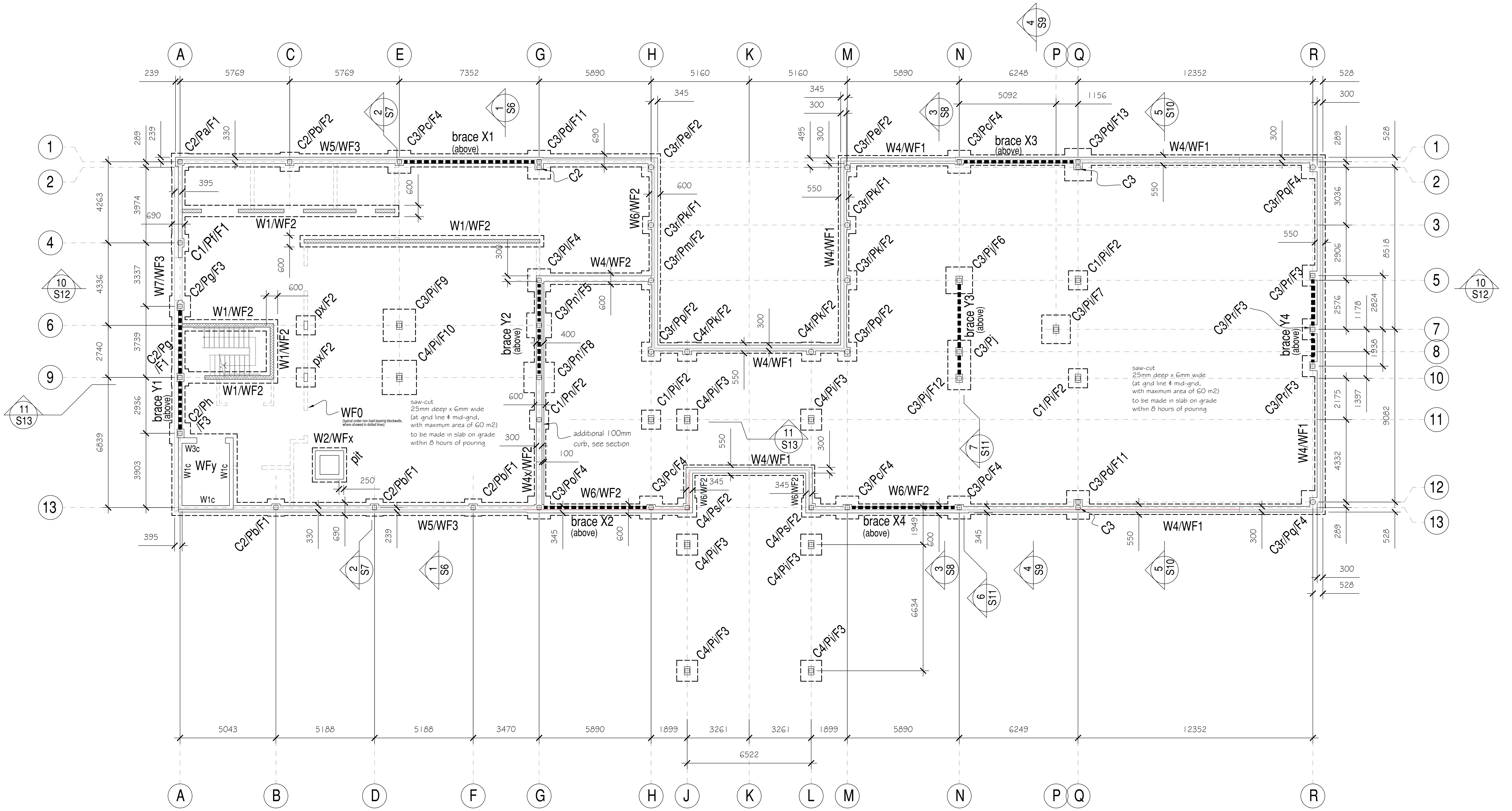


CONCRETE STRENGTH

LOCATIONS	28 DAYS CONCRETE STRENGTH
FOOTING FOUNDATION WALL PIER	25 mPa (ADD 5% AIR +/- 1%)
SLAB	25 mPa

FOUNDATION PLAN

(TOP OF BASEMENT SLAB ON GRADE ELEVATION = 110.00m)

SLAB ON GRADE CONSTRUCTION TO BE 125mm SLAB
OF 25 MPA CONCRETE C/W 1-LAYER 6X6 X6/6
WIRE MESH ON MID-HEIGHT OF SLAB
ON COMPACTED GRANULAR AS PER SOIL REPORT
COMPACTED AND TESTED TO MEET SOIL ENGINEER'S REQUIREMENTS

FOOTING SCHEDULE

SOIL BEARING CAPACITY = 150 KPA MINIMUM (SLS), AND 250 KPA (ULS)
ON UNDISTURBED, WEATHERED SILTY CLAY & SANDY SILT DEPOSITS
refer to soil report by Houle Chevrier Engineering Ltd, dated March 2010. Report #10-025
SOIL ENGINEER TO VERIFY BEFORE FORMING THE FOOTING

MARK	SIZE	REINFORCEMENT	MARK	SIZE	REINFORCEMENT
F1	900 X 900 X 300	(3)-15M x 750 BOTTOM EACH WAY	F8	1600 X 1600 X 330	(6)-15M x 1450 BOTTOM EACH WAY
F2	1000 X 1000 X 300	(4)-15M x 850 BOTTOM EACH WAY	F9	1700 X 1700 X 330	(7)-15M x 1550 BOTTOM EACH WAY
F3	1100 X 1100 X 300	(4)-15M x 950 BOTTOM EACH WAY	F10	1800 X 1800 X 350	(8)-15M x 1650 BOTTOM EACH WAY
F4	1200 X 1200 X 300	(4)-15M x 1050 BOTTOM EACH WAY	F11	1200 X 1500 X 300	(4)-15M x 1350 BOTTOM (5)-15M x 1050 BOTTOM
F5	1300 X 1300 X 300	(4)-15M x 1150 BOTTOM EACH WAY	F12	1200 X 2600 X 300	(4)-15M x 2450 BOTTOM (9)-15M x 1050 BOTTOM
F6	1400 X 1400 X 300	(5)-15M x 1250 BOTTOM EACH WAY	F13	1400 X 1700 X 300	(5)-15M x 1550 BOTTOM (6)-15M x 1250 BOTTOM
F7	1500 X 1500 X 300	(5)-15M x 1350 BOTTOM EACH WAY			

WALL SCHEDULE

WALL	DESCRIPTION
W0 (NON LOAD BEARING BLOCKWALL)	190mm THICK NON LOAD BEARING CONCRETE BLOCK WALL (WHERE SHOWN DOTTED LINE ON DRAWING) 15M AT 600MM VERTICAL + BLOK-LOK AT 400MM O.C.
W1 (BLOCKWALL)	190mm THICK CONCRETE BLOCK WALL 15M AT 600MM VERTICAL + HEAVY DUTY BLOK-LOK AT 200MM & 400MM ALTERNATE
W1c	190mm THICK CONCRETE WALL 15M AT 400MM VERTICAL & HORIZONTAL
W2 (PIT WALL)	250mm THICK CONCRETE PIT WALL 15M AT 600MM EACH WAY (2 LAYERS)
W3 (BLOCKWALL)	290mm THICK CONCRETE BLOCK WALL 15M AT 400MM VERTICAL + HEAVY DUTY BLOK-LOK AT 200MM
W3c	290mm THICK CONCRETE WALL 15M AT 600MM VERTICAL & HORIZONTAL (EACH FACE)
W4	300mm THICK CONCRETE FOUNDATION WALL 15M AT 600MM VERTICAL & HORIZONTAL (EACH FACE)
W4x	400mm THICK CONCRETE FOUNDATION WALL 15M AT 500MM VERTICAL & HORIZONTAL (EACH FACE)
W5	330mm THICK CONCRETE FOUNDATION WALL 15M AT 600MM VERTICAL & HORIZONTAL (EACH FACE)
W6	345mm THICK CONCRETE FOUNDATION WALL 15M AT 550MM VERTICAL & HORIZONTAL (EACH FACE)
W7	395mm THICK CONCRETE FOUNDATION WALL 15M AT 500MM VERTICAL & HORIZONTAL (EACH FACE)

WALL FOOTING SCHEDULE

WALL FOOTING	DESCRIPTION
WF0	500mm WIDE, SLAB THICKENING FOR NON LOAD BEARING BLOCKWALL (WHERE SHOWN DOTTED LINE ON DRAWING) SEE SECTIONS
WF1	550mm WIDE x 200mm DEEP STRIP FOOTING (2)-15M BOTTOM CONTIN.
WF2	600mm WIDE x 200mm DEEP STRIP FOOTING (2)-15M BOTTOM CONTIN.
WF3	690mm WIDE x 200mm DEEP STRIP FOOTING (3)-15M BOTTOM CONTIN.
WFx	footing for pit (see sections)
WFy	footing for elevator (see sections)

COLUMN SCHEDULE

see base plate details on drawing S5

MARK	C1	C2	C3	C4	C3r	C4r
column size	102 x 102 x 6.4 HSS (class C)	152 x 152 x 4.8 HSS (class C)	152 x 152 x 6.4 HSS (class C)	152 x 152 x 8.0 HSS (class C)	152 dia. x 6.4 HSS (class C)	152 dia. x 8.0 HSS (class C)

DAIDO GROUP INC.
STRUCTURAL ENGINEERS
11-300 Earl Grey Drive, Suite 213,
Ottawa, Ontario K2T 1C1
TEL: (613) 302-8972
E.MAIL: daidogroup@gmail.com
Web Site: https://daidogroup.wixsite.com/daido

LICENSED PROFESSIONAL ENGINEER
T. TAI
PROVINCE OF ONTARIO
costing only
August 31, 2018
Highland Park Remembrance
2037 McGee Side Road, Ottawa, Ontario
Structural

REV. NO.	DESCRIPTION	DATE
3		
2	ISSUE FOR COSTING	August 31, 2018
1	PRELIMINARY	November 28, 2017

