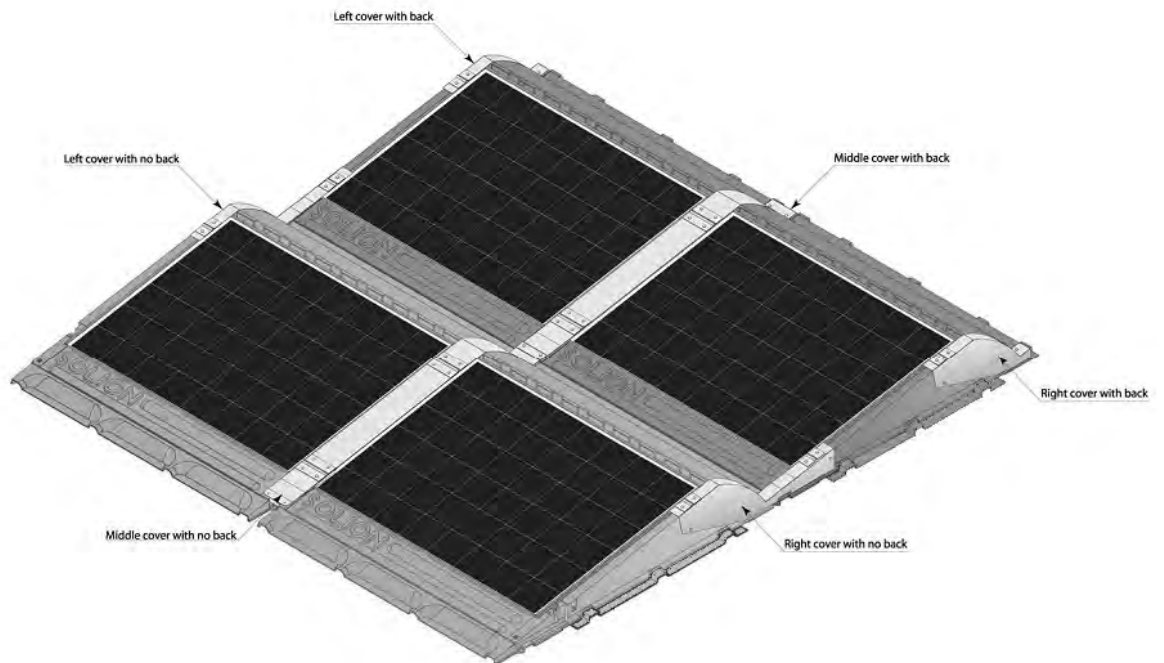


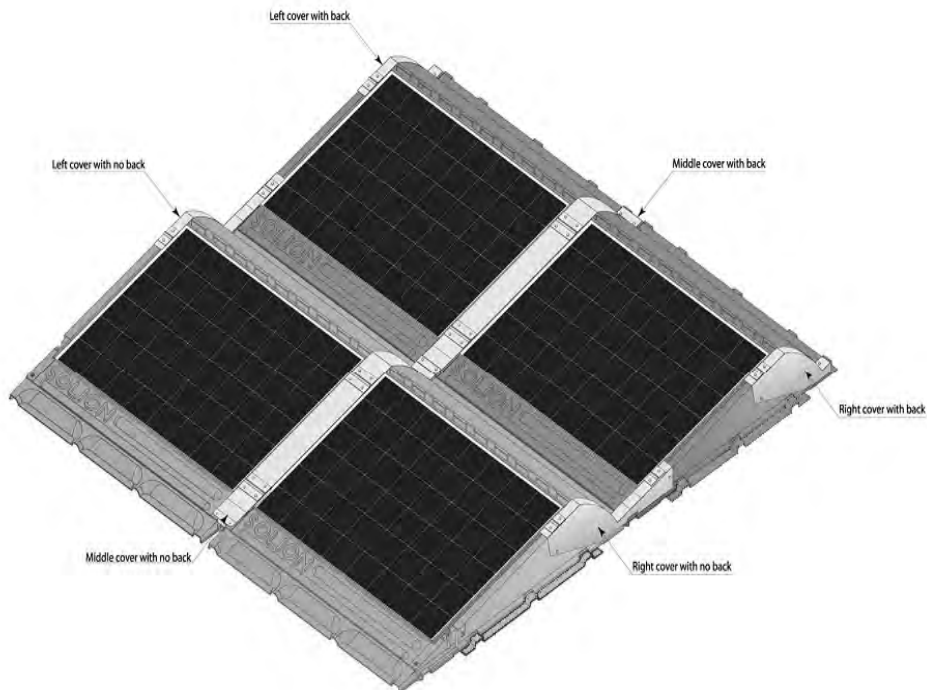
SunMount[®] Installation Manual

For use with use with PV Panels dimensions of
1318 x 990 x 46mm



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1- SunMount Variants and its interlocking methods

Figure 1, shows variant C with all the means features marked on the drawing. In order to interlock the SunMounts into an array of any shape, four variants of the SunMount are required, variant "A, B, C, D" as in Figure 2. The difference between the four Variants are; A has the RHS flange cut, B has the back & RHS flange cut, C has all of its flanges uncut and D has its back flange cut. These configurations allow complete interlock of these four variants in any array shape. Please refer to section 2 drawings which show how the variants interlock schematically. The variants B & D have their rear edges (flange) cut off, to allow the front end of one unit to go beneath and inside the rear edge of another unit. Figure 3 illustrates the last row in an array formed from variants A & C (red & blue colour respectively) interlocked with another row formed from variants B & D (yellow & green colour respectively). Additional interlock is achieved by the side flange of one SunMount being inserted underneath another SunMount as illustrated in figure 4. Figure 5, show the finished assembly of the SunMount MK3.1.

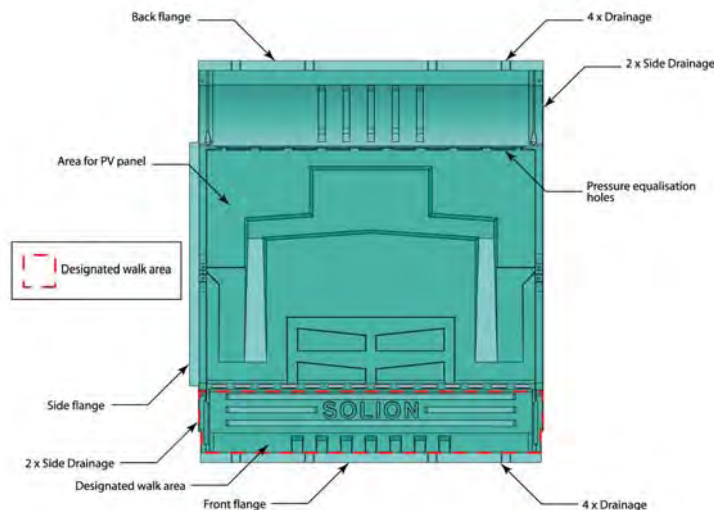


Figure 1: The main features of the SunMount Mark 3.1 design (variant C).

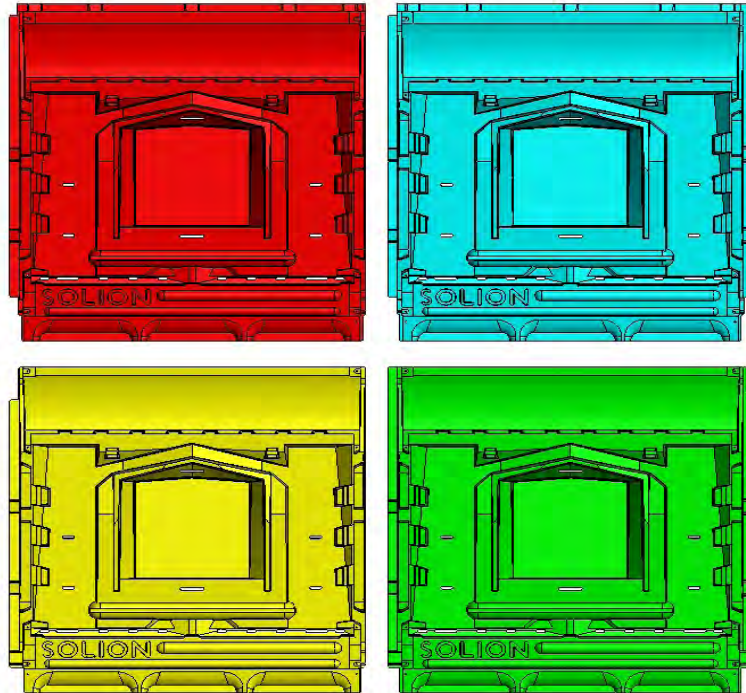


Figure 2: SunMount variants, A (red), B (Yellow), C (blue) and D (green).

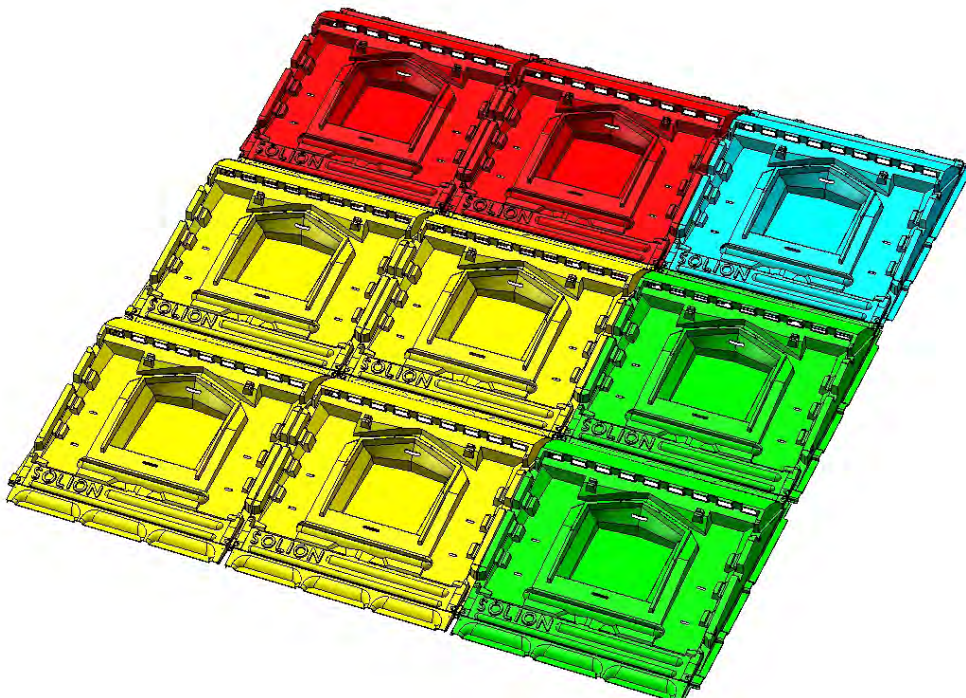


Figure 3: Variants interlock in 3 (rows) x 3 (column) array.

