

# NOOTKA LIGHT TOWER REFURBISHMENT Fisheries and Oceans Canada



**NOOTKA  
LIGHT TOWER  
REFURBISHMENT**  
Fisheries and Oceans Canada

## STRUCTURAL

WSP  
Suite 400, 401 Garbally Road  
Victoria, B C, V8T 5M3  
Tel: (250) 384-5510  
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Contact: Randy Emery

DWG #	DESCRIPTION
S000	COVER SHEET
S001	NOTES, SITE PLAN
S002	EXISTING CONDITIONS/DECONSTRUCTION
S003	NEW STRUCTURAL FRAMING
S004	STRUCTURAL SECTIONS & DETAILS

## BUILDING ENVELOPE

GOAL Engineering Ltd  
Unit #9 - 755 Vanalman Avenue  
Victoria, BC, V8Z 3B8  
Tel: (250) 744-3992  
Fax: (604) 360-2166  
Email: govstaas@goalengineering.com  
Contact: Greg Ovstaas

DWG #	DESCRIPTION
D001	BUILDING ENVELOPE ELEVATIONS & SECTIONS

**ISSUED FOR:  
TENDER**

**DATE:  
OCTOBER 9, 2015**

**SET NO.:**



SUITE 400-401 GARBALLY ROAD  
VICTORIA (BRITISH COLUMBIA) CANADA V8T 5M3  
TEL: 250-384-5510 | FAX: 250-386-2844 | WWW.WSPGROUP.COM

WSP PROJECT NO: 131-19104-11  
DFO PROJECT NO: F1700-150765  
CCG DRAWING NO: 12541

**GENERAL NOTES**

- CONTRACTOR TO VERIFY ALL DIMENSIONS FOR BUILDING (INCLUDING EXISTING STRUCTURAL MEMBER SIZES) PRIOR TO COMMENCEMENT OF WORK AND NOTIFY DEPARTMENTAL REPRESENTATIVE OF ANY DISCREPANCIES.
- DRAWINGS SHOW THE COMPLETED PROJECT. THEY DO NOT SHOW COMPONENTS WHICH MAY BE NECESSARY FOR CONSTRUCTION SAFETY. CONTRACTOR IS RESPONSIBLE FOR SAFETY ON AND ABOUT THE JOB SITE DURING CONSTRUCTION.
- CONTRACTOR TO ENSURE THAT ALL WORK IS CARRIED OUT BY THE RULES AND CUSTOMS OF THE BEST TRADE PRACTICES AND THEIR SPECIFICATIONS BY SKILLED TRADES PEOPLE KNOWLEDGEABLE OF THE TYPE OF CONSTRUCTION THEY ARE TO BE PROPERLY EQUIPPED AND SUPERVISED.
- NOTIFY DEPARTMENTAL REPRESENTATIVE 96 HOURS IN ADVANCE FOR CONSTRUCTION REVIEW OF THE WORK.
- STRUCTURAL DESIGN DATA
  - ENGINEER OF RECORD: RANDALL EMERY, P. ENG. (STRUCTURAL)  
GREG OVSTAAS, P. ENG. (BUILDING ENVELOPE)
  - DESIGN CODE - NATIONAL BUILDING CODE OF CANADA 2010.

DESIGN PARAMETERS				
BUILDING IMPORTANCE CATEGORY	NORMAL			
SNOW LOAD PARAMETERS				
S <sub>s</sub>	1.1 kPa	S <sub>r</sub>	0.40 kPa	I <sub>s</sub> [U.S.] = 1.0 I <sub>s</sub> [S.I.] = 0.9
WIND LOAD PARAMETERS				
q <sub>s0</sub>	0.68 kPa	I <sub>w</sub> [U.S.] = 1.0 I <sub>w</sub> [S.I.] = 0.75		
SEISMIC PARAMETERS				
S <sub>a</sub> (0.2)	1.2	S <sub>a</sub> (0.5)	0.94	S <sub>a</sub> (1.0) = 0.48 S <sub>a</sub> (2.0) = 0.21 PGA = 0.52
I <sub>e</sub>	1.0			
SITE CLASS	C (ASSUMED)			
DESIGN LOADS				
GRAVITY				
	SNOW (kPa)	LIVE (kPa)	DEAD (kPa)	PARTITION (kPa)
ROOF	1.28	-	1.00	-
FLOORS	-	2.40	1.00	-
LATERAL - WIND				
DESIGN WALL PRESSURE FOR WALL CLADDING AND SUPPORT FRAMING - NOOTKA				
STRENGTH (FACTORED)	3.22 kPa			
DEFLECTION	1.73 kPa			

**STRUCTURAL STEEL NOTES**

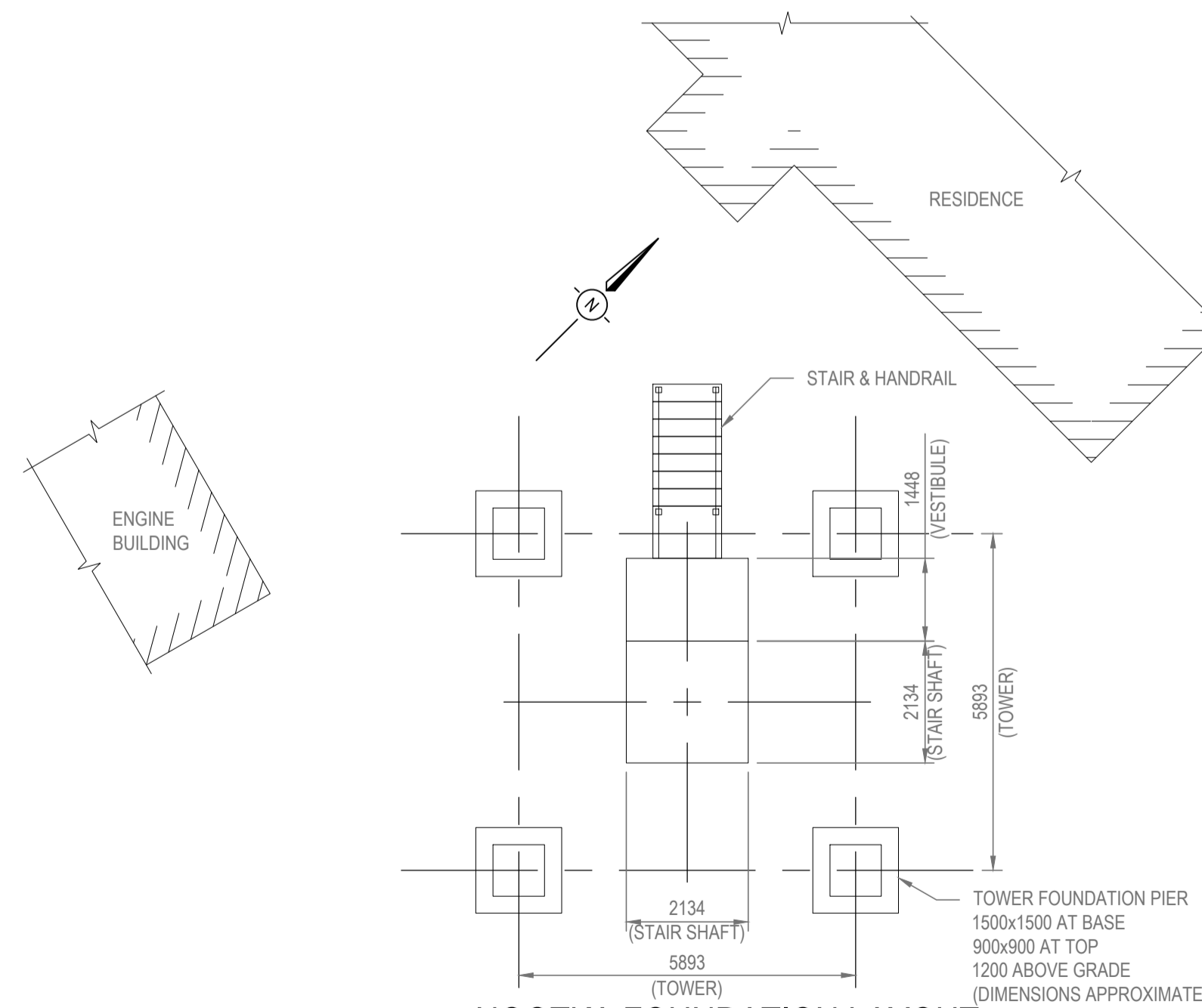
- STRUCTURAL STEEL TO CONFORM TO THE REQUIREMENTS OF THE FOLLOWING STANDARDS:  
CHANNELS, ANGLES & PLATE: G40 21 300W  
HSS & LIGHT GAUGE SECTIONS: G40 21 350W  
BOLTS STEEL CONNECTIONS: ASTM A325 (HDG)  
ANCHOR BOLTS: ASTM F593 (AISI 316)  
BOLTS (WOOD PLATES): ASTM F555 (AISI 316)
- FABRICATION, ERECTION, STRUCTURAL DESIGN, & DETAILING OF ALL STRUCTURAL STEEL TO BE IN ACCORDANCE WITH CAN/CSA-S16-09.
- ALL WELDING TO CONFORM TO CSA W59 AND BE PERFORMED BY FABRICATORS "FULLY APPROVED" BY THE CANADIAN WELDING BUREAU UNDER CSA W47. FABRICATING SHOP TO HAVE A DIVISION 1 OR 2 CERTIFICATION BY THE CANADIAN WELDING BUREAU TO THE REQUIREMENTS OF CSA W47.1 AND SUBMIT PROOF OF CERTIFICATION PRIOR TO START OF WORK.
- FIELD WELDING IS NOT PERMITTED.
- STRUCTURAL STEEL SHOP DRAWINGS. SUBMIT 4 COPIES OF SHOP DRAWINGS TO THE DEPARTMENTAL REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DIMENSIONS AND FIT-UP OF ALL COMPONENTS.

