

# STRUCTURAL GENERAL NOTES

## 1.0 General

- 1.1 These drawings are
  - a) Jointly owned by Easy Shed and Shed Engineering Pty Ltd
  - b) Provided for the sole purpose of obtaining building approval and guiding construction of a single building at the job address shown in the title block
  - c) Prohibited to be used for any other purpose without written authorisation from Easy Shed and Shed Engineering Pty Ltd.
  - d) Only valid if signed by the engineer and must not be altered in any way without signed approval from the engineer.
  - e) Produced to scale but dimensions shall not be obtained by measuring the drawings. All dimensions are in millimeters unless stated otherwise.
- 1.2 The engineer accepts no liability or responsibility for the contents of drawings that are invalid.
- 1.3 The word 'the engineer' used in these notes refers to an employee or nominated representative of Shed Engineering Pty Ltd.
- 1.4 The engineer is not the project manager or site supervisor for this project. It is the responsibility of the project manager or site supervisor in charge to ensure that the non-structural requirements of the Governing Building Code are considered and appropriately designed. This includes, but not limited to, fire & bushfire design, access requirements, future roof access requirements, lighting, glazing and electrical design, etc.

## 2.0 Structural Design

- 2.1 The structural framing components detailed in these drawings have been designed in accordance with the following documents for the design criteria detailed in these notes
 

Governing Building Code	2019 National Construction Code – Building Code Of Australia Amendment 1
Loading Standards	AS/NZS 1170.0: 2002(+A5) AS/NZS 1170.1:2002(+A2) AS/NZS 1170.2:2011(+A5)
Cold formed Steel member standard	AS/NZS 4600: 2018
- 2.2 These drawings are also the limit of the Structural Design, any requirements for additional structural design of other items included in the project are specifically excluded if not shown on these drawings. This includes, but not limited to, requirements for additional loads that aren't specified including flood design loads, additional roof loads from solar panels, retaining walls required on site, driveway design etc.
- 2.3 These structural drawings and specifications represent the finished structure. The building is not considered complete until the installation of all components and details shown herein are installed according to the drawings.
- 2.4 No alterations are to be made to this structure without written approval of the engineer. This includes, but not limited to, modification to the plans and/or specifications, be the installation of additional openings, increased roof loads, skylight roof sheets or removal of cladding. If changes are made without written approval, such changes shall the legal and financial responsibility of the contractor or sub-contractors involved and it shall be their full responsibility to replace or repair the condition of the building as directed by the engineer.

## 3.0 Design Criteria

Building class.....	10a
Building Importance level.....	2
Wind region.....	A
Terrain category.....	2.47
Topographic multiplier.....	1.0408
Shielding multiplier.....	1
Ultimate design wind speed.....	40.83 m/s
Snow load.....	0.00 kPa
Slab imposed load.....	2.5 kPa or 9kN applied over 0.3x0.3m area (light vehicles)
Allowable bearing capacity of foundation supporting footings.....	100 kPa
Allowable bearing capacity of foundation supporting slab.....	50 kPa
Allowable skin friction of foundation.....	25 kPa
Soil Type.....	Non-aggressive (not saline or acid sulfate)

## 4.0 Installation Building Contractor Responsibilities

- 4.1 The contractor shall verify and confirm all site conditions and dimensions. Any discrepancies between drawings and site conditions shall be referred to the engineer for decision before proceeding with the work.
- 4.2 All workmanship and materials are to be in accordance with the Governing Building Code including all relevant Australian Standards and local statutory authorities except where varied by the contract documents.
- 4.3 The contractor shall be responsible for maintaining the structure in a stable condition and ensuring no part is overstressed under construction activities. They shall provide all temporary bracing, shoring or other means to avoid excessive stresses and to hold structural elements in place during erection. These temporary provisions shall remain in place until sufficient permanent members are erected to ensure the safety of partially erected structures. The contractor is responsible for meeting all laws regulating the erection of steel buildings including, but not limited to, Safe Work Australia guidelines.
- 4.4 The contractor shall be responsible for the location of all services in the vicinity of the works. Any services shown are provided for information only. The contractor shall confirm the location of all services prior to commencing and shall be responsible for the repair of any damage caused to services, as well as any loss incurred because of the damage to any service.

## 5.0 Foundation

- 5.1 The bearing capacity of the foundation supporting the footings and slab shall be confirmed before any concrete is placed.
- 5.2 No earth or debris is to fall into the footings or piers before and during placing of concrete.
- 5.3 All footings shall be located centrally under walls and columns unless noted otherwise.
- 5.4 Concrete embedment depths do not apply to locations where any uncompacted fill or disturbed ground exists or where walls of the excavation will not stand without support. Request further advice from the engineer in these circumstances.
- 5.5 Fill used for the support of a slab on ground shall be controlled fill or rolled fill as in accordance with clause 6.4.2 of as 2870-2011.
- 5.6 Slabs less than 100sq.m in plan area are suitable for AS 2870 site classes A, S & M. For larger slabs or for site classes M-D, H1, H1-D, H2, H2-D, E & E-D, the slab may experience cracking more than is considered normally acceptable. The cracking is considered of aesthetic concern only and should not effect the structural performance of the slab or shed. If this is not desired, contact the engineer for further advice.

## 6.0 Concrete

- 6.1 Concrete placement and workmanship shall be in accordance with AS 3600 & AS 2870.
- 6.2 Concrete shall be
  - a) N25 with slump of 100 mm in accordance with AS 1379-2007, with 20 mm maximum nominal aggregate size and no admixtures.
  - b) consolidated by mechanical vibration.
  - c) Cured for a minimum of 7 days using continuous ponding with potable water.
- 6.3 No holes, chases or embedment of pipes other than those shown on the drawings shall be made in concrete members without prior approval of the engineer.

## 7.0 Reinforcement

- 7.1 Reinforcement shall comply with AS 4671-2001.
- 7.2 Reinforcement is represented diagrammatically and not necessarily shown in true projection.
- 7.3 Welding of reinforcement shall not be permitted without the approval of the engineer.
- 7.4 All reinforcement shall be securely supported in its correct position ensuring the correct cover during placing of concrete by approved bar chairs, spacers or support bars. Approved chairs include stainless steel or plastic bar chairs for bottom reinforcement and plastic tipped wire bar chairs for top reinforcement. All chairs to be spaced at maximum of 750mm centres.
- 7.5 Cover to reinforcement shall be:
  - a) 50mm for surfaces of concrete in contact with the ground;
  - b) 30mm for top surfaces of slabs fully enclosed by the building without open bays or
  - c) 60mm for top surfaces of slabs more than 1 km from the coastline with open bays.
  - d) For buildings with open bays within 1km of the coast, contact the engineer for cover and concrete grade requirements.
- 7.6 Reinforcement shall be lapped 500mm for 12mmØ bars and 800mm for 16mmØ bars.
- 7.7 Mesh reinforcement shall be lapped such that the two outermost wires of one sheet overlap the two outermost wires of the other sheet by 25 mm.
- 7.8 Hooks, bends and cogs to be in accordance with AS 3600-2009 unless noted otherwise on drawings.

