



**STRUCTURAL PANELS**  
**AUSTRALIA PTY LTD**  
BUILDING INNOVATION AT WORK

# **SPA SIPs Design & Construction Guidelines:**

Effective Date: 08/04/2024





# STRUCTURAL PANELS AUSTRALIA PTY LTD

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- If possible, start the initial design with 1250mm grid system.
- Our standard wall panel heights are 2400mm x 1250mm, 2700mm x 1250mm, 3000mm x 1250mm and for the floor & ceiling panels are 3000mm x 1250mm or multiples ( with a bearer or a beam to join panels ). Use above standard panel sizes as a guide when designing the Wall, floor & ceiling panels to reduce the wastage costs.
- Our standard panel thicknesses are 115mm, 145mm, 165mm, 215mm, 265mm, 315mm & 365mm. Depends on the wind category, structural & thermal requirements you could select any standard panel thickness to suite your design specifications. Please refer our engineering & technical data documents for span charts and thermal assessment report.
- IF possible, when designing wall panels, distance from end to end of that wall section ( provided no door/window openings in that wall section ), distance from end of the wall to the door/window opening and/or distance between two door/window openings meets 1250mm or multipliers requirement ( or 620mm panel in-between ) to minimises the wastage.
- In wall panels if one wall section measured from end to end of that wall, makesure that the measurement of the next wall section is full length minus thickness of the wall panel or full length minus 2 x thickness of the wall panel which meets 1250mm or multipliers requirement.
- If the wall section or floor section or ceiling section wider than 1250mm or multipliers, please make sure the smaller panel of that section is at least 300mm–400mm to be structurally capable of supporting load.



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- When placing windows/doors, Make sure wall panels on either side of window/door openings are at least 300mm to run double studs & triple studs. Ideally do not place any doors/windows at the corners of the building unless you wouldn't mind compromising the thermal properties.
- Wall heights above 3000mm could be manufactured by joining 3000mm x 1250mm wall panel and a dwarf wall panel with a horizontal Box Spline as per structural engineers' specifications. Please refer the Box Spline connection details for further clarifications.
- To avoid thermal mass coming into the building through SPA SIPs wall panels, we recommend using Vertical Box splines to join two wall panels together instead of Timber Splines. Please refer SPA SIPs typical wall layout for further clarifications. Timber Splines can be used if the project structural engineer specified that due to unavoidable reasons ( Due to High wall panels or High Wind speeds )
- Door/window headers should be at least 300mm high to accommodate wall double top plates, lintel beam & stud supporting lintel beam.
- If you required additional structure to support the load ( such as steel beams & columns ) which could be concealed within the panels provided dimensions and placements nominated during shop drawing process.
- To provide you an accurate quotation, we will be required final construction drawings with the floor plans & roof plan, cross sections of the building, window schedule and engineering details for Lintel beams & other structure.
- Please note that above design guidelines are purely to minimize the wastage costs/raw materials. SPA will not restrict anyone to design their project 100% based on those design guidelines. Please contact SPA office to check suitability of your current design and current stock of standard panel sizes.

Legend:

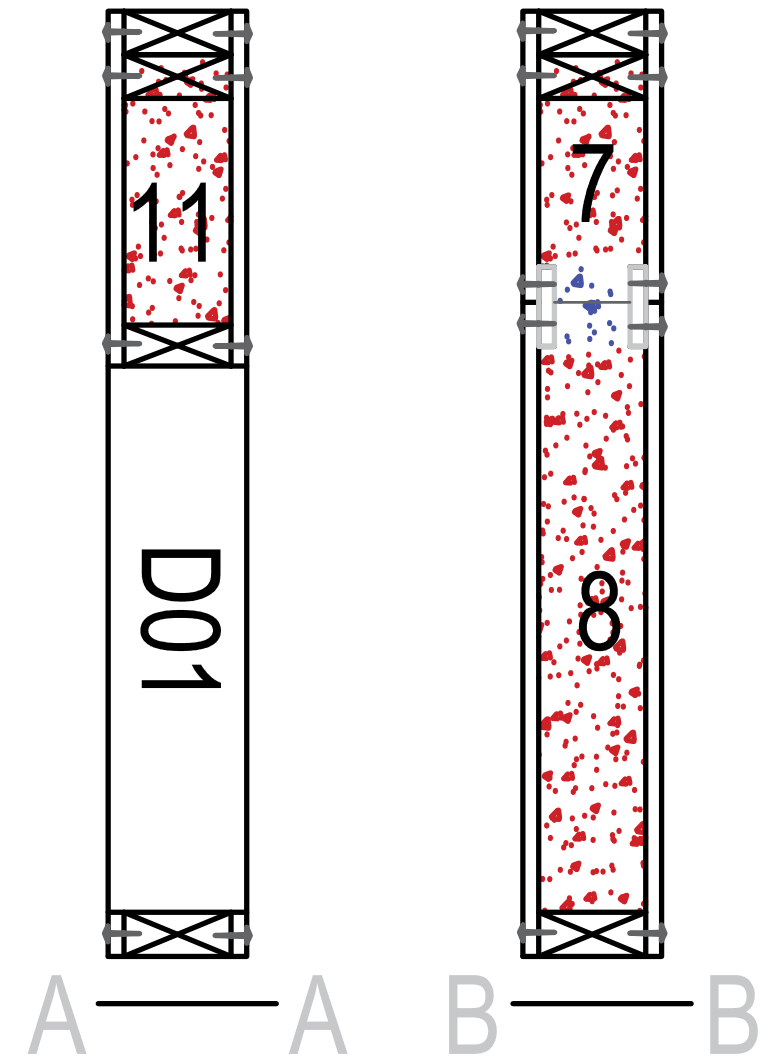
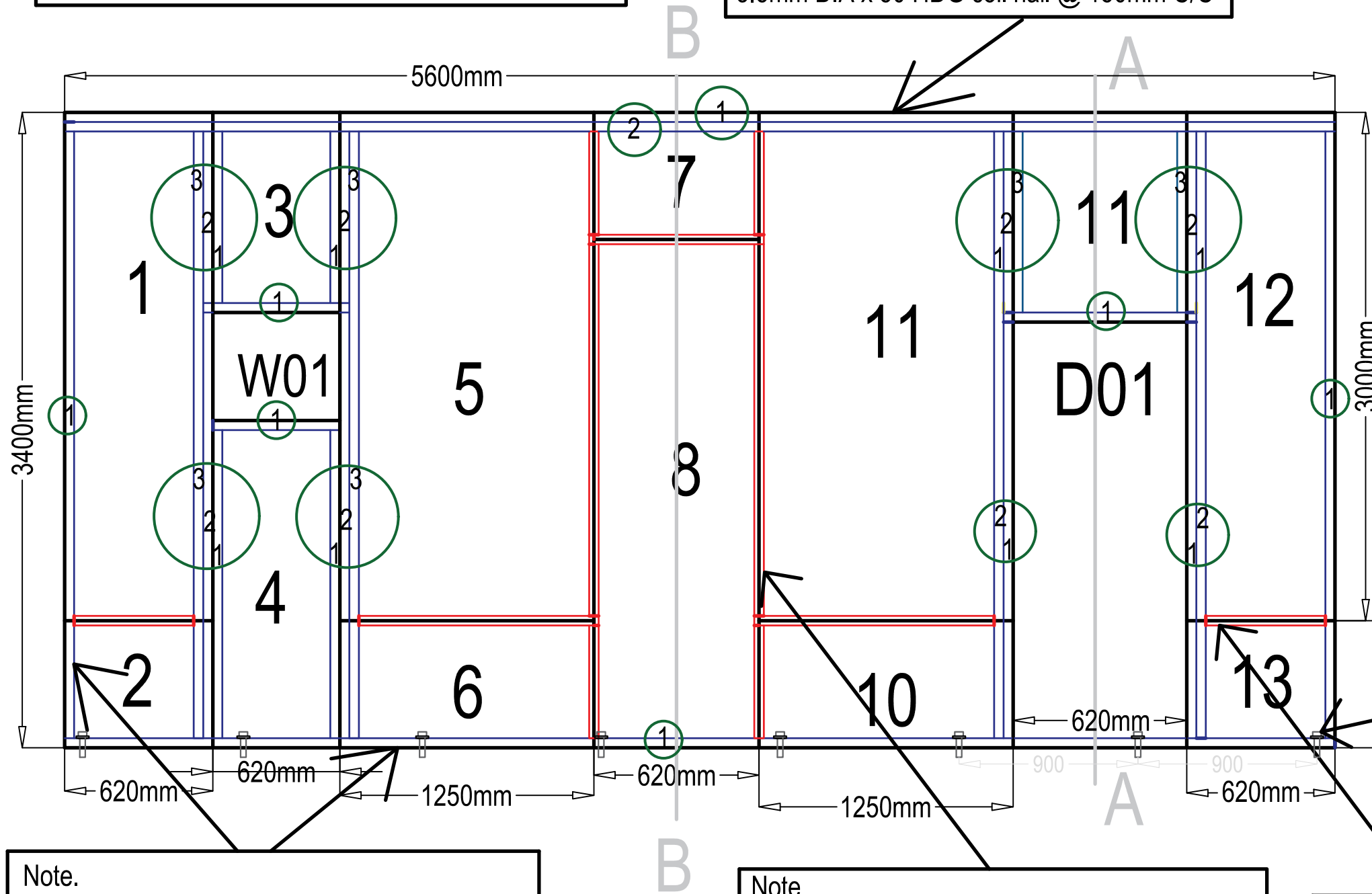
- D01 Door 01
- W01 Window 01
- 90mm \* 45mm Timber MGP 10
- Box Splines
- 115mm SPA SIPs Wall Panels

