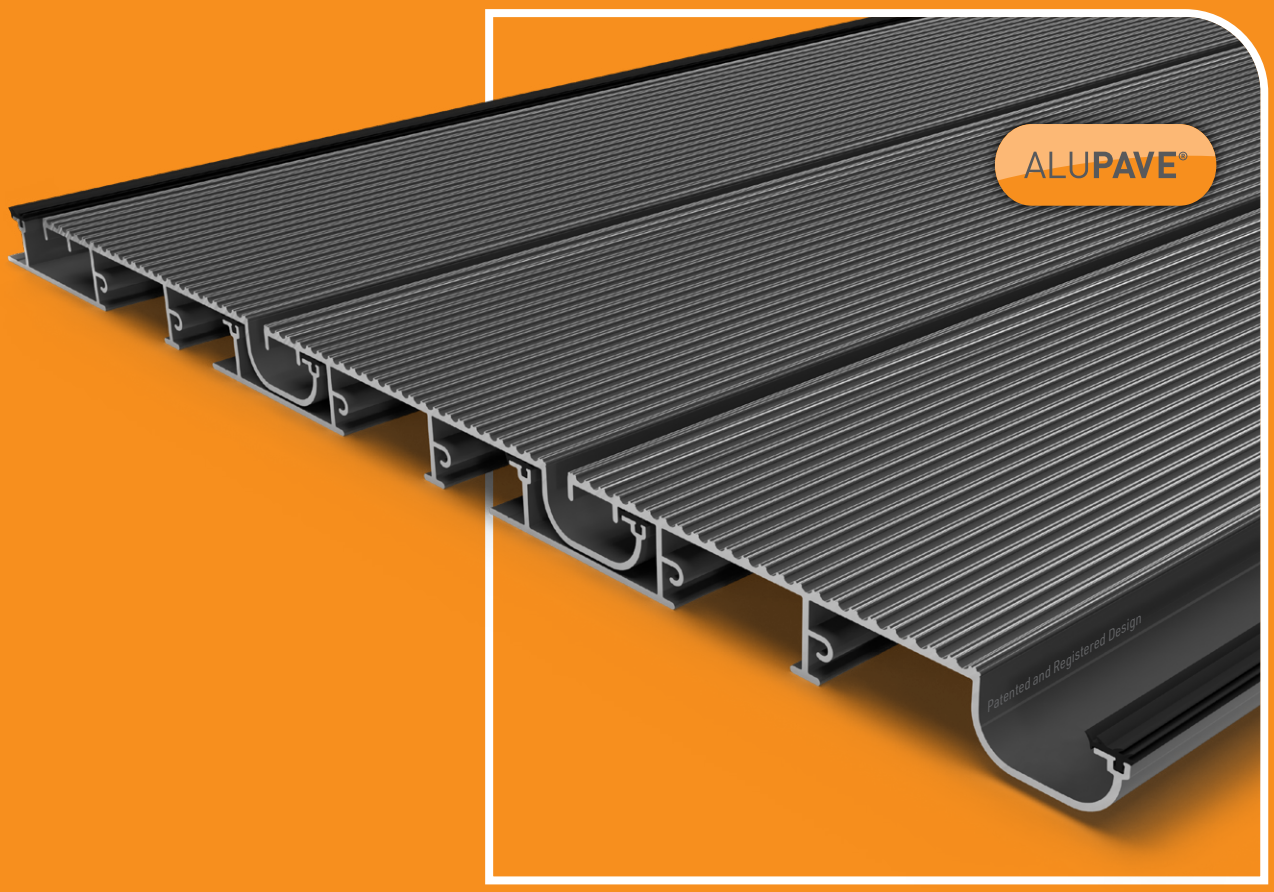
ALUPAVE®

Fireproof Full-Seal Flat Roof and Decking System
Technical Guide



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Revolutionary Decking and Flat-Roofing Solution

Unlike any other decking or paving solution ALUPAVE® Decking and Flat-Roofing System combines a number of Patented innovative features that make it truly unique.

ALUPAVE® is extruded from aluminium giving it natural fireproof qualities, meaning it is suitable for use on high rise buildings being a safe, non-combustible decking option. Designed with a double-peak anti-wear surface means ALUPAVE® offers excellent longevity for high traffic areas and long-term requirements without warping, bending or rotting!

The patent and registered design ALUPAVE® Decking and Flat-Roofing System has an integral gutter system for superior water management. With completely hidden fixing and no need for unsightly and fiddly clips and brackets, ALUPAVE® Decking and Flat-Roofing System also offers greatly improved aesthetics.

Common uses:

- ✓ Balconies
- ✓ Roof Terraces
- ✓ Courtyard Gardens
- ✓ Patio Areas
- ✓ Walkways
- ✓ Decking Areas
- ✓ High Rise

Qualities:

- ✓ Allows low costs sub structures
- ✓ Excellent spanning capabilities reducing sub-structure costs
- ✓ Fireproof and suitable for High Rise
- ✓ Full Double Seal Waterproof System
- ✓ Integral Gutter System
- ✓ Manufactured from High Quality Aluminium
- ✓ Concealed fixings
- ✓ Installer Friendly
- ✓ Reduced Installation Time
- ✓ Increased Spanning Distances
- ✓ Does not Rot, Fade or Warp like Composite Materials
- ✓ Environmentally Friendly