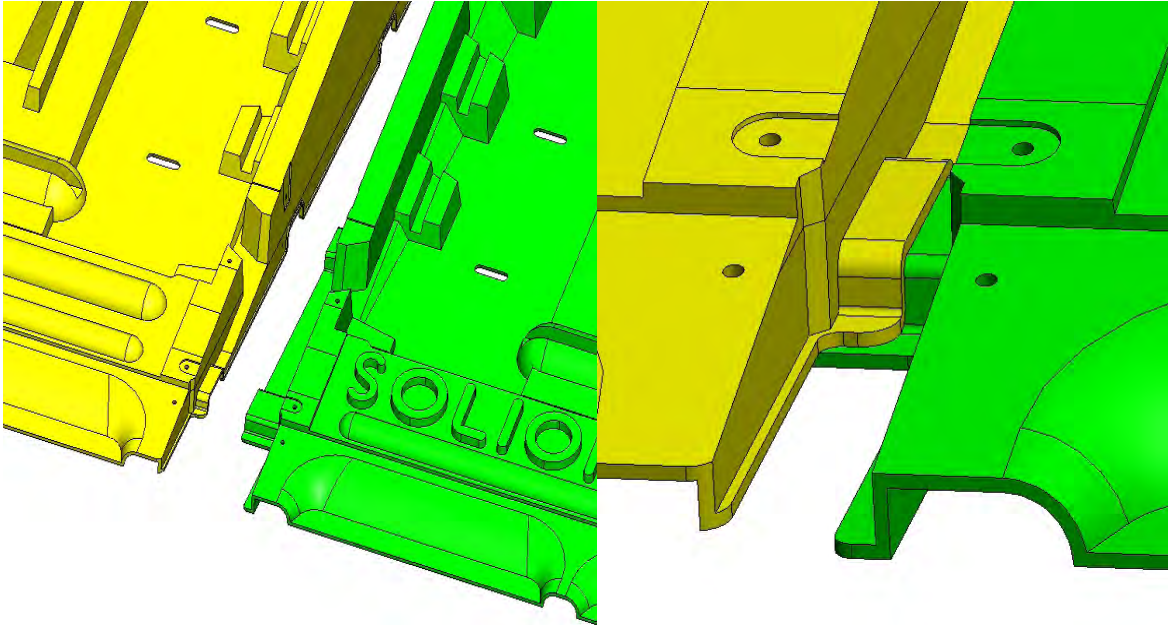


Figure 4: Side to side interlock method of the SunMount.

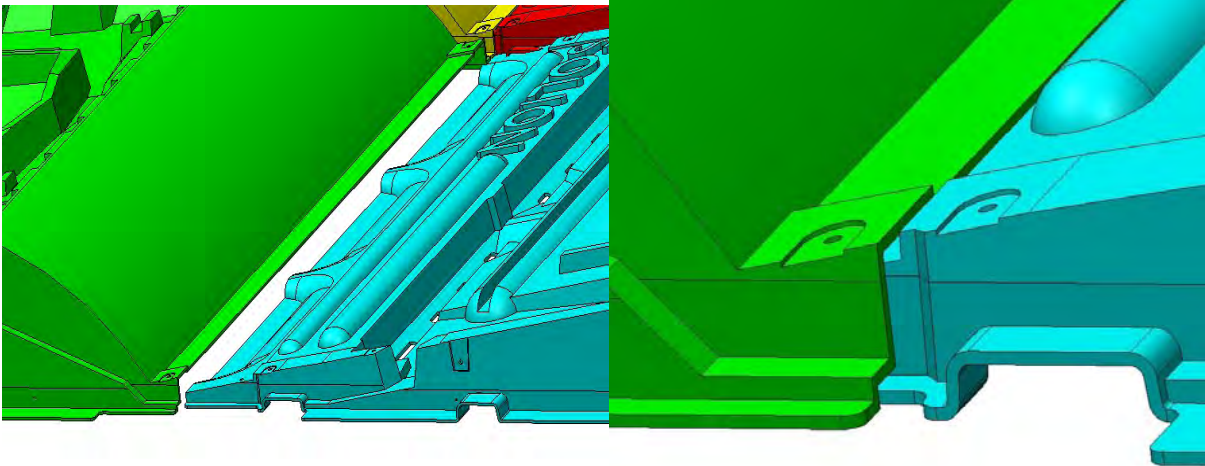


Figure 5: Front to back interlock method for the SunMount.

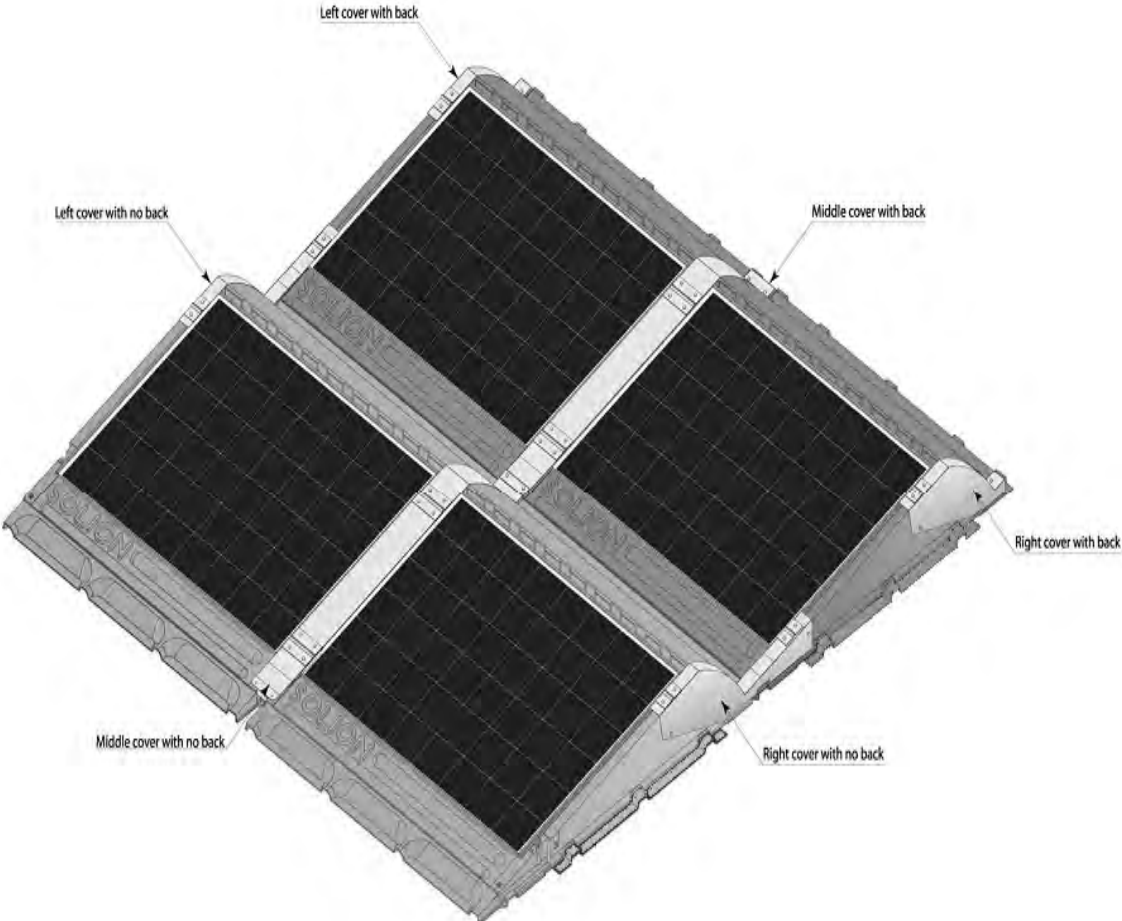


Figure 6: Finished assembly of the SunMount MK3 system.

2- Variants type replacement in an array

Based on the shape of the variants A, B, C and D there are two basic rules for the installation of any SunMount array:

- 1- Whether a row or column is being installed to make up an array, always start from **Right to Left**.
- 2- The back row of any array or a column will be always formed from variant A and one variant C in the right hand corner.

Figure 7, is a schematic which illustrates these two rules. There are four variants (cuts or trimming); the right hand side flange is cut (variant A), the back of the unit and its right hand flange is cut (variant B), the back flange (i.e. side) is cut (variant D) and uncut (variant C).

