

# STRUCTURAL GENERAL NOTES

## 1.0 General

- 1.1 These drawings are
  - a) Jointly owned by Easy Shed and Venn 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 Venn 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 Venn 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 Loading Standards | 2022 National Construction Code – Building Code of Australia Volume 2 and 2022 Housing Provisions Standard AS/NZS 1170.0:2002(+A5)<br>AS/NZS 1170.1:2002(+A2)<br>AS/NZS 1170.2:2021 |
| 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.....  | A3   |
| Terrain category.....   | 2.62   |
| Topographic multiplier.....                                       | 1.03   |
| Shielding multiplier.....   | 1  |
| Ultimate design wind speed.....                                   | 37.9 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 2870-2011 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 3600-2018 & AS 2870-2011.
- 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/NZ 4671-2019.
- 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 3600-2018 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 1397-2021 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 1111.1-2015 & AS 1112.3-2015 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 3566.1-2002.
  - b) Corrosion resistance class 4 in accordance with AS 3566.2-2002 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.

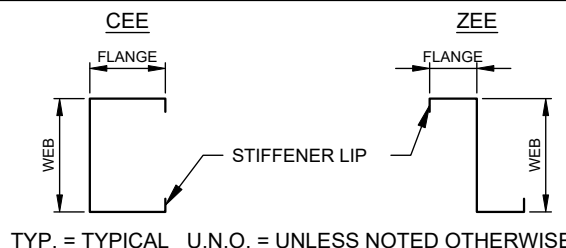
## 10.0 Roof & Wall Sheeting

- 10.1 Roof & wall sheeting shall comply with AS 1397-2018 and have suitable corrosion protection complying with Table 7.2.2a of the 2022 Housing Provisions Standard.
- 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

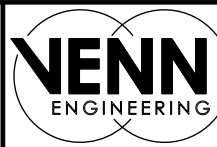
## 11.0 Door & Window Components

- 11.1 Wind-locked roller doors are assumed to remain in-place and resist the ultimate limit state wind loading except for in cyclonic regions
- 11.2 Non-wind-locked roller doors are assumed to have failed at the ultimate limit state wind loading
- 11.3 Personal access doors shall be rated for the wind loading parameters stated in the design criteria (see section 3.0)
- 11.4 All windows shall be in accordance with AS 1288-2021 & AS 2047-2014(+A2) as appropriate for the wind loading parameters stated in the design criteria (see section 3.0)

## COMPONENT DIAGRAM



| REV | DATE       | DESCRIPTION |
|-----|------------|-------------|
| A   | 02-07-2024 | -           |
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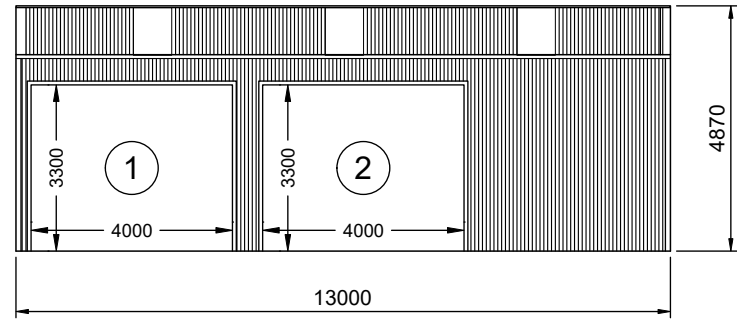
Signed .....

Grant J Wood MIEAust CPEng NER RPEQ  
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)  
Building Services Provider (Engineer Civil) TAS (No. 699330425)

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Site Address: 6 Robert Jones Street  
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NSW, 2850

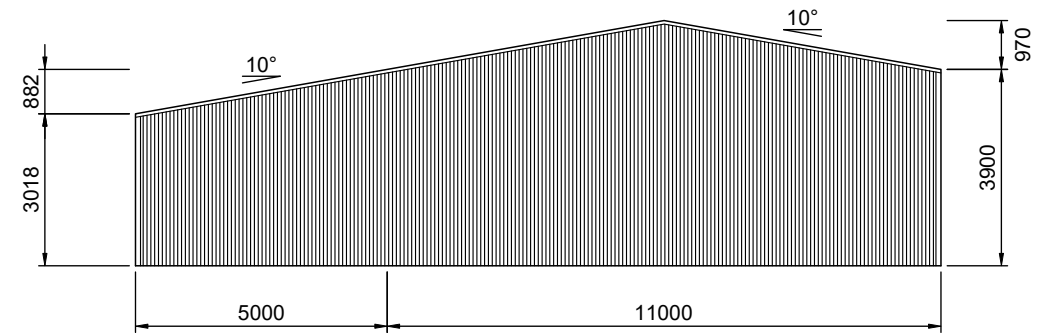
DATE 02-07-2024  
JOB NO. EALB97324596  
SHEET 1 of 12

NOTE: SAFETY MESH SHALL BE INSTALLED UNDER ALL TRANSLUCENT/SKYLIGHT ROOF SHEETING IN ACCORDANCE WITH AS1562.3:2006. TRANSLUCENT/SKYLIGHT ROOF SHEETING MATERIALS TO BE IN ACCORDANCE WITH AS4256 PARTS 3&5:(2006) AND INSTALLED IN ACCORDANCE WITH AS1562.3:2006.



**2** SIDEWALL B BUILDING ELEVATION

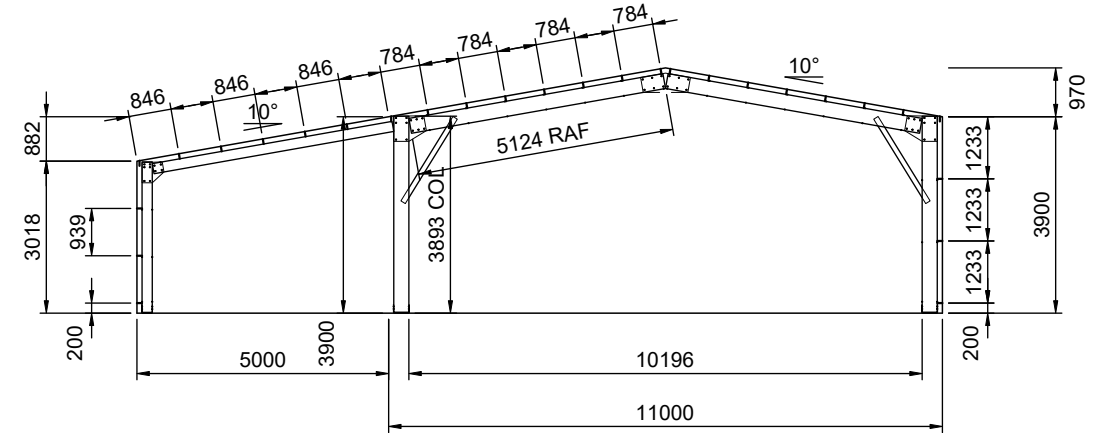
SCALE: 1:150



**3** REAR BUILDING ELEVATION

SCALE: 1:150

FRAME #4

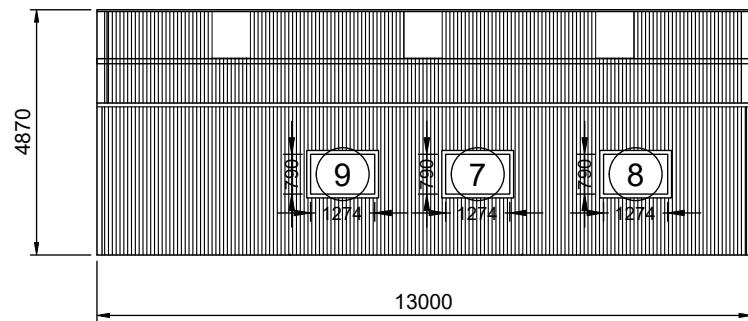


**5** INTERNAL FRAMING ELEVATION

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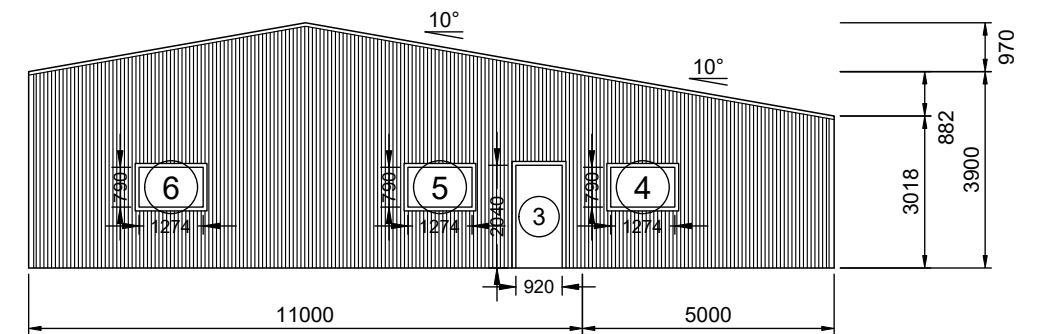
FRAMES 2, 3

NOTE: SAFETY MESH SHALL BE INSTALLED UNDER ALL TRANSLUCENT/SKYLIGHT ROOF SHEETING IN ACCORDANCE WITH AS1562.3:2006. TRANSLUCENT/SKYLIGHT ROOF SHEETING MATERIALS TO BE IN ACCORDANCE WITH AS4256 PARTS 3&5:(2006) AND INSTALLED IN ACCORDANCE WITH AS1562.3:2006.