Important Note\*

SPA SIPs external wall panels doesn't act as a bracing wall.  
Project engineer must brace the building off to the internal walls.

Note.

Panels fixed to double top plates with  
3.5mm DIA x 50 HDG coil nail @ 150mm C/C



Note.

Wind Classes below C2 :45mm thick bottom plate and 3.5mm DIA x 50 HDG coil nail @ 150mm C/C, M12 Dynabolts at 600 C/C or otherwise specified.

Wind Classes C2 and above :45mm thick bottom plate and 3.5mm DIA x 50 HDG coil nail @ 50mm C/C, M12 Dynabolts at 450 C/C with 50x50x4 galvanised square washer or otherwise specified.

Note.

Panels fixed to bottom plate & end stud with  
3.5mm DIA x 50 HDG coil nail @ 150mm C/C

Note.

Panels fixed to Vertical Box Splines with  
3.5mm DIA x 50 HDG coil nail @ 150mm C/C  
over 90mm (W) Box Spline

Note.

Panels fixed to Horizontal Box Splines with  
3.5mm DIA x 50 HDG coil nail @ 150mm C/C  
over 150mm (H) Box Spline



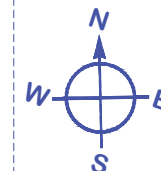
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COSTS OF RE-MANUFACTURING + FREIGHT OF THE PRODUCT.  
APPROVED BY: \_\_\_\_\_ SIGNED  
DATE:

ADDRESS:

Factory 52b, 37-39 East Street,  
(access is via Mink Street, off East Street)  
Daylesford, VIC 3460



SIPs Detail:

Typical SPA SIPs Wall Framing Detail

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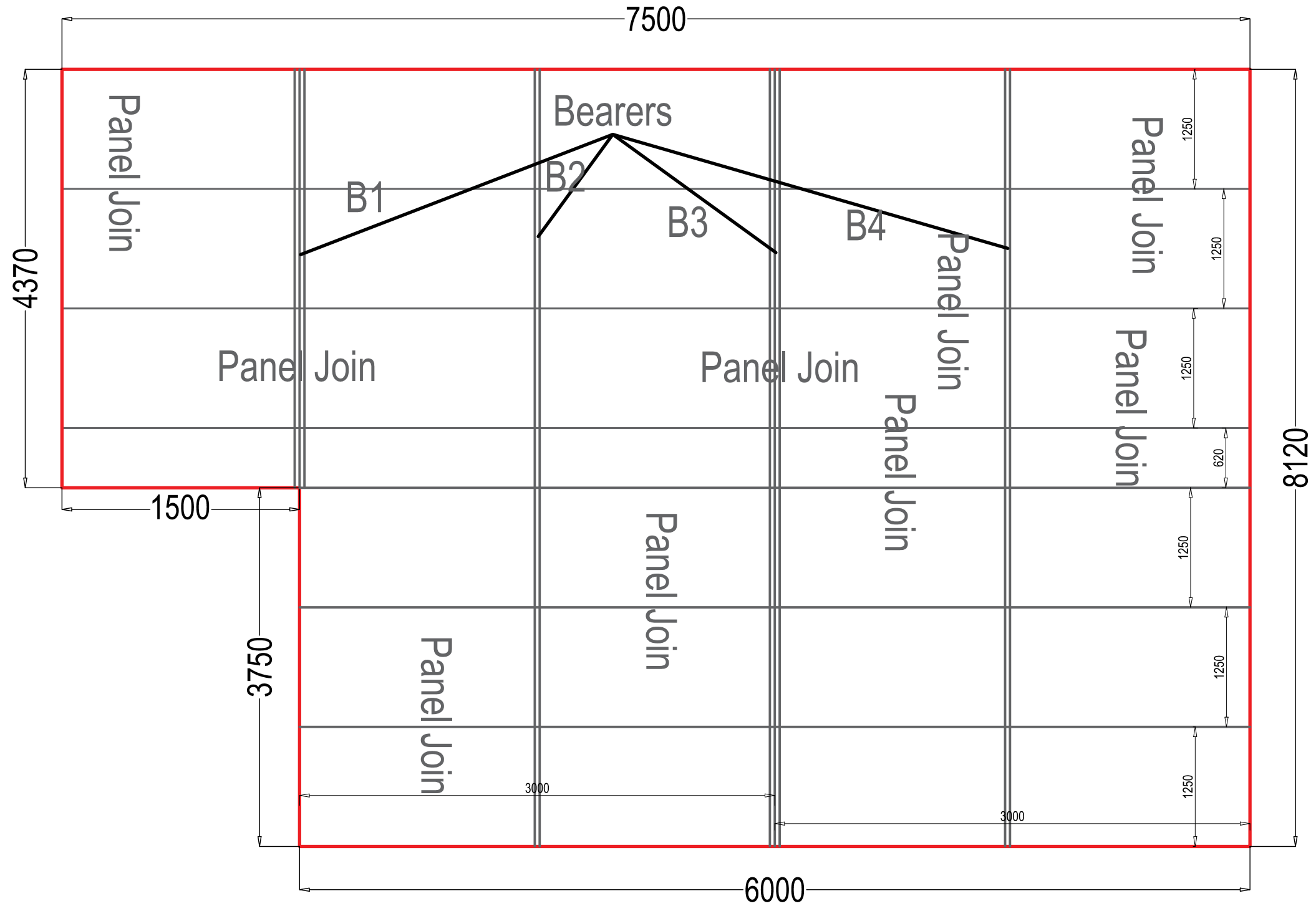
Page 1