## 8.0 Anchor Bolts

- 8.1 All anchors bolts shall be installed in accordance With the manufacturer's installation instructions.
- 8.2 Drill holes using a percussion drill (coring not permitted) to the correct hole diameter and depth as specified in the drawings.
- 8.3 Thoroughly clean and blow the dust out of the holes using the cleaning accessories prescribed by the manufacturer's instructions.
- 8.4 Substitution of anchors bolts and chemical epoxy adhesive is not permitted unless written confirmation from the engineer is provided.
- 8.5 For chemical anchors, ensure load is not applied to the anchors whilst epoxy adhesive is curing.

## 9.0 Light Gauge Cold-formed Steel

- 9.1 All light gauge cold-formed steel shall comply with AS 1397-2007 and be the following grades
 

Thickness(mm)	Steel grade (yield stress, MPa)	Protective coating (g/m2)
BMT ≤ 1.0mm	G550	Z350
1.0mm < BMT < 1.5mm	G500	Z350
1.5mm ≤ BMT ≤ 3.0mm	G450	Z350
- 9.2 Welding of light gauge cold-formed steel shall not be permitted.
- 9.3 Column and rafter members shall not be drilled or notched without prior approval of the engineer.
- 9.4 Round holes may be drilled through any girt or purlin member within the middle third of the depth of that member and not within 600mm of member end unless noted otherwise.
- 9.5 All bolts used to connect light gauge cold-formed steel members shall be
  - a) Zinc coated M12 (min.) grade 4.6 snug tightened complying to AS 1111.1 & AS 1112.3 unless noted otherwise.
  - b) Spaced no less than 3 bolt diameters between centres.
  - c) Located no less than 1.5 bolt diameters from bolt centre to the end or edge of any light gauge member.
- 9.6 All screws used to connect light gauge cold formed steel members (excluding sheeting) shall be
  - a) 10g (min.) self-drilling screws complying with AS 3566.1.
  - b) Corrosion resistance class 4 in accordance with AS 3566.2 for buildings within 1 km from the coastline with open bays or class 3 otherwise.
  - c) Spaced no less than 3 bolt diameters between centres.
  - d) Located no less than 1.5 bolt diameters from bolt centre to the end or edge of any light gauge member.

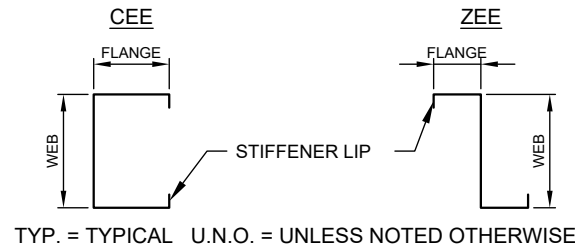
## 10.0 Roof & Wall Sheeting

- 10.1 Roof & wall sheeting shall comply with AS 1397 and have suitable corrosion protection complying with Table 3.5.1.1 of the 2019 NCC Volume 2.
- 10.2 During construction and maintenance, no foot traffic shall occur within end spans of sheeting, foot traffic shall occur
  - a) Evenly across at least two ribs for corrugated profiled sheeting or
  - b) In the pans for pan-type profiled sheeting.
- 10.3 Any roof skylights shall be approved by the engineer
- 10.4 Safety mesh shall be installed in accordance with the building code

## 11.0 Door & Window Components

- 11.1 All roller doors shall be non-wind load rated and assumed to have failed at the ultimate limit state wind loading
- 11.2 Personal access doors shall be rated for the wind loading parameters stated in the design criteria (see section 3.0)
- 11.3 All windows shall be in accordance with AS 1288 & AS 2047 as appropriate for the wind loading parameters stated in the design criteria (see section 3.0)

## COMPONENT DIAGRAM



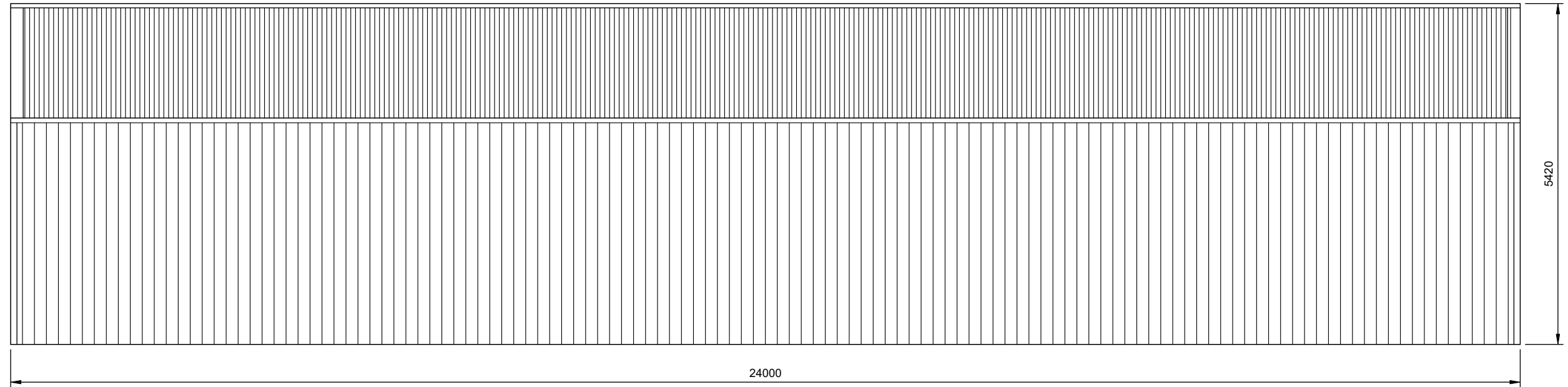
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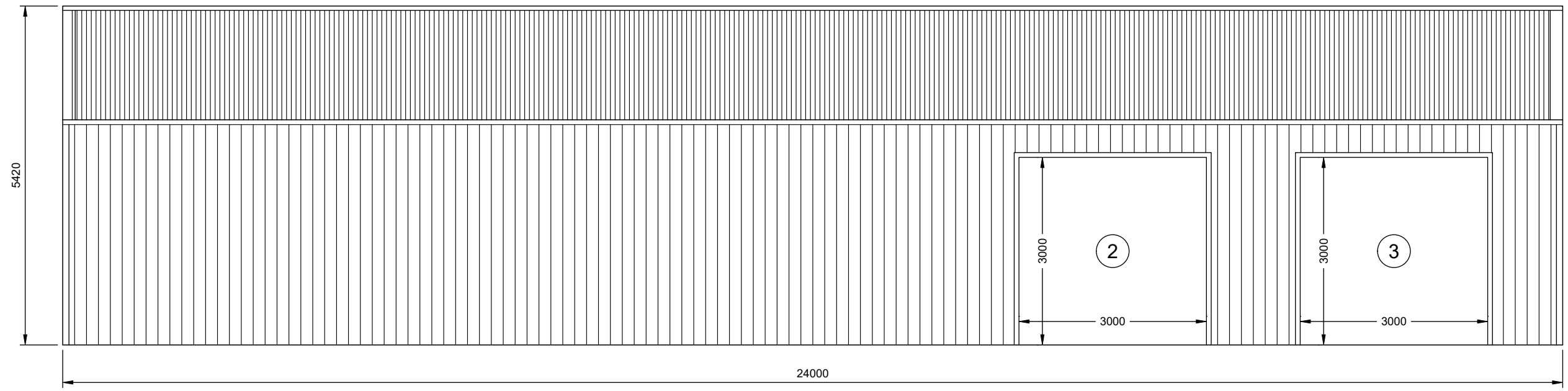
Signed:   
 Registered EA Chartered Professional Engineer (No. 2383009)  
 Registered Professional Engineer QLD (No. 14384)  
 Registered Civil Engineer Building Practitioner VIC (No. PE0002499)  
 Registered Certifying Engineer (structural) NT (No. 306371ES)

