

Alfresco Floors

Hard Landscaping, Made Easy...

For more information email Info@AlfrescoFloors.co.uk or call our London office on 020 8977 0904

Data Sheet: The Grad 'Hidden Fix' Decking System



Royal Opera House, London

Technical Timbers and Composite Boards with Hidden Fixing
Support Rails on Height Adjustable Pedestals

Fire-rated options
Fast-Fit Clip System
Prestigious Look & Feel
Damage Free Board Removal
Industrial Strength Support Rails
Over 1 Million Sqm Already Installed
Matching Cladding System Available
Performance Guarantees up to 50 Years
No Visible Fixings (even between the boards)
Significant Savings on Installation Time & Costs

The Grad 'Hidden Fix' Decking System



“Within just ten years of creating the Grad clip system, we had already installed over one million square metres of decking – and have never known any of it to fail...”

WILFRIED ANDRES – Inventor of Grad

There will always be projects where nothing but the feel and aesthetic of premium wooden decking will suffice, and there will always be clients who demand the crisp, clean lines of a precision installed, clear grade deck. To date, the time/cost economics of meeting those quality demands has been prohibitive on many sites, but Alfresco Floors have chosen to supply the Grad decking system because it combines an exceptionally efficient installation system with very high-end levels of finish.

Grad is a truly 'invisible fixings' system, with clips completely hidden underneath and not even on show between the boards, as with other products. We supply the Grad system as either component parts, or as a fully integrated system of pedestals, support rails and specially milled boards.

Until now, hidden fix decking has usually involved clips which are individually fitted all along the edge of each board, but the unique 'clip grip' design at the heart of the Grad system means that decks can now be installed at least twice as fast as traditional methods. Another advantage of the Grad clips is that they grip deep into the heart of each board (and not just along part of the edge) so once locked in place the boards are impossible to dislodge. However, when necessary, any board can be easily and quickly removed using a special tool, without marking or damage to the board itself or any of those adjacent to it (an all too common problem with other clip based solutions).

The Grad system can either be fitted onto conventional timber joists, or mounted onto the bespoke aluminium support rail system – where finished build-ups of pedestal, joist, clip and deck board start at around 60mm (at least 30mm lower than a timber frame construction). Without pedestals, the Grad system can be installed with build-up heights as low as just 40mm, which opens up a wealth of innovative design opportunities on many new build roof terrace and balcony projects.

The Grad system offers a choice of fully FSC certificated 'clip ready' timber deck boards – these are all specially treated softwoods (with performance guarantees which exceed most hardwoods) and are currently available in Thermo-Pine, Thermo-Ash, Kebony and Accoya. Grad timber deck boards are free from grooves with a very slightly convex surface – this prevents 'cupping' of the timber and eliminates the 'water pooling' which flat timber boards encourage. The Grad system also includes a range of timber and composite boards, which (on request) can be supplied fire rated to Class B.

Designed and manufactured in France, Grad have been constantly refining and improving the materials and technology behind their clip grip system since 1988. As exclusive importers, we are confident that the Grad technology offers the very best combination of quality, durability, strength, accuracy and economy that you will find in any decking system now available anywhere in the UK.

The Grad Installation Procedure (using Thermo-Ash)



Grad rails are available in four heights and are manufactured with the board securing clips already precision fitted.



Full sized rails are simply cut to length on site and then laid out in the approximate positions required.



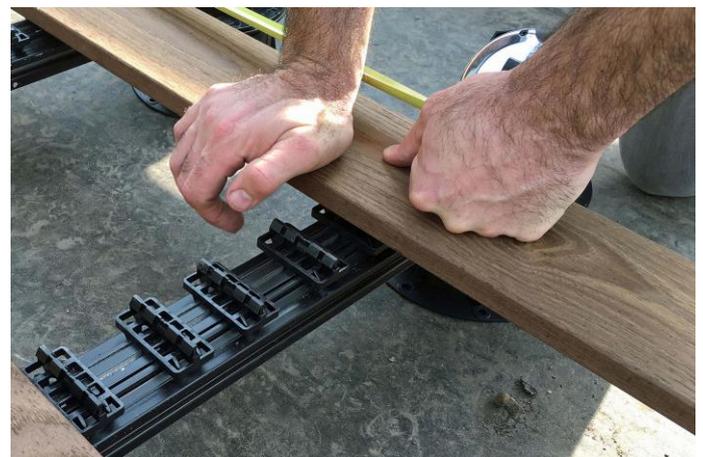
Pedestals go under each rail, typically at 500mm centres, but dependent on rail depth and the anticipated live loads.



Rails are lined up with a reference board and then adjusted into their final position, typically at 350mm-450mm centres.



Grad boards are milled with unique grooves underneath and are convex to speed water run-off and prevent cupping.



