (390) (470) (735) (880) (1025)  NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS. "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF		(SPLICE)	(390)	(390)	(485)	(760)	(910)	(1060
NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS. "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF		EMBEDMENT	300	300	360	565	675	790
"TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OF	GREATER	(SPLICE)	(390)	(390)	(470)	(735)	(880)	(1025
	"TOP BAR" A	APPLIES TO HOP	RIZONTAL	REINFO				mm OR

NOTE: EPOXY COATED REINFORCEMENT INCREASE THESE TABLE LENGTHS BY 1.5 FOR EPOXY COATED REINFORCEMENT. INCREASE THESE TABLE LENGTHS BY 1.7 FOR EPOXY COATED TOP REINFORCEMENT.

### CASE 2 CONDITIONS

TENSION EMBEDMENT AND SPLICE LENGTHS CONFORMING TO CAN/CSA-A23.3-04 TABLE 12.1 (0.6 k, k, k, t, d,  $/\sqrt{t}$ ) ARE TO BE AS PER THE FOLLOWING TABLE FOR MEMBERS NOT SATISFYING CASE 1 CONDITIONS AS SET OUT ABOVE. FOR

SEE ALSO NOTES ON TOP BARS AND EPOXY COATED REINFORCEMENT.

REBAR DESIGNATION

ONE WAY SLAB TOP BARS (SEE TOP BAR NOTE). SLAB BAND BOTTOM BARS BARS (EXCLUDING THE SPLICE) SPACED CLOSER TOGETHER THAN 2 BAR DIAMETERS STIRRUPS IN BEAMS, GIRDERS AND TRANSFER SLABS.

STRENGTH

EMBEDMENT 430 645 860 1345 1610 1880 (SPLICE) (560) (840) (1120) (1745) (2095) (2445) EMBEDMENT 385 580 770 1200 1440 1680 (SPLICE) (500) (750) (1000) (1560) (1875) (2185 EMBEDMENT 355 530 705 1100 1315 (460) (685) (915) (1425) (1710) (1995) (SPLICE) 
 EMBEDMENT
 325
 490
 650
 1015
 1220
 1420
 (SPLICE) (425) (635) (845) (1320) (1585) (1850) | EMBEDMENT | 305 | 460 | 610 | 950 | 1140 | 1330 (395) (595) (790) (1235) (1480) (1730) | EMBEDMENT | 300 | 430 | 575 | 895 | 1075 | 1255

(SPLICE) (390) (530) (710) (1105) (1325) (1545) EMBEDMENT | 300 | 390 | 520 | 810 | 975 | 1135 | EMBEDMENT | 300 | 375 | 500 | 775 | 930 | 1085 | EMBEDMENT | 300 | 360 | 480 | 750 | 900 | 1050 (SPLICE) (390) (470) (625) (975) (1170) (1365) NOTE: "TOP BAR" VALUES ARE 1.3 TIMES THE ABOVE LENGTHS. "TOP BAR" APPLIES TO HORIZONTAL REINFORCEMENT CAST WITH 300 mm OR

(SPLICE) (390) (560) (745) (1165) (1400) (1630)

EMBEDMENT 300 410 545 850 1020 1190

#### NOTE: EPOXY COATED REINFORCEMENT NCREASE THESE TABLE LENGTHS BY 1.5 FOR EPOXY COATED REINFORCEMENT. INCREASE THESE TABLE LENGTHS BY 1.7 FOR EPOXY COATED TOP REINFORCEMENT.

MORE OF CONCRETE BELOW THE BAR.

## **CONCRETE COLD WEATHER REQUIREMENTS**

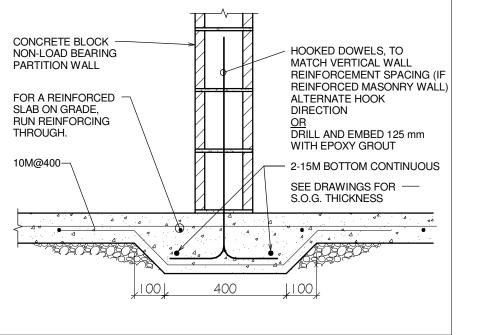
(SEE ALSO CAN/CSA-A23.1, CLAUSE 7.4.2.5, EXCEPT THE FOLLOWING MINIMUM

REQUIREMENTS MUST ALSO BE MET)

- FORECASTED AIR TEMPERATURE AT OR BELOW 5°C
- A. THE AGGREGATE OR MIXING WATER SHALL BE HEATED TO MAINTAIN A MINIMUM CONCRETE TEMPERATURE OF 10°C.
- B. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE WHICH IS AT A TEMPERATURE LESS THAN 5°C.