PROJECT TITLE

HIGHLAND PARK REMEMBRANCE
Visitation center
2037 McGee Side Road
Ottawa, Ontario

DRAWING TITLE

FOUNDATION PLAN

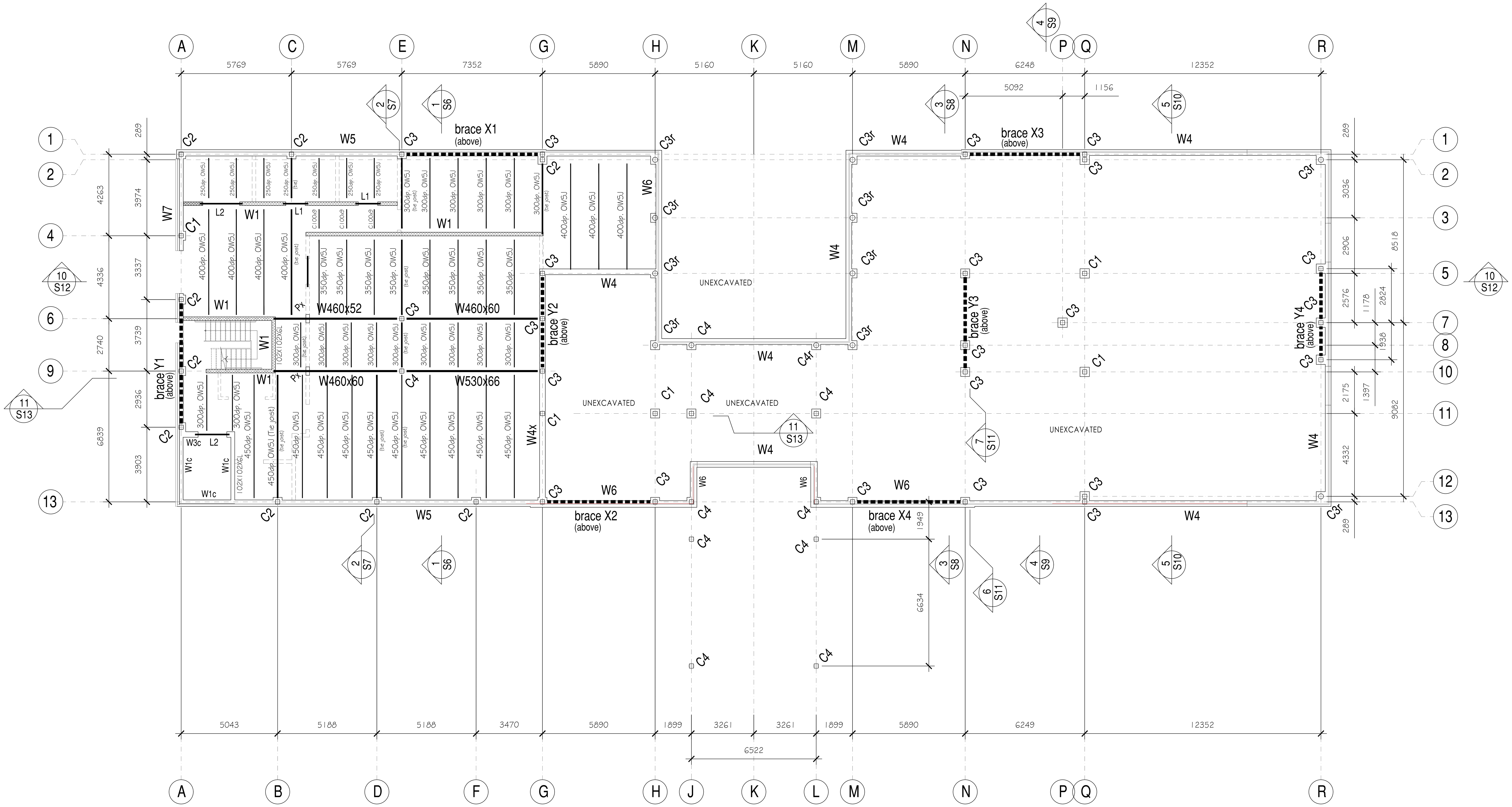
SCALE: 1 : 100 (ISO-B1 SIZE, 1000x707)

DRAWN & DESIGNED BY: T. TAI

DISCIPLINE: Structural

PROJECT NO.: cad\highlandPark\hpPlan.dwg

DRAWING NO.: S1



GROUND FLOOR FRAMING PLAN

(TOP OF GROUND FL. CONCRETE SLAB ELEVATION = 113.60m)

WHERE THERE IS BASEMENT BELOW:

65MM CONCRETE TOPPING WITH
C/W 1-LAYER 152x152 187/187

38mm DEEP - 22 GA.
GALVANIZED <u>COMPOSITE</u> DECK
ON JOIST AND BEAM

DEAD LOAD =	2.6 kPa
	1.0 kPa PARTITION (+
	3.6 kPa
LIVE LOAD =	4.8 kPa (assembly use)
LIVE LOAD DEFELECTION L/360	

BRIDGING AS PER JOIST MANUFACTURER'S SPECIFICATIONS
(not shown for clarity)

JOIST SHOE = 100mm TYPICAL

WHERE THERE IS NO BASEMENT BELOW:

125MM CONCRETE SLAB ON GRADE
(25 MPA CONCRETE WITH 5% AIR)
C/W 6x6x6/6 STEEL WIRE MESH
ON MID-HEIGHT OF SLAB
ON COMPACTED GRANDULAR
(COMPACTED AND TESTED TO MEET
SOIL ENGINEER'S REQUIREMENTS)

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STRUCTURAL ENGINEERS
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Ottawa, Ontario K2T 1C1
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T. TAI
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HIGHLAND PARK REMEMBRANCE
Visitation center
2037 McGee Side Road
Ottawa, Ontario

DRAWING TITLE

GROUND FLOOR FRAMING PLAN

SCALE
1 : 100 (ISO-B1 SIZE, 1000x707)

DRAWN & DESIGNED BY
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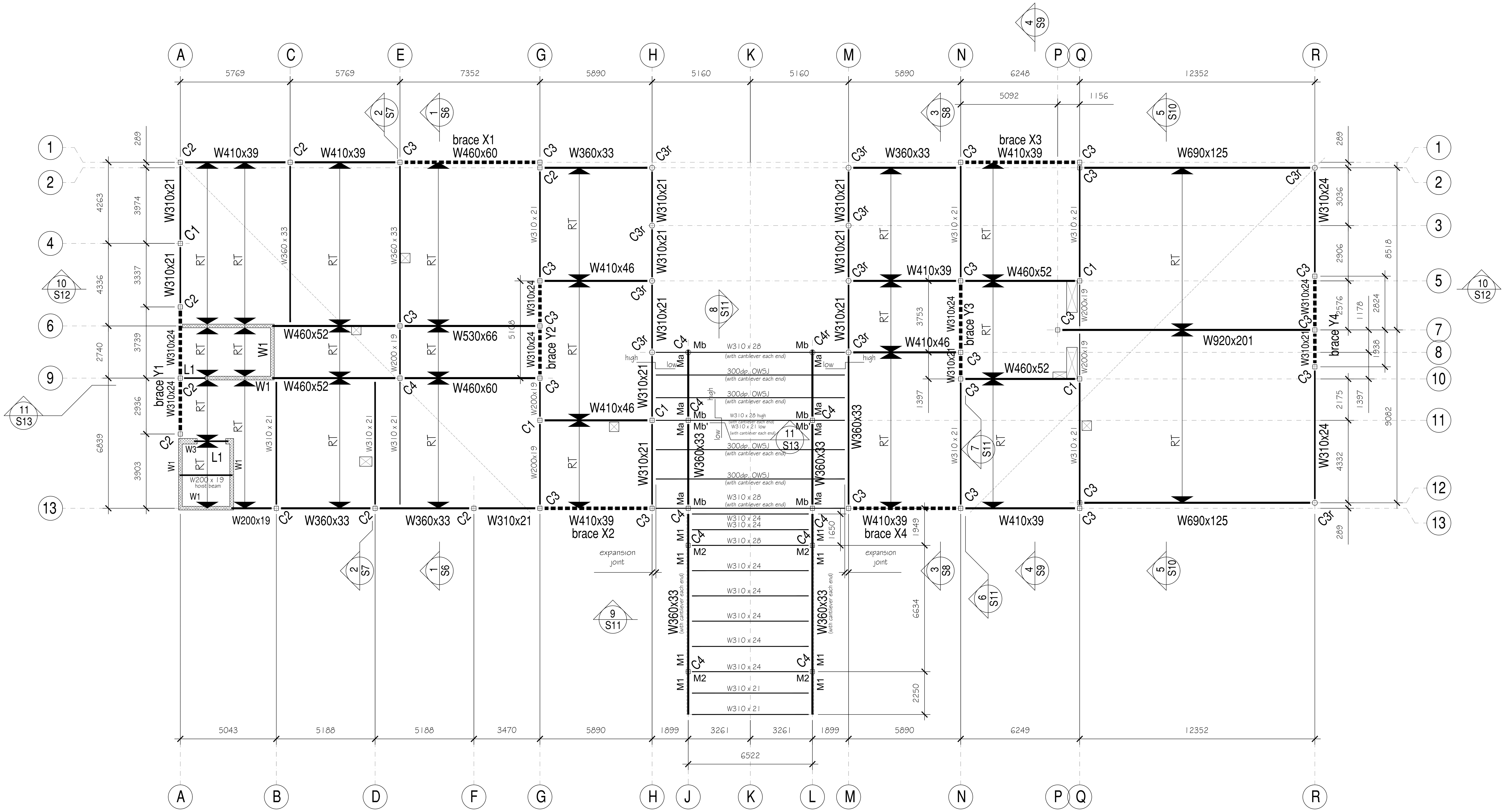
DRAWING NO.
S2



ROOF FRAMING PLAN

(TOP OF STEEL BEAM ELEVATION = 118.103m)

see architectural drawings for the drain locations

pre-engineered wood roof truss on steel beam as shown on plan

sheathing to be 19mm thick osb

S=Is [Ss x (Cb x Cw x Cs x Ca) + Sr]

Ss=2.4 kPa + build up snow

Sr=0.4 kPa

Cb=0.8

Ca=1.0

Cs=1.0

Is =1.0

DESIGN LOADS:

DEAD LOAD = 1.2 kPa

LIVE LOAD = average build up snow 3.6 kPa

LIVE LOAD DEFELECTION L/360

ROOF TRUSS

TRUSS LEGEND	DESCRIPTION
RT	PRE-ENGINEERED WOOD ROOF TRUSS (SEE ARCHITECTURAL DRAWINGS FOR SHAPE AND SLOPE OF THE TRUSS) SPACING 600mm O.C. ADDITIONAL BLOCKING AS PER DRAWING SXXXXXXXXX

MOMENT FRAME

MARK	MOMENT VALUE (FACTORED)
M1	15 kNm
M2	30 kNm
Ma	25 kNm
Mb	30 kNm
Mb'	30 kNm

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STRUCTURAL ENGINEERS
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Web Site: https://daidogroup.wixsite.com/daido

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DRAWING TITLE

ROOF FRAMING PLAN

SCALE: 1 : 100 (ISO-B1 SIZE, 1000x707)

