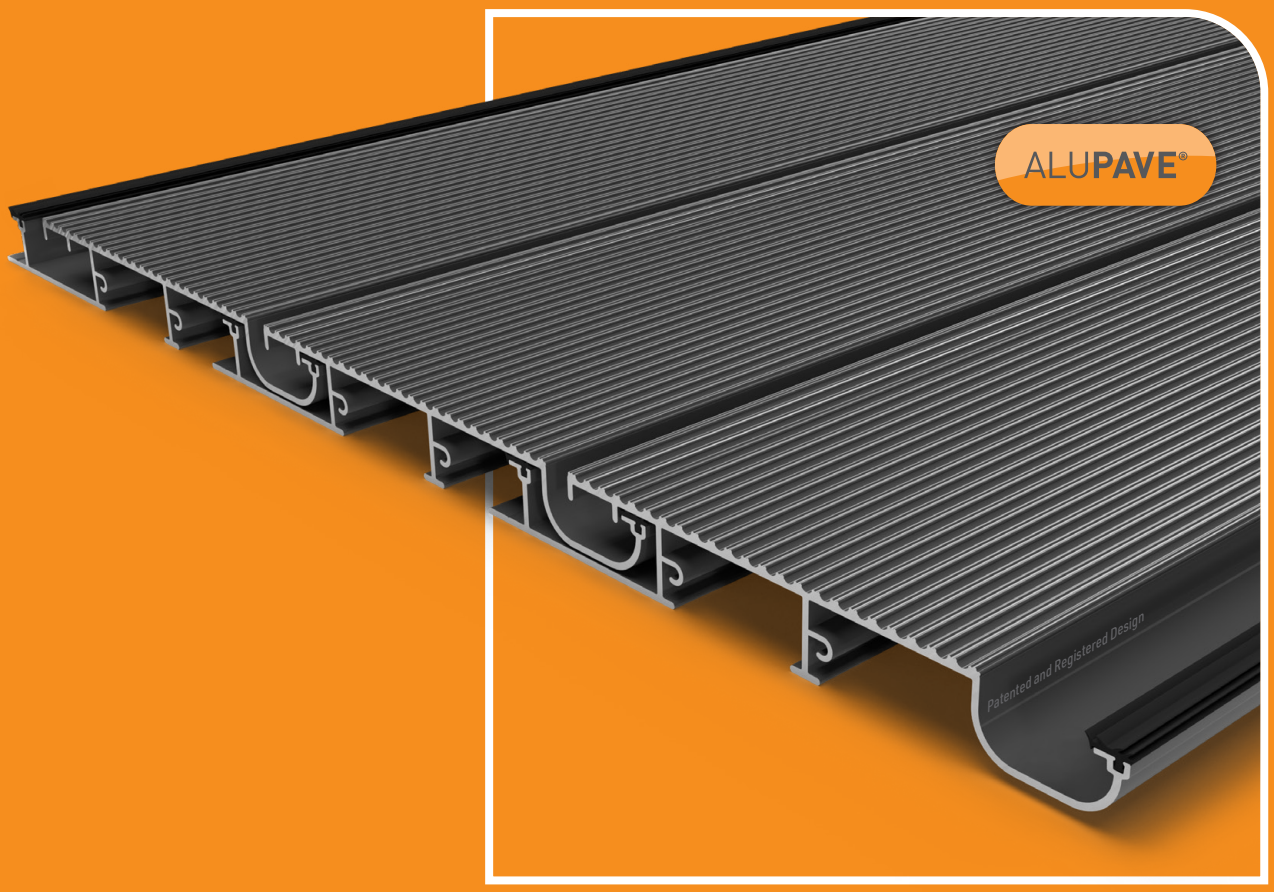
ALUPAVE®

Full-Seal Flat Roof and Decking System

Technical Guide



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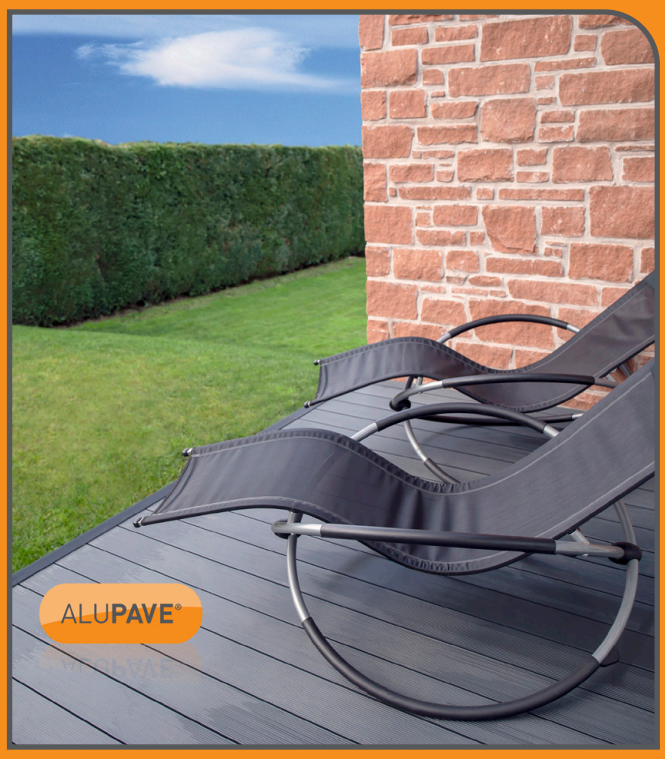
roofing systems: designed • manufactured • delivered direct

Revolutionary Decking and Flat-Roofing Solution

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