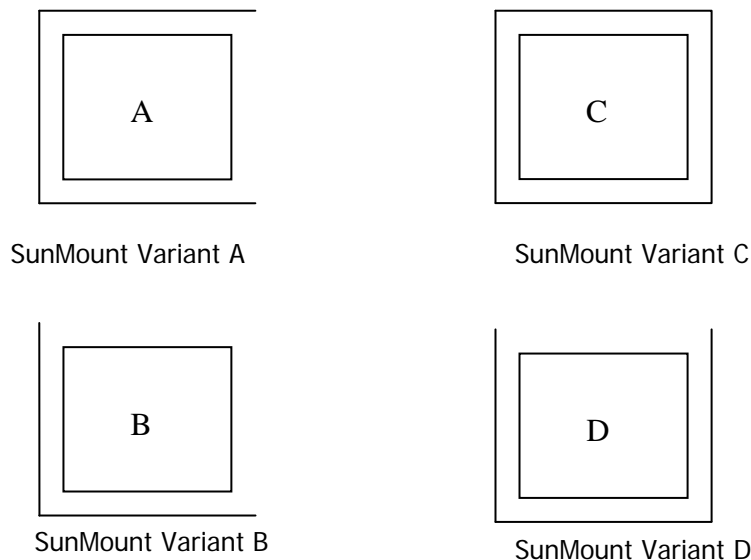


Figure 7: Schematic showing the four variants A, B, C and D and their usual position in an array.

For example, based on the figures above, the variants required to make an array of one row and four columns, are 3 SunMounts of variants A and 1 variant C as shown in figure 8

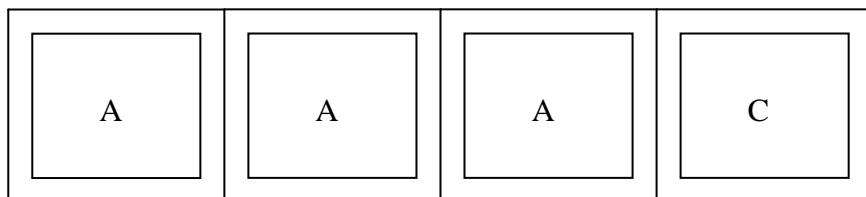


Figure 8: Schematic of two variants (A & C) to build one row of four columns.

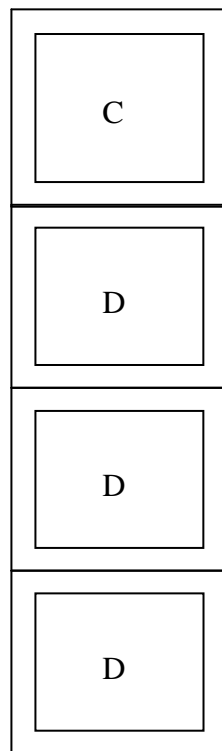


Figure 9: Schematic of two variants (C & D) to build one row of four columns.

Figure 9 shows the variants needed to build a column formation. The variant C always forms the RHS corner or an array or a back unit of a column and the rest of column is populated with variants D, which is usually forms the RHS column of an array with the variant C.

Please note, with the MK3.1, there is no need any more to rivet an edge. An edge will be integrated with the new variants C (always in array corner and variant D, always forming the right hand side column of an array).

If an array of 2 rows by 4 columns is required, then as before, start from right to left with one row of variant C and then variant A. Then insert a second row of variant D (at RHS) and complete the row with variants B as in figure 10 below.

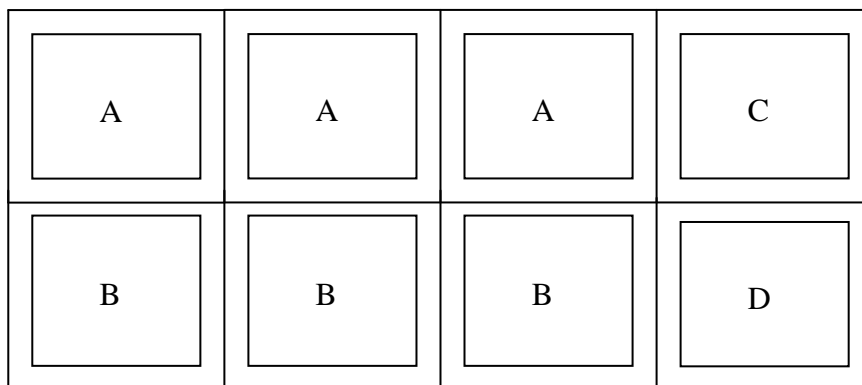


Figure 10: Schematic of 2 rows and 4 columns.

Hence, the basic rule of interlocking is that any fully flanged side of one SunMount can be interlocked only with a second SunMount side without a flange, providing that all outer edges of the array are always fully flanged.

Other examples are showing below for different array configurations

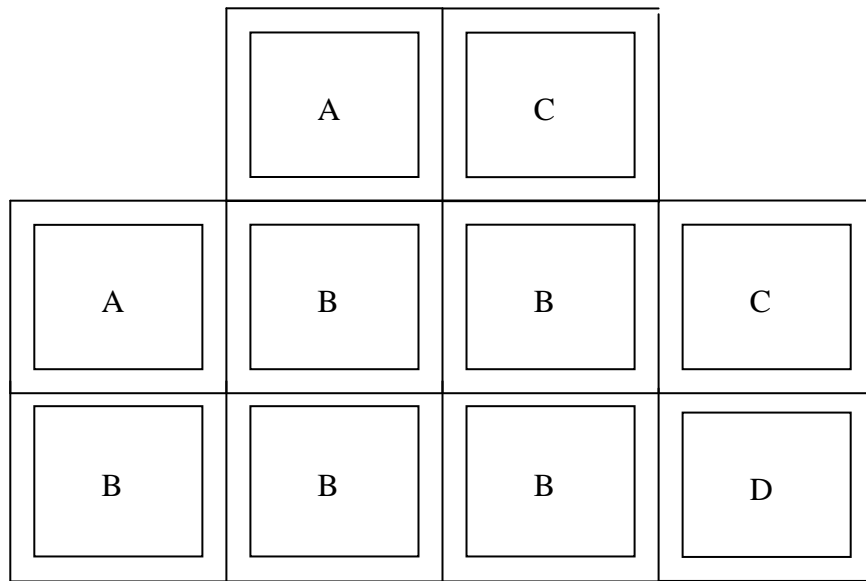


Figure 11: Type of SunMount variants arrangement for irregular shape array.

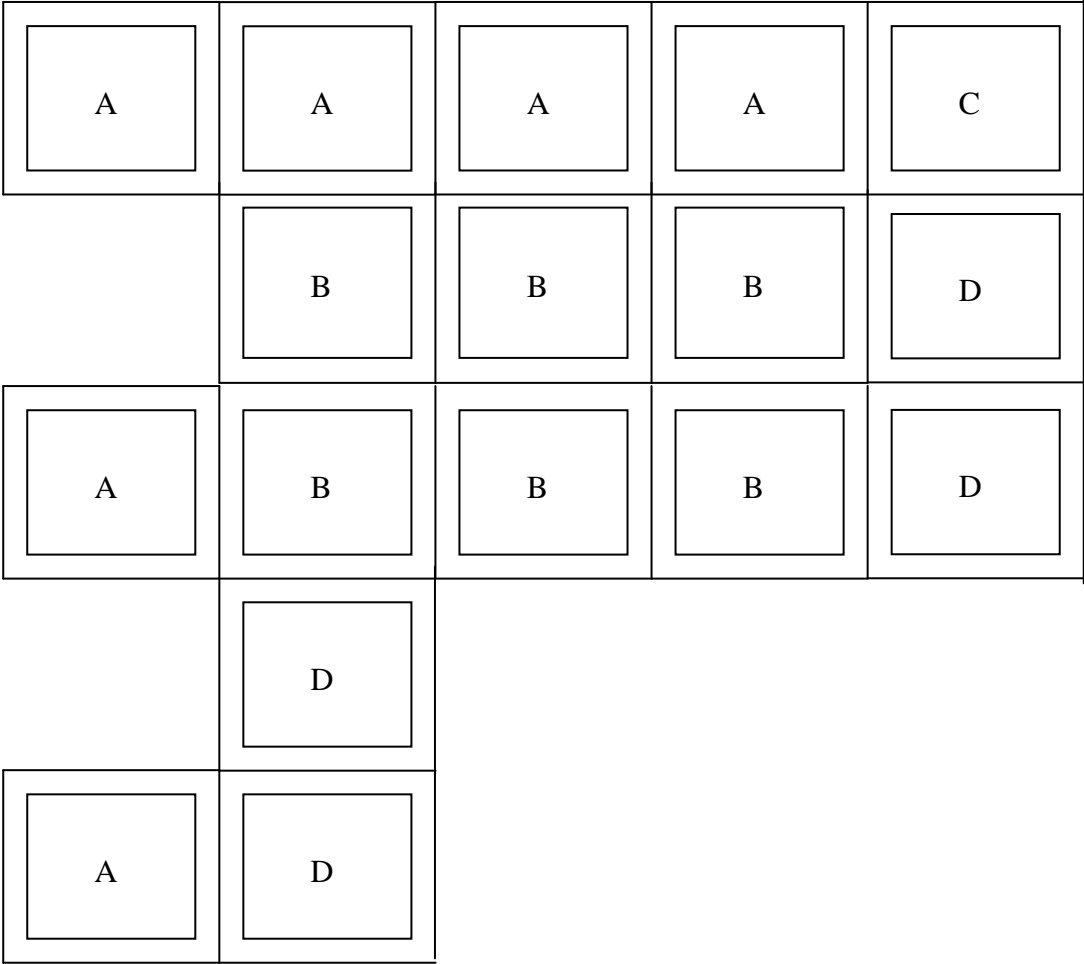


Figure 12: Type of SunMount variants arrangement for irregular shape array.

3- Sealants for most common types of roof materials

Once the SunMount array is installed, the outer edges of the array need to be sealed with Silicon sealant under the flanges to prevent high wind from getting underneath the SunMount.

As there are many types of roofing materials in the market, sealant compatibility with a roofing material will need to be checked.

One of the best sources to check for compatible sealant with your roofing materials are <http://www.geocel.co.uk>. The Geocel Company has also a technical department which could advise on the type of compatible sealants.

