

BRITISH
RECYCLED
PLASTIC



The Complete Guide to Recycled Plastic Lumber, Fencing & Decking

Plan, order, and install with confidence



British Waste
British
Manufacture



Less Waste
Lower Carbon



Zero-
Maintenance



Reduced
Total-Life
Costs



25 Year
Guarantee

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Low Carbon Products Ltd t/a British Recycled Plastic is a company registered in England and Wales with the Registered Office of Unit 8F, Topland Country Business Park, Cragg Road, Mytholmroyd, West Yorkshire, HX7 5RW - Company No: 06903105 - VAT Number: 976451973



GREEN WEB
FOUNDATION



WHAT IS RECYCLED PLASTIC LUMBER?

British Recycled Plastic lumber is manufactured in the UK from recycled British plastic waste. It's engineered for outdoor performance and designed as a long-lasting, zero-maintenance alternative to timber, concrete, and metal.

The profiles have a timber-grain surface finish with an internal honeycomb core that keeps the material lightweight without compromising durability. It looks and cuts like wood, but behaves differently in some structural respects – span capacities, thermal movement, and fixing methods all need to be considered during planning and installation.

Whether you're a professional installer or tackling a first project yourself, this guide covers everything you need to plan, order, and install with confidence: material properties, expansion allowances, post depths, fixings, and cutting guidance.



Benefits of British Recycled Plastic Lumber

- **Long lifespan** – backed by a 25-year guarantee
- **Zero maintenance** – never needs painting, staining, or treating
- **Low whole-life cost** – no ongoing maintenance, treatment, or replacement costs
- **Weatherproof** – unaffected by rain, frost, UV, and temperature extremes
- **Rot, mould and splinter-proof** – safe and durable in all conditions
- **Easy to clean** – jet wash or wipe down with a household cleaner
- **Environmentally responsible** – made from 100% British recycled plastic waste, keeping plastic out of landfill
- **Impact resistant** – robust and tough, suited to domestic and commercial applications
- **Independently tested** – profiles meet BS EN 1722, the British Standard for post and rail fencing
- **Independently tested to BS EN 16165:2021** – BPN 69 dry and 49 wet, both rated minimal slip potential
- **Fire rated UL94 HB** – independently tested



ABOUT US

Based in Yorkshire, we've been turning British plastic waste into durable outdoor products since 2009. Our mission is simple: take Britain's plastic waste and turn it into something genuinely useful and built to last. No maintenance. No importing. No compromise.

We support customers at every stage of a project.
Get in touch and we can provide:

- Free samples
- Clear, accurate quotations within 24 hours
- Technical drawings and installation guides
- Embodied carbon data and social value support for commercial and public sector projects
- Access to our trusted installer network



PLANNING YOUR PROJECT

Recycled plastic expands and contracts with temperature changes, more so than wood or metal. This is a key characteristic of the material and must be accounted for during all installations. To ensure you install the material correctly, it is crucial that you allow enough movement space between the boards and planks. Correct spacing between boards and planks is essential. Use the thermal calculation below for your spacing requirements.



IMPORTANT: Thermal Expansion — During and After Installation

THERMAL EXPANSION CALCULATION

The average linear expansion of British Recycled Plastic lumber is: 0.151 mm/m/°C

Expansion Formula (mm) = 0.151 × length in metres × temperature difference (°C)

Example: For a 3.1m board installed at 15°C, with a maximum expected temperature of 40°C: $0.151 \times 3.1 \times 25^\circ\text{C} = 11.7\text{mm}$ expansion

Always calculate the maximum expected expansion for your installation and allow correct gaps accordingly. See Section 4 for expansion gap tables.

FENCING PROJECTS

HEIGHTS & POST REQUIREMENTS

When planning a recycled plastic fencing project, height, expansion and post requirements must be considered. Typical residential fencing range from 900-1,500mm for gardens, housing, and parks; 1,800mm is common for boundaries, railways, and commercial applications.

The standard British Recycled Plastic Post & Rail Fence uses 3,000mm rails with 1,500mm between post centres – each rail spanning across three posts.

Recommended Rail Spacings

- Top of post to first rail: 100mm
- Between rails: 250-500mm
- Bottom rail to ground: 250-400mm



IMPORTANT: Post Reinforcement Requirements For Fencing

For Picket Fencing over 1.2m high: posts must be concrete or steel-reinforced.