Drawn UI

# SPA SIPs Floor Plan:

Note: 8mm or 10mm diameter SIPs fixing screws used every 400mm C/C in every panel join and 50mm penetration to the last supporting framing timber.

Legend	
50mm Rebates	<u>Timber Spline</u>
25mm Rebates On Each Panel	<u>Timber Spline</u>

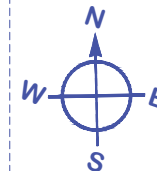


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SIPs Detail: Typical SPA SIPs Floor Panel Layout

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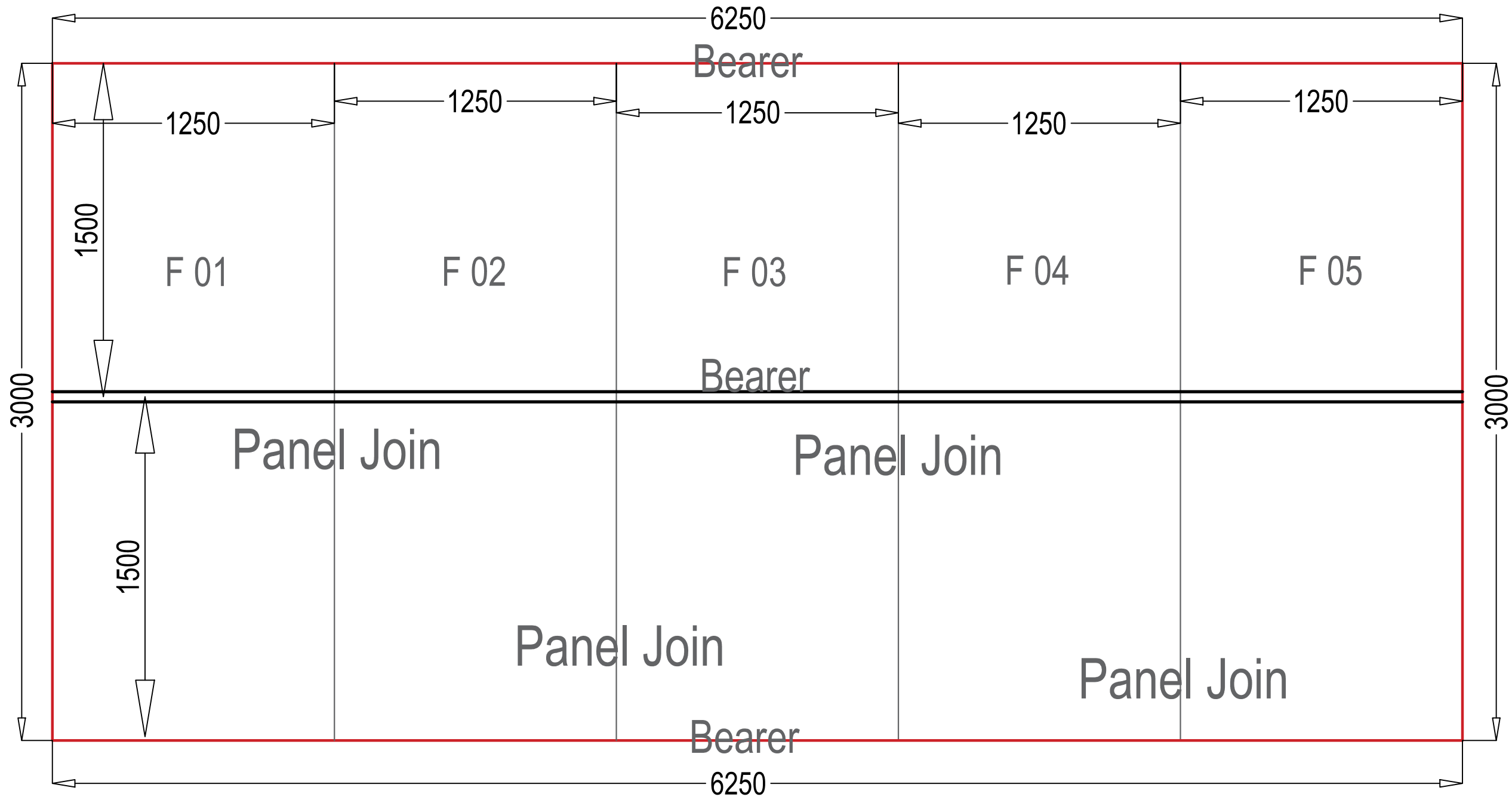
Page 1

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# SPA SIPs Floor Plan:

5 @ 3000mm x 1250mm

Legend	
50mm Rebates	<u>Timber Spline</u>
25mm Rebates On Each Panel	<u>Timber Spline</u>

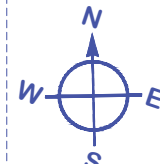


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SIPs Detail: Typical SPA SIPs Floor Panel Layout