- C. CONTRACTOR SHALL BE PREPARED TO COVER SLAB IF UNEXPECTED DROP
- D. CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE 10°C FOR AT LEAST DAYS OR UNTIL THE CONCRETE REACHES 70% OF SPECIFIED STRENGTH.
- 2. FORECASTED AIR TEMPERATURE BELOW 2°C BUT NOT BELOW -4°C
- (NOTE FOR THESE CONDITIONS STRUCTURAL CONCRETE TOPPINGS ON METAL DECK SHALL SATISFY THE REQUIREMENTS OF 3)
- A. FORMS AND STEEL SHALL BE FREE FROM ICE AND SNOW B. THE AGGREGATE OR MIXING WATER SHALL BE HEATED TO GIVE A MINIMUM
- CONCRETE TEMPERATURE OF 10°C AT POINT OF POUR. CONCRETE SHALL NOT BE PLACED ON OR AGAINST ANY SURFACE WHICH IS
- AT A TEMPERATURE OF LESS THAN 5°C
- D. SLABS SHALL BE COVERED WITH CANVAS OR SIMILAR, KEPT A FEW INCHES CLEAR OF SURFACE.
- PROTECTION SHALL BE MAINTAINED FOR AT LEAST THE SPECIFIED CURING
- CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE 10°C FOR AT LEAST THE SPECIFIED CURING PERIOD
- 3. FORECASTED AIR TEMPERATURE BELOW -4°C A, B, C, D, AS UNDER POINT 2
- WORK AREA SHALL BE ENCLOSED AND ARTIFICIAL HEAT PROVIDED HEATING TO BE STARTED AT LEAST ONE HOUR AHEAD OF POURING AND MAINTAINED FOR A MINIMUM OF THE SPECIFIED CURING PERIOD.
- TEMPERATURE OF THE CONCRETE AT ALL SURFACES SHALL BE KEPT AT A MINIMUM OF 20°C FOR 3 DAYS, OR 10°C FOR 7 DAYS. CONCRETE SHALL BE KEPT ABOVE FREEZING TEMPERATURES UNTIL IT REACHES 70% OF ITS SPECIFIED STRENGTH.
- ENCLOSURE MUST BE CONSTRUCTED SO THAT AIR CAN CIRCULATE OUTSIDE
- BEINFORCING TO BE COVERED AND WARMED TO MAINTAIN ITS TEMPERATURE AT 0°C OR HIGHER AT THE TIME OF CONCRETE PLACEMENT.

### TYPICAL SLAB ON GRADE THICKENING **UNDER NON-LOAD BEARING BLOCK PARTITION - U.N.O.**



### **CONCRETE FORMWORK STRIPPING**

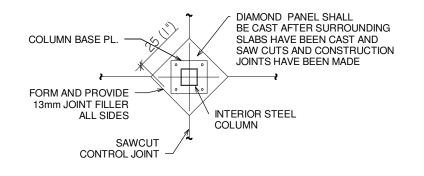
- THE DESIGN AND FIELD REVIEW OF FORMWORK, SHORING AND RESHORING IS THE RESPONSIBILITY OF THE CONTRACTOR RESHORING DRAWING SHALL BE SUBMITTED TO AMR FOR THE EFFECT ON THE BASE BUILDING
- NO COLUMN OR WALL FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 10 MPa FOR ARCHITECTURAL CONCRETE OR 8 MPa FOR OTHER COLUMNS OR WALLS.
- NO SLAB FORMS OR BEAM FORMS SHALL BE REMOVED BEFORE CONCRETE HAS REACHED 75% OF THE 28 DAY STRENGTH BEFORE STRIPPING/ RE-SHORING
- STRENGTH OF CONCRETE FOR STRIPPING TO BE DETERMINED USING CYLINDERS STORED ON SITE IN A PROTECTED ENCLOSURE THAT MAINTAINS A SIMILAR TEMPERATURE AND HUMIDITY AS THE STRUCTURAL ELEMENTS REPRESENTED. ALTERNATE METHODS, IF ACCEPTABLE TO AMR.
- 5. ALL SLABS, BEAMS, WALLS ETC. TO BE SHORED UNTIL CONCRETE REACHES DESIGN STRENGTH
- 6. NO CONCRETE MAY BE REMOVED WITH PERCUSSIVE METHODS SUCH AS CHIPPING OR JACK-HAMMERING WITHOUT PRIOR APPROVAL OF AMR.

## SLAB ON GRADE REINF. & CONTROL JOINTS

- SLAB ON GRADE SHALL BE PLACED ON SOIL CAPABLE OF SUSTAINING 25.0 kPa MIN. WITHOUT SETTLEMENT RELATIVE TO THE BUILDINGS FOOTINGS. IN AREAS WHERE S.O.G. USED TO SUPPORT TEMPORARY SHORING LOADS, LARGER SUBGRADE CAPACITIES MAY BE REQUIRED PER LOADS SUPPLIED BY
- TEMPORARY WORKS ENGINEER 2. U.N.O REINFORCE SLAB ON GRADE WITH FIBER MESH MASTERFIBER MAC
- MATRIX FIBRES WITH A DOSAGE OF 0.9 KG/M3. UNLESS MORE RIGOROUS REQUIREMENTS ARE INDICATED ELSEWHERE ON THE STRUCTURAL AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS, SPACE CONTROL JOINTS AT 4500 mm O/C MAXIMUM.
- 4. SAWCUT JOINTS 5mm WIDE AND 32 mm DEEP AS SOON AS PRACTICAL, BUT NO LATER THAN 24 HOURS AFTER PLACEMENT OF SLAB. USE EQUIPMENT THAT DOES NOT "REVAL" THE EDGES OF CUT, SEAL AS REQUIRED.
- UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, RUN ANY SLAB ON GRADE REINFORCEMENT THROUGH THE JOINTS. UNLESS NOTED OTHERWISE, SAWCUT DIAMOND PATTERN AROUND
- 150 mm CLEAR, AND DO NOT RUN REINFORCEMENT THROUGH. PLACE INFILL

AROUND COLUMN 28 DAYS AFTER SLAB ON GRADE PLACED.

COLUMNS, 150 mm CLEAR OF COLUMNS.



ARCHITECT:

Consultant:

SAPLYS ARCHITECTS INC.

