

General Notes

Roof trusses, purlins, side girts, etc. for industrial sheds are designed with cold-finished RHS/SHS manufactured by Tata Steel Tubes SBU.

Pitched roof trusses for rectangular clad buildings of 14 different spans, lean-to trusses of 2 different spans, and portal frames of 5 different spans for six wind zones (as mapped by Bureau of Indian Standards), and each span having two different slopes i.e., 1 in 3 and 1 in 4 for trusses, and 1 in 10 slope for portal frames above 15 m span, have been considered to cover various practical combinations of roof systems and existing manufacturing practices in the country.

Truss configurations for different spans have been arrived at after trial and error, considering overall economy in terms of savings in weight and ease of manufacturing. However, other configurations may also be tried.

Trusses have been analysed assuming rigid member-to-member connections except at ridge and hanger joints. The designs have been prepared for simply supported conditions and reaction values have been tabulated accordingly.

Trusses have been analysed for Dead Load, Superimposed Load, Wind Load, and combinations thereof according to IS:875-87. Only nodal loads have been considered for the purlins to be located strictly at node points, based on the maximum allowable span of G.I. sheeting. For other roofing material allowing longer spans, suitable changes in truss configurations should be tried.

For wind load combinations, allowable stresses have been increased by 33.33% as per provision of IS:806.

Effective length of each member has been assumed to be **0.85 times the node-to-node distance**. In case of compression loading, members have been designed against buckling in and out of the plane of the truss.

Maximum slenderness ratio for compression members has been restricted to **180**. Maximum deflection of mid-span node of truss has been restricted to **span/325**.

As RHS/SHS are still considered non-conventional sections, typical fabrication detailing for different spans has been incorporated so that practising structural engineers may find it helpful as a ready reference.

Design Data

Design Code: IS:806, use of hollow section for general construction in Steel Material : IS:4923

Grade: YST 310

Design Loading :

1. Dead Load

- i) G.I sheeting & fastener = 0.60 KN/m²
- ii) Purlins = As per Purlin Table
- iii) Truss, tie member etc = Actual RHS/SHS wt + 5% of truss weight due to gusset plate etc.

1. Imposed Load per m² plan area (for truss design):

Ref. IS: 875,87, part 2 CL 4.5.1 & table 2

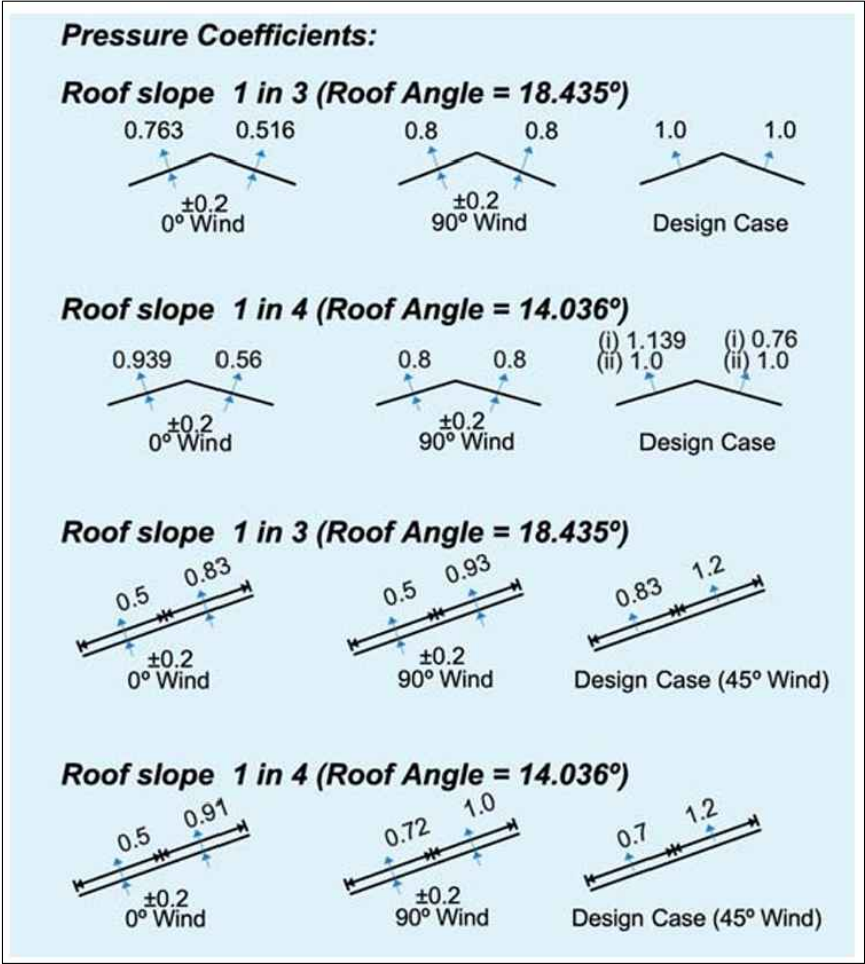
Roof slope 1 in 3 = 0.667 × (0.75 - 8.435 × 0.02)
= 0.3875 KN/m² hence 0.4 KN/m²

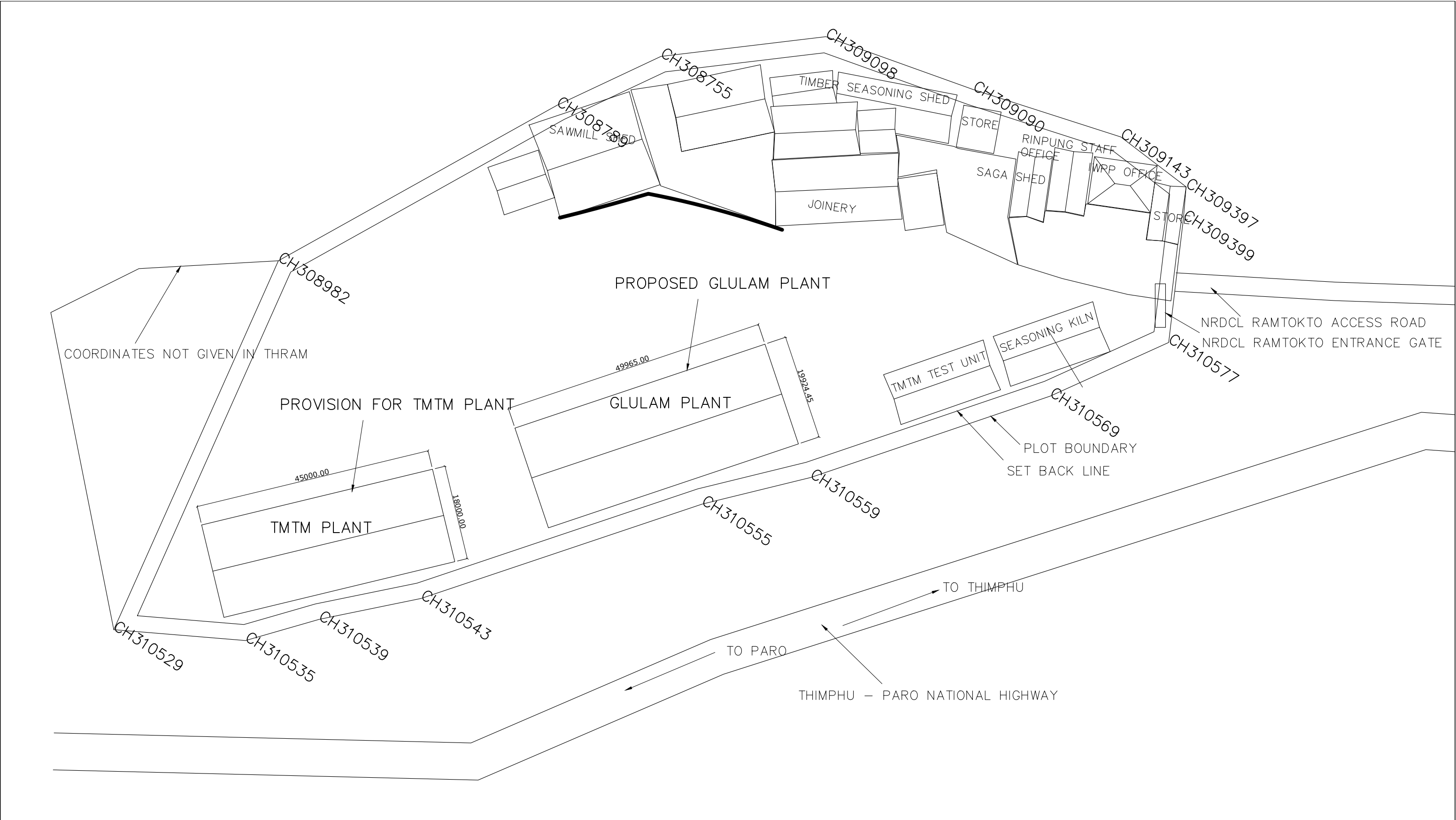
Roof slope 1 in 4 = 0.667 × (0.75 - 4.036 × 0.02)
= 0.446 KN/m²

2. Wind Load:

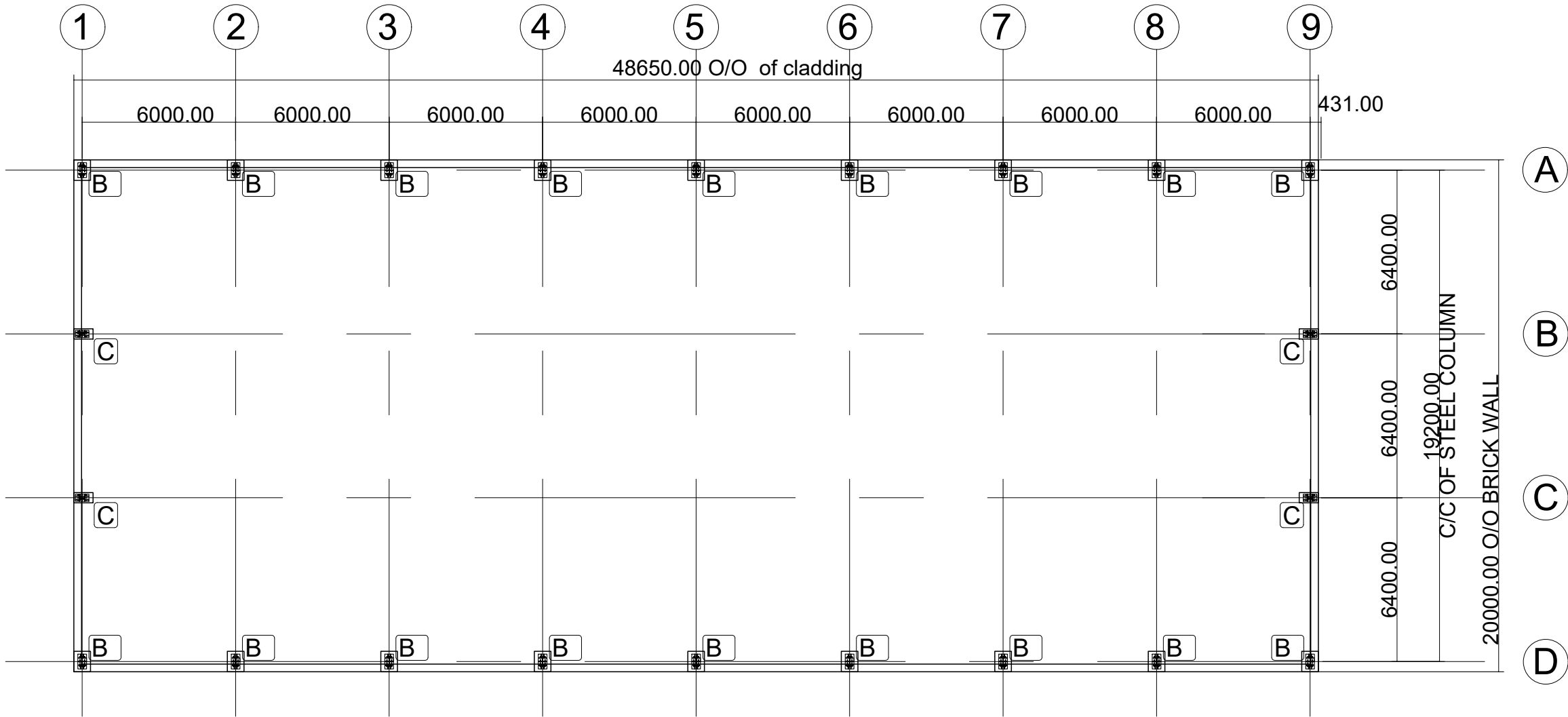
Refer IS : B75-1987, Part 3

Wind Zone	Zone I	Zone II	Zone III	Zone IV	Zone V	Zone VI
Wind Speed	33 m/s	39 m/s	44 m/s	47 m/s	50 m/s	55 m/s
Design Wind Pressure in N/m²	653.4	912.6	1162	1325	1500	1815