Rails arrive with all the clips precision fitted. Just a firm hand pressure will then instantly lock the boards down.



Once locked in place it is impossible to remove the boards without tools, a key feature where wind up-lift is as an issue.



A few boards will lock the whole system in place so that final height adjustments can be made to the pedestals below.



Full length boards are cut and offset to suit the design requirements. They simply butt joint together over a clip.



The precision rails and invisible fixing clips create quick, accurate decks with no clips or screws visible from above.

Grad Deck Board Specifications (all timber FSC sourced)

Thermo-Pine:

Boards only 11 Kgs per SqM

3.3m to 4.8m long boards, PAR to 26mm x 118mm
(minimum build-up on pedestals is 67mm)

Thermo-Ash:

Boards only 12.6 Kgs per SqM

1.2m to 3.9m long boards, PAR to 21mm x 118mm
(minimum build-up on pedestals is 62mm)

Kebony:

Boards only 15.7 Kgs per SqM

2.4m to 4.8m long boards, PAR to 23mm x 118mm
(minimum build-up on pedestals is 64mm)

Accoya:

Boards only 11 Kgs per SqM

3m to 4.8m long boards, PAR to 21mm x 118mm
(minimum build-up on pedestals is 62mm)

Composite: (fire-rated option)

Class B fire-rated 32.7 Kgs per SqM
Non fire-rated 28.6 Kgs per SqM
(all with slip-resistant surfaces)

3.6m long boards, 25mm x 120mm
(minimum build-up on pedestals is 66mm)

To see an animation of the Grad installation system click here: <https://youtu.be/dVUFkccG9Hg>

Grad Deck Board Options (all timber & composites FSC sourced)



Thermo-Pine

120 x 26mm boards
(optional fire proofing)

Pedestal based build-up
height is from 67mm

25 Year Warranty



Thermo-Ash

120 x 21mm Boards
(optional fire proofing)

Pedestal based build-up
height is from 62mm

25 Year Warranty



Kebony

120 x 23mm Boards

Pedestal based build-up
height is from 64mm

30 Year Warranty

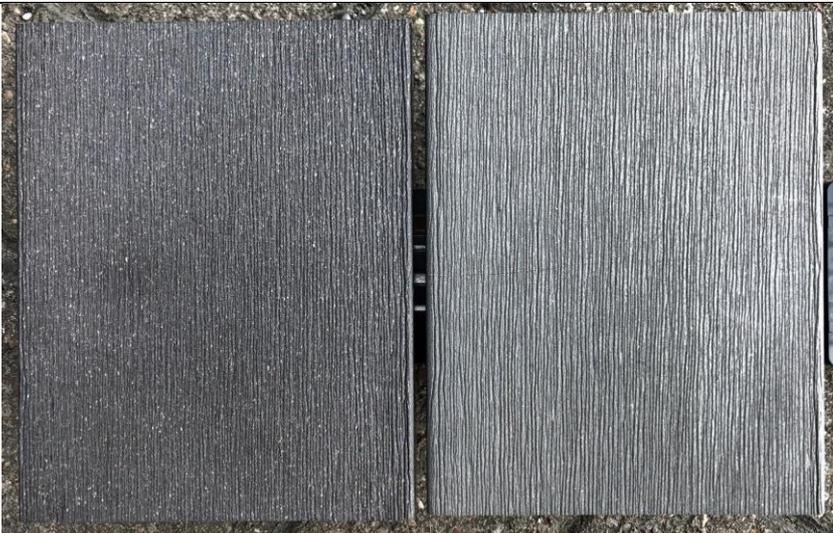


Accoya

120 x 21mm Boards

Pedestal based build-up height is from 62mm

50 Year Warranty



FSC Composites

120 x 25mm Boards
(optional fire proofing)

Pedestal based build-up height is from 66mm

15 Year Warranty



Cladding

Available from stock in Thermo-Ash or Thermo-Pine, with profiles from 20x52mm to 20x150mm

Bespoke dimensions for larger scale projects

Grad Timber Treatments & Composites

Timber is the only renewable building material we have, so it needs to be respected and carefully managed. All the natural wood boards we have selected for the Grad system have distinct advantages over traditional softwood or the tropical timber alternatives. The different treatment processes involved are all sustainable and environmentally friendly - and they create finished boards that have exceptional levels of dimensional stability, are easy to clean and maintain, have improved compression strength, and are extremely resistant to rot or decay – with warranties of up to 50 years.

