

Architectural Facade Systems
CEME Division

Dri-Design

Assembly guideline with substructure





Skyway public library

Seattle, Washington, USA

Product
Dri-Design Flat

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Dri-Design: Introduction to the system

Dri-Design is an aluminium cassette based system dedicated for buildings with minimal as well as sophisticated facade design. The system combines quick and simple installation with durability and high technical performance. Thanks to different cassette shapes available (Flat, Shadow, Tapered) a 3D facade can be achieved. All Dri-Design cassettes are A2-s1, d0, EN 13501-1 compliant.

System Highlights:

- High quality aesthetic options - very wide range of colours, finishes, sizes and cassette shapes.
- No sealants or gaskets.
- Minimum number of components - fixing points located only along the top edge of the cassettes.
- Significantly faster installation compared to similar façade systems.
- Low cost of façade maintenance and upkeep.
- Dri-Design cassettes can be installed to the Karrier panel (as a direct fix or via aluminium Omega or Z profiles) or to the substructure (as part of ventilated facade).



Cassettes technical specs:

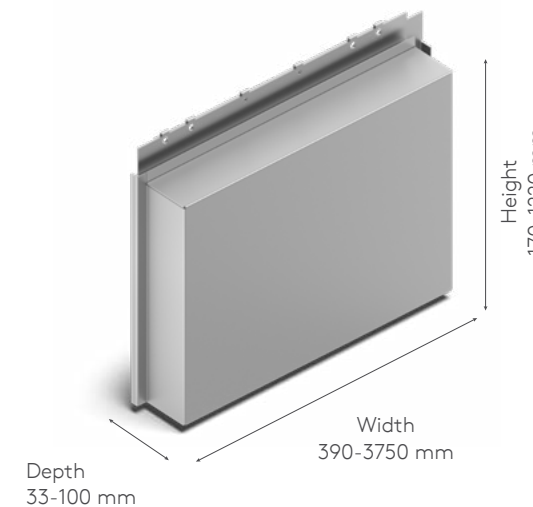
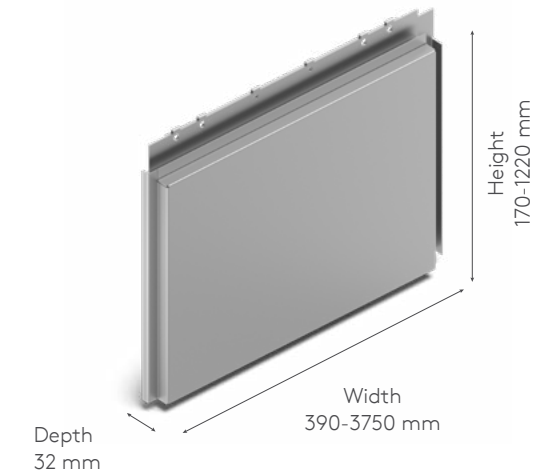
- Minimal / maximal face width: 390 – 3750 mm
- Minimal / maximal face height: 170 – 1220 mm (face width to be determined from wind load)
- Depth of cassette: 32 – 100 mm according to the type of cassette
- Aluminium thickness: 2 mm
- Width of vertical joint: 16 mm
- Width of horizontal joint: 14 mm
- Finish types: polyester powder coated (PPC), anodised, mill

Cassette types

Dri-Design cassettes are available in different variants:

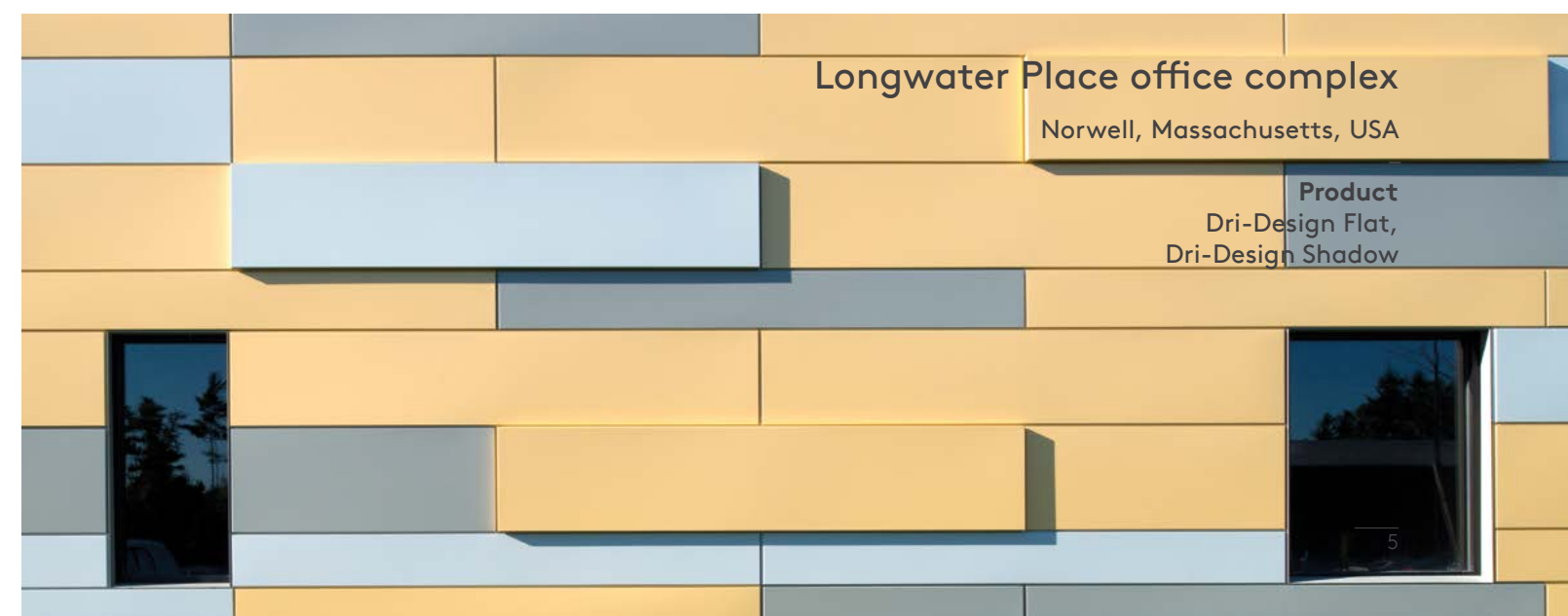
Dri-Design Flat:

- Dri-Design Flat can be easily interchanged with the other Dri-Design cassettes, Shadow and Tapered.
- Dri-Design Flat cassettes can be also perforated.



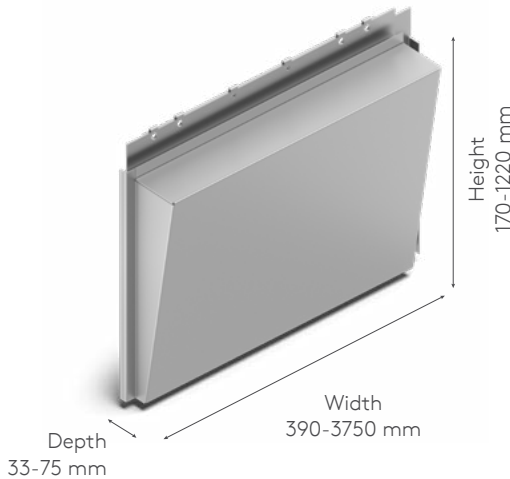
Dri-Design Shadow:

- Dri-Design Shadow cassettes allow you to add depth and character to any architectural design.
- Each cassettes can be designed with varying depth to the face of the façade, creating rich textures or dynamic patterns on the building facade.
- Dri-Design Shadow cassettes can be also perforated.