**1** SIDEWALL A BUILDING ELEVATION

SCALE: 1:150

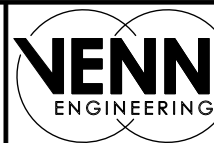


**4** FRONT BUILDING ELEVATION

SCALE: 1:150

FRAME #1

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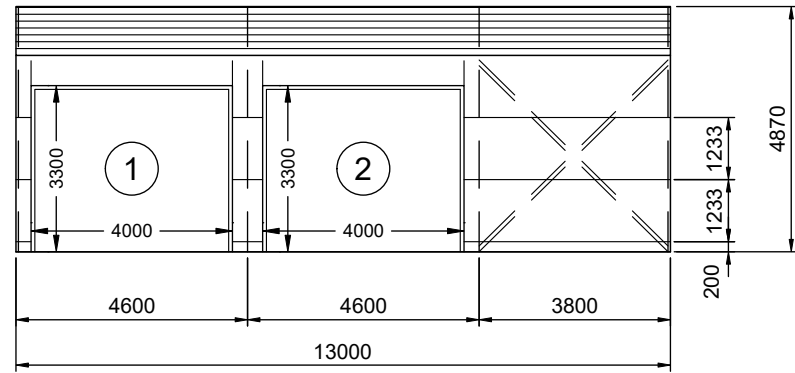
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Signed ...

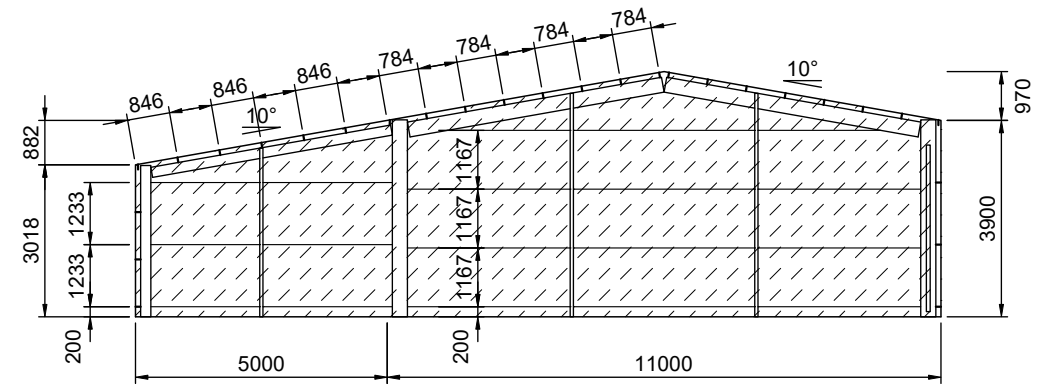
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SHEET 2 of 12



**2** SIDEWALL B FRAMING ELEVATION  
**3** SCALE: 1:150



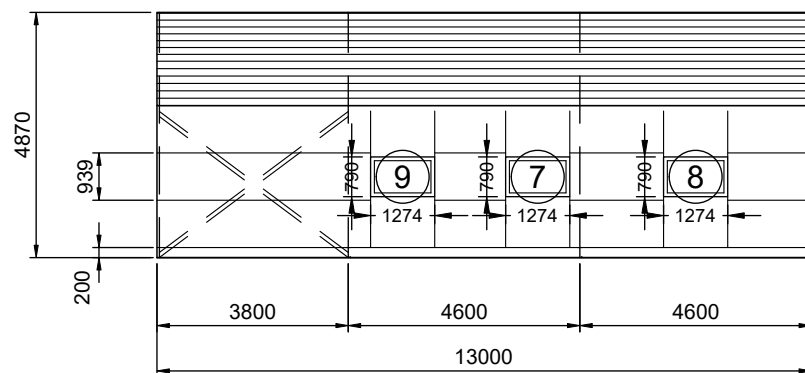
**3** REAR FRAMING ELEVATION  
**3** SCALE: 1:150

FRAME #4

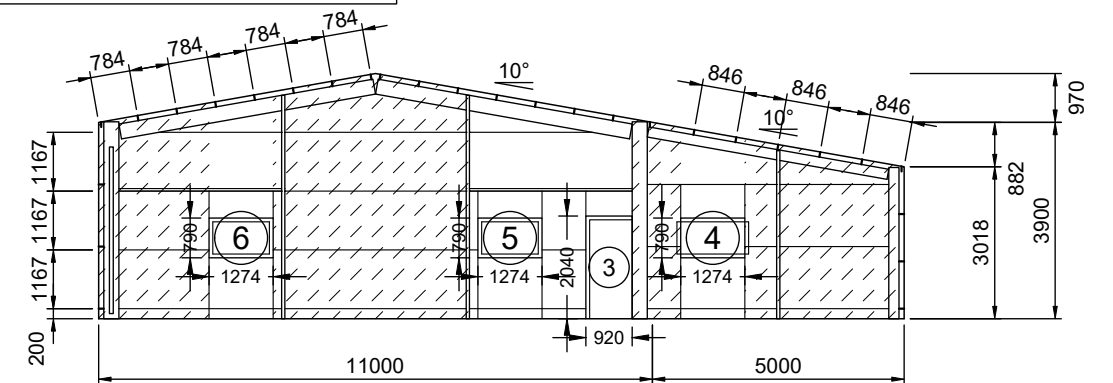
**DIAPHRAGM SCHEDULE**

SHEETING IN DIAPHRAGM SECTIONS (SHOWN AS HATCHED AREA ON ELEVATIONS) NOT TO BE CUT UNDER ANY CIRCUMSTANCES

| WALL        | DISTANCE FROM WALL EDGE |            |             |             |
|-------------|-------------------------|------------|-------------|-------------|
| Endwall 'A' | 0-3164                  | 9438-10402 | 13467-17533 | 18807-21000 |
| Endwall 'B' | 0-16000                 |            |             |             |



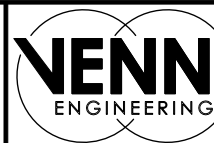
**1** SIDEWALL A FRAMING ELEVATION  
**3** SCALE: 1:150