PROJECT	LOCATION		DRAWING		ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		SITE PLAN	GL-00	BISHAL SUBBA NRDCL, HO
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS		



ANCHOR BOLT LAYOUT PLAN

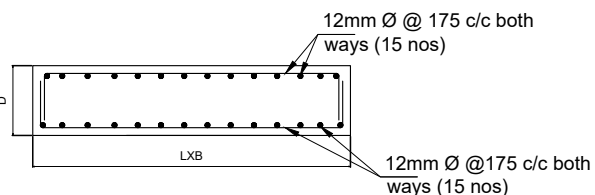
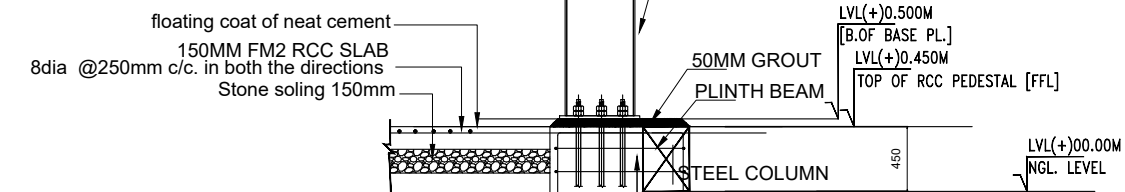
Note: The Alphabets B and C shall be read for Column as it is

ANCHOR BOLT SCHEDULE						
BOLT DESCRIPTION	USAGE	DIA.	H	h	T	QTY
AB 24X1000	MAIN FRAME	24	700	150	150	
AB 20X1000	MAIN FRAME	20	700	150	150	

IMPORTANT NOTES

- Anchor bolts should be set accurately and held in position by template before casting to the given dimensions and projection , with maximum deviationof 5mm. in concrete to full strength.
- All anchor bolt diameters are in millimetres. Anchor bolt projection must be according to design and threads to be clean.
- The installation of Anchor Bolts and embedded items must be done in accordance with the Code of Standard Practice for Steel Buildings of AISC Section 7. Anchor Bolts and Foundation Bolts shall be set for maximum allowable tolerances as follows :
 - 3 mm center to center or any two bolts within an Anchor Bolt group.
 - 6 mm center to center of adjacent Anchor Bolt groups.
 - Elevation of the top of Anchor Bolts +/- 12 mm.
 - Maximum accumulation of 6 mm per 30 mtrs. along the established column line of multiple anchor bolt groups but not to exceed a total of 25 mm.
 - 6 mm from the center of any anchor bolt group to the established column line through that group.
 - the tolerances of paragraphs A and B apply to offset dimensions shown on the plans, measured parallel and perpendicular to the nearest established column line for individual column shown on the plans to be offset from established column line.
- Anchor bolts shall be set perpendicular to the theoretical bearing surface unless shown otherwise.
- Anchor bolts should be embedded in concrete so that its threaded portion should start from the top level of concrete pedestal
- All Dimensions are in mm
- Anchor Bolt steel grade FY = 250MPa
- ANCHOR BOLT LOCATIONS HAVE TO BE VERIFIED BY COMPETENT AUTHORITY OF PEB MANUFACTURAR TO ENSURE ACCURACY AT SITE.
- LEVELS AS MARKED IN DETAILS TO BE CONFIRMED BY CLIENT/CONSULTANT
- GRADE OF CONCRETE SHALL BE OF MIN. M25 U.N.O.
- SIZES OF THE PEDESTAL SHOULD BE 50 MM MORE ON EITHER SIDE OF DIMENSION OF BASE PLATE
- ALL BRICK & R.C.C. WORK NOT IN OUR SCOPE

PROJECT	LOCATION	DRAWING	ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Anchor bolt placement	GL-01
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise. When in doubt, please ask, do not assume.	Scale: NTS	BISHAL SUBBA NRDCL, HO



REINFORCEMENT SECTION DETAIL

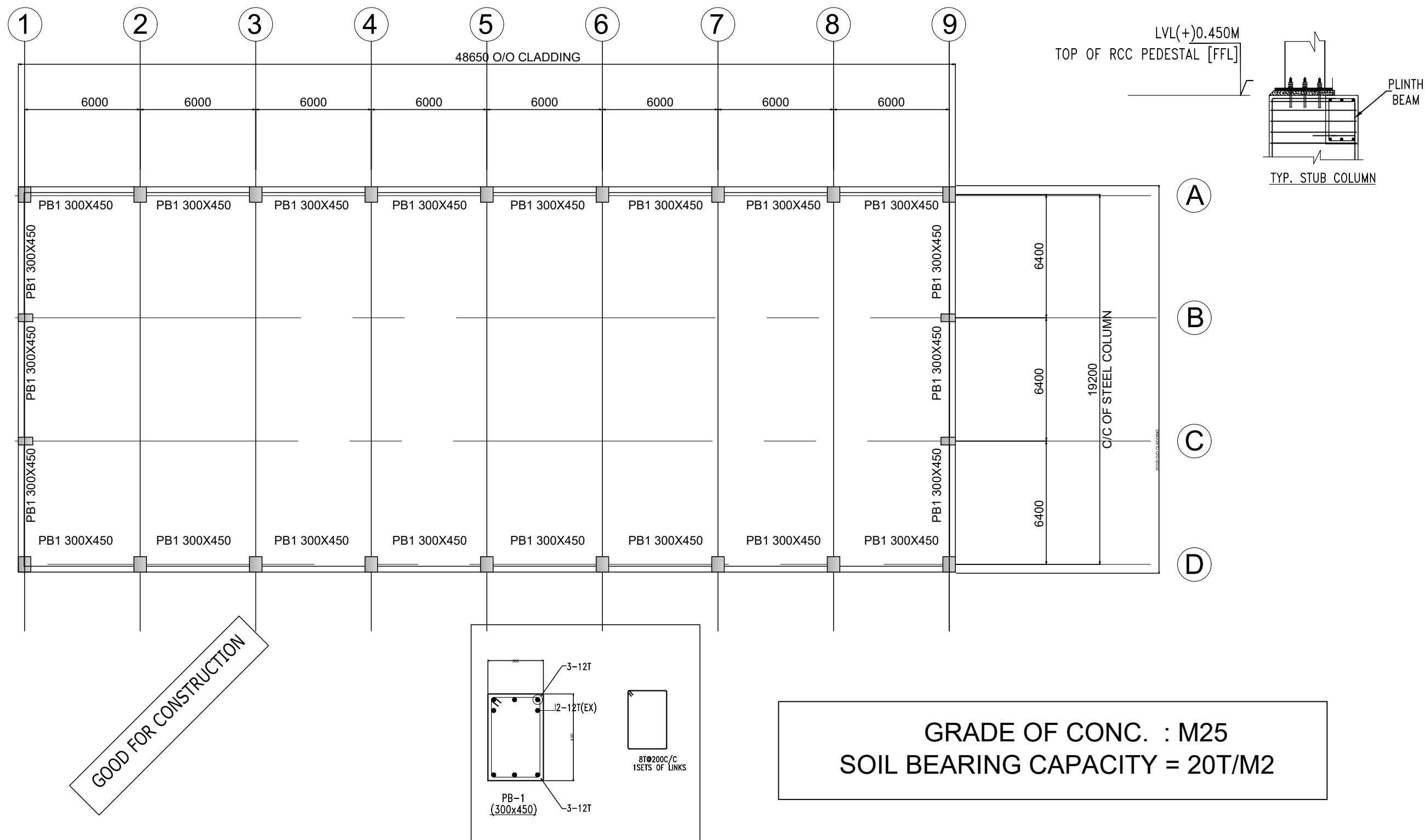
GOOD FOR CONSTRUCTION

SCHEDULE OF FOOTINGS- MESH

Sl.No.	FOOTING TYPE	SIZE (L x Ly)	BOTTOM REBAR		TOP REBAR		PAD DEPTH	FOUNDATION DEPTH
			X	Y	X	Y		
1	F-1	2500 x 2500	12Ø@175C/C	12Ø@175C/C	12Ø@175C/C	12Ø@175C/C	500	1500

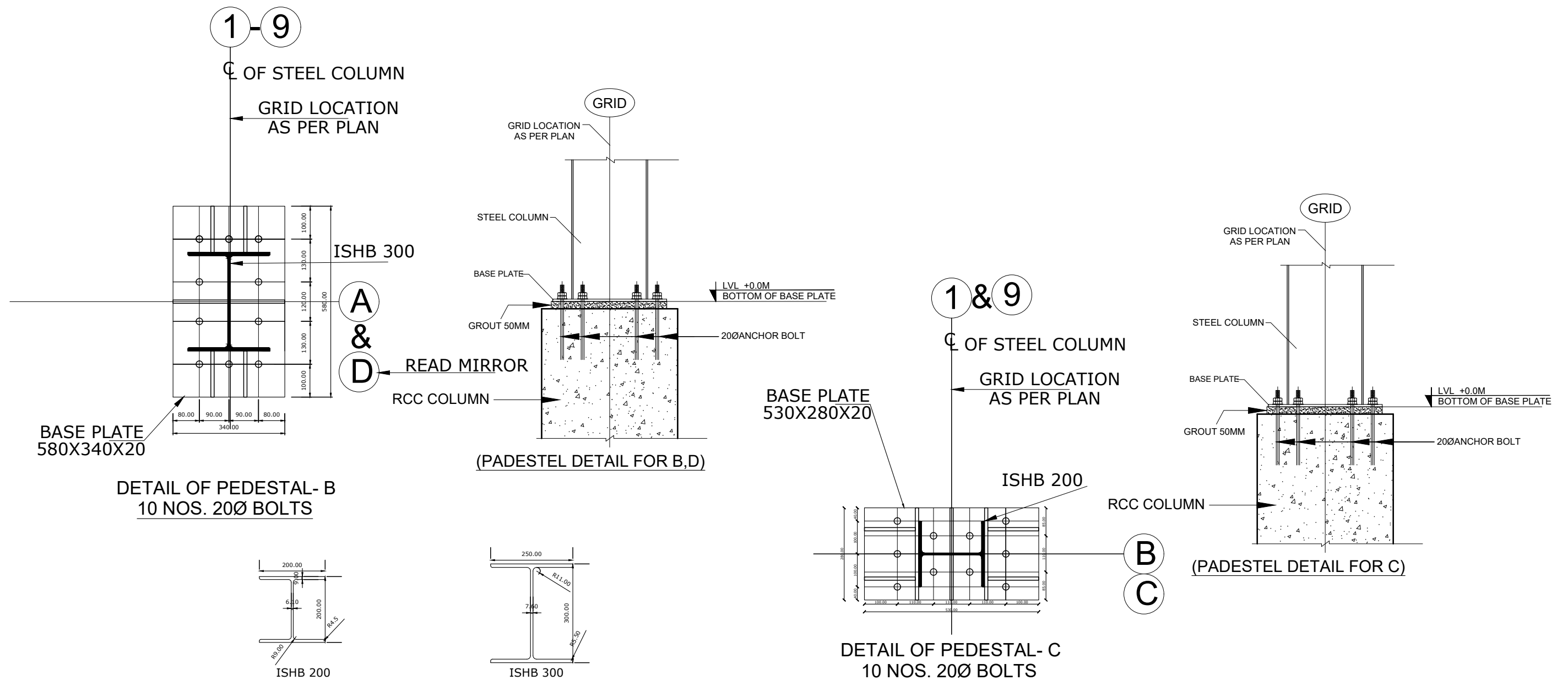
GRADE OF CONC. : M25
SOIL BEARING CAPACITY = 15T/M2

PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Footing Layout	GL-03		BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	<i>When in doubt, please ask, do not assume.</i>	Scale: NTS			



PROJECT	LOCATION	DRAWING	ENGINEER	
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Plinth Beam Layout	GL-04	BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise. When in doubt, please ask, do not assume.	Scale: NTS		

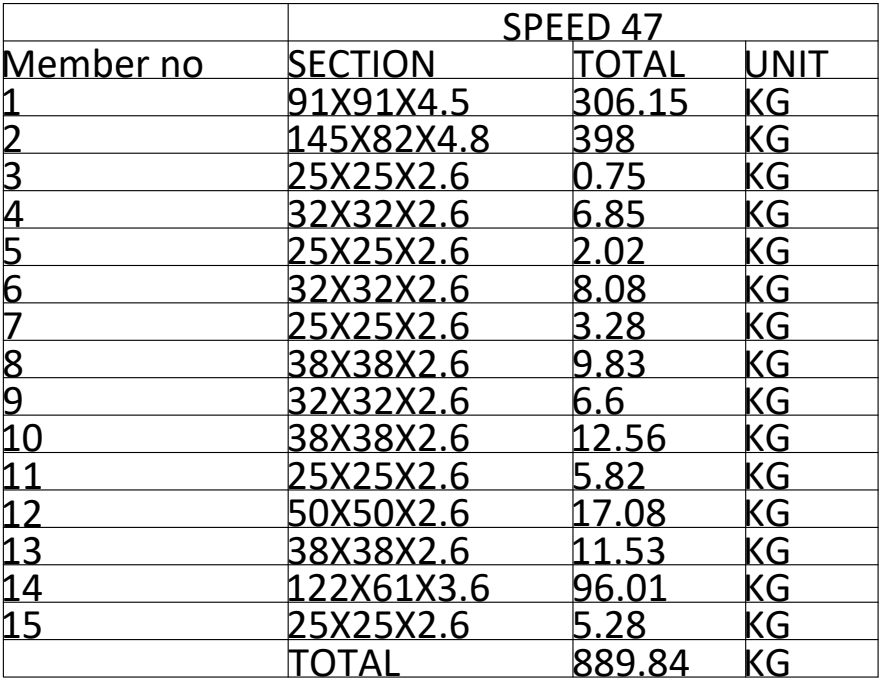
ANCHOR BOLT LAYOUT PLAN



Note: Baseplate/Anchor bolt layout to be done using 5mm thick template plates

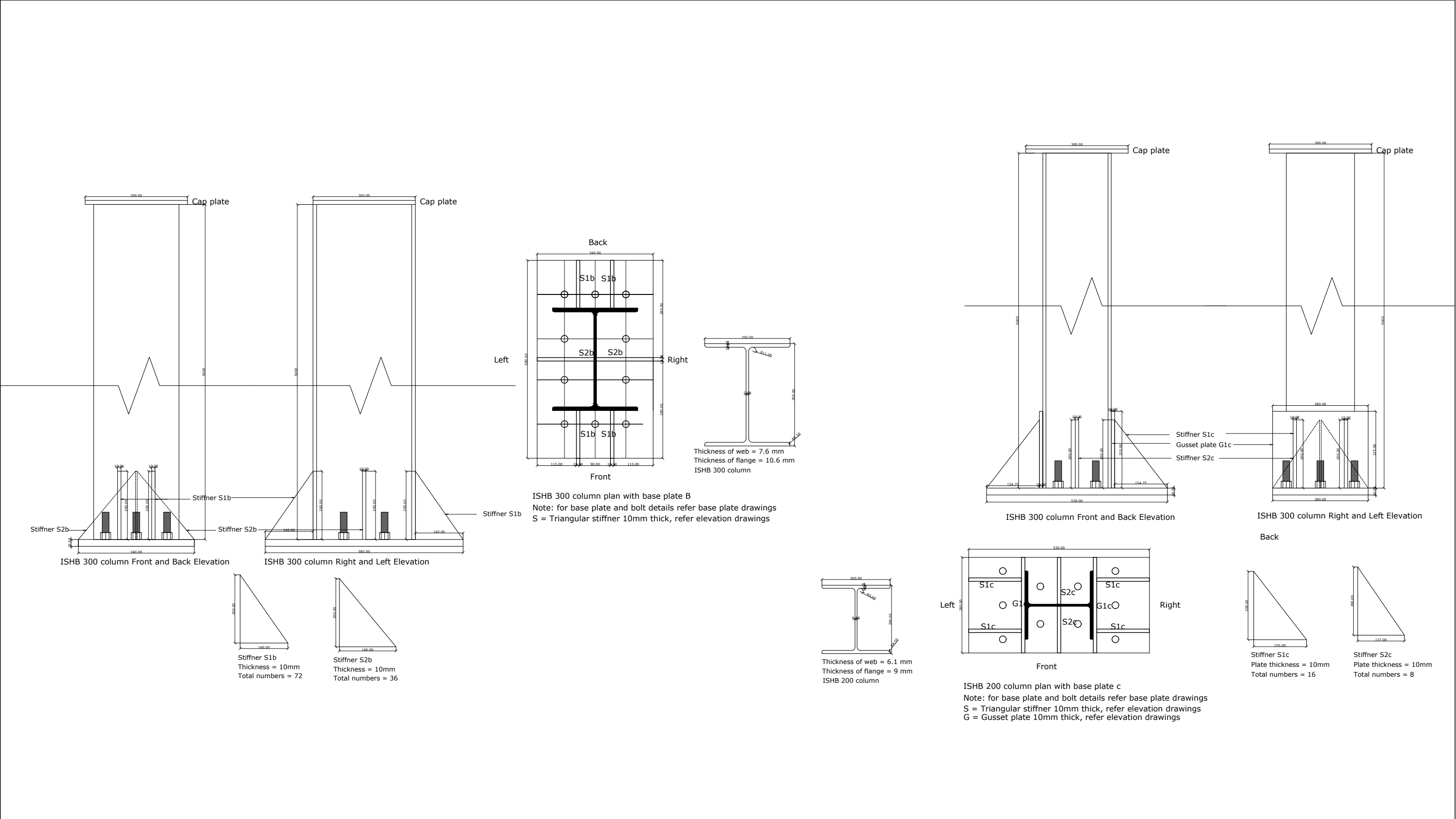
Note: Centerline layout to be done using the Anchor bolt layout drawings

PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Base plate Template details	GL-05		BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS			



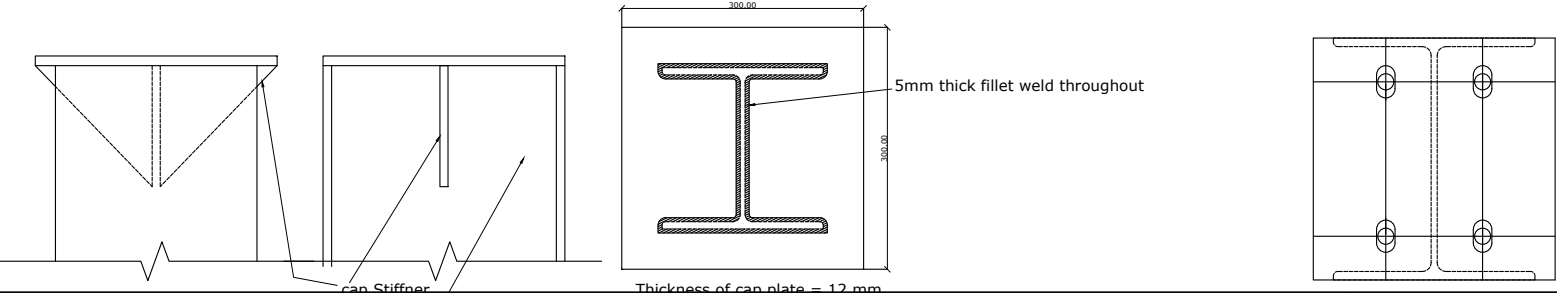
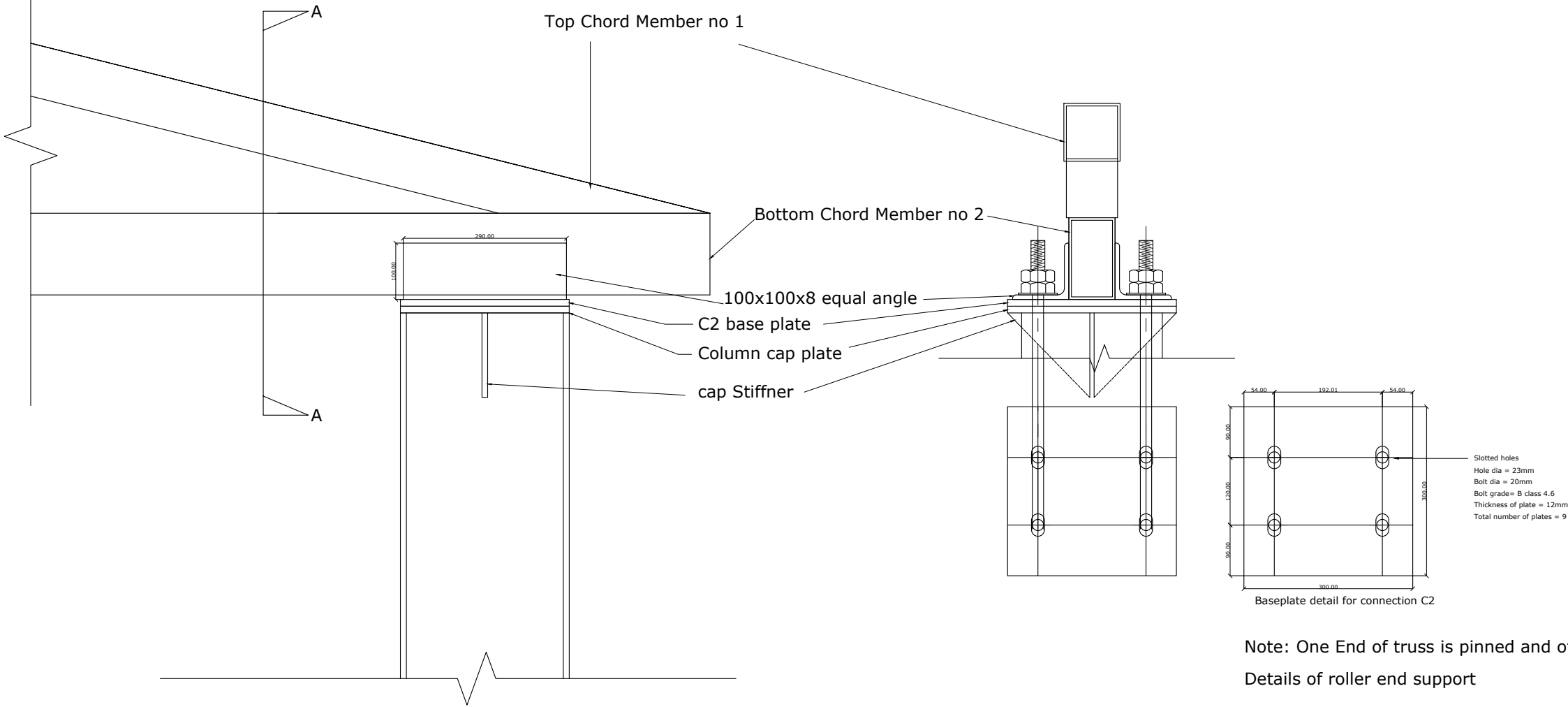
TRUSS DETAILS

PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Truss details	GL-06		BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	<i>When in doubt, please ask, do not assume.</i>	Scale: NTS			