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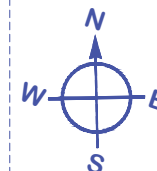
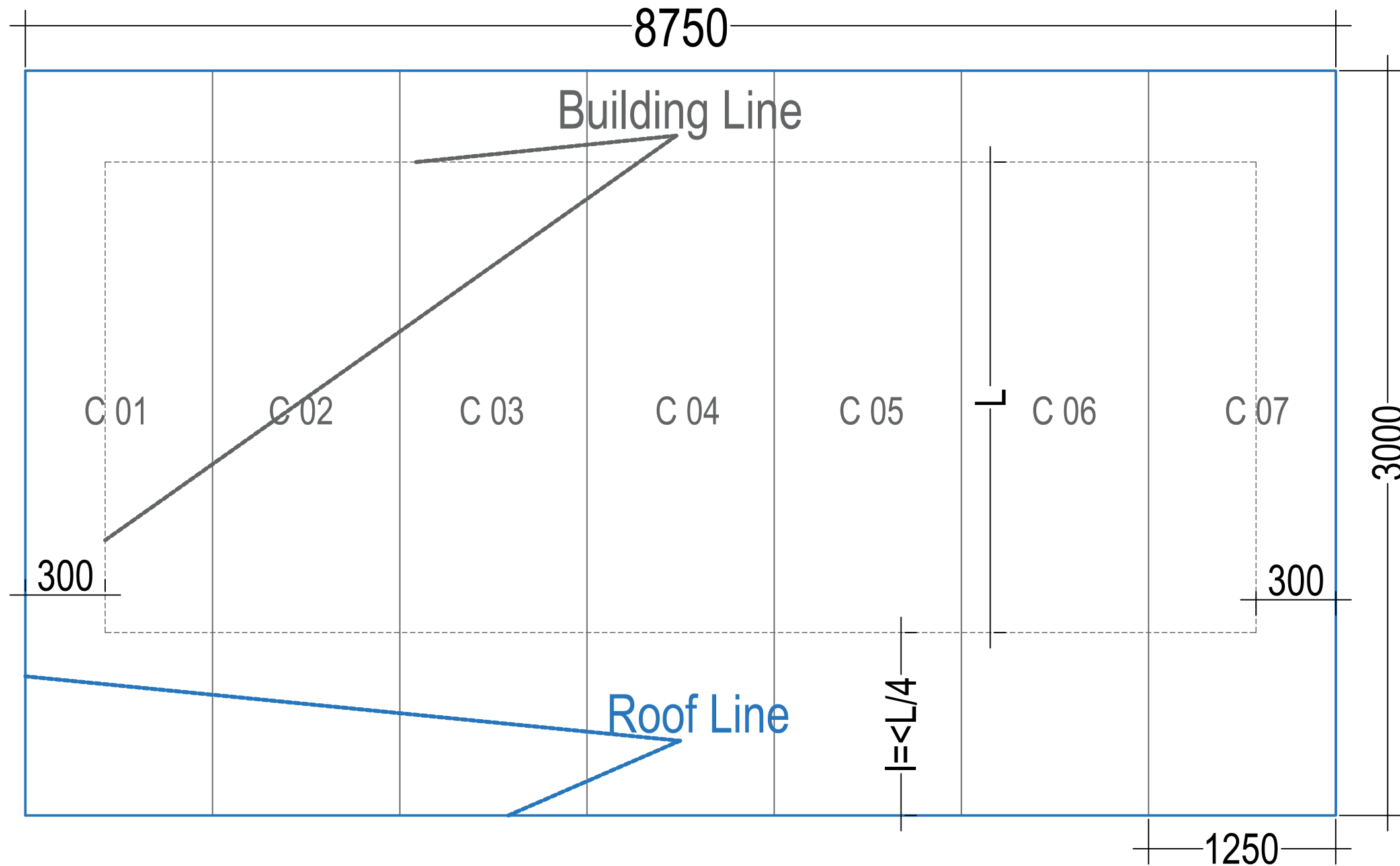
08/04/2024  
Page 2  
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# SPA SIPs Ceiling Plan:

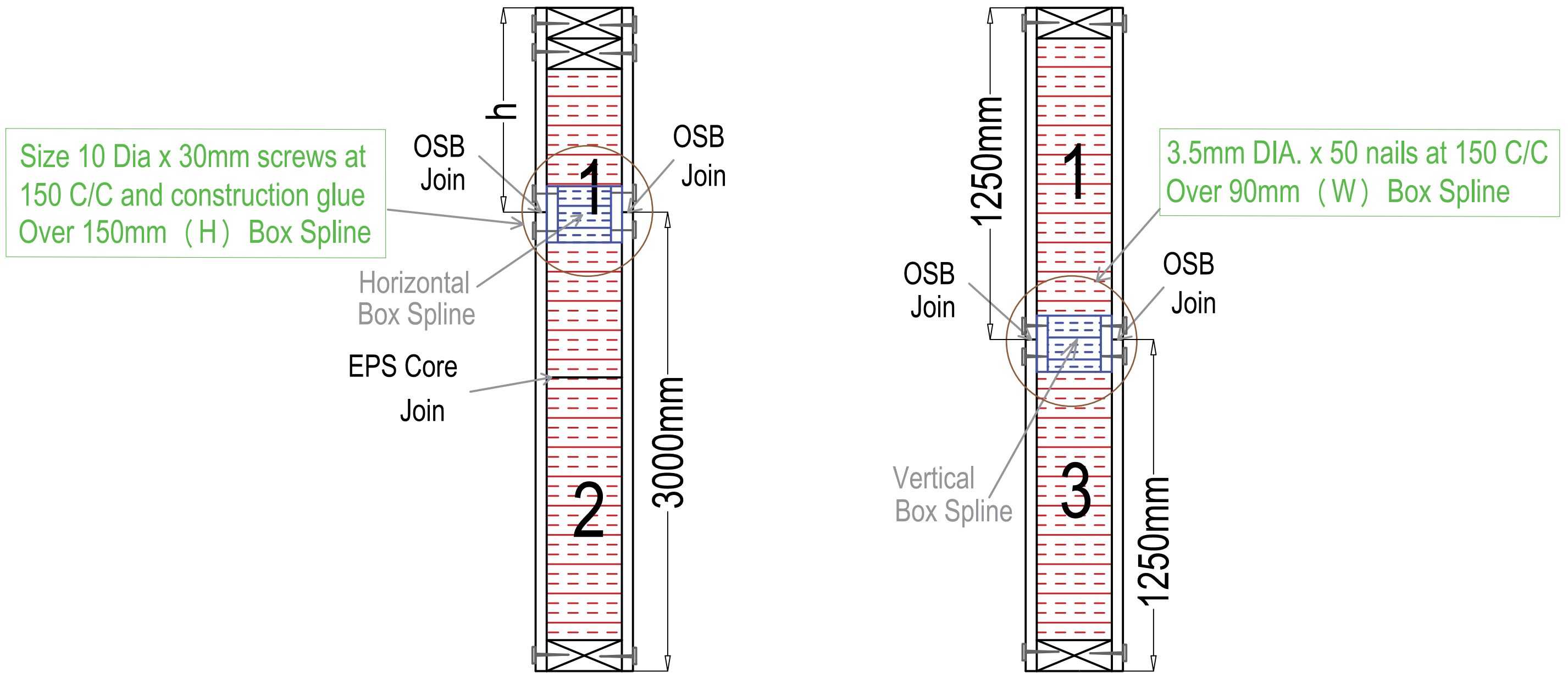
Note: 8mm diameter SIPs fixing screws used every 400mm C/C in every panel join and 50mm penetration all around the perimeter of the building and full bearing to the internal walls.

## Legend

50mm Rebates Timber Spline  
 25mm Rebates Timber Spline  
 On Each Panel



# Box Spline Connection Details



**Horizontal Connection**  
( SIPs Section Elevation View )

**Vertical Connection**  
( SIPs Section Plan View )





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## SPA SIPs Construction Guidelines.

### Installing Wall Panels

#### Typical Wall Panel Installation

1. Start by reviewing the panel layout sent by SPA P/L.
2. Ensure the floor system is square and level.
3. Seal and install bottom plates. Mark window and door locations on plates.
4. Select a corner from which to start.
5. Install timber studs in that corner.
6. Stand your first panel at the corner.
7. Install corner panel perpendicular to the first.
8. Continue installing panels down the length of wall.
9. Brace panels until all panels are set.
10. As you install, seal panels to bottom plate and connecting OSB Splines or timber splines with supplied sealant.
11. Secure panels as shown in illustrations. Panels are typically secured with 3.5 x 50mm nails at no more than 150mm centres into the floor plates and studs, either side of the panel. For fixing Box Splines 3.5 x 50mm nails at no more than 150mm centres would be sufficient. **Be sure to plumb and level each corner and all panels as you set them.**
12. Install the double top plates so that joints between adjoining plates occur over a panel center stud. Avoid aligning plate joints with panel joints.