**4** FRONT FRAMING ELEVATION  
**3** SCALE: 1:150

FRAME #1

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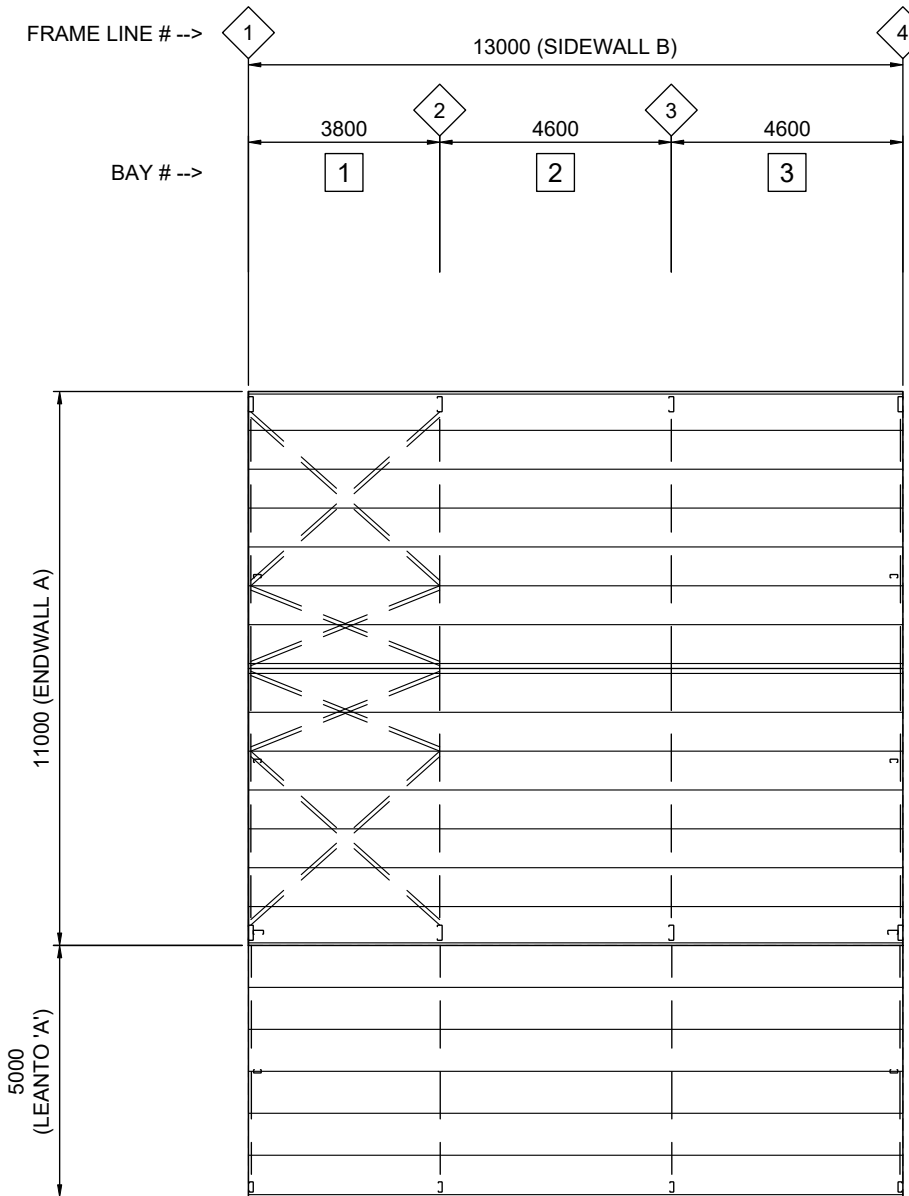
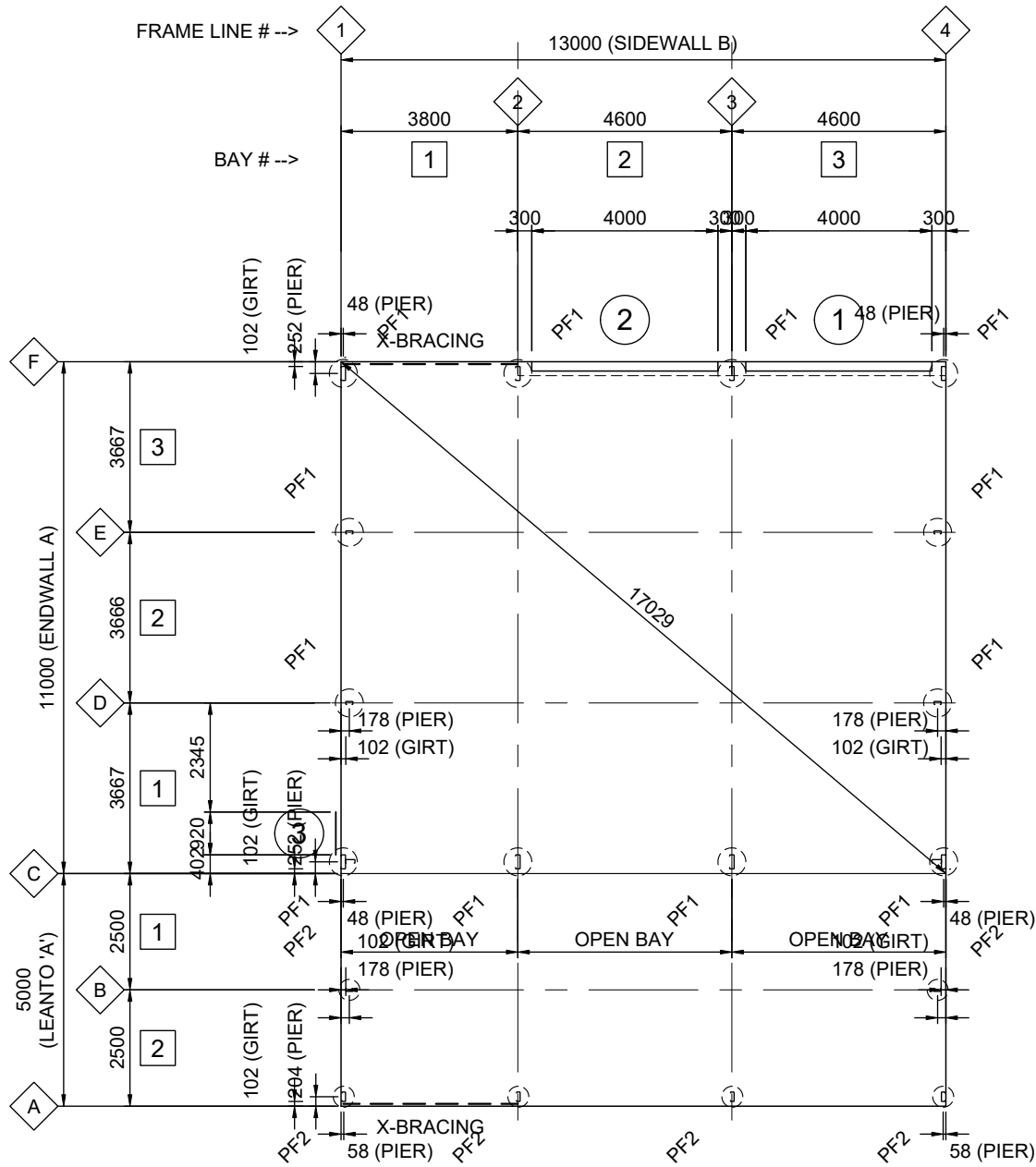
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 SHEET 3 of 12



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# 1 FOOTING/SLAB FLOOR PLAN

SCALE: 1:150 PF1 - 600Ø REINFORCED CONCRETE PIERS TO DETAIL  
PF2 - 450Ø REINFORCED CONCRETE PIERS TO DETAIL

SLAB IS DESIGNED FOR CARS AND LIGHT VANS  
NOT EXCEEDING 3500kg GROSS MASS

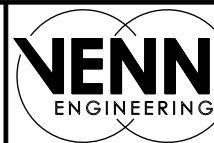
CONCRETE CONTROL JOINTS SHALL BE PROVIDED IN SLAB TO DETAIL AT NOT MORE THAN 10m CENTRES IN EACH DIRECTION, APPROXIMATELY EQUALLY SPACED AND LOCATED APPROXIMATELY MIDWAY BETWEEN COLUMNS/MULLIONS

# 2 ROOF FRAMING PLAN

SCALE: 1:150

ROOF SHEETING IS USED AS DIAPHRAGM TO BRACE THE BUILDING AND IS NOT TO BE CUT UNDER ANY CIRCUMSTANCES

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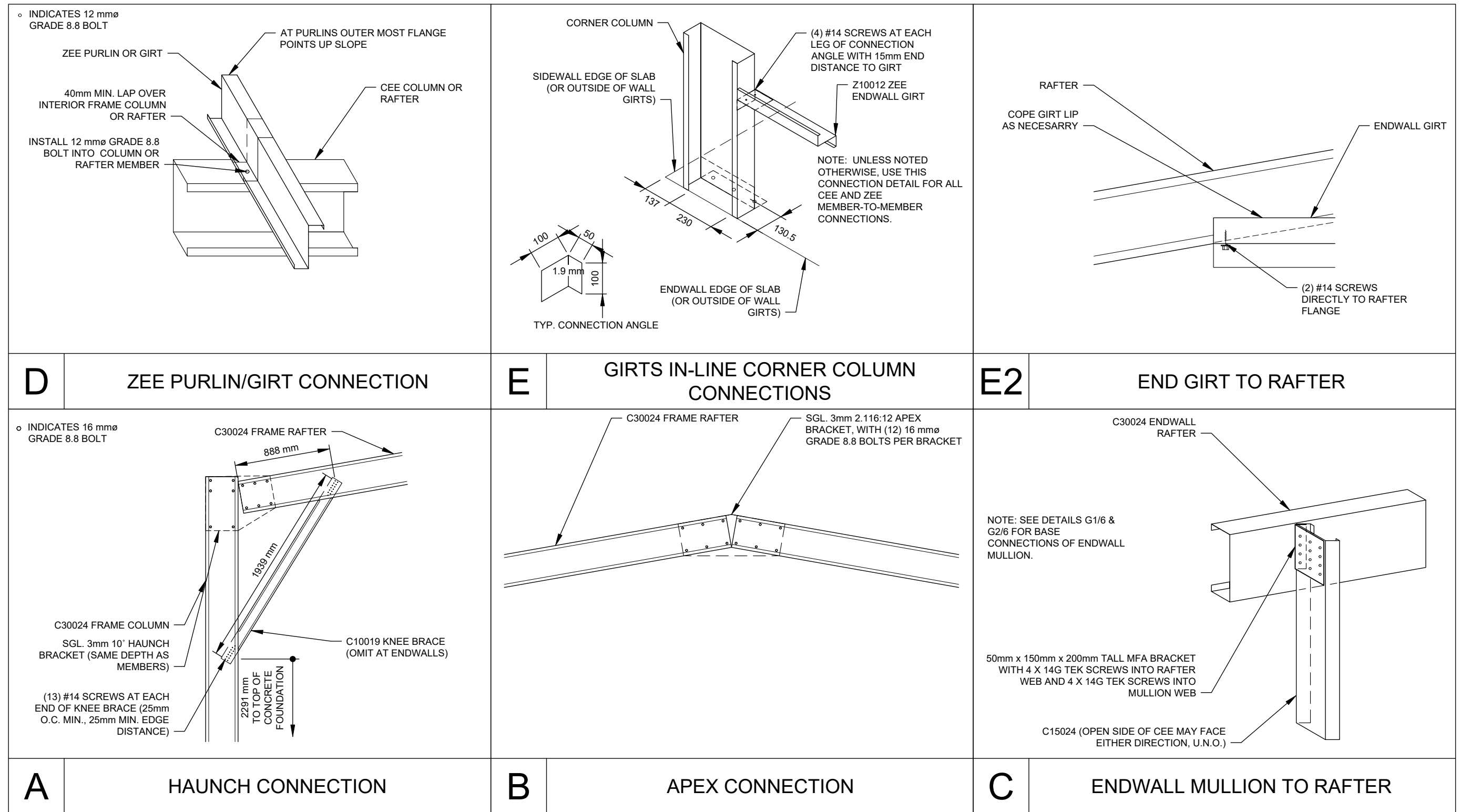
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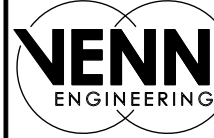
Customer Name: Deb and Pete Crawley  
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SHEET 4 of 12