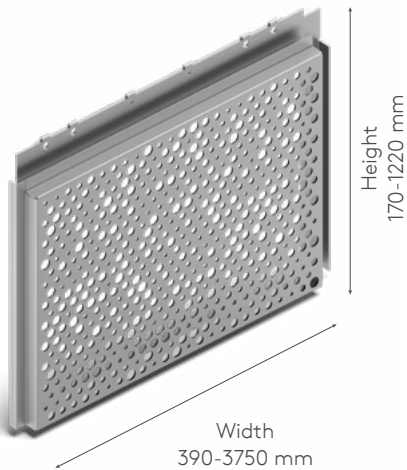
Dri-Design Tapered:

- Dri-Design Tapered cassettes can be made with different slope angles depending on the depth of the cassettes.
- Freedom to design each specific cassette gives you an unlimited capacity to create a dynamic, one-of-a-kind surface on nearly any facade, without the need to modify the substrate or weather barrier.
- Dri-Design Tapered cassettes can be also perforated.



Dri-Design Perforated:

- By varying the size, density and position of the perforations, Dri-Design Perforated cassettes allow for free play of light and shadow and allow any drawings or images to be reproduced on the façade.
- Perforations allow air circulation in places where it is required.
- Perforations in cassettes are available as an additional paid service. Can be added to Dri-Design Flat, Tapered or Shadow cassettes.



University of Arizona

Tuscon, Arizona, USA

Product
Dri-Design Perforated,
Dri-Design Flat

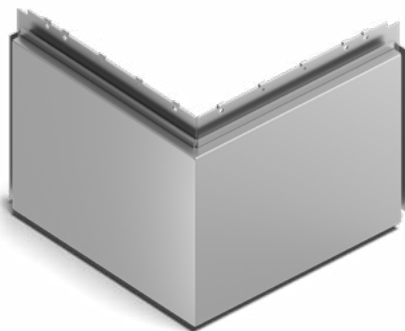


Cassette sizes

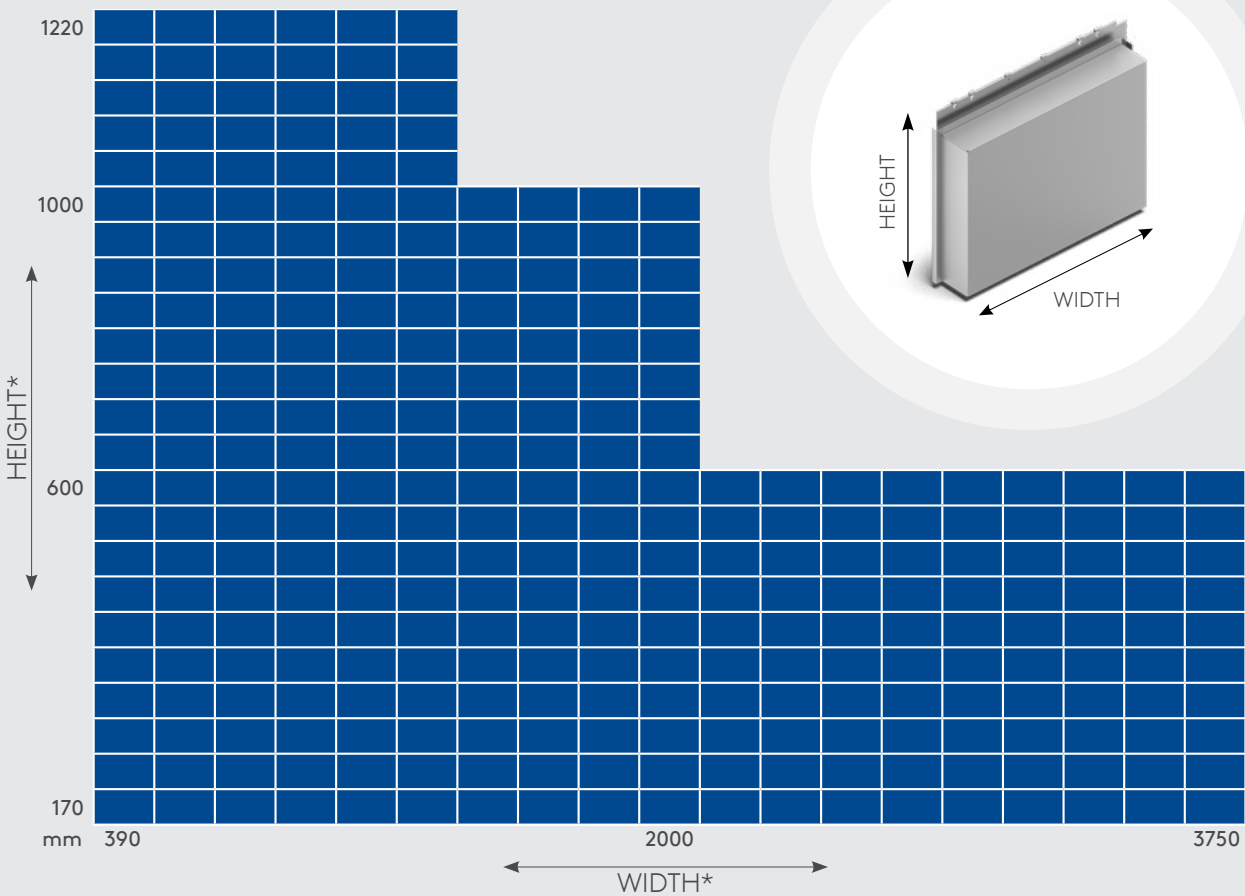
We offer external corners for every type of Dri-Design cassettes.

The dimensions of the cassettes must take into account the following requirements:

- Min. /max. angle: 35° –179°
- Max. height: 1220 mm
- Minimum leg in one direction: 80 mm
- Maximum leg in one direction: 500 mm
- Both legs combined cannot be less than: 390 mm
- Both legs combined cannot exceed than: 1000 mm



Dri-Design cassettes are available in the following sizes:



At Kingspan we research and test new Dri-Design cassettes sizes to expand the range of cassettes offered. For latest information about available sizes please visit [kingspan.com](https://www.kingspan.com) or contact our Technical support.

*Dri-Design cassettes can be made with an increments of 1 mm.



Residential building

Cincinnati, Ohio, USA

Product
Dri-Design Flat

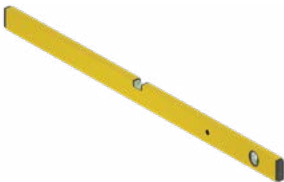


Assembly tools

It's strongly advised to use always heavy-duty, professional tools during the installation. There are several manufactures on the market. Please check the current situation and availability of the tools with your supplier. Detailing all the needed tools, measurement gage, etc. is impossible to list there. But basically, it needs to be considered the precision and performance individually for each job.

