

POLYDECK LIMITED

Bridges and boardwalks that put the environment first

POLYDECK™



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ABOUT US

- Polydeck Ltd is a UK company based in Bristol, England.
- We opened our doors in 2001 as a business manufacturing anti-slip panels and stair treads made from Glass Reinforced Polymer (GRP) - also known as Fibre Reinforced Polymer (FRP).
- Over the years our capabilities and expertise have expanded, and we now focus on the design, manufacture, assembly and installation of GRP bridges, boardwalks and planks for use in the UK countryside and country parks.
- The products we manufacture are designed with sustainability in mind: we use recycled materials in our products, 100% of our energy is from renewable sources, we send zero waste to landfill, and our products last for 75 years. In the last two years alone, we have saved over 2.66 million 500ml plastic bottles from being sent to landfill. This equated to a saving of over 110.24 tonnes of CO_2 emissions compared to using virgin plastic.
- By choosing our sustainable products, you are making a conscious decision to help the environment and protect nature for future generations.









100% of the electricity we purchase is from renewable sources

ISO 9001 Certified

Our GRP waste is sent to waste-to-energy, not landfill

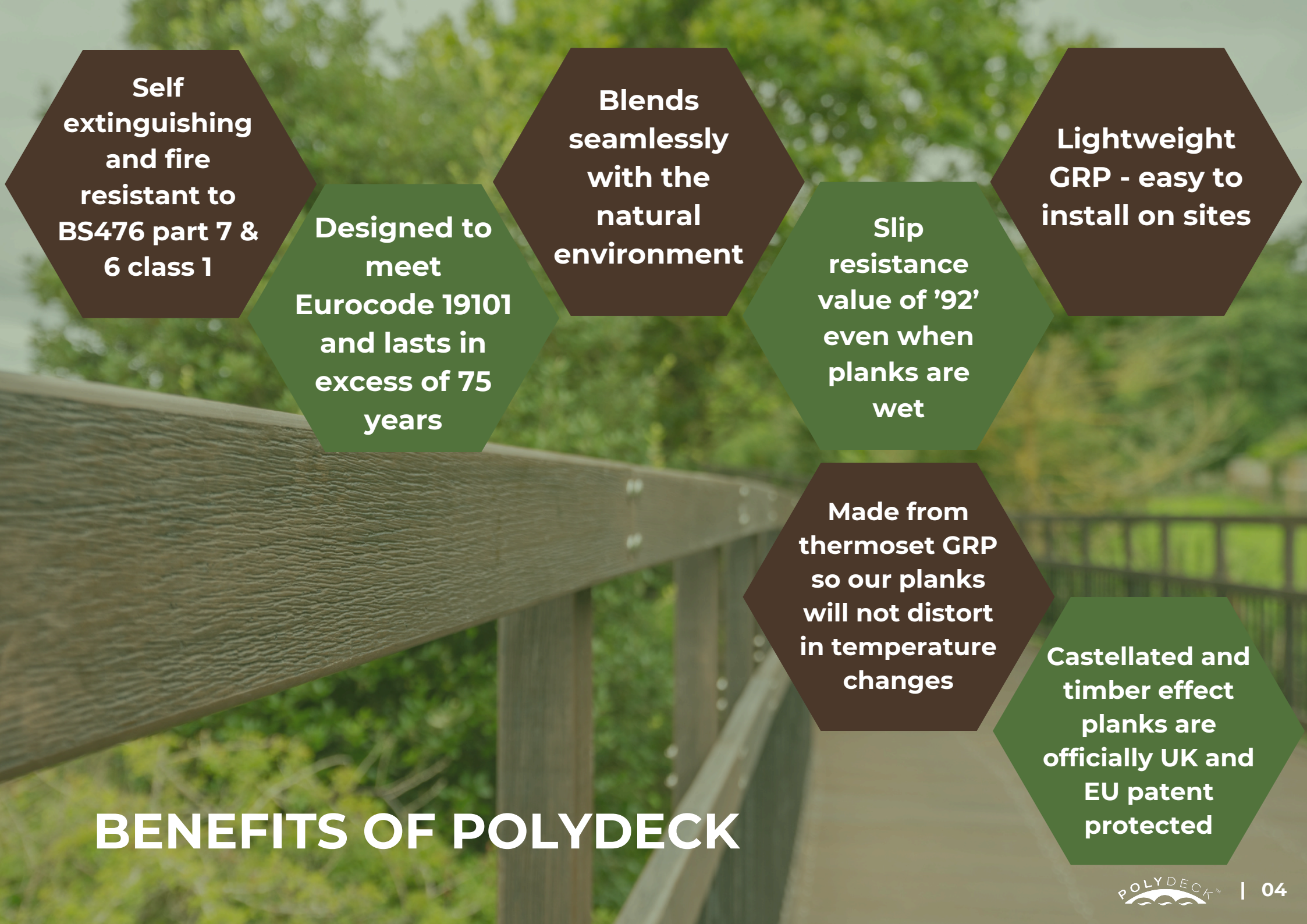
ISO 14001 Certified

The POLYplank™, post and rail are all Environmental Product Declaration (EPD) Certified

Each square metre of the foam core contains 140 recycled 500ml plastic bottles

Since 2023, we have saved over 2.66 million 500ml plastic bottles from being sent to landfill.