For all other fencing over 1.5m high: posts must be concrete or steel-reinforced.

Failure to reinforce posts at these heights may result in structural failure. If in doubt, contact our team before installation.

As a general rule, one third of a post should be concreted into the ground, with two thirds above ground (minimum 500mm buried).

Example: a 1,650mm fence requires 2,500mm posts.

If the ideal post size is not available, buy the next size up and bury slightly deeper



FENCING PROJECTS

THERMAL EXPANSION

Recycled plastic expands and contracts with temperature changes more than wood or metal. This must be taken into consideration when planning a fencing project. To make things simple for you, we include a temperature spacer tool with your fencing delivery to help you set the correct gap between rail ends, based on the thermal expansion calculation on page 4.

Post Sleeves

We recommend installing post sleeves on all fencing assemblies. They allow the material to move freely with temperature changes, preventing bowing, stress, and premature wear. We supply sleeves - please speak to our team to discuss your requirements.



DECKING & BOARDWALK PROJECTS

SPAN GUIDE

British Recycled Plastic decking boards are installed in the same way as timber decking – fixed to joists laid across bearers or a subframe. The key differences are the expansion allowances, joist spacing, and fixing method. Use the span guide below to determine your joist spacing, and refer to Section 1 for thermal expansion calculations before you begin.

Slip Resistance

British Recycled Plastic decking has been independently tested to BS EN 16165:2021 and achieves a Pendulum Test Value of 69 (dry) and 49 (wet) — both rated minimal slip potential. A score of 36 or above indicates a slip probability of 1 in 1,000,000, making it suitable for public and commercial applications. It is also independently classified R11 (DIN 51130), indicating high slip resistance suitable for outdoor and wet environments.

Decking Planks – Maximum Distance Between Joists

Plank Size	Light Use (1.5 kN/m ²)	Medium Duty (3 kN/m ²)	Commercial (5 kN/m ²)
27mm × 150mm	350mm*	350mm*	350mm
38mm × 150mm	600mm*	600mm*	580mm

* Maximum span limited by creep behaviour

Bearers / Cross Beams – Maximum Spans

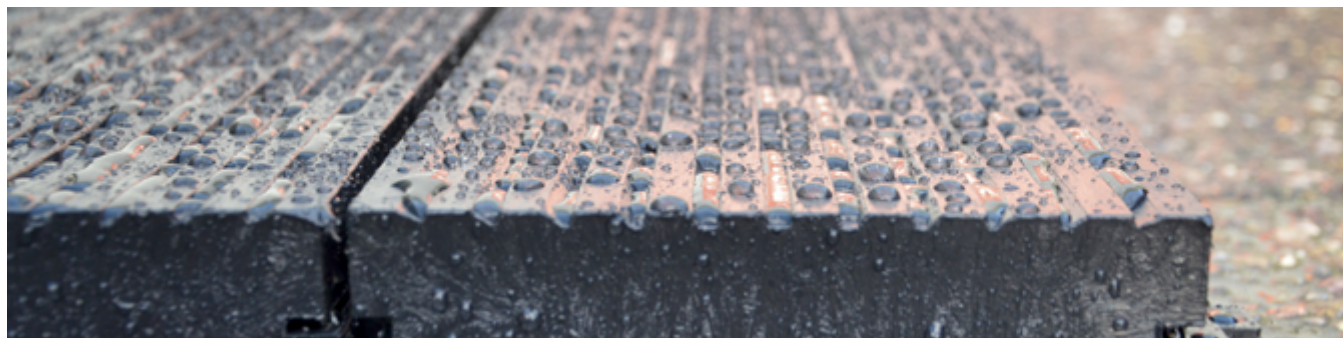
Beam Size	Light Use (1.5 kN/m ²)	Medium Duty (3 kN/m ²)	Commercial (5 kN/m ²)
50mm × 125mm	1350mm	1200mm	1000mm
50mm × 150mm	1500mm	1250mm	1100mm

Note: Bearers/Cross Beams and Joists must be the same size.