Alupave® is extruded from aluminium giving it natural fire rated 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.

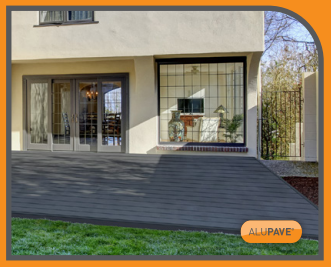


Common uses:

- ✓ Balconies
- ✓ Roof terraces
- ✓ Courtyard gardens
- ✓ Patio areas
- ✓ Walkways
- ✓ Decking areas
- ✓ High-rise buildings

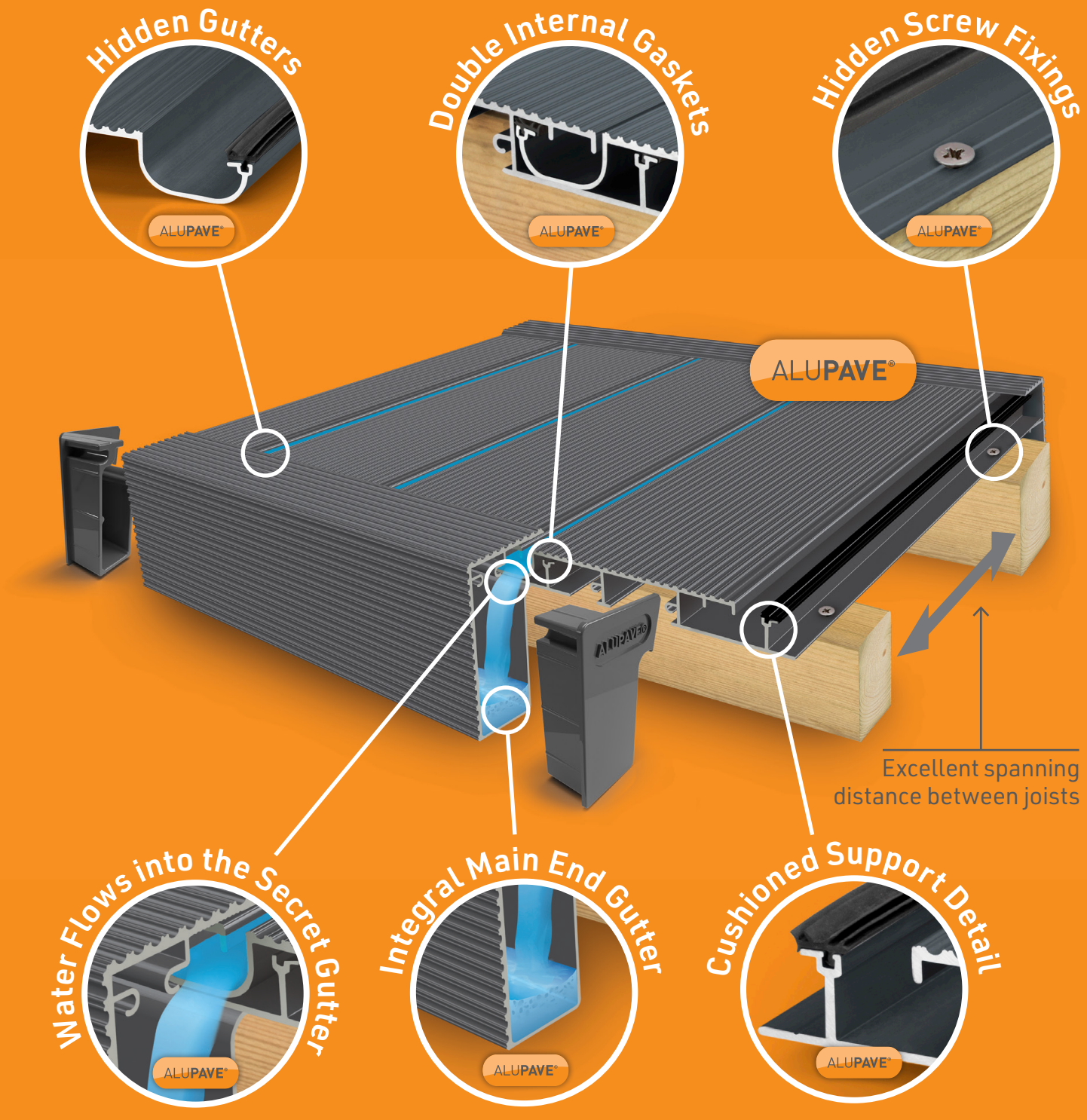
Qualities:

- ✓ Allows low-costs sub structures
- ✓ Excellent spanning capabilities reducing sub-structure costs
- ✓ Fire-rated and suitable for high-rise buildings
- ✓ Full double-seal waterproofing system
- ✓ Integral guttering 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



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!



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

This integrated, concealed drainage system directs rainwater to selected outlets or water-harvesting systems.

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 gutter plays an vital 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 gutter is extruded from aluminium giving it excellent longevity and fire rated qualities.

Alupave® decking 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.

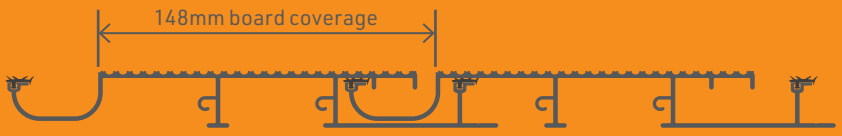
Anthracite grey Alupave® decking.

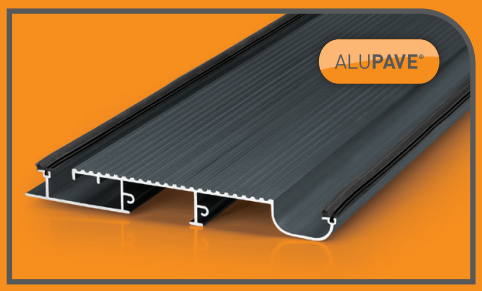
Alupave® High Level Drainage

The Alupave® system is designed to manage rainwater at high levels in most applications.

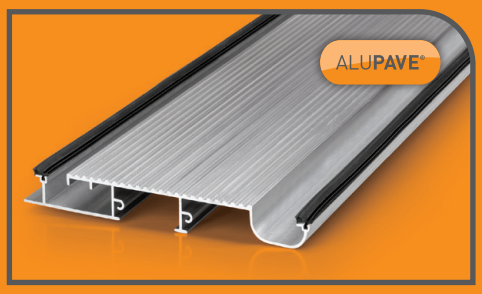
Alupave® : Decking and Roofing Board

Alupave® interlocking decking and flat roofing system boards are manufactured in two standard colours, but can also be manufactured 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.