SUSTAINABILITY



Self extinguishing and fire resistant to BS476 part 7 & 6 class 1

Designed to meet Eurocode 19101 and lasts in excess of 75 years

Blends seamlessly with the natural environment

Slip resistance value of '92' even when planks are wet

Lightweight GRP - easy to install on sites

Made from thermoset GRP so our planks will not distort in temperature changes

Castellated and timber effect planks are officially UK and EU patent protected

BENEFITS OF POLYDECK

POLYBRIDGE™

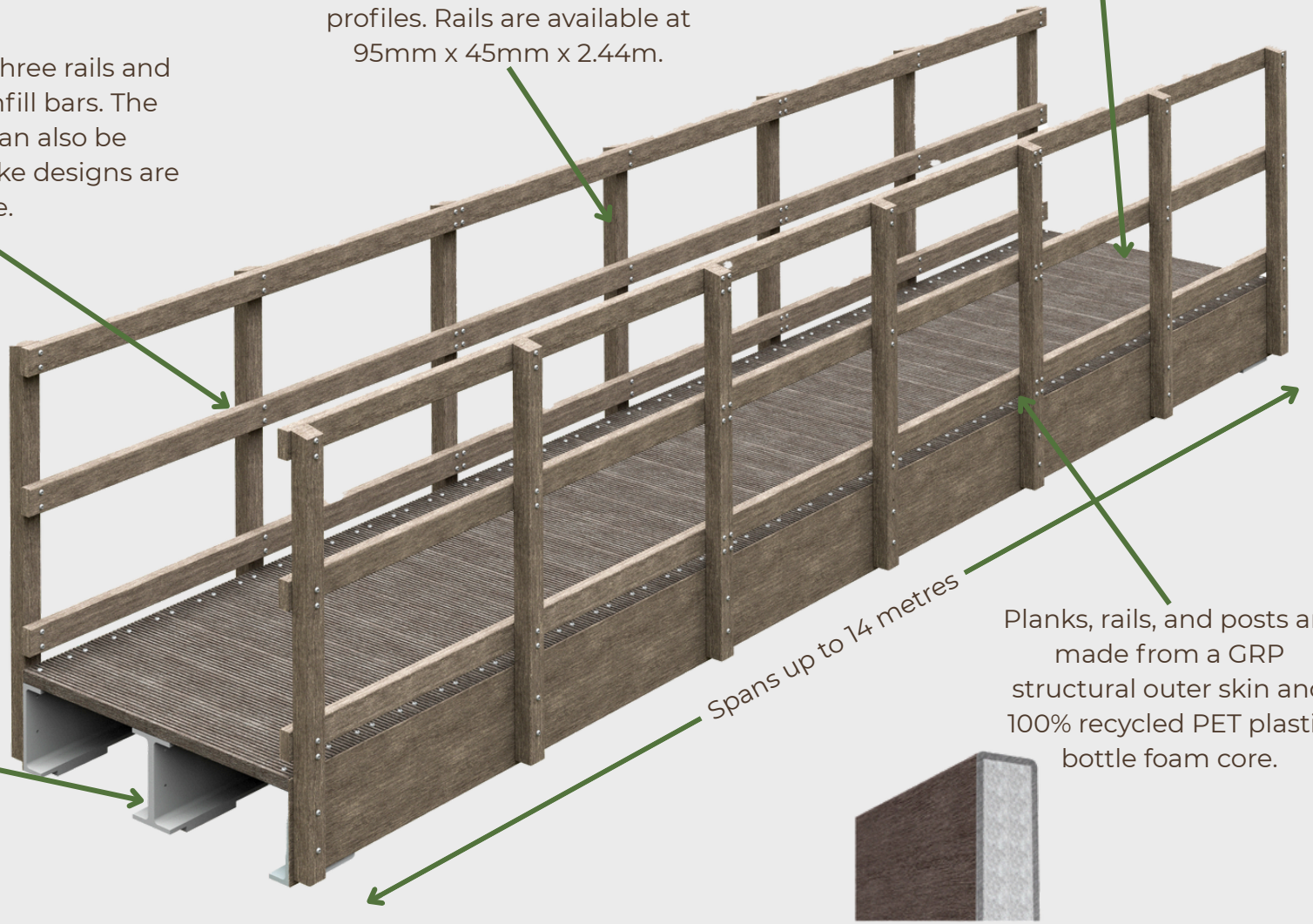
With a design life in excess of 75 years the POLYbridge™ is one of the most sustainable solutions you can buy - lasting over seven times longer than a timber alternative.

Posts are available in 1.15m high as standard, 1.4m for cyclists, and 1.8m for equestrian. Manufactured in 75mm x 75mm or 100mm x 100mm profiles. Rails are available at 95mm x 45mm x 2.44m.

Castellated deck planks with 'near-diamond-hard' aggregate, and a slip resistance value (SRV) of '92' even when wet.