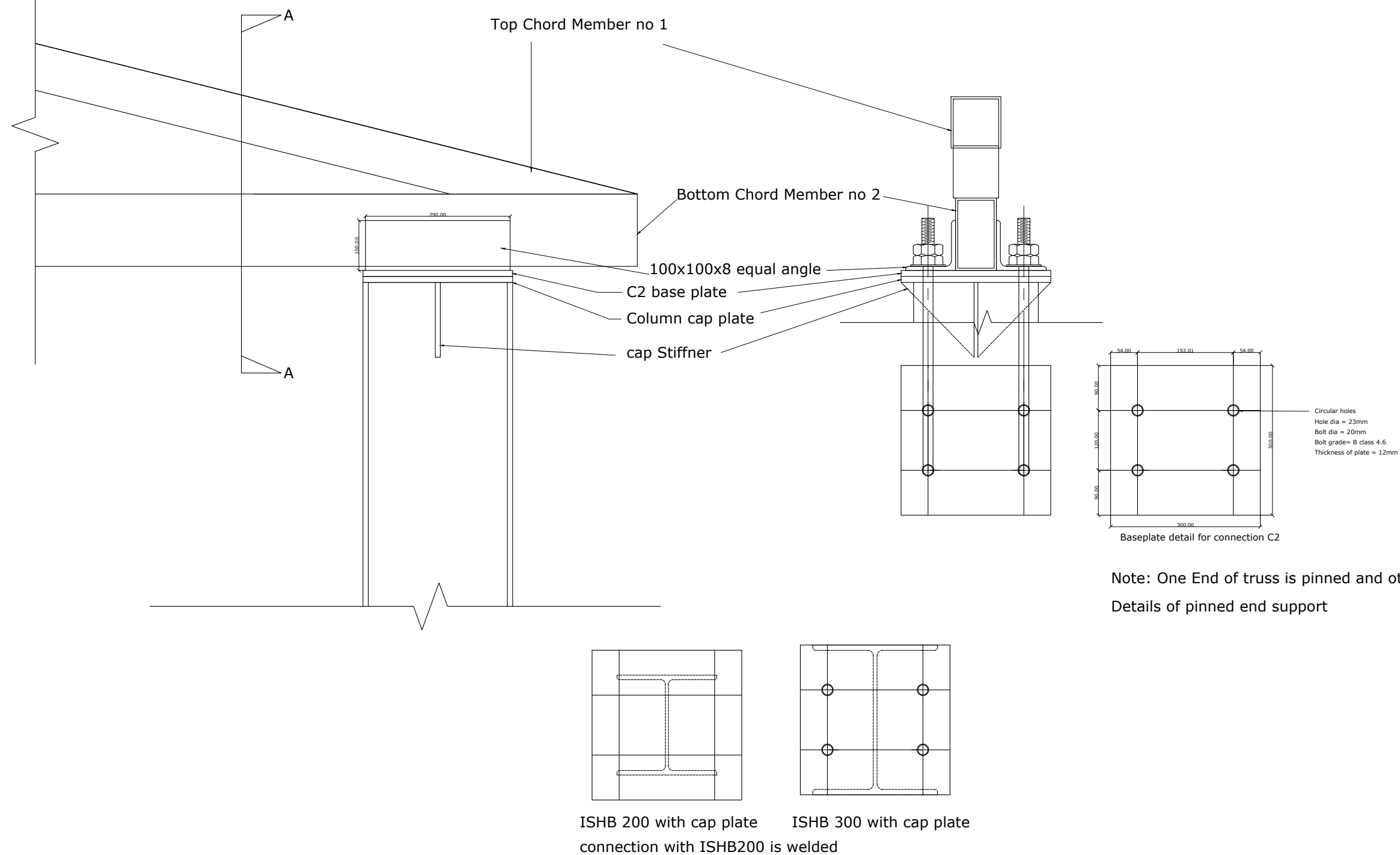
PROJECT	LOCATION	DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Column Base plate details	GL-07		BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise. When in doubt, please ask, do not assume.	Scale: NTS			

Typical Details of truss support C2 (Roller)

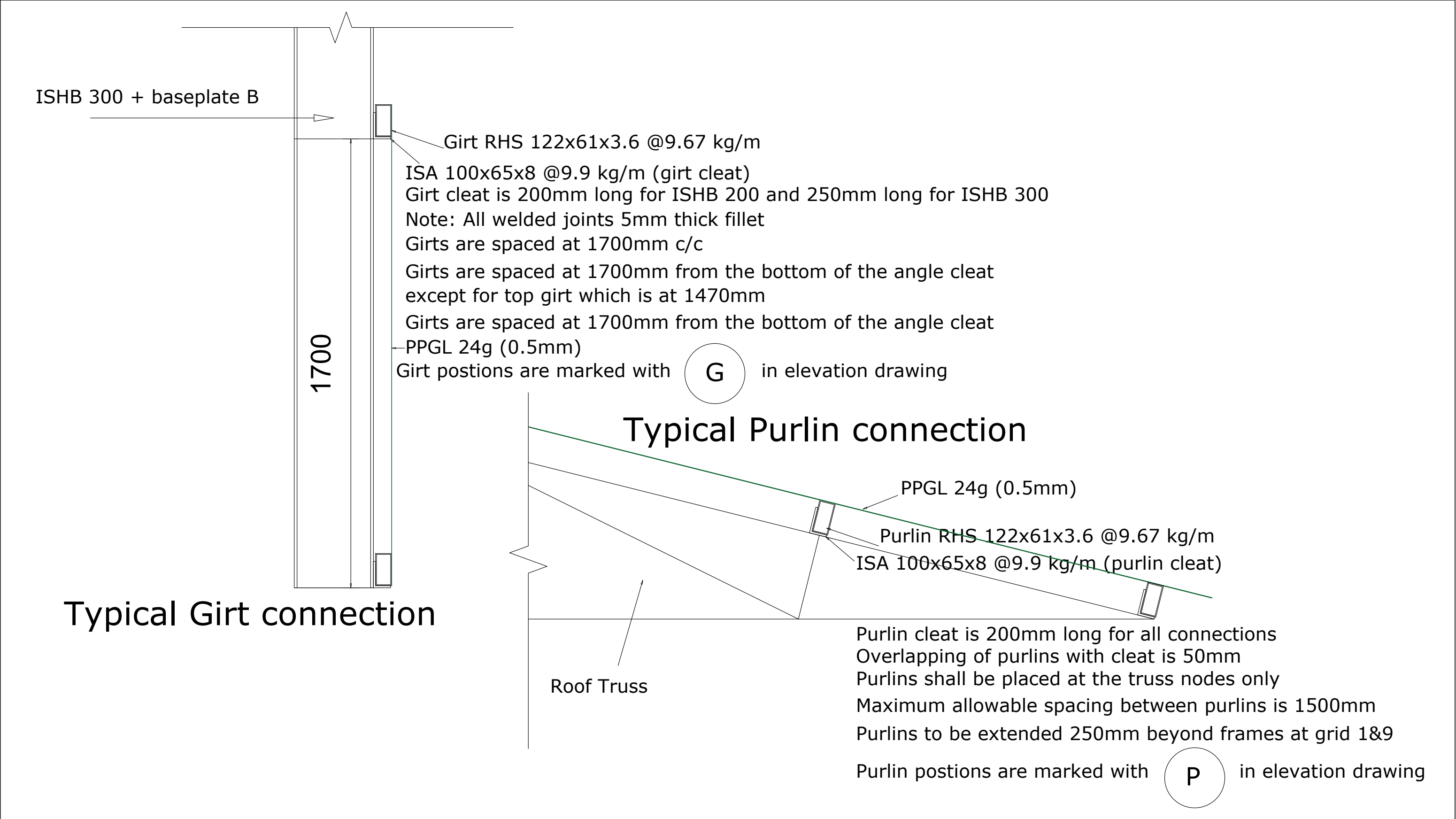


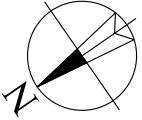
PROJECT	LOCATION	DRAWING	ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Connection C2 details (Roller)	GL-08
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise. When in doubt, please ask, do not assume.	Scale: NTS	

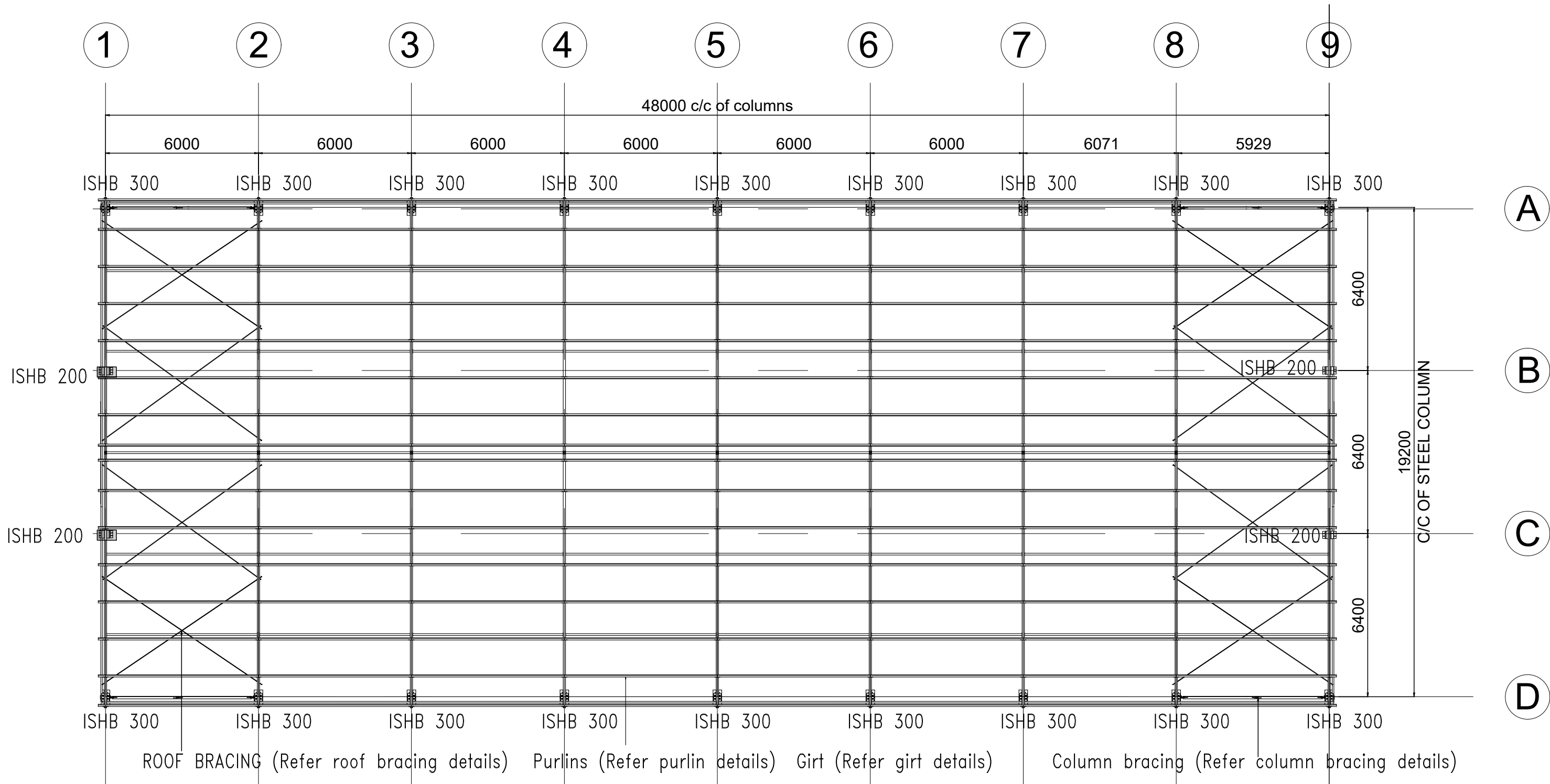
Typical Details of truss support C1 (Pinned)



PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Connection C1 details (pinned)	GL-09		BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	<i>When in doubt, please ask, do not assume.</i>	Scale: NTS			