## Corners

1. First install corner studs to plate.
2. Run sealant supplied by SPA along length of bottom plate to be covered by first corner panel "C1".
3. Run sealant along length of styrene core to be fixed to stud.
4. Install first corner panel "C1" to stud.
5. Set the "C1" panel plumb and level and brace temporarily.
6. Set "C2" panel on the plate of the intersecting wall. DO NOT nail until the whole corner is set.
7. Plumb and level for a final time, fasten panels with 2.8 x 65mm nails and brace corner.
8. Commence installation of panels along length of wall.

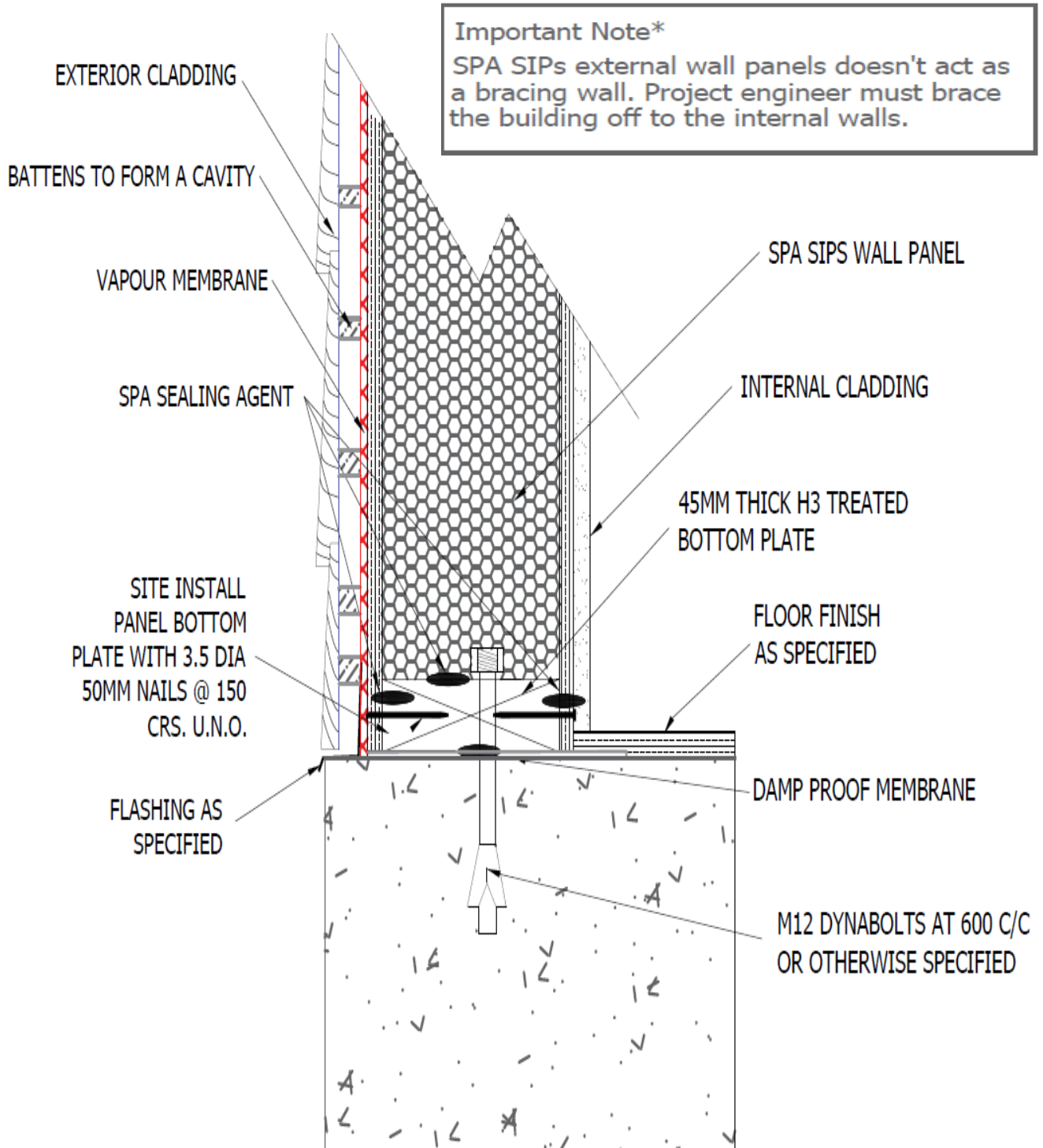
Panel Thickness	Timber Spline
115mm	90mm x 45mm
145mm	120mm x 45mm
165mm	140mm x 45mm
215mm	190mm x 45mm
265mm	240mm x 45mm
315mm	290mm x 45mm



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## Typical Wall Framing & Floor Framing Detail 1