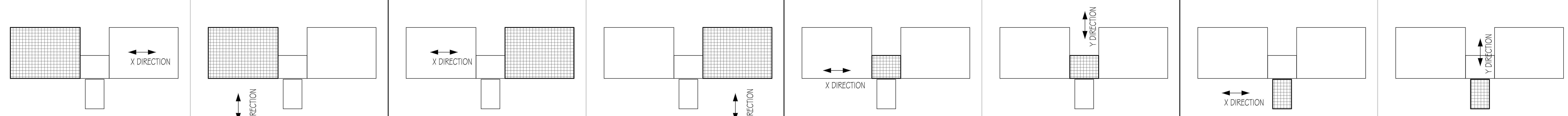
DRAWN & DESIGNED BY: T. TAI

DISCIPLINE: Structural

DRAWING NO.: S3

PROJECT NO.: cad\highlandPark\hpPlan.dwg

LATERAL FORCE DATA

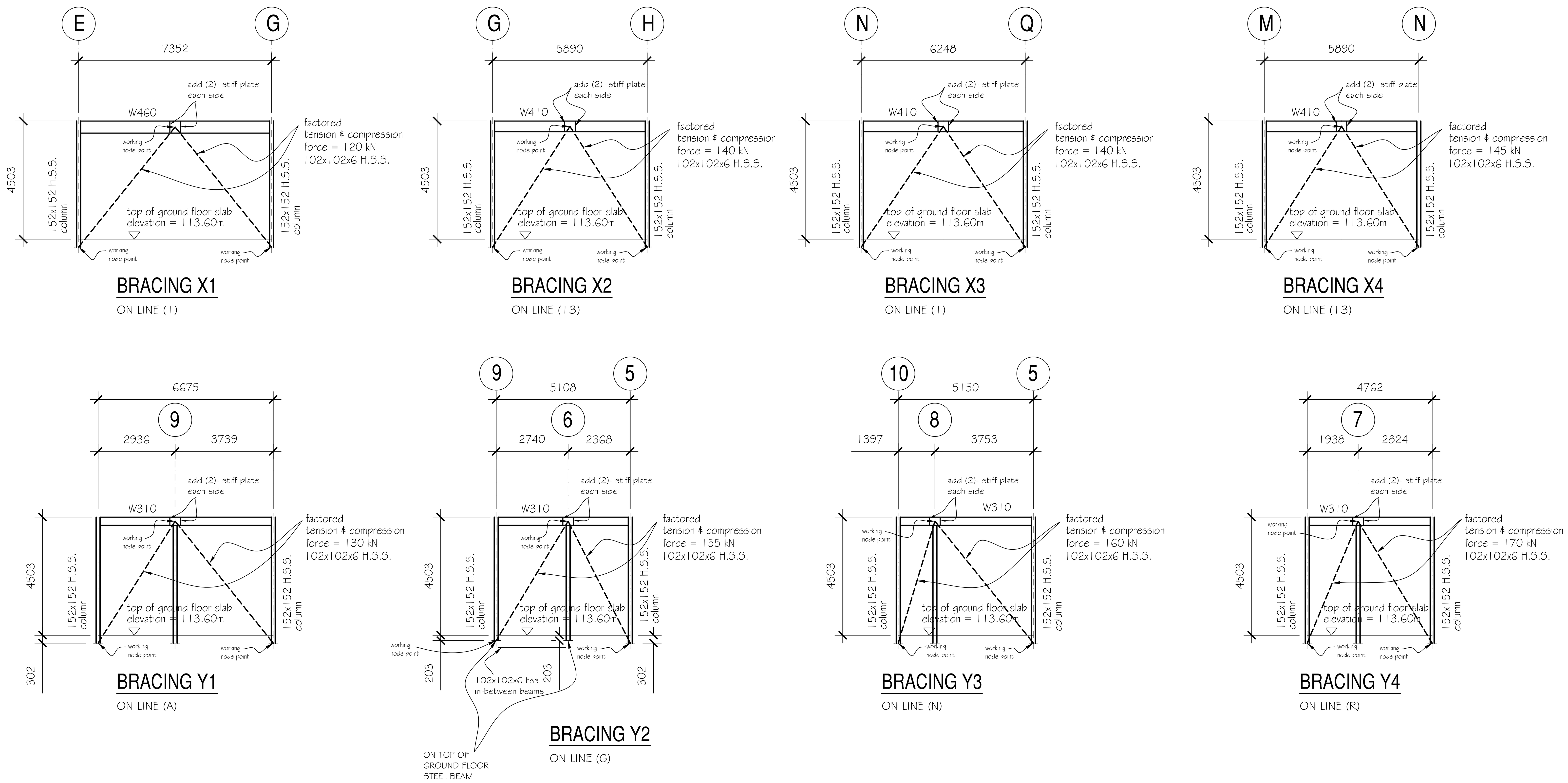


	West Wing		East Wing		Link		Front Canopy	
	SFRS= bracing W= 1225 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= bracing W= 1225 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= bracing W= 1270 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= bracing W= 1270 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= moment frame W= 235 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= moment frame W= 235 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= moment frame W= 145 kN Ta = 0.20 Rd = 1.5 Ro = 1.3	SFRS= moment frame W= 145 kN Ta = 0.20 Rd = 1.5 Ro = 1.3
EARTHQUAKE site class D soil Sa(0.2) = 0.62 Sa(0.5) = 0.30 Sa(1.0) = 0.13 Sa(2.0) = 0.045 S(T) = 0.66 Fa = 1.15 Fv = 1.37 Ie = 1.0 Mv = 1.0 S(0.2) = Fa x Sa (0.2) = 1.15 x 0.62 = 0.713 structural irregularities = regular B < 1.7	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 300 kN factored (CONTROL) M = 2215 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 300 kN factored (CONTROL) M = 2215 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 310 kN factored (CONTROL) M = 2290 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 310 kN factored (CONTROL) M = 2290 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 60 kN factored (CONTROL) M = 450 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 60 kN factored (CONTROL) M = 450 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 35 kN factored (CONTROL) M = 100 kNm factored (CONTROL)	$V = \frac{S(Ta) \times Mv \times Ie \times W}{Rd \times Ro}$ $V_{max} = \frac{2 \times S(0.2) \times Ie \times W}{3 \times Rd \times Ro}$ V = 0.244W = 35 kN factored (CONTROL) M = 100 kNm factored (CONTROL)
WIND q=0.41kPa Cg=2.0 Iw =1.0	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa	Ce=0.94 P = Iw x (q x Ce x Cg x Cp) = 0.78 kPa
	Base shear = 110 kN working (NOT CONTROL) Moment = 400 kNm working (NOT CONTROL)	Base shear = 145 kN working (NOT CONTROL) Moment = 535 kNm working (NOT CONTROL)	Base shear = 110 kN working (NOT CONTROL) Moment = 400 kNm working (NOT CONTROL)	Base shear = 150 kN working (NOT CONTROL) Moment = 560 kNm working (NOT CONTROL)	Base shear = 48 kN working (NOT CONTROL) Moment = 180 kNm working (NOT CONTROL)	Base shear = 60 kN working (NOT CONTROL) Moment = 220 kNm working (NOT CONTROL)	exposed (NOT CONTROL)	exposed (NOT CONTROL)

We confirm the seismic force resisting system foundation and their connections have been designed in accordance with the 2012 Ontario Building Code article 4.1.8.16 for the appropriate RdRo, CAN/CSA- S16-01, Limit States Design of Steel Structures.

We confirm the seismic force resisting system diaphragms and their connections have been designed in accordance with the 2012 Ontario Building Code article 4.1.8.15 for the appropriate RdRo, CAN/CSA- S16-01, Limit States Design of Steel Structures.

We confirm the seismic force resisting system Bracing and their connections have been designed in accordance with the 2012 Ontario Building Code article 4.1.8. 9 for the appropriate RdRo, CAN/CSA- S16-01, Limit States Design of Steel Structures.



IMPORTANT NOTES

concrete wall beside the column locations, to be formed (or cut) to miss the bracing

DAIDO GROUP INC.
STRUCTURAL ENGINEERS
11-300 Earl Grey Drive, Suite 213,
Ottawa, Ontario K2T 1C1
TEL: (613) 302-8972
E.MAIL: daidogroup@gmail.com
Web Site: https://daidogroup.wixsite.com/daido

LICENSED PROFESSIONAL ENGINEER T. TAI PROVINCE OF ONTARIO
costing only
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PROJECT TITLE
HIGHLAND PARK REMEMBRANCE
Visitation center
2037 McGee Side Road
Ottawa, Ontario

DRAWING TITLE
LATERAL FORCE DATA
BRACING LAYOUT

SCALE
1 : 100 (ISO-B1 SIZE, 1000x707)

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PROJECT NO.
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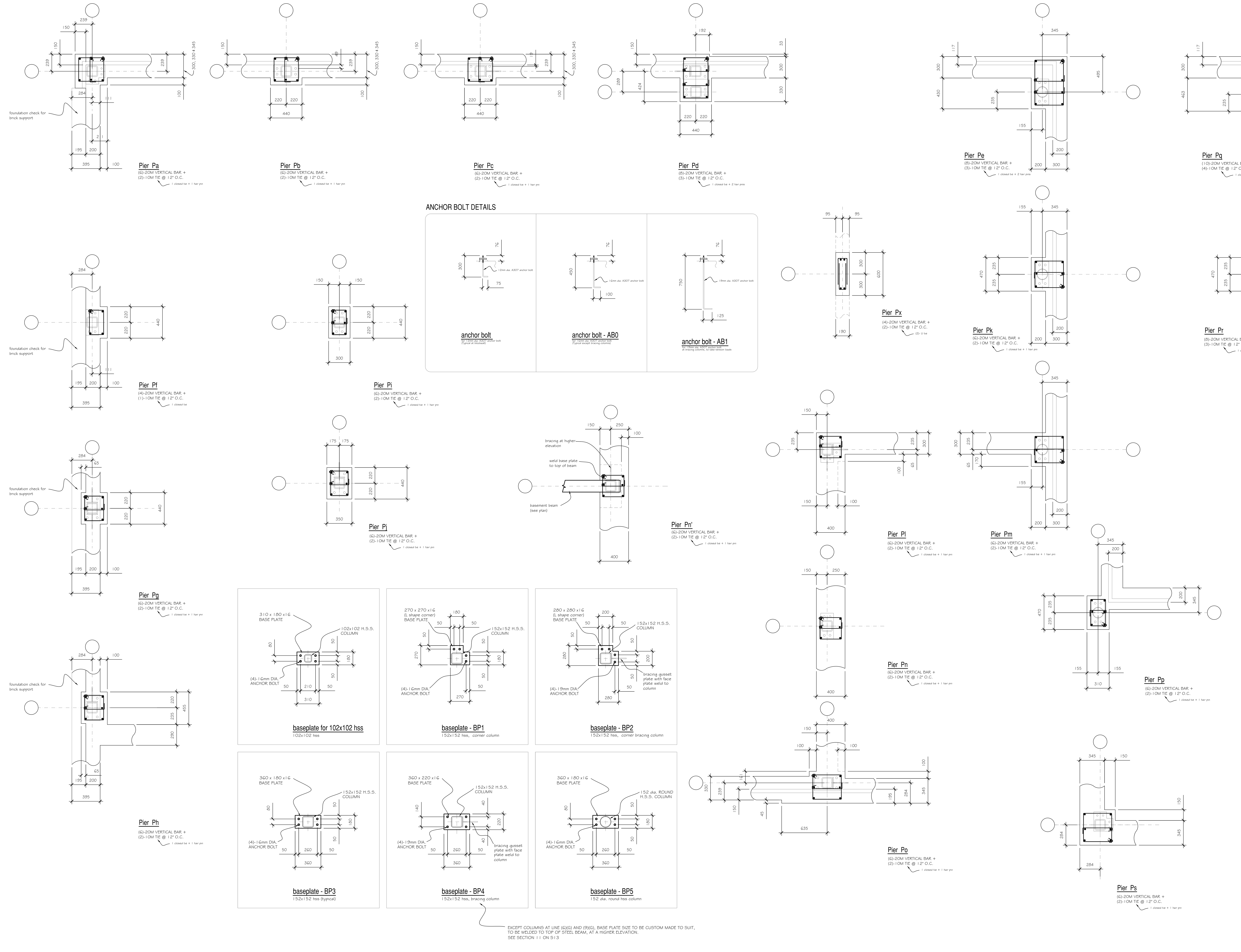
DRAWING NO.
S4



NOTE:
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DAIDO GROUP INC.
STRUCTURAL ENGINEERS
#11-300 Earl Grey Drive, Suite 213
Ottawa, Ontario K2T 1C1
TEL: (613) 302-8972
FAX: (613) 841-6994
E.MAIL: daidogroup@gmail.com
Web Site: https://daidogroup.wixsite.com/daido

LICENSED PROFESSIONAL ENGINEER T.T.Y. TAI PROVINCE OF ONTARIO
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2037 McGee Side Road, Ottawa, Ontario
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PROJECT TITLE

HIGHLAND PARK REMEMBRANCE
Visitation center
2037 McGee Side Road
Ottawa, Ontario

DRAWING TITLE

SECTIONS AND DETAILS

SCALE
1 : 20 (ISO-B1 SIZE, 1000x707)