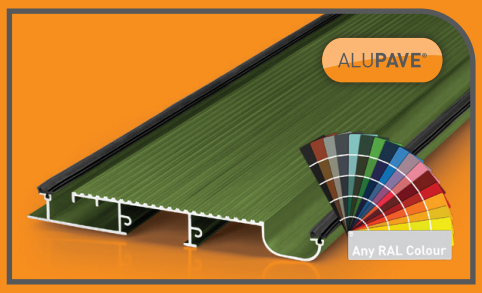




Anthracite grey



Mill



Any bespoke RAL colour

Length	Alupave®	Code
1.0m	Full-Seal Flat Roof & Decking Board - Grey	APV211G
1.0m	Full-Seal Flat Roof & Decking Board - Mill	APV211M
1.0m	Full-Seal Flat Roof & Decking Board - Bespoke	APV211P
2.0m	Full-Seal Flat Roof & Decking Board - Grey	APV212G
2.0m	Full-Seal Flat Roof & Decking Board - Mill	APV212M
2.0m	Full-Seal Flat Roof & Decking Board - Bespoke	APV212P
3.0m	Full-Seal Flat Roof & Decking Board - Grey	APV214G
3.0m	Full-Seal Flat Roof & Decking Board - Mill	APV214M
3.0m	Full-Seal Flat Roof & Decking Board - Bespoke	APV214P
6.0m	Full-Seal Flat Roof & Decking Board - Grey	APV220G
6.0m	Full-Seal Flat Roof & Decking Board - Mill	APV220M
6.0m	Full-Seal Flat Roof & Decking Board - Bespoke	APV220P

Alupave® : Decking Board End Stop Bar

The Alupave® aluminium end cap is designed to cover the edge of Alupave® decking boards and, in some cases, their sides. Designed to ensure a neat finish to the top edge of a decking area, this end cap is an essential and easy-to-install component.

Anthracite Grey

Mill

Any bespoke RAL colour

Length	Alupave®	Code
2.0m	Decking Board End Stop Bar - Grey	APV412G
2.0m	Decking Board End Stop Bar - Mill	APV412M
2.0m	Decking Board End Stop Bar - Bespoke	APV412P
3.0m	Decking Board End Stop Bar - Grey	APV414G
3.0m	Decking Board End Stop Bar - Mill	APV414M
3.0m	Decking Board End Stop Bar - Bespoke	APV414P
6.0m	Decking Board End Stop Bar - Grey	APV420G
6.0m	Decking Board End Stop Bar - Mill	APV420M
6.0m	Decking Board End Stop Bar - Bespoke	APV420P

Alupave® : Decking and Roofing Gutter

These Alupave® decking and flat roof gutters mean that the water draining out of the decking secret gutter channels doesn't just drip off the front but can flow simply into the front hidden gutter and be routed to a drain or water harvesting system.

Anthracite grey

Mill

Length	Alupave®	Code
2.0m	Flat Roof & Decking Side Gutter – Grey	APV312G
2.0m	Flat Roof & Decking Side Gutter – Mill	APV312M
2.0m	Flat Roof & Decking Side Gutter – Bespoke	APV312P
3.0m	Flat Roof & Decking Side Gutter – Grey	APV314G
3.0m	Flat Roof & Decking Side Gutter – Mill	APV314M
3.0m	Flat Roof & Decking Side Gutter – Bespoke	APV314P
6.0m	Flat Roof & Decking Side Gutter – Grey	APV320G
6.0m	Flat Roof & Decking Side Gutter – Mill	APV320M
6.0m	Flat Roof & Decking Side Gutter – Bespoke	APV320P

Any bespoke RAL colour

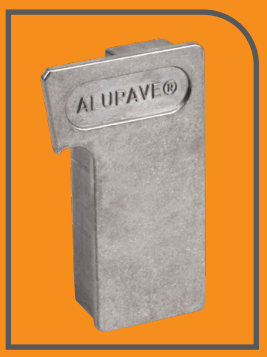
Alupave® : Decking Gutter End Caps

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.

Left-hand

Right-hand

Anthracite grey



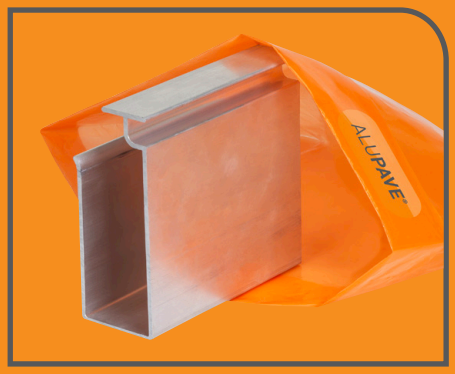
Mill

Any bespoke RAL colour

Alupave®	Code
Gutter End Cap - LH – Grey	APV614G
Gutter End Cap - LH – Mill	APV614M
Gutter End Cap - LH – Bespoke	APV614P
Gutter End Cap - RH – Grey	APV616G
Gutter End Cap - RH – Mill	APV616M
Gutter End Cap - RH – Bespoke	APV616P