Thermo Treated Softwoods

First developed in Finland during the 1990's, the thermal modification of timber is now a highly sophisticated, computer controlled kiln based process that preserves wood in its most natural and flawless state, using just heat and water - no nasty chemicals at all. Our raw softwood (all from managed forests) is dry heated to around 130c, then steam heated to over 200c and held at that temperature for several hours. Finally, it is water spray cooled to ensure a final moisture content of just 5%. All this careful and precise attention triggers three important changes in the resulting timber:

Firstly, caramelisation of Lignin in the wood causes a colour change, creating the richer colours usually associated with expensive tropical timber. Secondly, the actual cellular structure of the wood is physically and permanently altered to double its resistance to water absorption and thereby significantly reduce all moisture induced movement or warping. Finally, the rot resistance of the timber is dramatically improved, because the sugar content (the sap) burns away - this eliminates the food source for all the mould, fungus or biological decay which would normally cause deterioration.

Our thermo-treated softwood timbers are much lighter to handle than hardwoods, much less destructive to any tools required during the installation, they create non-toxic sawdust, and they have a low thermal conductivity - so no hot deck boards. The thermal treatment always highlights the natural beauty of the existing grain structure and eventually (without any UV protectant oil) thermo-treated timbers will naturally weather down to a soft platinum-grey colour. The thermo-induced honey or chocolate colouring runs right through to the centre of each board so, even after many years, the original look of the timber can still be easily restored with a light sanding and oiling of the surface.

Thermo treated timbers can also be fire-rated to a Class B European classification.

For further technical information visit <http://www.thermotreatedwood.com/what.html>

Kebonised Timber

Developed in Norway (and researched for over a decade before launch) kebonisation is an environmentally friendly process which enhances the properties of softwood by injecting it with a water based, toxin free formula which includes Furfuryl Alcohol, a waste by-product of sugar cane. The wood is subjected to both vacuum and pressure to ensure complete absorption of the treatment solutions and then dried, before being cured at temperatures between 70-120 degrees C. The resulting decking and cladding is sustainable, durable and requires no maintenance beyond normal cleaning. The process permanently modifies the wood cell walls giving Kebony premium hardwood characteristics and a rich brown colour. Left to weather in the Sun (without UV protectant oils) Kebony eventually develops a natural silver-grey patina, or it can easily be sanded back to its original colour at any time during its long working life. Kebony boards are made from knot free 'clear grade' New Zealand Radiata Pine and the environmental credentials have been internationally endorsed.

For further technical information visit www.kebony.com

Accoya Treated Timber

Using knot free, sustainably-sourced Radiata Pine, Accoya is created by a non-toxic acetylation process that permanently modifies the wood to its core. The result is an environmentally friendly light toned wood with the durability and dimensional stability that matches or exceeds the performance of nature's most durable hardwoods - such as Oak, Teak, Iroko and Sapele. Accoya wood is sourced from sustainable FSC accredited forests in New Zealand and has class-leading environmental credentials. The process creates timber with unparalleled levels of rot resistance and durability and comes with performance warranties of up to 60 years. Every batch of Accoya wood is tested after production to ensure that this durability can be guaranteed.

For further technical information visit <https://www.accoya.com/>

Lignia Treated Timber

Produced at a custom built factory in Wales and launched internationally in 2019, Lignia is the most recent and most advanced 'technical timber' to enter the market. Designed to compete with (and eventually replace) the prestigious teak decking of the super-yacht industry, it is FSC sourced Radiata Pine specially treated to outperform traditional hardwoods. A patented 'lignification' process involves kiln treating and then resin impregnating the raw softwood, which permanently modifies its organic core to create a golden brown timber which has the density, strength and stability to rival most hardwoods – and has rot free warranties in excess of 50 years.

Lignia can also be specified as a fire-rated product to Class B European classification.

For further product information visit <https://www.lignia.com/>

Composite Boards

The Wood-Polymer Composite (WPC) deck boards for our Grad system are formed by a single extrusion process which creates a highly resilient material. The composition is 35% high quality graded recycled HDPE plastics, 60% FSC sourced European Oak timber fibre, and 5% adhesives. These boards are made slip and stain resistant, and over the first six months or so will gently weather down to a uniformly paler shade of their original colour – at which point they will become colour stable for the remainder of their working life. Strength and flex characteristics comply with EN 15534 for Wood-Polymer Composites.

Our composite boards can be fire-rated to a Class B European classification.

Why we use HDPE plastics:

Most composite wood and plastic decking is made from Polyethylene (PE) or Polyvinyl Chloride (PVC). Polyethylene (the most widely used plastic) comes in various forms, including Low Density Polyethylene (LDPE) and High Density Polyethylene (HDPE). Both materials have very similar density; 0.910–0.940 g/cm³ LDPE and slightly greater than 0.941 g/cm³ HDPE. However, the molecular structure of HDPE allows it to have a much higher tensile strength, while maintaining its flexibility compared with LDPE - which is used for plastic bags and applications where lesser strength, but increased flexibility is required. HDPE is used for applications such as water pipes and plastic container packaging, for example, milk and bleach bottles. You will note all the HDPE products are items that are very tough and difficult to tear or crack.