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PROJECT NO.
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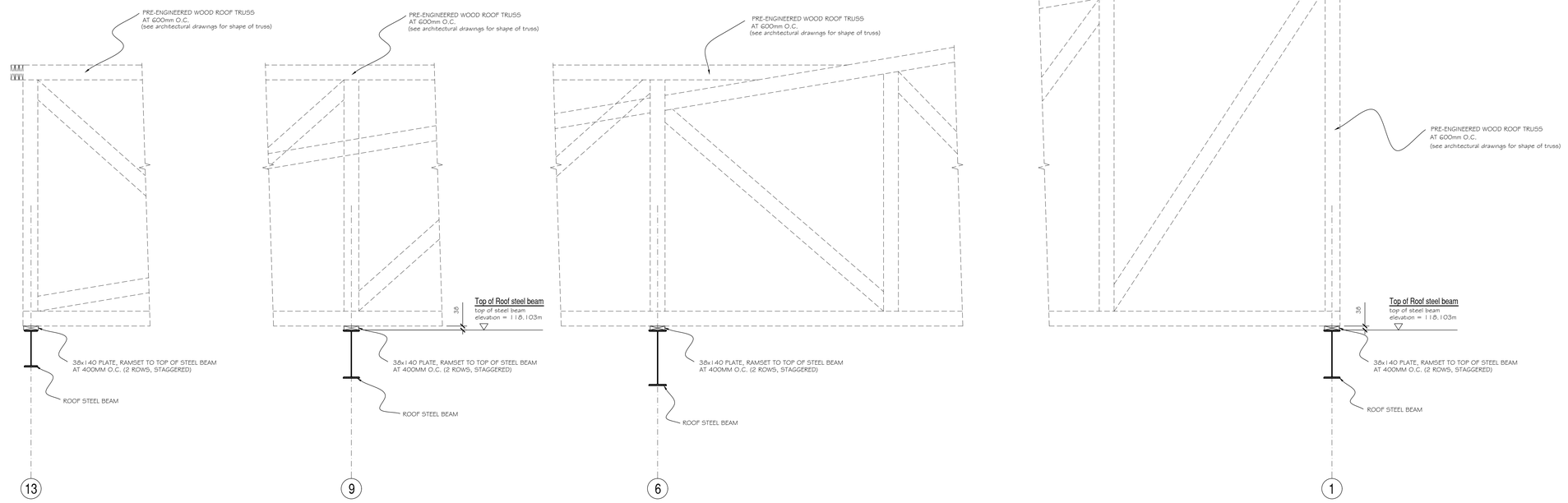
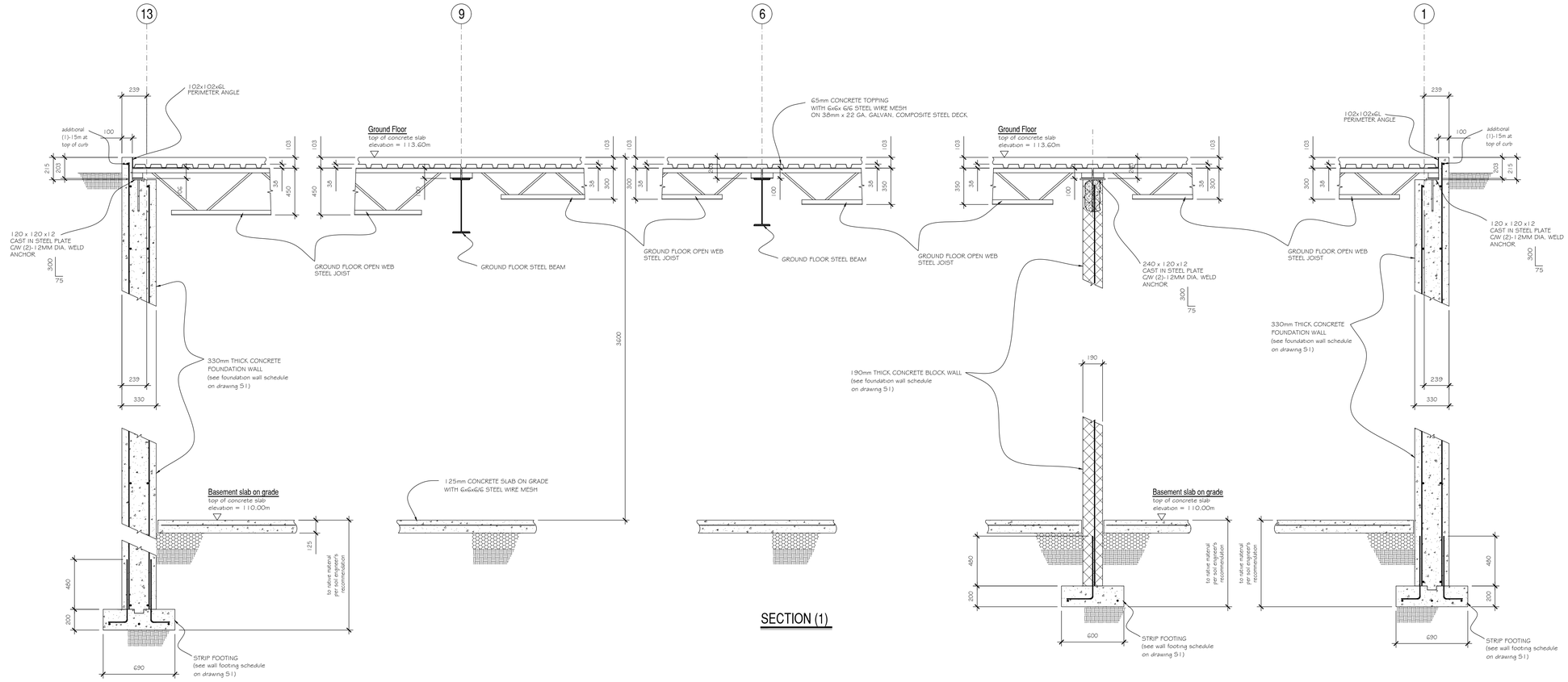
DRAWING NO.
S5





SECTION (1)

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#11-300 Earl Grey Drive, Suite 213
Ottawa, Ontario K2T 1C1
TEL: (613) 302-8972
FAX: (613) 841-0994
E.MAIL: daidogroup@gmail.com
Web Site: https://daidogroup.wixsite.com/daido

LICENCED PROFESSIONAL ENGINEER
T. T-Y. TAI
Highland Park Remembrance
2037 McGee Side Road, Ottawa, Ontario
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Ottawa, Ontario

DRAWING TITLE

SECTIONS AND DETAILS

SCALE
1 : 20 (ISO-B1 SIZE, 1000x707)

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DISCIPLINE
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DRAWING NO.
S6

PROJECT NO.
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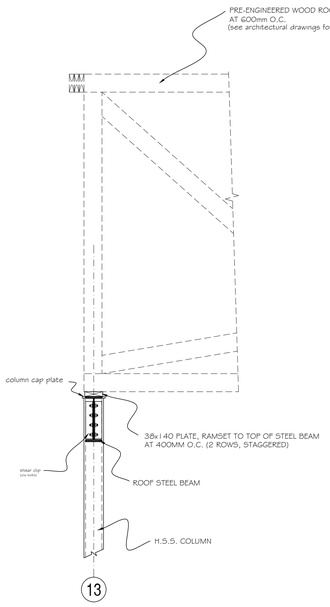

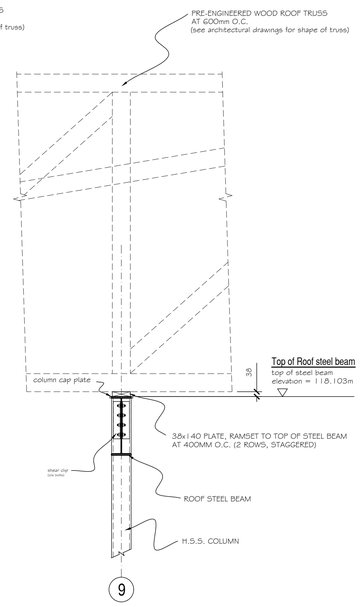

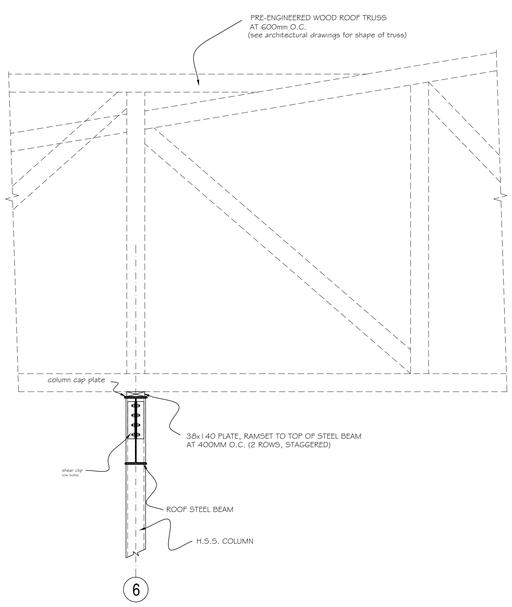

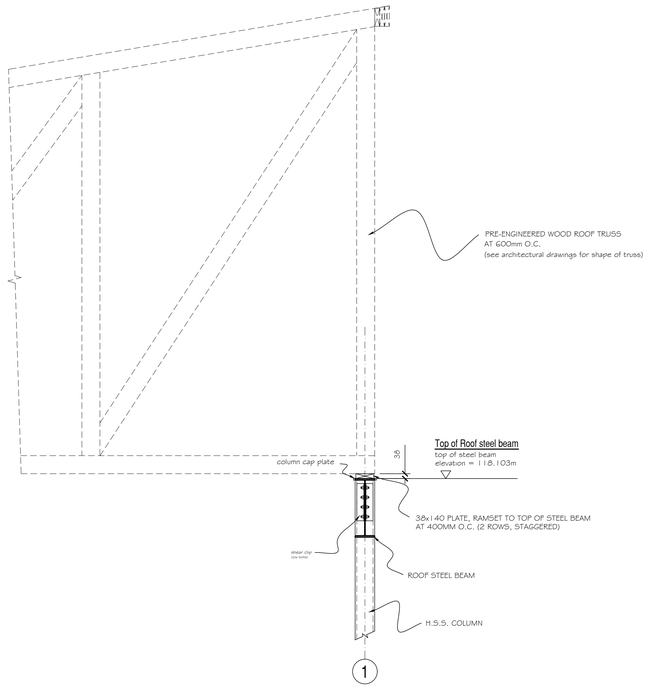

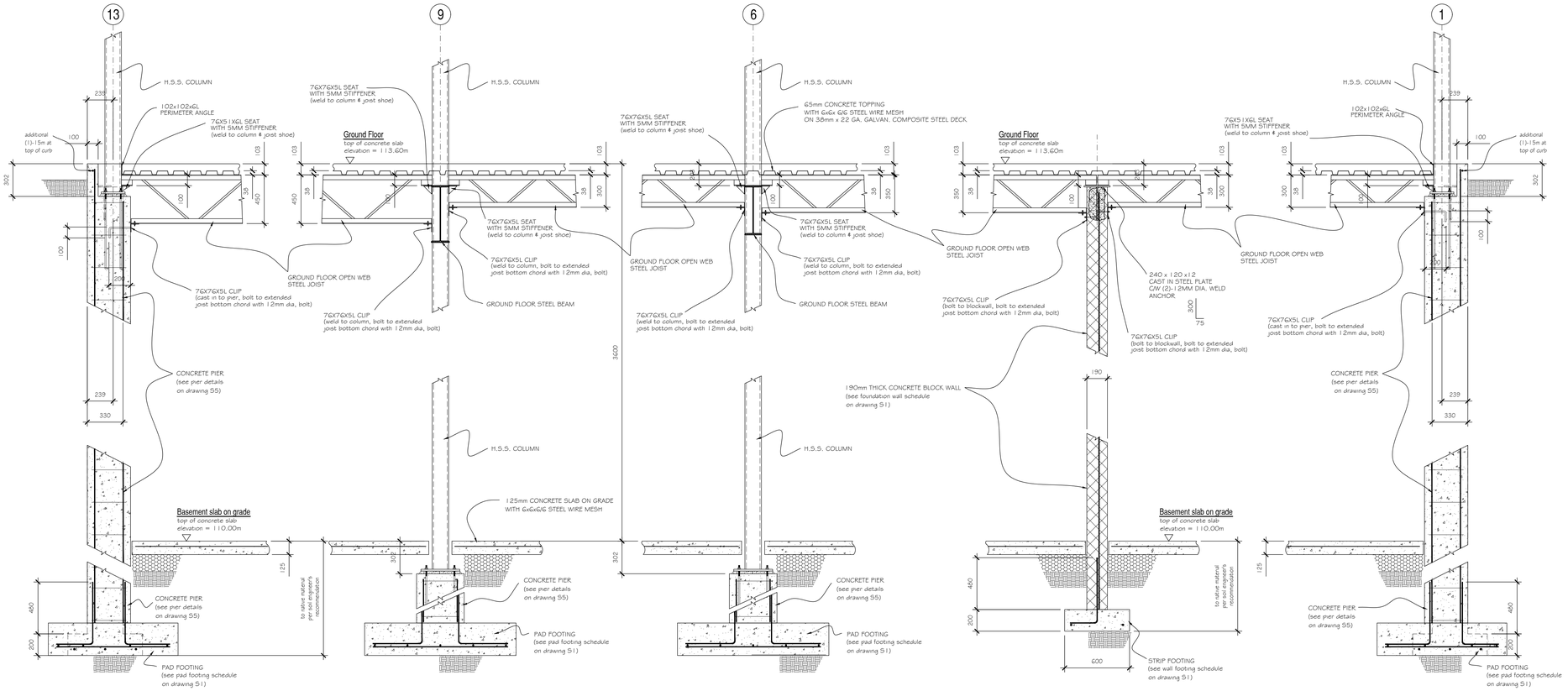

SECTION (2)