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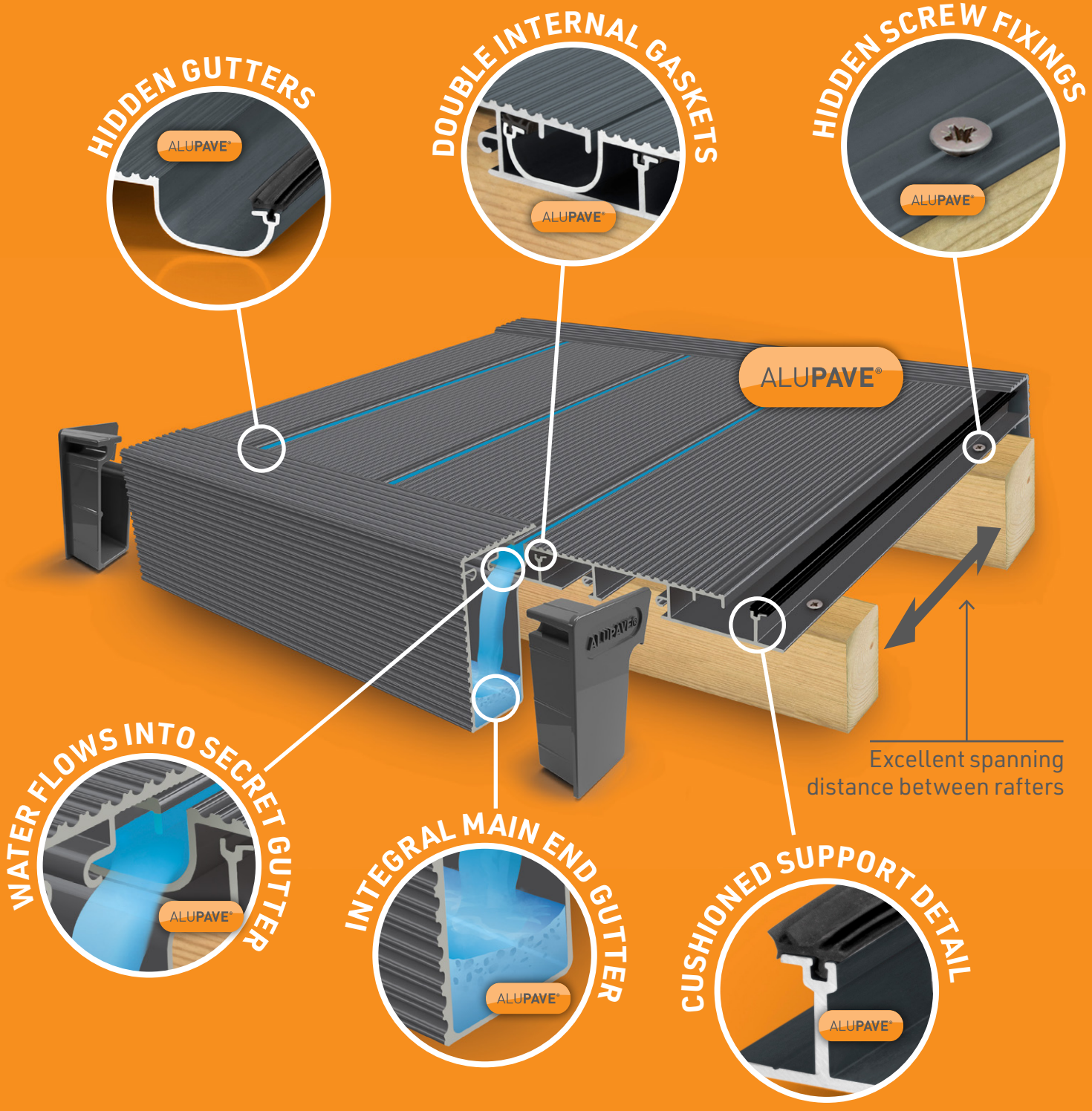
Why ALUPAVE®?

ALUPAVE® is suited to all standard decking applications. However due to the strength of ALUPAVE® it is suitable for public areas, commercial and high-rise applications!



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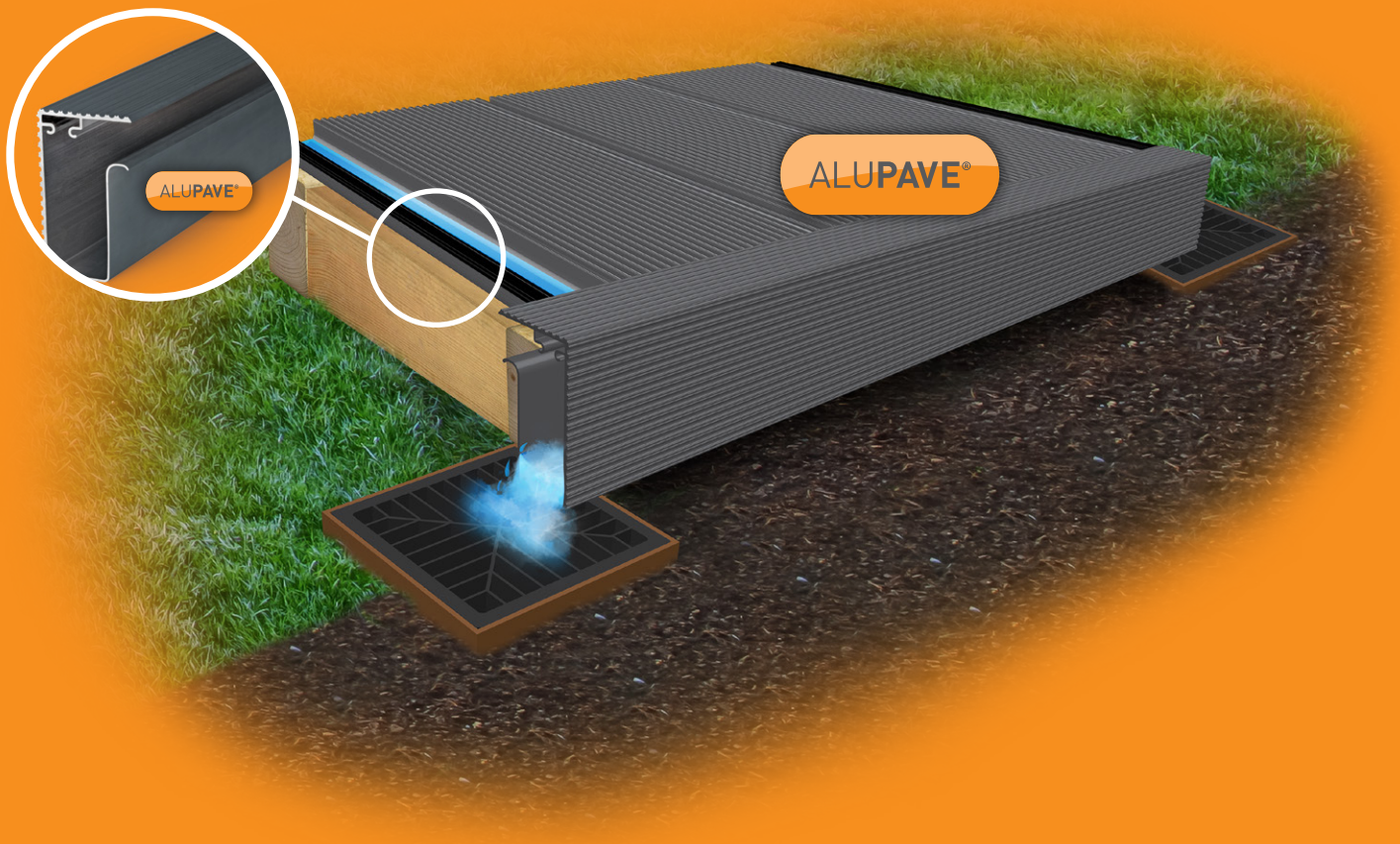
ALUPAVE® : Decking Applications

ALUPAVE® not only suited to all standard decking applications. However due to the strength of ALUPAVE® it is also suitable for public areas, commercial and high-rise applications!