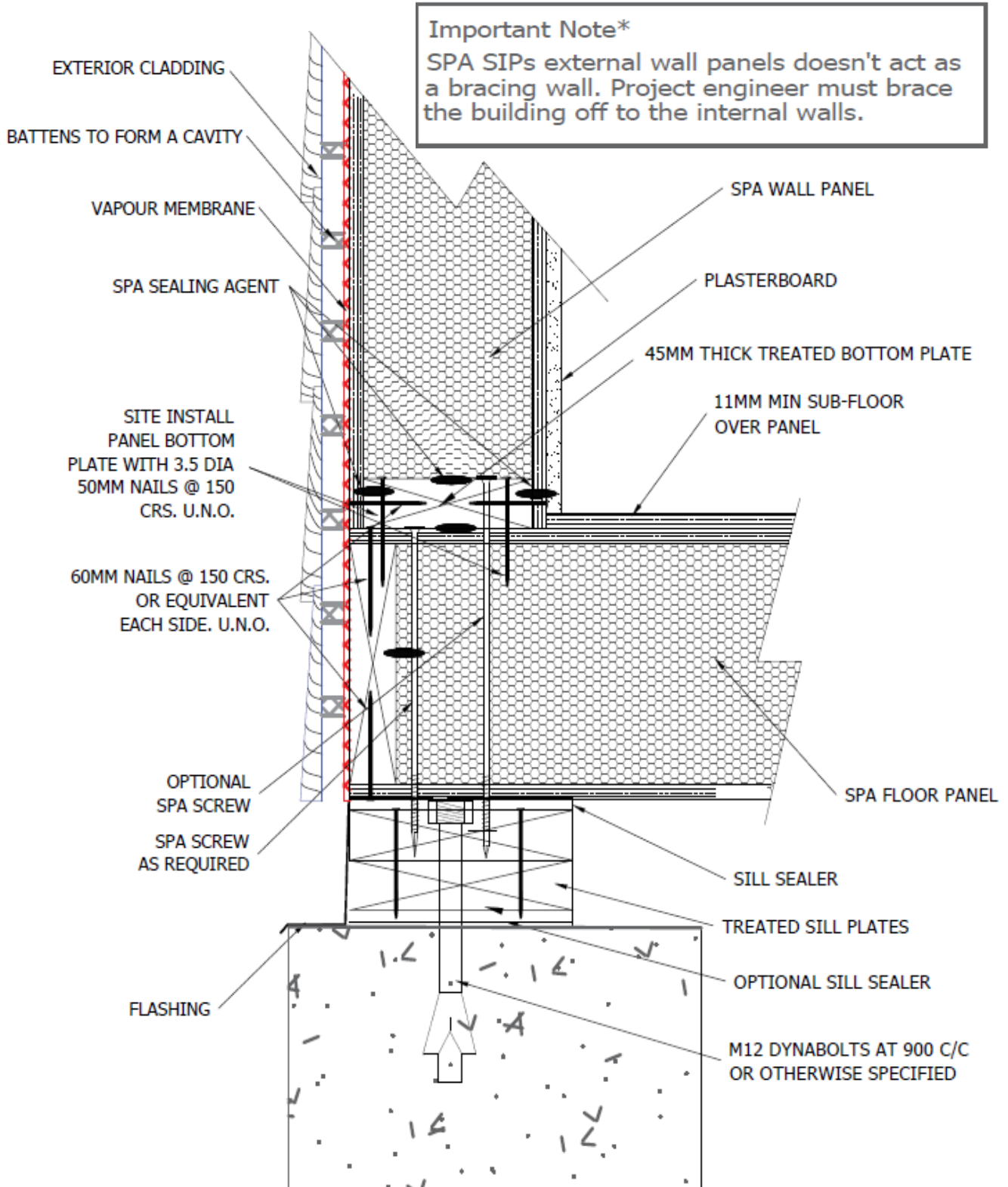




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## Typical Wall Framing & Floor Framing Detail 2

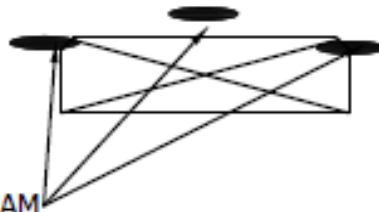
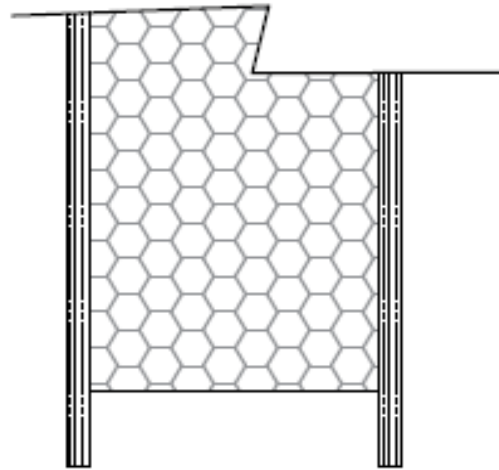




# STRUCTURAL PANELS AUSTRALIA PTY LTD

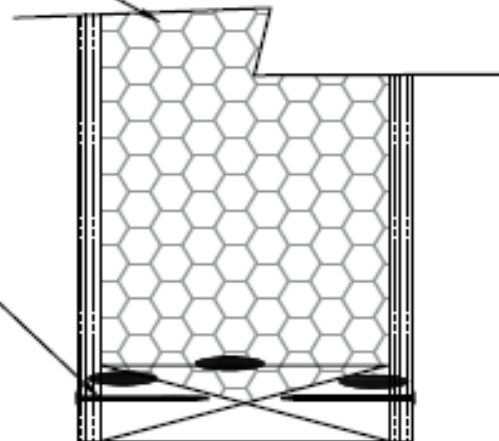
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## SPA SIPS WALL BOTTOM PLATE FIXING



EXPANDABLE FOAM

SPA SIPS WALL PANEL



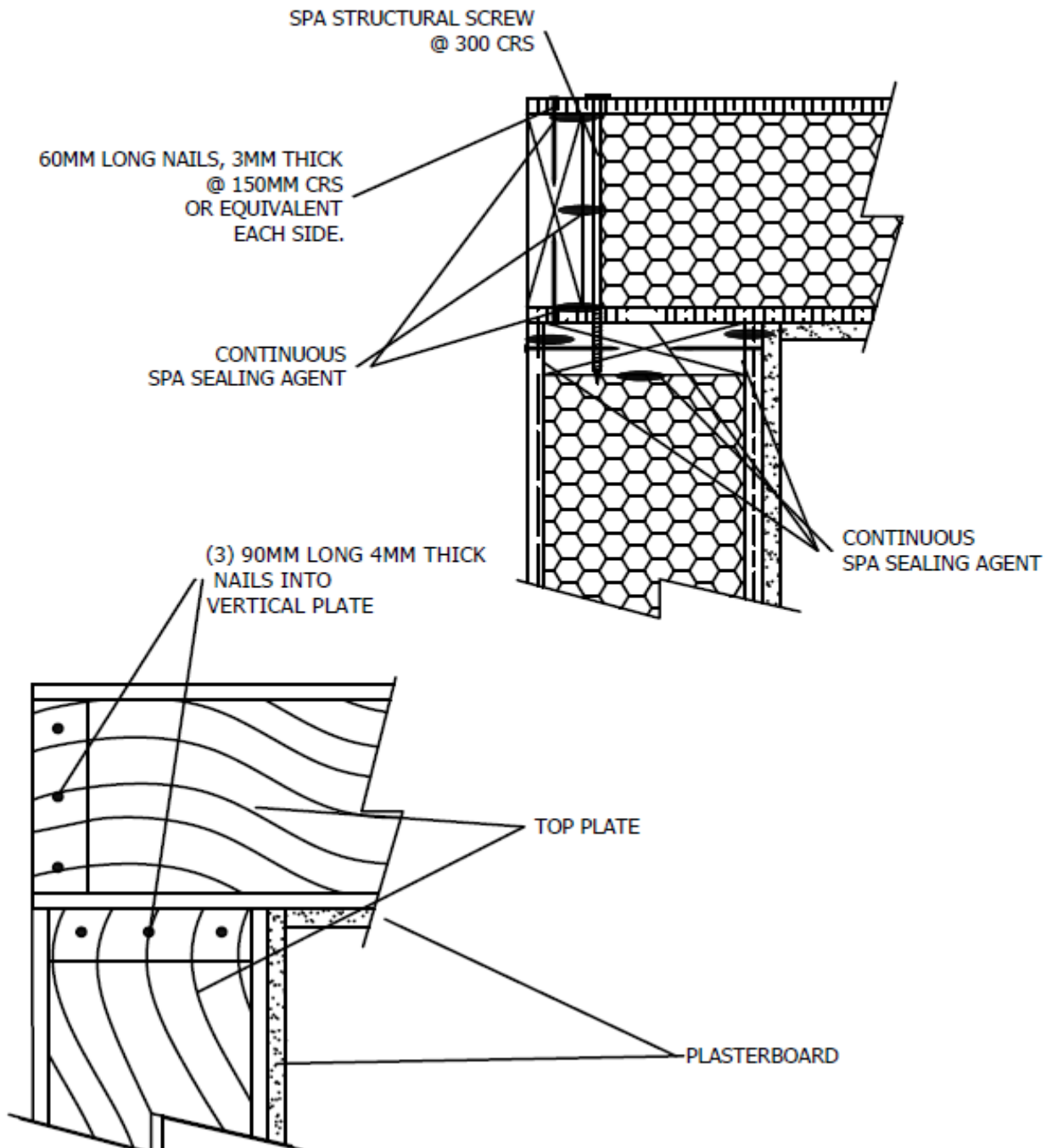
3.5D X 50MM NAILS @ 150 CRS OR  
EQUIVALENT EACH SIDE OR ABOVE