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STRUCTURAL ENGINEERS
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Ottawa, Ontario K2T 1C1
TEL: (613) 302-8972
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E.MAIL: daidogroup@gmail.com
Web Site: https://daidogroup.wixsite.com/daido

LICENCE PROFESSIONAL ENGINEER
T. T-Y. TAI
Highland Park Remembrance
2037 McGee Side Road, Ottawa, Ontario
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Visitation center
2037 McGee Side Road
Ottawa, Ontario

DRAWING TITLE

SECTIONS AND DETAILS

SCALE
1 : 20 (ISO-B1 SIZE, 1000x707)

DRAWN & DESIGNED BY
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DISCIPLINE
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DRAWING NO.
S7

PROJECT NO.
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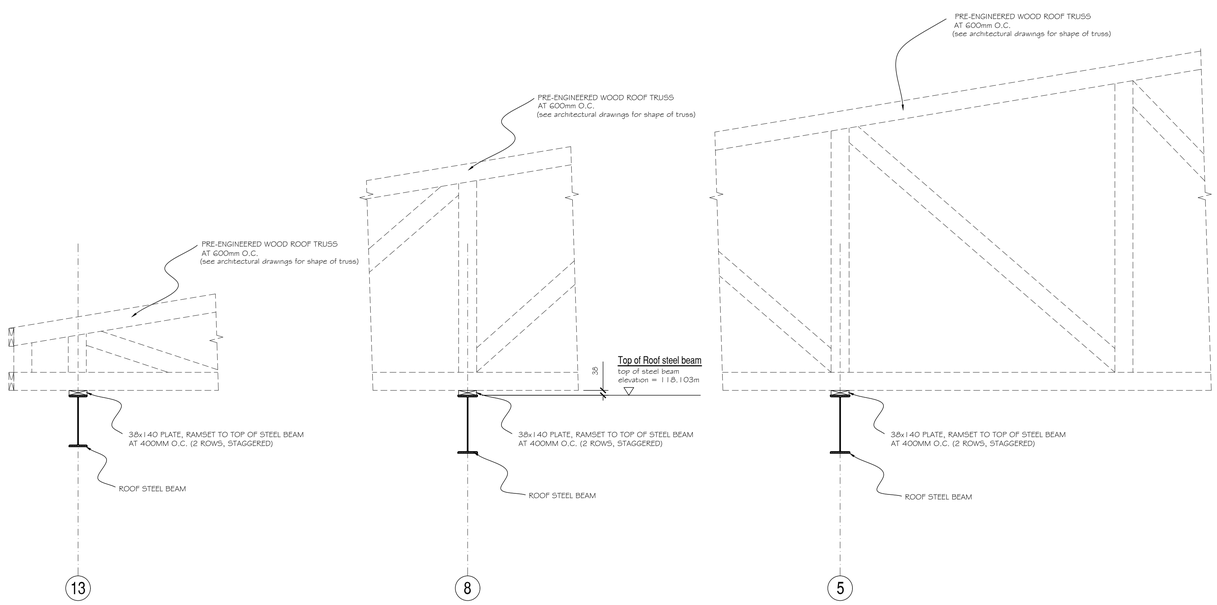

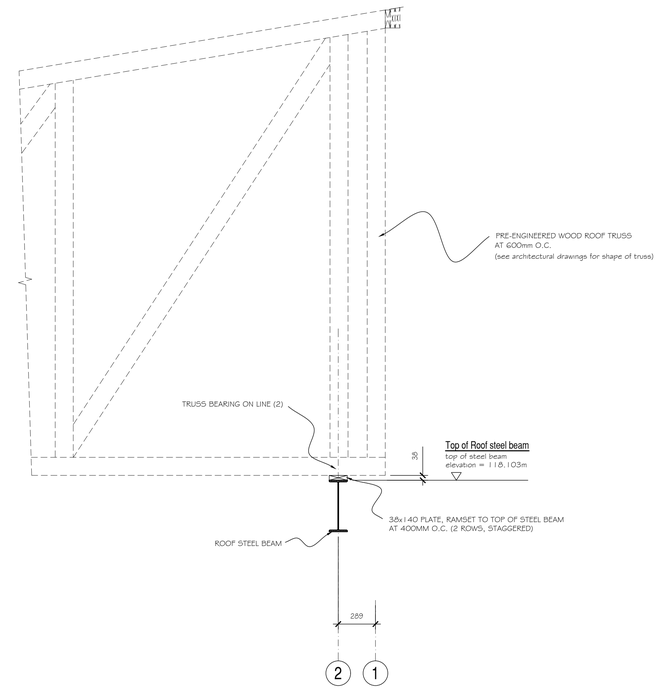

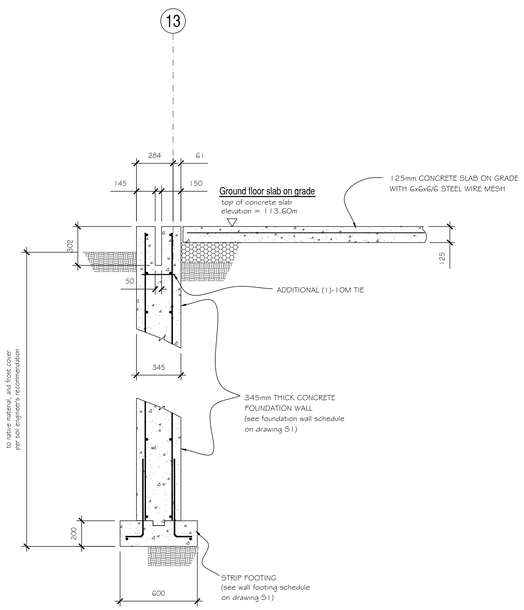

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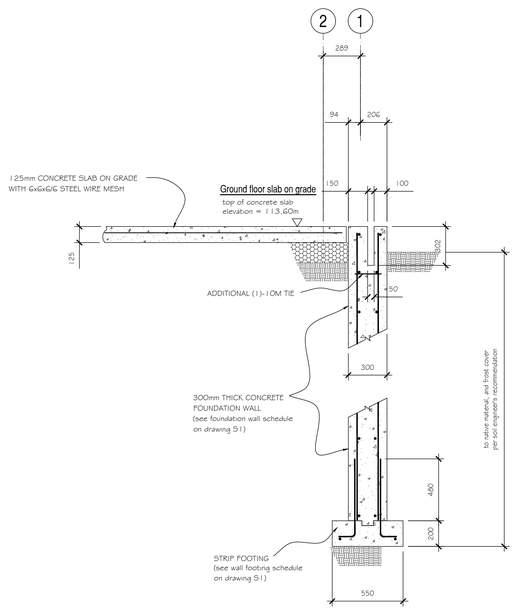

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STRUCTURAL ENGINEERS
#11-300 Earl Grey Drive, Suite 213
Ottawa, Ontario K2T 1C1
TEL: (613) 302-8972
FAX: (613) 841-6994
E.MAIL: daidogroup@gmail.com
Web Site: https://daidogroup.wixsite.com/daido

LICENSED PROFESSIONAL ENGINEER
T. T-Y. TAI
Highland Park Remembrance Centre
2037 McGee Side Road, Ottawa, Ontario
PROVINCE OF ONTARIO

REV. NO.	DESCRIPTION	DATE
3		
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PROJECT TITLE
HIGHLAND PARK REMEMBRANCE
Visitation center
2037 McGee Side Road
Ottawa, Ontario

DRAWING TITLE
SECTIONS AND DETAILS

SCALE
1 : 20 (ISO-B1 SIZE, 1000x707)

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T. TAI

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PROJECT NO.
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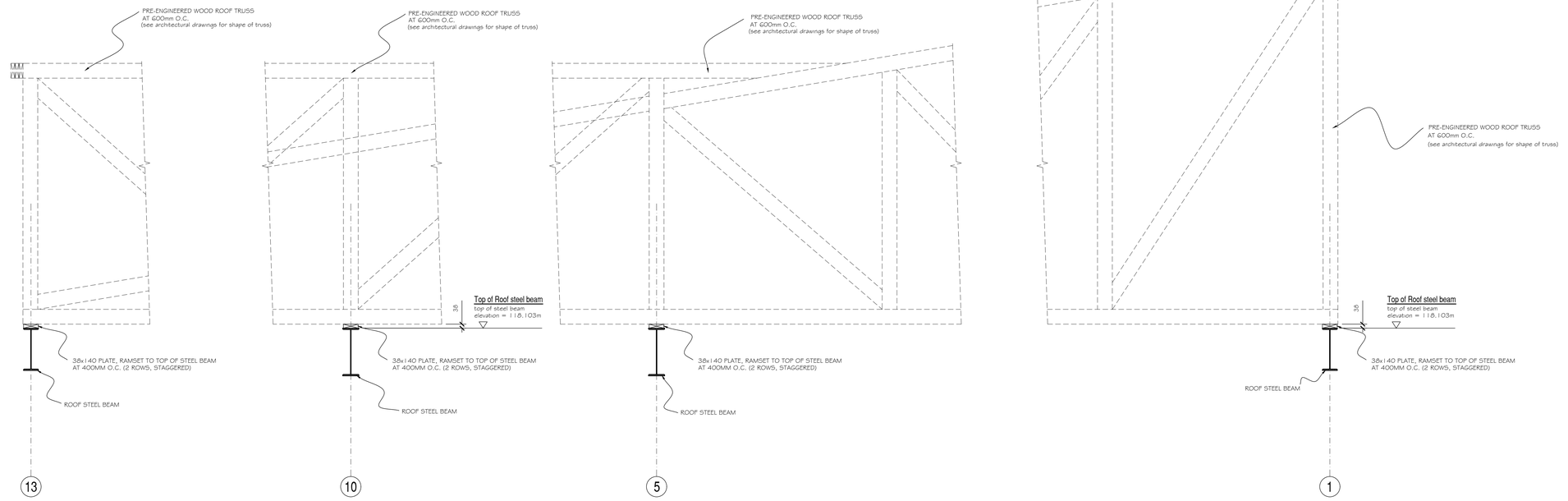

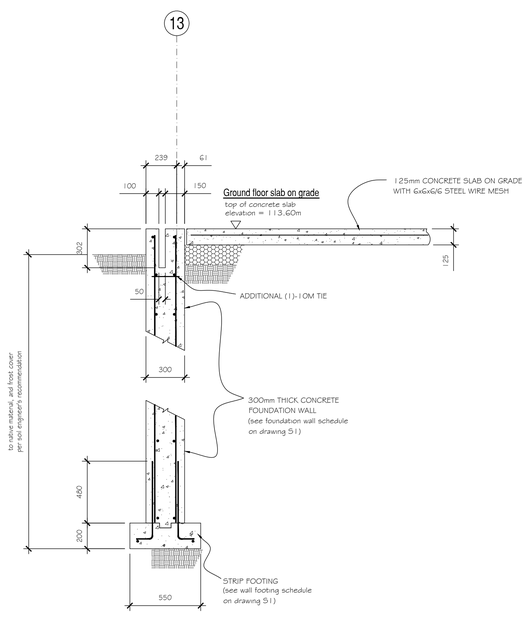

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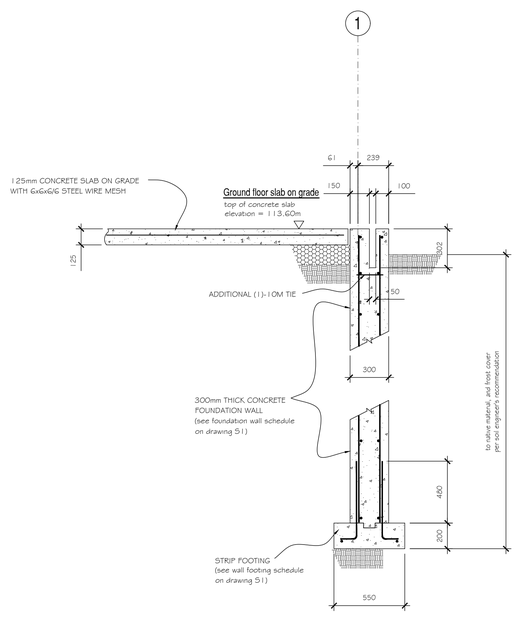