DETAIL DIMENSIONS ARE SHOWN IN MM UNLESS SPECIFIED OTHERWISE

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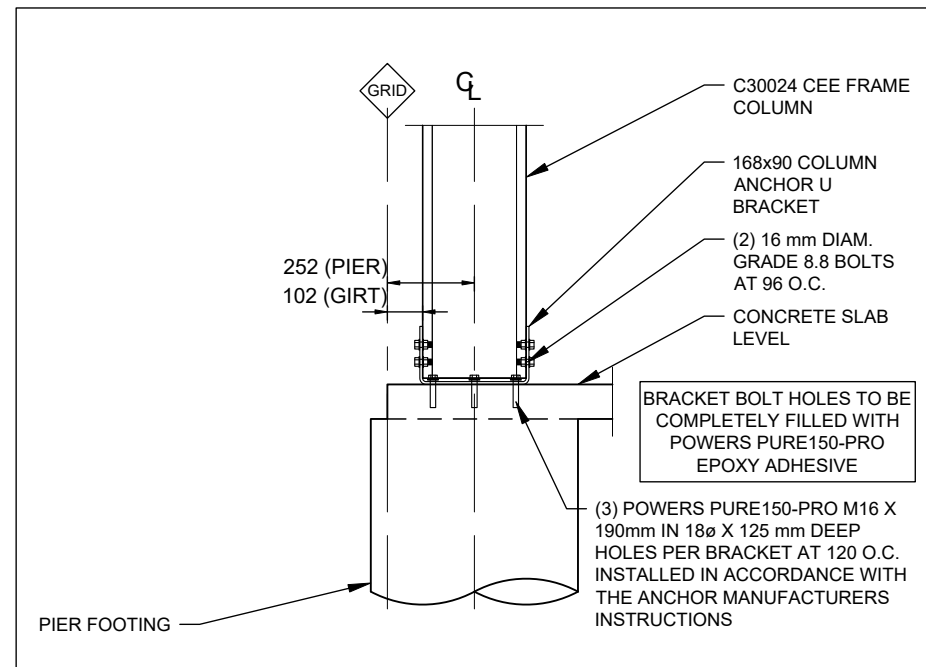
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Signe

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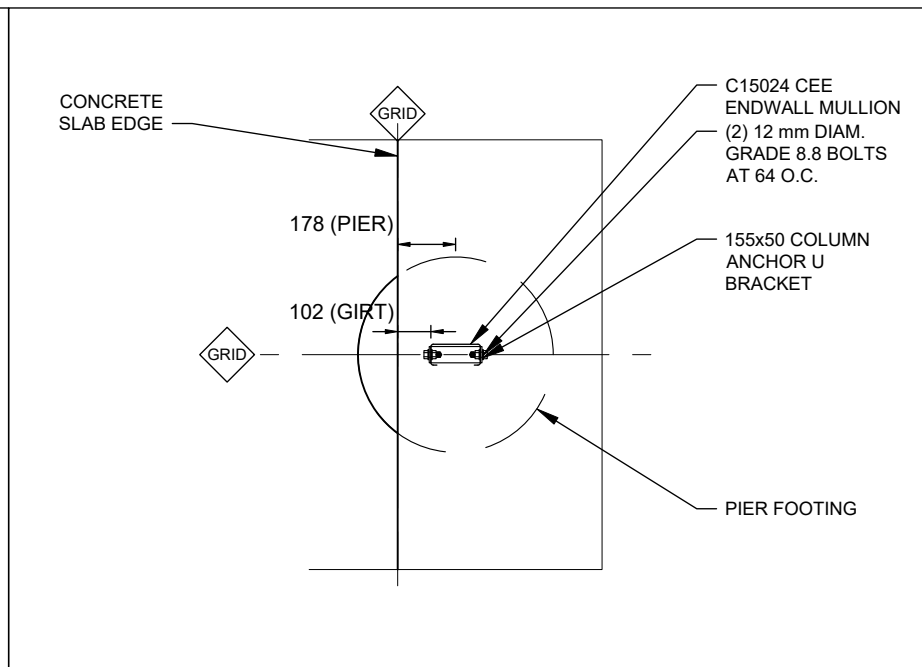
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SHEET 5 of 12