The ALUPAVE® board system is a unique decking board extruded from aluminium making it an incredibly long lasting and environmentally friendly decking option. Manufactured with a double seal connection between each ALUPAVE® board prevents water ingress to the substructure, meaning that both time and money can be saved on the substructure therefore can be created with basic timber which will be kept dry and won't rot through! The rapid interlocking system saves time meaning projects can be completed quickly with increased strength and fast installation.

Anthracite Grey ALUPAVE® decking.

ALUPAVE® Ground Level Drainage



The integral hidden drainage system can be used to manage the rainwater to chosen outlet points or harvesting systems.

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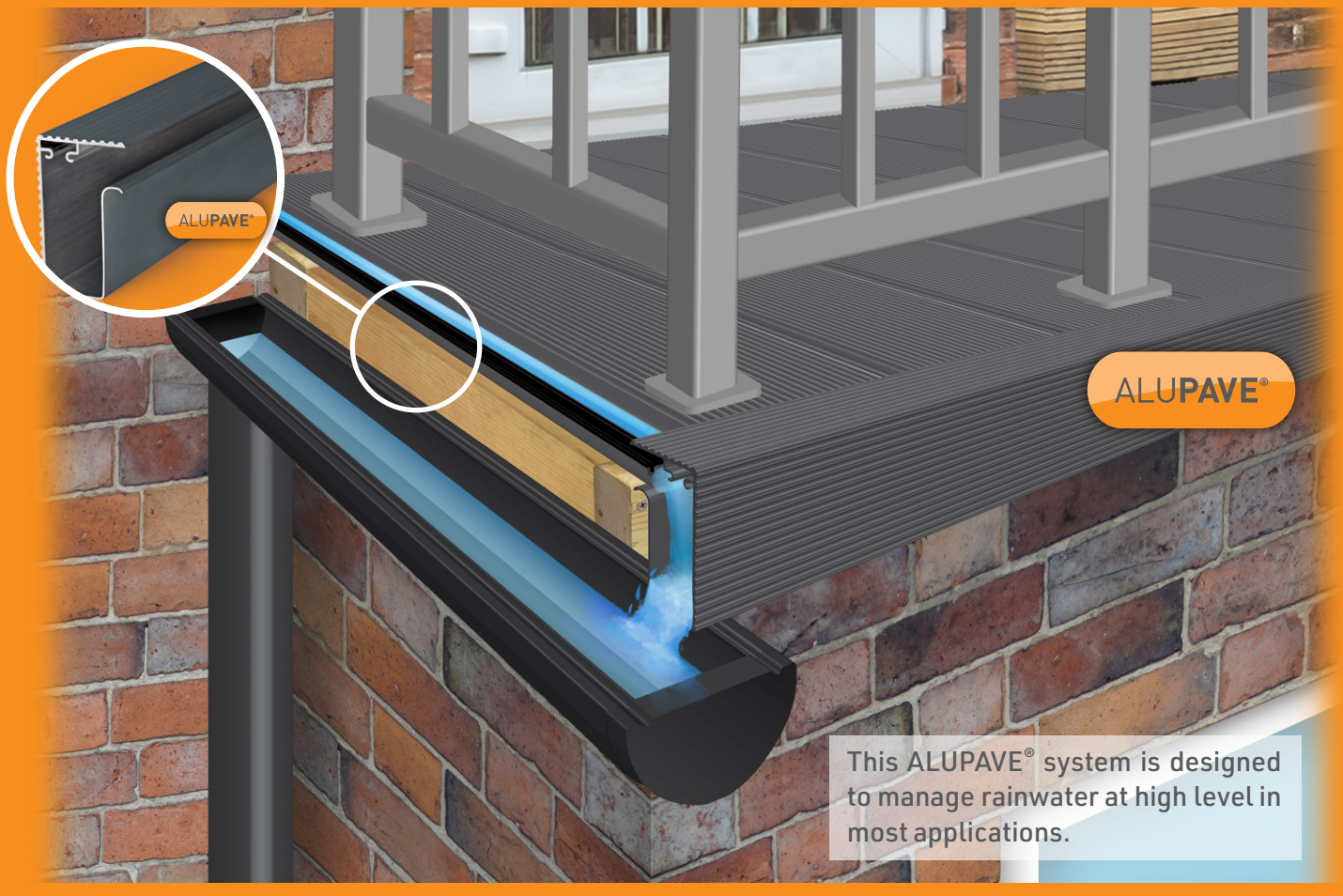
ALUPAVE® : Roofing Application

One of the many unique things about ALUPAVE® is that it's suitable for roofing applications such as flat roofs such as verandas and balconies on any level of roof, providing a sealed roofing solution and therefore reducing the need for waterproofing products on the top of a flat roof.

ALUPAVE® Decking and Flat-Roofing Side Gutter plays an essential part of the integral gutter system for the ALUPAVE® system, offering superior water management and preventing damage to the substructure. ALUPAVE® Decking and Flat-Roofing Side Gutter is extruded from aluminium giving it excellent longevity and fireproof qualities. ALUPAVE® Decking Side Gutter is easy to install by simple push fit over the final ALUPAVE® Decking Board and means that water can be drained from the entire decking of Flat-Roofing area to one chosen point, providing excellent water management possibilities.

Anthracite Grey ALUPAVE® decking.