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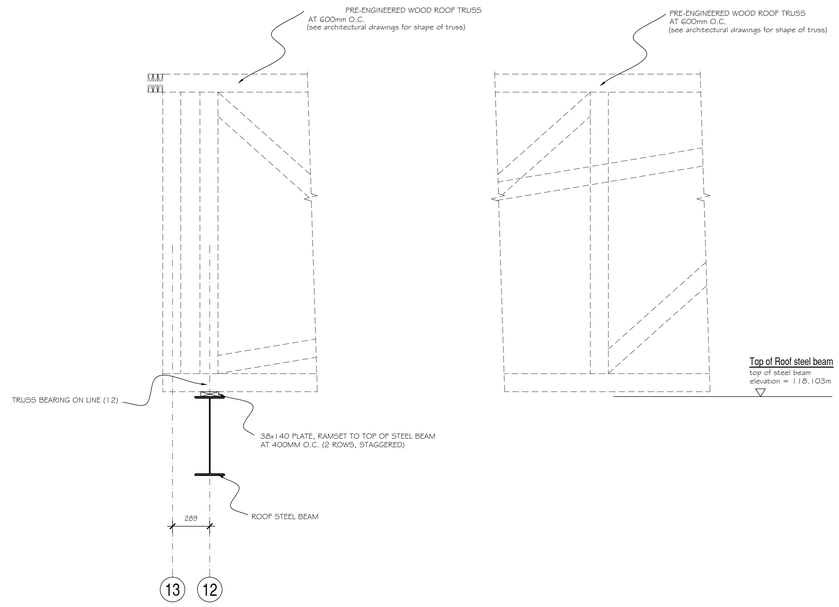

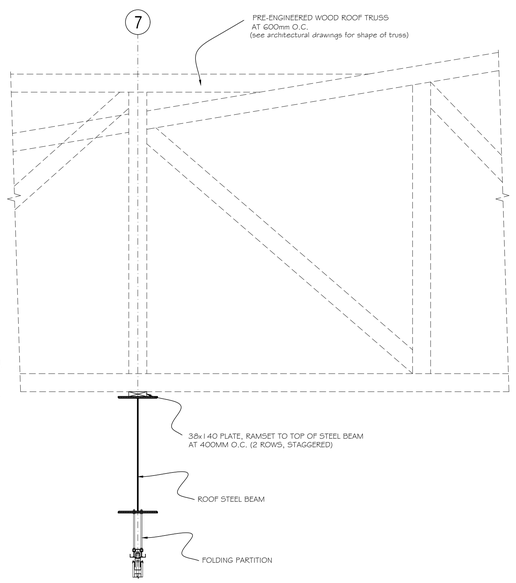

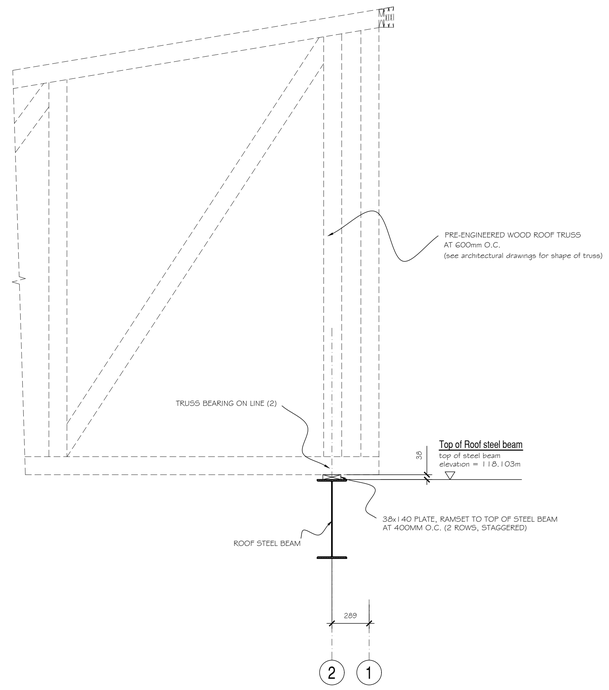

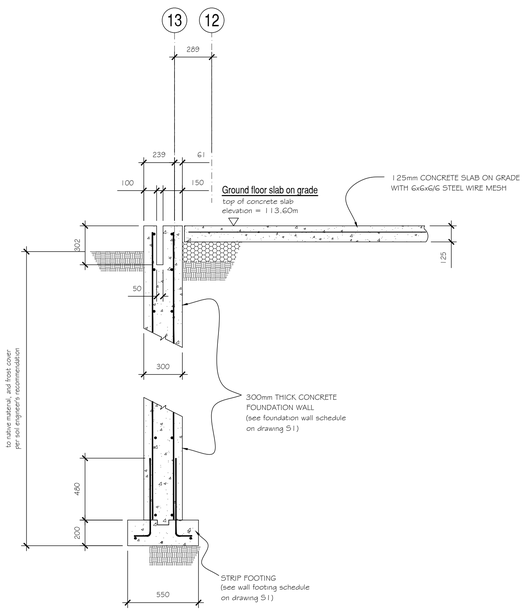

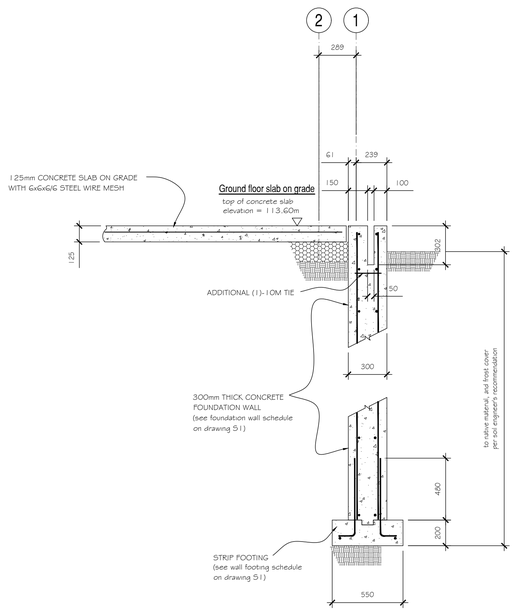

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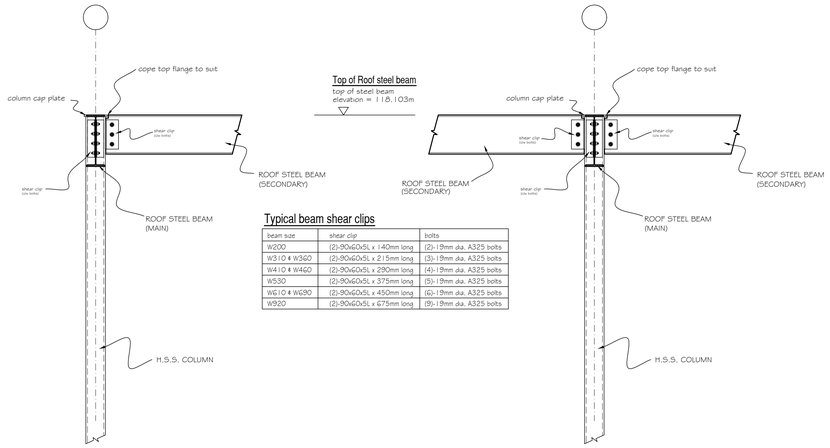
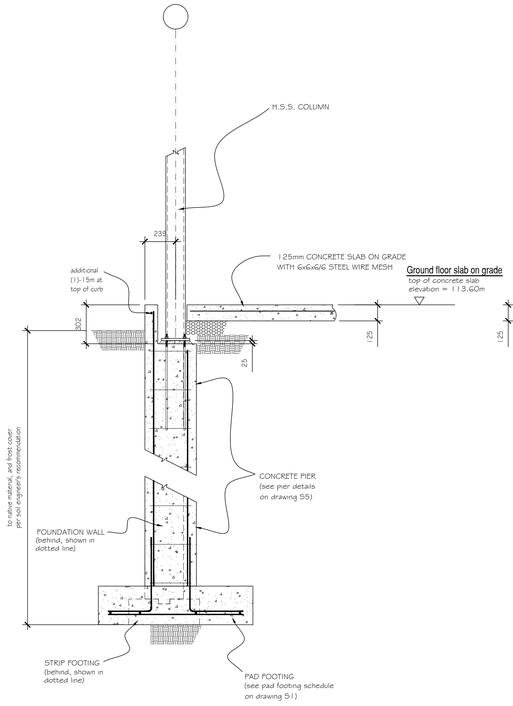


Typical beam shear clips

beam size	shear clip	bolts
W200	(2)-90x60x5L x 140mm long	(2)-19mm dia. A325 bolts
W310 ≠ W360	(2)-90x60x5L x 215mm long	(3)-19mm dia. A325 bolts
W410 ≠ W460	(2)-90x60x5L x 290mm long	(4)-19mm dia. A325 bolts
W530	(2)-90x60x5L x 375mm long	(5)-19mm dia. A325 bolts
W610 ≠ W690	(2)-90x60x5L x 450mm long	(6)-19mm dia. A325 bolts
W920	(2)-90x60x5L x 675mm long	(9)-19mm dia. A325 bolts



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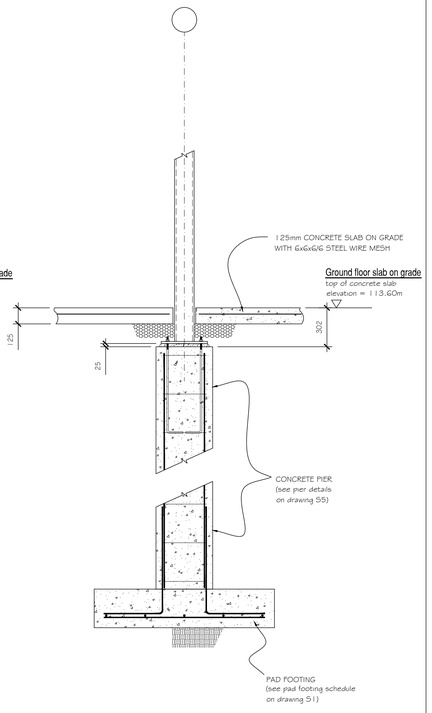

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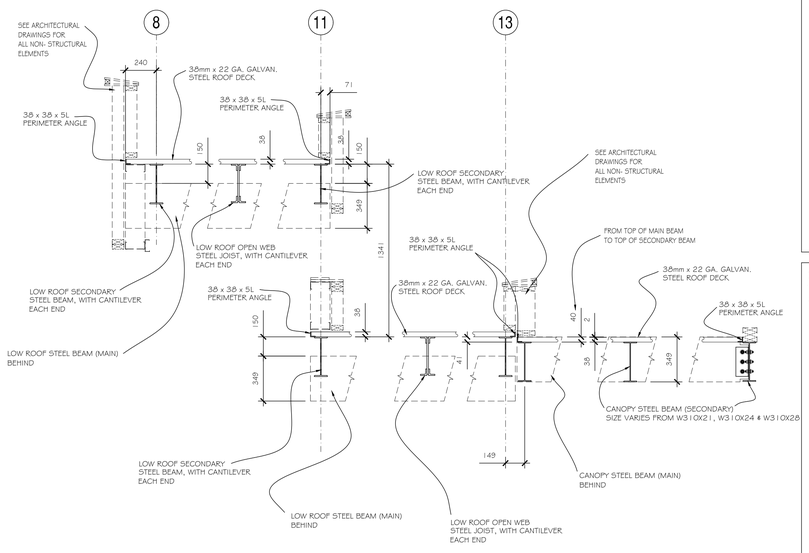

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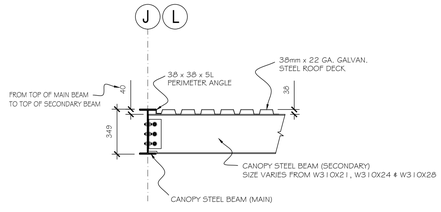

SECTION (9)

STRUCTURAL SPECIFICATIONS

1) GENERAL

1.1 REFERENCE
- A) USE ONLY THE LATEST ISSUES OF ANY GOVERNMENT CODES, STANDARDS OR REGULATIONS.
- B) STRUCTURAL ELEMENTS SHOWN ON THESE DRAWINGS ARE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF ONTARIO BUILDING CODE 2012.