Levelling tools

It is commonly used during checking the sub-structure and cassette installation.



Spirit level



Laser

Cordless driller-screwdriver

A powerful screwdriver is needed at drilling through starting profile and substructure. Usage of 5 mm drill and 8 mm centralizing tool are highly recommended.



Cordless riveting machine with rivet standoff nosepiece

A high-performance riveting hand tool is needed at cassettes and starting profile installation.



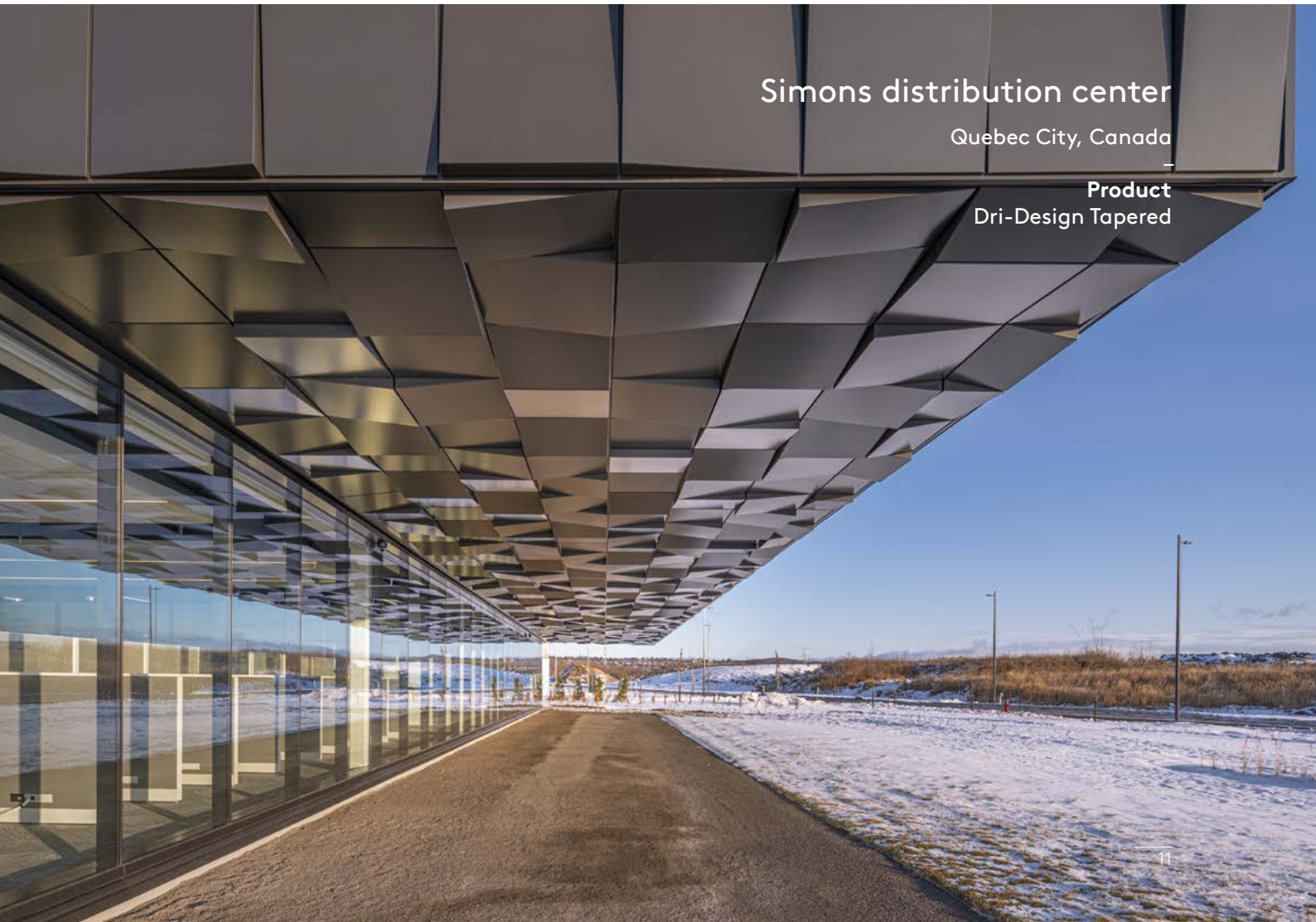
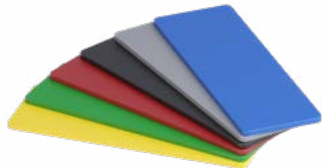
Mini circular saw with TCT blade

A compact circular saw is used for cassette onsite cutting.



2 mm plastic packers

Plastic packers help situate cassettes in demanded position before final fixing.