P: 905.510.0595

60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5

ISSUED FOR BUILDING PERMIT ISSUED FOR 50% PROGRESS MAY 30,24 Description Date Issues / Revision CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT AND ENGINEER FOR ANY DISCREPANCIES. ONLY LATEST APPROVED DRAWINGS TO BE USED FOR CONSTRUCTION. ALL DRAWINGS REMAIN THE PROPERTY OF THE

STRUCTURAL ENGINEERS

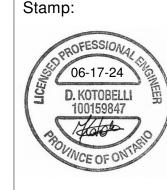
920 Alness Street, Suite 205,

Toronto, ON M3J 2H7

(416) 551 - 1611

Project North

CONSULTANT.



WAREHOUSE AND OFFICE HEADQUARTERS

> **45 BLOWERS CRES** AJAX, ON L1Z ON4

Drawing Title: **GENERAL NOTES &** 

TYPICAL DETAILS

Date: 30-05-2025

As Noted Scale: Drawn By:

Drawing No.

Author Job No: 2280

Checked By: Checker

### STRUCTURAL STEEL

STRUCTURAL STEEL SECTIONS SHALL BE NEW AND CONFORM TO THE

CAN/CSA-G30.18R

- 2. A. WIDE FLANGE BEAMS AND WWF SECTIONS --- CSA G40.21 350W MISCELLANEOUS ROLLED SECTIONS CSA G40.21 300W (EXCEPT WIDE FLANGES) HOLLOW STRUCTURAL SECTIONS (CLASS C U.N.O.) CSA G40.21 350W
- ROLLED PLATES CSA G40.21 300W BOLTS (SEE PLANS AND DETAILS) -F. STRUCTURAL STEEL ANCHOR RODS (U.N.O.) -- ASTM F1554 GRADE 36 MINIMUI
- ALL CONNECTIONS TO BE DESIGNED BY FABRICATOR UNLESS NOTED OTHERWISE. ALL BEAM CONNECTIONS TO BE STANDARD FRAME BEAM CONNECTIONS OR EQUIVALENT. UNLESS NOTED OTHERWISE. SUBMIT A LETTER OF CERTIFICATION BY P.ENG RESPONSIBLE FOR DESIGN OF CONNECTIONS.

G. REINFORCING BAR ANCHOR BOLTS ----

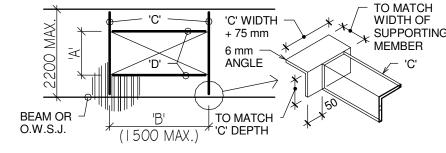
- SHOP DRAWINGS SHALL BE PREPARED UNDER THE DIRECTION OF A SPECIALTY STRUCTURAL ENGINEER, FOR THOSE CONNECTIONS AND COMPONENTS DESIGNED BY THE FABRICATOR. THIS ENGINEER OR THEIR REPRESENTATIVE SHALL VISIT THE SITE TO REVIEW IN PLACE THE CONNECTIONS AND COMPONENTS DESIGNED BY THIS ENGINEER TO SATISFY THEMSELVES THAT THESE CONNECTIONS AND COMPONENTS COMPLY WITH THEIR DESIGN ON THE SHOP DRAWINGS. THIS ENGINEER SHALL PROVIDE A LETTER TO AMR TO THIS EFFECT. THIS ENGINEER SHALL ALSO PROVIDE SEALED SKETCHES FOR ALL FIELD MODIFICATIONS MADE TO THEIR DESIGN.
- SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO START OF STEEL FABRICATION.
- FABRICATION, ERECTION, STRUCTURAL DESIGN, AND DETAILING OF ALL STEEL SHALL BE IN ACCORDANCE WITH CAN/CSA-S16.
- 7. FILLET WELDS SHALL BE 5 mm MINIMUM U.N.O.
- BOLTS SHALL BE A325 19 mm Ø MINIMUM U.N.O.
- BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO BOLTS IN EACH
- 10. UNLESS NOTED OTHERWISE, COLUMN CAP PLATES SHALL BE 16 mm THICK AND COLUMN BASE PLATES SHALL BE 20 mm MINIMUM THICK.
- 11. PROVIDE 6 mm CAP PLATES FOR ALL HSS MEMBERS U.N.O.
- CONNECTION DETAILS SHOWN ON THE STRUCTURAL DRAWINGS SHALL NOT BE ALTERED BY THE CONTRACTOR WITHOUT WRITTEN APPROVAL FROM AMR ENGINEERING LIMITED.
- 13. UNLESS NOTED OTHERWISE ON THE PLANS, REFER TO THE DETAILS IN THE GENERAL NOTES FOR FRAMING FOR SUPPORT OF ROOF TOP MECHANICAL EQUIPMENT.
- 14. STEEL TO BE EXPOSED IN FINISHED WORK SHALL BE CLEANED, PREPARED, PRIMED AND PAINTED IN ACCORDANCE WITH CSA STANDARD S16 AND THE ARCHITECTURAL DRAWINGS AND PAINTING SPECIFICATION.
- 15. DESIGN DRAWINGS INCLUDE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS. SEE ALSO ARCHITECTURAL DRAWINGS FOR ROOF AND FLOOR ELEVATIONS, ROOF SLOPES, EDGE DETAILS, AND ADDITIONAL DIMENSIONS AND DETAILS. WHERE ELEVATIONS, ROOF SLOPES. ETC.. ARE SHOWN ON THE STRUCTURAL DRAWINGS, THEY MUST BE CONFIRMED WITH THE ARCHITECTURAL DRAWINGS.
- UNLESS NOTED OTHERWISE, DO NOT OVERSIZE HOLES IN STEEL TO FIT ANY ANCHOR LOCATIONS. FOR COLUMN BASE PLATE HOLES, UNLESS NOTED OTHERWISE ON DRAWINGS, FOLLOW STANDARD PRACTICE WHICH IS TO USE SLIGHTLY OVERSIZED HOLES. USE 6 mm OVERSIZED HOLE DIAMETER FOR COLUMN ANCHOR RODS UP TO AND INCLUDING 27 mm DIAMETER, AND 12 mm OVERSIZED HOLE DIAMETER FOR COLUMN ANCHOR RODS GREATER THAN 27 mm DIAMETER.
- TOUCH UP ALL FIELD WELDS. ALL STEEL SHALL BE PAINTED WITH 1 ZINC RICH SHOP COAT AND FIELD TOUCH UP AS PER CGSB-1.40-M89. ALL EXTERIOR STEEL EXPOSED TO ELEMENTS SHALL BE HOT DIPPED GALVANIZED AS PER REQUIREMENTS OF CSAG164-18.
- 18. NON-SHRINK GROUT SHALL BE M-BED STANDARD BY SIKA CANADA INC. OR APPROVED EQUAL