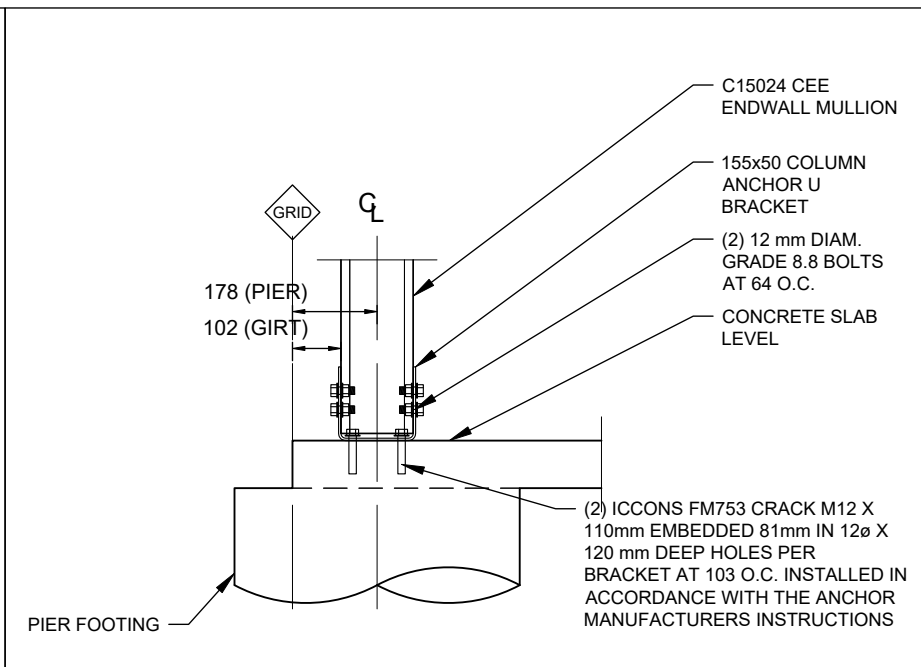
F4

FRAME COLUMN BASE DETAIL 2



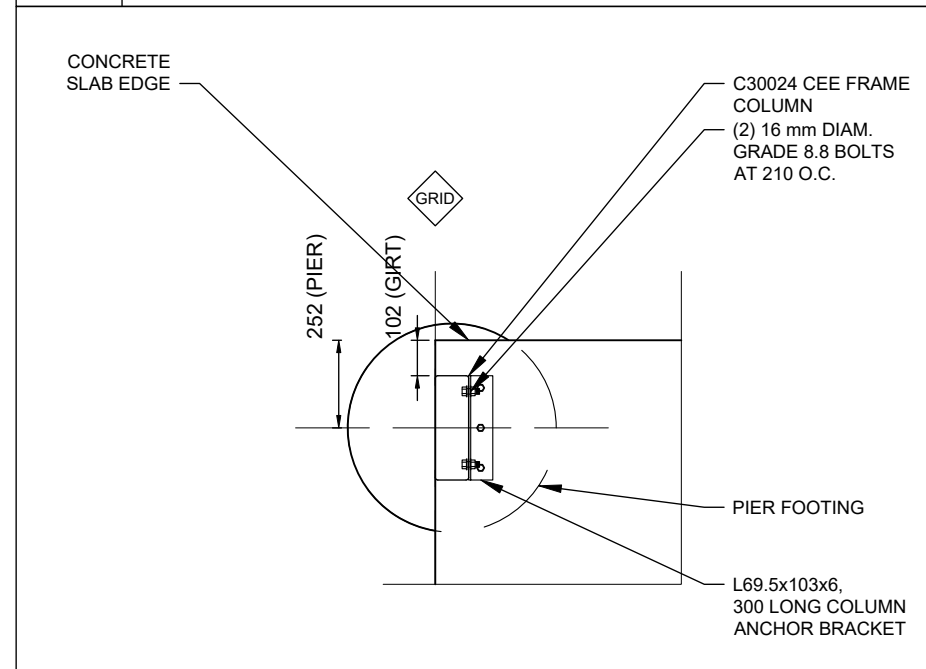
G1

ENDWALL MULLION BASE DETAIL



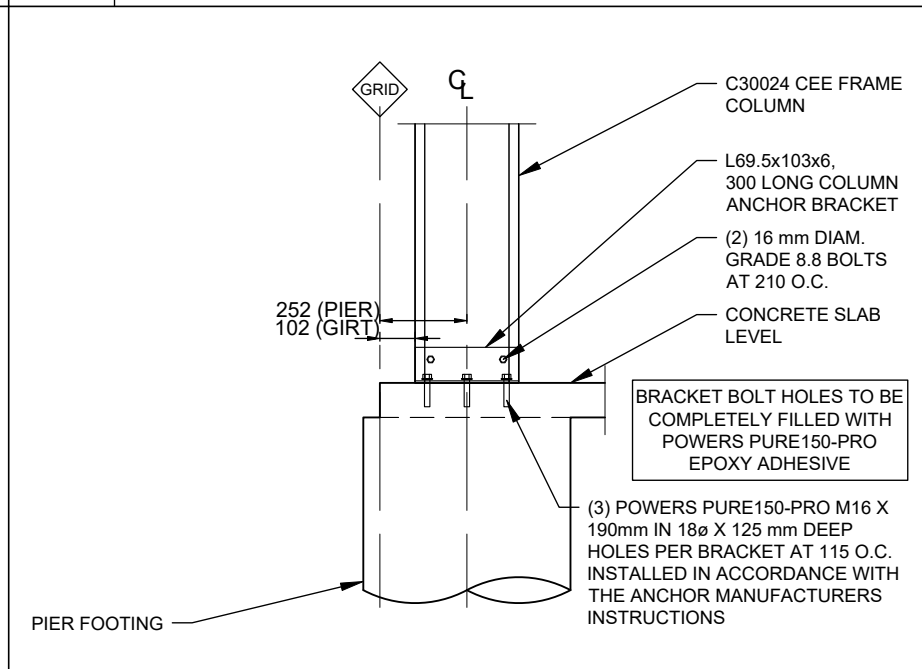
G2

ENDWALL MULLION BASE DETAIL 2



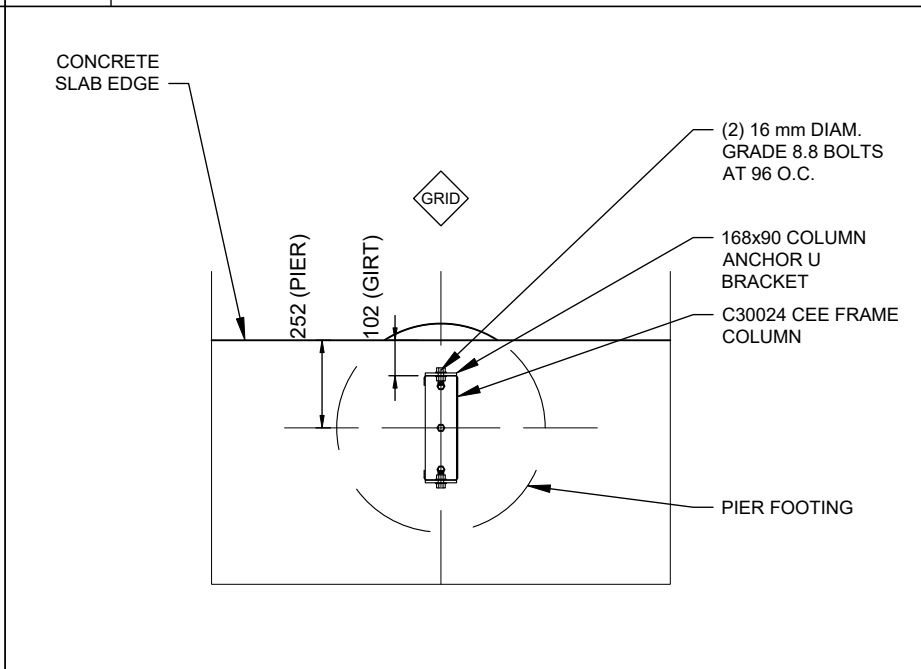
F1

CORNER COLUMN BASE DETAIL



F2

CORNER COLUMN BASE DETAIL 2

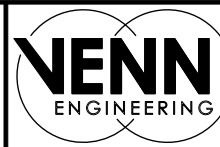


F3

FRAME COLUMN BASE DETAIL

DETAIL DIMENSIONS ARE SHOWN IN MM UNLESS SPECIFIED OTHERWISE

| REV | DATE       | DESCRIPTION |
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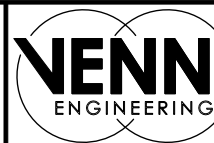
Customer Name: Deb and Pete Crawley  
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NSW, 2850

DATE 02-07-2024  
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SHEET 6 of 12

|  |  |   |
|--|--|---|
|  |  |   |
| <b>J1</b> PA DOOR JAMB BASE CONNECTION   | <b>J2</b> ROLLER DOOR JAMB BASE CONNECTION   | <b>K1</b> OPENING CHANNEL JAMB GIRT CONNECTION  |
| <p>NOTE: ONLY STRUCTURAL INFORMATION IS INCLUDED IN THIS DETAIL. CONSULT PANEL MANUFACTURER FOR ADDTL WEATHERTIGHTNESS RECOMMENDATIONS.</p> <p>SCREW SD HEX TOP GRIP B8 12-14X39 AT HIGH RIBS AT ALL PURLINS AT SPACING SHOWN</p> <p>Stramit Corrugated 0.42</p> | <p>NOTE: ONLY STRUCTURAL INFORMATION IS INCLUDED IN THIS DETAIL. CONSULT PANEL MANUFACTURER FOR ADDTL WEATHERTIGHTNESS RECOMMENDATIONS.</p> <p>NOTE: SAFETY MESH SHALL BE INSTALLED UNDER ALL TRANSLUCENT/SKYLIGHT ROOF SHEETING IN ACCORDANCE WITH AS1562.3:2006. TRANSLUCENT/SKYLIGHT ROOF SHEETING MATERIALS TO BE IN ACCORDANCE WITH AS4256 PARTS 3&amp;5.(2006) AND INSTALLED IN ACCORDANCE WITH AS1562.3:2006.</p> <p>14-14 X 65 HEX HEAD POLYZIPS 26 MM DOMED WASHER CLIMASEAL 3 AT HIGH RIBS AT ALL PURLINS AT SPACING SHOWN</p> <p>MINIMUM FIXING EDGE DISTANCE AT END SUPPORT OF 50mm</p> <p>Ampelite Polycarbonate Solarsafe Corrugated 0.8</p> | <p>NOTE: ONLY STRUCTURAL INFORMATION IS INCLUDED IN THIS DETAIL. CONSULT PANEL MANUFACTURER FOR ADDTL WEATHERTIGHTNESS RECOMMENDATIONS.</p> <p>TOP AND BOTTOM OF SHEETING</p> <p>INTERIOR GIRTS</p> <p>SCREW SD HEX C4 10-16 ADJACENT TO HIGH RIBS AT ALL GIRTS AT SPACING SHOWN</p> <p>Stramit Corrugated 0.42</p> |
| <b>H</b> ROOF SHEETING   | <b>H1</b> ROOF SKYLIGHT  | <b>I</b> WALL SHEETING  |

