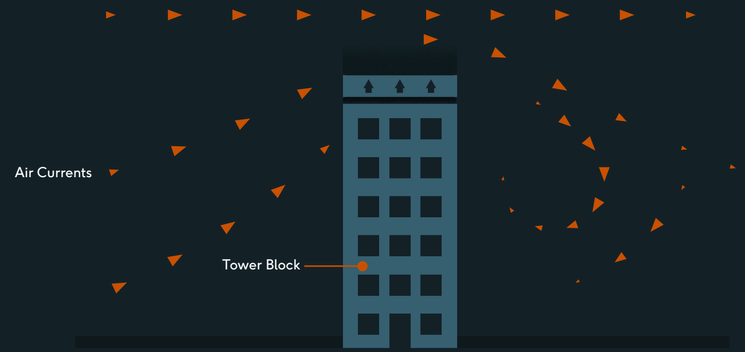
Preventing Wind Uplift on Decking & Terraces

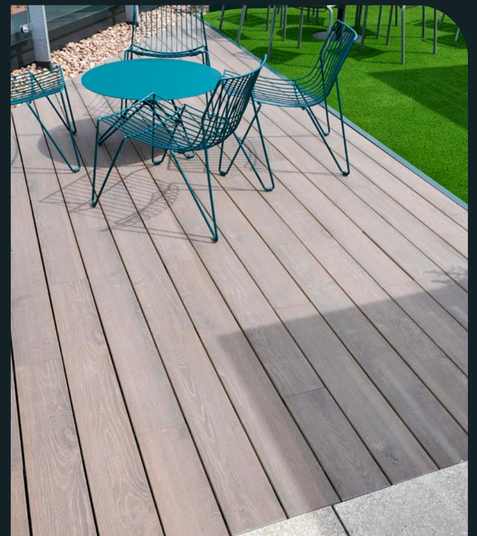
RAAFT

What Is Wind Uplift?

When air currents pass over a flat surface they create pockets of low air pressure and because the air pressure underneath the surface is higher, the surface is pushed upwards towards the lower pressure area. This is the principle behind aircraft wings.



Tiles on a roof terrace which have been damaged by wind uplift.



How This Affects Terraces

On a roof deck, where the deck surface is loose-laid into a supporting frame, this can result in the surface lifting from the frame and becoming unstable or damaged. In more extreme conditions,the surface components can cause damage to surrounding structures and even injury to persons.

Factors that affect wind uplift pressure:

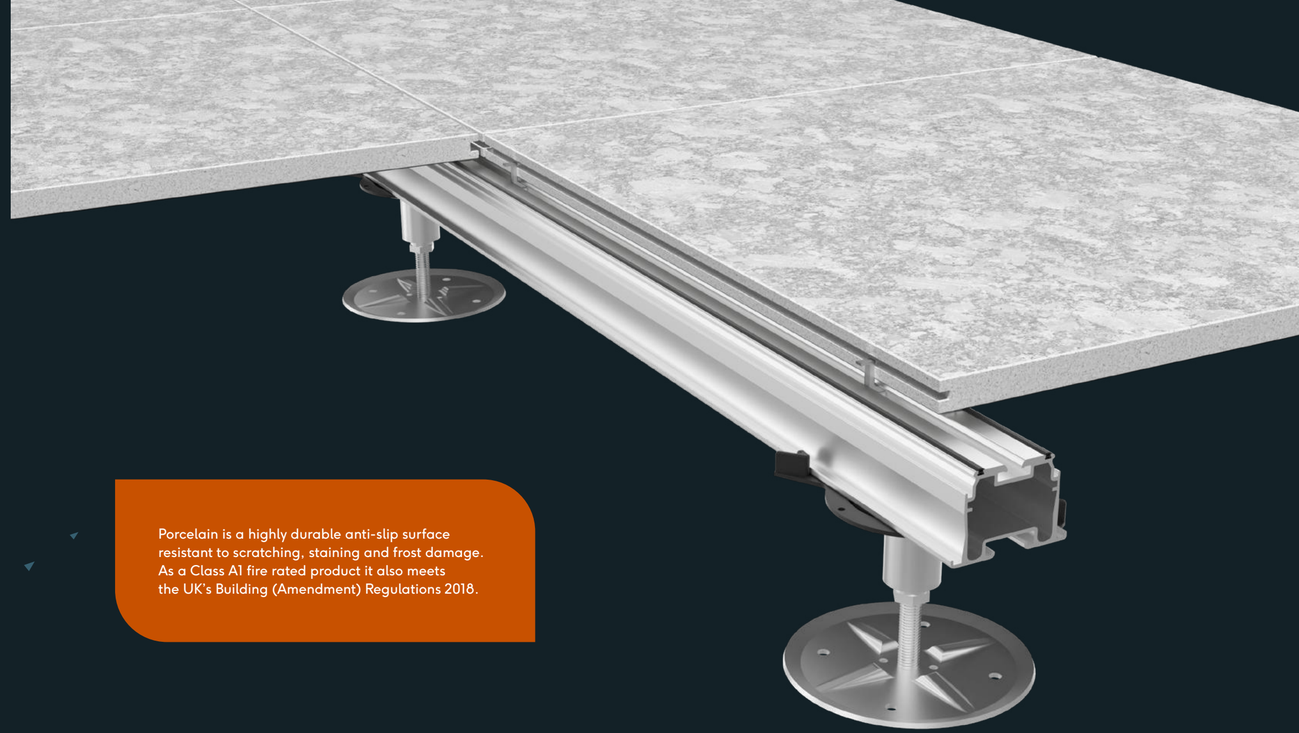
- Building height, location and shape
- Parapet height and permeability
- Surrounding buildings and terrain
- Wind direction and speed