### STEEL DECK

- 1. STEEL DECKING SHALL CONFORM TO CAN/CSA-S136.
- STEEL DECKING SHALL CONFORM TO CSSBI SPECIFICATION 10M MINIMUM GRADE 230 ZINC COATED STRUCTURAL QUALITY STEEL FOR ROOF AND FLOOR DECK. BASE STEEL NOMINAL THICKNESSES INDICATED ON THE DRAWINGS ARE MINIMUM REQUIREMENTS ONLY.
- INTERIOR EXPOSURE DECK SHALL BE ZINC COATED WIPE COAT ZF075 FOR FLOORS AND FOR ROOFS. EXTERIOR EXPOSURE DECK SHALL BE Z275 ZINC COATED UNLESS NOTED OTHERWISE.
- STEEL DECKING SHALL BE INSTALLED SUCH THAT SHEETS ARE SET FOR A MINIMUM OF THREE SPANS CONTINUOUS UNI ESS NOTED OTHERWISE. LAPS OF DECKING SHALL BE LIMITED OR DETAILED TO PREVENT UNDUE VERTICAL DEFORMATIONS AT THE END OF THE DECK DUE TO END
- SEE DRAWINGS & NOTES FOR DECK THICKNESSES OR DESIGN LOADS.
- WHERE DECK IS CALLED UP ON THE DRAWINGS, ALTERNATES MUST BE THE SAME DEPTH, BE EQUIVALENT FOR DEFLECTIONS, VERTICAL LOAD, AND SHEAR CAPACITY, AND BE PRE-APPROVED.
- SUBMIT SHOP DRAWINGS INDICATING THE DECK SPANS, THICKNESSES. PROFILES AND DETAILS WHERE THE DECK THICKNESSES AND CONNECTIONS ARE NOT SHOWN ON THE DRAWINGS. THE FABRICATOR SHALL DESIGN THE DECK AND CONNECTIONS FOR THE VERTICAL LOADS AND THE SHEAR/DIAPHRAGM LOADS NOTED ON THE DRAWINGS AND HAVE THE SHOP DRAWINGS SEALED BY THE CONTRACTOR'S SPECIALTY STRUCTURAL ENGINEER.
- FASTENINGS MINIMUM REQUIREMENTS UNLESS NOTED OTHERWISE
- SIDE LAPS MECHANICALLY FASTENED (CLINCHED) AT NOT MORE THAN 600 mm O/C.
- B. 20 mm Ø FUSION WELDS AT DECK SUPPORTS SHALL BE AT 300 mm O/C ALONG SIDE EDGES AND AT EVERY OTHER FLUTE.
- REMOVE WATER BETWEEN THE DECK AND SUPPORTING STEEL BEFORE WELDING DECK.
- 10. IF NOT SHOWN OTHERWISE, ALL EDGES OF STEEL DECKING SHALL BE SUPPORTED ON CONTINUOUS ANGLE L76x76x6.4.
- 11. SEE ALSO MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS FOR ALL OPENINGS IN DECK.
- 12. STEEL DECK TO BE DESIGNED FOR A MINIMUM DIAPHRAGM SHEAR OF
- 4.0 kN/m, U.N.O. 13. TOUCH UP ALL FIELD WELDS WITH ZINC RICH PAINT.

### TYPICAL FRAMING AROUND OPENINGS IN STEEL DECK WITHOUT **CONCRETE TOPPING - U.N.O.**

- SEE ALSO MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS FOR ALL OPENINGS IN DECK.
- U.N.O. REINFORCE OPENINGS WITHOUT MECHANICAL UNITS BETWEEN 150 mm TO 450 mm MAXIMUM DIMENSION WITH L76x76x4.8 X 1200 mm LONG. WELD TO EVERY FLUTE.
  - TYPICAL DETAILS FOR SMALL MECHANICAL UNITS AND/OR OPENINGS IN DECK UNLESS NOTED OTHERWISE ON PLANS AND DETAILS:



CONNECT ANGLES FOR MAXIMUM FACTORED VERTICAL LOAD OF 6 kN.