ALUPAVE® High Level Drainage



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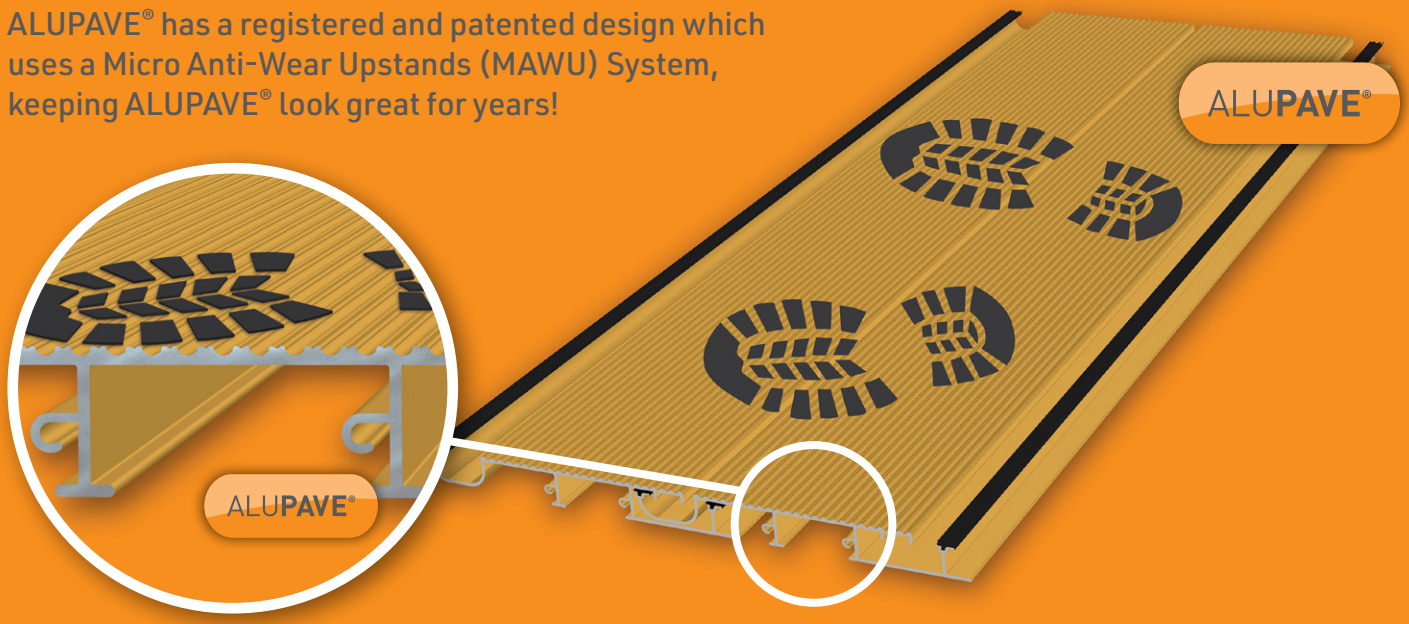
ALUPAVE® : Anti-Wear Surface

ALUPAVE® has a registered and patented design which uses a Micro Anti-Wear Upstands (MAWU) System, keeping ALUPAVE® look great for years!



ALUPAVE® : Technical Data

Aluminium Extrusion

Property	Standard/TY	Measure	Value
Aluminium strength	60663 T6	UTS	215/nm^2
Dimensions and mechanical	EN755	29	32
Chemical composition	EN573	32	38

The inherent robust qualities of ALUPAVE® are seen clearly in the technical data provided. The tables are intended for guideline use only, when seeking particular qualities for any specification.

Product/Property	Test	Value
Lubricant	Non-hazardous	Low toxicity
Lubricant properties	20°C : 1.13	Clear mobile liquid
Lubricant emulsion stability		Excellent
Lubricant compatibility		Active compatible
Gasket grade	Developed for BS7412	Class A
Gasket tolerance	Produced to BS3734	E1

Powder Coating

Property	Measure	Value
Powder coating standard	BS6496	EN12206
Minimum thickness	Microns	60
Average typical thickness	Microns	80 - 100

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ALUPAVE® : Fire Resistance

In any construction project it is important to ensure that safety comes first, and in high rise construction projects this is even more essential! Even on a standard ground level decking area or first floor balcony, the risks of fire starting from accidental incidents with patio heaters, BBQ's, fire pits and the like, are all behind the reason why no compromises have been made with ALUPAVE® to ensure that the inherent fire resistant properties of aluminium are incorporated as the main element in the manufacture of the ALUPAVE® system. Where traditional timber decking is a fire hazard, ALUPAVE® is fully aluminium meaning it won't combust like timber!

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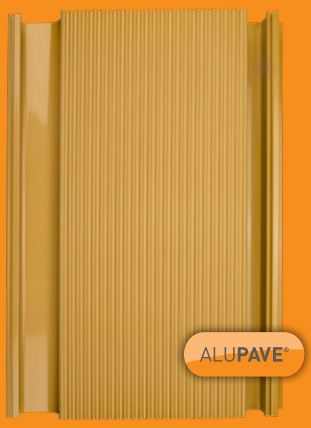
ALUPAVE® : Anti-Slip Test

The ALUPAVE® has been put through a range of strenuous tests including the slip testing review and verify the performance of the surface. **The samples were conditioned for a minimum 24 hours prior to testing at an ambient air temperature of 21-25°C.**

Testing Method

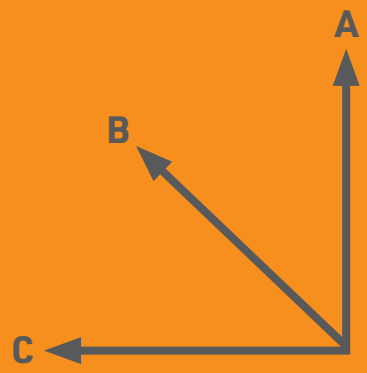
Slip Testing; Carried out in line with the requirements of The HSE 2012 publication "Assessing the slip resistance of flooring" using a pendulum skid tester. The slip testing was carried out at 1 x locations on each sample, in three different directions, in both wet and dry conditions. Testing was undertaken using a calibrated Munro slip tester using Slider 96.

Grey



Sand

Mill finish



Slip test images in progress....

Grey

Sand

Mill finish

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Results

These strenuous tests proved that in most conditions the ALUPAVE® system performed incredibly well with Low Slip Potential results. Even on the few test scenarios where Moderate to High Slip Potential was recorded it is believed that these are still remarkable performance results when compared to some timber, tile or composite or other Decking and flooring materials.

Why ALUPAVE®

The excellent Slip Test Classification achieved by ALUPAVE® means that it is ideal for Decking and Roofing applications, and at the same time provides a solution that won't rot through or go mouldy like timber or other materials.