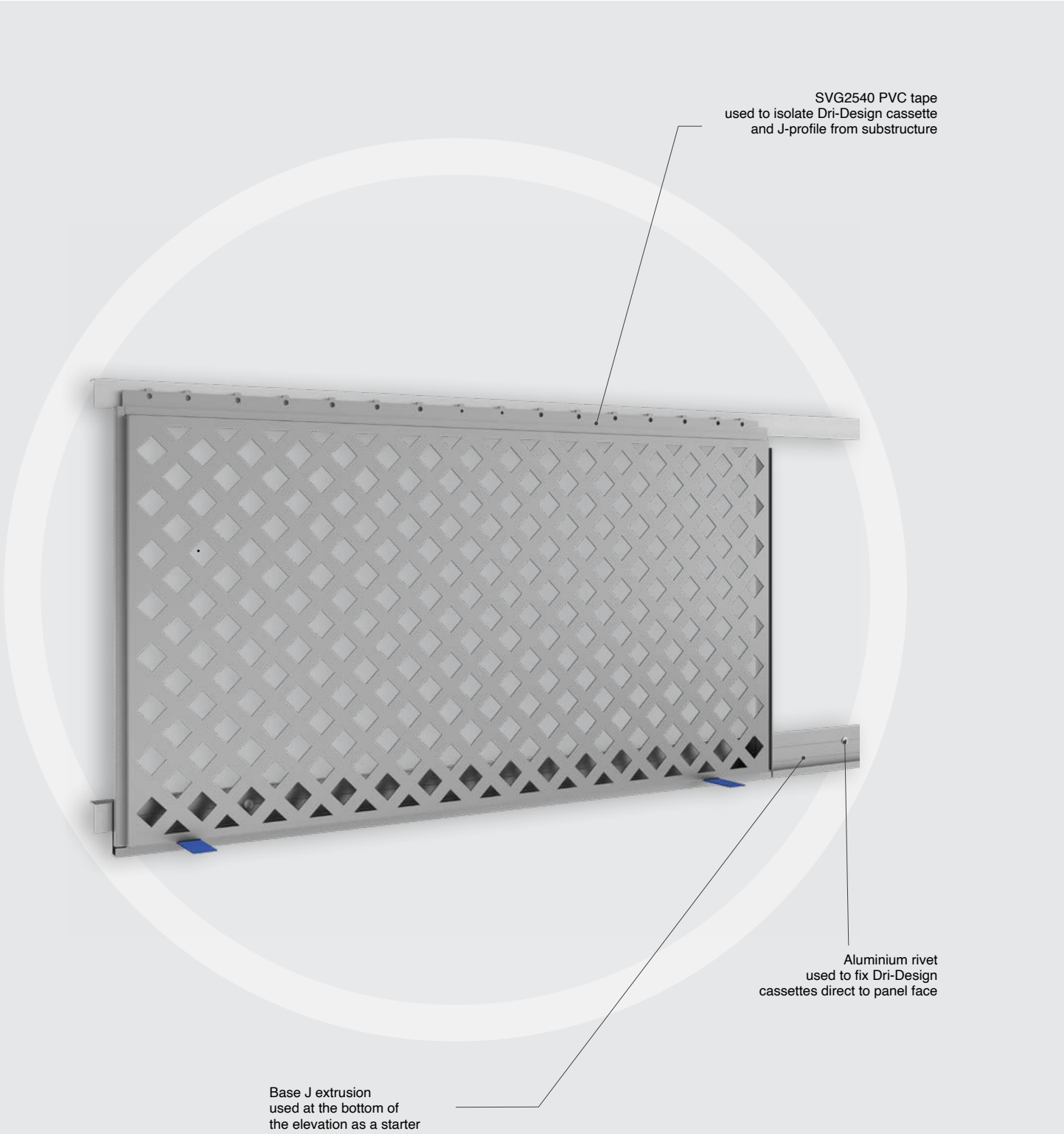
Simons distribution center

Quebec City, Canada

Product
Dri-Design Tapered

Elements for assembly

For the assembly you may need following elements:



Picture	Code	Description	Unit
	UKSVG2540	Isolation tape	25 lm/roll
	ATI030X020PEXX1	Sealing tape P16	30 lm/roll
	BKPROFILZED30DR	Aluminum Z profile (unpainted, predrilled)	3 lm/pc.
	BKPROFOMEGA30DR	Aluminum Omega profile (unpainted, predrilled)	3 lm/pc.
	BESJF3255X25E16	Screw JF3-2-5,5x25 + E16	100 pcs./box
	BMDD-JEXT055MFAC/P	Base J support	3 lm/pc.
	M-FIXING0000413	Rivet for sliding points	500 pcs./box
	M-FIXING0000414	Rivet for fix points	100 pcs./box
	KSMT-CDB	Centralizing drill bit	1 pc.
	KSMT-DB	Drill bit	1 pc.
	KSMR-NP/RF	Nosepiece for metallic rivets	1 pc.



FM Global headquarters

Johnston, Rhode Island, USA

Product
Dri-Design Flat

Rivet spacing for Dri-Design cassettes

Cassettes are installed on a top flange by rivets. Distance between rivet centers depends on the wind load and on the height of the cassette.

Recommended distances are given in the table below:

Height (mm)	Wind load [kN/m²]												
	0,6	0,8	1,0	1,2	1,4	1,6	1,8	2,0	2,2	2,4	2,6	2,8	3,0
400	600	600	450	375	300	300	225	225	150	150	150	150	150
450	600	525	375	300	300	225	225	560	150	150	150	150	75
500	600	450	375	300	225	225	150	150	150	150	150	75	75
550	525	375	300	225	225	150	150	150	150	75	75	75	75
600	525	375	300	225	225	150	150	150	75	75	75	75	75
650	450	375	300	225	150	150	150	150	75	75	75	75	75
700	450	300	225	225	150	150	150	75	75	75	75	75	75
750	375	300	225	150	150	150	75	75	75	75	75	75	75
800	375	300	225	150	150	150	75	75	75	75	75	75	75
850	375	225	225	150	150	75	75	75	75	75	75	75	75
900	300	225	150	150	150	75	75	75	75	75	75	75	-
950	300	225	150	150	75	75	75	75	75	75	75	-	-
1000	300	225	150	150	75	75	75	75	75	75	75	-	-
1050	300	225	150	150	75	75	75	75	75	75	-	-	-
1100	225	150	150	75	75	75	75	75	75	-	-	-	-
1150	225	150	150	75	75	75	75	75	75	-	-	-	-
1200	225	150	150	75	75	75	75	75	-	-	-	-	-

Assembly of cassettes

Check the sub constuction

Rails/Channel

It may be required on certain projects due to factors such as especially poor steelwork tolerances or the requirement to project the façade (to meet a dwarf brick wall for example) to fix the Dri-Design cassettes back to rails/ channels. These may be profiles that are part of the Karrier system, i.e. aluminum Kingspan Z/Omega profiles or other profiles in the case of traditional ventilated facades.

Make your own assembly plan

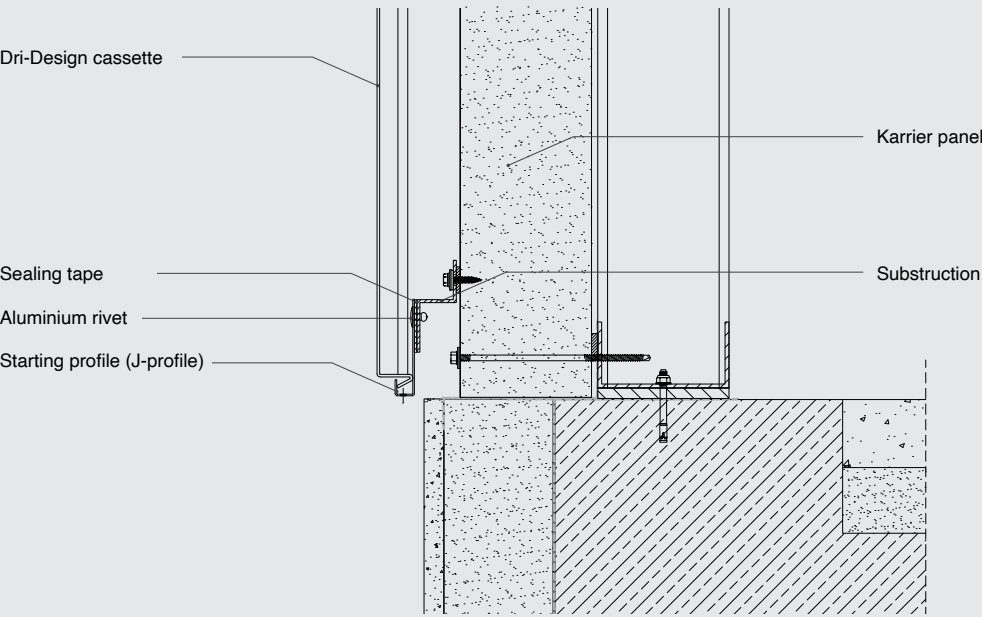
Create your own plan for cassettes and consider the installation sequence and prepare the required panels nearby. Ensure to start installation with cassette with female joint.

Standard way of installation is L→R, nevertheless cassettes are produces as a custom made so both L→R and R→L installation is possible. The best scheme should be considered during the designing phase.

Start of base detail

There can be several different solutions available for the plinth and panel connection which is always defined by architect. Hereby there is the most common detail to describe the installation steps.

Do not start the installation before the main structure would be adjusted properly. The installation can be started only begin after the proper measure, control of the mounting surface and the substructure has been properly installed in accordance with the project requirements.