Alupave® : Internal Straight Gutter Connector

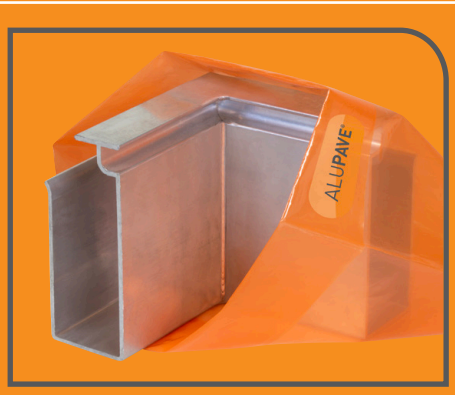
The Alupave® internal straight gutter connector makes it easy to join gutters together when longer lengths are required. This ensures that water collected on your Alupave® decking flows over long distances, even across large areas, to end up exactly where you want it.



Alupave®	Code
Gutter Internal Straight Connector - Mill	APV612M

Alupave® : Internal Corner Gutter Connector

The Alupave® internal corner gutter connector makes it easy to join the gutter when it needs to be routed around an internal corner. This is mostly used for L-shaped decking layout.



Alupave®	Code
Gutter Internal Corner Connector - Mill	APV618M

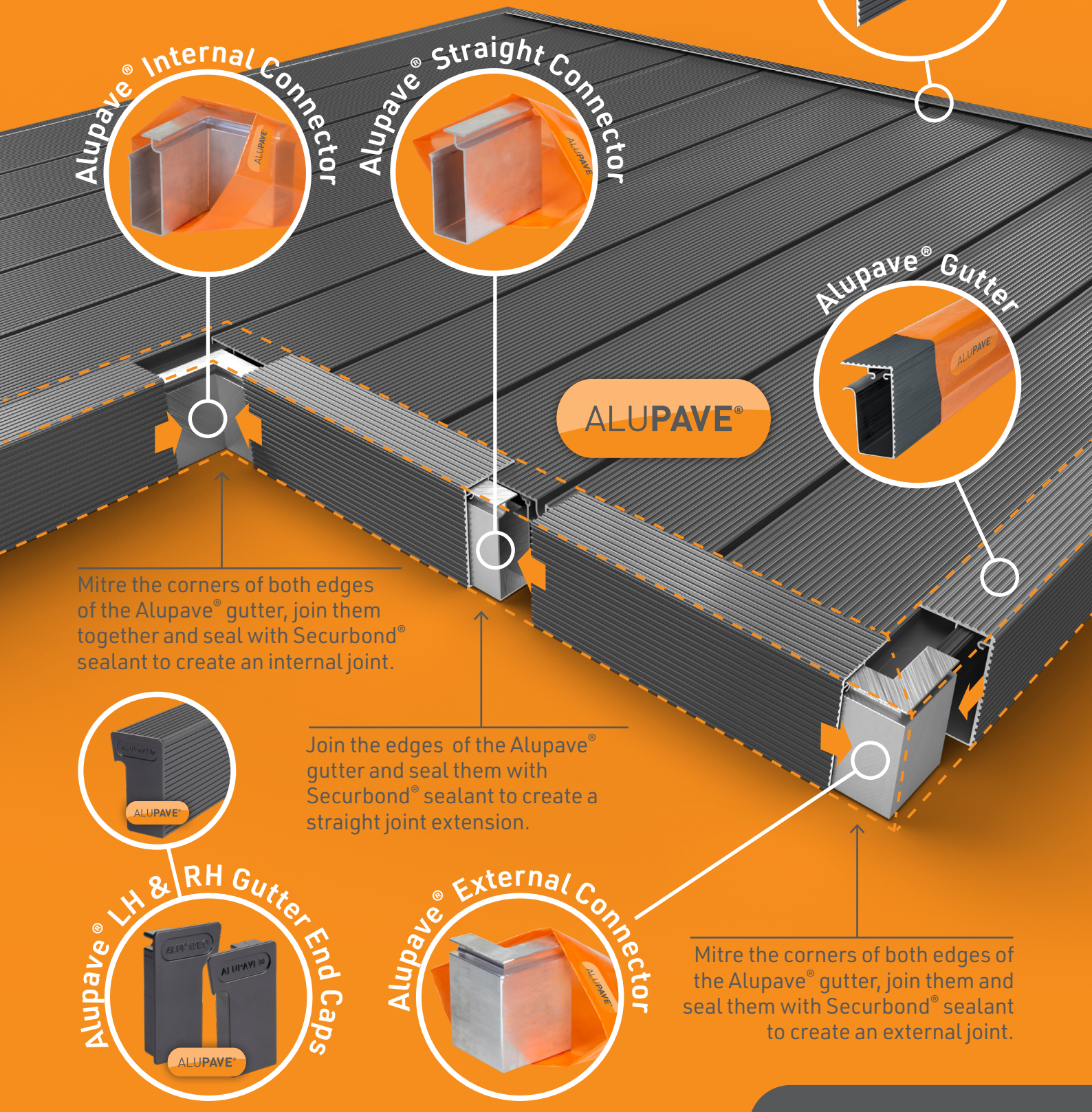
Alupave® : External Corner Gutter Connector