Classifications	PTV Results
High Slip Potential	**0-24**
Moderate Slip Potential	**25-35**
Low Slip Potential	**36 +**

Dry Conditions	ALUPAVE® Mill	ALUPAVE® Sand	ALUPAVE® Grey
	Median Score of Eight Tests		
Direction A	55	61	55
Direction B	56	60	63
Direction C	74	75	74

Wet Conditions	ALUPAVE® Mill	ALUPAVE® Sand	ALUPAVE® Grey
	Median Score of Eight Tests		
Direction A	24	20	25
Direction B	27	29	32
Direction C	45	32	38

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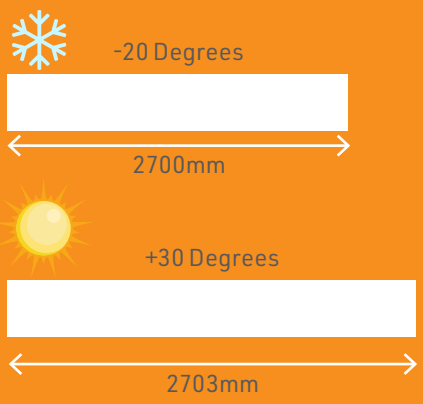
Comfort : Hot and Cold Weather

ALUPAVE® Surface Temperature

People sometimes ask if Aluminium Decking gets hot in direct sunlight however ALUPAVE® **stays cooler by 10 to 25%** less than composite or hardwood timber decking! This is because ALUPAVE® is made from aluminium which dissipates heat better than almost any other decking or flat roof paving area! Obviously the lighter colour of the finish the more it will reflect of the sun's rays, and as a result, less heat is absorbed into the surface in the first place. Additionally the ALUPAVE® is an incredibly strong structured design but the average mass of the ALUPAVE® aluminium decking is less than that of the other deck boards, which means it holds less heat.

ALUPAVE® Thermal Expansion

When the temperature of ALUPAVE® aluminium boards are increased thermal expansion will increase the size of the product, the same as all products. However ALUPAVE® aluminium profiles are designed to have very minimal expansion and contraction than other decking materials. As an example is if the temperature of a piece of ALUPAVE® aluminium at -20°C and its length is 2700 mm long, and then it is heated to a temperature of +30°C, it will subsequently be 2703 mm long due to thermal expansion, which is only 3mm increase in 2700mm over a 50° C change in temperature!



Thermal Expansion	Value
Example of thermal expansion with the thermal expansion coefficient (λ):	µm m-1 K-1
Thermal expansion coefficient λ =	(µm)/(m·K)
Value for alloy 6063:	23.5 µm/(m * K)

If the material is 2700 mm long at -20° C, the same material will be 23.5 µm/(m * K) * 2700 mm * 50 K (from -20° C to + 30° C) = 3172.5 µm = 3 mm at +30° C.

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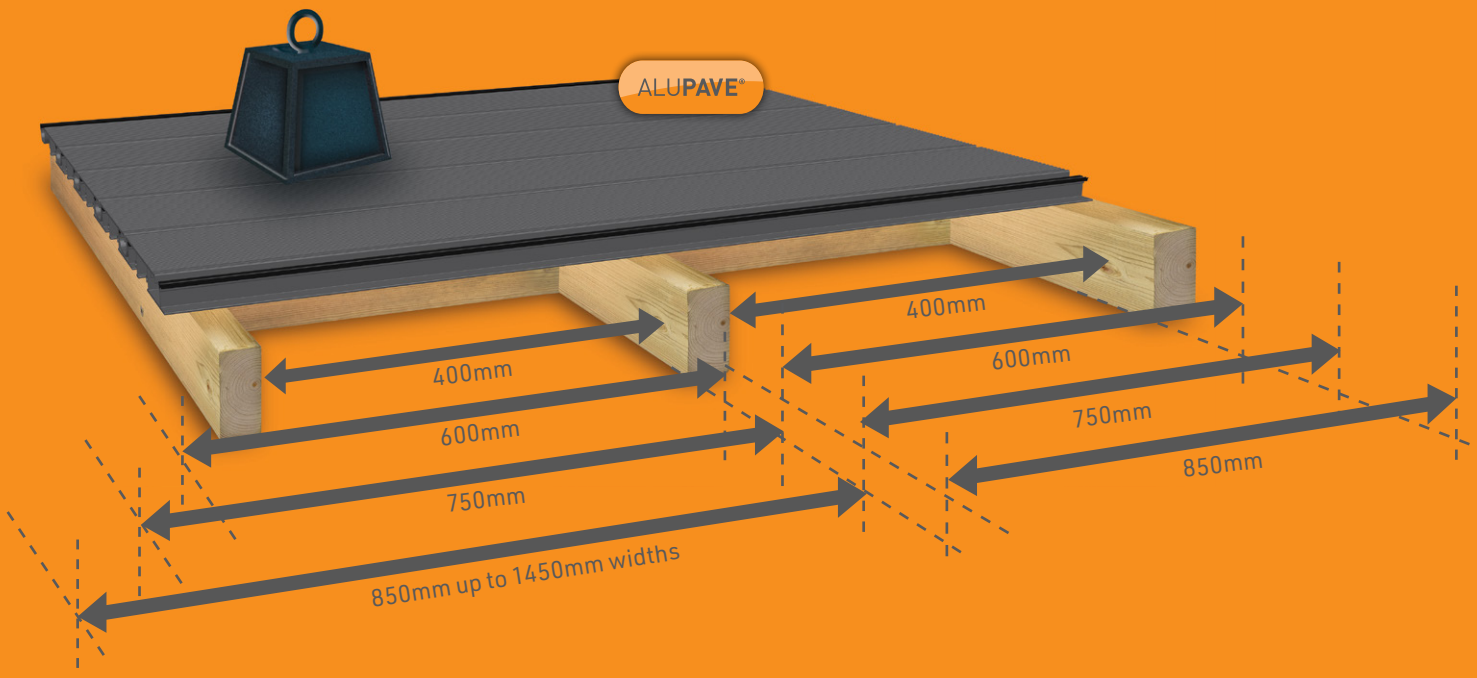
ALUPAVE® : Spanning Guides

ALUPAVE® has been designed so that it offers incredible spanning properties, allowing cost and time savings on the substructure. The guides below give some rough guides of approximate spans achievable on Uniformly Distributed Loads (UDL), and as you can see these are excellent! However it is very important that you take advice from your structural engineer as the various structure and location aspects should be taken together with the ALUPAVE® system to ensure you create a perfectly safe structure. Although the ALUPAVE® system will span longer distances you should also consider desirable bounce on the decking. Where less bounce is required then bring the support centres in to suit.

One thing is for certain is that ALUPAVE® is many times stronger than many timber or composite decking or flat roofing solutions, increasing speed of installation, lowering cost of substructure and providing a very robust overall structure!