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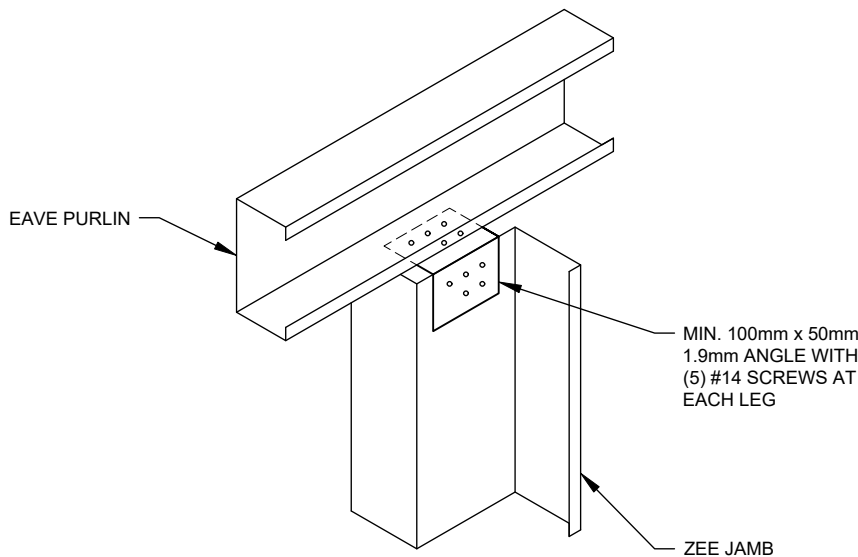
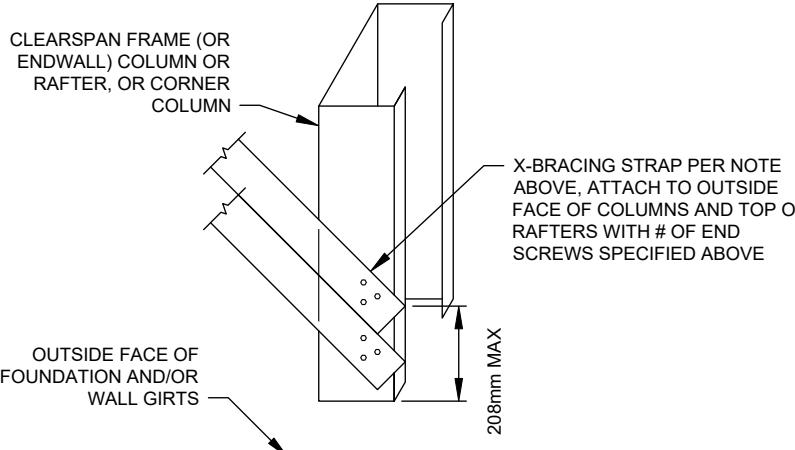
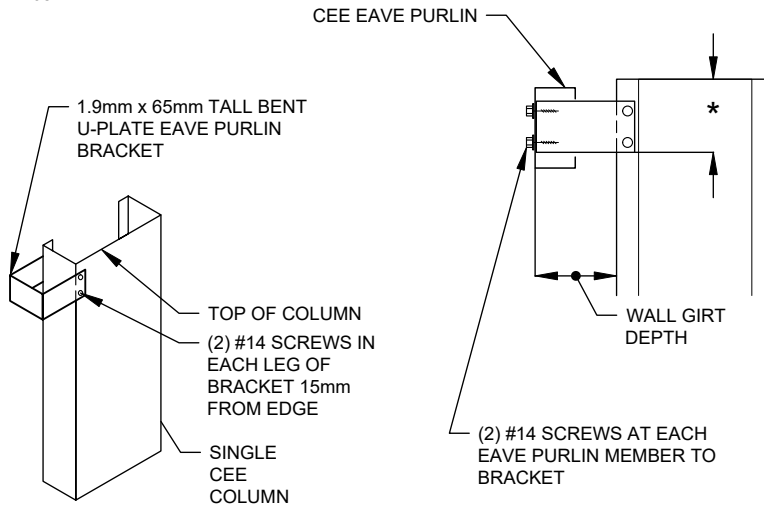
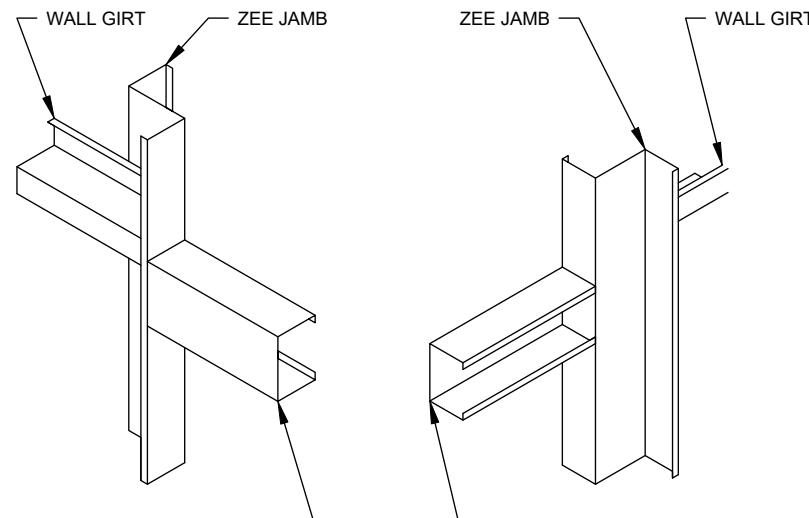
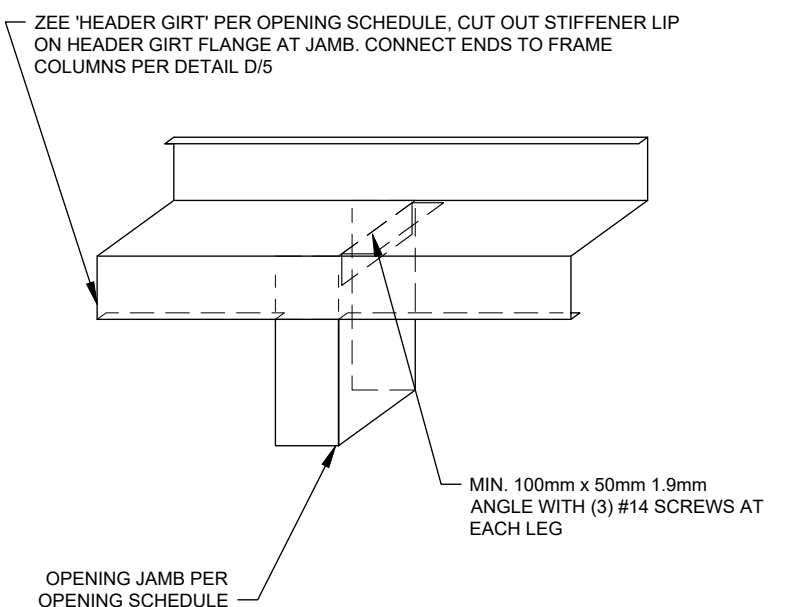
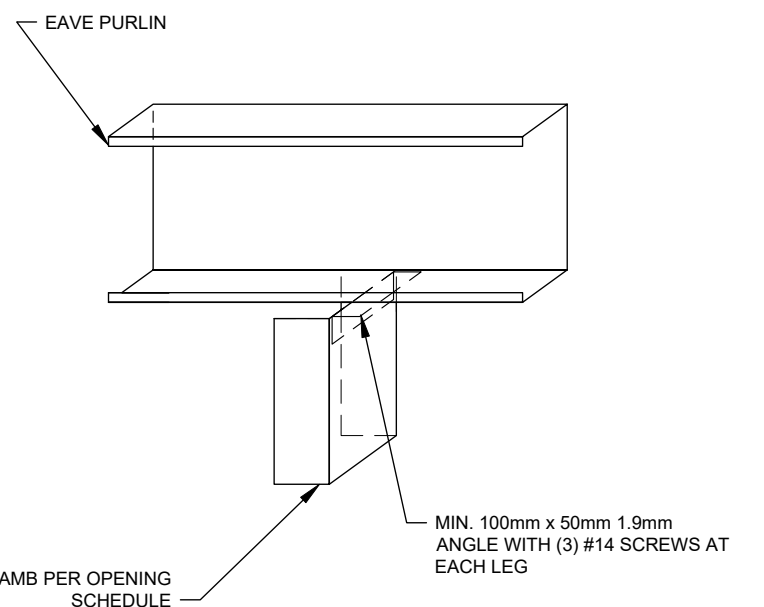
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Signed

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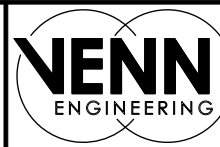
Customer Name: Deb and Pete Crawley  
Site Address: 6 Robert Jones Street  
Mudgee,  
NSW, 2850

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JOB NO. EALB97324596  
SHEET 7 of 12

|   |   |   |
|---|---|---|
|  <p>INTERIOR VIEW</p>                       | <p>ENDWALL: N/A<br/>SIDEWALLS &amp; ROOF: DBL. 38MM 1.2MM STRAP WITH (3) #14 SCREWS AT EACH END OF EACH STRAP</p>  <p>NOTES:<br/>1) CONNECT STRAP AT TOP OF ADJACENT COLUMN OR RAFTER IN SAME MANNER.<br/>2) IF DOUBLE STRAPS ARE SPECIFIED ABOVE, INSTALL SIDE-BY-SIDE, NOT ON TOP OF EACH OTHER.</p> | <p>* MAIN SIDEWALL: 93 mm<br/>LEANTO 'A': 68 mm</p>  |
| <p><b>L3</b> ZEE JAMB TO EAVE PURLIN CONNECTION</p>   | <p><b>M</b> ROOF AND WALL X-BRACING CONNECTION</p>  | <p><b>O</b> EAVE PURLIN BRACKET</p>   |
|  <p>EXTERIOR VIEW</p> <p>INTERIOR VIEW</p> |   |   |
| <p><b>K2</b> OPENING ZEE JAMB GIRT CONNECTION</p>   | <p><b>L1</b> CHANNEL JAMB TO HEADER GIRT CONNECTION</p>   | <p><b>L2</b> CHANNEL JAMB TO CEE CONNECTION</p>   |