**WOOD FRAMING NOTES**

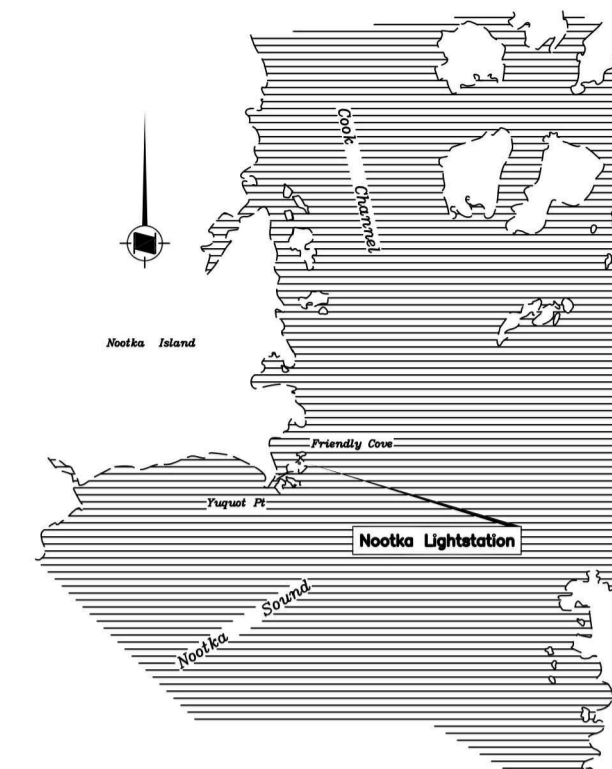
- ALL STRUCTURAL LUMBER SHALL HAVE AN AVERAGE EQUILIBRIUM MOISTURE CONTENT NOT EXCEEDING 15% OR LESS OVER A YEAR AND NOT EXCEEDING 19% AT ANY TIME. ALL WOOD TO BE PRESSURE TREATED.
- SAWN LUMBER FRAMING GRADES AND SPECIES SHALL CONFORM TO STRUCTURAL LUMBER COMPLYING WITH THE REQUIREMENTS OF CSA STANDARD CAN/CSA-O141. ALL WOOD TO BE HEM-FIR GRADE SELECT STRUCTURAL.
- NAILS AND SPIKES: TO CSA-B111.
- BOLTS: 9.5mm (3/8") DIAMETER CARRIAGE BOLTS TO ASTM F593 (AISI 316), COMPLETE WITH NUTS AND WASHERS, UNLESS SHOWN OTHERWISE.
- WOOD PRESERVATIVES SHALL CONFORM TO AND BE APPLIED IN ACCORDANCE WITH CSA-086-M. WOOD PRESERVATION SHALL BE EITHER ALKALINE COPPER QUATERNARY (ACQ) OR COPPER AZOLE (CA). ACQ MAY BE EITHER TYPE ACQ-B (AMMONIACAL) OR TYPE ACQ-D (AMINE). PRESERVATIVES SHALL BE APPLIED TO THE WOOD IN A WATER SOLUTION, TO RETENTION LEVELS RECOMMENDED BY THE MANUFACTURER. FIELD TREAT ALL CUT ENDS, NOTCHES AND BOLT HOLES. SUBMIT PRESERVATIVE SPECIFICATIONS TO THE DEPARTMENTAL REPRESENTATIVE FOR APPROVAL. WOOD PRESERVATIVES TO CONFORM TO REQUIREMENT OF LOCAL AUTHORITY.
- NAILS, BOLTS AND METALS IN CONTACT WITH PRESERVED WOOD PRODUCTS SHALL BE HOT DIPPED GALVANIZED TO STANDARD ASTM A153 WITH A G185 GALVANIZING DESIGNATION THAT MEETS ASTM A653. STAINLESS STEEL CAN ALSO BE USED.



**NOOTKA SITE PLAN**  
SCALE: N.T.S.



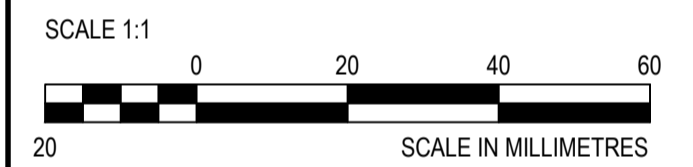
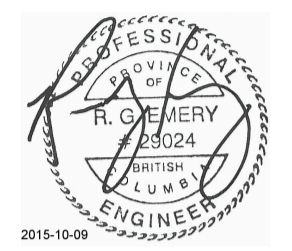
**NOOTKA FOUNDATION LAYOUT**  
SCALE: 1:100



**NOOTKA KEY PLAN**  
SCALE: N.T.S.



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JOB No. 131-19104-11



**DO NOT SCALE DRAWINGS**

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4		
3		
2		
1	ISSUED FOR TENDER	10/09/2015
0	90% SUBMISSION FOR REVIEW	05/26/2015
Revision/Revision	Description/Description	Date/Date

Client/client

**Fisheries and Oceans Canada**

25 Huron Street  
Victoria, BC

Project title/Titre du projet

**NOOTKA TOWER REFURBISHMENT**

Approved by/Approuvé par

Designed by/Concept par  
RANDALL EMERY, P. ENG.

Drawn by/Dessiné par  
ROD MAR/2015.08/04

PWGSC Project Manager/Administrateur de Projets TP50C

PWGSC, Architectural and Engineering Resources Manager/Ressources Architectural et de Directeur d'Ingénierie, TP50C

Client/client

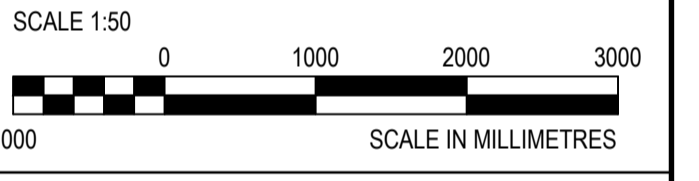
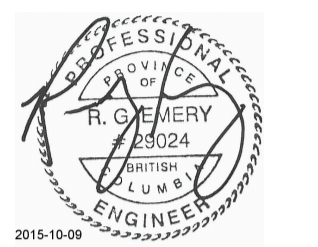
Drawing title/Titre du dessin

**NOTES  
SITE PLAN**

Project No./No. du projet <b>F1700-150765</b> CC's Drawing No./No. du dessin <b>12541</b>	Sheet/Feuille <b>S001</b> 1 OF 5	Revision no./La Révision no. <b>1</b>
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ABBREVIATIONS	
AB	- ANCHOR BOLT
ALT	- ALTERNATE
APPROX	- APPROXIMATELY
BOT	- BOTTOM
BLDG	- BUILDING
BP	- BASE PL
BS	- BOTH SIDES
CP	- COMPLETE PENETRATION WELD
C/W	- COMPLETE WITH
DWG	- DRAWING
(E)	- EXISTING
EF	- EACH FACE
EW	- EACH WAY
FTG	- FOOTING
GALV	- GALVANIZED
HORIZ	- HORIZONTAL
HDG	- HOT DIPPED GALVANIZED
LG	- LONG
MAX	- MAXIMUM
MIN	- MINIMUM
(N)	- NEW
NS	- NEAR SIDE
NTS	- NOT TO SCALE
PT	- PRESSURE TREATED
OC	- ON CENTER
R/W	- REINFORCE WITH
REINF	- REINFORCEMENT
SS	- STAINLESS STEEL
STD	- STANDARD
TYP	- TYPICAL
UN	- UNLESS NOTED
VERT	- VERTICAL





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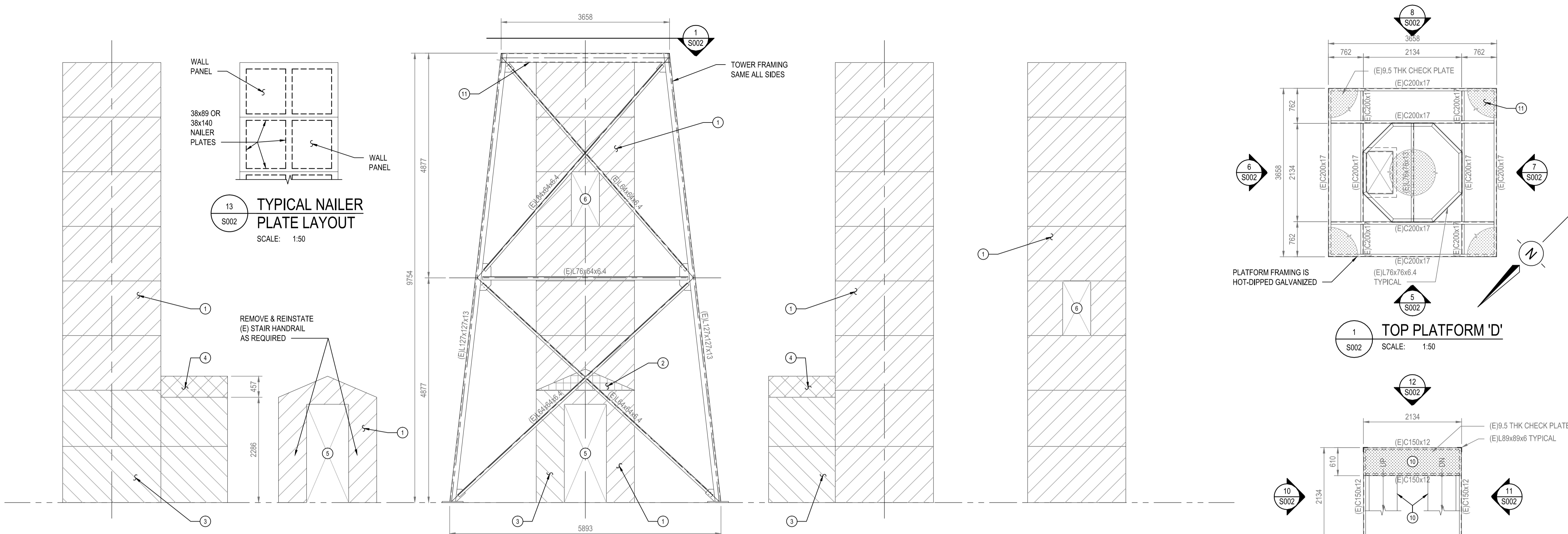
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Designed by/Concepé par  
RANDALL EMERY, P. ENG  
Drawn by/Desiné par  
ROD MAR/2015.08/04  
PWGSC Project Manager/Administrateur de Projets TP50C

PWGSC, Architectural and Engineering Resources Manager/ Ressources Architectural et de Directeur d'Ingénierie, TP50C