Application	Domestic Dwelling	Bank or Office	Shopping Area	Factory
Recommended UDL Level (KG/m2)	150.00	300.00	400.00	500.00
Maximum Span (mm)	1450.00	1100.00	1020.00	850.00

Deflection (mm)	Recommended UDL Lever (KG/m2)	Span Widths (mm)						
		400	600	750	850	1020	1100	1450
Domestic Dwelling	150.00	✓	✓	✓	✓	✓	✓	✓
Bank or Office	300.00	✓	✓	✓	✓	✓	✓	
Shopping Area	400.00	✓	✓	✓	✓	✓		
Factory	500.00	✓	✓	✓	✓			

Inasmuch as Clear Amber have no control over the circumstances in which our material may be used, or site specific parameters, we cannot guarantee that any particular results will be achieved. Users should carry out their own tests to determine the suitability of the material for their application. Installers should satisfy themselves that published permissible loadings for ALUPAVE® structures, together with any supporting posts, frames, or walls and fixings, are sufficient to provide adequate strength for the intended use and to meet regional loading requirements. **Installers should also obtain their own job-specific structural engineer's report for their individual site.** Samples are readily available to users to test and verify the exact sizes according to their site requirements.

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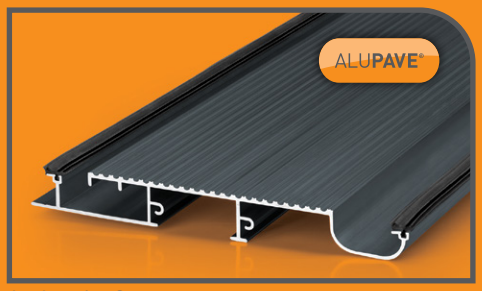
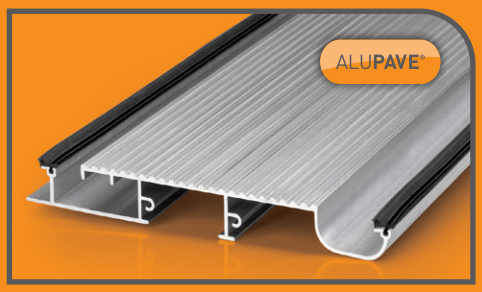
ALUPAVE® : Roof and Decking Boards

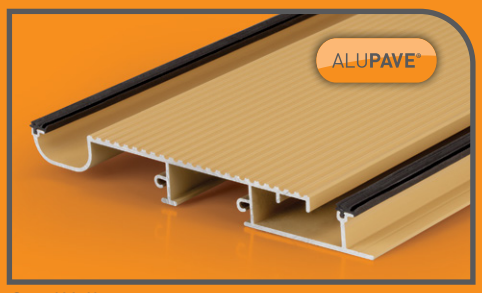
ALUPAVE® decking and flat roofing interlocking system boards are manufactured in three standard colours, but can also be manufactured to any colour to suit any colour scheme. Below you can see the codes and the sizes readily available. Each ALUPAVE® board comes with two pre-lubricated gaskets included.



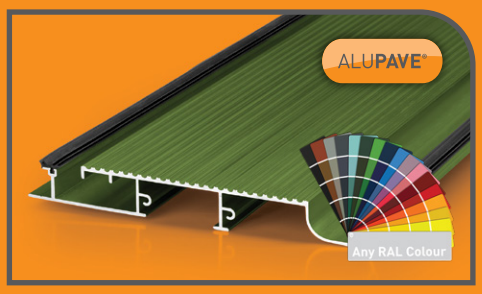
Anthracite Grey



Mill finish



Sand Yellow



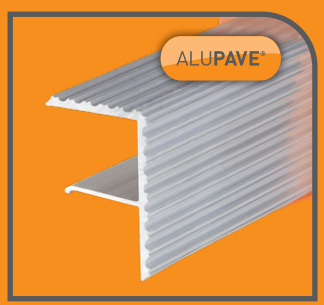
Powder Coated

Length	ALUPAVE®	Code
2.0m	Fireproof Full-Seal Flat Roof & Decking Board-Grey	APV212G
2.0m	Fireproof Full-Seal Flat Roof & Decking Board-Mill	APV212M
2.0m	Fireproof Full-Seal Flat Roof & Decking Board-PC	APV212P
2.0m	Fireproof Full-Seal Flat Roof & Decking Board-Sand	APV212S
3.0m	Fireproof Full-Seal Flat Roof & Decking Board-Grey	APV214G
3.0m	Fireproof Full-Seal Flat Roof & Decking Board-Mill	APV214M
3.0m	Fireproof Full-Seal Flat Roof & Decking Board-PC	APV214P
3.0m	Fireproof Full-Seal Flat Roof & Decking Board-Sand	APV214S
6.0m	Fireproof Full-Seal Flat Roof & Decking Board-Grey	APV220G
6.0m	Fireproof Full-Seal Flat Roof & Decking Board-Mill	APV220M
6.0m	Fireproof Full-Seal Flat Roof & Decking Board-PC	APV220P
6.0m	Fireproof Full-Seal Flat Roof & Decking Board-Sand	APV220S

ALUPAVE® : Board Endstop Bars

ALUPAVE® Aluminium Decking Board Endstop bar is designed to seal the edge of the ALUPAVE® decking boards and sometimes the sides. Created to ensure a neat finish to the top edge of a deck the EndStop is an essential that is easy to install.

Anthracite Grey



Mill

Powder Coated

Length	ALUPAVE®	Code
2.0m	Fireproof Decking Board Endstop Bar-Grey	APV412G
2.0m	Fireproof Decking Board Endstop Bar-Mill	APV412M
2.0m	Fireproof Decking Board Endstop Bar-PC	APV412P
3.0m	Fireproof Decking Board Endstop Bar-Grey	APV414G
3.0m	Fireproof Decking Board Endstop Bar-Mill	APV414M
3.0m	Fireproof Decking Board Endstop Bar-PC	APV414P
6.0m	Fireproof Decking Board Endstop Bar-Grey	APV420G
6.0m	Fireproof Decking Board Endstop Bar-Mill	APV420M
6.0m	Fireproof Decking Board Endstop Bar-PC	APV420P

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ALUPAVE® : Decking Gutters

These ALUPAVE® decking and flat roofing End Gutters mean that the water draining out of the decking secret gutter channels doesn't just drip off the front but can flow simply in to this front hidden gutter and be routed to a drain or water harvesting system.