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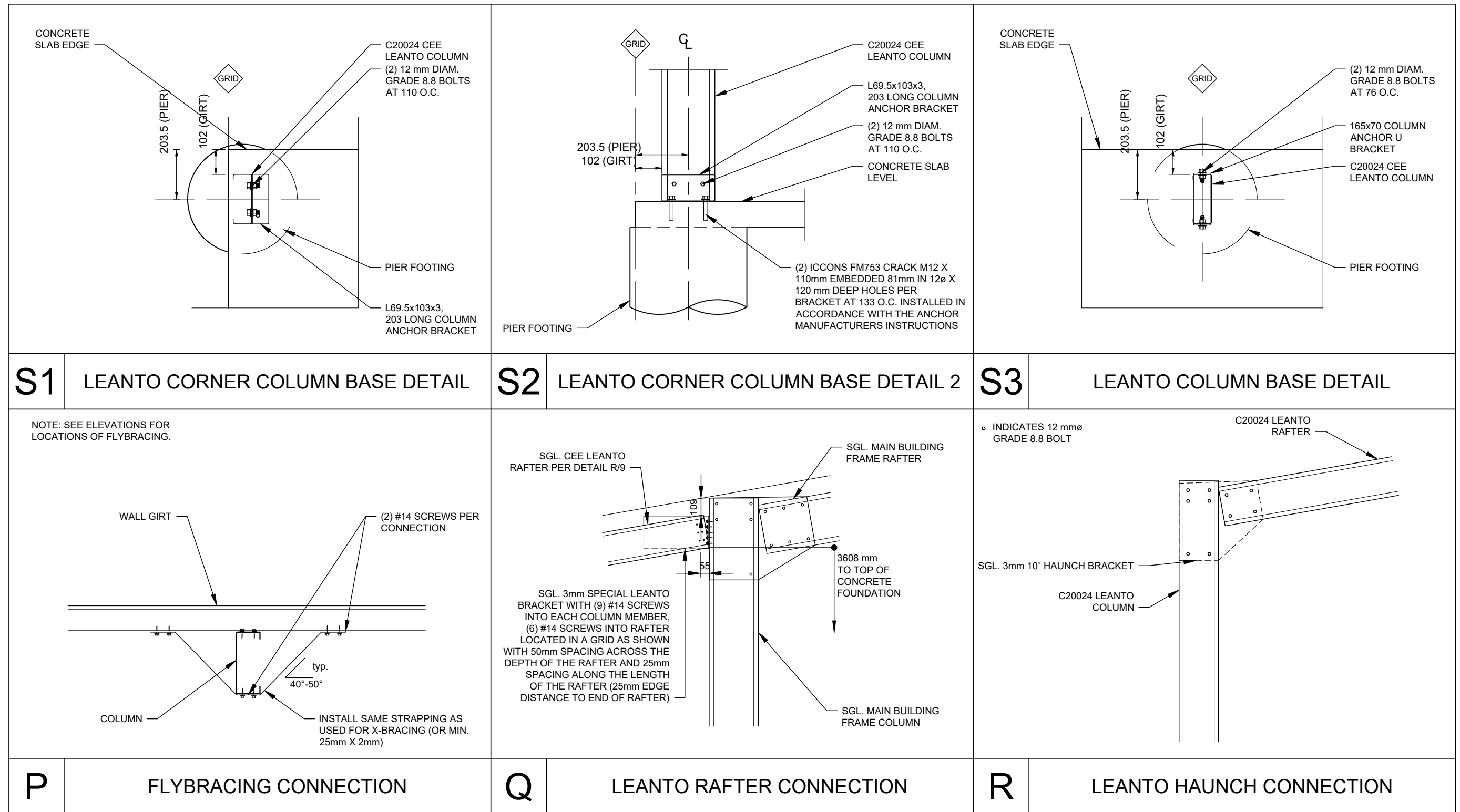
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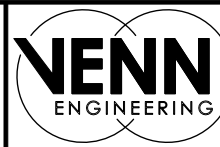
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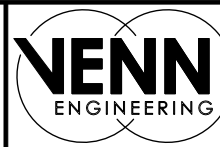
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|  |  |  |
|--|--|--|
|  |  |  |
| <b>U2</b> LEANTO ENDWALL MULLION BASE DETAIL 2 | <b>V</b> CORNER COLUMN STIFFENER           | <b>X</b> BOLT OPTIONS                        |
|  |  |  |
| <b>S4</b> LEANTO COLUMN BASE DETAIL 2          | <b>T1</b> LEANTO ENDWALL MULLION TO RAFTER | <b>U1</b> LEANTO ENDWALL MULLION BASE DETAIL |

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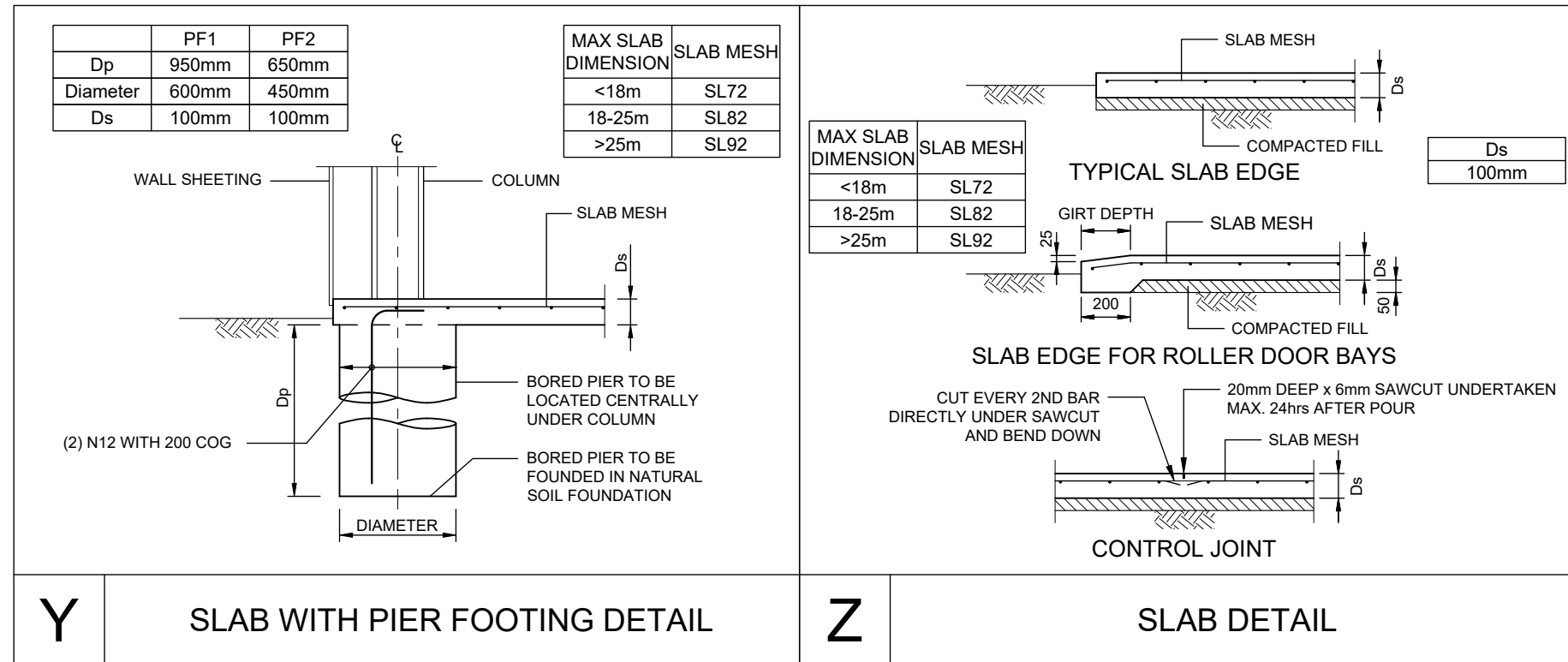