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**EXISTING CONDITIONS DECONSTRUCTION NOOTKA**

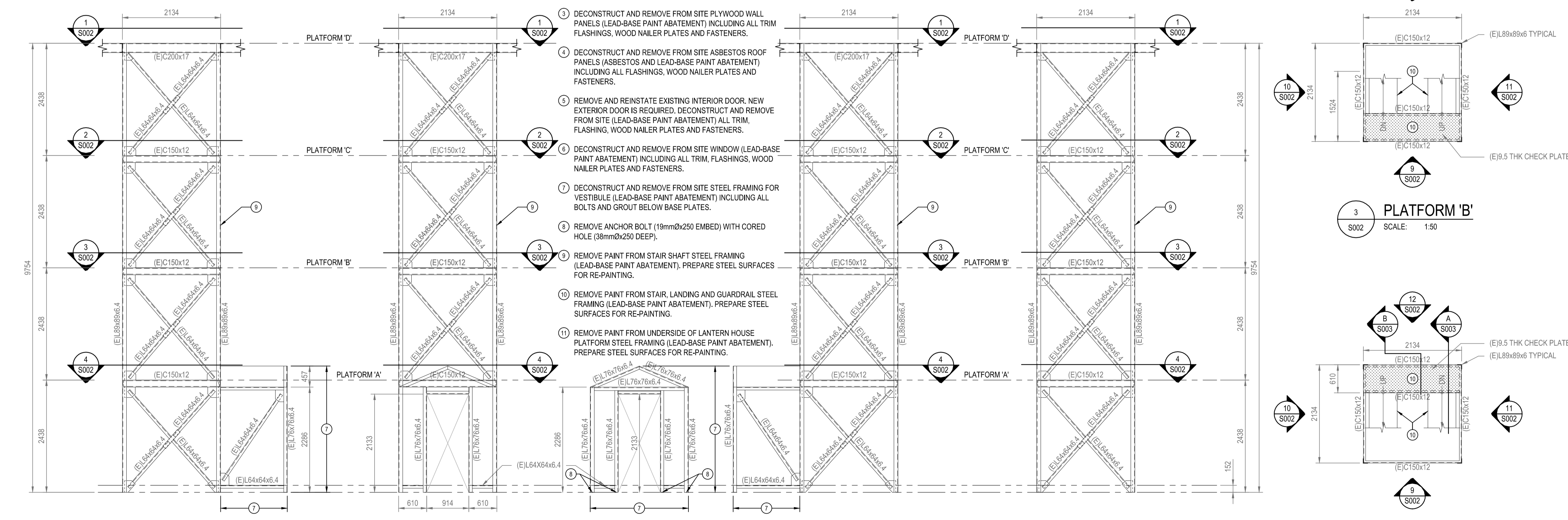
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CC Drawing No./No. du dessin <b>12541</b>	2 OF 5	



6 NORTHEAST ELEVATION SCALE: 1:50  
5A INTERIOR DOOR ELEVATION SCALE: 1:50  
5 NORTHWEST ELEVATION SCALE: 1:50  
7 SOUTHWEST ELEVATION SCALE: 1:50  
8 SOUTHEAST ELEVATION SCALE: 1:50  
13 TYPICAL NAILER PLATE LAYOUT SCALE: 1:50  
1 TOP PLATFORM 'D' SCALE: 1:50

**KEYNOTE LEGEND**

- DECONSTRUCT AND REMOVE FROM SITE ASBESTOS WALL PANELS (ASBESTOS AND LEAD-BASE PAINT ABATEMENT) INCLUDING ALL TRIM, FLASHINGS, WOOD NAILER PLATES AND FASTENERS.
- DECONSTRUCT AND REMOVE FROM SITE LIGHT GAUGE METAL PANEL ABOVE DOOR (LEAD-BASE PAINT ABATEMENT) INCLUDING ALL FLASHINGS AND FASTENERS.
- DECONSTRUCT AND REMOVE FROM SITE PLYWOOD WALL PANELS (LEAD-BASE PAINT ABATEMENT) INCLUDING ALL TRIM FLASHINGS, WOOD NAILER PLATES AND FASTENERS.
- DECONSTRUCT AND REMOVE FROM SITE ASBESTOS ROOF PANELS (LEAD-BASE PAINT ABATEMENT) INCLUDING ALL FLASHINGS, WOOD NAILER PLATES AND FASTENERS.
- REMOVE AND REINSTATE EXISTING INTERIOR DOOR. NEW EXTERIOR DOOR IS REQUIRED. DECONSTRUCT AND REMOVE FROM SITE (LEAD-BASE PAINT ABATEMENT) ALL TRIM, FLASHING, WOOD NAILER PLATES AND FASTENERS.
- DECONSTRUCT AND REMOVE FROM SITE WINDOW (LEAD-BASE PAINT ABATEMENT) INCLUDING ALL TRIM, FLASHINGS, WOOD NAILER PLATES AND FASTENERS.
- DECONSTRUCT AND REMOVE FROM SITE STEEL FRAMING FOR VESTIBULE (LEAD-BASE PAINT ABATEMENT) INCLUDING ALL BOLTS AND GROUT BELOW BASE PLATES.
- REMOVE ANCHOR BOLT (19mmØx250 EMBED) WITH CORED HOLE (38mmØx250 DEEP).
- REMOVE PAINT FROM STAIR SHAFT STEEL FRAMING (LEAD-BASE PAINT ABATEMENT). PREPARE STEEL SURFACES FOR RE-PAINTING.
- REMOVE PAINT FROM STAIR, LANDING AND GUARDRAIL STEEL FRAMING (LEAD-BASE PAINT ABATEMENT). PREPARE STEEL SURFACES FOR RE-PAINTING.
- REMOVE PAINT FROM UNDERSIDE OF LANTERN HOUSE PLATFORM STEEL FRAMING (LEAD-BASE PAINT ABATEMENT). PREPARE STEEL SURFACES FOR RE-PAINTING.



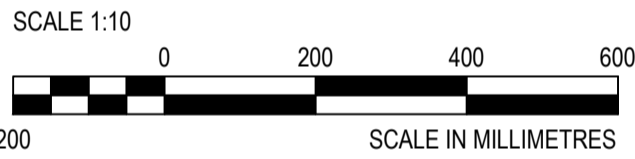
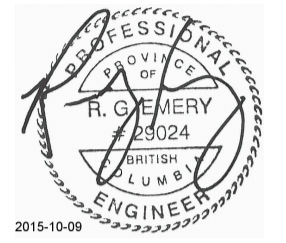
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12 SOUTHEAST ELEVATION SCALE: 1:50  
2 PLATFORM 'C' SCALE: 1:50  
3 PLATFORM 'B' SCALE: 1:50  
4 PLATFORM 'A' SCALE: 1:50







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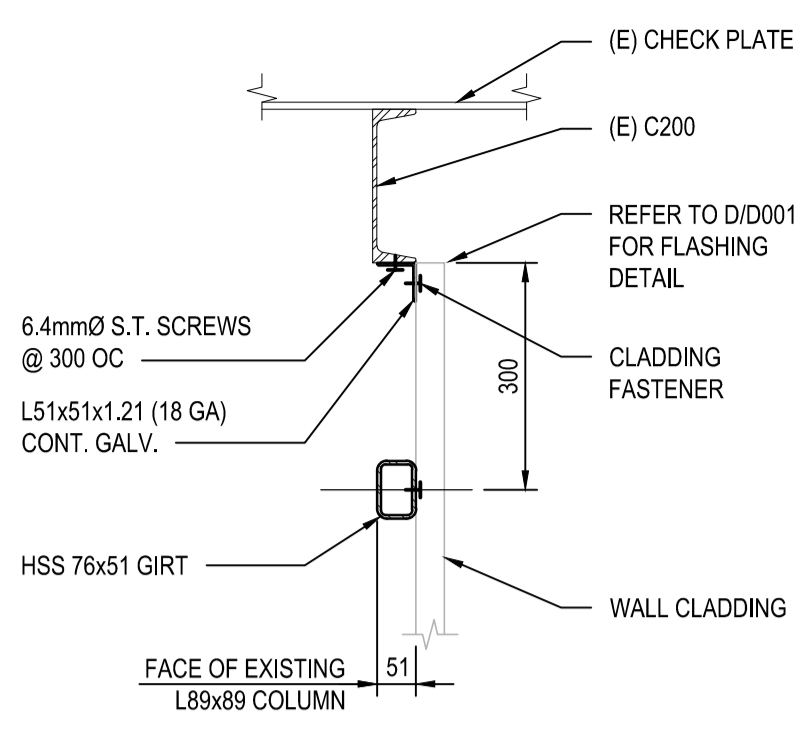
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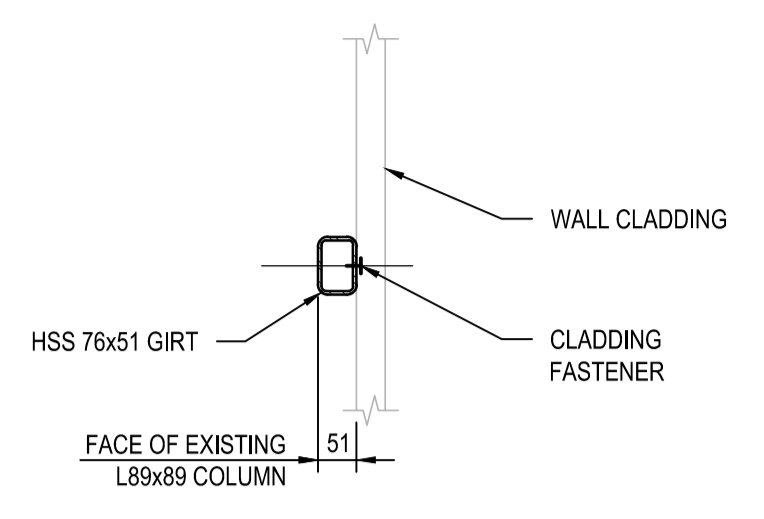
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Drawing title/Titre du dessin