Customer Name:   
 Site Address:

DATE 27-02-2023  
 JOB NO. EALB92436824  
 SHEET 1 of 12



2
2
**SIDEWALL B BUILDING ELEVATION**  
 SCALE: 1:75



1
2
**SIDEWALL A BUILDING ELEVATION**  
 SCALE: 1:75

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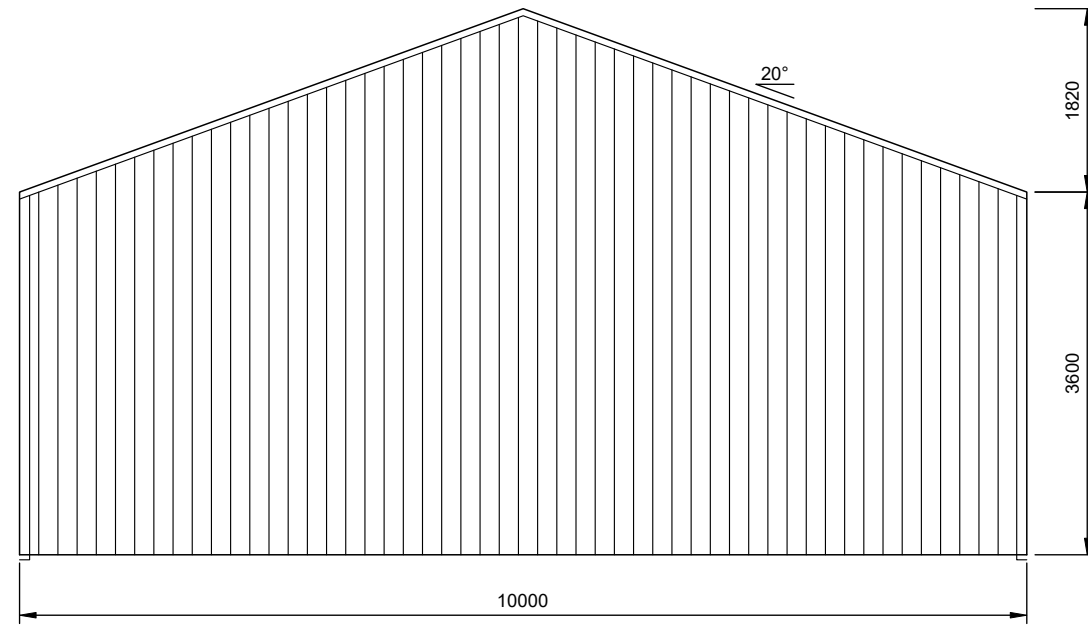
**COLD FORMED BUILDINGS**  
 ANOTHER COLD FORMED BUILDING DESIGNED BY ACT BUILDING SYSTEMS

**SHED ENGINEERING**  
 admin@shedeng.com.au  
 PO Box 3084 AUSTINMER NSW 2515

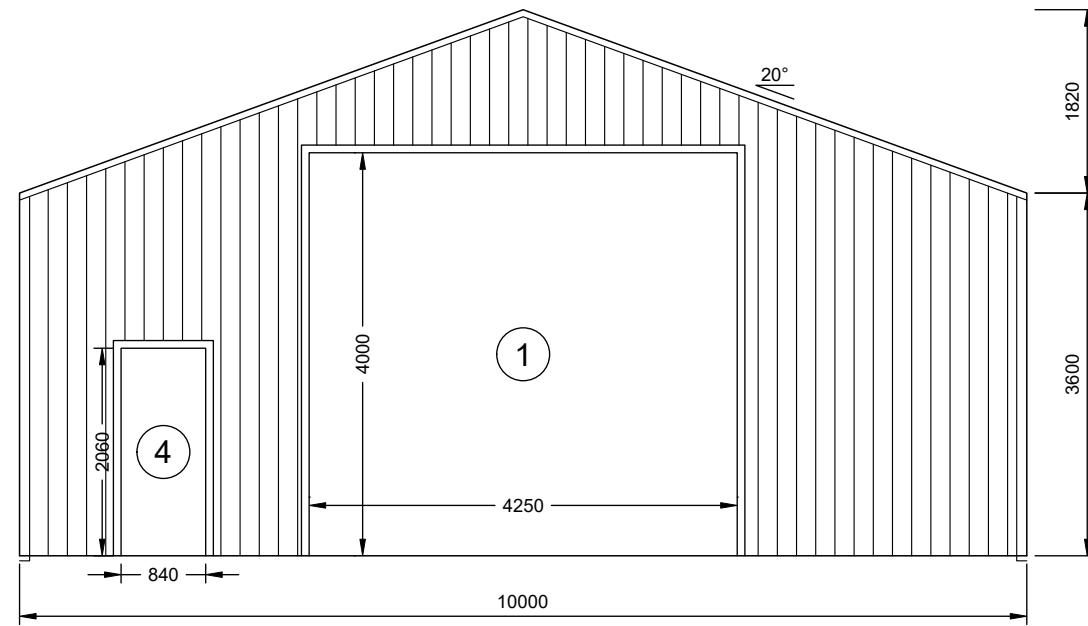
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1 REAR BUILDING ELEVATION  
 3 SCALE: 1:75 FRAME #7