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## SPA SIPS WALL CORNER CONNECTION

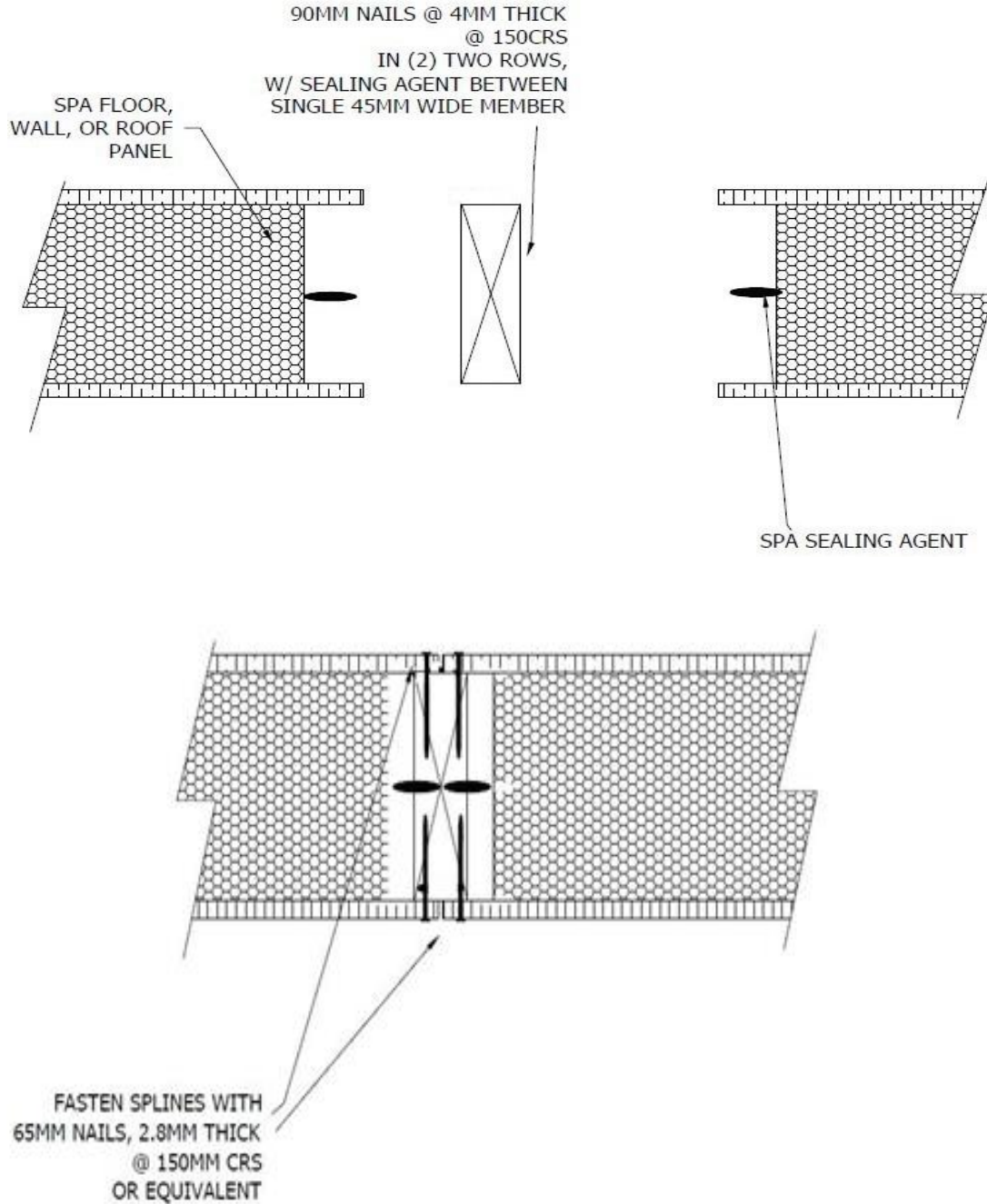




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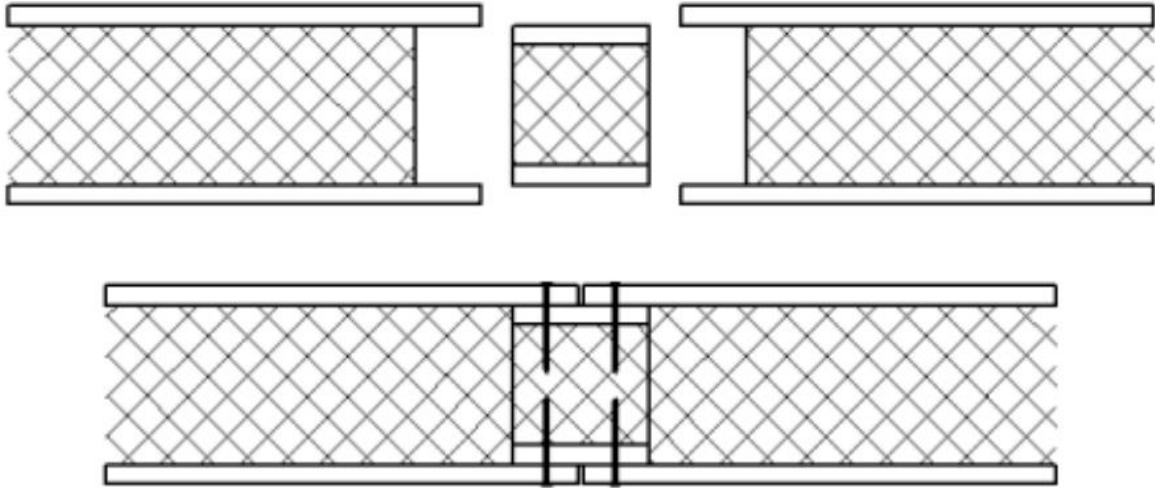
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## Panel to Panel Connection with Timber Splines