PROJECT	LOCATION	DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Girt and Purlin connection details	GL-10		BISHAL SUBBA NRDCL, HO
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise. When in doubt, please ask, do not assume.	Scale: NTS			



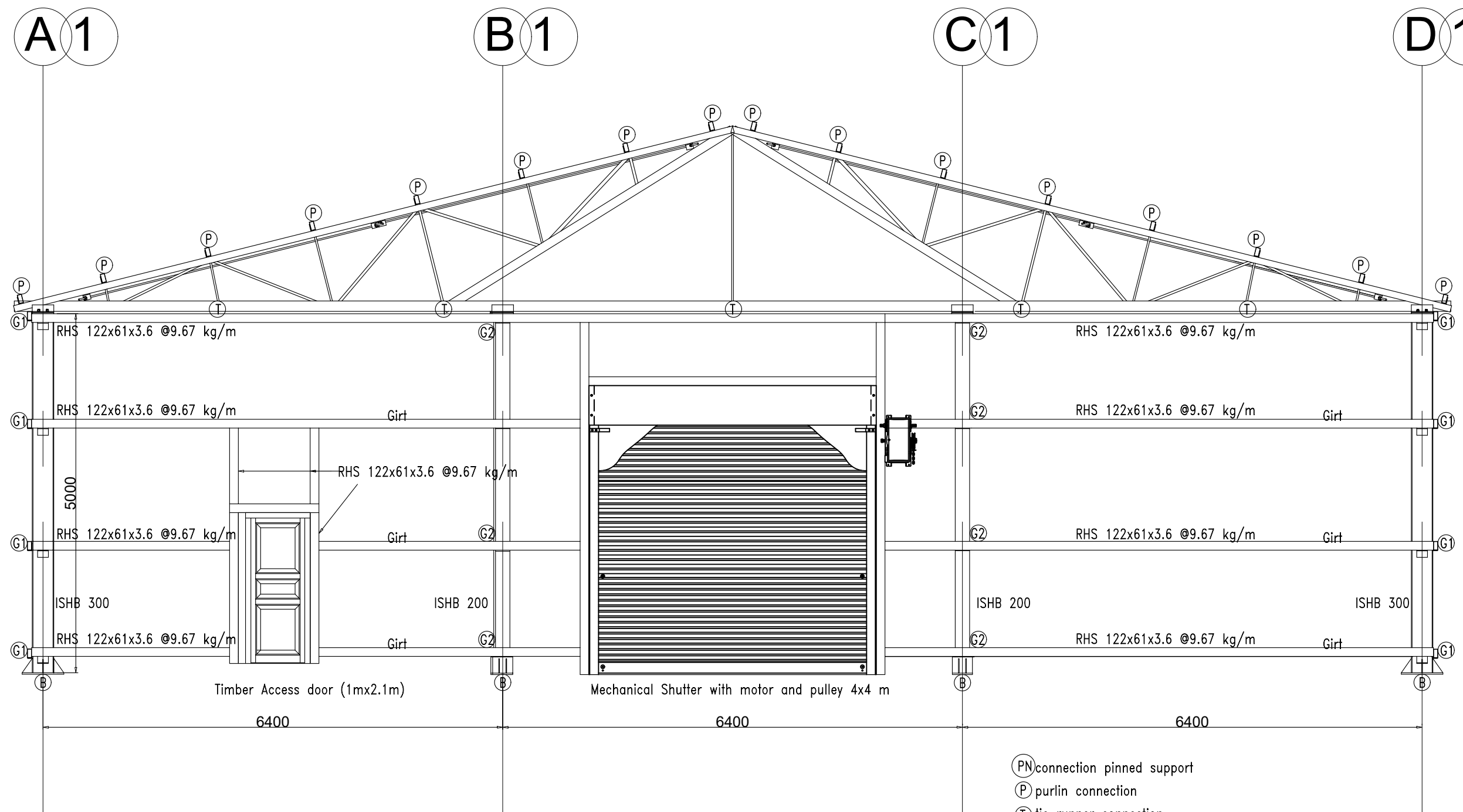
Plan View

PROJECT		LOCATION		DRAWING		ENGINEER	
Construction of Glulam Shed 50m x 20m x 4m		NRDCL Sawmill Area Ramtokto		Building Plan	GL-11		BISHAL SUBBA NRDCL, HO
				Scale: NTS			

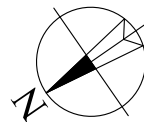
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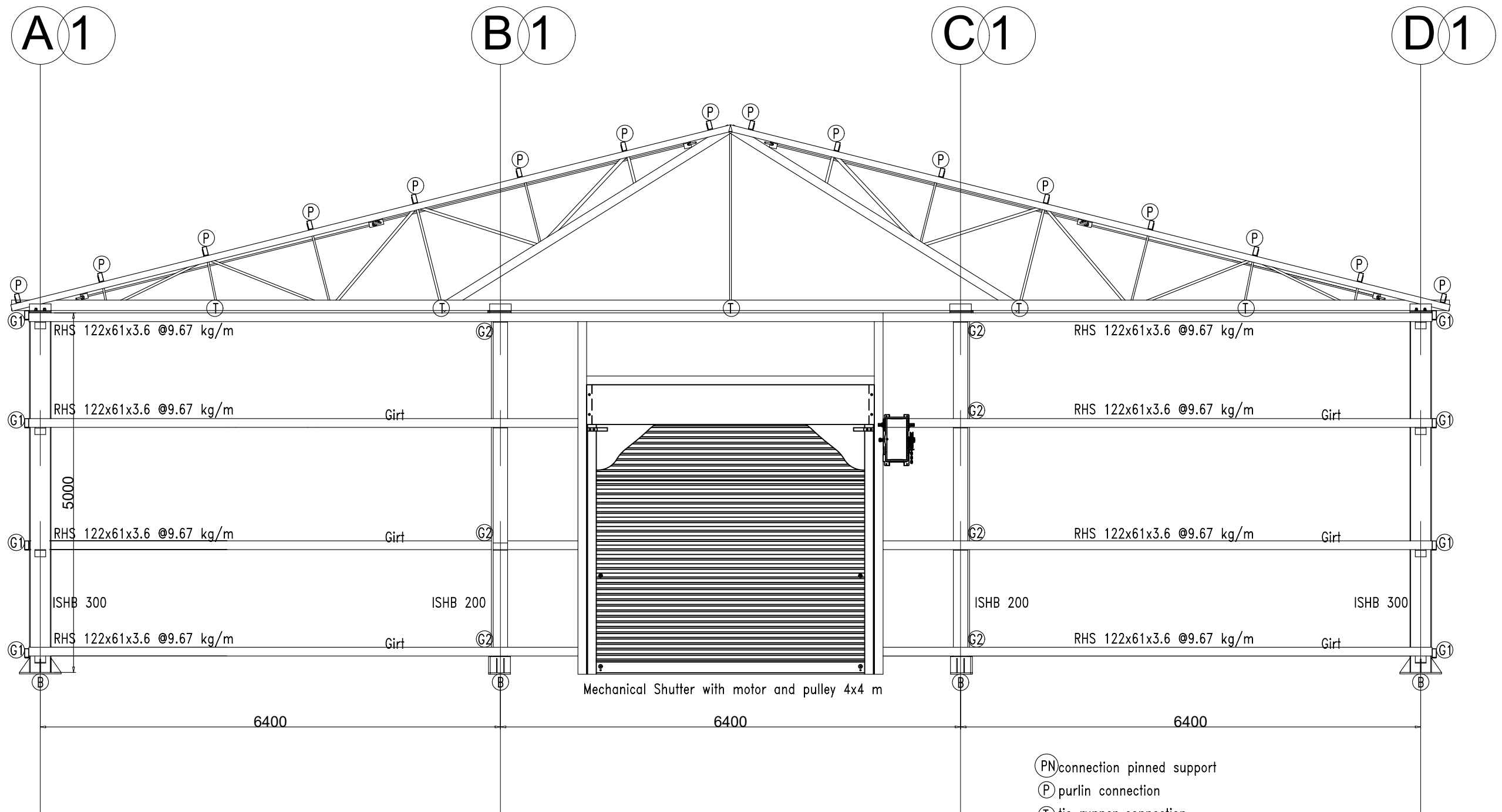
- Drawings are to be read only and not to be measured.
- All dimensions are in millimeters unless stated otherwise.

When in doubt, please ask, do not assume.



PROJECT	LOCATION	DRAWING		ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Building Front elevation	GL-12	BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS	

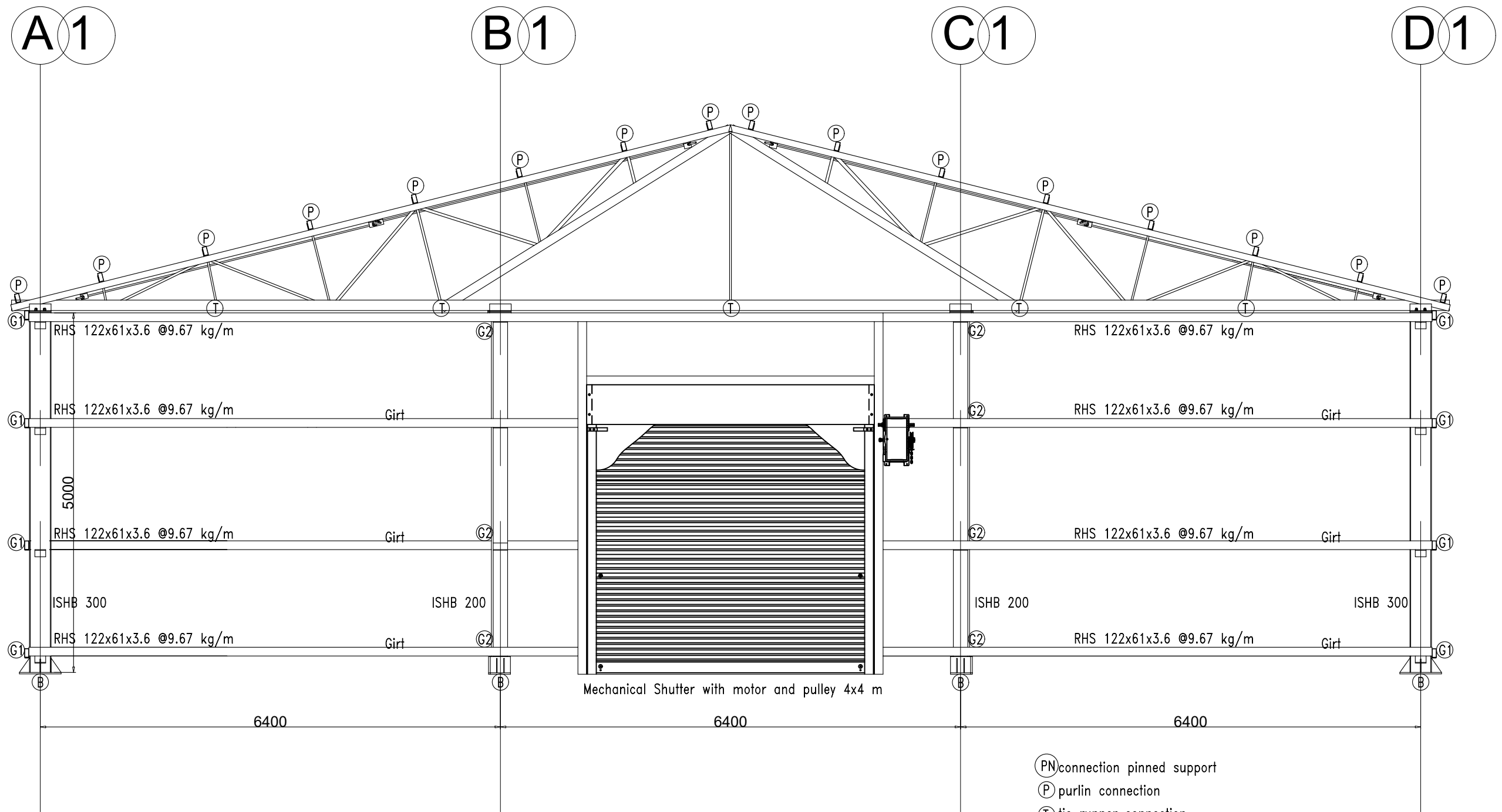




Back Elevation

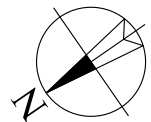
PROJECT	LOCATION	DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Building back elevation		GL-13	BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	Scale: NTS			

When in doubt, please ask, do not assume.