Parapets start with three rails and are available with infill bars. The number of rails can also be increased and bespoke designs are available.





UK pultruded GRP structure for all main beams and cross members. Manufactured to EN 13706 grade E23. Designed to meet all relevant standards pertaining to your requirement.

Spans up to 14 metres

Planks, rails, and posts are made from a GRP structural outer skin and 100% recycled PET plastic bottle foam core.

All our bridges are designed to meet Eurocode 19101, a European technical specification for the design of fibre-polymer composite structures. The code sets out the parameters required to achieve the minimum 75 year design life that we offer with all our bridges, giving you the confidence that the structure you have bought will last for generations.

We also offer independently verified Design Check Certificates for all bridges where required, calculations and Approvement In Principle (AIP) for further piece of mind.

Our bridges are typically designed to BS4592-0:2006 + A1:2012 5kn/m2 loading. All parapets are designed to BS-7818 : 1995 Class 2 for a 0.7kn/m and Class 3 for 1.4kn/m loading.





The POLYbridge™ blends seamlessly with the natural environment, and the timber effect finish is hard to distinguish from natural wood. The GRP structure requires little to no maintenance and after installation the bridge, surrounding countryside and ecosystems can be left in peace.

We can handle the entire process, from initial design to final installation.

If you prefer to install the bridge yourself, we can deliver the materials to your site, either fully assembled or deconstructed ready for assembly.















BROOKDALE GOLF CLUB, LANCASHIRE

- The original timber footbridge at the golf club in Oldham had no anti-slip features and was extremely slippery when wet.
- It subsequently collapsed due to rotting timbers, forcing the closure of the Rights of Way path for golf club users and members of the public.
- The existing stone abutments were also damaged and in need of refurbishment.









THE POLYBRIDGE™ SOLUTION

Polydeck undertook the following programme of works to replace the failed timber bridge with a brand new GRP anti-slip alternative that would last 75 years:

- Full design, and provision of AIP, calculations, EPD certification, and Design Check Certification for the new structure.
- Removal and disposal of the old rotten timber bridge.
- Repair and refurbishment of the damaged stone abutments.
- Provision of three separate POLYbridges™ that, when combined, measures a total of 44 metres in length.
- Full installation of bridges on site.
- Creation of a bespoke ramp to ensure accessibility for the public, including those with mobility challenges, and for golf trolleys.
- A solution that blended with the natural landscape of the golf club and saved over 44,000 500ml plastic bottles from going to landfill.

EXE ESTUARY, DEVON



- The existing timber boardwalk had failed after 10-15 years due to its proximity to the sea and tidal flooding.
- The anti-slip surface on the planks had worn out creating a health and safety risk on a very busy commuter route.
- Devon County Council wanted it to be dual-use for cyclists and pedestrians, in keeping with the natural environment which was a place of Special Scientific Interest.













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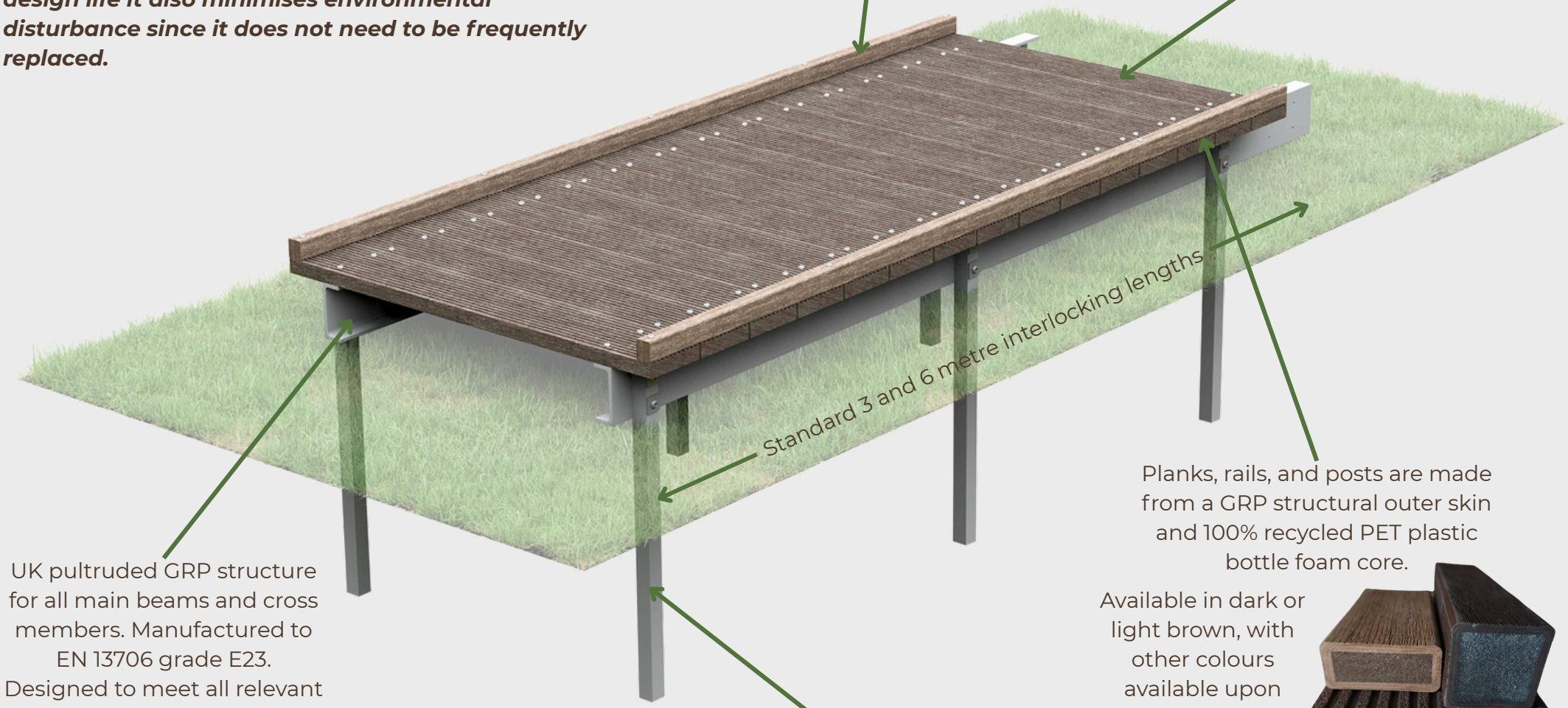
- Full design, and provision of AIP, calculations, and Design Check Certification for the new structure.
- Removal and disposal of the old rotten timber bridge.
- Provision of 53 seamlessly connected POLYbridges™ combined to form a total bridge length of 350 linear metres. This allows for tidal flooding underneath the structure without causing it to rot.
- Each bridge was 3m wide to accommodate cyclists and pedestrians, and included a 1.8m high parapet with infill bars to protect the children.
- Full installation of bridges on site over a few months.
- The busy commuter route won't need closing/replacing for 75 years.
- This structure removed over 997,000 500ml plastic bottles from landfill.