By comparison, PVC (the third most widely used plastic) is denser, harder and stronger than HDPE but has less flexibility to absorb and dampen shock, especially in cooler temperatures.

For further information visit our supplier <https://www.composite-prime.com/composite-decking/>

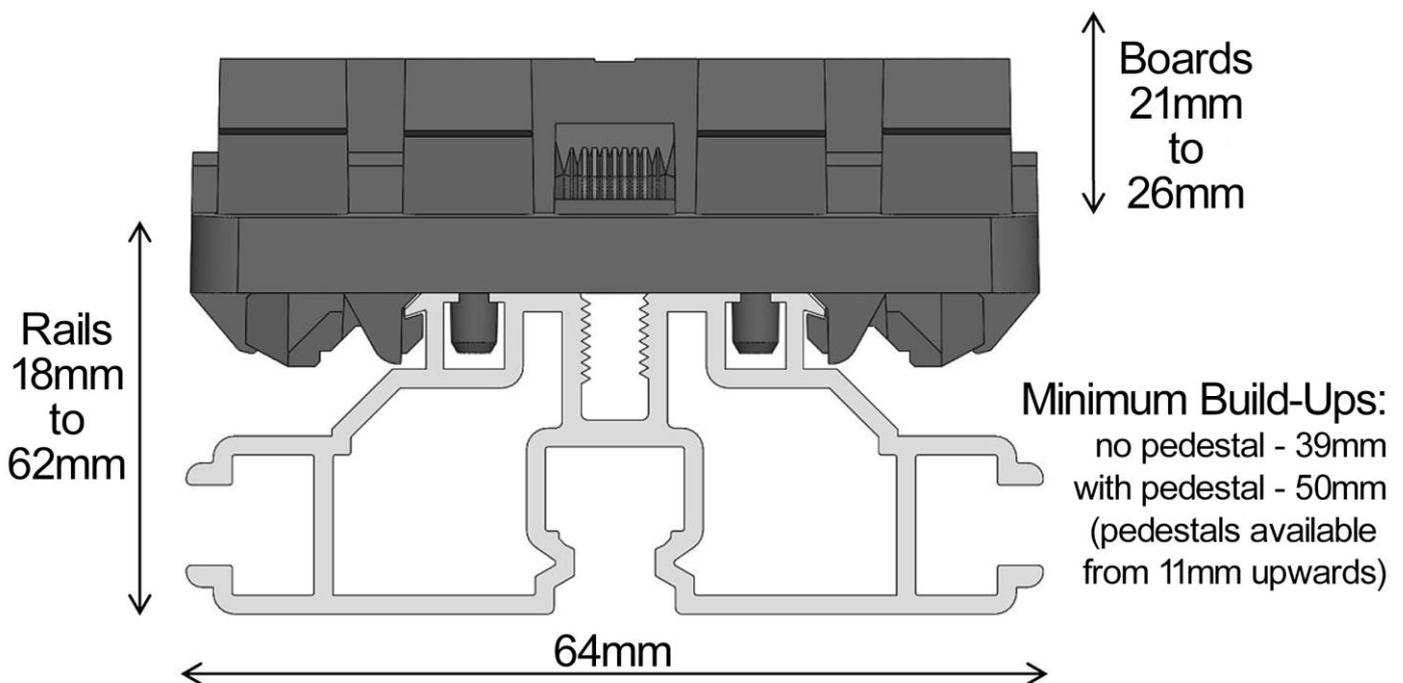
Grad System Technical Information

Our Grad 'hidden fix' decking is specifically designed to fit into the smallest build-up heights of any system now available in the UK and is particularly suited to the increasingly restricted space between balcony floors and door thresholds on the latest high-rise residential buildings.

To calculate the potential combined build-up heights, you just need to decide on the board, the rail and the pedestals required. Grad deck boards come 21mm, 23mm, 25mm and 26mm high.

Grad rails are available at heights of 18mm, 30mm, 45mm and 62mm. This choice will be largely influenced by the live load requirement and is also influenced by the planned pedestal centres. Grad rails are 3.7m long with the clips precision fitted at the factory. Standard clip spacing accommodates boards 120mm or 145mm wide, but bespoke spacing can be arranged for special bulk orders.

Calculations of the minimum build-up heights below assume a 21mm board, Accoya or Thermo-Ash.



For industrial and commercial installations, fixed height Buzon pedestals start at 11mm and Buzon pedestals with integral height adjustment start at 25mm. If you require integral slope correction, the minimum pedestal height available is 21mm. For domestic installations Grad's own dedicated pedestal system is also available. This system has more limited slope correction capabilities and the thread extension arrangement allows adjustments from a minimum of 34mm up to around 300mm.