Listed below, some of the most common type of sealants/ roofing materials used. ***It should be emphasized that installers will still have to check for sealant compatibility before the installation:***

Dow Corning 791 Silicone weatherproofing sealant offers good adhesion to most porous and non-porous surfaces including masonry, tiles, Aluminium, PVC-U, Polyacrylate, polycarbonate, glass and glazed surfaces and many coated Aluminium panels.

This sealant however should not be used in direct contact with materials that bleed oils, plasticizers or solvents, such as BITUMEN or ASPHALT roof materials, for advice for these substrates please contact Geocel.

Priming of the substrates before applying sealant 791 (such as **Barrier Primer 84, Sold by Dow Corning under the name of Additive 84**) may be necessary for certain substrates and we would recommend calling the technical services department, at Geocel for further information.

The surface that the sealant is to be applied to should be cleaned and all contaminants such as grease, oil, dust, water, frost, surface dirt and old sealants should be thoroughly removed.

For other type of roofing materials such as

SarnaFil roofing materials: *Sarnablast 2239 or 2235 sealant*, please consult with SarnaFil (www.SarnaFil.com).

Bauder roofing material: PVC compatible sealant, please consult Bauder (www.bauder.com).

Alwitra roofing material: Dow Corning 791 Silicone (without primer) or Tremco Mono sealant from one the Alwitra agents.

4- Important Notes before starting the mechanical Installation:

4.1 - Applying primer (barrier layer) to the edges of the PV array

Please Note: This procedure is to be followed only in the case that the roofing material requires a primer barrier before the application of the sealant

1. Make sure that the roof surface is clean and free from dirt and water.
2. Mark the outer edge boundaries of the PV array configuration, by drawing a line with a marker pen. One of the easiest and quickest ways is by placing the SunMounts to make the outer edge boundaries of the array.
3. Prepare your primer (additive 84) by mixing the two liquid components. Apply the primer to the surface with a wide painting brush over the marked boundary line (make sure that the primer cover 50-60mm on each side of the line).
4. Leave the primer to dry for at least an hour before applying the sealant. Meanwhile you can place and interlock the SunMounts in the chosen configuration.



(1)



(2)



(2)



(2)



(3)



(3)



(3)



(3)



(4)

Before starting the mechanical installation, remove the polyethylene protective sheet from every SunMount to be installed.



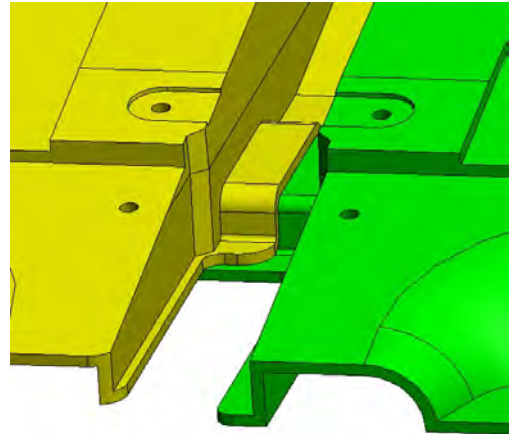
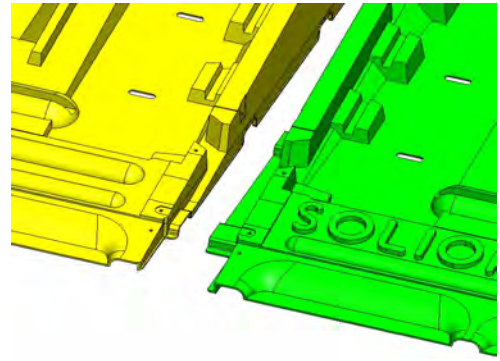
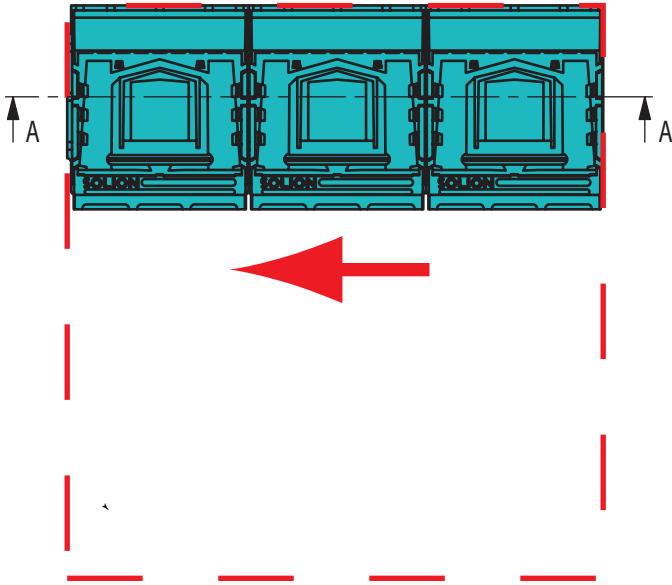
(5)

4.2 – Ballasting the SunMount

Before starting the installation please determine the amount of ballast required for your particular installation, ***Please refer to the SunMount wind loading manual.***

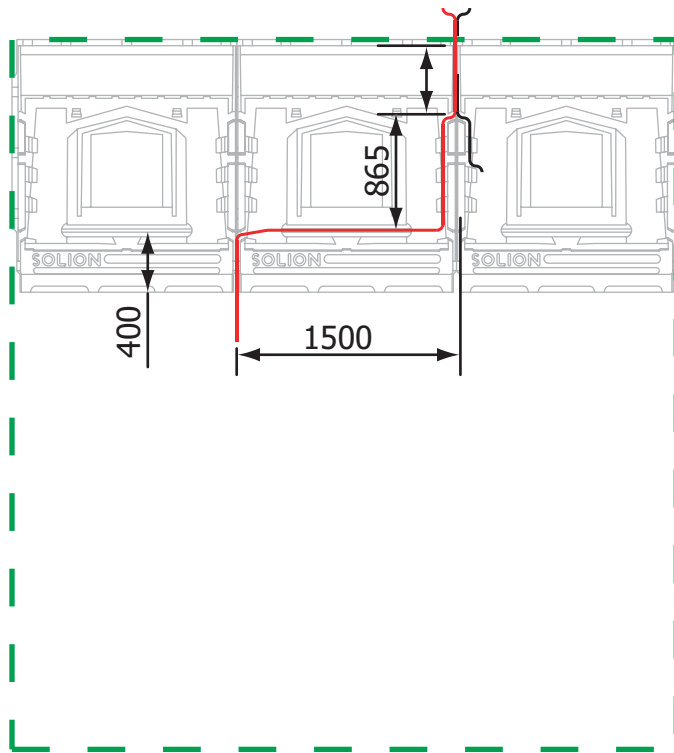
- A- If your installation requires a ballast to be placed on the outside flange of the SunMount, then apply the ballast after the final step of the installation (i.e. after the sealant application under the flanges). Please see the last steps of the mechanical installation below.
- B- If a ballast to be placed in the SunMount's recess under the panel, then this step should be carried out before placing the PV panels in the SunMounts.

step 01



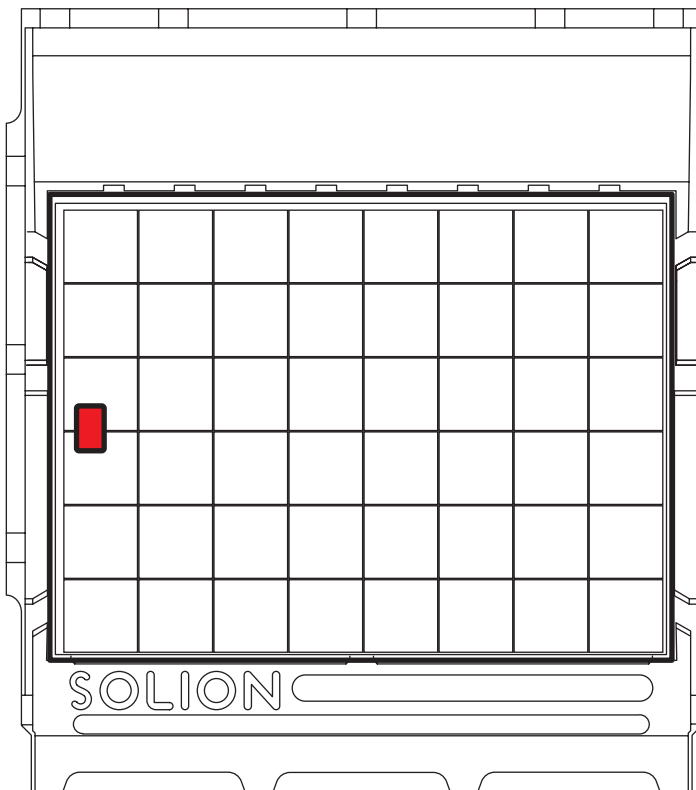
Starting from the top right hand side of the array, lay the SunMount Variants on the roof. This should always be carried out from **right to left** to ensure the SunMount's will interlock side to side and pack as close as possible.

step 02



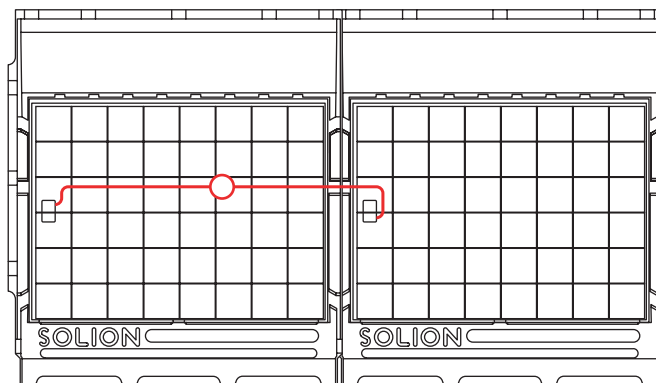
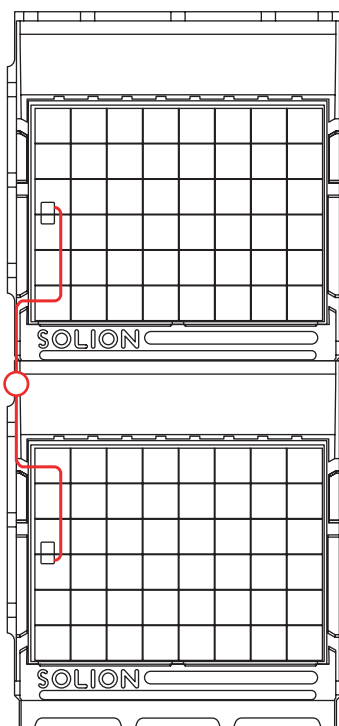
~~Preparation of a wiring diagram~~ before the installation is recommended, this is to help the installer lay the shortest string cable routes. Use the cable guides to lay the string cables horizontally or vertically as highlighted above.

step 03



When installing the PV panel make sure the junction box is always on the left hand side of the SunMount. This ensures the PV panels cable connect to either side or rear to front without the need for extra cabling.