**STRUCTURAL SECTIONS & DETAILS  
NOOTKA**

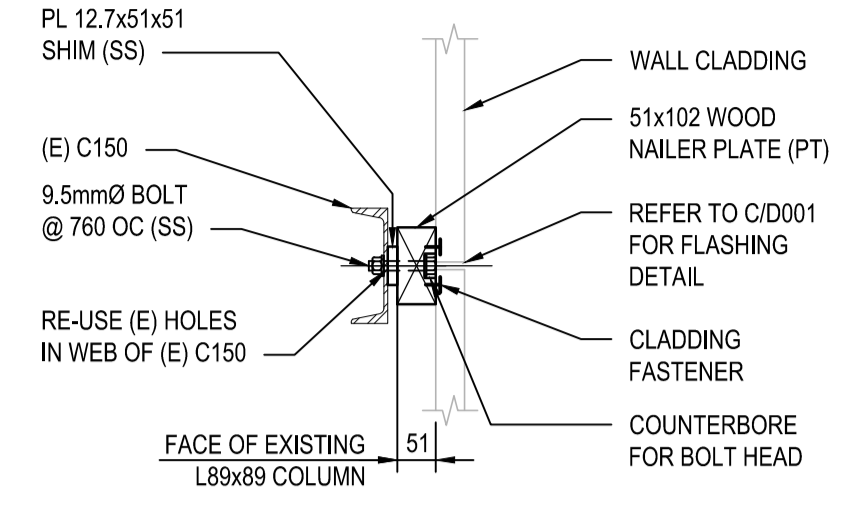
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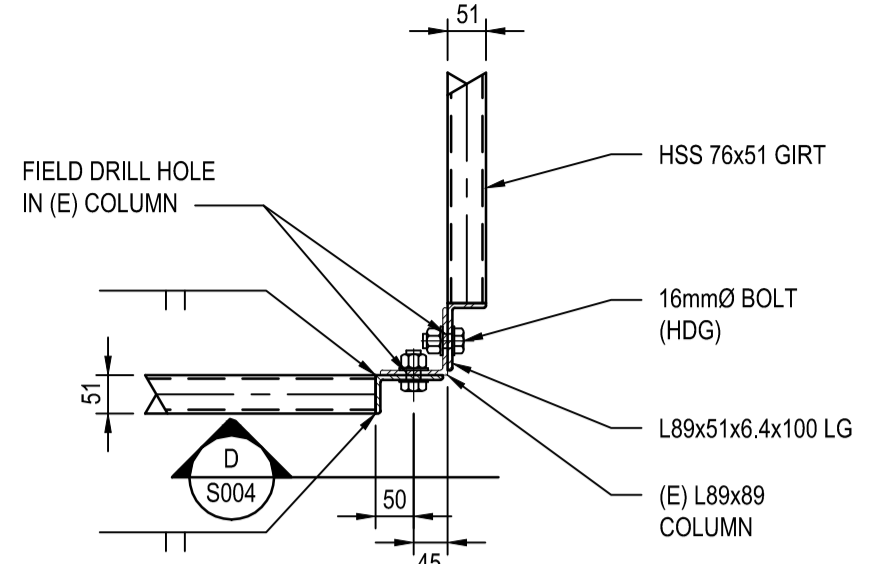
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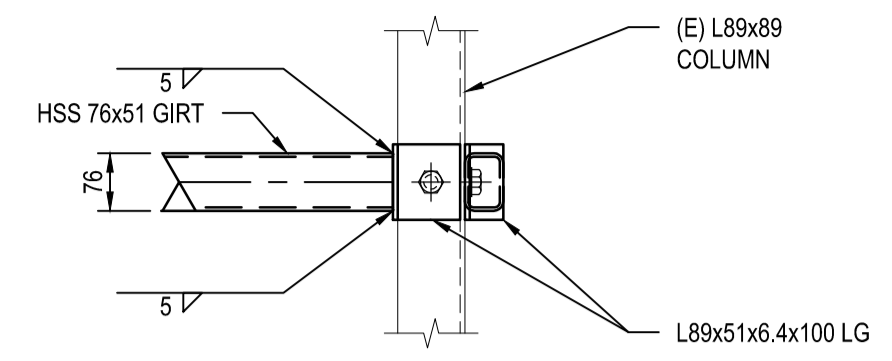
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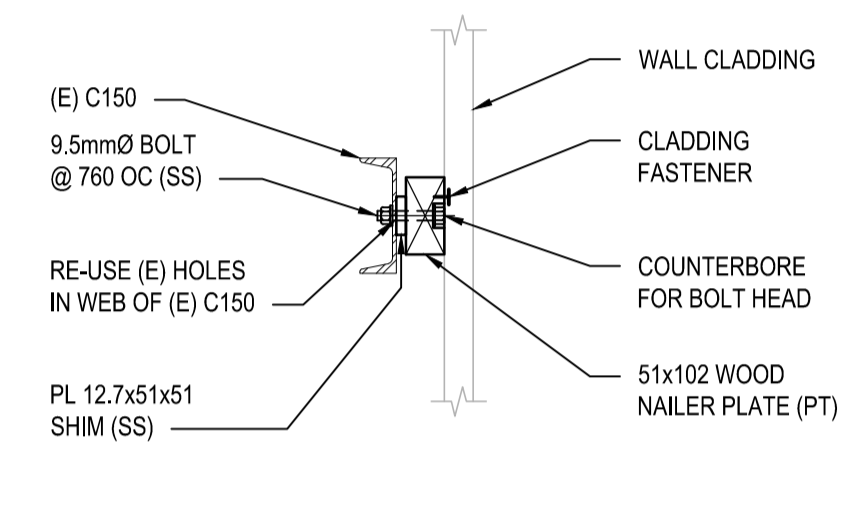
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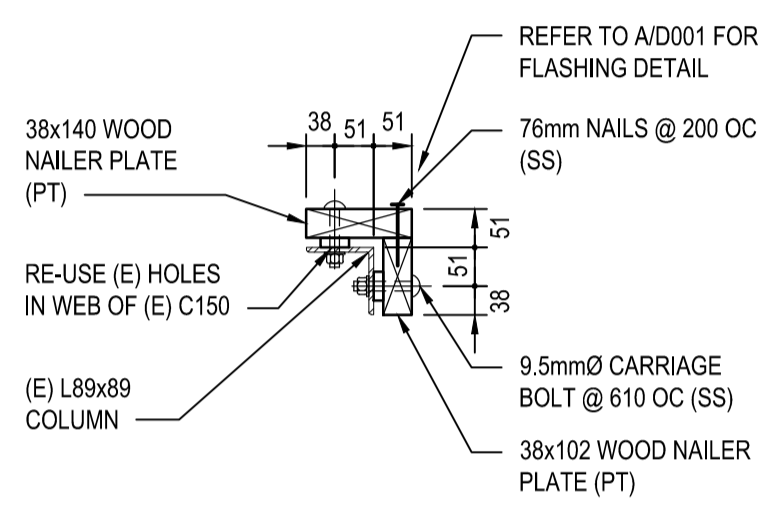
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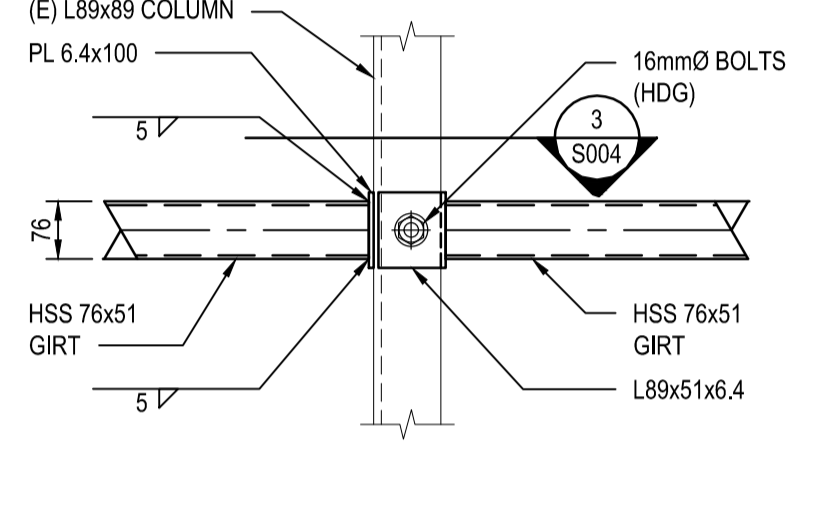
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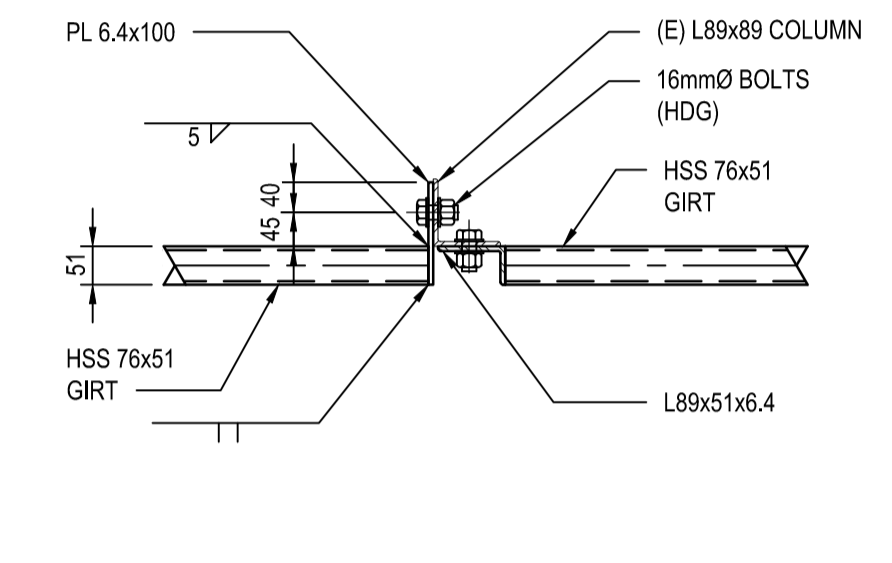