POLYWALK™

The POLYwalk™ blends seamlessly into the natural environment whilst protecting it. It bridges over roots, allowing wetland to stay wet which preserves the natural habitat. With its 75 year design life it also minimises environmental disturbance since it does not need to be frequently replaced.

Edging rails (bump stops) for wheelchair safety (optional extra).

Castellated deck planks with 'near-diamond-hard' aggregate, and a slip resistance value (SRV) of '92' even when wet.



UK pultruded GRP structure for all main beams and cross members. Manufactured to EN 13706 grade E23. Designed to meet all relevant standards pertaining to your requirement.

50ml x 50ml GRP stake embedded into the ground.

Planks, rails, and posts are made from a GRP structural outer skin and 100% recycled PET plastic bottle foam core.

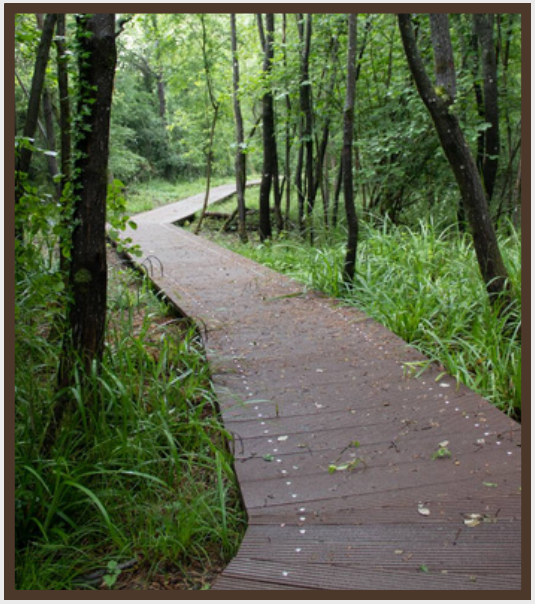
Available in dark or light brown, with other colours available upon request.

POLYwalk™ is made from a thermoset GRP composite which will not rot or corrode in wet, damp, or coastal conditions. Unlike thermoplastics, our GRP will not become soft when heated and therefore will not warp or distort like plastic structures tend to do on hot days.

Our boardwalk designs can also incorporate bump stops, hand rails, passing places, bridges, and extended areas such as viewpoints and seating, all made from our thermoset GRP products. These features make it more accessible for those with mobility challenges, wheelchair users and families with prams. With a width of between 1.2m and 2m the POLYwalk™ is compliant with the Equality Act 2010.

As the POLYwalk™ is made from lightweight GRP, the sections are easy to handle and transport. This is a significant benefit for installation on remote or difficult-to-access sites such as wetlands, forests, or coasts.









BRANCASTER BOARDWALK, NORFOLK



- Norfolk County Council got in touch with Polydeck since their 1.7km timber boardwalk had failed after less than 12 years.
- The boardwalk was located at a very popular tourist destination; part of the National Trail and Norfolk Coastal Path.
- Situated in a tidal saltmarsh and Site of Special Scientific Interest, the timber boardwalk was wet and slippery and collapsed making the path completely impassable for visitors and local residents.
- The council were looking for a long term solution that complied with Equality Act 2010.