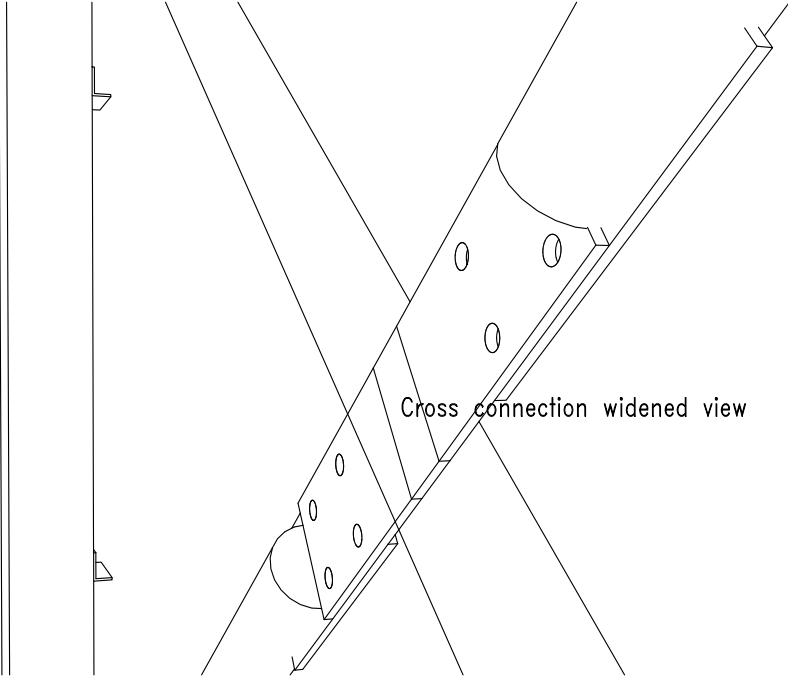
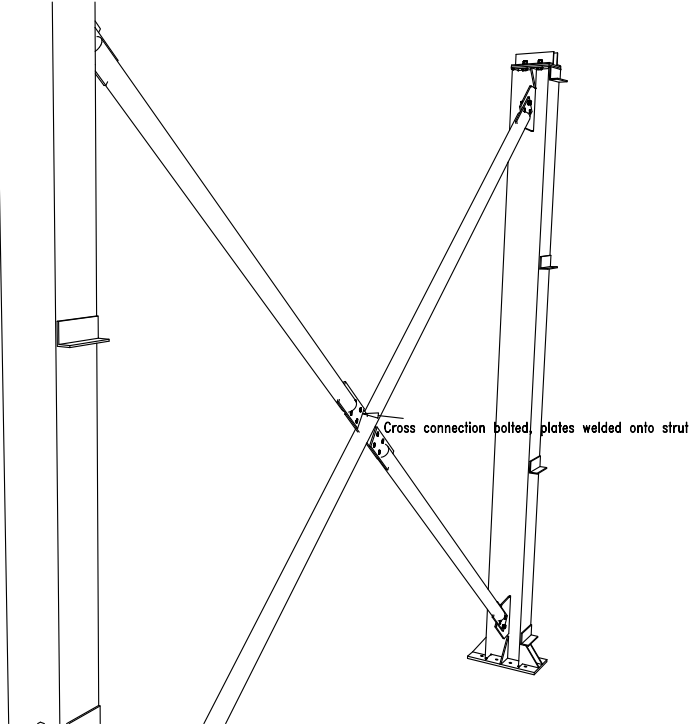
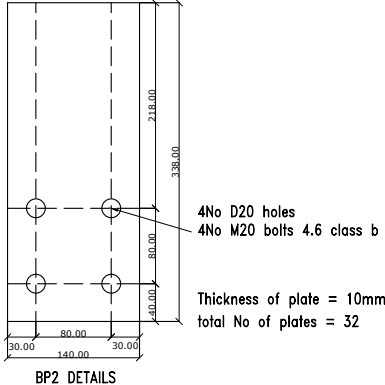
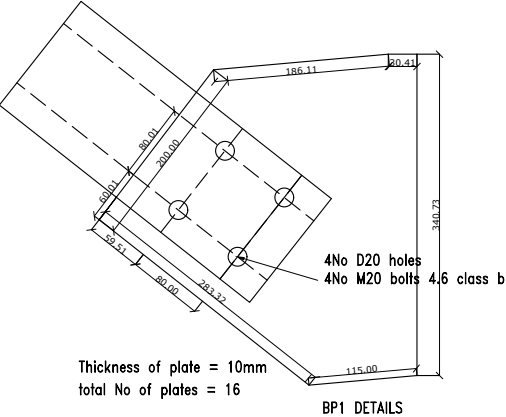
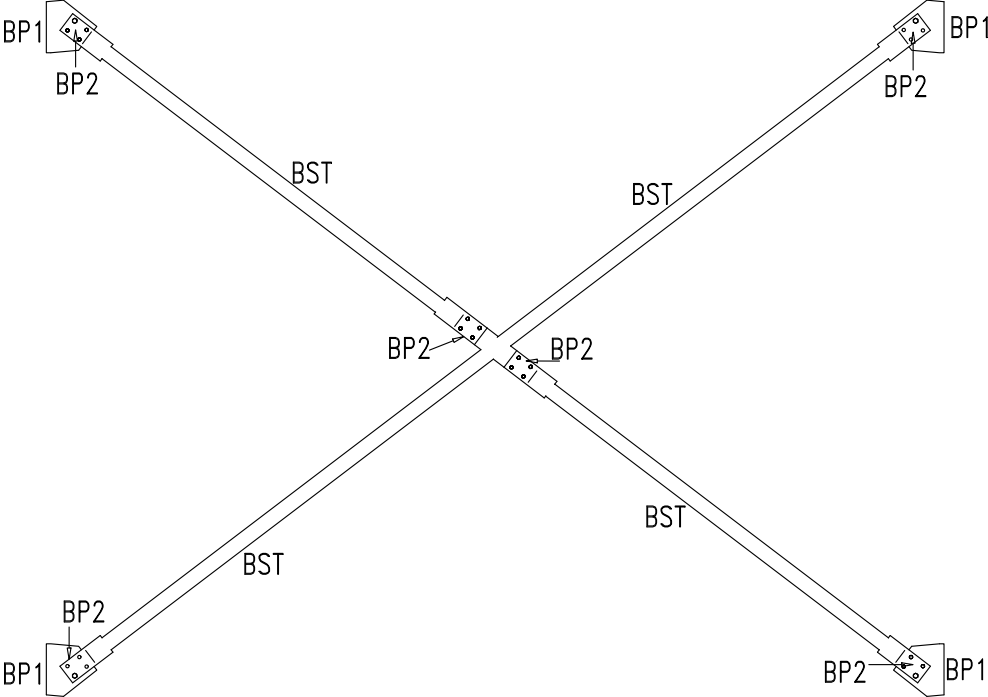


Back Elevation

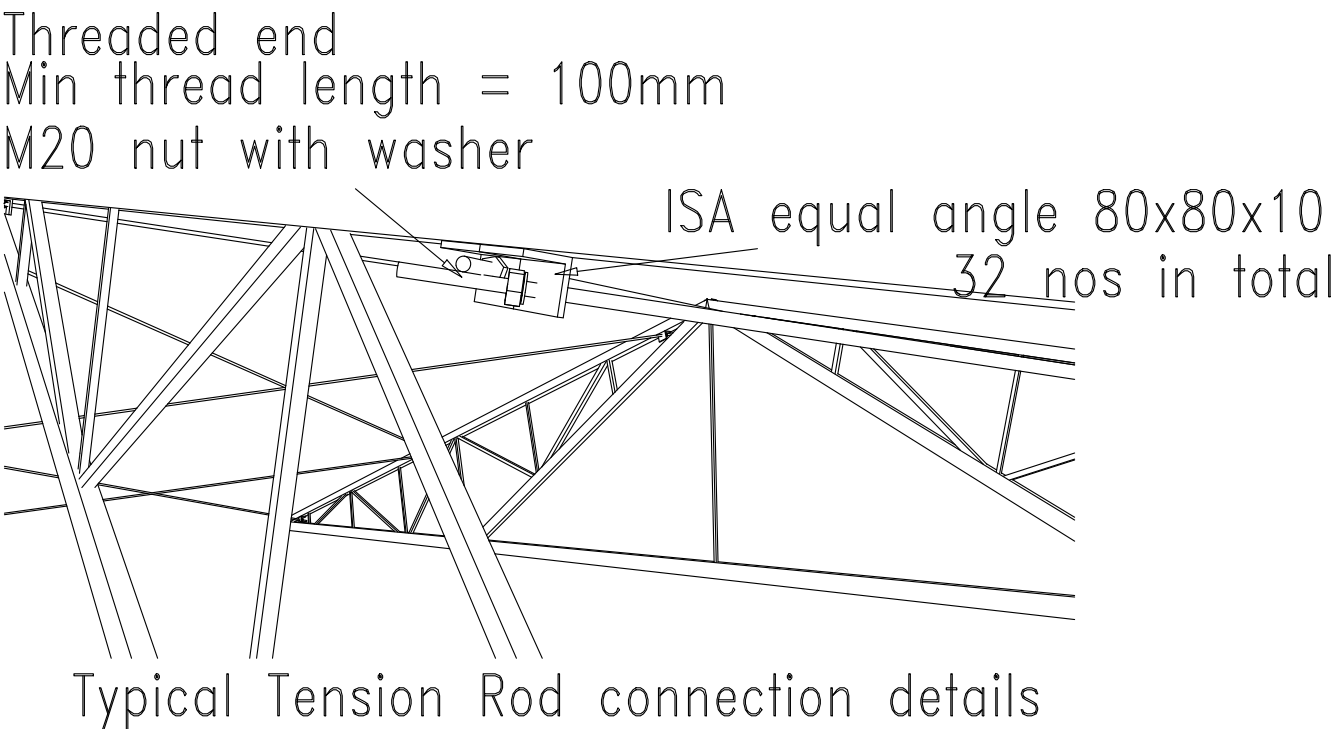
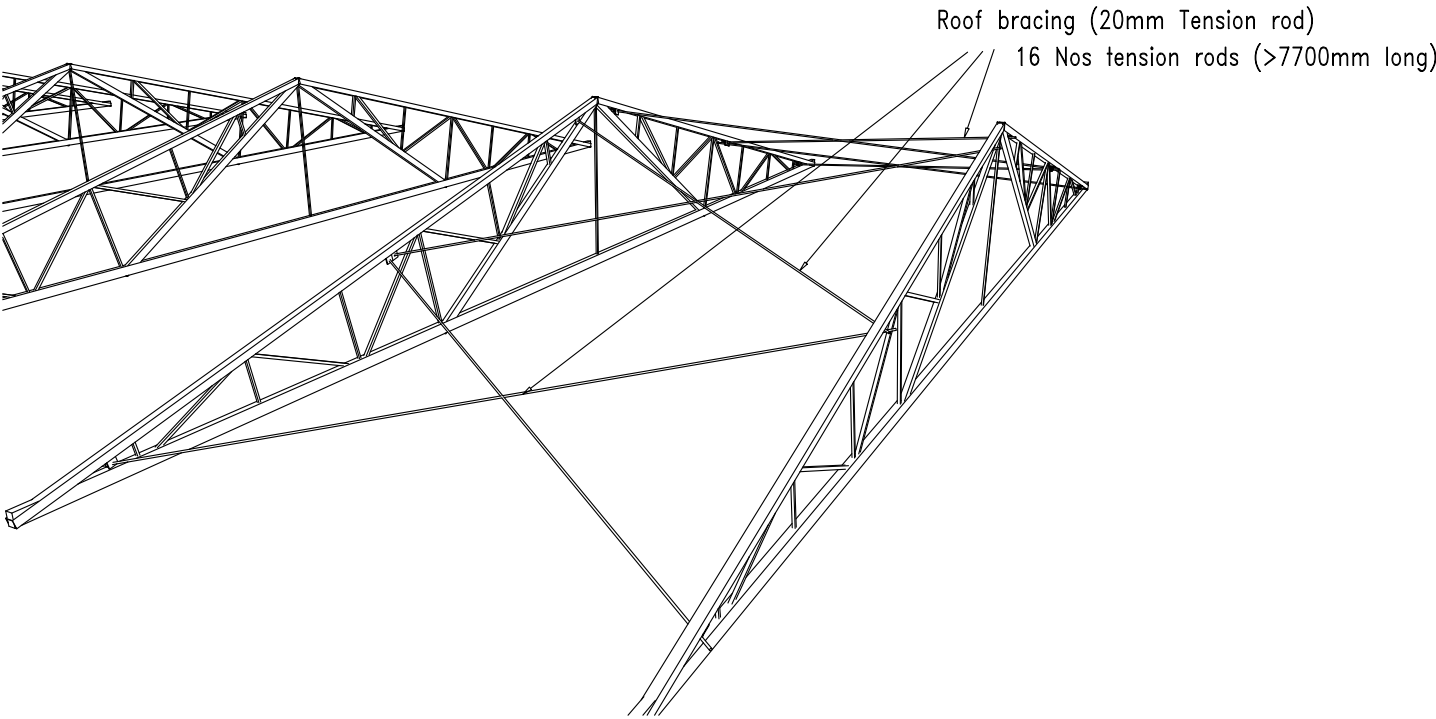
PROJECT	LOCATION	DRAWING		ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Building back elevation	GL-14	BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS	