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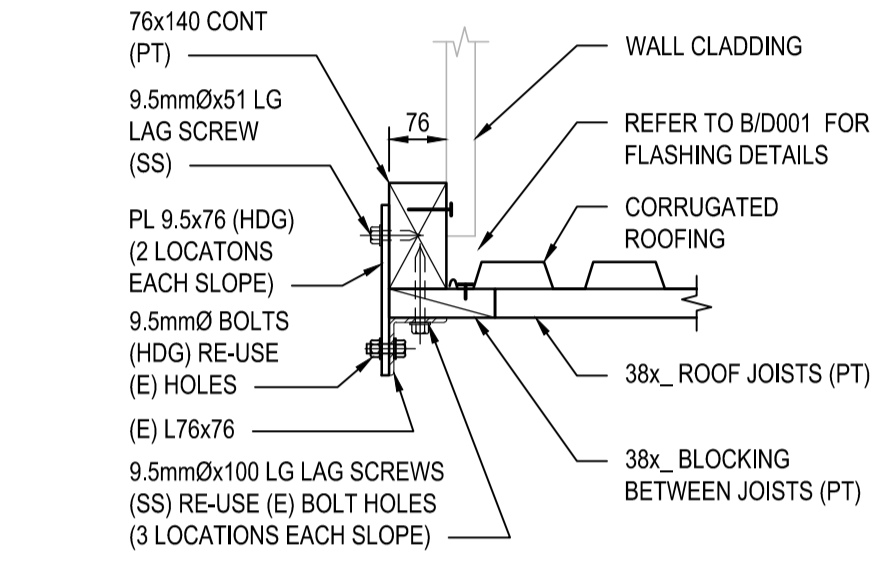
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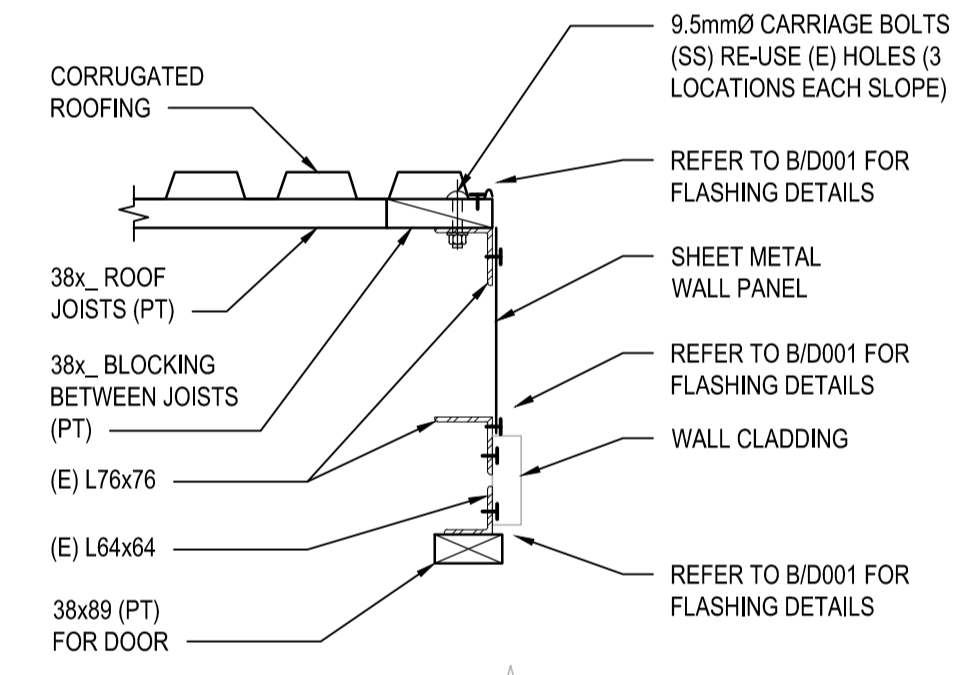
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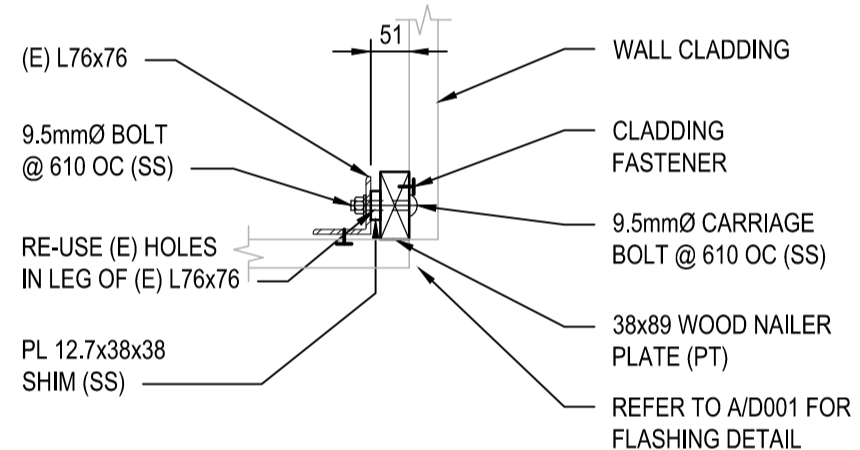
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**G SECTION**  
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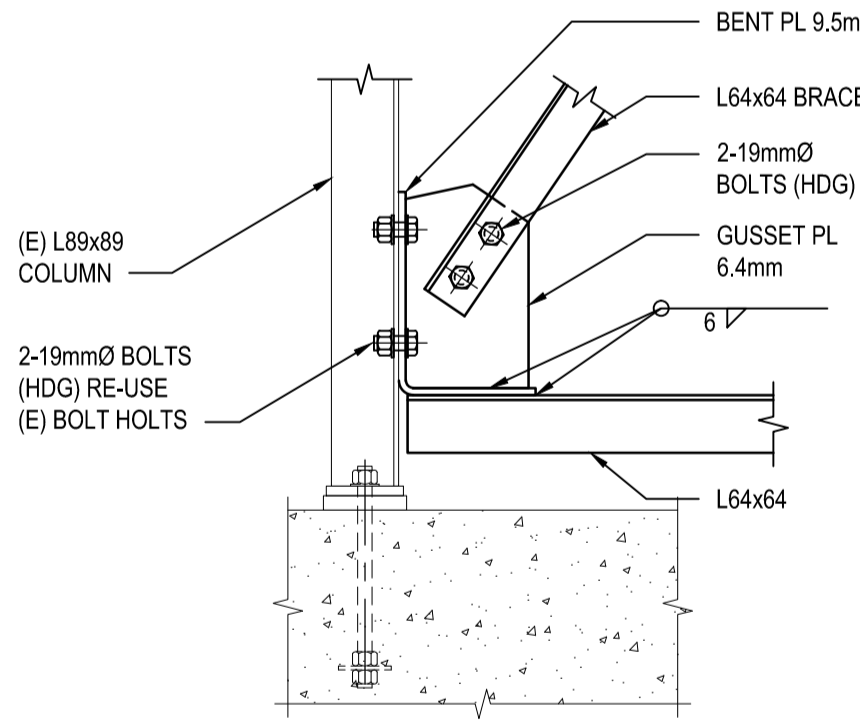
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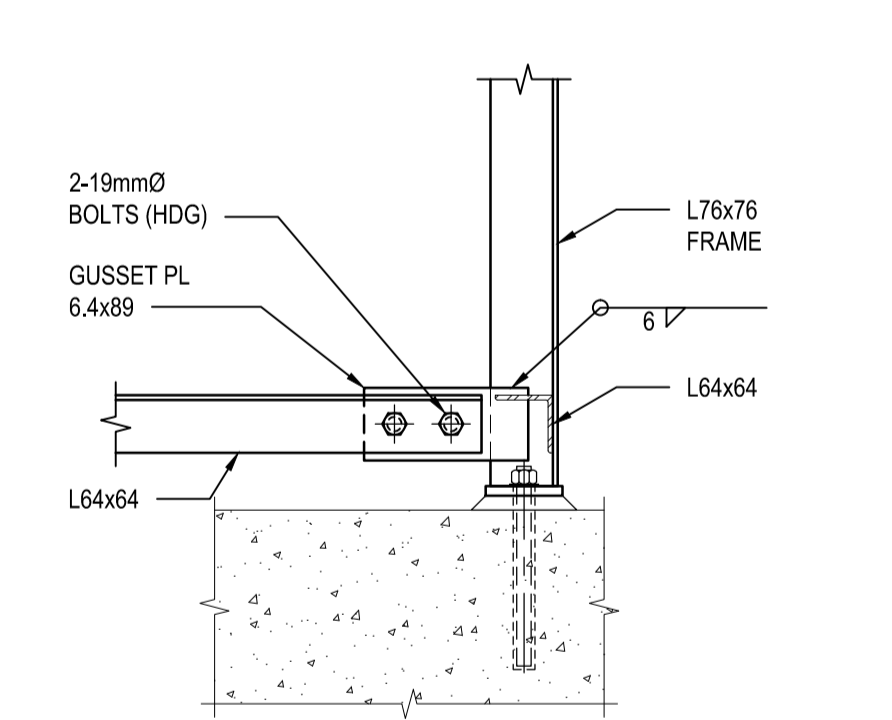
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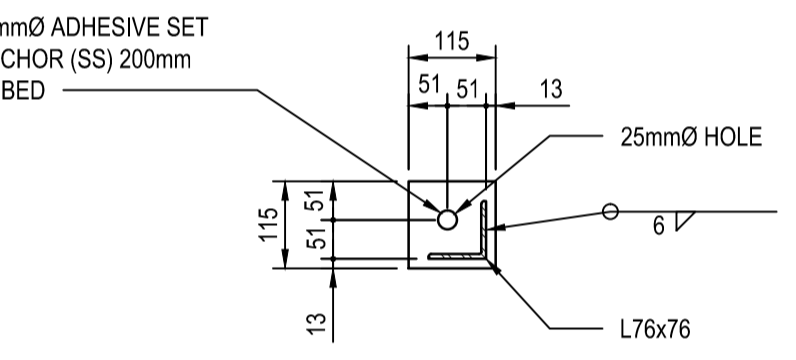
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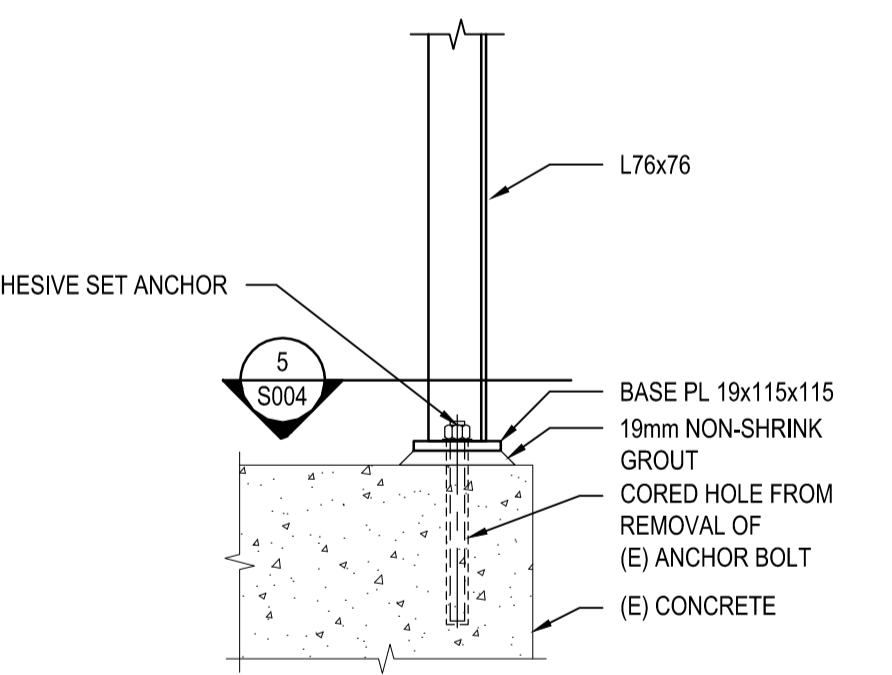