RAL 7016 - Anthracite Grey

Mill finish

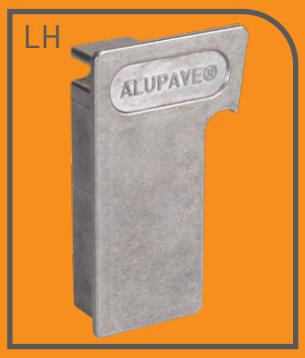
RAL 1002 - Sand Yellow

Powder Coated - any colour

Length	ALUPAVE®	Code
2.0m	Fireproof Flat Roof & Decking Side Gutter – Grey	APV312G
2.0m	Fireproof Flat Roof & Decking Side Gutter – Mill	APV312M
2.0m	Fireproof Flat Roof & Decking Side Gutter – PC	APV312P
2.0m	Fireproof Flat Roof & Decking Side Gutter – Sand	APV312S
3.0m	Fireproof Flat Roof & Decking Side Gutter – Grey	APV314G
3.0m	Fireproof Flat Roof & Decking Side Gutter – Mill	APV314M
3.0m	Fireproof Flat Roof & Decking Side Gutter – PC	APV314P
3.0m	Fireproof Flat Roof & Decking Side Gutter – Sand	APV314S
6.0m	Fireproof Flat Roof & Decking Side Gutter – Grey	APV320G
6.0m	Fireproof Flat Roof & Decking Side Gutter – Mill	APV320M
6.0m	Fireproof Flat Roof & Decking Side Gutter – PC	APV320P
6.0m	Fireproof Flat Roof & Decking Side Gutter – Sand	APV320S

ALUPAVE® : Left and Right Hand Gutter Endcaps

The ALUPAVE® Gutter End Cap is a simple but effective end cap for sealing the non-draining end of a ALUPAVE® Gutter. With its sophisticated shape the Gutter End Cap makes it easy to install and create a watertight seal on a decking gutter.



Anthracite Grey

Mill

Powder Coated

ALU PAVE®	Code
Gutter Endcap LH – Grey	APV614G
Gutter Endcap LH – Mill	APV614M
Gutter Endcap LH – PC	APV614P
Gutter Endcap RH – Grey	APV616G
Gutter Endcap RH – Mill	APV616M
Gutter Endcap RH – PC	APV616P

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ALUPAVE®

IMPORTANT NOTE:
As with all aluminium products it is important to always use stainless steal fixings for ALUPAVE® to reduce the possibility of galvanic corrosion which could affect the integrity of fixings.

ALUPAVE® : Fast and Easy Installation

Below is a list of the core ALUPAVE® Full-seal and Decking Board system available and items that could be supplied with each bar, most of which you will need for your project, depending on the design of your project.

ALUPAVE® Fireproof Full-Seal Flat Roof & Decking Board

ALUPAVE® Side Gutter

Standard Bar Gaskets (included)

Timber battens (not included)

Screws (not included)
A2 stainless steel fixings

Tools required

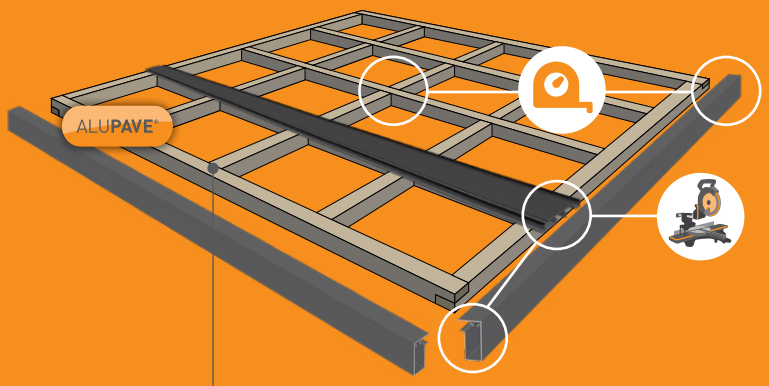
Protective gloves and glasses

Tape measure and fine toothed bladed Chop Saw

Cordless screwdriver/drill, Philips headed screwdriver, soft rubber headed hammer, a straight edge tool.

1 Take all **measurements**

IMPORTANT: Wear sufficient protective clothing

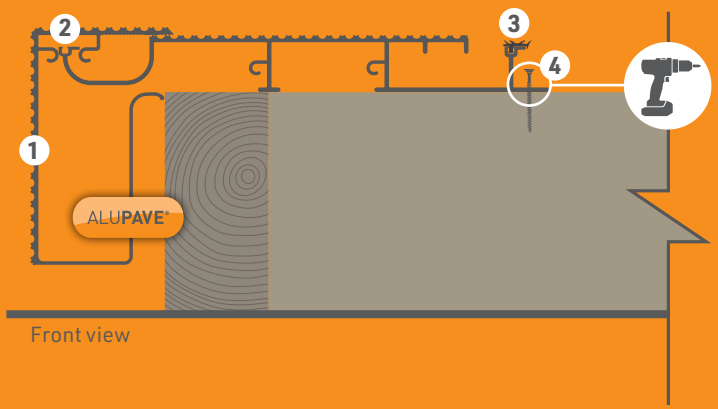


Measure the decking length and the number of ALUPAVE® decking boards required, allowing approximately 20mm overhang to accommodate the front gutter.

Cut **two lengths** of the **pre-lubricated gasket** to the same length as each of the ALUPAVE® Decking Board >

2 Fit the **first side gutter and decking board**

1. **Cut one side gutter bar** to the required length of the decked area, allowing a 20mm overhang to accommodate the front gutter.
2. **Slide the first decking board** into the hooked area of the side gutter – no gasket required for this part. Cut away a small part of the timber purlin to accommodate the curved part of the gutter bar.
3. **Measure one strip of the pre-lubricated gasket** and slot in place on the right vertical stand.
4. **Place the joined bars onto the sub-structure purlins** and drill the hidden fixing flange in line with the centres of your sub-structure purlins. Screw through the hidden fixing flange using A2 stainless steel fixings.