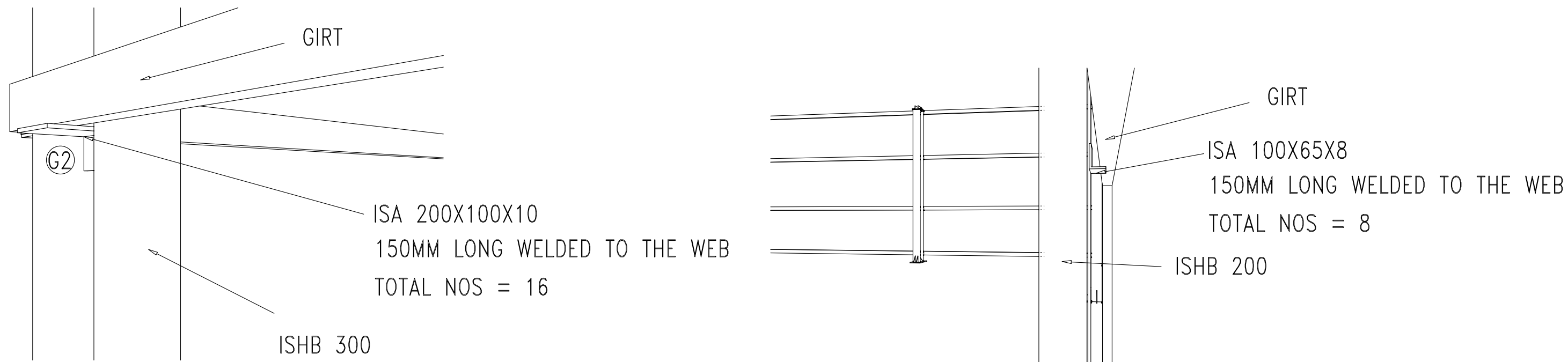




PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Bracing details	GL-16		BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS			

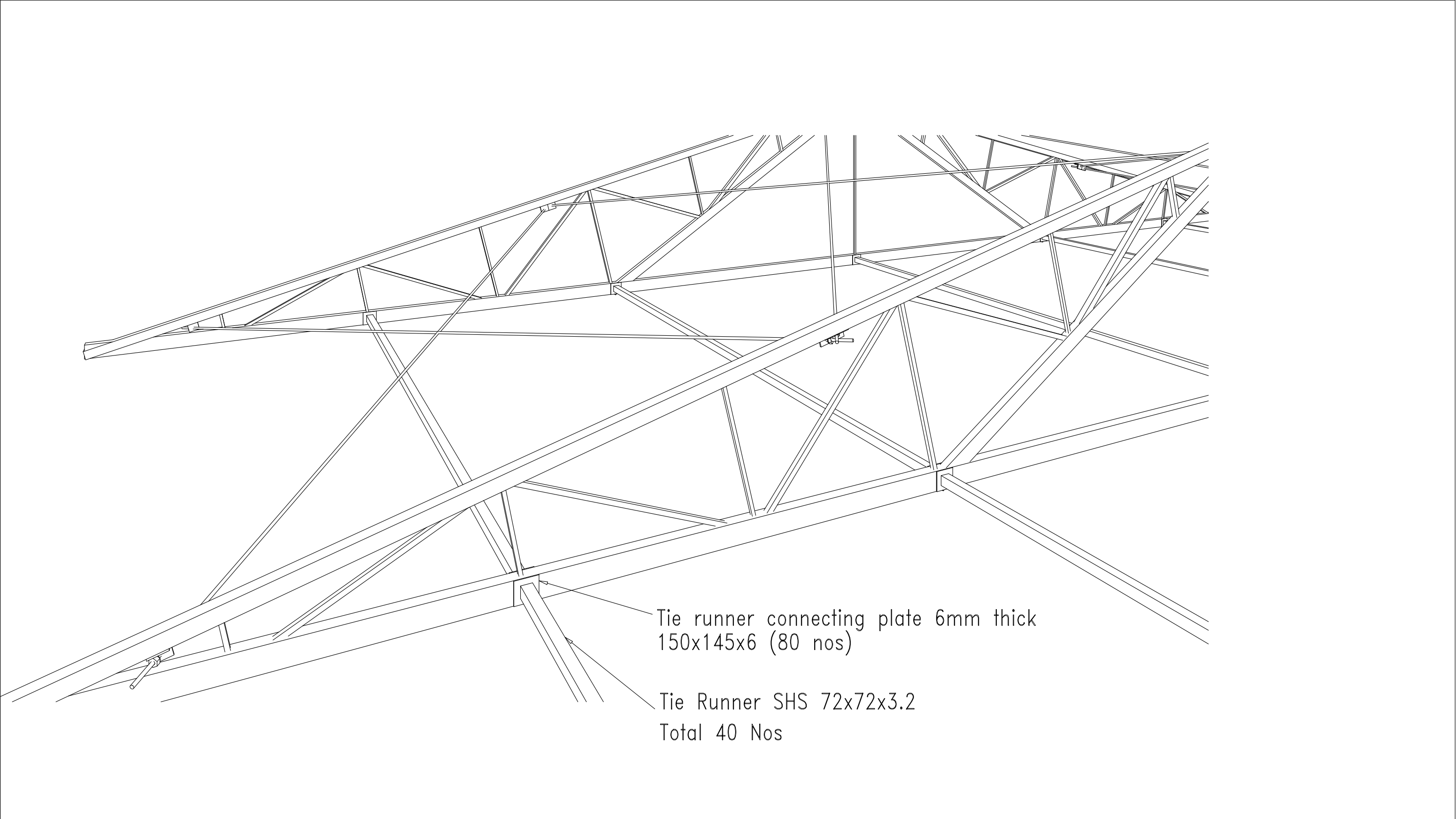


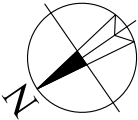
PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Roof Bracing details	GL-17		BISHAL SUBBA NRDCL, HO
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS			