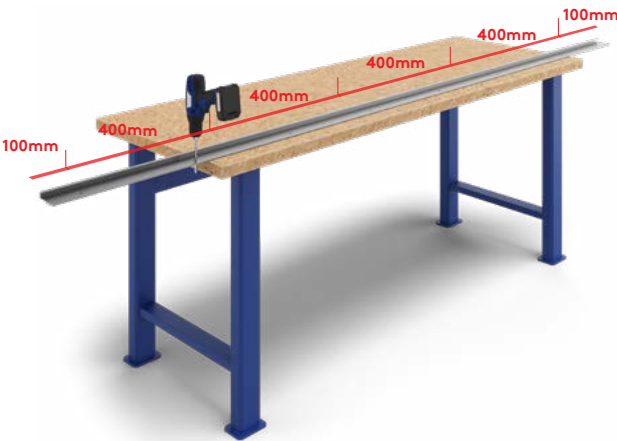


When installing the Dri-Design cassettes, the following operations shall be performed:

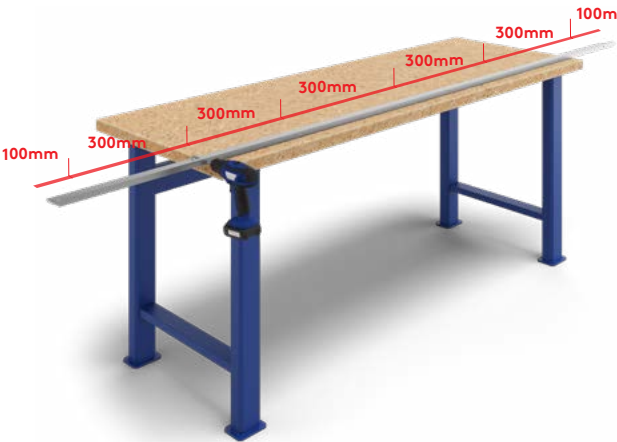
1. Apply SVG2540 sealing tape to rear side of J-profile:



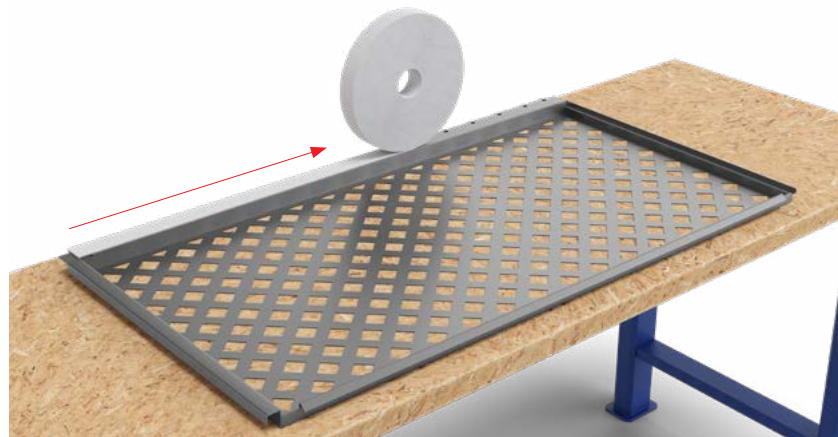
2. Mark out fixing locations 100 mm from each end then max. 400 mm centres:



3. Site drill 8 mm weep holes through the bottom of starting profile every 300 mm and 100 mm from the ending:



4. Apply SVG2540 sealing tape to rear side of cassette top flange:



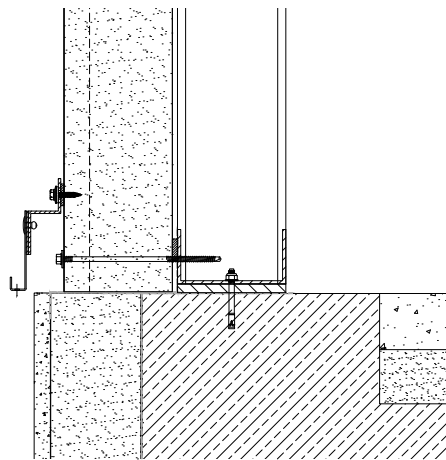
NOTE

It is very important to use sealing tape due to separation material of different potentials (aluminium and steel).

Assembly of cassettes

One of the most important things to mount facade from Dri-Design cassettes properly is to fix starting profile (J-profile) in a correct way. After the profile is pre-drilled and tape is assembled, it is essential to locate the place according to the project, where it need to be fixed.

1. Locate the base of J-profile to the project specific requirements. Check for line and level.



NOTE

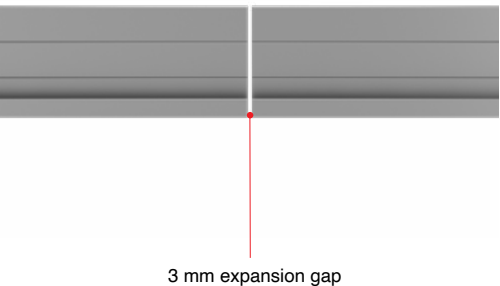
It is extremely important to align the starting profile with the use of specialist laser equipment, by doing so will allow the cassette & packer to remain level for fixing.



2. Using a driller, start assembling the supporting substructure using JF3 screws spaced every 242 mm. A distance of 20 mm should be maintained between substructure elements.
3. Use a 5 mm Ø drill bit, drill through the previous predrilled holes in the starting profile and in to the rails substructure (depend on sub construction).



4. Fix J-profile with usage of rivets, starting from one end of the profile. Continue to install rivets through the pre-drilled holes.



NOTE

Ensure nosepiece is attached to the riveter and used when installing rivets to allow for system thermal expansion.

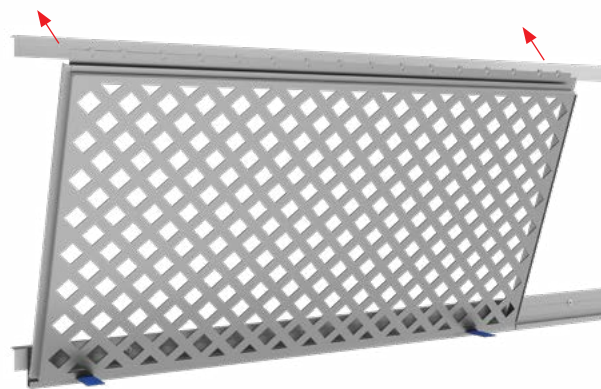
NOTE

Ensure 3 mm expansion gap joint between fix starting profiles (J-profiles) consecutive lengths.