How Raaft Are Improving Wind Uplift Resistance

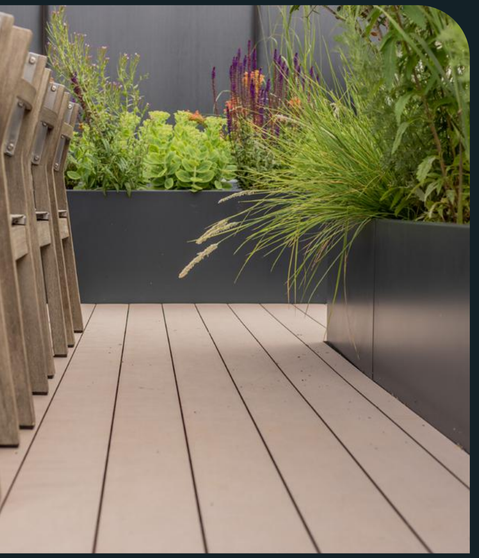
Introducing Atria+ Wind Uplift Resistant Flooring

Atria+ anti wind-uplift tiles is an innovation based on our popular Atria Porcelain Tiles, available in a fine selection of highly authentic wood, stone, concrete and terrazo effect finishes and a range of sizes to create uniform or random patterns.

The new Atria+ wind up-lift tiles feature a groove cut unobtrusively into the sides that allow the flooring to be clipped down. Used in combination with our Raaft Terrace System, our design-protected stainless steel anti-uplift clips fit unobtrusively into this groove and will prevent uplift extreme windspeeds.



Porcelain is a highly durable anti-slip surface resistant to scratching, staining and frost damage. As a Class A1 fire rated product it also meets the UK's Building (Amendment) Regulations 2018.



Previously Tested Methods

The Atria+ porcelain tiles were tested using a Formoa 017FE hybrid polymer adhesive to hold them down to the aluminium joists that run beneath. Being a fast-setting adhesive, we were able to run the tests fairly soon after they were adhered to the joists and this achieved an excellent wind-uplift resistance.

The disadvantages of using an adhesive to hold the tiles down is that it makes replacing or removing tiles difficult.

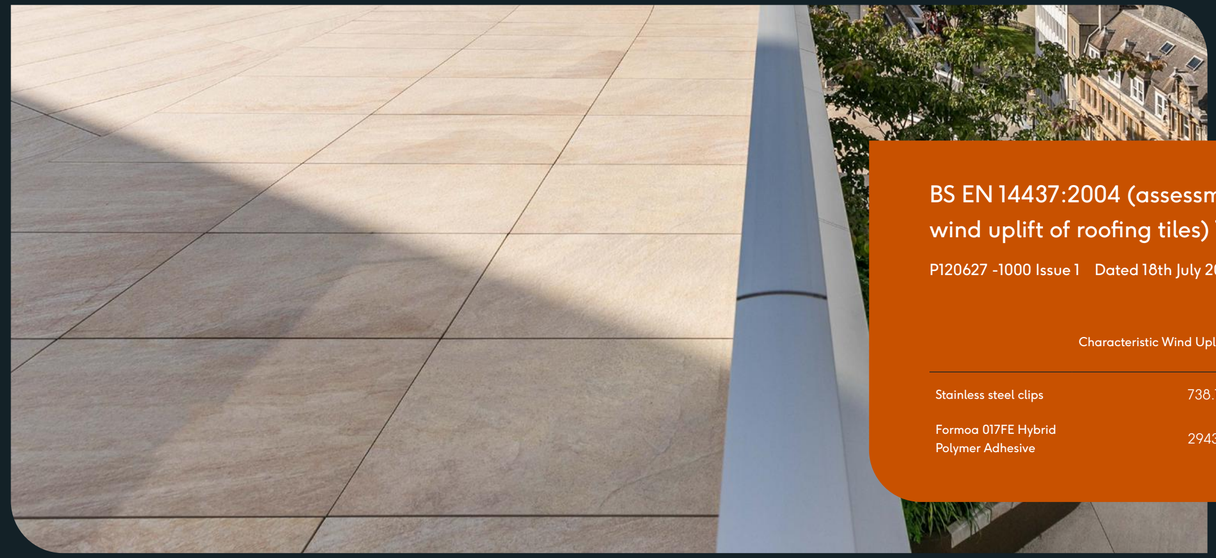
Proven Wind Uplift Resistance

Products that claim to be resistant to wind uplift must meet BS EN 1991-1-4: 2005 + + A1:2010 Eurocode 1 regulations, so we put our tiles and clips to the test.

Following the principles of BS 14437:2004, the tests were conducted by independent testers BRE Group on both types of clip, fixing 600 x 600 mm, 20 mm thick Atria+ Porcelain Tiles, with two clips per tile attaching them to the Raaft Aluminium Joists. Tests were also carried out on the Pedestal Joist Connectors.

Testing applied an uplift pressure of 4536N/m2 and as the products were tested to destruction, no partial safety factors were used.

The clip and groove wind uplift resistance system is also featured on our Terrafina composite wood-polymer decking, which is a durable, attractive, Class B fire rated alternative to traditional timber decking.



BS EN 14437:2004 (assessment of the wind uplift of roofing tiles) Test results

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	Characteristic Wind Uplift Resistance per Clip
Stainless steel clips	738.1N
Formoa 017FE Hybrid Polymer Adhesive	2943N

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