THE POLYWALK™ SOLUTION

- Polydeck installed an anti-slip POLYwalk™ with a 75 year design life which would cope well with the harsh conditions of the saltmarsh.
- Made from lightweight thermoset GRP, the whole structure was easily installed in a few months.
- Comprising 1.5m planks, which allowed access for pedestrians and wheelchair users, with additional passing places, viewing platforms, seating, and handrails. The 1.7km structure fully complied with Equality Act 2010.
- Using our recycled plastic bottle foam core, this project saved over 400,000 500ml plastic bottles from landfill.

POLYPLANK™

POLYplanks™ have been designed to replace traditional timber planks which can be slippery and dangerous when wet and are subject to rotting and failure at fixing holes.

POLYplanks™ are made from GRP with a recycled PET plastic bottle foam core. Offering a sustainable, lightweight, long-lasting, and safe solution.

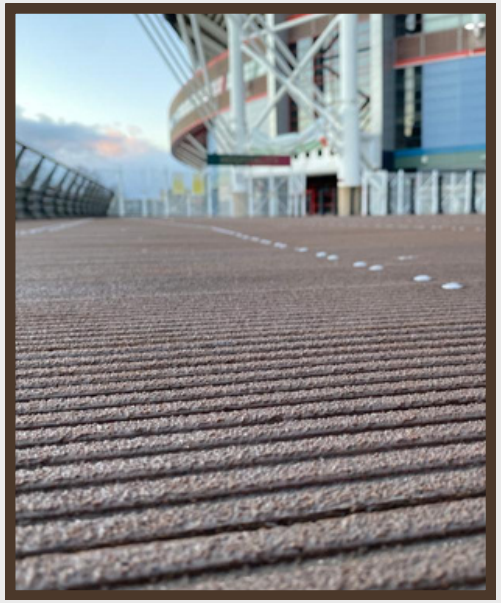
The structural GRP outer shell provides durability and safety. It is skillfully manufactured by combining strong glass fibres (rovings, mats, and veils) with high-quality resins and fillers, which are then precisely formed into the finished profile. The GRP is also thermoset so that the planks will not distort or warp in hot weather.

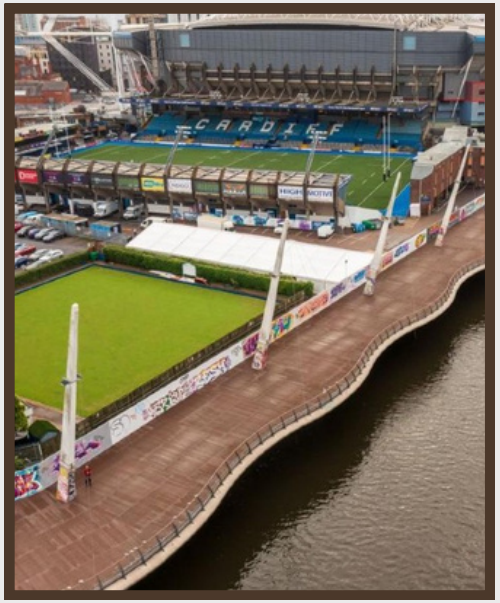
Furthermore, a near-diamond-hard aggregate (aluminium oxide) is used to create a wear resistant anti-slip surface. This means that unlike recycled plastic, timber, and steel decks that require a post-manufacture coating, the castellated finish POLYplank™ achieves a long-lasting SRV 92 in wet conditions without modifications being necessary.

Castellated finish POLYplanks™ also have channels along the length that allows water to drain from the surface to stop ice in cold conditions, enhancing the planks' safety.



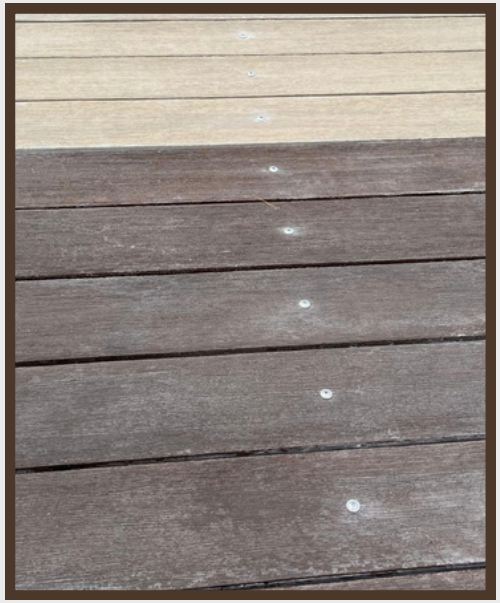














Timber effect POLYplanks™, posts, and rails, look and feel just like wood but without the risk of splinters.

Both the castellated and timber effect POLYplanks™ are officially UK and EU patent protected.