MECH. UNIT OR OPENING SIZE 'A' x 'B'	ANGLE 'C'	ANGLE 'D'	MECHANICAL UNIT WEIGHT (SPECIFIED)
150 X 150 TO 450 X 450	L76x76x6.4	L76x76x4.8	0.25 kN TO 1.0 kN
450 X 450 TO 1500 X 1500	L102x102x6.4	L76x76x4.8	NO UNIT
450 X 450 TO 1500 X 900	L102x102x6.4	L76x76x6.4	LESS THAN OR EQUAL TO 2 kN (1500 mm MAX. HIGH)
450 X 900 TO 1500 X 1500	L102x102x6.4	L102x102x6.4	LESS THAN OR EQUAL TO 2 kN (1500 mm MAX. HIGH)

WHERE AN OPENING IN DECK IS UNDER A MECHANICAL UNIT AND IS SMALLER THAN THE FRAMING REQUIRED TO SUPPORT THE MECHANICAL UNIT, REINFORCE THE OPENING WITH L76x76x4.8 ON ALL FOUR SIDES SPANNING BETWEEN THE MECHANICAL UNIT SUPPORT MEMBERS. SEE NOTE 3, PLANS AND DETAILS FOR MECHANICAL UNIT SUPPORT FRAMING.

TYPICAL TENSION SPLICE FOR ANGLES

CONTINUOUS ANGLE

DRAWINGS.

MINIMUM BEND RADIUS FOR

"T" (PLATE THICKNESS)

UNLESS NOTED, BEAM AND GIRDER CONNECTIONS TO EMBEDDED PLATES

\*\* 2D

SHALL BE DOUBLE ANGLE FRAMING CONNECTIONS WELDED TO THE

UNLESS NOTED OTHERWISE ALL CONNECTIONS FOR BEAMS AND

4. TOP FLANGES OF BEAMS TO BE FREE OF ALL PAINT, DIRT, HEAVY RUST,

GIRDERS SHALL BE DESIGNED FOR A SHEAR BASED ON THE MEMBER'S

FULL MOMENT RESISTANCE CAPACITY RELATED TO A UNIFORM LOAD

STEEL BEAM CAMBERS SHOWN THUS (75) MEAN CAMBER BEAMS 75 mm

MILL SCALE, SAND AND OTHER MATERIALS WHICH WILL INTERFERE WITH

UNLESS NOTED OTHERWISE WHERE BEAMS SIT OVER COLUMNS, PROVIDE

STIFFENER TO START AT FILLET (TYP.) U.N.O.

WF COLUMN -

TOP PL 16

MIN. 4 BOLTS THRU.

BEAM FLANGE AND

FULL HEIGHT. FULL WIDTH PL 10 STIFFENERS EACH SIDE OVER COLUMN.

WELDING OF STUD SHEAR CONNECTIONS AND STEEL DECK TO BEAMS.

0 mm TO 6 mm

6 mm TO 12 mm

STEEL BEAMS AND GIRDERS

SLOTTED HOLE FOR

**ERECTION BOLT** 

 $Mf = Vf \times e$ 

- HSS COLUMN

ON A SIMPLE SUPPORTED SPAN.

CONTINUOUS ANGLE

 $\prec$  both ends

FOR TENSION FORCES SHOWN ON

 $\longrightarrow$  both ends

SPLICE BARS, SIZE AND CONNECT FOR

TENSION CAPACITY OF ANGLE OR FOR

TENSION FORCES SHOWN ON DRAWINGS

"R" (MINIMUM INSIDE RADIUS)

3 x "T"

4 x "T"

PL 10 STIFFENER -EACH SIDE

BENT PLATE SPLICE. SIZE AND CONNECT

FOR TENSION CAPACITY OF ANGLE OR

**ALTERNATE** 1

**ALTERNATE 2** 

**STEEL PLATES** 

## **EXTERIOR WIND STEEL STUD NOTES**

- 1. SUBMIT SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW BEFORE FABRICATION IS STARTED. ASSUME RESPONSABILITY FOR THE ACCURACY OF THE WORK AND BE AWARE THAT REVIEW OF SHOP DRAWINGS IS ONLY TO ENSURE THAT THE CONTRACT DRAWINGS ARE BEING CORRECTLY INTERPRETED.
- 2. SHOP DRAWINGS SHALL BEAR THE SEAL OF PROFFESIONAL ENGINEER OF ONTARIO RESPONSIBLE FOR DESIGN OF METAL STUDS.
- 3. DESIGN STEEL STUDS FOR ANTICIPATED WIND LOADS LIVE AND DEAD LOADS IN ACCORDANCE WITH ONTARIO BUILDING CODE. REFER TO ARCHITECTURAL DRAWINGS FOR WALL CONSTRUCTION/TYPES. DEAD LOADS IN ACCORDANCE WITH ONTARIO BUILDING CODE.
- 4. CONFORM TO THE REQUIREMENTS OF FIRE RATED ASSEMBLIES. 5. DESIGN AND INSTALL BRIDGING TO PREVENT MEMBER ROTATION AND
- MEMBER TRANSLATION PERPENDICULAR TO THE MINOR AXIS. 6. MAXIMUM DEFLECTION UNDER SPECIFIED LOADS SHALL NOT EXCEED
- (a) WALL STUDS SUPPORTING MASONRY VENEER = SPAN/480 (b) WALL STUDS SUPPORTING OTHER FINISHES = SPAN/360 (c) LINTEL MEMBERS = SPAN/480
- 7. SPACING OF WALL STUDS & JOISTS SHALL NOT EXCEED 16" UNLESS NOTED OTHERWISE ON PLANS AND/OR SECTIONS.
- 8. STEEL STUDS SHALL BE ROLL FORMED FROM ZINC COATED STEEL SHEETS CONFORMING TO ASTM-A446-83 GRADE 'A' WITH ZINC COATING ON EACH SIDE. ZINC COATING DESIGNATION SHALL BE Z275.
- STEEL STUDS SHALL BE AS MANUFACTURED BY BAILEY METAL PRODUCT LIMITED OR AN APPROVED EQUAL WITH A MINIMUM METAL THICKNESS BEFORE GALVANIZING SHALL BE 1.27 mm (18 GAUGE).
- 10. FASTENERS SHALL BE CORROSION RESISTANCE PAN HEAD SELF DRILLING SELF TAPPING SCREWS.
- 11. ERECT METAL STUDS TO TOLERANCE OF 1:1000.