2 FRONT BUILDING ELEVATION  
 3 SCALE: 1:75 FRAME #1

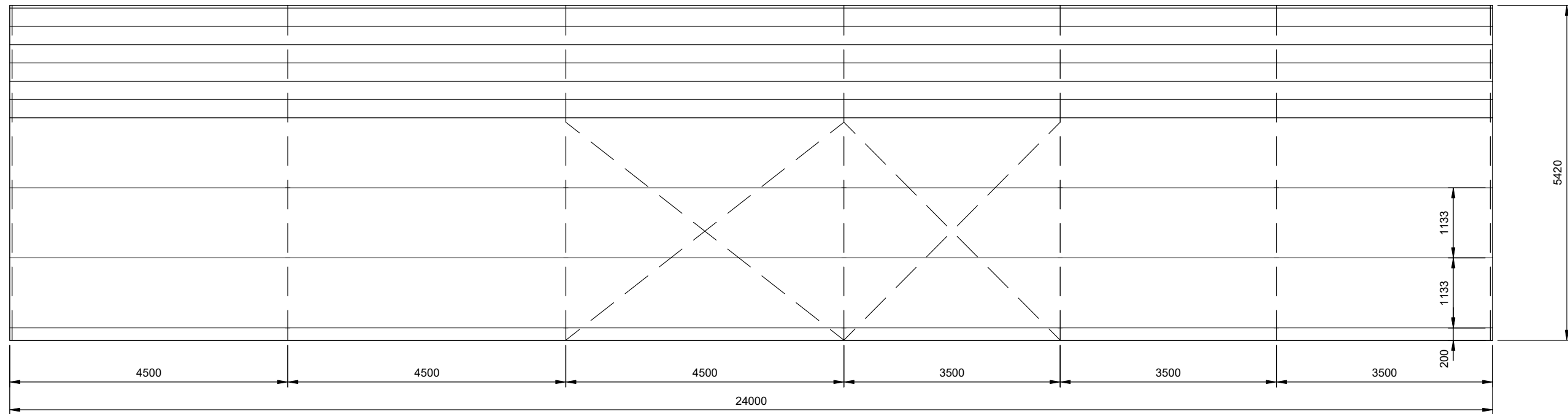
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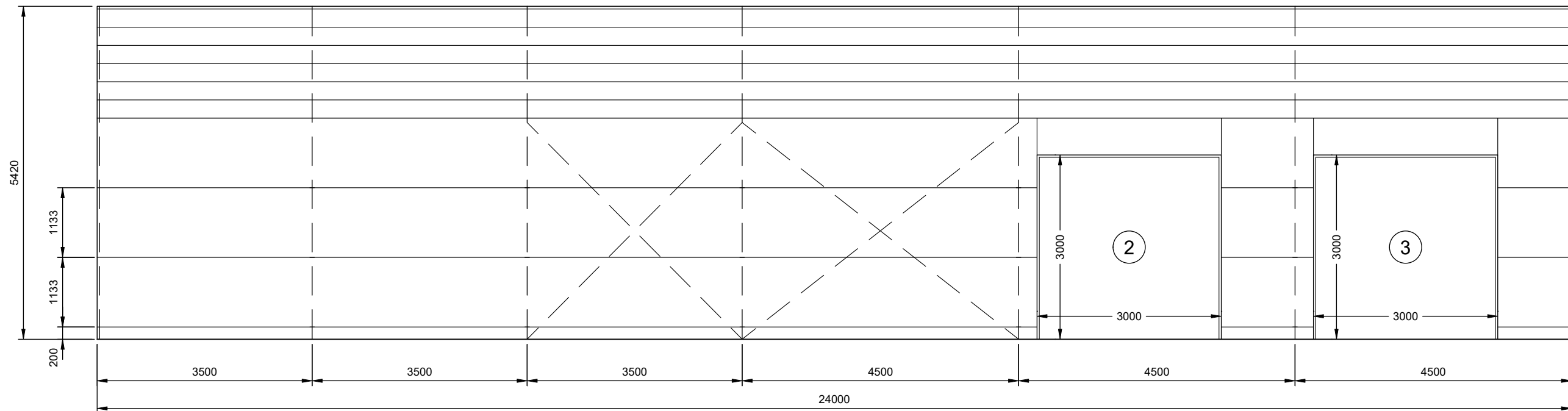
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**2** SIDEWALL B FRAMING ELEVATION  
**4** SCALE: 1:75




**1** SIDEWALL A FRAMING ELEVATION  
**4** SCALE: 1:75



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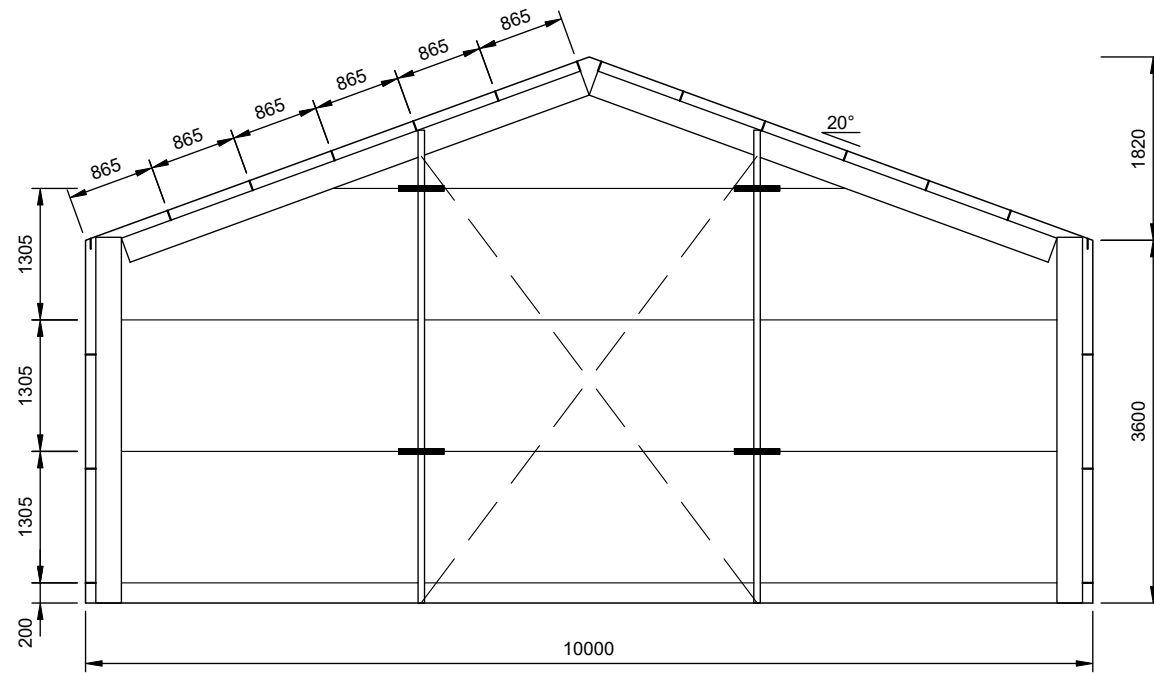
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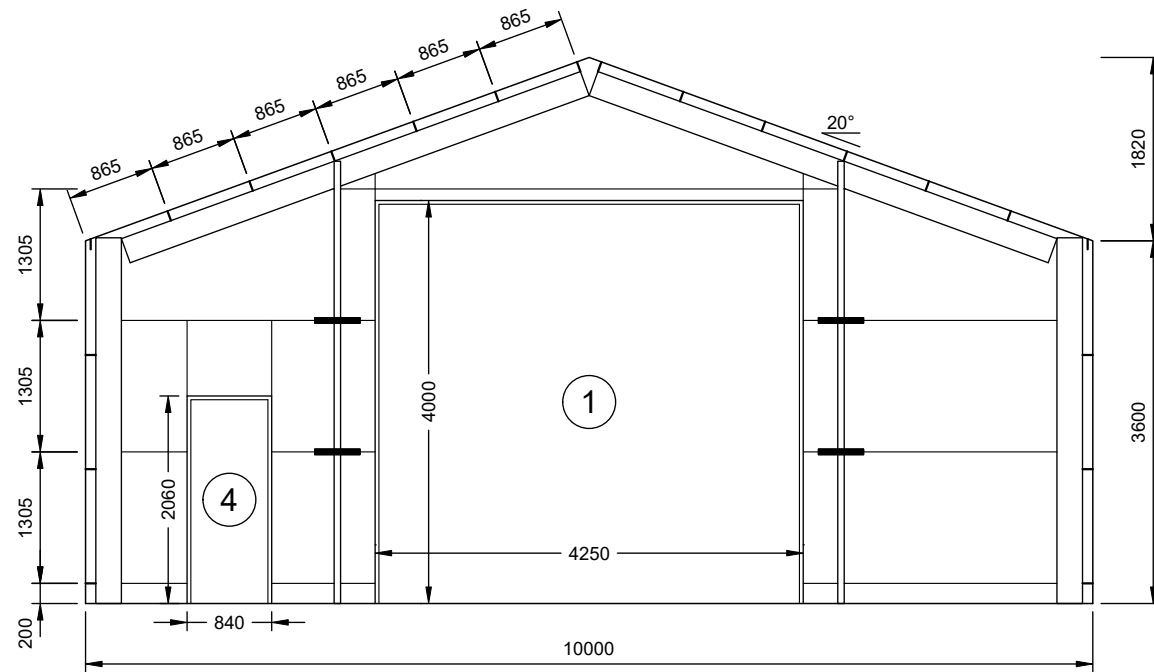
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**1** REAR FRAMING ELEVATION  
**5** SCALE: 1:75 FRAME #7