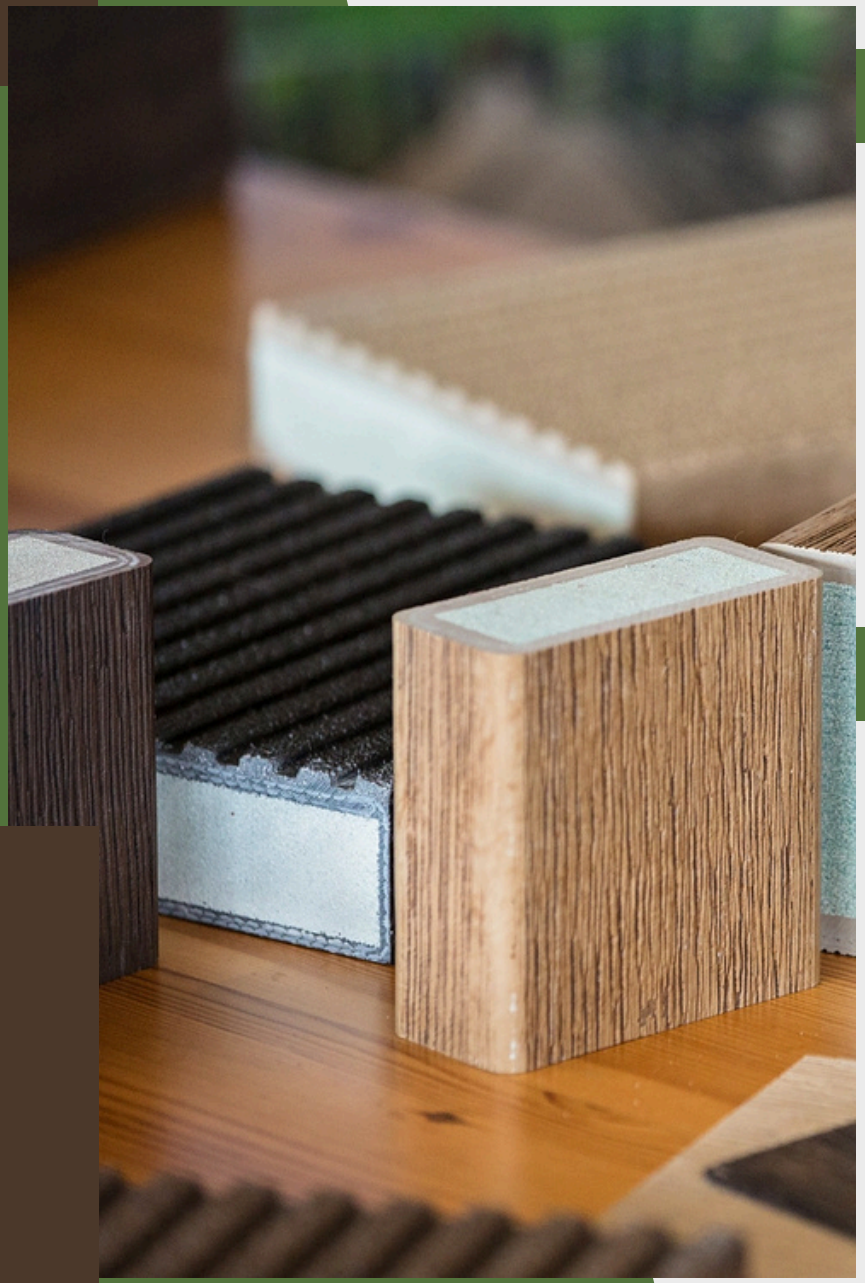
Each square metre of the foam core inside a POLYplank™ saves 140 recycled 500ml plastic bottles from going to landfill.

POLYplanks™ are structural and will provide a safe walking surface on support bearers that are set no greater than 1301mm apart (see technical details). For wider areas, Polydeck can offer design help for the most effective construction layout.

“WE JUST REQUIRE A REFURBISHMENT OF AN EXISTING STRUCTURE”

In some instances, it may not be financially viable to purchase a full POLYbridge™ or POLYwalk™. We are happy to supply POLYplanks™, posts, or rails with fixings to refurbish your structure. However, we would suggest that you question “If I replace the deck with a product that will last over 75 years, but continue with a steel, plastic or wooden sub-structure that will fail much sooner, do I need to reassess my plans?”.

TECHNICAL DETAILS



LOAD-BEARING PROPERTIES

Clear Span	Load	Deflection
1301mm	5kN/Sq.M Uniform Distributed Load	5mm
910mm	1.8kN Point Load	5mm
581mm	10kN Point Load	L/200 figures

SLIP RESISTANCE VALUES

UK Slip Resistance Group Guidelines:
Pendulum Test Value (PTV) at <25 presents a High Slip Potential, PTV at 25-35 presents a Moderate Slip Potential, PTV >35 presents a Low Slip Potential.