The Alupave® external corner connector for gutters allows you to quickly connect the gutter at an external corner. This enables you to direct the collected rainwater in the desired direction.

Alupave®	Code
Gutter External Corner Connector - Mill	APV620M

Alupave® : Decking Gutter System

The Alupave® guttering system offers a complete drainage solution that adds the perfect finishing touch to your decking project.



Mitre the corners of both edges of the Alupave® gutter, join them together and seal with Securbond® sealant to create an internal joint.

Join the edges of the Alupave® gutter and seal them with Securbond® sealant to create a straight joint extension.

Mitre the corners of both edges of the Alupave® gutter, join them and seal them with Securbond® sealant to create an external joint.

ALUPAVE®

Alupave® : A2 Fire Rating

In any building project, it is essential to ensure that safety comes first, and this is particularly crucial in high-rise construction projects! Even on a standard ground floor decking area or first floor balcony, the risks of fire starting from accidental incidents with patio heaters, BBQs, outdoor firepits and similar equipment, is high!

That's why no compromises have been made with Alupave® to ensure that aluminium's intrinsic fire-resistant properties are incorporated.

Whereas traditional timber decking is a fire hazard, Alupave® is made entirely of aluminium, which means it won't burn like wood!

Alupave® aluminium decking is A2 fire-rated meaning it an excellent choice for balcony and roof decking where non-combustibility is a key requirement.

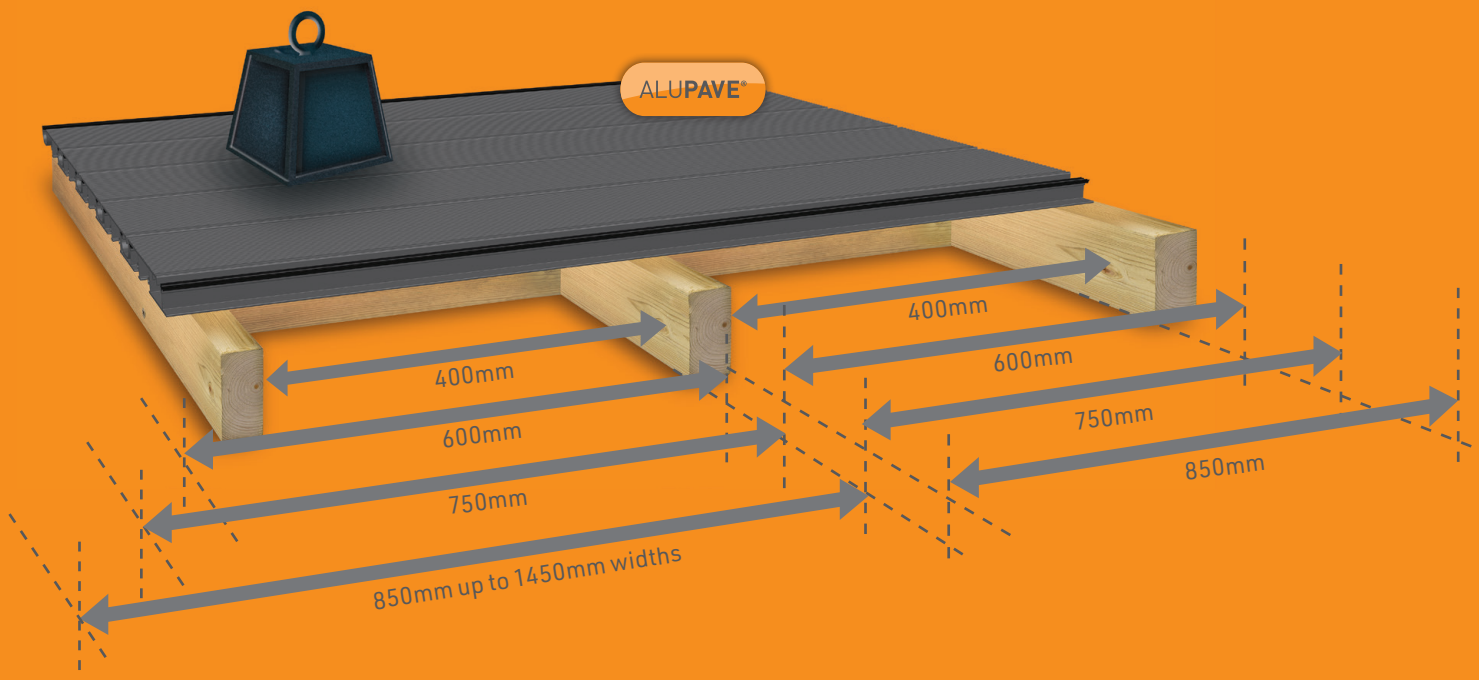
Alupave® non-gasketed boards achieves a fire rating of A2 - s1, d0, fully compliant with EN 13501-1: 2018.