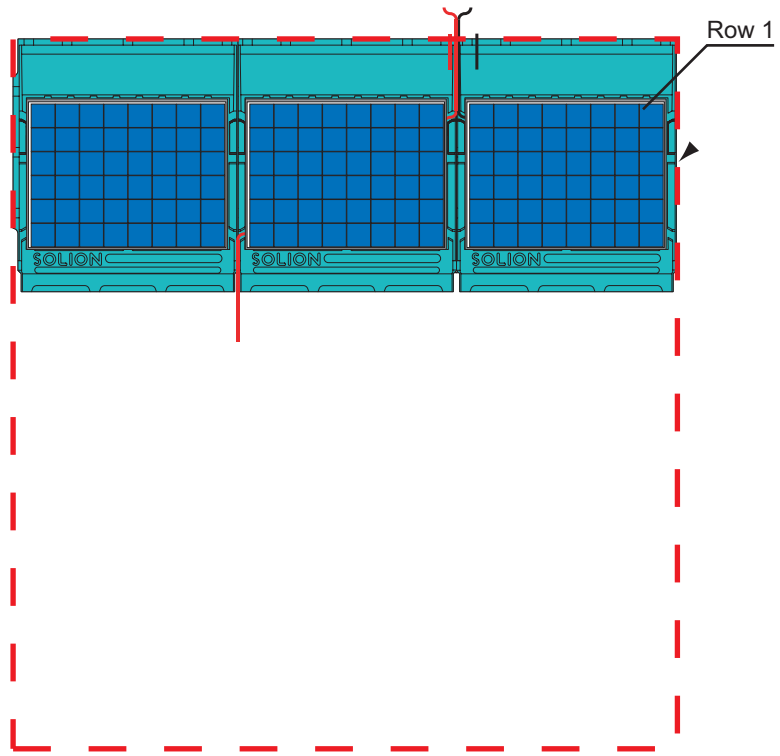
step 04



 = Connection position of connectors

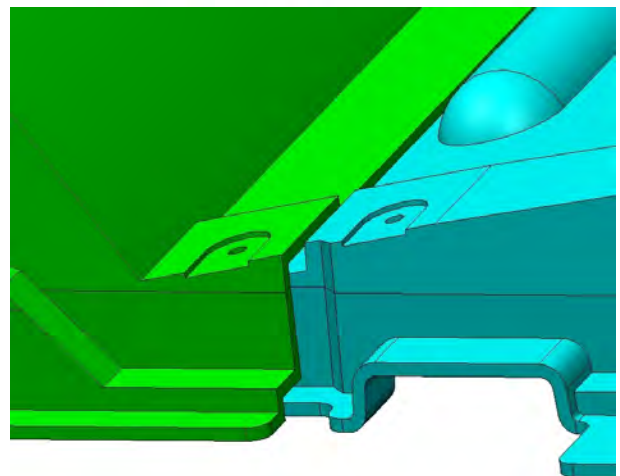
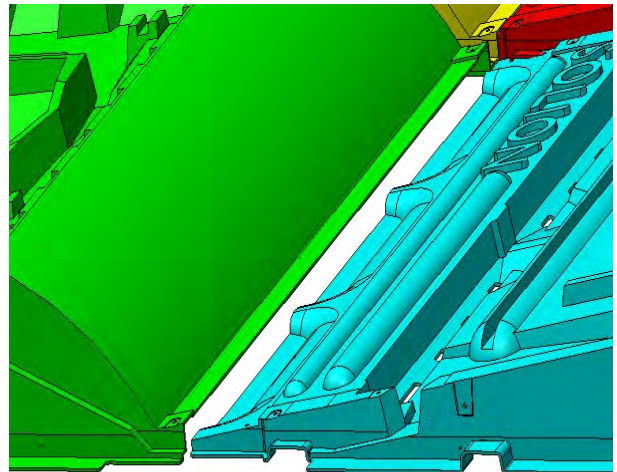
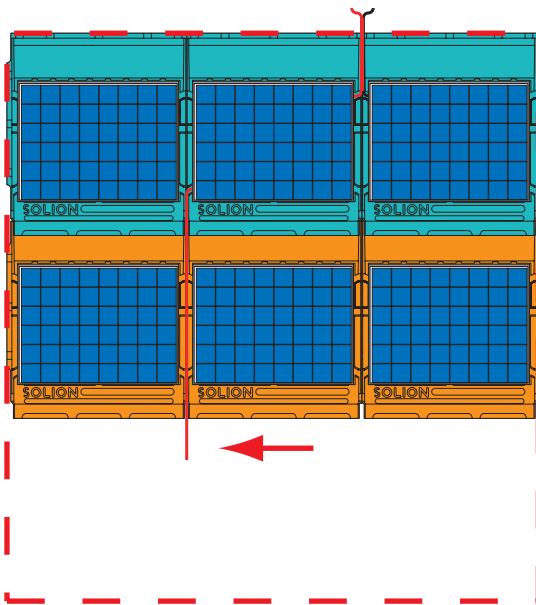
Use the cable guides for connecting rear to front and side to side. The above diagrams also show the shortest routes for connecting side to side and front to back.

step 05



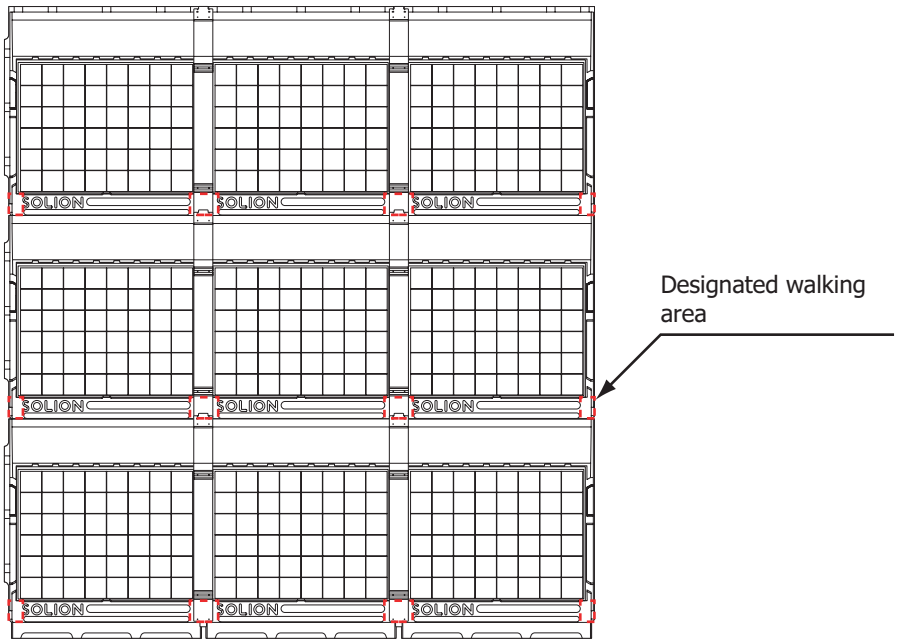
Check the string cables are installed as in Step 03. Fill Row 1 with PV panels and connect as in Step 04.