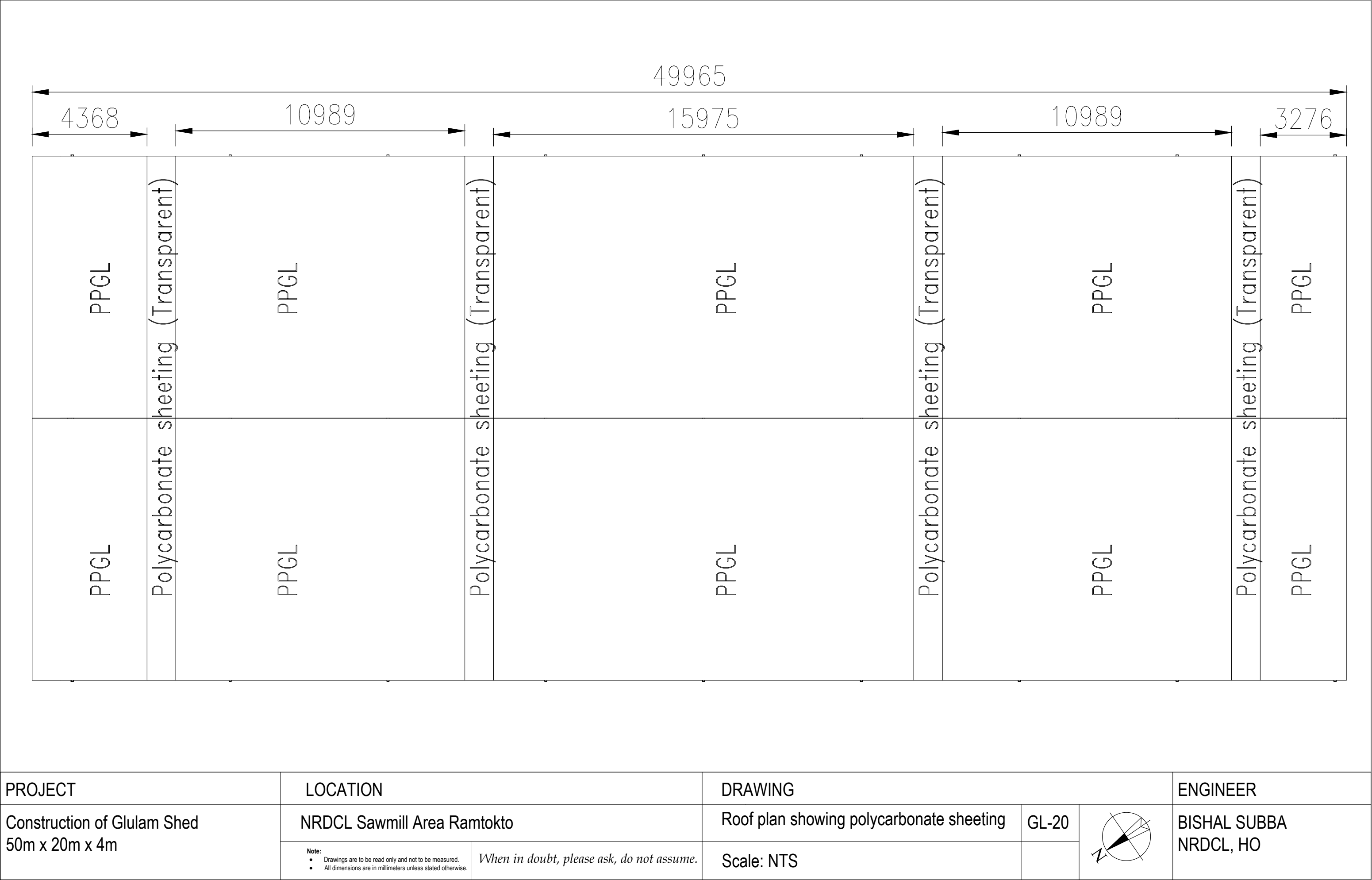


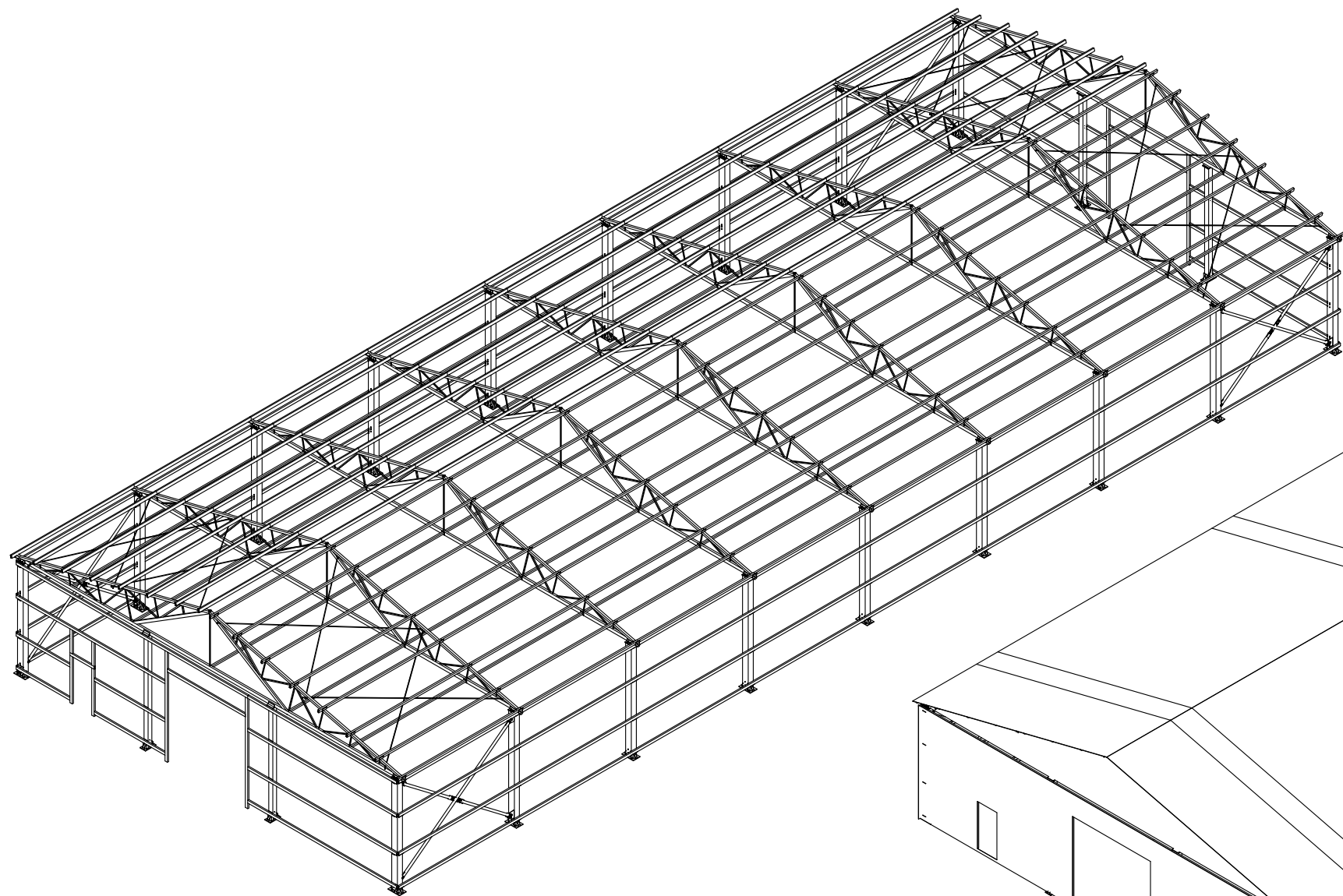
TYPICAL GIRT CONNECTION WITH G2 ALONG GRID 1 AND 9

PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Girt connection details along grid 1 and 9	GL-18		BISHAL SUBBA NRDCL, HO
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS			

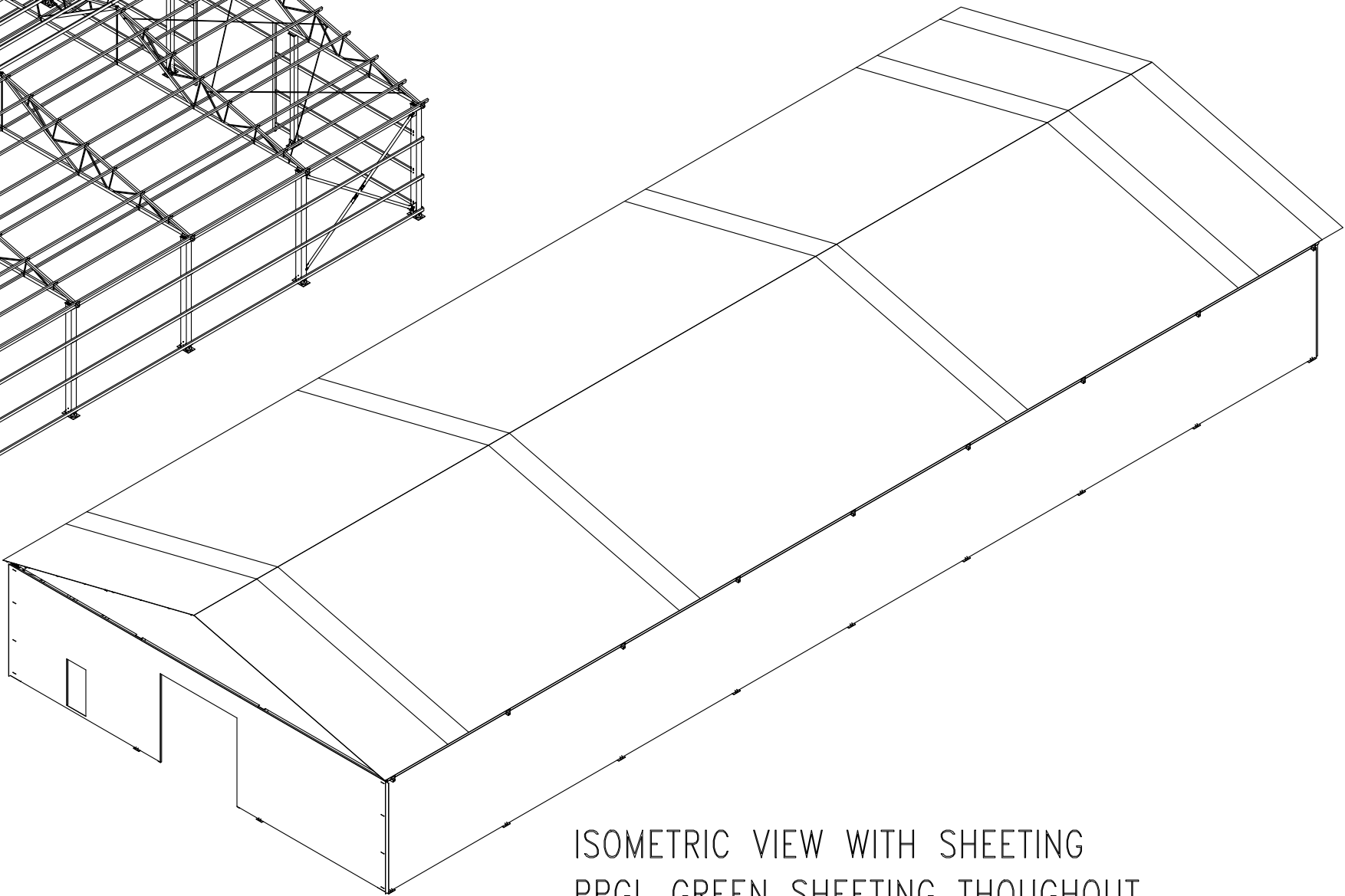


PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Tie runner connection details	GL-19		BISHAL SUBBA NRDCL, HO
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS			

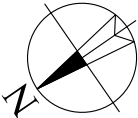


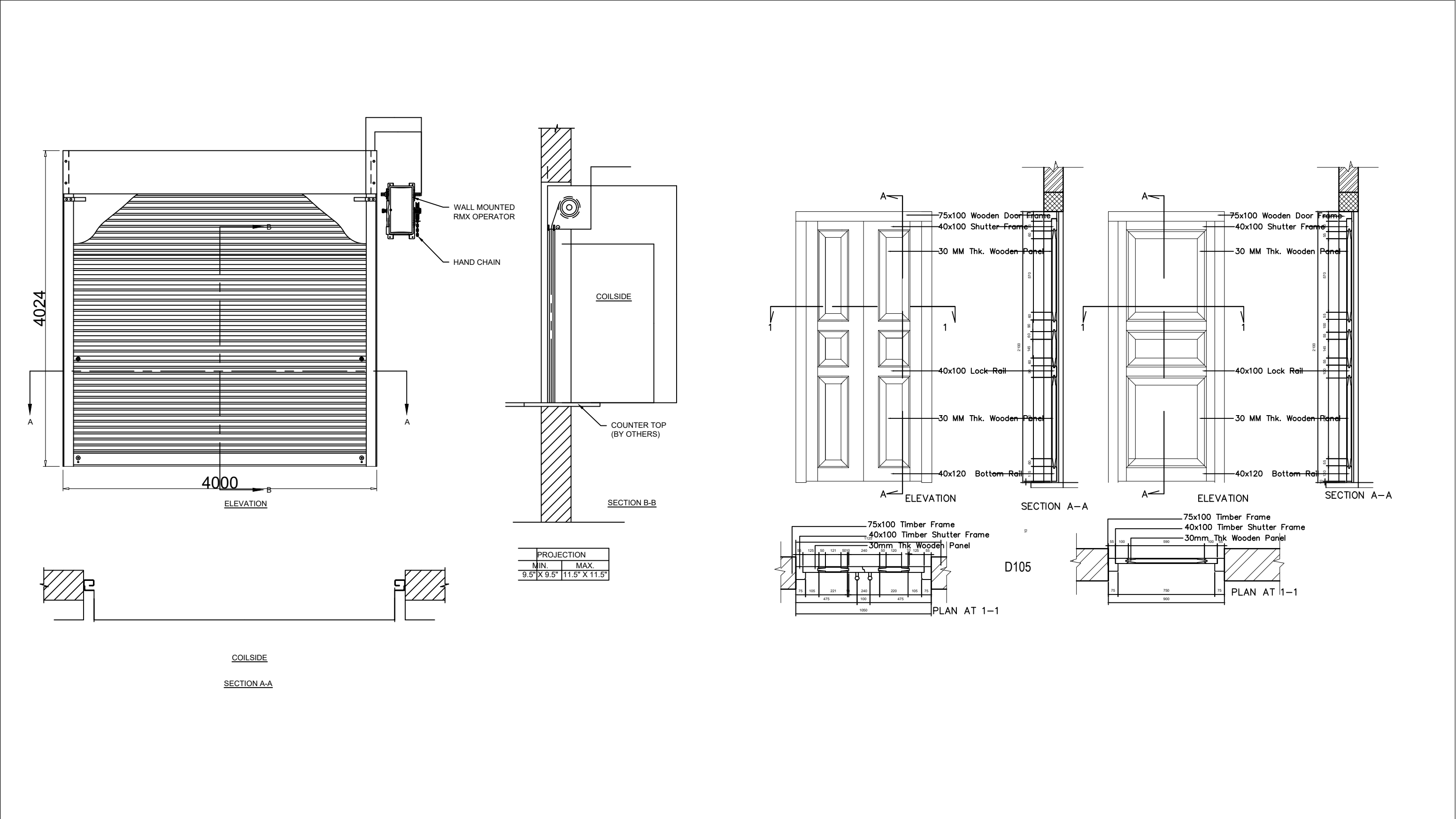


ISOMETRIC VIEW WITHOUT SHEETING



ISOMETRIC VIEW WITH SHEETING
PPGL GREEN SHEETING THOUGHOUT

PROJECT	LOCATION		DRAWING			ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto		Isometric building view	GL-21		BISHAL SUBBA NRDCL, HO
	Note: • Drawings are to be read only and not to be measured. • All dimensions are in millimeters unless stated otherwise.	When in doubt, please ask, do not assume.	Scale: NTS			



PROJECT	LOCATION	DRAWING	ENGINEER
Construction of Glulam Shed 50m x 20m x 4m	NRDCL Sawmill Area Ramtokto	Door and shutter details	BISHAL SUBBA NRDCL, HO
	Note: - Drawings are to be read only and not to be measured. - All dimensions are in millimeters unless stated otherwise.	Scale: NTS	