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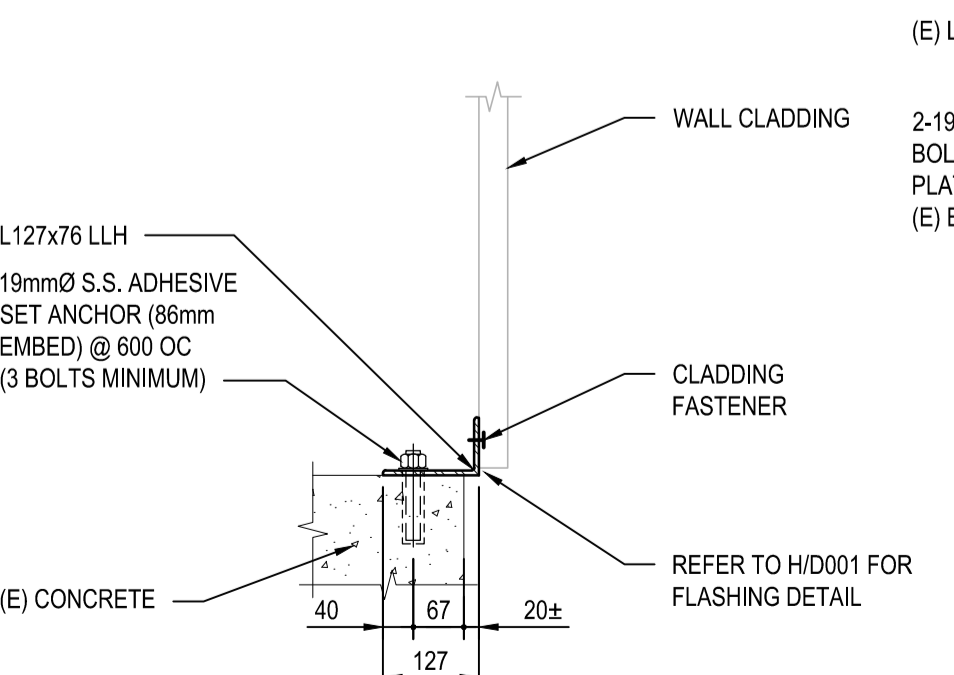
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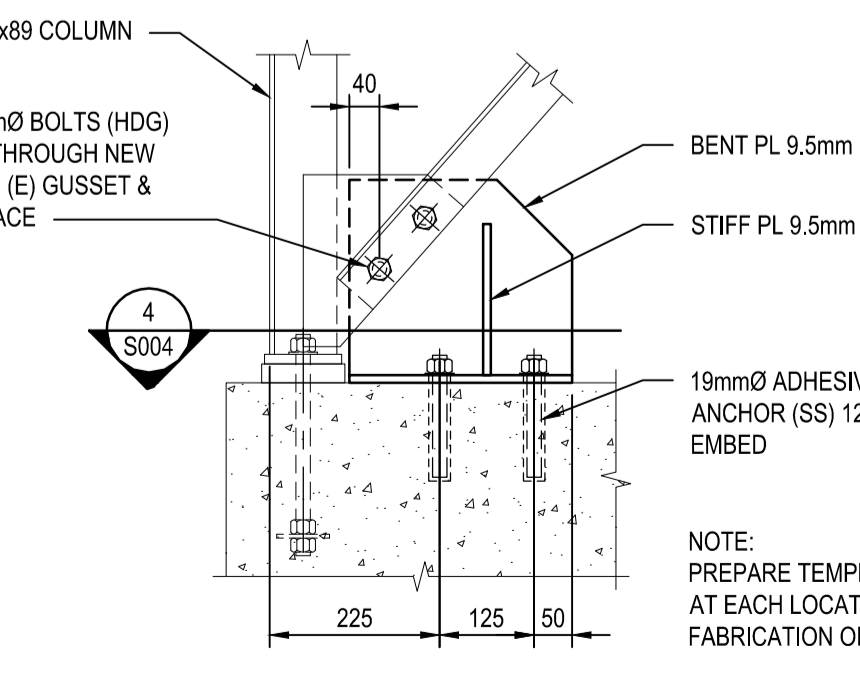
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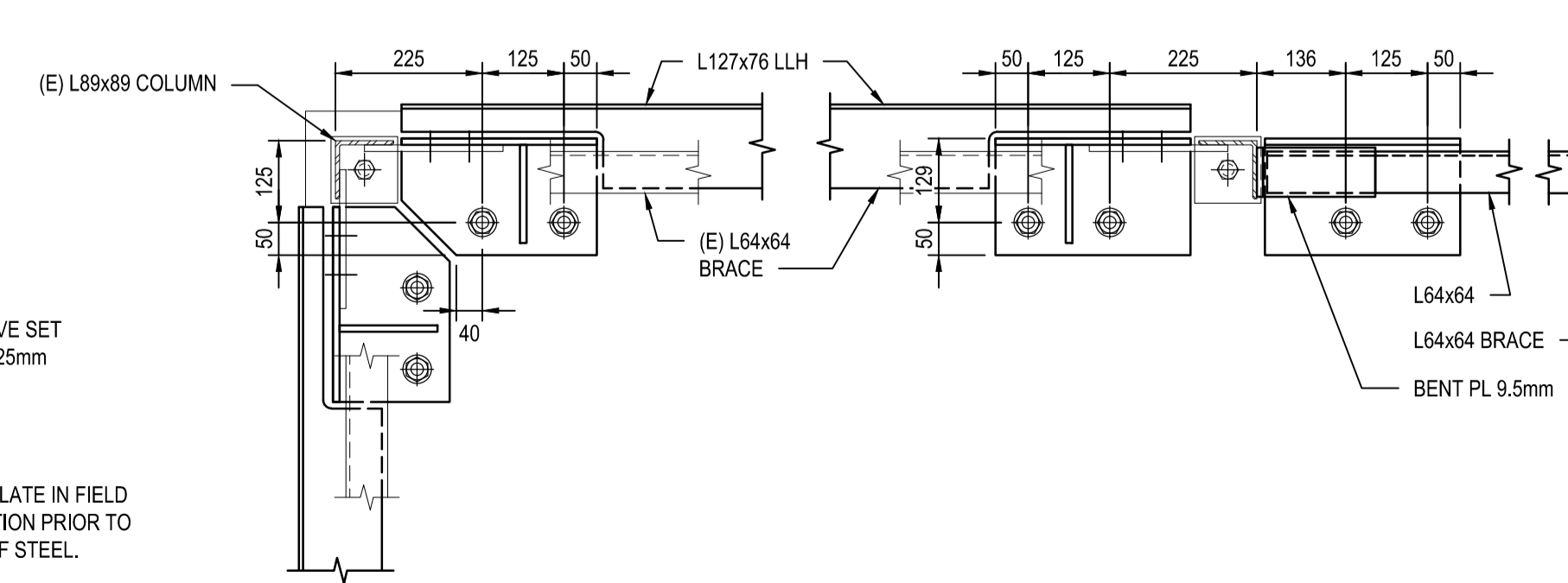
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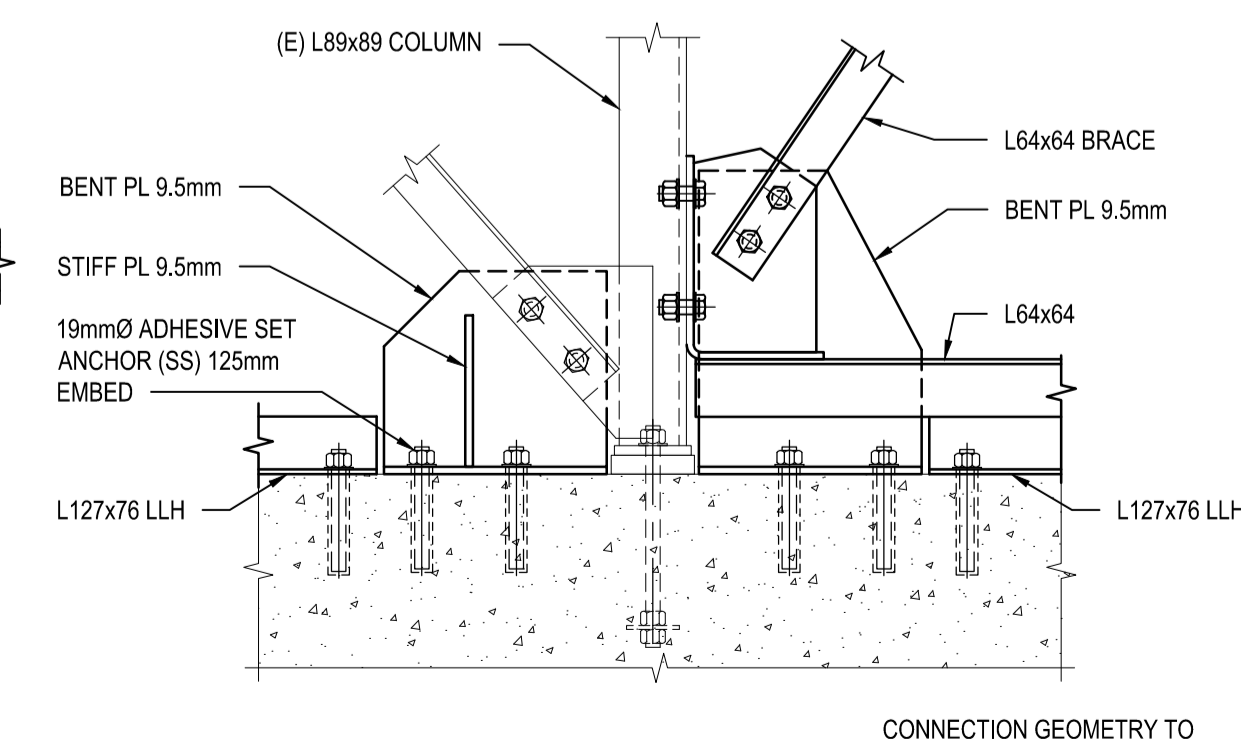
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**O SECTION**  
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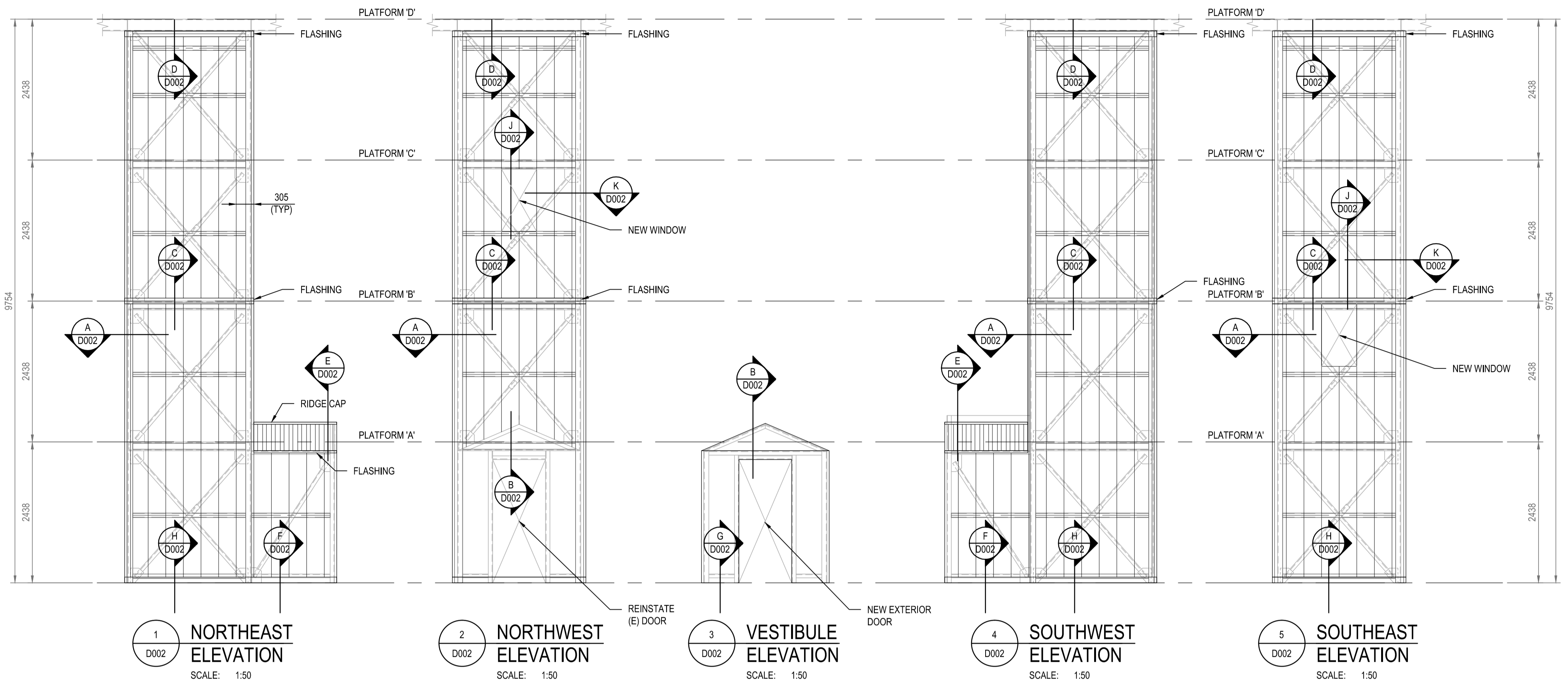
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**P SECTION**  
S003 SCALE: 1:10