Grad Rail Weights

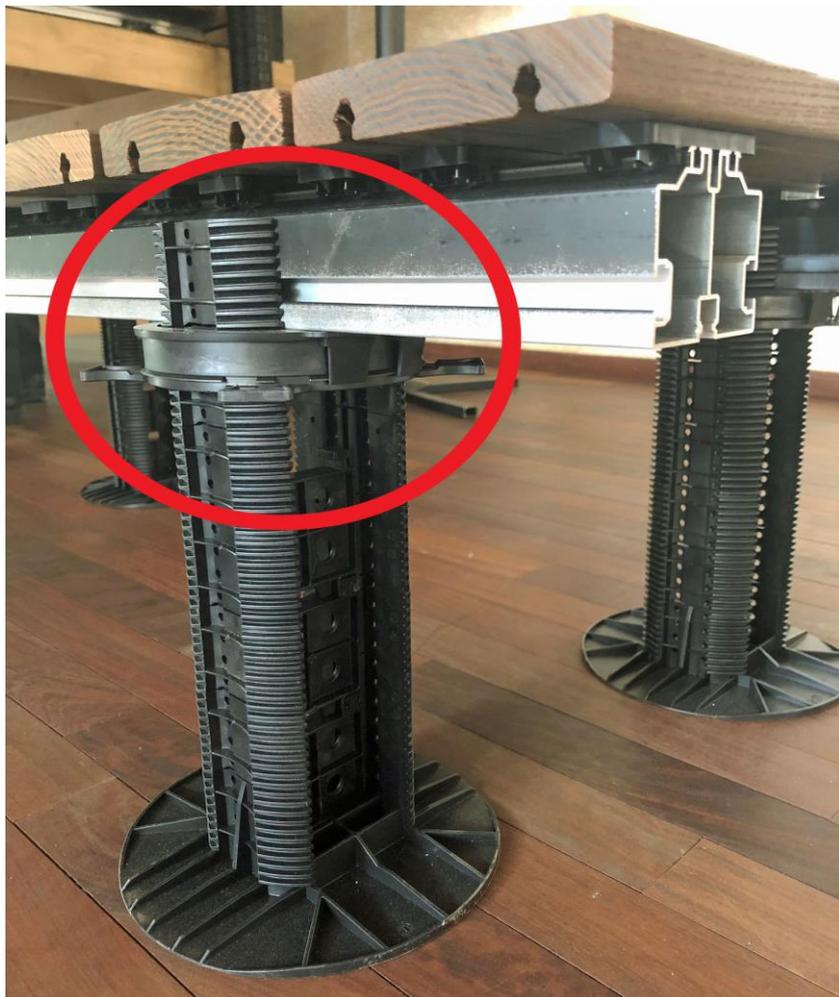
Flat Rail (18mm high excluding a pedestal & board) is 0.7 Kg per Linear Metre

PR 24 Rail (30mm high excluding a pedestal & board) is 1.1 Kg per Linear Metre

PR 39 Rail (45mm high excluding a pedestal & board) is 1.2 Kg per Linear Metre

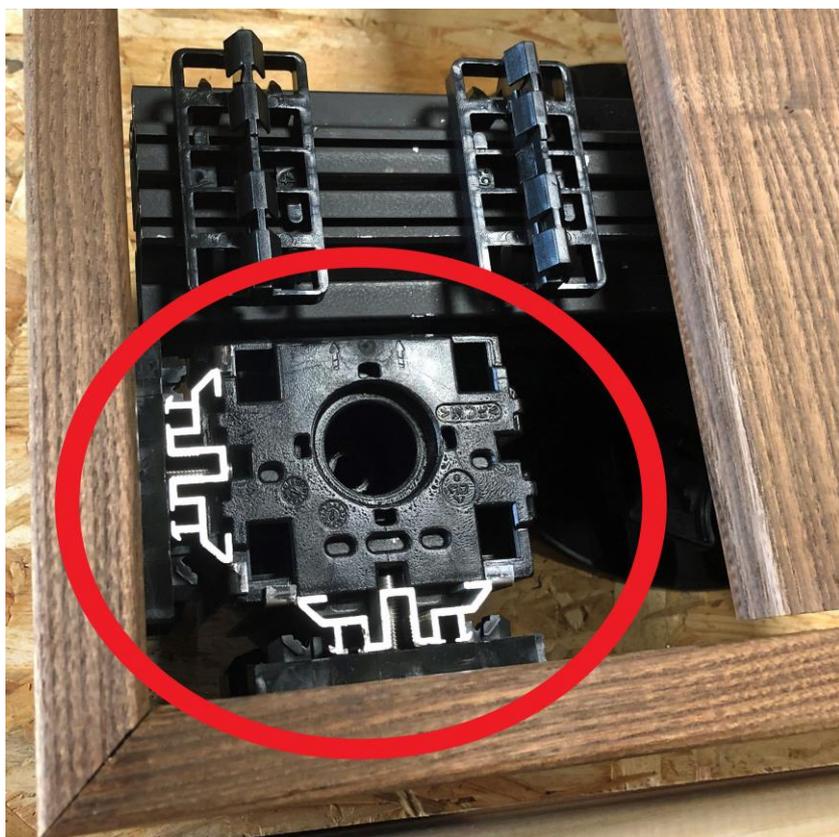
PR 56 Rail (62mm high excluding a pedestal & board) is 1.3 Kg per Linear Metre