USE HEAVIER GAUGE AS REQUIRED BY DESIGN.

12. FRAME ALL OPENINGS IN STUD WALLS, BY USE OF ADDITIONAL FRAMING MEMBERS AND BRACING, TO CARRY ALL APPLICABLE LOADS ADEQUATELY. 13. SPLICES IN STEEL STUDS WILL NOT BE PERMITTED.

### STEEL DECK NOTES (WITH CONCRETE TOPPING)

- STEEL DECK TO BE AS NOTED ON DRAWINGS. UNLESS NOTED OTHERWISE
- IT IS INTENDED THAT ALL STEEL DECK BE UNSHORED DURING
- 3. THE STEEL DECK THICKNESS SHALL BE AS REQUIRED TO CARRY THE WET CONCRETE WITHOUT SHORING AND TO MEET THE LOADING REQUIREMENTS LISTED BELOW, AND WILL DEPEND ON THE ACTUAL PROFILE AND LAYOUT OF DECK USED. TOPPING THICKNESS ON THE DRAWINGS ARE MEASURED FROM THE TOP OF DECK FLUTE (SEE "CONCRETE TOPPING ON STEEL DECK" NOTES)
- CONSTRUCTION DEAD LOAD = WEIGHT OF WET CONCRETE CONSTRUCTION LIVE LOAD = 1 kPa
- SERVICE LIVE LOAD = AS INDICATED ON DRAWINGS
- THE STEEL DECK PROFILES SHALL BE AS REQUIRED TO ACHIEVE FIRE SEPARATIONS AS SPECIFIED ON THE ARCHITECTURAL DRAWINGS.
- FOR PROVIDING STEEL DECK AS INDICATED ON THE DRAWINGS, AND ALL NECESSARY FORMING AT THE DECK EDGES FOR THE FULL DECK AND EDGE AND ALL SLAB OPENINGS FRAMED BY STRUCTURAL STEEL, AND FLANGES OF ALL COLUMNS.
- SECTIONS, DETAILS AND SCHEDULES FOR STUDS SHOWN ON BEAMS/GIRDERS/DRAG-STRUTS ETC. OTHER THAN COMPOSITE BEAMS. THE CONTRACTOR SHALL CO-ORDINATE THE DESIGN, SUPPLY, AND INSTALLATION OF ALL STUDS.
- FASTENINGS MINIMUM REQUIREMENTS UNLESS NOTED OTHERWISE ON DRAWINGS:
- B. 20 mm Ø FUSION WELDS AT DECK SUPPORTS SHALL BE
- 10. SEE ALSO MECHANICAL AND ARCHITECTURAL DRAWINGS FOR OPENINGS,
- 11. SUBMIT SHOP DRAWINGS SEALED BY A SPECIALTY STRUCTURAL ENGINEER FOR DESIGN OF DECK AND SHEAR STUDS.

- ALL DECK RECEIVING CONCRETE TOPPING TO BE COMPOSITE DECK.
- CONSTRUCTION U.N.O.
- DESIGN FLOOR LOADS (SPECIFIED OR UNFACTORED):
- SUPERIMPOSED DEAD LOAD = AS INDICATED ON DRAWINGS
- ALL DECK TO BE THREE SPAN MINIMUM WHERE POSSIBLE.
- IN ADDITION, ALL COMPOSITE FLOOR DECK PROFILES SHALL HAVE AN AVERAGE BOTTOM FLUTE WIDTH AT LEAST 2 X DECK DEPTH WHERE USED ON COMPOSITE BEAMS WITH SHEAR STUDS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH SUBTRADES
- CONCRETE DEPTH TO PREVENT LEAKING OF THE CONCRETE TOPPING. THIS INCLUDES BUT IS NOT LIMITED TO ALL SLAB EDGES AT THE BUILDING INCLUDING ELEVATOR SHAFTS AND STAIRWELLS AND AROUND THE WEBS BEAMS NOTED AS COMPOSITE ON THE DRAWINGS REQUIRE STUD SHEAR
- CONNECTIONS. SEE ALSO SHEAR CONNECTOR NOTES. SEE ALSO PLANS.
- SIDE LAPS MECHANICALLY FASTENED (CLINCHED) AT NOT MORE
- AT 300 mm O/C ALONG SIDE EDGES AND AT EVERY OTHER FLUTE.
- HOLES ETC. IN DECKING.