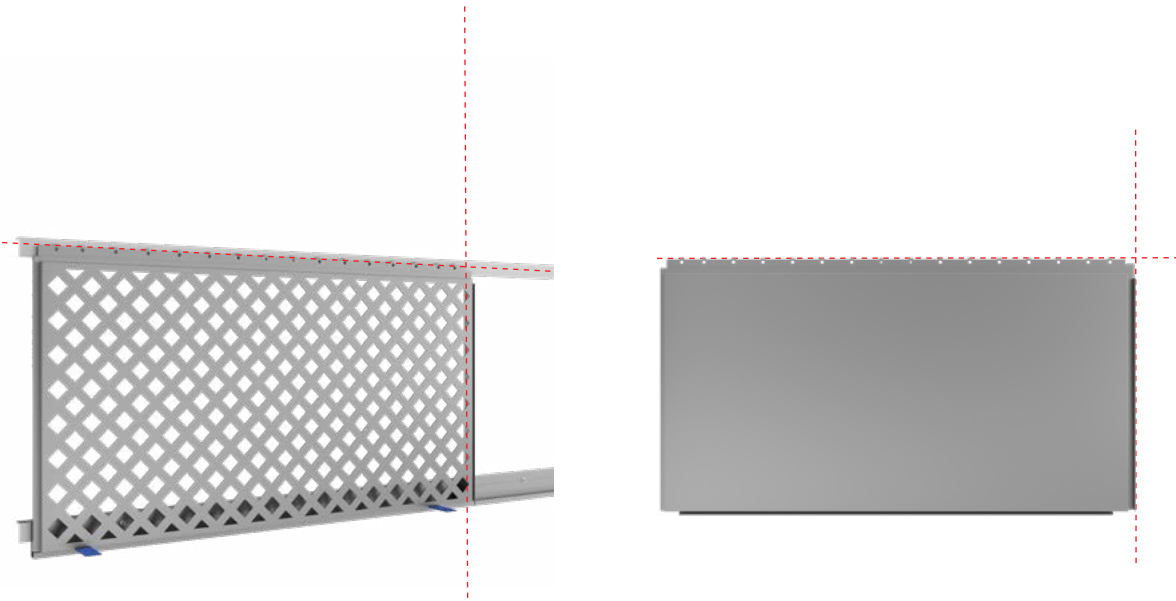
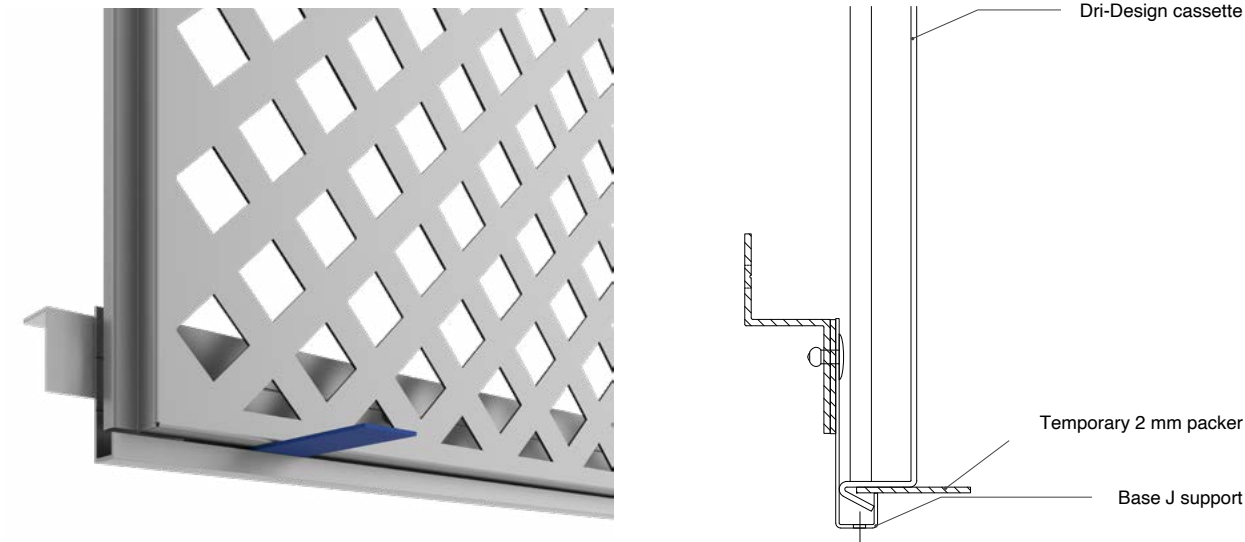
5. After starting profile is installed, place 2 pcs. of 2 mm plastic packers onto the profile, as shown below.



6. Engage the bottom flange of the cassette at an angle into the starting profile and push the cassette back to the substructure, align the cassette with the module datum setting out gridlines.



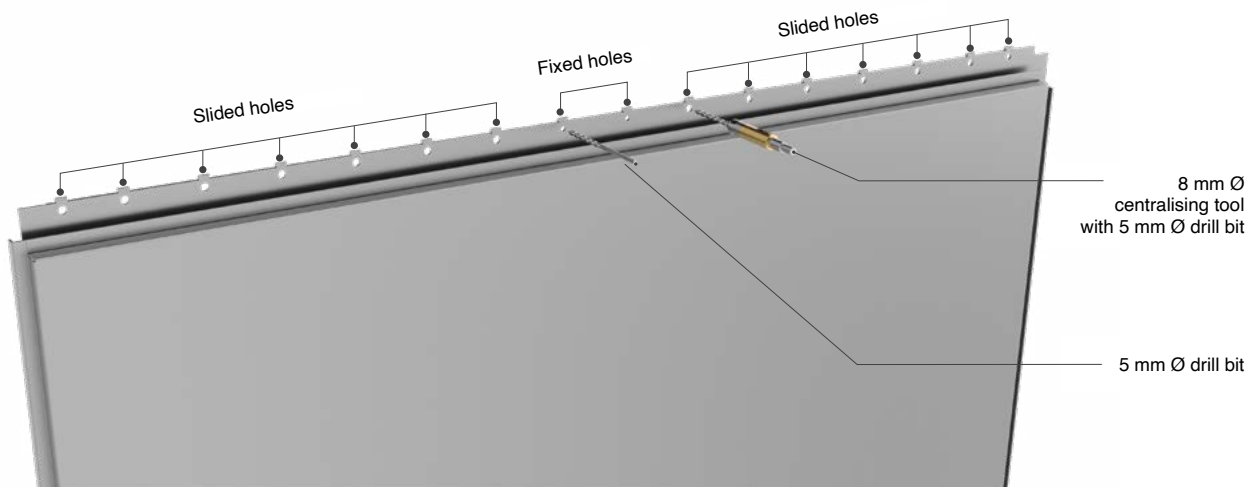
Ensure plastic packers remain in position.



NOTE

It is vitally important to ensure that these points on the cassette align the cassette with the module datum setting out gridlines to maintain control and module cover.

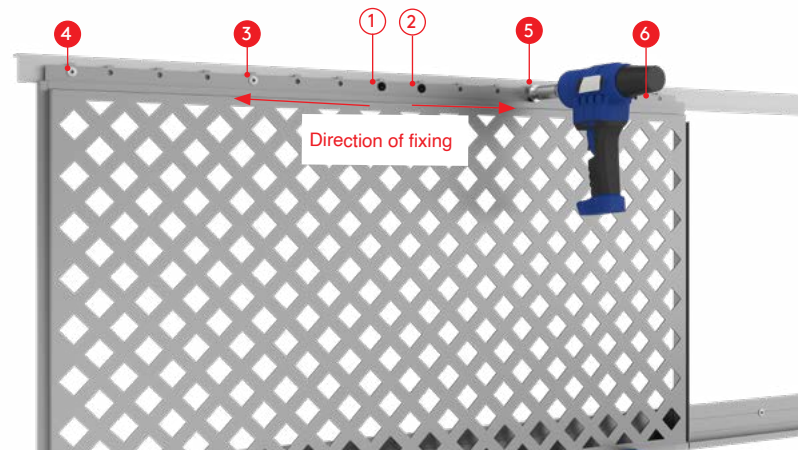
7. Use a 5 mm Ø drill bit, drill through holes in the top flange of cassette and into the rails substructure (depend on sub construction) for rivets. Based on table on page 15.