**Q SECTION**  
S003 SCALE: 1:10



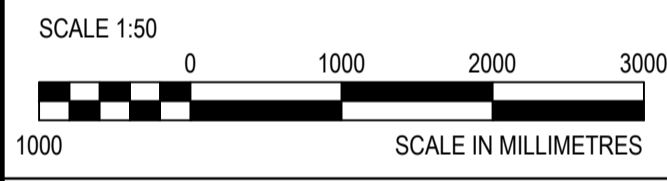
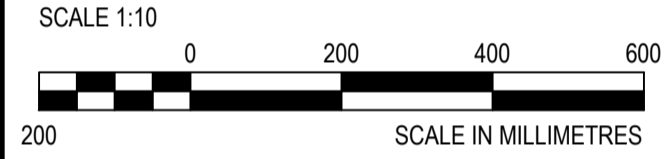
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SCALE: 1:50

2 NORTHWEST ELEVATION  
SCALE: 1:50

3 VESTIBULE ELEVATION  
SCALE: 1:50

4 SOUTHWEST ELEVATION  
SCALE: 1:50

5 SOUTHEAST ELEVATION  
SCALE: 1:50



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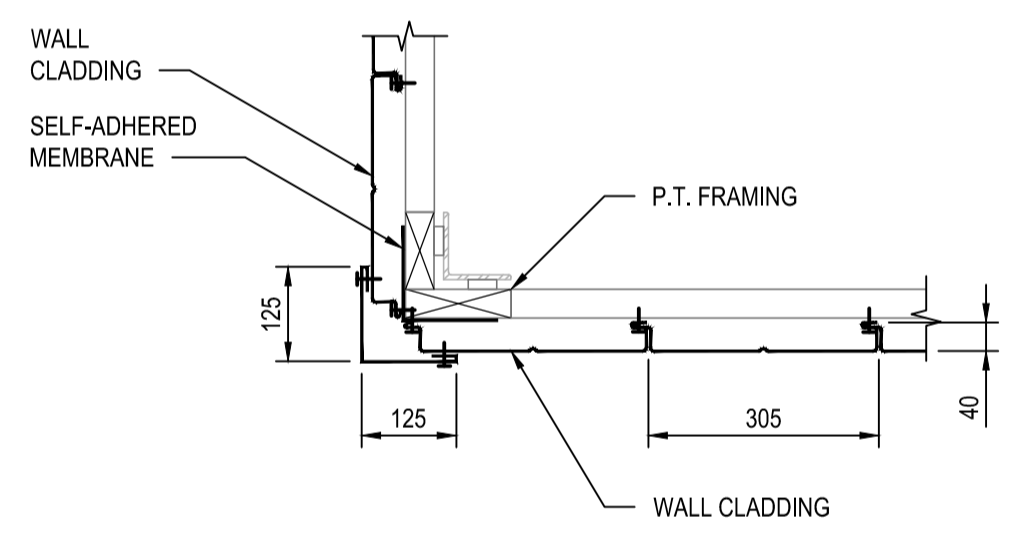
BUILDING ENVELOPE ELEVATIONS & SECTIONS

NOOTKA

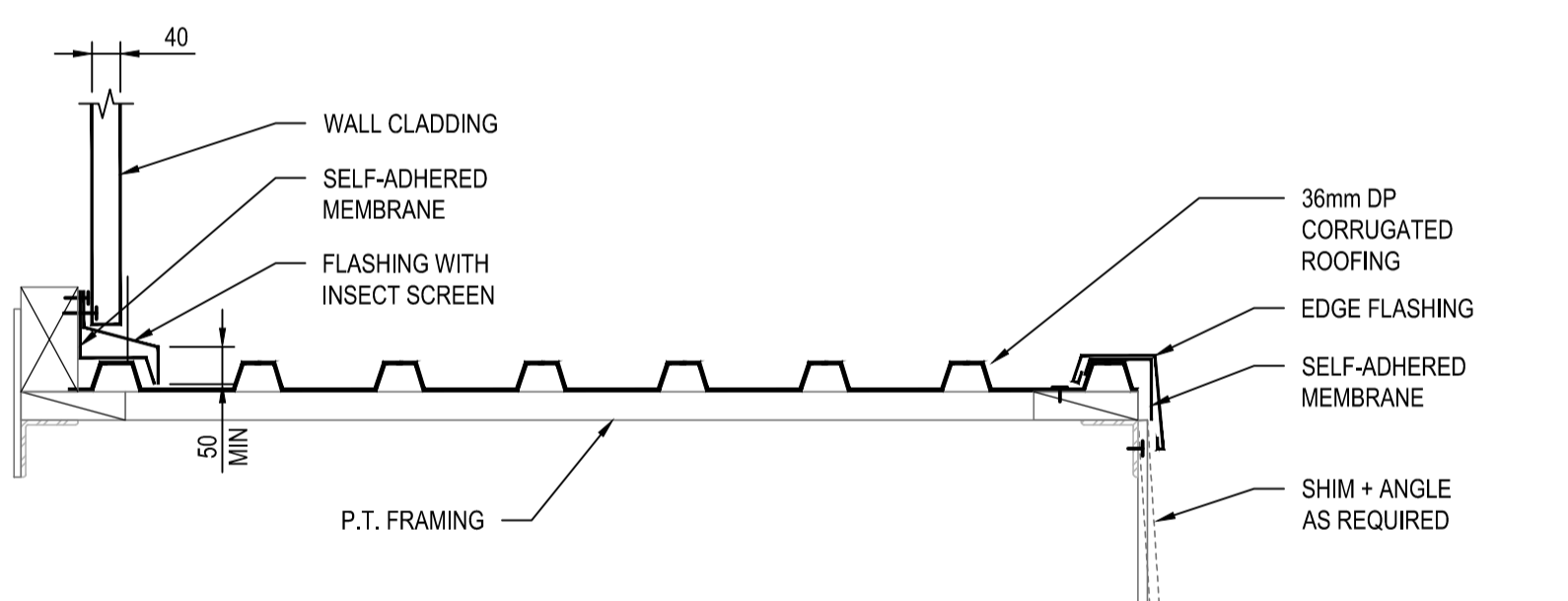
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F1700-150765  
CG Drawing No./No. du dessin  
12541