Post / Pile Support

Post/Pile Size	Max Decking Height Over Solid Ground
100mm × 100mm	1000mm*

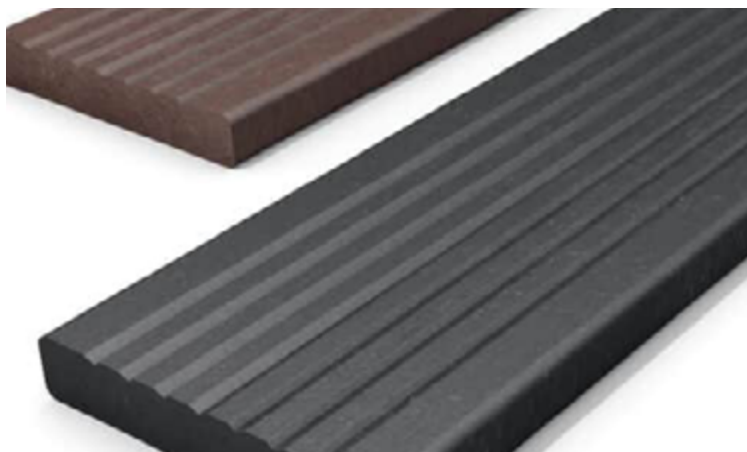
* Rough guide only — consult our team for heights above 100cm and for Marine and Dock use.



ORDERING FROM US

Before placing your order, please have the following ready:

- Total linear metres required for each profile size and colour
- Any cut-to-size requirements (available for a small charge)
- Required delivery date or lead time
- Delivery address, contact details, and any special access instructions
- Site access details: road type, vehicle height restrictions, turning space, gate widths



Notify our team of any access restrictions before placing your order. Redelivery charges apply if the vehicle cannot access the site.

Please Note

- Contact us for current minimum order quantities
- All dimensions are subject to $\pm 3\%$ tolerance
- Cut-to-size material cannot be returned – check measurements carefully before ordering
- We are unable to interpret sketches or designs on your behalf.



DELIVERY

Lumber is delivered on pallets by articulated lorry or rigid vehicle, depending on quantity. Pallet spaces are allocated by length:

Length	Pallet spaces
1,200mm or under	1
2,400mm	2
3,600mm	3

Please Ensure:

- Clear vehicle access to the delivery point
- A flat area available for pallet placement
- Someone available to sign for the delivery

Offloading

If you cannot provide a forklift on site, we will arrange either a manual offload or a vehicle with a HIAB crane – both options carry an additional delivery cost.

Manual offloads require a minimum of two able-bodied people on site for every 50 lengths. Please discuss your site requirements with our team before placing your order.



INSTALLATION

General Handling & Storage

- Store British Recycled Plastic profiles on a flat, level surface, strapped together in batches
- Allow material to acclimatise to site temperature for 24 hours before installation
- Avoid prolonged direct sunlight before installation – this can cause profile bowing

EXPANSION GAPS — CRITICAL FOR ALL INSTALLATIONS

Recycled plastic expands and contracts with temperature changes. Always allow for this movement. Use the formula:

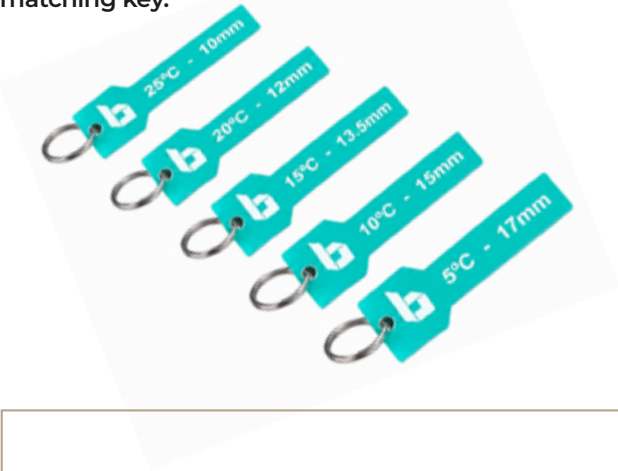
Expansion (mm) = $0.151 \times \text{length (m)} \times \text{temperature difference (}^{\circ}\text{C)}$



POST & RAIL FENCING — STEP-BY-STEP INSTALLATION

Rail Expansion Gaps – Post & Rail Fencing

Use the British Recycled Plastic temperature spacer keys supplied to set the correct gap between rail ends at the bracket. Check the current outdoor temperature, then select the matching key.