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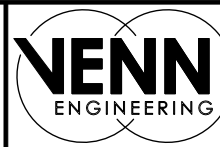
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Customer Name: Deb and Pete Crawley  
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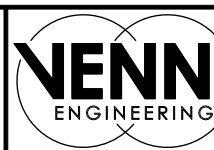
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| MEMBER SCHEDULE                       |                 |  |  |
|---------------------------------------|-----------------|--|--|
| COMPONENT                             |                 | TYPE   |  |
| CLEAR SPAN PORTAL (FRAMES 2, 3)       | MEMBER          | RAFTER   | Single C30024                                    |
|                                       |                 | COLUMN   | Single C30024                                    |
|                                       |                 | APEX BRACE                                       | -  |
|                                       |                 | KNEE BRACE                                       | Single C10019                                    |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Base cleat bolt down bracket BC.300              |
|                                       | ANCHOR BOLTS    | (3) Powers Pure150-PRO M16 x 190mm               |  |
| PORTAL FRAMES 1, 4                    | MEMBER          | RAFTER   | Single C30024                                    |
|                                       |                 | COLUMN   | Single C30024                                    |
|                                       |                 | APEX BRACE                                       | -  |
|                                       |                 | KNEE BRACE                                       | -  |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Angle base connection ABC.C300.210               |
|                                       | ANCHOR BOLTS    | (3) Powers Pure150-PRO M16 x 190mm               |  |
| ENDWALL MULLION                       | MEMBER          | COLUMN   | Single C15024                                    |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Base cleat bolt down bracket BC.150              |
|                                       |                 | ANCHOR BOLTS                                     | (2) ICCONS FM753 Crack M12 x 110mm embedded 81mm |
| ROOF PURLINS                          |                 | MEMBER   | Single Z10015 @ 784mm centres                    |
| EAVE PURLIN                           |                 | MEMBER   | Single C10015                                    |
| SIDEWALL GIRTS                        |                 | MEMBER   | Single Z10015 @ 1233mm centres                   |
| ENDWALL GIRTS                         |                 | MEMBER   | Single Z10012 @ 1167mm centres                   |
| LEANTO A INTERIOR FRAME (FRAMES 2, 3) | MEMBER          | RAFTER   | Single C20024                                    |
|                                       |                 | COLUMN   | Single C20024                                    |
|                                       |                 | APEX BRACE                                       | -  |
|                                       |                 | KNEE BRACE                                       | -  |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Base cleat bolt down bracket BC.200              |
|                                       | ANCHOR BOLTS    | (2) ICCONS FM753 Crack M12 x 110mm embedded 81mm |  |
| LEANTO A FRAMES 1, 4                  | MEMBER          | RAFTER   | Single C20024                                    |
|                                       |                 | COLUMN   | Single C20024                                    |
|                                       |                 | APEX BRACE                                       | -  |
|                                       |                 | KNEE BRACE                                       | -  |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Angle base connection ABC.C200.110               |
|                                       | ANCHOR BOLTS    | (2) ICCONS FM753 Crack M12 x 110mm embedded 81mm |  |
| LEANTO A ENDWALL MULLION              | MEMBER          | COLUMN   | Single C15012                                    |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Base cleat bolt down bracket BC.150              |
|                                       |                 | ANCHOR BOLTS                                     | (2) ICCONS FM753 Crack M12 x 110mm embedded 81mm |
| LEANTO A ROOF PURLINS                 |                 | MEMBER   | Single Z10015 @ 846mm centres                    |
| LEANTO A EAVE PURLIN                  |                 | MEMBER   | Single C10015                                    |
| LEANTO A SIDEWALL GIRTS               |                 | MEMBER   | Single Z10015 @ 939mm centres                    |
| LEANTO A ENDWALL GIRTS                |                 | MEMBER   | Single Z10012 @ 1233mm centres                   |
| OPENINGS (1-2)                        | MEMBER          | JAMB   | Single Z20024                                    |
|                                       |                 | HEADER/SILL                                      | Single C10012                                    |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Angle base connection ABC.C200.110               |
|                                       | ANCHOR BOLTS    | (2) Powers PB-PRO M12 x 86mm embedded 76mm       |  |
| OPENINGS (3-6)                        | MEMBER          | JAMB   | Single Unlipped 102 x 1.5 Cee                    |
|                                       |                 | HEADER/SILL                                      | Single C10012                                    |
|                                       | BASE CONNECTION | BRACKET TYPE                                     | Angle base connection ABC.SINGLE                 |
|                                       |                 | ANCHOR BOLTS                                     | (1) Powers PB-PRO M12 x 86mm embedded 76mm       |
| OPENINGS (7-9)                        | MEMBER          | JAMB   | Single Unlipped 102 x 1.5 Cee                    |
|                                       |                 | HEADER/SILL                                      | Single C10012                                    |
| X-BRACING                             | STRAP           |  | (2) 38mm x 1.2 strap                             |

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ANOTHER  
COLD FORMED BUILDING  
DESIGNED BY  
ACT BUILDING SYSTEMS



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#### Generic Temporary Bracing Information

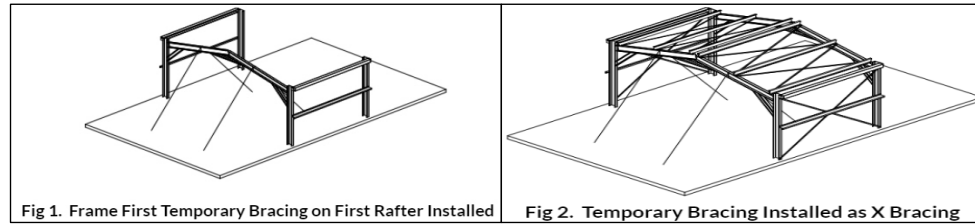
The installation of temporary bracing is critical to avoid building collapse or damaging structural movement during construction. This collapse can occur with no notice and as such the installation of appropriate temporary bracing is critical to avoid damage, injury, and possible death. Determination, procurement, and correct installation of temporary bracing is the responsibility of the builder / primary contractor / installer.

#### Bracing Materials

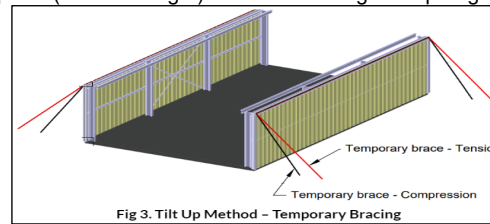
The constructor / installer is to supply suitably sized materials for temporary bracing. These materials are generally capable of tension, but in some circumstances will need to be capable of tension and compression. Load rated ratchet strapping of an appropriate size can be used to temporarily 'x-brace' bays in both directions, until the final bracing systems are fully installed. This is especially critical for buildings where X Bracing is not required in the final structure due to the use of moment frames or diaphragm bracing.

#### Temporary Bracing Location

The location of Temporary bracing will depend on the installation method used. Installation should be completed in accordance with the Construction Package, Engineering Plans, and Instruction Manuals. If the Frame First Method (most common) is used, then the use of tension only bracing and creating temporarily braced bays as per Fig 1 and Fig 2. can be used. As a basic guide, a minimum of every 4th bay should have temporary bracing installed as per Fig 2.



If the Tilt Up Method is used (where walls are constructed on the ground and then tilted into place), then the tops of columns are braced with a tension and compression brace in the same direction Fig 3. Then rafters and purlins can be installed with temporary bracing holding rafters in place (similar to Fig 1) until final bracing of diaphragm sheeting is installed.



Typically, braces should be positioned diagonally across the structure from the top to the bottom, intersecting near the midpoint to provide stability, optimally at a 45-degree angle but no less than a 20-degree angle. The connection strength of temporary bracing is a critical consideration and these connections must be capable of resisting the potentially substantial temporary bracing loads – whether this connection point be to the building, the foundations or to the ground. Dependent upon building size this may include heavy angles and post installed concrete anchors. The temporary bracing methods used must be capable of fully stabilising the structure during the construction process.

#### Additional Temporary Bracing

The temporary bracing described is a minimum requirement for a standard-sized building in average conditions. Additional consideration should be given to larger building spans and/or challenging site conditions. There may also be an increased risk in relation to partially completed buildings and exposed sites. It is recommended that extra temporary bracing is utilized if moderate wind speeds are expected on site. Additional support elements, such as steel cables may need to be introduced that can be attached to the building's framework and anchored to the ground or other stable structures to provide extra stability. The frame should remain rigid throughout and such responsibility lies with the constructor. Buildings should not be left in a partially completed state longer than necessary.

#### Bracing Removal

The temporary bracing should not be removed until all purlins, girts and permanent cross bracing, diaphragm bracing or moment frames where used are installed. The temporary bracing is to remain in place where possible, until the roof and wall cladding is fully installed. If you need any further information regarding the installation of temporary bracing or are at all unsure of the necessary requirements for this specific building, there are guides available through various industry bodies:

<https://www.safeworkaustralia.gov.au/> 'Construction work – steel erection. Information sheet', 2016.

<https://www.steel.org.au/> 'Structural steelwork fabrication and erection code of practice', 2014.

<https://www.standards.org.au/> AS/NZS 5131:2016 'Structural steelwork – Fabrication and erection.

Support is also available at [support@actbuildingsystems.com](mailto:support@actbuildingsystems.com).

THE ABOVE INFORMATION REGARDING TEMPORARY BRACING DOES NOT FORM PART OF THE ENGINEERING CERTIFICATION FOR THIS DESIGN AND IS PROVIDED AS A GUIDE TO AID INSTALLATION ONLY.