step 06

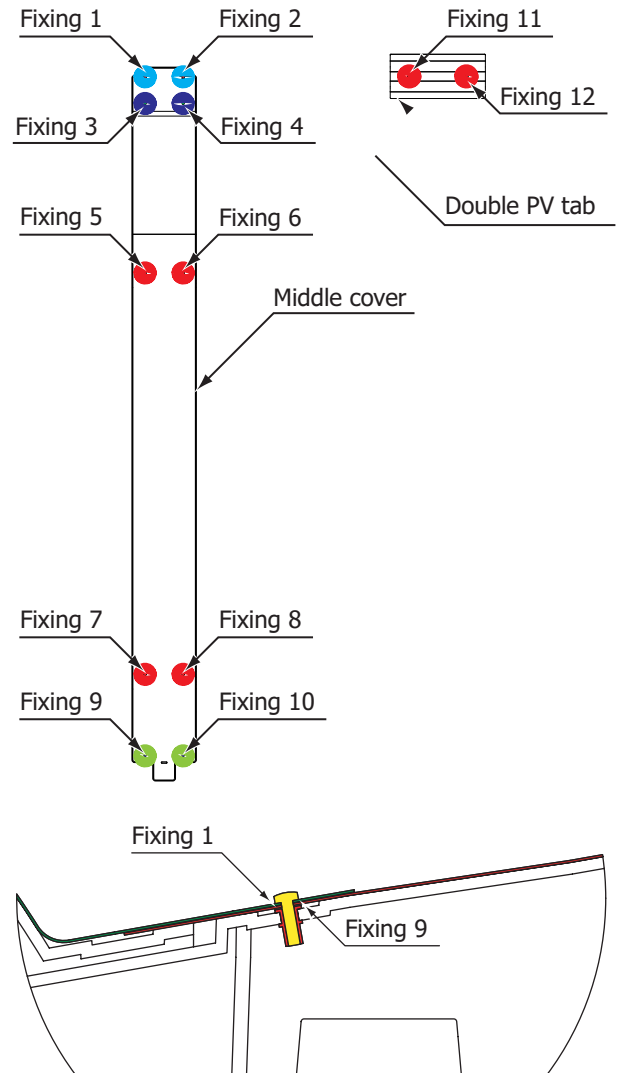
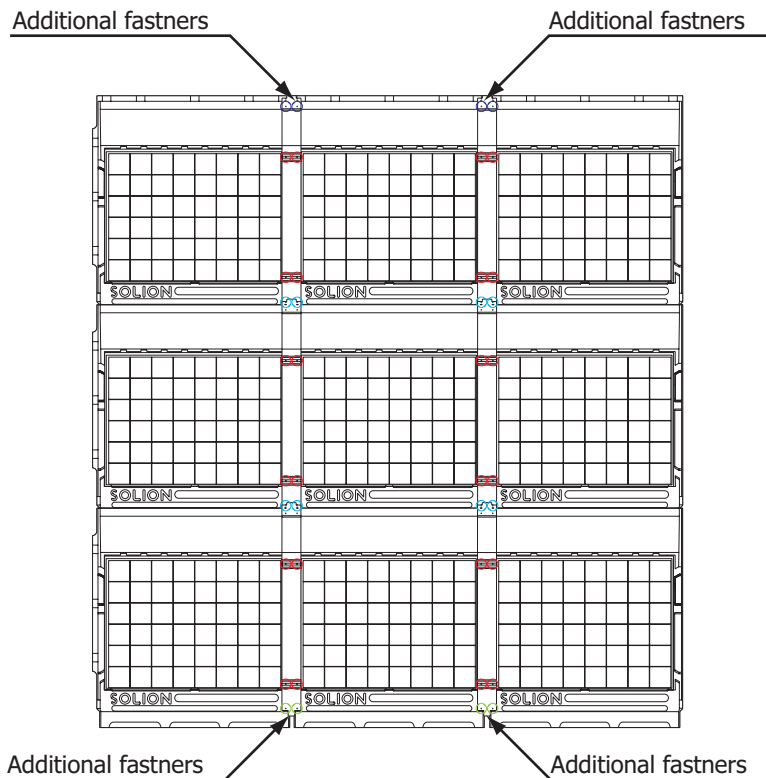


Repeat **Step 01** for the second row using variants Bs. First attach the side flange, as in **Step 01**. As with the first row, the SunMounts should always be installed from left to right, ensuring the variants are interlocked side to side. The rear flange of variant B should over lay the frontal nose of the SunMounts in the previous row. See **Step 06** for recommended walking area.

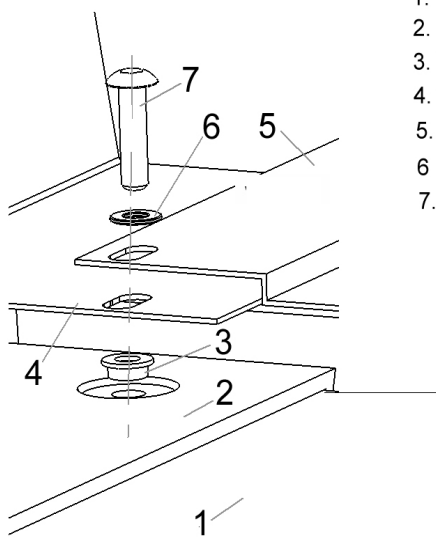
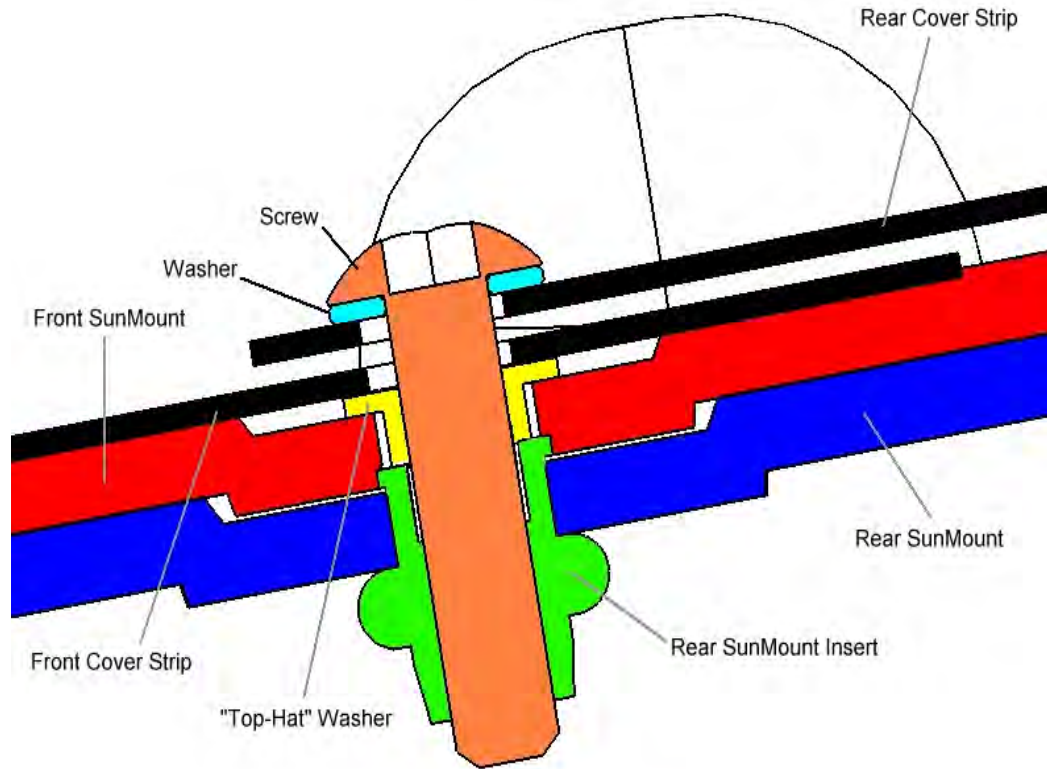
step 06



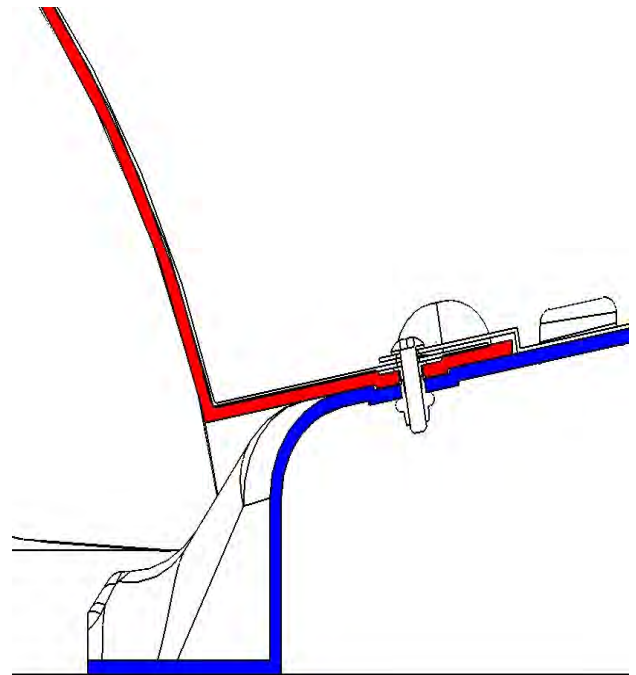
step 07



Place the Middle Covers in-between all the SunMounts on row 1 & 2. Starting with row 1, align 2 Double PV Tabs on top of the Middle Cover as the colours show above. Using the fixtures provided, screw through holes 11 & 5, 12 & 6, 11 & 7 and 12 & 8 into the SunMounts inserts. **Repeat Steps 01-07 until the array is complete.** Row 1 (rear) requires two additional fasteners in holes 3 & 4. Row 3 (front row) also requires two additional fasteners in holes 9 & 10.