Installation Temperature	Gap to Leave Between Rail Ends
5°C	17mm
10°C	15mm
15°C	13.5mm
20°C	12mm
25°C	10mm
30°C	9mm
35°C	7.5mm

Note: These gaps allow for 70°C of thermal movement.

STEP 1: INSTALLING POSTS

As a general rule, one third of a post should be concreted into the ground, with two thirds above ground (minimum 500mm buried).

Example: a 1,650mm fence requires 2,500mm posts.

If the ideal post size is not available, buy the next size up and bury slightly deeper.

For fences over 1,500mm, concreting posts in is mandatory. Recycled plastic is 100% waterproof and rot-free, so performs excellently underground.



For picket fencing over 1.2m, or any other fencing over 1.5m, posts must be concrete or steel-reinforced.

- Set posts in concrete, checking for plumb and level
- Allow concrete to set for 24 hours before installing rails
- If driving profiles into the ground, use a protective sleeve or ram to prevent surface damage

STEP 2: INSTALLING RAILS

Standard rails are 3,000mm, spanning three posts with 1,500mm between post centres.

- Mark rail spacings on the first post; run a string line between posts to maintain consistent level
- Centre slotted brackets on each post and attach with 6 × 40mm weatherproof screws
- With two people, insert one rail end into the first post bracket while the second person supports the rail at the middle post
- Use the temperature spacer key to set the correct expansion gap at the bracket
- At the middle post: centre the bracket with the rail running through it and fix with two screws, one at each end of the bracket slots
- At the third post: mark and cut the rail to length, allowing for the expansion gap, then attach the bracket



IMPORTANT:

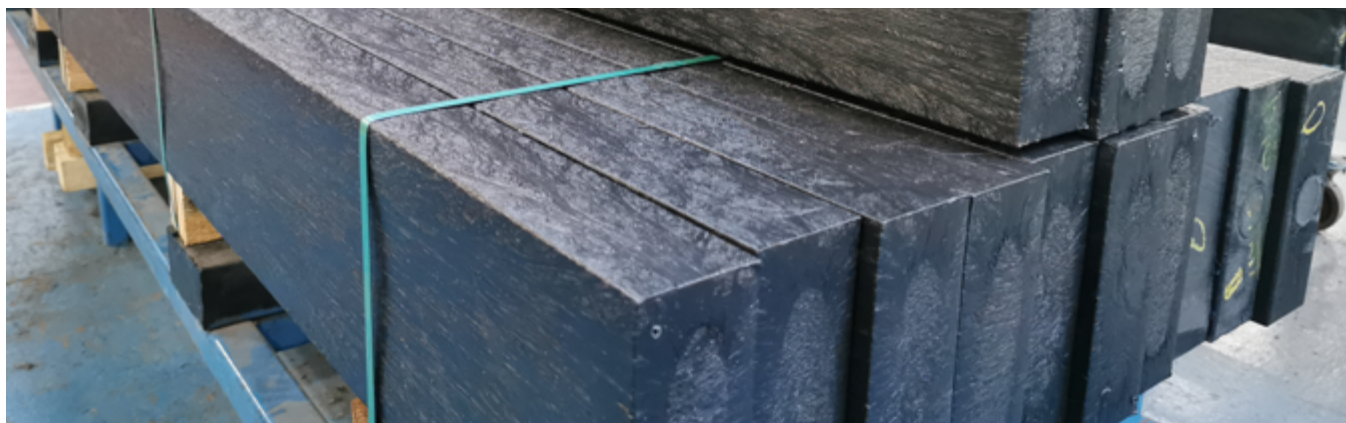
Fix the rail securely at the middle post only.

On multi-rail fences, stagger these fixed points between rails for increased strength and stability.

The slotted brackets at the first and third posts allow the rail to move freely – do not fix these solid.

Corners and Junctions

- External 90° corners: use slotted brackets to allow rail movement at the corner post
- Internal and external junctions: install a second post alongside the first and attach brackets to support incoming rails
- Maintain consistent line and level throughout



TOOLS & FIXINGS GUIDELINES



Sawing

Always saw from the presentation face (the visible side) through to the back to minimise surface marking.