## **OPEN WEB STEEL JOISTS**

- 1. OPEN WEB STEEL JOISTS (O.W.S.J.) SHALL CONFORM TO CAN/CSA-S16. 2. DESIGN OF O.W.S.J. SHALL CONFORM TO CLAUSE 16 OF CAN/CSA-S16 (LIMIT STATES DESIGN OF STEEL STRUCTURES) AND CAN/CSA-S136 (DESIGN OF LIGHT GAUGE STEEL STRUCTURAL MEMBERS), BASED ON THE LOADINGS INDICATED ON THE DRAWINGS AND LISTED BELOW.
- 3. O.W.S.J. SHALL BE DESIGNED FOR THE LOADS SHOWN ON THE DRAWINGS.
- IN ADDITION TO THE POINT LOADS CALLED FOR ON THE DRAWINGS AND IN THE GOVERNING BUILDING CODE. DESIGN O.W.S.J. FOR A 1.8 kN FACTORED ADDITIONAL POINT LOAD AT ANY LOCATION ON TOP CHORD AND BOTTOM CHORD (INCLUDING THE EFFECTS OF LOCAL BENDING) CONCURRENT WITH OTHER DESIGN LOADS. OVER MECHANICAL AREAS THE DESIGN LOADS SHALL BE 4.5 kN FACTORED. THE ADDITIONAL POINT LOADS ON EACH CHORD NEED NOT BE APPLIED CONCURRENTLY WITH
- UNLESS NOTED OTHERWISE LIVE LOAD DEFLECTION SHALL NOT EXCEED 1/360 OF THE SPAN.
- CAMBER ALL O.W.S.J. FOR DEAD LOAD PLUS 1/2 LIVE LOAD UNLESS OTHERWISE NOTED. PROVIDE A MINIMUM CAMBER OF 12 mm.
- DESIGN AND PROVIDE O.W.S.J. BRIDGING IN ACCORDANCE WITH CAN/CSA-S16 UNLESS OTHERWISE INDICATED ON THE DRAWINGS. REFER TO THE DRAWINGS FOR AREAS OF NON-TYPICAL O.W.S.J.
- SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO START OF O.W.S.J. FABRICATION. SHOP DRAWINGS SHALL BEAR THE SEAL OF THE SPECIALTY STRUCTURAL ENGINEER WHO IS RESPONSIBLE FOR THE DESIGN OF THE O.W.S.J. REFER TO THE SPECIFICATIONS.
- ALL O.W.S.J. TO HAVE BUILDING SERVICES PASS THROUGH THEM. WEB MEMBERS OF ADJACENT O.W.S.J. TO LINE UP TO ACCOMMODATE
- 10. WELDING SHALL CONFORM TO CSA W59.

CONTINUOUS PENETRATION OF SERVICES.

- 11. O.W.S.J. TO BE PAINTED SHALL BE CLEANED AND SHALL RECEIVE ONE COAT OF SHOP PRIMER IN ACCORDANCE WITH CAN/CSA-S16.
- 12. O.W.S.J. TO BE EXPOSED IN FINISHED WORK SHALL BE PAINTED WITH SHOP PRIMER MEETING THE REQUIREMENTS OF CAN/CSA-S16. CLEANING. PREPARATION OF STEEL AND THE PAINT PRODUCT SHALL BE COMPATIBLE WITH REQUIREMENTS OF FINISHED PAINTING AS SPECIFIED IN ARCHITECTURAL FINISHES. REFER TO THE SPECIFICATIONS.
- 13. BOTTOM CHORD EXTENSIONS (B.C.E.) ARE EXTENSIONS OF THE BOTTOM CHORD WHICH TRANSMIT AN AXIAL FORCE TO EITHER A COLUMN, BEAM BOTTOM FLANGE, JOIST GIRDER BOTTOM CHORD OR WALL. THE EXTENSION MAY BE EITHER FLAT OR SLOPED. SEE PLANS, SCHEDULES, AND DETAILS FOR AXIAL FORCES.
- 14. JOIST BEARING PLATES TO BE DESIGNED BY THE JOIST SUPPLIER AND SUBMITTED WITH THE JOIST SHOP DRAWING FOR OUR REVIEW. BEARING NOT
- 15. DESIGN JOIST SHOES FOR ROLLING SHEAR = 6KN U.N.O.

### MISC. METALS AND STEEL STAIRS

- PROVIDE SHOP DRAWINGS PRIOR TO FABRICATION STAMPED, SIGNED AND
- ALL GUARDS TO BE DESIGNED TO MEET LATERAL LOAD DESCRIBED IN OBC 2012.
- ALL HANDRAILS TO BE DESIGNED TO MEET LATERAL LOAD DESCRIBED
- 4. ALL STAIRS TO BE DESIGNED TO SUPPORT A MINIMUM LIVE LOAD OF 4.8KPa

## LINTELS (NON LOAD BEARING BLOCK WALL)

OVER ALL OPENINGS IN MASONRY WALLS PROVIDE THE FOLLOWING LINTELS, UNLESS OTHERWISE SHOWN.

### **BLOCK WYTHES**

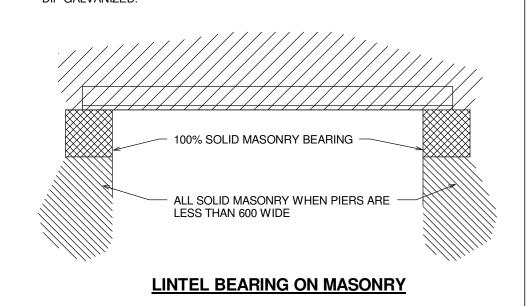
STEEL LINTELS

CLEAR SPAN mm (ft-in)	140 (6") WALL	190 (8") WALL	240 (10") WALL	290 (12") WALL
UP TO 1200 (4'-0)	2 - L64x64x6.4	2 - L89x89x7.9	L89x89x7.9 + L127x 89 x 7.9 LLV	3 - L89x89x7.9
1201 TO 1800	2 - L89x64x6.4	2 - L127x89x7.9	L127x89x7.9 LLV	3 - L127x89x7.9
(4'-0 TO 6'-0)	LLV	LLV	+ L127x127x7.9	LLV
1801 TO 2400	2 - L89x64x7.9	2 - L127x89x9.5	L127x89x9.5 LLV	3 - L127x89x9.5
(6'-0 TO 8'-0)	LLV	LLV	+ L127x127x9.5	LLV
2401 TO 3000	2 - L89x64x9.5	2 - L152x89x9.5	L152x89x9.5 LLV	3 - L152x89x9.5
(8'-0 TO 10'-0)	LLV	LLV	+ L127x127x9.5	LLV