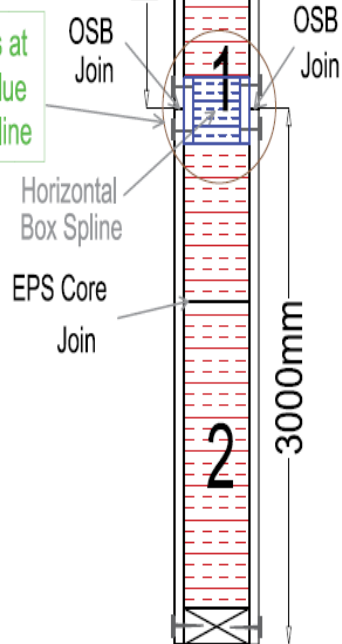




**Panel to Panel Connection with Box Splines**

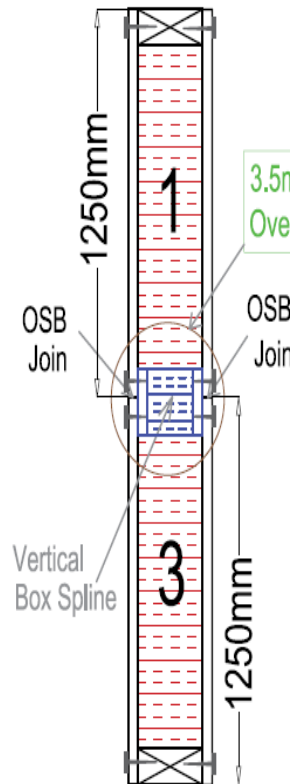


Size 10 Dia x 30mm screws at 150 C/C and construction glue Over 150mm (H) Box Spline



**Horizontal Connection**  
( SIPs Section Elevation View )

3.5mm DIA. x 50 nails at 150 C/C Over 90mm (W) Box Spline



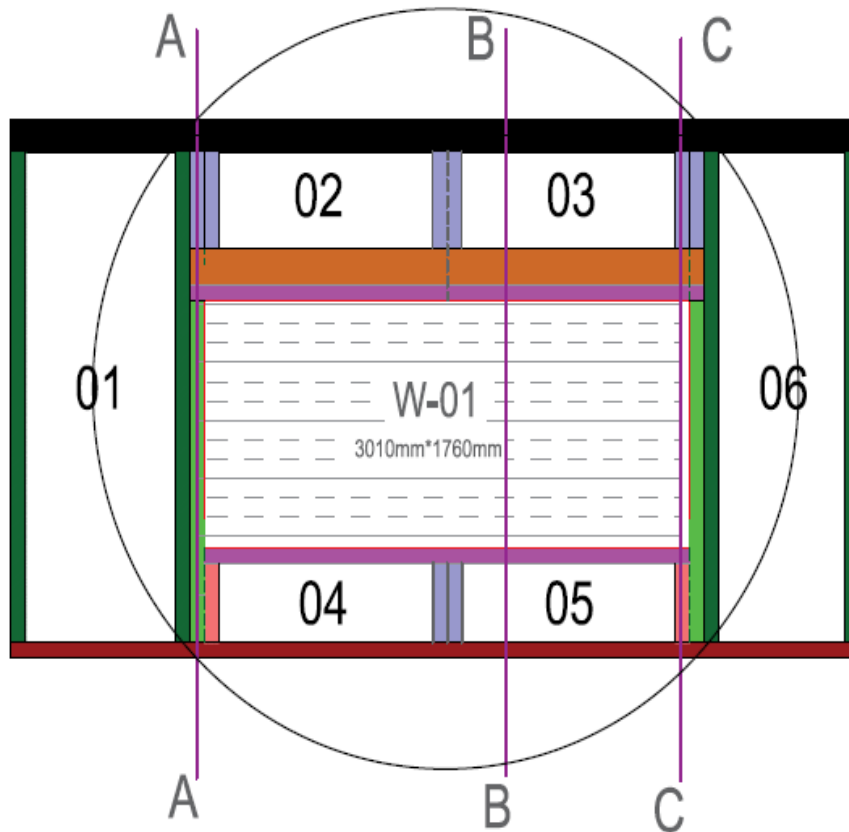
**Vertical Connection**  
( SIPs Section Plan View )





**Typical SPA SIPs 115mm Wall Panels & Lintel Connection Detail**

Legend:	
	Double 90mm * 45mm Timber MGP 10 Top plates
	90mm * 45mm Timber MGP 10 Bottom plate
	90mm * 45mm Timber MGP 10 Stud Support the Double Top Plates
	Double 90mm * 45mm Timber MGP 10 or OSB Spline
	90mm * 45mm Timber MGP 10 Stud Supports the Window Sill
	90mm * 45mm Timber MGP 10 Stud Supports Lintel Beam and the Window Head
	Lintel Beam as Specified by the Engineer

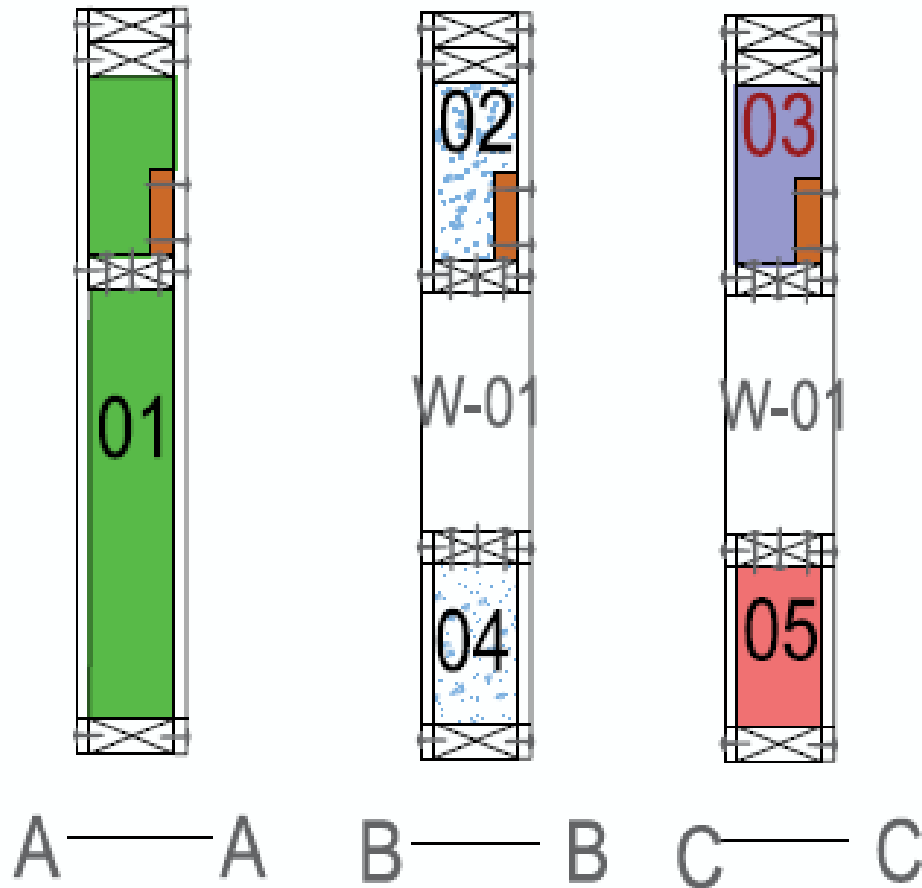


Note,  
Drawing not into scale.



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**Note.**

All the MGP10 should be nailed into the OSB & into Lintel beam as specified by the structural engineer using 2.9 \* 32 HDG coil nail @ 150mm C/C or equivalent.