Please note that this fire rating applies only to the non-gasketed version of Alupave® decking.

Alupave® : Spanning Guides

Alupave® has been designed to offer incredible spanning capabilities, saving time and reducing substructure costs. The tables below provide approximate indications of the spans achievable with Uniformly Distributed Loads (UDL); you can see, these are excellent! However, it is very important to consult your structural engineer, as various structural and site-related aspects need to be taken into account with the Alupave® system to ensure the total safety of your structure. Although the Alupave® system allows you to cover longer distances, you must also take into account the desired bounce on the decking. If less bounce is required, move the support centres closer together accordingly.

One thing is for certain: Alupave® is much stronger than many timber or composite decking or flat roofing solutions, which speeds up installation, reduces the cost of substructure and provides 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.

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

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

The inherent robustness of Alupave® is clearly evident from the technical data provided. These tables are provided for guidance only, to assist in identifying the special characteristics required within a specification.

Comfort : Hot and Cold Weather

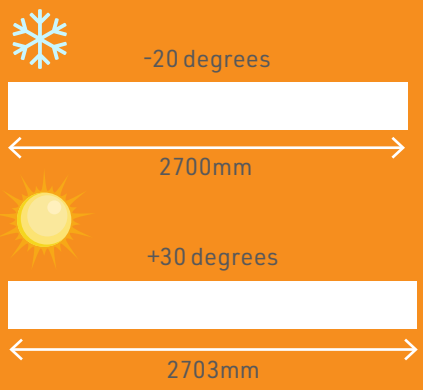
Alupave® Surface Temperature

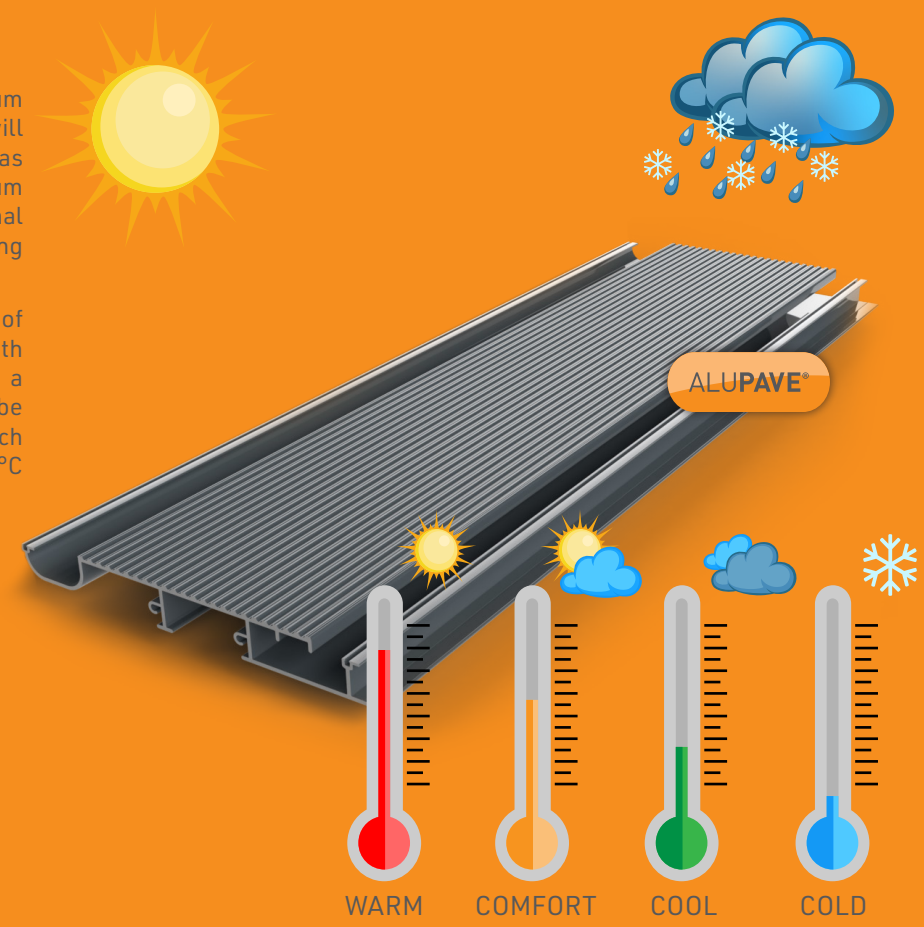
People sometimes ask whether aluminium decking gets hot in direct sunlight, but Alupave® **stays 10 to 25% cooler** than composite or hardwood timber decking! This is because Alupave® is made from aluminium which dissipates heat better than almost any other decking or flat roof paving surface! Obviously the lighter colour of the finish the more it will reflect of the sun's rays, and consequently, less heat is absorbed by the surface.
Furthermore, Alupave® is an incredibly sturdy structure, yet the average weight of an Alupave® aluminium decking board is lower than that of other decking boards, meaning it retains 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.