Grad Rail and Pedestal System



Grad's own dedicated pedestal system starts at 34mm high. These pedestal snap lock onto the underside of the Grad rails for even quicker layout on-site.

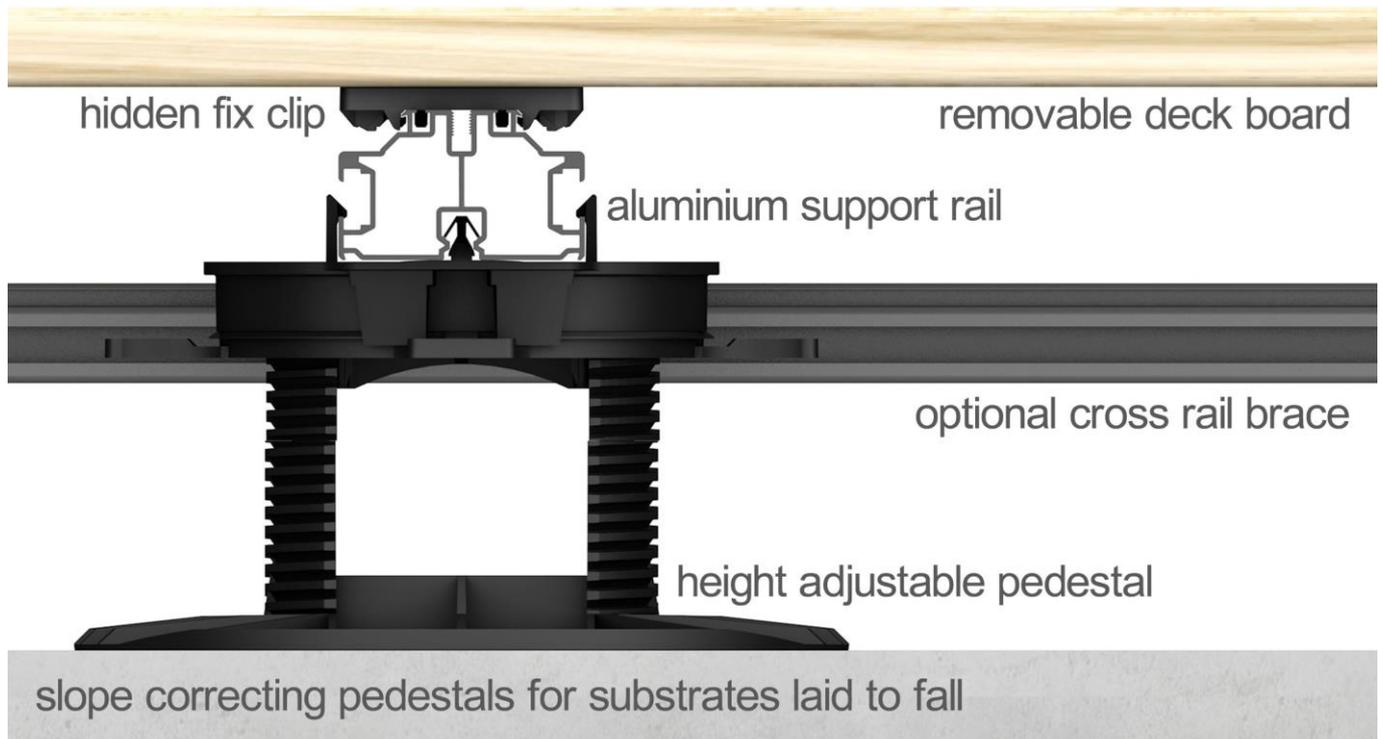
Each one has a screw thread height adjustment collar and can accept additional extension threads, with structural bracing that slots down the centre of the pedestal. In this way the height can be increased to a maximum of around 300mm.