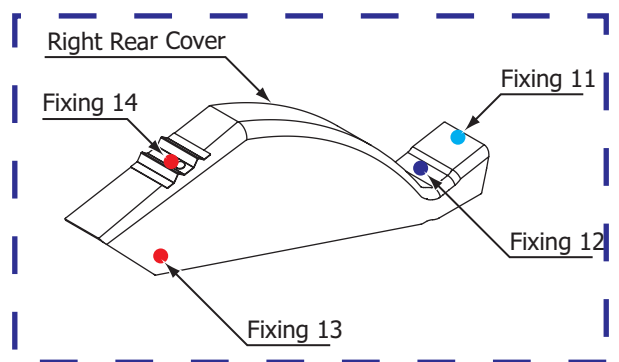
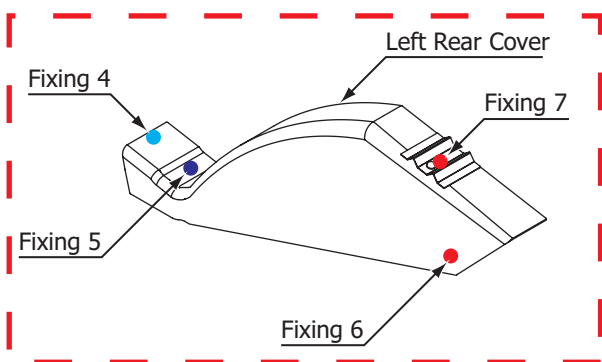
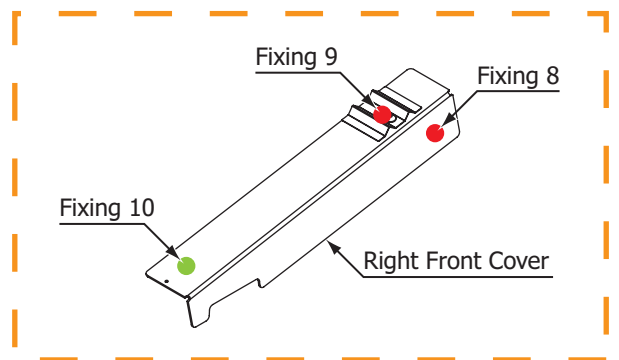
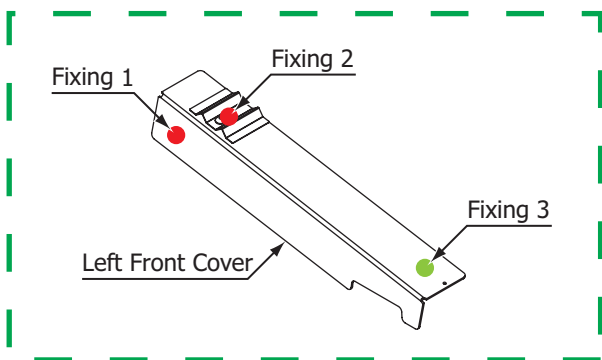
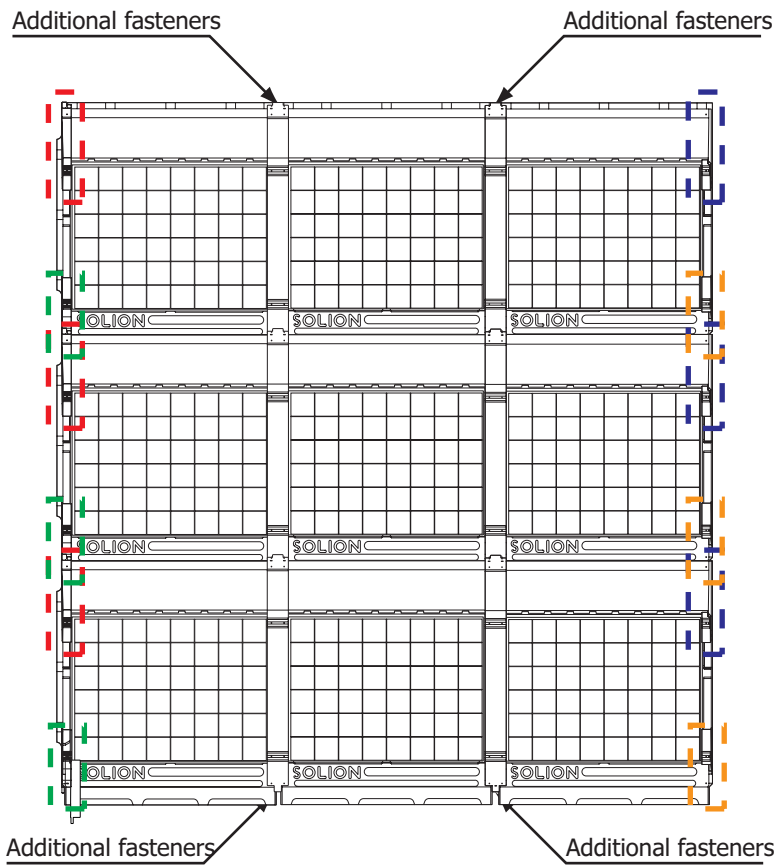
1. Rear SunMount
2. Front SunMount
3. Top Hat washer
4. Front Cover Strip
5. Rear Cover Strip
6. washer
7. Screw



Fixing 1 & 9 for column interlock

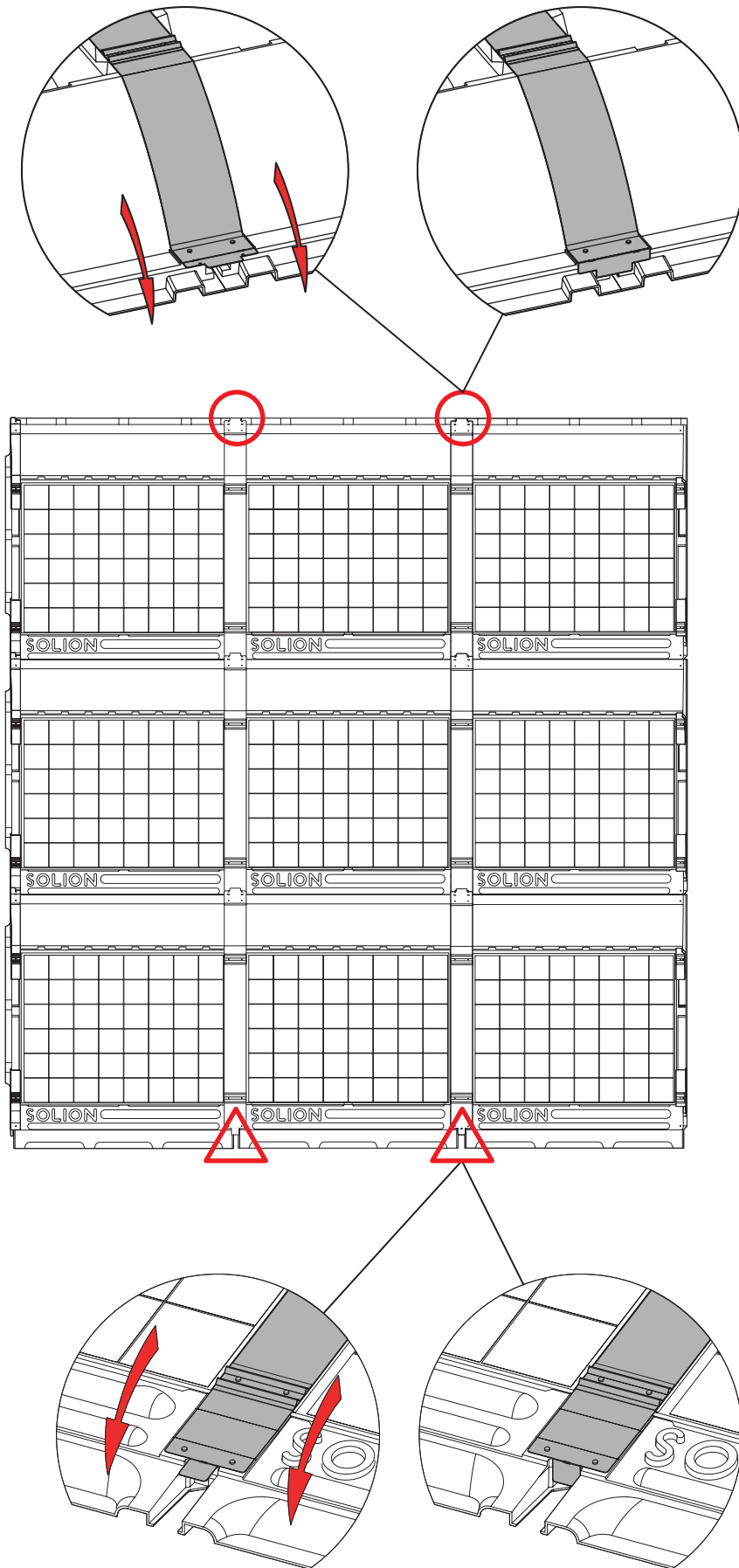
Column interlock is achieved by connecting rear & front SunMounts using metal strips, top hat washer and M4 Washer & screw.

step 08



Locate the Left Front Covers as shown above and fasten to the SunMount using holes 1 & 2. Place the Left Rear Cover on Row 1 (rear) and fasten using holes 5, 6 & 7. For the following rows repeat this process for the Left Rear Cover but using fixing holes 4, 6 & 7. The fixture going into hole 4 should also go through hole 3 of the Left Front Cover and into the SunMount. The same process is repeated for the right side covers but substituting fixing holes 8 & 9 for 1 & 2 in the front covers and 11, 12, 13 & 14 for 4, 5, 6 & 7 in the rear covers.

step 09



Fold all the middle covers by hand using the mouldings edge as a form the fold around.

Mechanical installation complete

Once the mechanical installation is complete, apply the sealant under the flanges and around the outer edges of the SunMount array.



The installation of the SunMount is now complete. It is estimated from our experience that 3 people can install a 10 – 20 kWp array per day.

SunMount Specification Data Sheet

SunMount Variants Dimensions:

	<u>Length (mm)</u>	<u>Width (mm)</u>
Type A	1468	1657
Type B	1468	1602
Type C	1506	1657
Type D	1506	1602

Ballast Area recess Dimensions: 470mm x 470 mm x 100mm

Average SunMount Area: 2.44 m²

Maximum Height of SunMount: 258mm

SunMount Weight:

Average SunMount Weight: 10.18 kg

Average metal middle strip weight: 1.28 kg

Average plastic side strip weight: 0.085 kg

Roof loading with PV module: 11.26 kg/m²

SunMount material: Recycled acrylic ABS capped with UV stabiliser.