**2** FRONT FRAMING ELEVATION  
**5** SCALE: 1:75 FRAME #1

REV	DATE	DESCRIPTION
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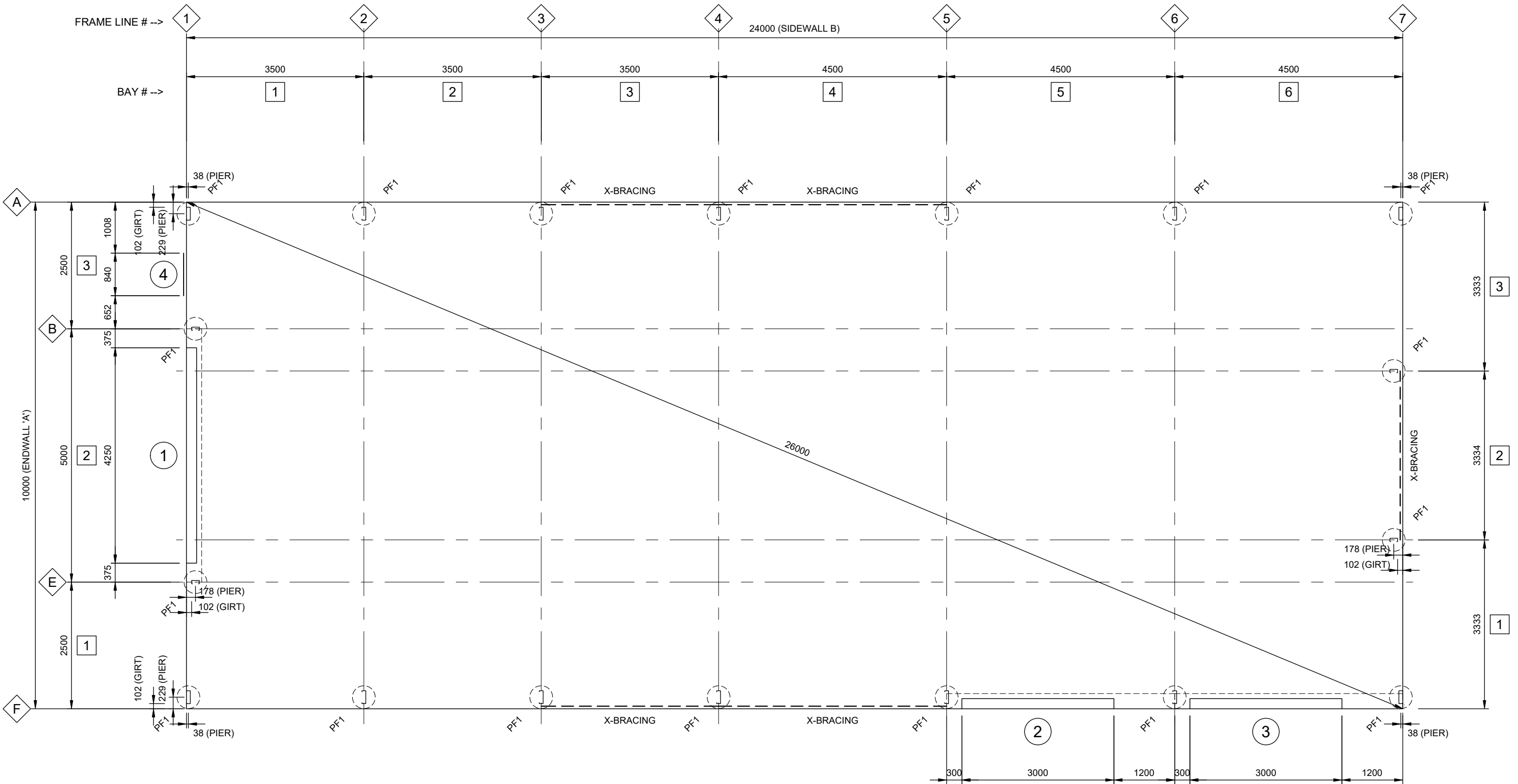
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**1** FOOTING/SLAB FLOOR PLAN

SCALE: 1:75 PF1 - 450Ø REINFORCED CONCRETE PIERS TO DETAIL

SLAB IS DESIGNED FOR CARS AND LIGHT VANS  
NOT EXCEEDING 2500kg GROSS MASS

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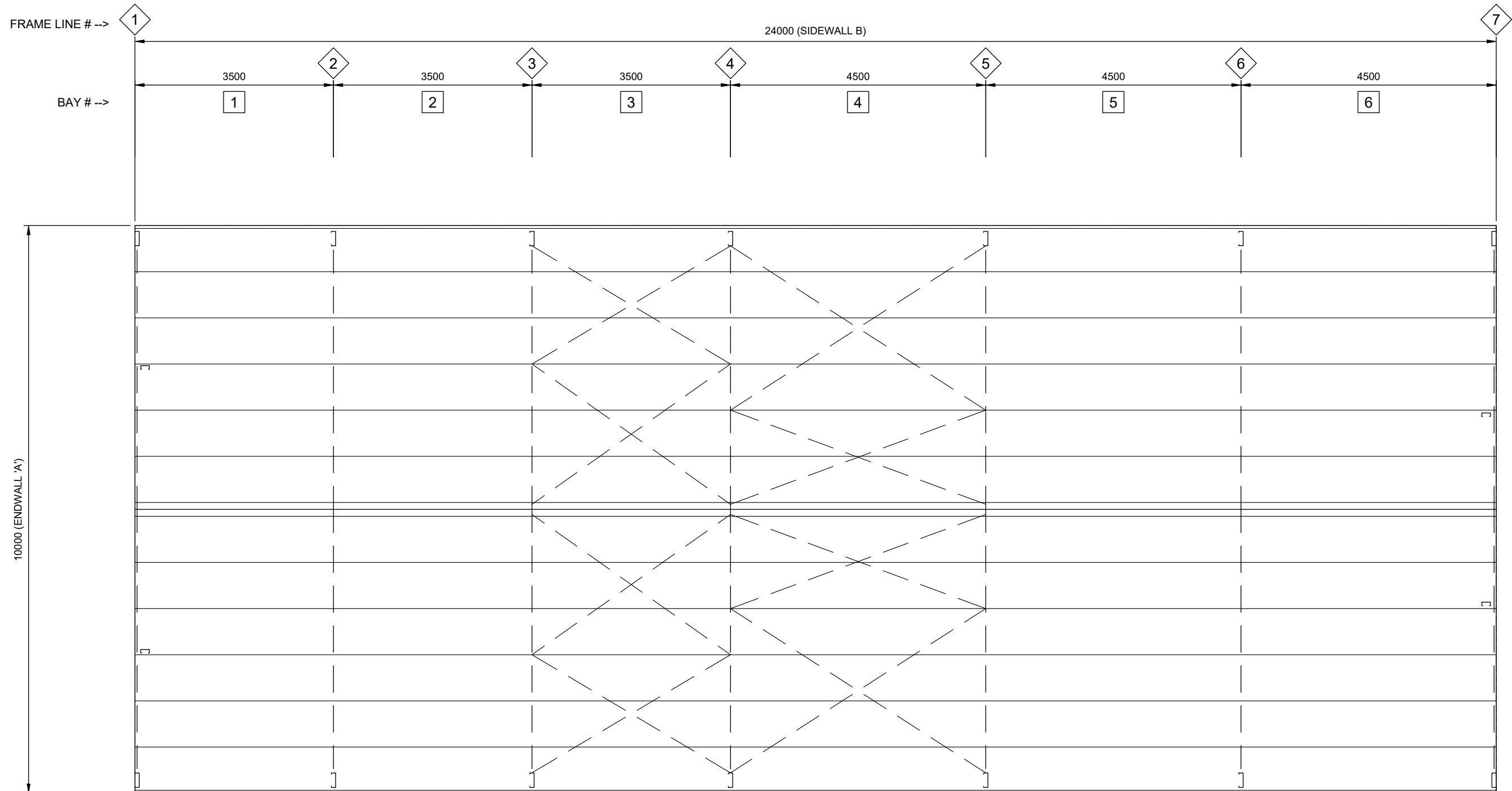
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1  
7
**ROOF FRAMING PLAN**  
 SCALE: 1:75