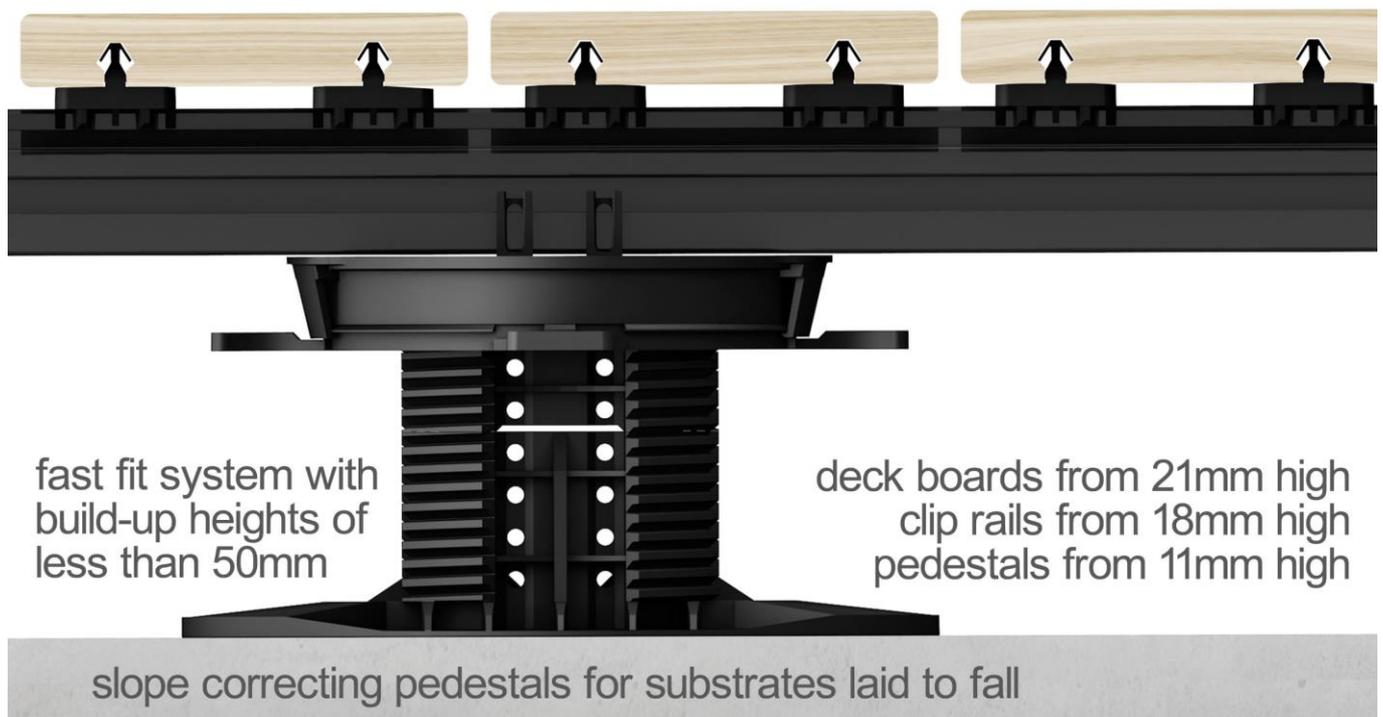
The Grad 'Top Cube' clips onto the side of the Grad rails and allows vertical boards to be installed as step risers or as the skirting around the edges of a deck.

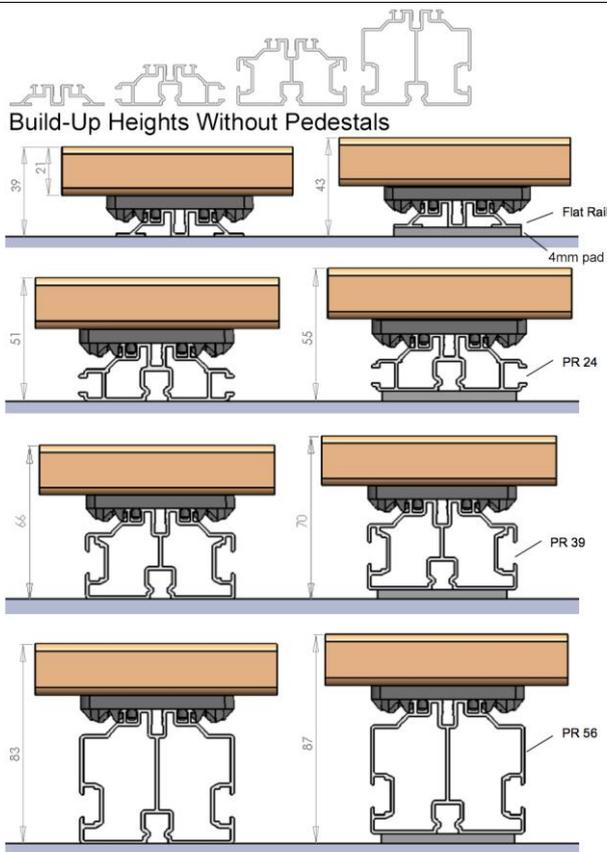
Like the deck boards, these boards can still be removed after installation (without any damage to the material) by using the specially designed Grad removal levers.