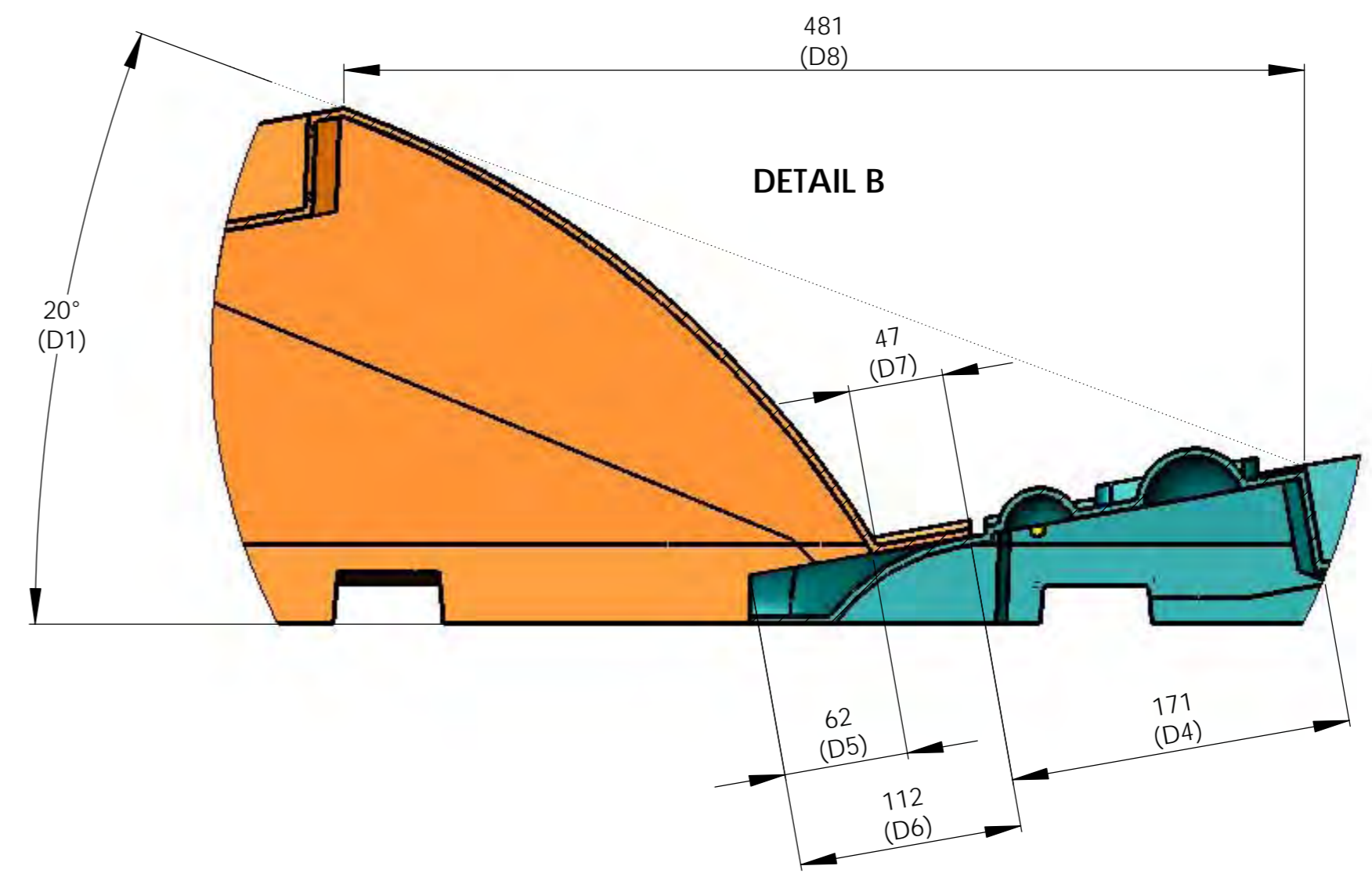
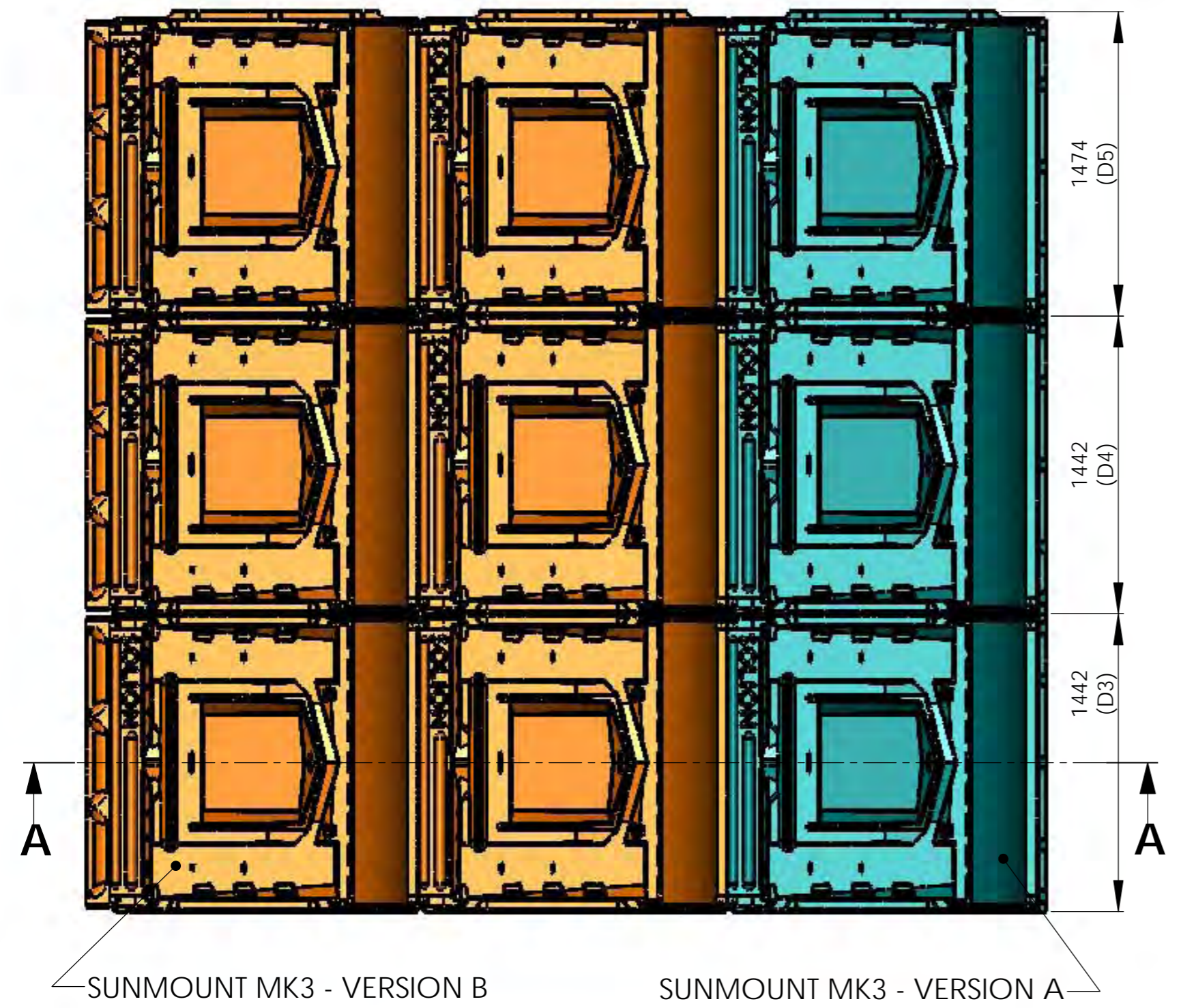
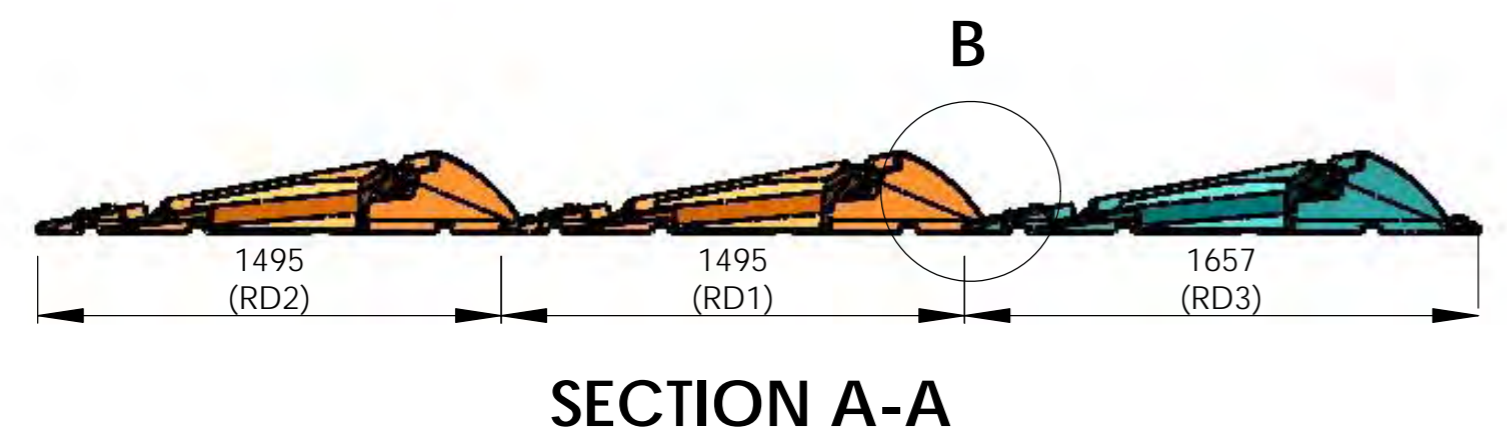
Product life: Durable for at least 20 years

Wind Uplift Resistance: One unit it can withstand a wind of up to 112 mph, this increases as interlocking is achieved.

Tilt Angle: Tilted at 10^o degrees angle for optimum performance of power generation and area exploitation for the European climate.

Installation Method: Interlocking of the different variants which ensure a complete solar array in one assembled block, without the need for penetrating the roof. Sealant is only used at the outer edges of the array. Ballast can be placed in recesses only for high wind locations.

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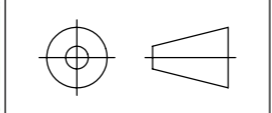


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DRG No: 03.SNMT.NM.06.002	PRT No: -	Project Title SUNMOUNT MK3	MK3 PITCH LAYOUT SHEET DES: OVERVIEW
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SHEET 1
OF 1
SCALE N/A



GENERAL TOL: N/A	DRWN BY	DATE	REV	ECO No:	CHECK BY	DATE
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