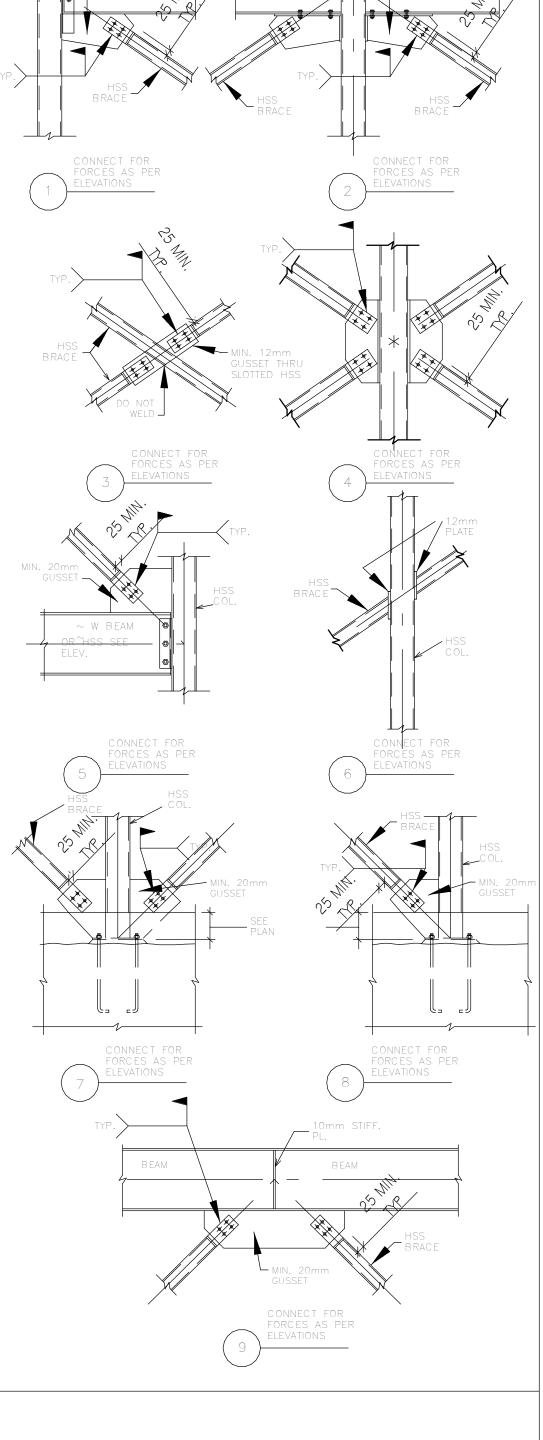
- WELD BACK TO BACK ANGLES TOGETHER TOP AND BOTTOM WITH 5mm (3/16") FILLET 50mm (2") LONG AT 450mm (18") MAXIMUM CENTERS.
- MINIMUM BEARING FOR STEEL LINTELS SHALL BE 150mm (6") AND BLOCK LINTELS
- FOR WALLS OVER 300mm (12") THICK ADD ONE ANGLE FOR EACH ADDITIONAL 100mm (4") OF WALL THICKNESS OR PORTION THEREOF.
- FOR LINTELS ABUTTING STEEL COLUMNS, CONC WALL OR COLUMNS PROVIDE L 90x90x10 SHELF ANGLE.
- USE MASONRY LINTELS IN ALL FIRE RATED MASONRY WALLS SEE ARCH DWG. FOR WALL RATINGS.

FILL VOIDS OF LINTEL BLOCK WITH 12.5 MPa GROUT MIN.

- FOR 140 BLOCK USE BLOCK LINTELS.
- ALL STEEL LINTELS AND SHELF ANGLES IN THE EXTERIOR MASONRY SHALL BE HOT



### TYPICAL BRACE CONNECTION DETAILS



Consultant:

ARCHITECT:

SAPLYS ARCHITECTS INC. 60 ST. CLAIR AVE E., SUITE 806 TORONTO, ONTARIO M4T 1N5 P: 905.510.0595



ISSUED FOR BUILDING PERMIT ISSUED FOR 50% PROGRESS MAY 30,24 Description Date Issues / Revision CONFIRM ALL GRIDS, DIMENSIONS AND ELEVATIONS WITH ARCHITECTURAL DRAWINGS. DO NOT SCALE DRAWINGS. CONTACT ARCHITECT AND ENGINEER FOR ANY DISCREPANCIES.

ONLY LATEST APPROVED DRAWINGS TO BE

ALL DRAWINGS REMAIN THE PROPERTY OF THE

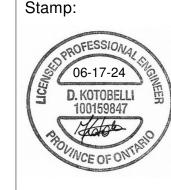
USED FOR CONSTRUCTION.

CONSULTANT.



STRUCTURAL ENGINEERS 920 Alness Street, Suite 205, Toronto, ON M3J 2H7 (416) 551 - 1611

Project North



WAREHOUSE AND OFFICE HEADQUARTERS

> 45 BLOWERS CRES AJAX, ON L1Z ON4

Drawing Title:

**GENERAL NOTES &** TYPICAL DETAILS

Date: 30-05-2024

Checked By:

As Noted Scale: Author Drawn By:

Job No: 2280 Checker

Drawing No.