NOTE

For oversized holes use centralizing tool.

8. Fix cassette with usage of rivets, starting from fixed holes (no. 1, 2) in the middle. Continue to install rivets through the pre-drilled holes (no. 3, 4, 5, 6). Based on table on page 15.



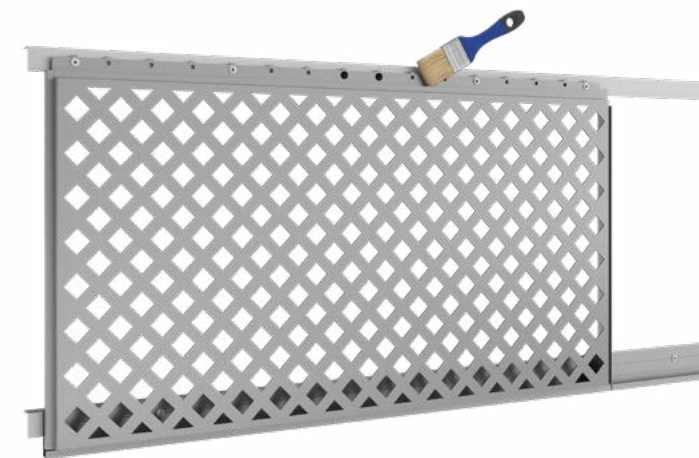
NOTE

Ensure nosepiece is attached to the riveter and used when installing rivets to allow for system thermal expansion.

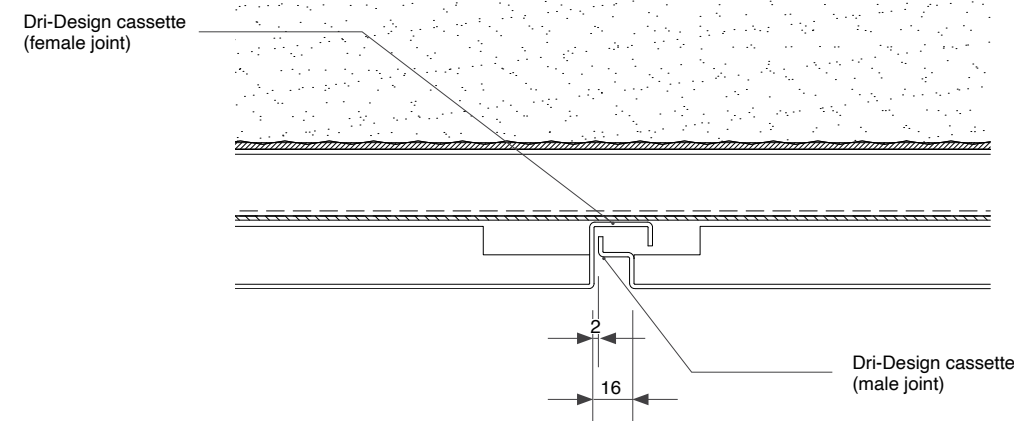
NOTE

Remember that rivet on every oversized hole is not necessary. Span for rivet can be checked on table on page 15. Crucial is usage of rivets in the middle and at least on the edge of the cassette.

9. First cassette is finally completed. Ensure the cassettes are brushed off swarf as works progress and at the end of every day to prevent corrosion staining from swarf.



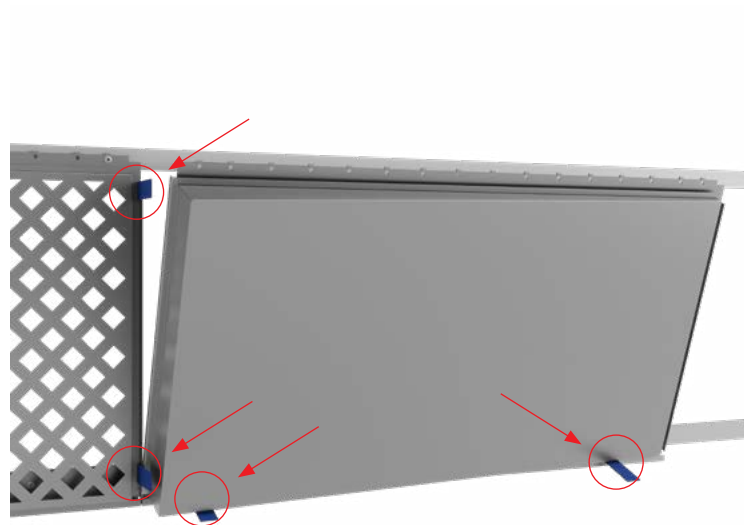
10. Next cassette should be fix from the side of female joint of previously fixed cassette.



NOTE

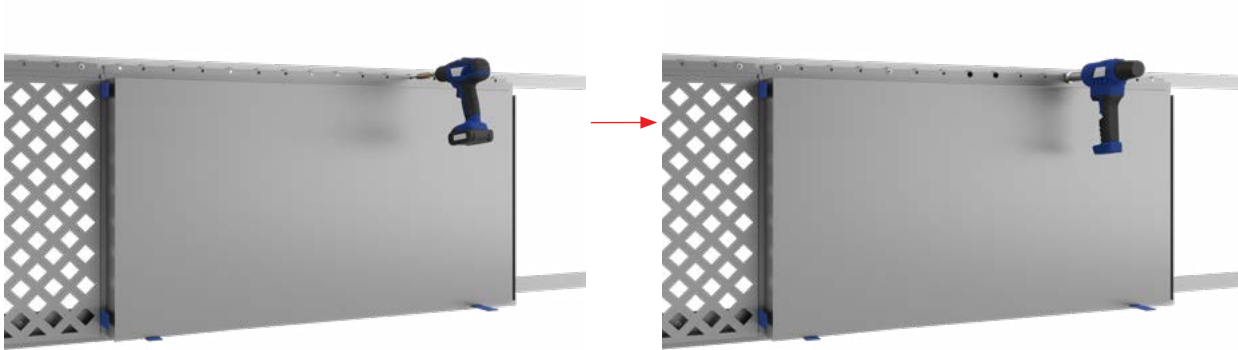
The position of the joint type is indicated at the cut list stage.

11. Place 2 pcs. of 2 mm plastic packers onto the starting profile and another 2 pcs. in vertical joint, as shown below.



12. Engage the bottom flange of the cassette at an angle into the starting profile and push the cassette back to the panel face, align the cassette with the module datum setting out gridlines. Ensure plastic packers remain in position.