Dry Castellated Plank	PTV 99
Wet Castellated Plank	PTV 92
Dry Timber Effect Plank	PTV 59
Wet Timber Effect Plank	PTV 52

VARIATIONS

FINISHES



Castellated

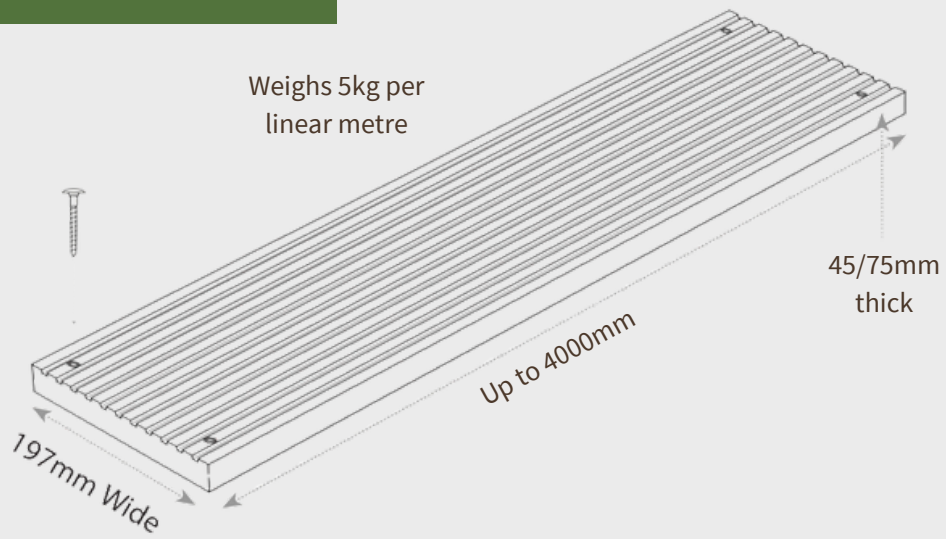


Timber Effect



Plain Gritted

PLANK SIZES



COLOURS

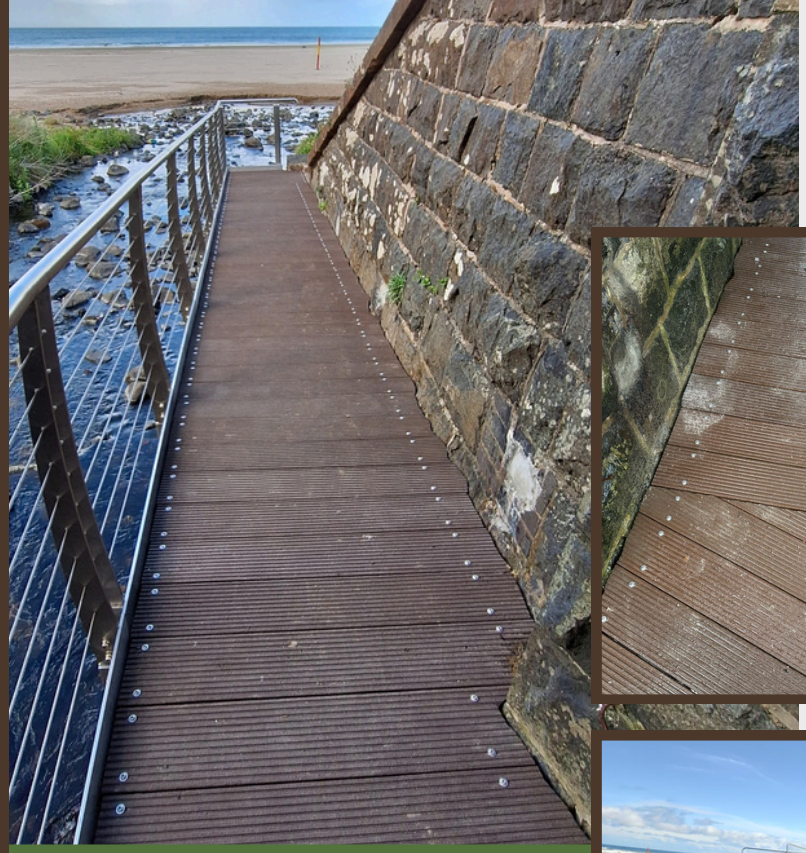
OTHER COLOURS AVAILABLE UPON REQUEST



Dark Brown



Light Brown







DOWNHILL BEACH, DERRY

- Dark brown EPD certified castellated POLYplanks™, under a Translink railway bridge, scribed perfectly into the existing metal structure and stone wall.
- POLYplanks™ have a recycled plastic bottle foam core which enabled this project to save over 5,000 500ml PET plastic bottles from landfill.
- High anti-slip rating of SRV 92 when wet, ensuring the safety of pedestrians.
- The GRP planks are designed to withstand the elements for over 75 years, offering a long-term solution and reducing maintenance requirements and replacement costs. It will not rot or corrode in coastal conditions.
- This project was in collaboration with Vision Fabrications Limited who have won the Unique Metalwork Award at the Irish Steel Awards 2025 for this project.