Front view

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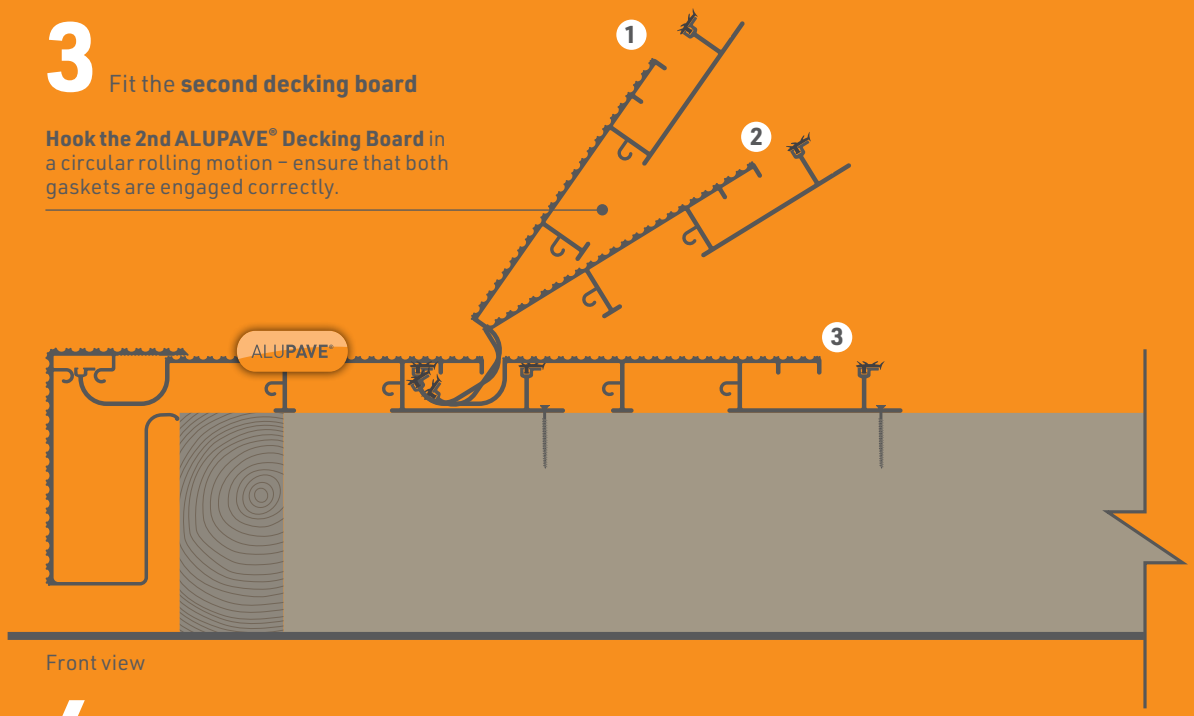
ALUPAVE® : Fast and Easy Installation

3 Fit the **second decking board**

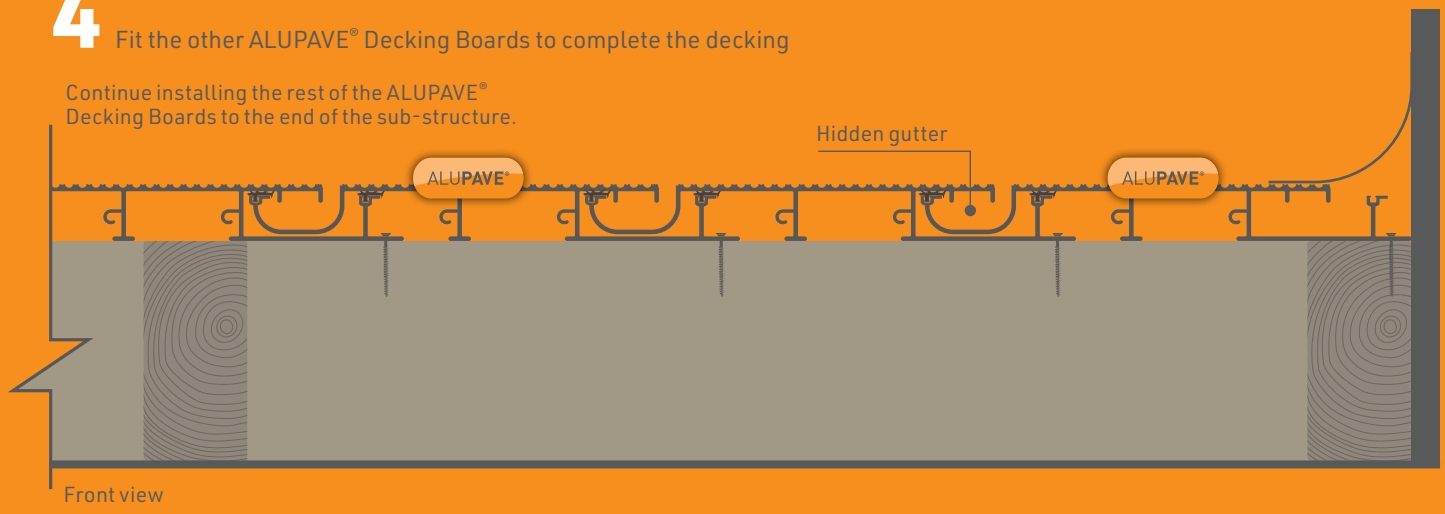
Hook the 2nd ALUPAVE® Decking Board in a circular rolling motion – ensure that both gaskets are engaged correctly.



Front view

4 Fit the other ALUPAVE® Decking Boards to complete the decking

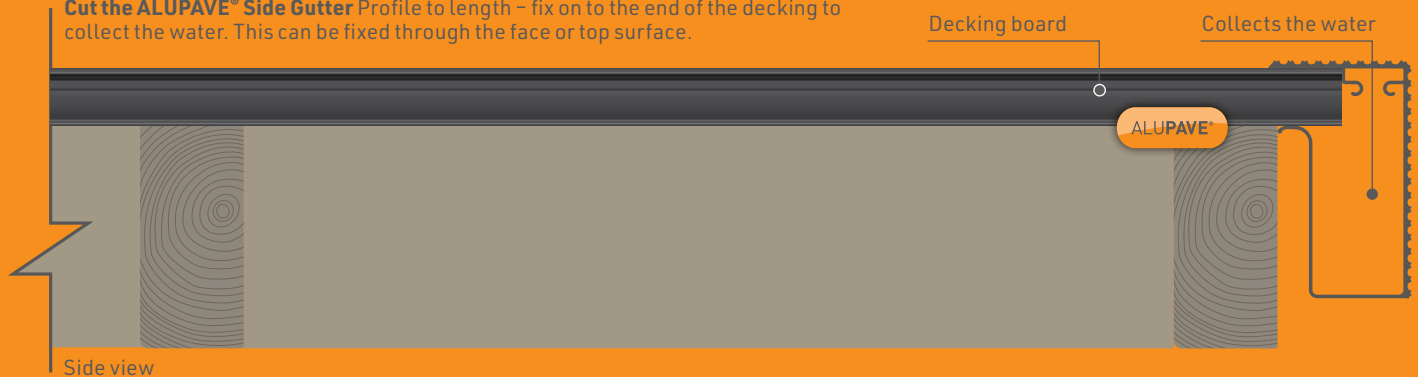
Continue installing the rest of the ALUPAVE® Decking Boards to the end of the sub-structure.



Front view

5 Fit the **ALUPAVE® Side Gutter** to the **front** of the Decking Boards

Cut the ALUPAVE® Side Gutter Profile to length – fix on to the end of the decking to collect the water. This can be fixed through the face or top surface.



Side view

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