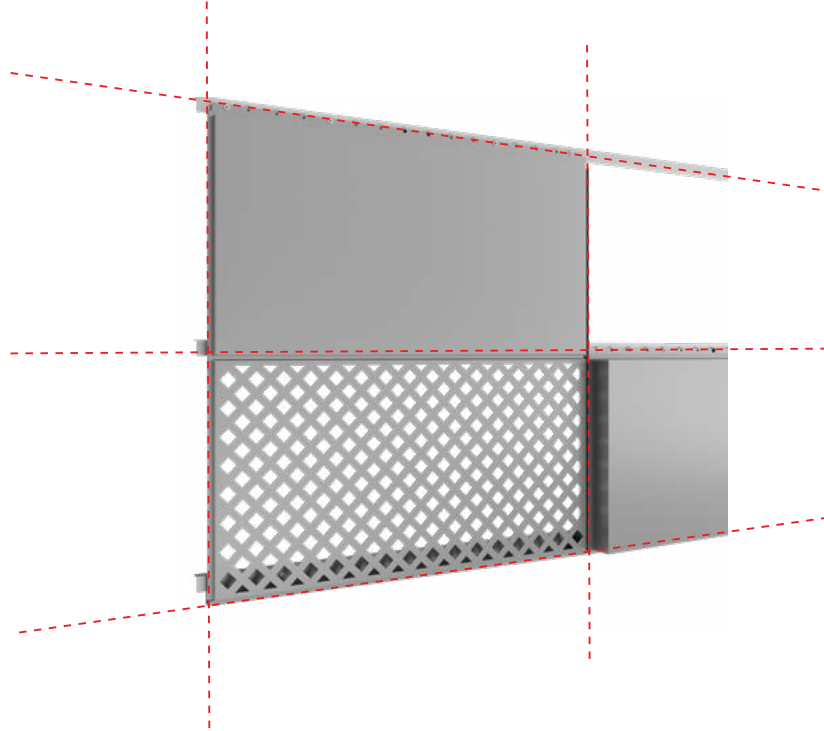
13. Drill through holes in the top flange of cassette and fix it with rivets, the same way as was mentioned for the first cassette.



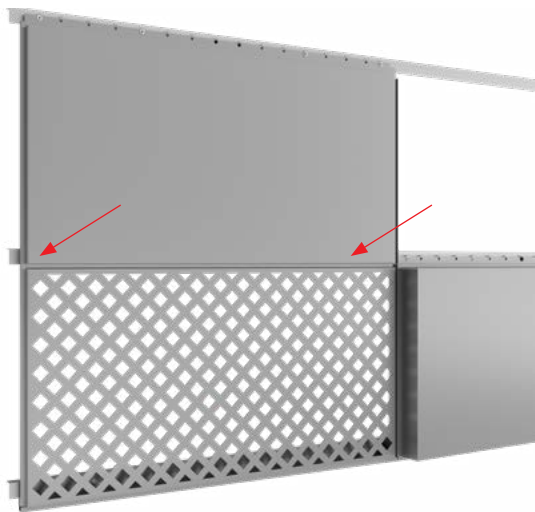
14. Repeat all steps for cassettes in the first row.



15. For all cassettes above the first row, first step is to engage the bottom flange of cassette at an angle into the top of cassette below and push the cassette back to the panel face, align the cassette with the module datum setting out gridlines.



16. Insert 2 pcs. of 2 mm plastic packers onto the top flange of the below cassette (see tick below).



17. Drill through holes in the top flange of cassette and fix it with rivets, the same way as was mentioned for the previous cassettes.

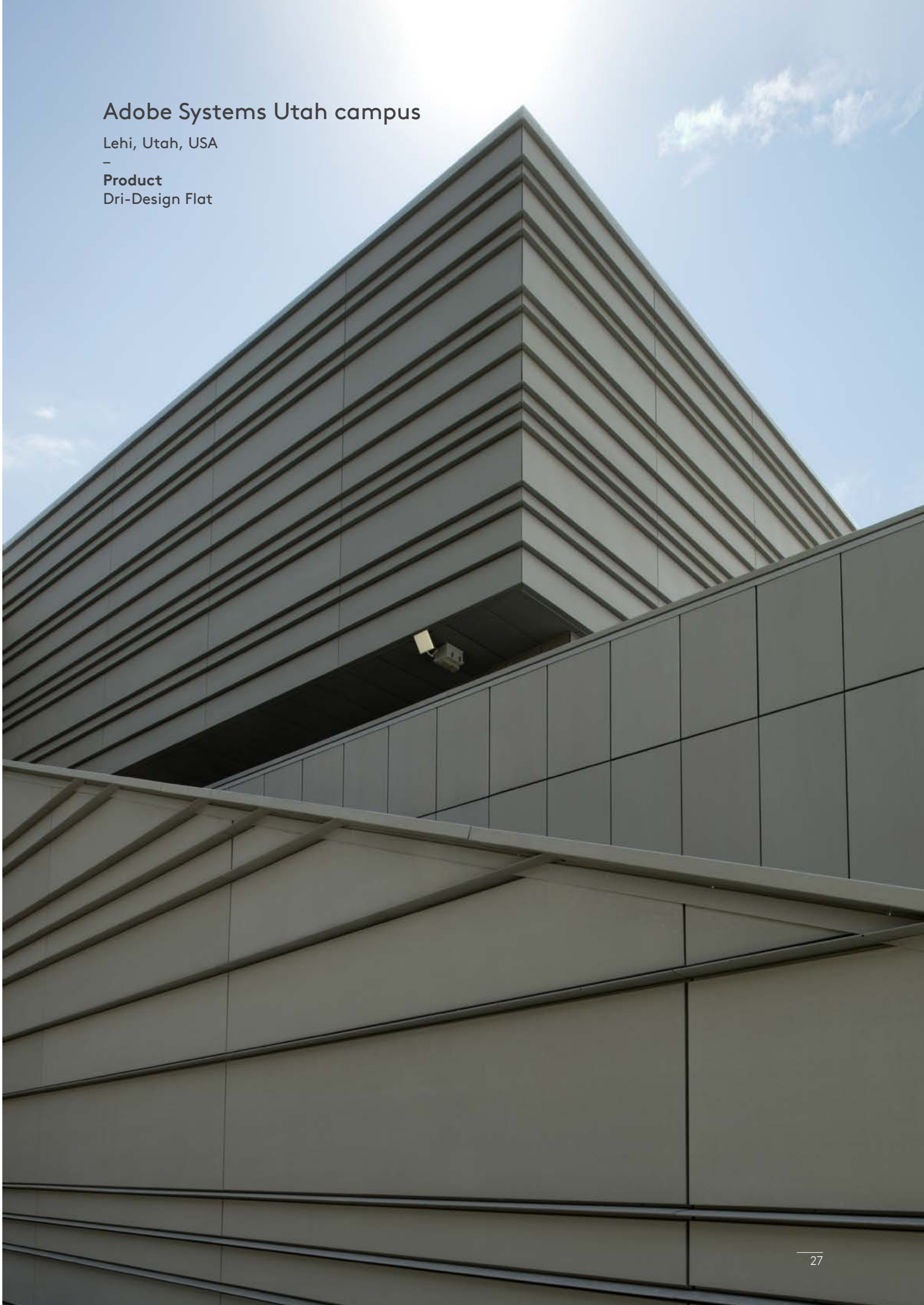
18. Repeat all steps for the rest cassettes.



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Product
Dri-Design Flat



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