Parameter	Recommendation
Cutting speed	<3,000 m/min
Blade type	Circular blade with crossed teeth
Technique	Saw from presentation face; cut through to back face



Drilling

Keep speeds moderate – high rpm generates heat that can affect the material surface

Parameter	Recommendation
Best drill type	Twist drill or standard spiral bit
Speed	400–900 rpm (avoid high-speed drills)
Hole placement	Minimum 10mm from profile edge
Technique	Clear waste regularly; pause to let the bit cool

Advanced Cutting Parameters – For Fabricators:

Parameter	Units	Drilling	Circular Saw	Band Saw	Milling
Clearance angle	degrees	10–12	10–15	30–40	5–15
Cutting edge side rake	degrees	3–5	0–15	0–5	0–15
Cutting speed	m/min	50–100	<3,000	50–1,500	<1,000
Tooth distance	mm	—	>10	>5	—
Nose angle	degrees	60–90	—	—	—
Feed	mm/rotation	0.2–0.5	—	—	0.1–0.5



Screws – Recommended Fixing Method

Use stainless steel, brass, or plated fixings throughout to maintain the integrity and longevity of the finished installation.

Twin flight, parallel thread, coarse pitch screws (similar to chipboard screws or hi-low screws) are most effective.

- Pre-drill all holes before screwing
- Deepen countersink holes slightly to prevent bulging around screw heads
- If any surface bulging occurs around screw heads, it can be removed cleanly with a sharp knife



Bolts

When bolting profiles together, the pilot hole must be larger than the bolt. Use elongated slots to allow for temperature-related expansion and contraction



Slots (Elongated Holes)

Elongated slots allow the material to expand and contract freely — essential for all bolted connections. Create slots by drilling sequential holes and removing the dividing material with a lateral drill movement or mill bit.



Planing

Standard industrial timber planing tools can be used. Finish quality depends on blade condition, feed rate, cutting speed, clearance angle, and cutting angle.



Jointing

Finger, mortice and tenon, or bird's mouth joints can all be made using standard woodworking machinery with appropriate cutters.

We do not recommend: Welding/ Gluing/ Constructions Staplaes/ Nailing)

British Recycled Plastic lumber requires no maintenance or protective treatment — it will not rot, splinter, or degrade, and is resistant to mould and algae. Cleaning is for appearance only. A jet wash, or a wipe down with a household cleaner and sponge, is all that's needed to keep your installation looking its best.

OUR GUARANTEE

Our 25-Year Guarantee

British Recycled Plastic profiles, planks and posts are guaranteed for durability for a minimum of 25 years from the date of delivery. That's our commitment to the material's long-term performance.

What's covered

The guarantee covers the structural durability of all British Recycled Plastic planks and posts. If a profile fails to meet its expected durability within 25 years, we will supply replacement profiles at no cost to you.

A few things to be aware of

To keep your guarantee valid, profiles must be installed following BRP's installation guidance. The following fall outside the guarantee:

- Colour variation over time in non-black profiles - the material is UV stable, but some shade change is natural in coloured products
- Damage from chemical contamination or extreme temperature events
- Components not manufactured by British Recycled Plastic (such as third-party table tops)
- Finished applications built from profiles - for example, a completed bench or planter; the guarantee covers the individual profiles, not the assembled item
- Damage resulting from incorrect installation, improper use, or wear and tear

How to make a claim

If you have a concern, contact our team and we'll assess it quickly. Have to hand: the profile type, date of supply, when you noticed the issue, and a description. Contact us at info@britishrecycledplastic.co.uk or 01422 419 555.



[Click for Full Warranty](#)



TECHNICAL DATA

Property	Value
Thermal expansion rate	0.151 mm/m/°C
Density	1.0529 g/cm ³
Water Absorption (all conditions)	<1%
Impact Resistance (Charpy)	12 kJ/m ²
Shore D Hardness	62
Slip Resistance (Pendulum Test — dry)	BPN 69 (Low slip potential)
Slip Resistance (Pendulum Test — wet)	BPN 49 (Low slip potential)
Anti-Slip Classification	R11 / DIN 51130
Flexural Strength @ 23°C	24.0 MPa
Tensile Strength	15.6 MPa

Fire Rating

British Recycled Plastic lumber is rated UL94 HB (equivalent to BS EN 60695-11-10). No fire retardants are added to the material — this preserves full recyclability. Industrial melt temperature is 220°C or above depending on blend.

For further info such as compressive modulus, tensile modulus, flexural modulus and elongation at break data please contact us.





For more info contact our expert sales team:

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britishrecycledplastic.co.uk



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