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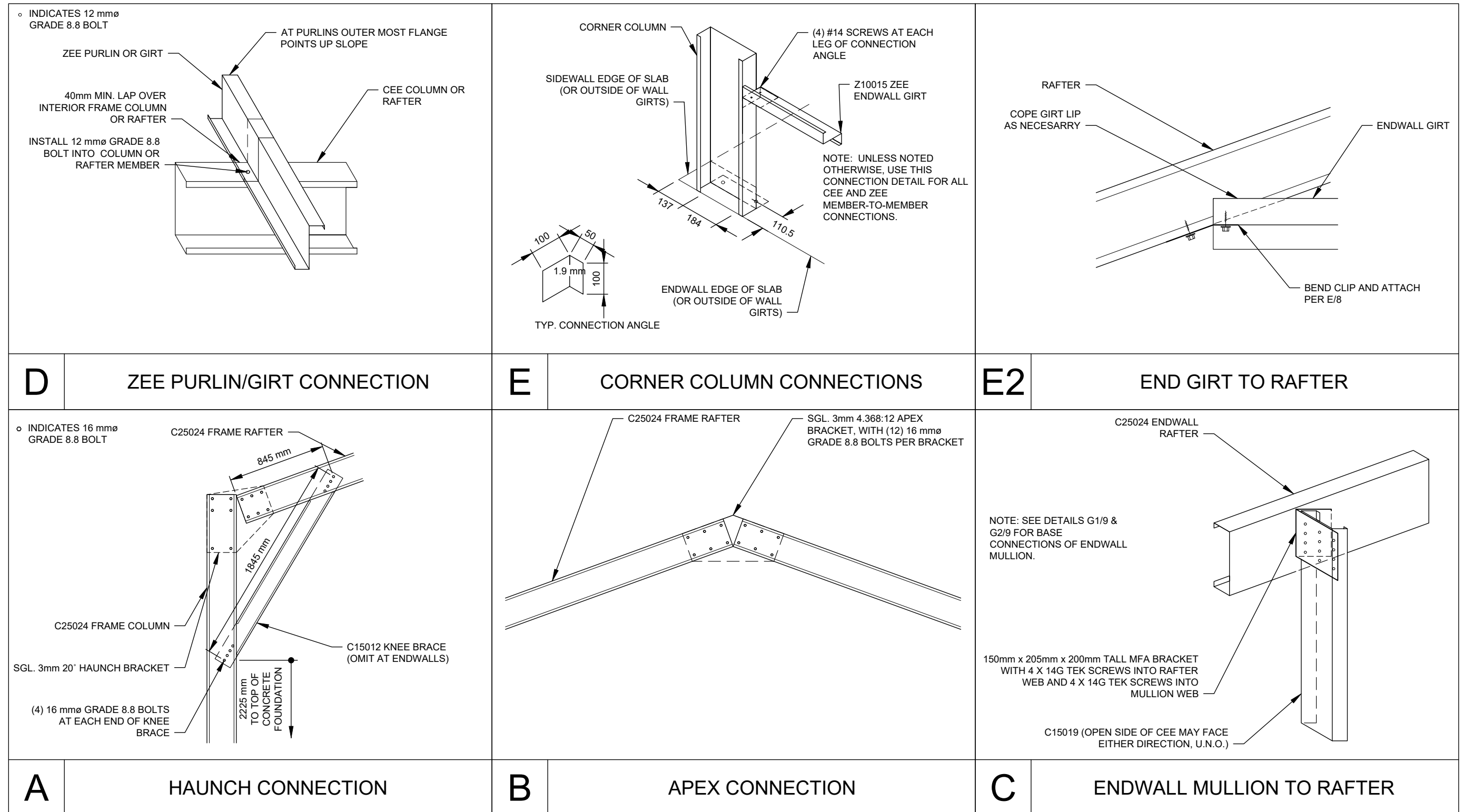
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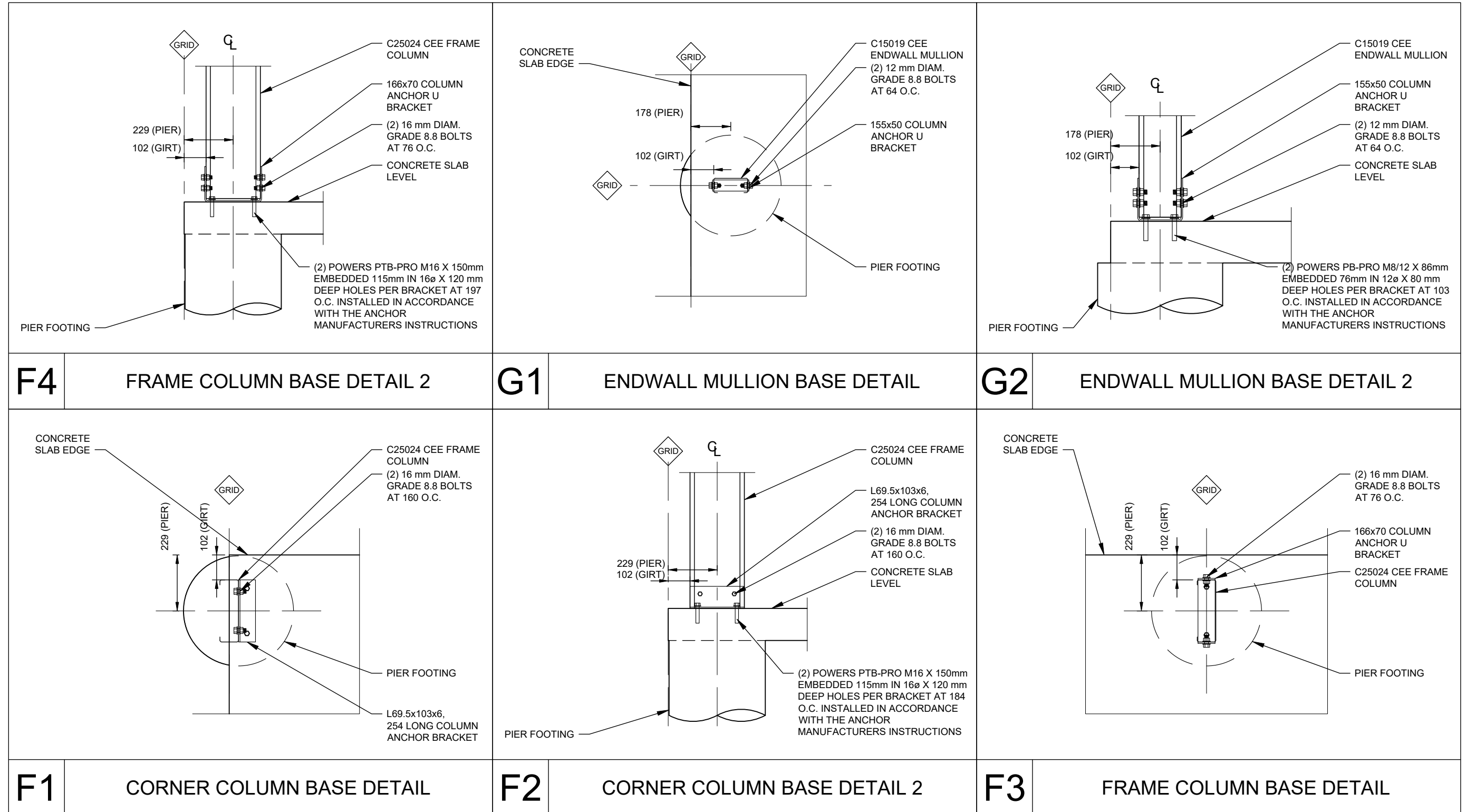