1.2 DIMENSIONS
VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

1.3 INSPECTION
GIVE MINIMUM 2 DAYS NOTICE TO ENGINEER'S REPRESENTATIVE FOR EACH INSPECTION.

1.4 EXCAVATION
EXCAVATIONS FOR FOUNDATIONS SHALL BE INSPECTED BY THE SOILS CONSULTANT AND APPROVED FOR THE NECESSARY ALLOWABLE BEARING PRESSURE BEFORE FOUNDATION CONCRETE IS POURED.

1.5 FOUNDATIONS
- A) PROTECTED BY 1800 MM OF EARTH OR AN EQUIVALENT INSULATING VALUE.
- B) PLACED ON UNFROZEN GROUND ONLY.
- C) MAXIMUM STEP IN FOOTINGS 600 MM AND NOT EXCEEDING A RISE OF 1 IN RUN OF 1.5.
- D) NO FOOTINGS TO ENCROACH ON A PROJECTION LINE OF 1 VERTICAL TO 1.5 HORIZONTAL FROM SERVICE TRENCH OR LOWER FOOTING.

1.6 BACKFILLING
- A) DO NOT BACKFILL BASEMENT WALLS UNTIL FLOOR FRAMING IS COMPLETED AND WRITTEN APPROVAL OBTAINED FROM ENGINEER.
- B) BACKFILL EACH SIDE OF FOUNDATION WALLS SIMULTANEOUSLY WITH THE DIFFERENCE IN HEIGHT BETWEEN THE TWO SIDES NOT TO EXCEED 600 MM.
- C) BEARING STRATA, GRANULAR FILL MATERIALS, COMPACTION, FOOTINGS, FROST PROTECTION TO BE INSPECTED AND APPROVED BY SOILS CONSULTANT PRIOR TO POURING CONCRETE.

2) CONCRETE

2.1 SPECIFICATIONS

A) CONCRETE DESIGN	: CAN /CSA-A23.3-04 DESIGN OF CONCRETE STRUCTURES
B) FORMWORK	: CAN /CSA 5269.3-M92 (R2003)
C) FOUNDATION DESIGN	: CAN /CSA-A23.3-04 DESIGN OF CONCRETE STRUCTURES ALSO 'CONCRETE DESIGN HANDBOOK' 3RD EDITION, BY CEMENT ASSOCIATION OF CANADA, SECTION 9
D) REINFORING STEEL	: CAN /CSA-G30.18-M92 (R2007), GRADE 400

2.2 CONCRETE COVER

A) CONCRETE CAST AGAINST EARTH	: 75 MM
B) CONCRETE EXPOSED TO EARTH OR WEATHER	: 50 MM
C) COLUMNS ≠ BEAMS (TO TIES OR STIRRUPS)	: 40 MM
D) TOP REINFORCING IN GARAGE SLABS	: 40 MM
E) SLABS ≠ WALLS NOT EXPOSED TO EARTH OR WEATHER	: 25 MM

2.3 MIX DESIGN
- A) MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS SPECIFIED IN STRUCTURAL DRAWINGS.
- B) MAXIMUM AGGREGATE SIZE : 20 MM
- C) SLUMP : CAN /CSA-A23.3-04
- D) MAXIMUM WATER/CEMENT RATIO : MAX. 0.5
- E) DO NOT USE CALCIUM OR OTHER CHEMICALS WITHOUT WRITTEN PERMISSION.
- F) CONCRETE EXPOSED TO WEATHER TO HAVE 6% (+/- 1%) AIR CONTENT.
- G) SUBMIT MIX DESIGN.
- H) CONCRETE TO BE VIBRATED AT THE TIME OF POURING

2.4 SHOP DRAWINGS
- A) REINFORCEMENT
  - -SUBMIT MILL CERTIFICATE FOR STEEL.
  - -DETAILED AND BENT AS OUTLINED IN THE REINFORCING STEEL MANUAL OF STANDARD PRACTICE PUBLISHED BY THE REINFORCING STEEL INSTITUTE OF ONTARIO.
  - -SUBMIT SHOP DRAWINGS AND BAR BENDING SCHEDULE.
  - -ALLOW MINUMUM 5 DAYS FOR REVIEW BY ENGINEER.
- B) FORMWORK.
  - -PROVIDE SHOP DRAWINGS FOR SUSPENDED SLABS AND BEAMS AND RESHORING AS REQUIRED BY ONTARIO DEPARTMENT OF LABOUR. DRAWINGS SUBMITTED SHALL BE CHECKED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO.

2.5 CONCRETE PLACING
- A) CONSTRUCTION JOINTS TO BE CLEAN, SQUARE, FREE OF ALL LOOSE MATERIAL AND LAITANCE. WET THOROUGHLY BEFORE PLACING NEW CONCRETE. LOCATION TO BE APPROVED BY STRUCTURAL ENGINEER.
- B) SLAB ON GRADE
  - -SAW CUT SLAB ON GRADE AT ALL GRID LINES AND AS SHOWN ON THE DRAWINGS. SAW CUTS TO BE 40 MM DEEP AND SHALL BE THOROUGHLY CLEANED AND FILLED WITH POLYSULPHIDE SEALANT.
  - -CUT BETWEEN 18 - 24 HOURS AFTER CONCRETED POURED.
- C) PROVIDE ADEQUATE BAR SUPPORTS AS OUTLINED IN THE REINFORCING STEEL MANUAL OF STANDARD PRACTICE PUBLISHED BY THE REINFORCING STEEL INSTITUTE OF ONTARIO.

2.6 TESTING
- A) FIELD CONTROL TESTS OF CONCRETE TO CAN3-A23.2M
- B) DO TESTS FOR EACH CLASS OF CONCRETE POURED EACH DAY:
  - - THREE TEST CYLINDERS.
  - - SLUMP TEST.
  - - AIR CONTENT WHERE APPLICABLE.
  - - JOB-CURE CYLINDERS, WHEN DIRECTED.
  - - AGGREGATE SOUNDNESS TESTS AND GRADING, WHEN DIRECTED.

3) SHOP DRAWINGS

PROVIDE SHOP DRAWINGS OF THE FOLLOWINGS:
(WITH THE SEAL OF PROFESSIONAL ENGINEER'S STAMP REGISTERED IN PROVINCE OF ONTARIO)
- (1) PRE-ENGINEERED ROOF TRUSS ≠ FLOOR JOIST
- (2) STAIR; LANDING AND RAILING DETAILS
- (3) STEEL AT CANOPY, INCLUDING BRACKETS/ CLIPS/ HANGERS

4) WOOD

4.1 REFERENCE
WOOD FRAMING CONSTRUCTION TO BE CARRIED OUT ACCORDING TO PART 4 OF THE BUIDLING CODE.

4.2 MATERIALS

A) LUMBER: STUDS ≠ PLATES	: SPRUCE #2
B) PLYWOOD	: CSA STANDARD O121- "DOUGLAS FIR PLYWOOD"
	: CSA STANDARD O151- "CANADIAN SOFT WOOD PLYWOOD"
C) WAFERBOARD	: CSA STANDARD CAN 3-0437.0 OSB ≠ WAFTERBOARD

4.3 ROOF TRUSS
WOOD ROOF TRUSS TO BE DESIGNED IN ACCORDANCE TO PART 4 OF THE BUIDLING CODE.

4.4 SIMPSON STRONG TIE CONNECTORS
ALL FASTENERS AS PER SIMPSON STRONG TIES SPECIFICATIONS

5) STRUCTURAL STEEL

5.1 MATERIALS

A) ROLLED SECTIONS	: G40.21M - 300W
B) HOLLOW STRUCTURAL SECTIONS	: G40.21M - 350W, CLASS H
C) PLATES ≠ ANCHOR BOLTS	: G40.21M - 260W
D) HIGH STRENGTH BOLTS NUTS AND WASHERS	: ASTM A325 AND ASTM A490
E) WELDING ELECTRODES	: CSA W48.1 TO W48.6
F) SHOP PAINT PRIMER	: CGSB 1-GP-40M
G) GALVANIZING	: CSA G164M

5.2 DESIGN
- A) DO STRUCTURAL STEEL WORK IN ACCORDANCE WITH CSA CAN 3 S16.1 M84 AND CISC CODE OF STANDARD PRACTICE FOR STRUCTURAL STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
- B) IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DESIGN AND DETAIL ALL CONNECTIONS IN ACCORDANCE WITH CSA CAN 3 S16.1 M84 AND CISC HANDBOOK OF STEEL CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE STRUCTURAL ADEQUACY OF THE CONNECTIONS.
- C) PROVIDE ALL REQUIRED GUSSETS, SPACERS, FILLERS AND BATTEN PLATES.
- D) BOLTS: ASTM A325
  USE BEARING TYPE CONNECTIONS (MINIMUM 2-M20 BOLTS PER CONNECTION UNLESS NOTED OTHERWISE.
- E) ANCHOR BOLTS : ASTM GRADE A307.
  PROVIDE 2-20 MM x 250 MM HOOKED ANCHOR BOLTS FOR EACH STEEL BEAM BEARING PLATE.
- F) WELD CONNECT ALL BEAMS TO END BEARING PLATES WITH A MIN. OF 50 MM LENGTH OF 6 MM FILLET WELD EACH SIDE.

5.3 ERECTION ≠ FABRICATION
- A) PRIMING PREPARATION TO CSA-S16, CLAUSE 32.
- B) FIELD TOUCH UP ALL WELDS, DAMAGED AREAS AND BOLTS.
- C) FABRICATION : CSA-S16
- D) ARC WELDING : CSA-W59
- E) RESISTING WELDING : CSA-W55.2 ≠ W55.3
- F) CONNECTIONS : CSA-S16
- G) TOLERANCES : CSA-S16 ≠ G40.20M
- H) FABRICATOR SHALL BE FULLY QUALIFIED TO THE CONDITIONS OF CSA QUALIFICATION CODE W47.1-1983, DIVISION 1 OR 2.
- I) MAKE NO HOLES IN ANY STRUCTURAL STEEL MEMBER OTHER THAN THOSE SHOWN ON REVIEWED SHOP DRAWINGS.
- J) SUBMIT SHOP DRAWINGS.
- K) STRUCTURAL STEEL CONTRACTOR TO CHECK AND VERIFY ALL SITE CONDITIONS AND TAKE SITE DIMENSIONS BEFORE FABRICATION.
- L) OBTAIN WRITTEN PERMISSION OF CONSULTANT PRIOR TO FIELD CUTTING OR ALTERING OF STRUCTURAL MEMBERS.
- M) EXPOSED WELDS TO BE CONTINUOUS FOR LENGTH OF EACH JOINTS. FILL OR GRIND EXPOSED WELDS SMOOTH AND FLUSH.
- O) MAKE ADEQUATE PROVISION FOR ALL LOADS ACTING ON THE STRUCTURE DURING ERECTION. PROVIDE TEMPORARY BRACING TO KEEP THE STRUCTURE DURING CONSTRUCTION.