For example, if the temperature of a piece of Alupave® aluminium at -20°C and its length is 2700mm long, and then it is heated to a temperature of +30°C, it will subsequently be 2703mm 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.

IMPORTANT NOTE:

To ensure the **aluminium stays cool,** it must have a **free flow of air above and below**. Where there is no air flowing underneath the Alupave®, i.e. if it is on top of an enclosed frame/roof, then the heat will not dissipate and the temperature of the surface could rise to get very hot on sunny days.

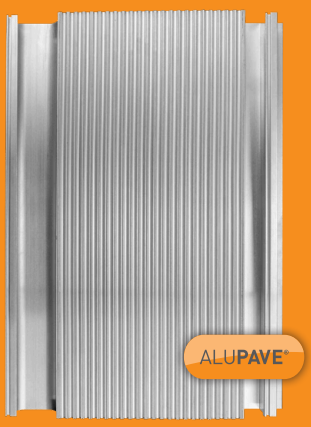
It is therefore very important to allow a full free flow of air underneath Alupave® where it is in areas of direct sunlight.

Alupave® : Anti-Slip Test

The Alupave® surface has undergone a series of rigorous tests, including slip resistance tests, to assess and verify its performance. The samples were conditioned for a at least 24 hours prior to testing, at a room temperature of between 21°C and 25°C.

Testing Method

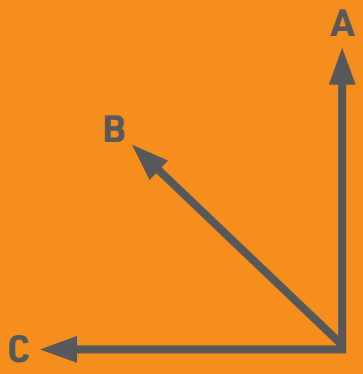
Slip testing; carried out in line with the requirements of *The HSE 2012 publication* "Assessing the slip resistance of flooring" using a pendulum skid tester. The slip testing was carried out at 1 x locations on each sample, in three different directions, in both wet and dry conditions. Testing was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



Mill

Grey

Slip test images in progress



Results

These rigorous tests demonstrated that, under most conditions, the Alupave® system performed exceptionally well, with results indicating a 'low slip potential'.

Even in the few test scenarios where moderate to high slip potential was recorded, these are still considered to be remarkable performance results compared to certain decking and flooring materials made of wood, tiles, composite or other materials.

Classifications	PTV results
High slip potential	0-24
Moderate slip potential	25-35
Low slip potential	36 +

Dry conditions	Mill	Grey
	Median Score of Eight Tests	
Direction A	55	55
Direction B	56	63
Direction C	74	74

Wet conditions	Mill	Grey
	Median Score of Eight Tests	
Direction A	24	25
Direction B	27	32
Direction C	45	38

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.

WARNING : REGISTERED DESIGNS & PATENTS

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