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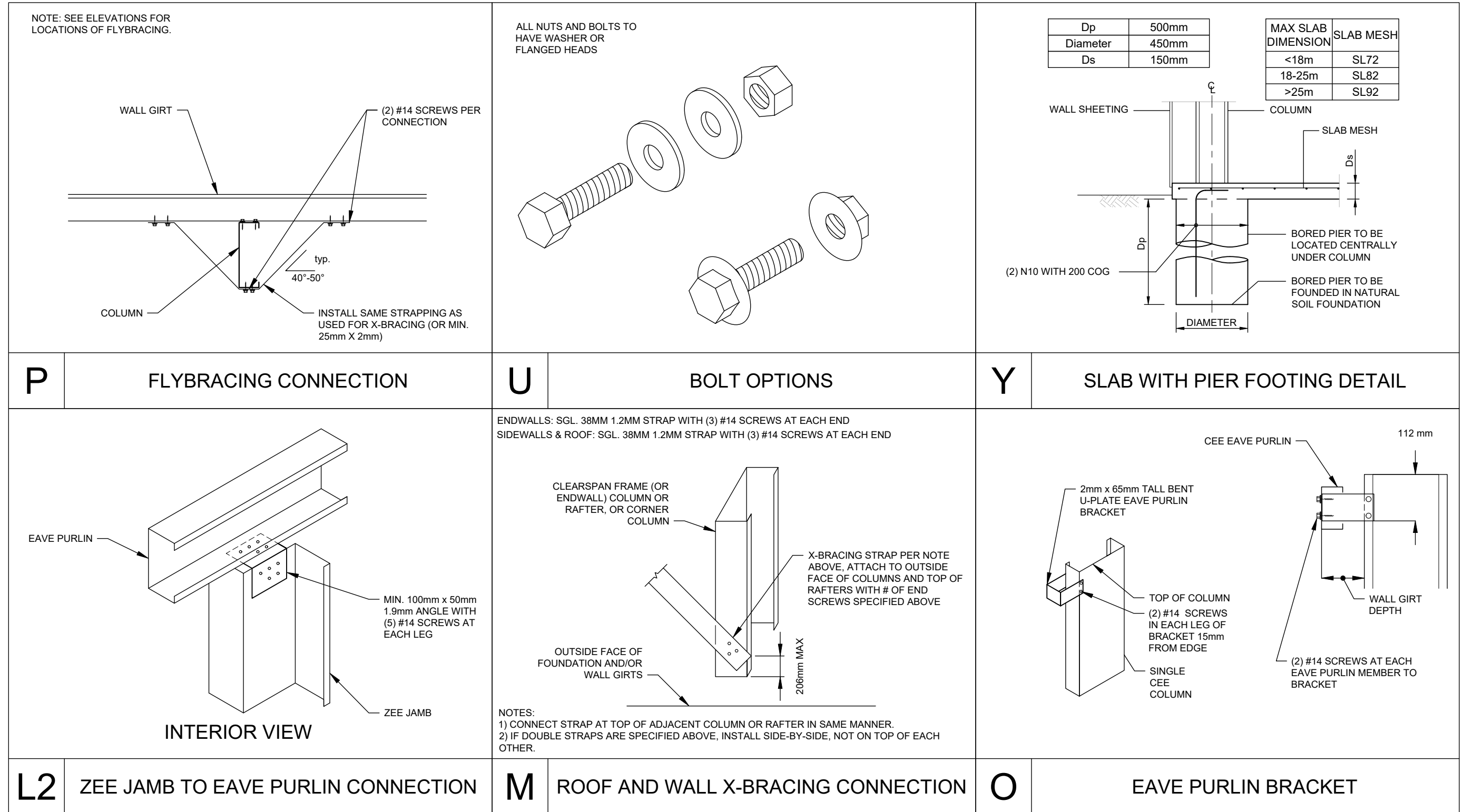
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DATE JOB NO. SHEET \_\_\_\_\_