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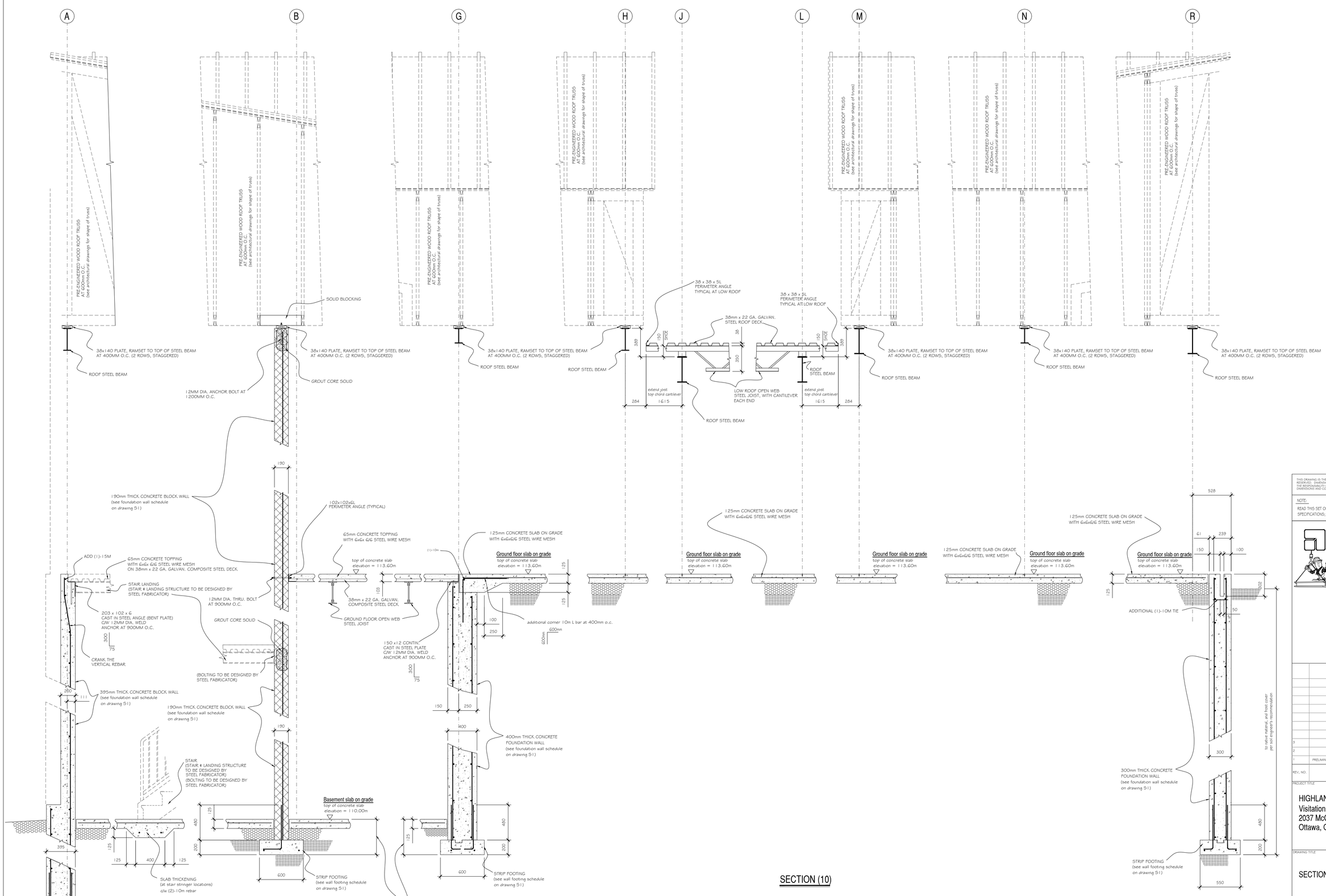

SECTION (10)

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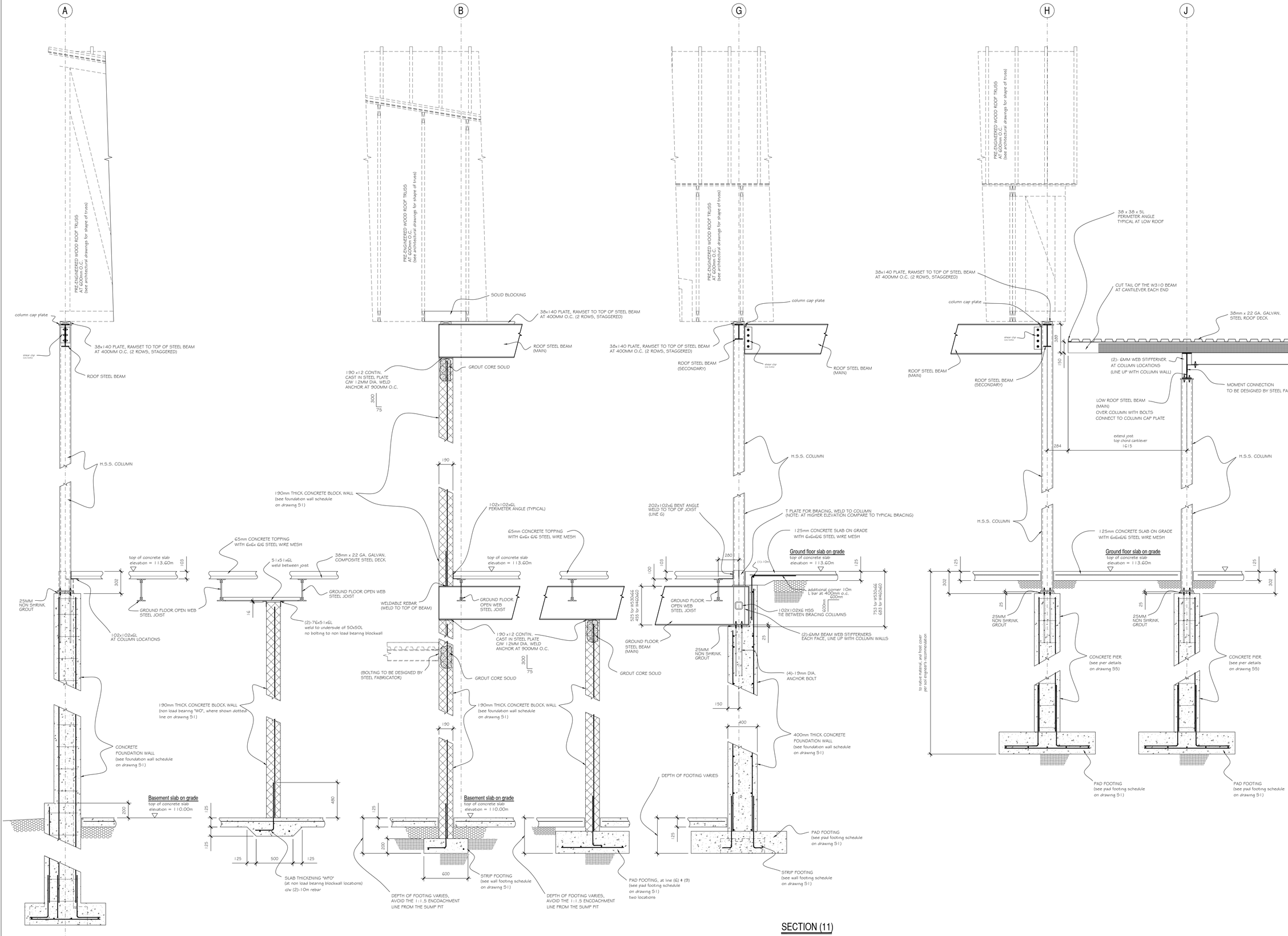

SECTION (11)

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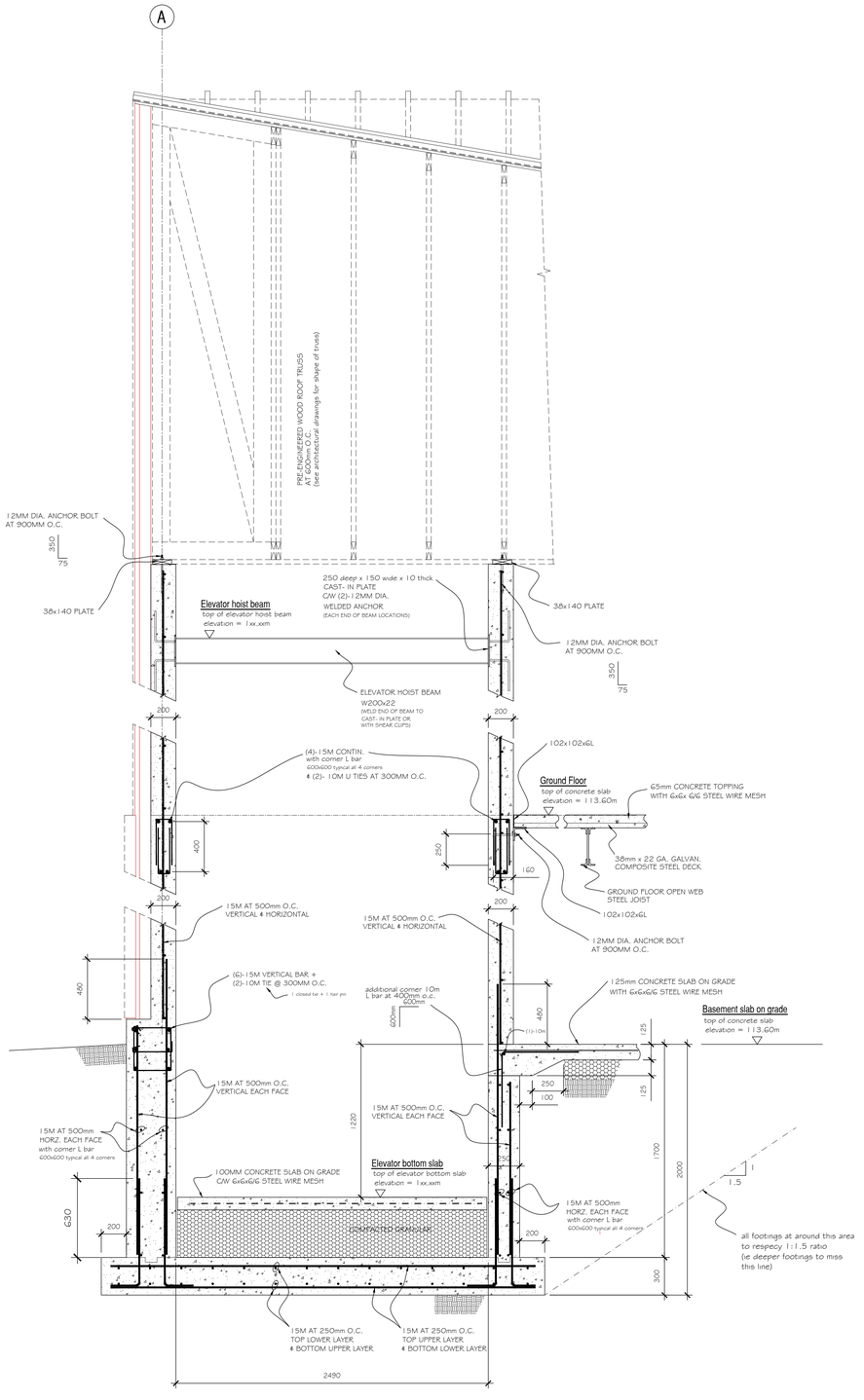
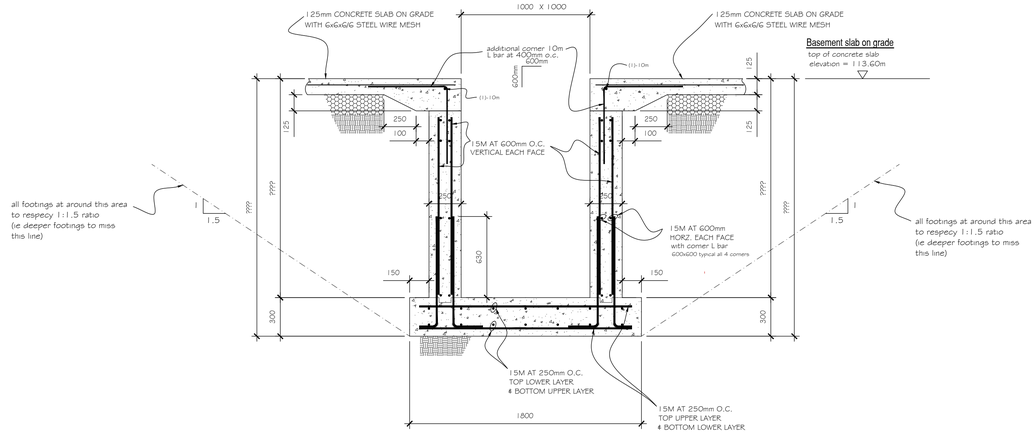


SECTION (12)
ELEVATOR DETAILS



SECTION (13)
SUMP PIT DETAILS

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