Sheet/Feuille  
D001  
5 OF 5

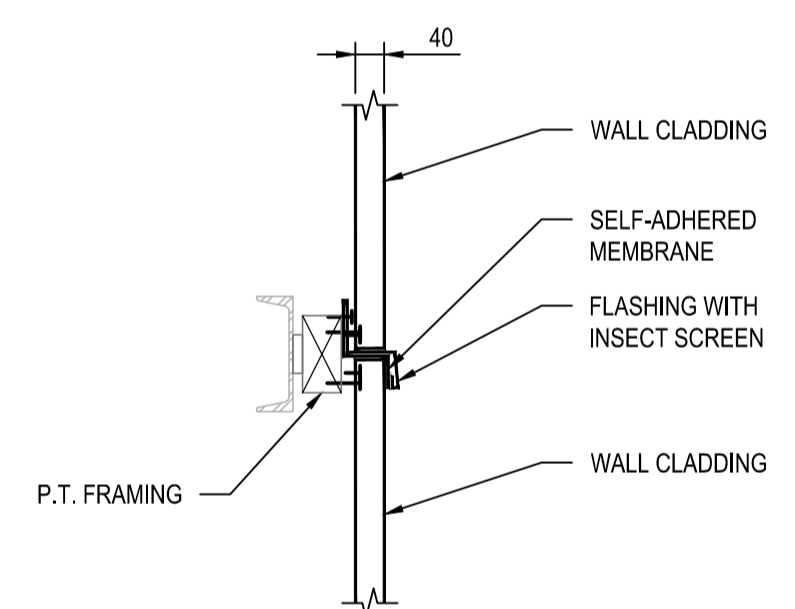
Revision no./La Révision no.  
1



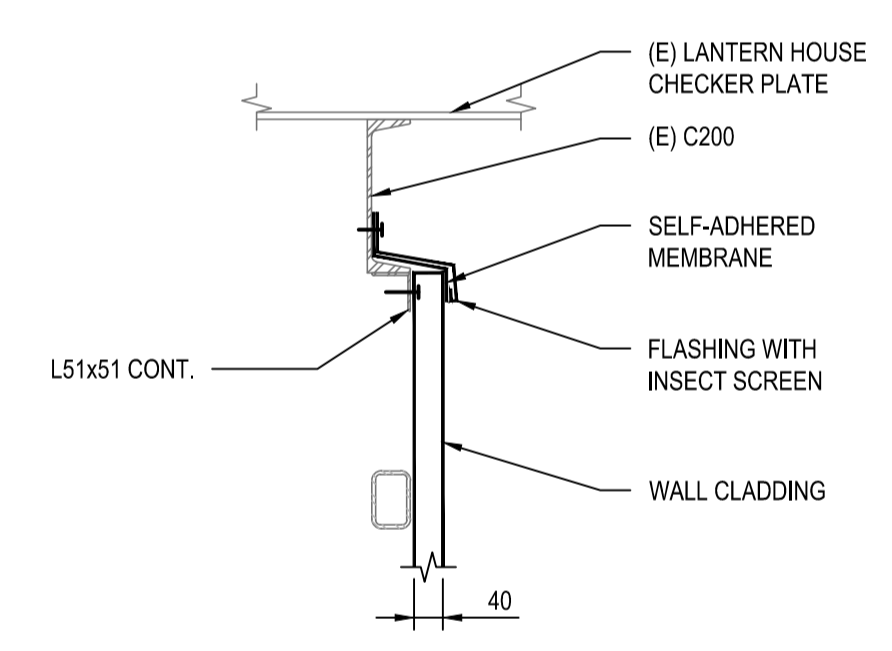
A SECTION  
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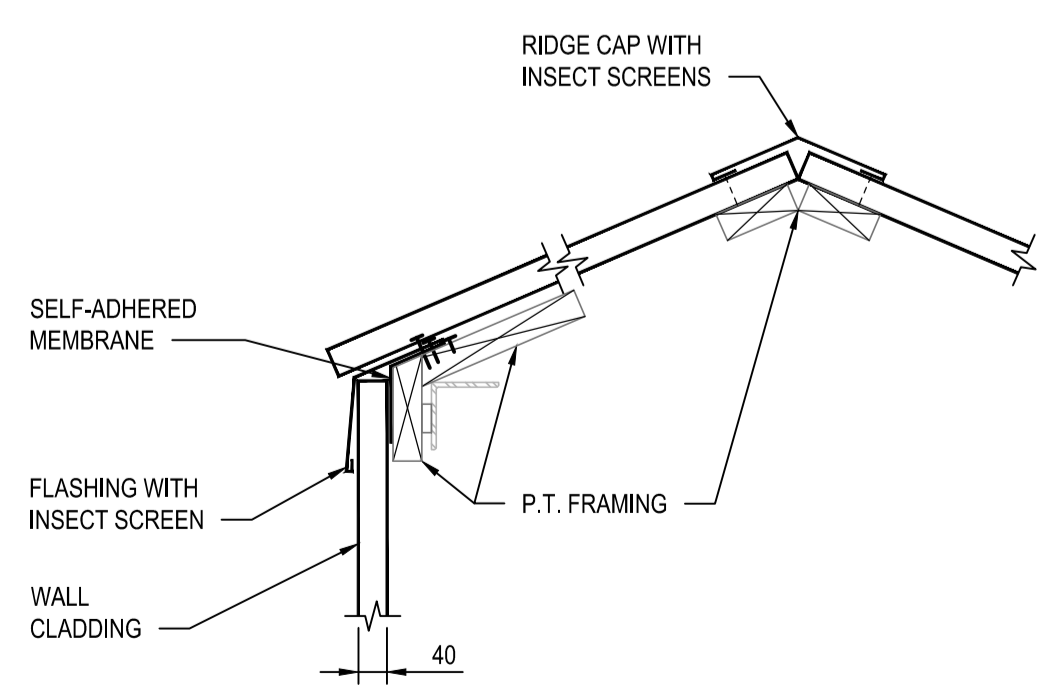
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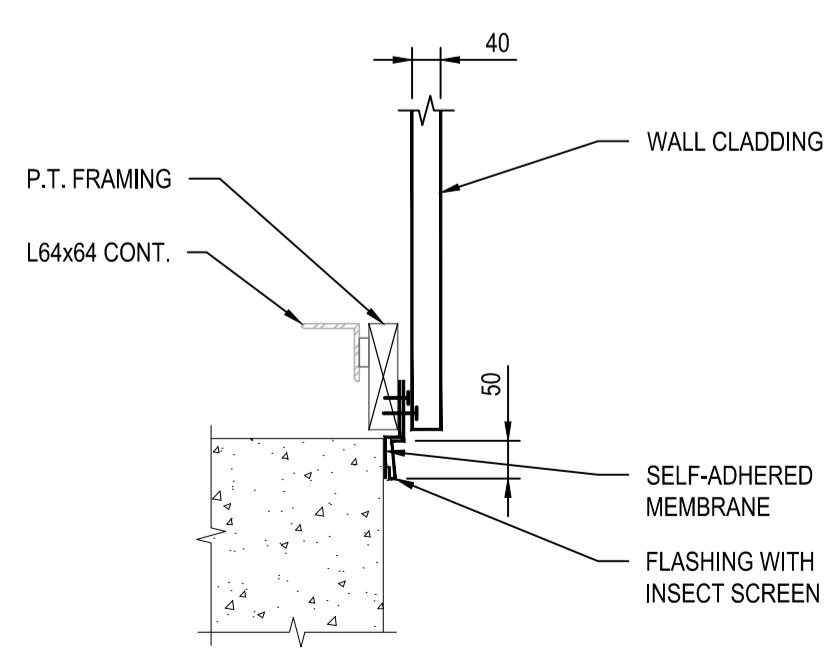
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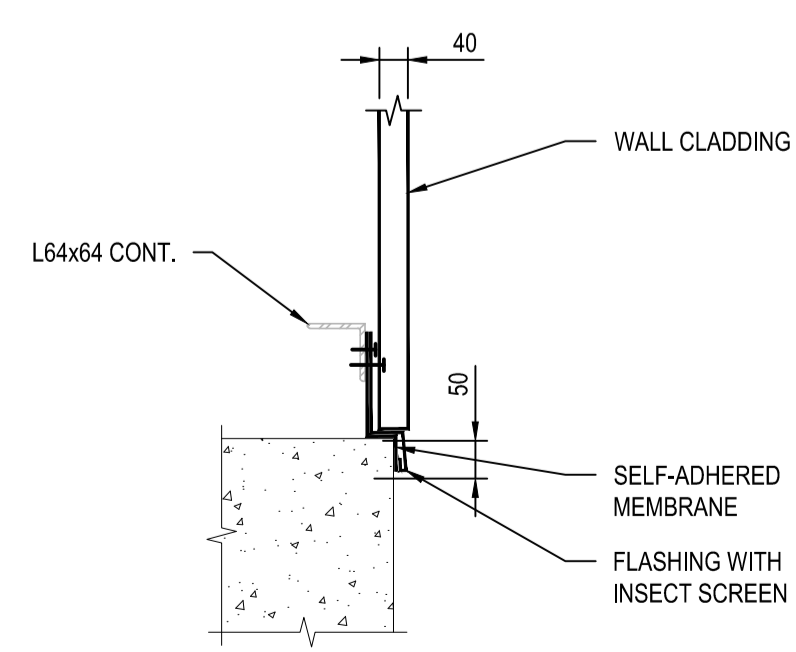
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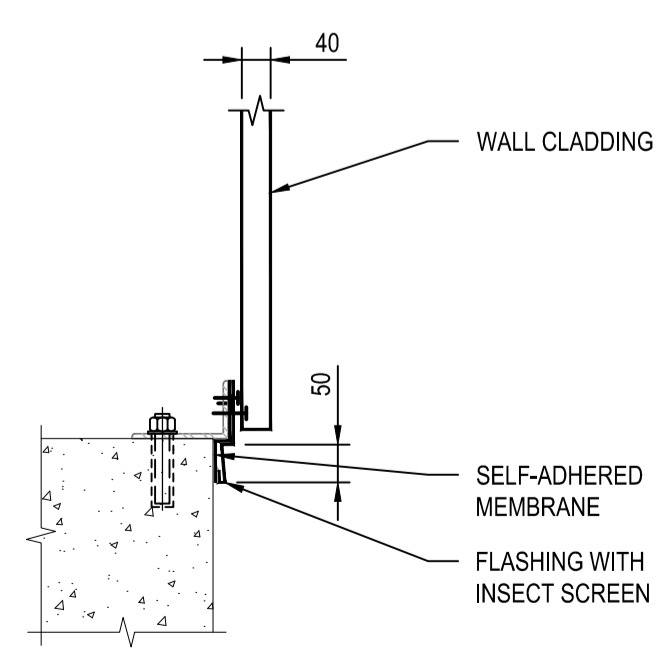
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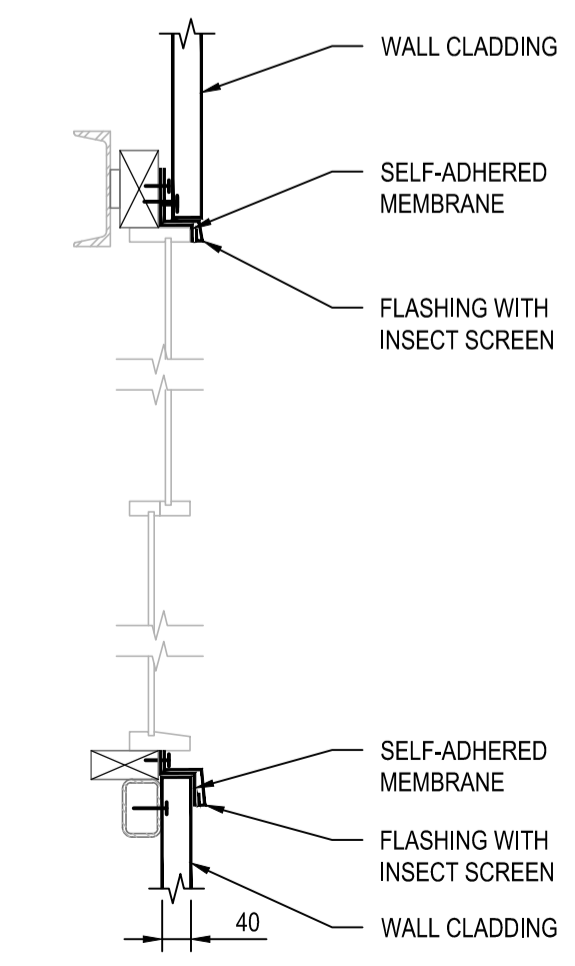
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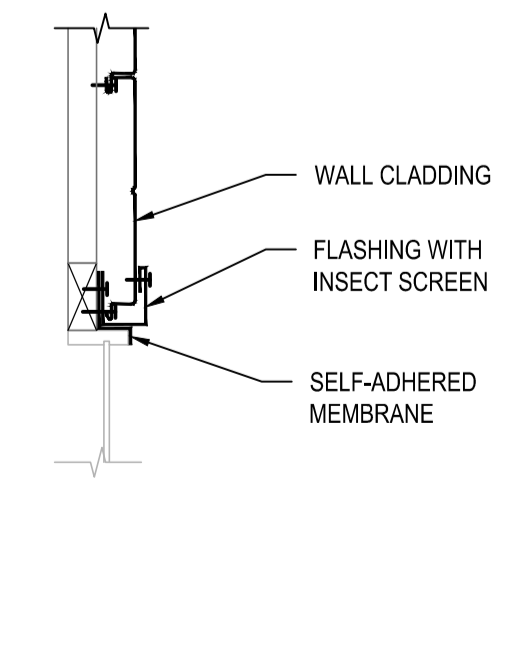
G SECTION  
SCALE: 1:10



H SECTION  
SCALE: 1:10



J SECTION  
SCALE: 1:10



K SECTION  
SCALE: 1:10