<p><b>K1</b>      <b>OPENING CHANNEL JAMB GIRT CONNECTION</b></p>	<p><b>K2</b>      <b>OPENING ZEE JAMB GIRT CONNECTION</b></p>	<p><b>L1</b>      <b>CHANNEL JAMB TO HEADER GIRT CONNECTION</b></p>
<p>NOTE: ONLY STRUCTURAL INFORMATION IS INCLUDED IN THIS DETAIL. CONSULT PANEL MANUFACTURER FOR ADDT'L WEATHERTIGHTNESS RECOMMENDATIONS.</p> <p style="text-align: center;"><b>Stramit Corrugated 0.42</b></p>	<p>NOTE: ONLY STRUCTURAL INFORMATION IS INCLUDED IN THIS DETAIL. CONSULT PANEL MANUFACTURER FOR ADDT'L WEATHERTIGHTNESS RECOMMENDATIONS.</p> <p style="text-align: center;"><b>Stramit Mono-clad 0.42</b></p>	
<p><b>H</b>      <b>ROOF SHEETING</b></p>	<p><b>I</b>      <b>WALL SHEETING</b></p>	<p><b>J</b>      <b>OPENING JAMB BASE CONNECTIONS</b></p>

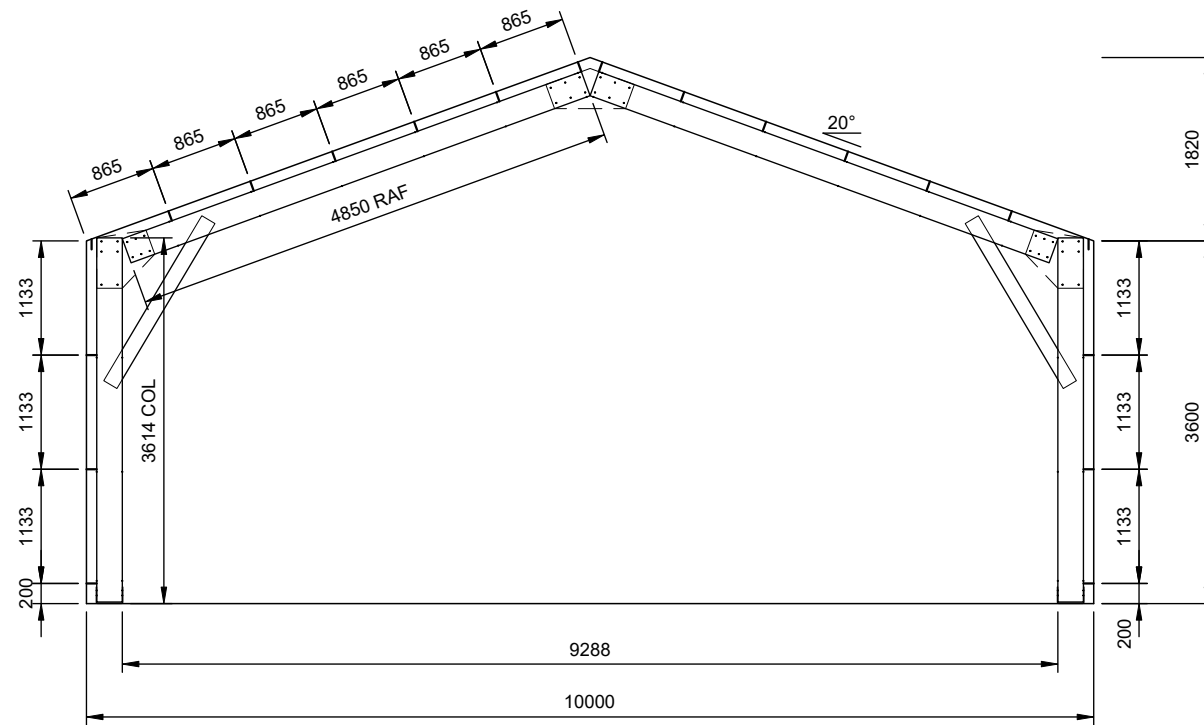
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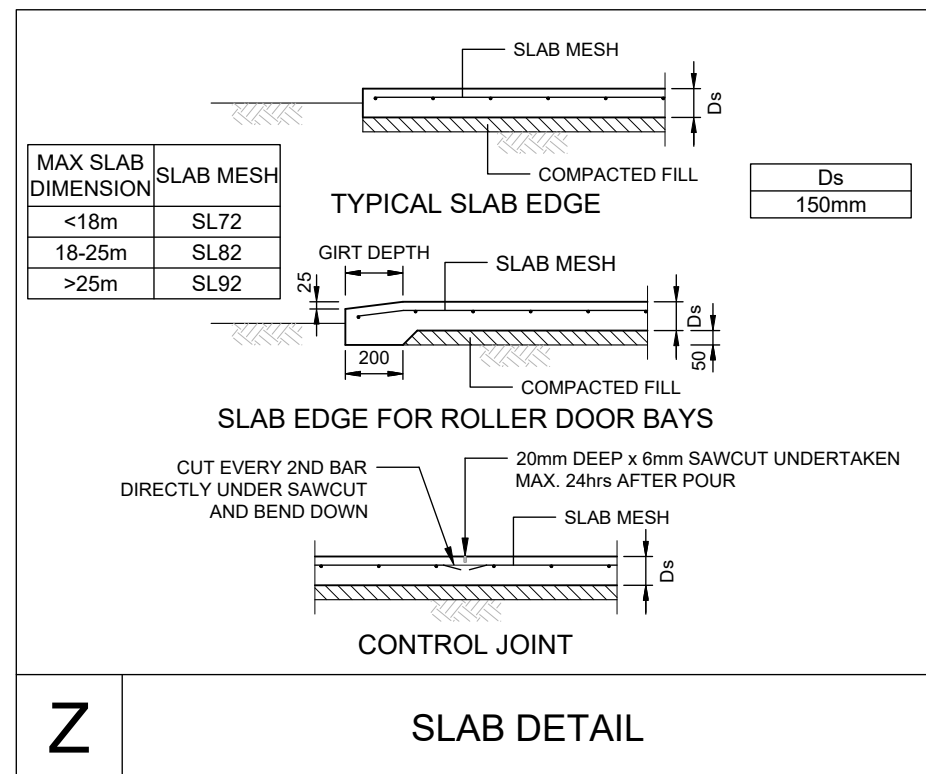


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A	27-02-2023	-									



**1**  
**12** INTERNAL FRAMING ELEVATION  
SCALE: 1:75 FRAMES 2-6



MEMBER SCHEDULE			
COMPONENT		TYPE	
CLEAR SPAN PORTAL (FRAMES 2-6)	MEMBER	RAFTER	Single C25024
		COLUMN	Single C25024
		APEX BRACE	-
	BASE CONNECTION	KNEE BRACE	Single C15012
		BRACKET TYPE	Base cleat bolt down bracket BC.250
ENDWALL PORTAL (FRAME 1)	MEMBER	ANCHOR BOLTS	(2) Powers PTB-PRO M16 x 150mm embedded 115mm
		RAFTER	Single C25024
		COLUMN	Single C25024
	BASE CONNECTION	APEX BRACE	-
		KNEE BRACE	-
ENDWALL B PORTAL (FRAME 7)	MEMBER	BRACKET TYPE	Angle base connection ABC.C250.160
		COLUMN	Single C25024
		RAFTER	Single C25024
	BASE CONNECTION	ANCHOR BOLTS	(2) Powers PTB-PRO M16 x 150mm embedded 115mm
		KNEE BRACE	-
ENDWALL MULLION	MEMBER	BRACKET TYPE	Angle base connection ABC.C250.160
		COLUMN	Single C15019
		ANCHOR BOLTS	(2) Powers PB-PRO M8/12 x 86mm embedded 76mm
ROOF PURLINS	MEMBER	BRACKET TYPE	Base cleat bolt down bracket BC.150
		ANCHOR BOLTS	(2) Powers PB-PRO M8/12 x 86mm embedded 76mm
EAVE PURLIN	MEMBER	COLUMN	Single Z10010 @ 865mm centres
SIDEWALL GIRTS	MEMBER	HEADER/SILL	Single C10012
ENDWALL GIRTS	MEMBER	JAMB	Single Z10015 @ 1133mm centres
OPENING (1)	MEMBER	ANCHOR BOLTS	Single Z10015 @ 1305mm centres
		BRACKET TYPE	Single Z30024
OPENING (2)	MEMBER	ANCHOR BOLTS	Single C10012
		BRACKET TYPE	Single C10012
		HEADER/SILL	Single C10012
OPENING (3)	MEMBER	ANCHOR BOLTS	Single C10012
		BRACKET TYPE	Single C10012
		HEADER/SILL	Single C10012
OPENING (4)	MEMBER	ANCHOR BOLTS	Single Unlipped 102 x 1.5 Cee
		BRACKET TYPE	Single C10012
		HEADER/SILL	Single C10012
X-BRACING	MEMBER	ANCHOR BOLTS	Angle base connection ABC.SINGLE
		BRACKET TYPE	(1) Powers PB-PRO M8/12 x 86mm embedded 76mm
STRAP		38mm x 1.2 strap	

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