COMPLIANCE TO CODES AND DESIGN STANDARDS

Structural Design

PD CEN/TS 19101 2022: Design of fibre-polymer composite structures
BS EN 13706 - Reinforced plastics composites. Specifications for pultruded profiles
BS EN 1990: 2002+A1:2005 and UK National Annex - Basis of structural design
BS EN 1991-1-1:2002 and UK National Annex - General Actions - Densities, self-weight, imposed loads for buildings
BS EN 1991-1-4:2005 +A1:2010 and UK National Annex - General actions - Wind actions
BS EN 1991-1-5:2003 and UK National Annex - General actions - Thermal Actions
BS EN 1991-2:2003 and UK National Annex - Traffic Loads on Bridges
Bridleway Bridge Specification - British Horse Society

Deflection Criteria

BS 4592-0:2006+A1 :2012 Flooring, stair treads and handrails for industrial use
Design Standards for Accessible Railway Stations, V04 - Department for Transport
BS 7818:1955 Specification for pedestrian restraint systems in metal
CD 368 Design of fibre reinforced polymer bridges and highway structures (for guidance only)

DESIGNED & MANUFACTURED TO LAST FOR 75 YEARS –

All of our FRP components are designed in accordance with 'PD CEN_TS 19101, design of fibre-polymer composite structures'. Prior to the formal release of the FRP Eurocode, this European technical specification sets out the design parameters that need to be followed to achieve the minimum 75 year design life. This accounts for factors such as sustained loading (creep), UV light, heat and moisture absorbtion thus ensuring it will still meet the design loads & criteria for a minimum of 75 years after install.









ADDITIONAL USES

Fishing platforms, dipping ponds, piers, ditch crossings, seating areas, steps, fencing and so much more...







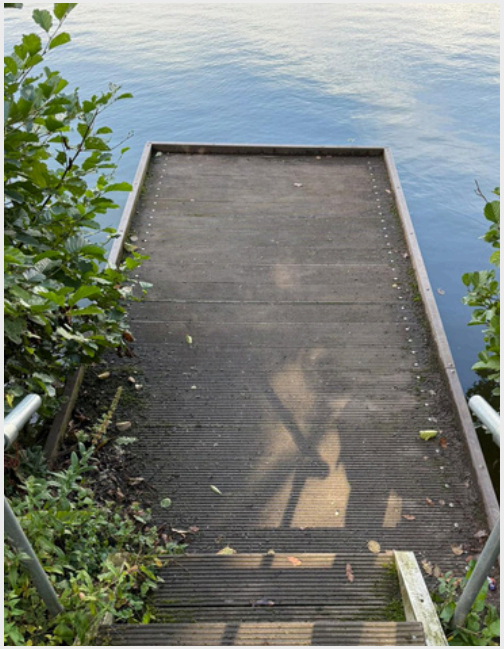






















CWMCELYN POND, BLAENAU GWENT

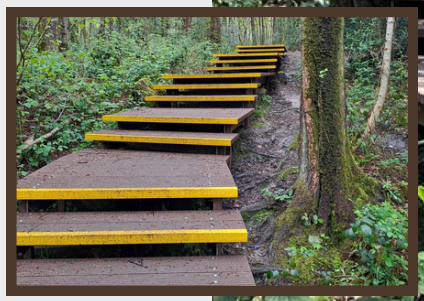
- Dark brown EPD certified castellated POLYplanks™ along with timber effect GRP posts, rails and infill poles fitted to an existing 43.7m steel structure replacing the rotten oak timbers.
- GRP fishing platform installed on the same pond, to allow for disabled access.
- High anti-slip rating of SRV 92 when wet, ensures the safety of pedestrians around the pond.
- Polydeck's GRP structures are designed to last in excess of 75 years and will not rot when exposed to the elements and wet conditions. Perfect for mountainous terrain, such as Cwmcelyn Nature Reserve, providing resilience in the face of unpredictable weather.
- The bridge refurbishment and fishing platform combined saved over 166,000 500ml PET plastic bottles from going to landfill.

ASHPLATS WOODS, MID SUSSEX

- 105m x 1.5m dark brown POLYwalk™, situated in Ashplats Woods, a Site of Special Scientific Interest.
- Provides safe and durable access through an ancient woodland, overcoming challenges presented by a slippery path prone to stream formation and navigating around existing tree roots.
- The planks, handrails, and posts all have a recycled PET plastic bottle foam core that diverted over 22,000 500ml PET plastic bottles from landfill.
- Dark brown EPD certified castellated planks, with a high anti-slip rating of SRV 92 when wet, blends seamlessly into the natural surroundings, ensuring minimal visual disruption to the ecosystem.
- The GRP construction is designed to withstand the elements for over 75 years, offering a long-term solution and reducing maintenance requirements and replacement costs.
- Polydeck yellow nosings were added later to highlight the edge of the step.









LUNCH AND LEARN

Meet our expert team in person or online to learn more about our products, get hands-on with samples, and we'll even bring lunch for in-person sessions! We also offer accredited CPDs covering the topic 'Glass Reinforced Plastic: A Sustainable and Safe Choice for Modern Infrastructure Development' if you would like to maximise your lunch hour with general GRP knowledge and a CPD credit.



TREADS AND OVERLAY PANELS

If you would like to learn about our industry leading near-diamond-hard finish anti-slip GRP panels and treads then please get in touch. They are the perfect solution for high footfall areas that need a strong and durable slip resistant surface.



SAMPLE BOXES

Get a real feel for our products by ordering a sample box from us. It includes a sample of a castellated plank, timber effect rail and post as well as a section of the foam core.

CONTACT US

If you're interested in our products and would like to learn more or have a project you wish to enquire about then please get in touch.

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