Grad system components

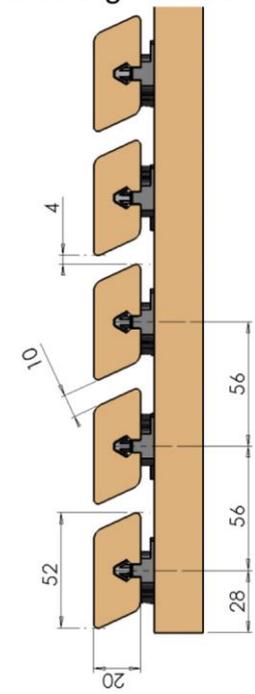


Grad system build-up heights





Cladding Dimensions



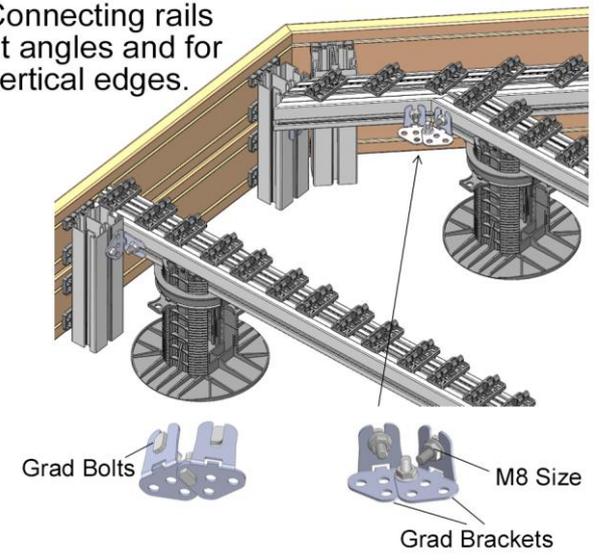
Rail & Pedestal Centres

Typical rail centres are
 450mm for domestic
 350mm for commercial

Typical pedestal centres for
 domestic/commercial sites

PR24 Rail	400mm/300mm
PR39 Rail	600mm/400mm
PR56 Rail	1200mm/550mm

Connecting rails at angles and for vertical edges.



There are currently three standard profile designs for the Grad cladding boards and they come in two different thicknesses - 20mm and 26mm. The 52mm wide boards come in both rectangular and shadow-gap profiles, the 65mm wide boards just come in a rectangular profile, the 72mm wide boards just come in a shadow-gap profile while the largest option, our 150mm wide boards, come in a shiplap profile. The standard timber option for all these Grad cladding boards is either Thermo-Ash or Thermo-Pine, but other timbers or bespoke board profiles can be specified for larger orders.

For further information on Grad Decking contact www.AlfrescoFloors.co.uk or call 020 8977 0904



Company Background

Alfresco Floors are based in West London and work nationwide. We concentrate exclusively on exterior hard landscaping. We specialise in the supply of 20mm porcelain tiles, concrete paving, or timber and composite decks. We usually install this as raised floors on terraces and balconies, or as commercial hard landscaping.

Alfresco Floors offer technical design consultancy, material supply, in-house installation teams, or usually a 'turn-key' combination of all three of these services.

The people at Alfresco Floors have a long and well respected track record of over 25 years in exterior floors, all over the UK. During this time we have become familiar with all manner of materials, all sorts of technical challenges, and just about every 'raised floor' installation system. As a direct consequence of this practical, first hand experience, we now focus our efforts exclusively on carefully selected products and solutions that we know offer the best combination of price, prestige and practicality.

In addition to projects which use just one of our four exterior materials (porcelain, concrete, timber or composites) we also cater for the growing trend towards 'hybrid' hard-landscaping, where architects and designers are looking to combine mixed materials in more elaborate layouts. To facilitate this, the materials and installation systems we supply have been chosen to work together technically and aesthetically.

Our aim, wherever possible, is to provide an easy, comprehensive 'one stop shop' for architects and designers. By selecting one of our integrated Alfresco Floors systems, you will simplify what might otherwise have been a much more complex combination of landscaping product requirements, sourced from several different suppliers. Currently we import and supply three complementary systems in our exterior range;

AirScape – Low maintenance 20mm porcelain paving on height adjustable pedestals.

Ebema – Industrial strength concrete paving with bespoke size and colour options.

Grad – Luxury look decking on a 'fast fit' hidden fixings support rail system.

Alfresco Floors

Hard Landscaping, Made Easy...

The Grad decking system is distributed nationally across the UK by Alfresco Floors. For more information email info@AlfrescoFloors.co.uk or call us on 020 8977 0904