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ECO-FRIENDLY PLASTIC PRODUCTS

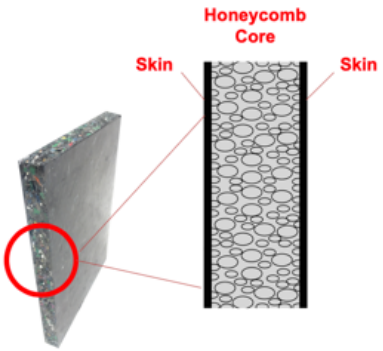
STORMBOARD™
Everything Plywood wants to be

Welcome to Storm Board, if you have not used this product before, this data sheet should guide you through our product range and answer most of your queries on how to use Storm Board. For more information call us on 01282 861325 option 1

How is Storm Board made?

Our standard boards are made from 100% mixed waste plastic. This is usually classed as “unrecyclable” plastic and includes bottle tops, crisp packet, cosmetic packaging, food packaging, garden toys etc and means that there could be particles of wood and paper mixed in. Don’t worry, the plastic is cleaned and cooked at over 200˚C during processing.

Some of our specialist boards have a virgin plastic content. For example, if you want a white or a pink board, these colours are not available in recycled material, but would be available in a 70% recycled board. The same goes for a certified fire-retardant skin.



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What to expect:

It may sound silly, but plastic is not wood and does not react like wood, so don't expect a pallet of Storm Board to arrive looking and reacting just like wood. Wood is stiffer and planed to very tight tolerances. Storm Board is a moulded plastic product, and is produced larger than then end size, see the "oversize" table below.

Storm Board will have a smooth surface of recycled plastic, encapsulating a 100% waste plastic core. A pallet of Storm Board will often have a dip in the middle, which is a result of the cooling process. If you turn the boards over on a flat surface, this will come out. Storm Board edges will be higher than the centre. The voids that make up the cellular core will be irregular, some larger than others, this is what makes the boards light and stiff.

The colour will be speckled. If a light virgin colour is chosen, then the core will often show through.

Plastic or Wood Board?

When choosing Storm Board over plywood, consider the application and total final cost. Outdoors, for example as a hoarding, Storm Board does not need painting, does not need aluminium composite, will outlast plywood, is jet washable and can be reused on the next site. It does expand / contract more than plywood, and so a slightly different fixing profile should be used, like the top hat system. The key in transitioning from wood to plastic boards is to adapt the system used currently for wood slightly, so that it is ideal for plastic and sustainable re-use.

Single use plywood from forests or re-useable Storm Board from waste, your choice ...

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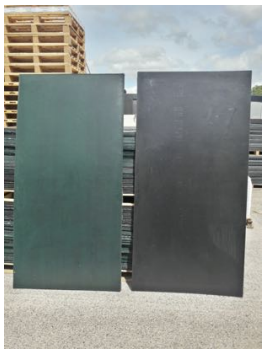
Cuttable | Lightweight | Stiff | Waterproof | Weldable | Formable

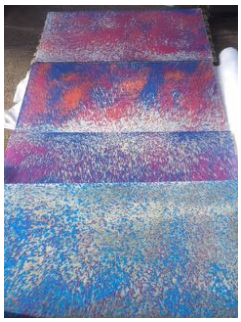
Specifications Storm Board HI Grade

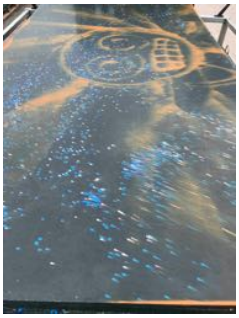
Dimensions	min. 2440 x 1220 x 19 mm (oversize)
Weight	approx. 32 kg
Density	approx.. 589 kg/m^3 (see appendix)
Stiffness	0.35 GPa at 23 ºC (see appendix)
Colour	stock – speckled grey, natural or green black colour will have an “A” and “B” quality face specials such as “Splash” effect or White to order
Coefficient of expansion	HI: 3 - 4 mm/2.4m/10ºC
Weather resistance	Weather proof and will not rot - ideal for outdoor use. Impact strength increases, the wetter it becomes.

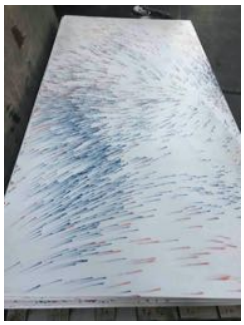
Stock Colours



Other Custom Colour Options







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Storm Board Grades

Storm Board HI (High Impact)
The HI board is the most utilitarian of our boards. It has a smooth PE/PP surface encapsulating the mixed plastic waste core. It's really tough, easy to clean, with good chemical resistance. It is hard for paint/graffiti to stick to it, unless a key is made by sanding. It is formable, UV stable and can be plastic welded.

Storm Board HI FR (High Impact Fire Retardant)
The HI FR board has achieved a Class 3 rating in accordance with BS 476 part 7 "surface spread of flame." The standard colour is a speckled cream/ beige. This product is made with recycled material.

Agri Board – these are "B" quality/ "seconds" HI boards

HI Applications:

- Construction site hoardings
- Formwork
- Sheds, shelters, storage lockers
- Wet areas, such as showers and toilet cubicles
- Campsites – washing areas, recycling areas, play areas
- Gardens – raised beds, compost bins, lawn edging, furniture
- Plinths, Art installations
- Animal – husbandry, hutches, kennels
- Farming – stall lining, calf hutches, stables, slurry pits
- Warehousing – shelving, bump corners, packing tables

Storm Board SF (Shop Fitting)
The SF board was developed to be similar to MDF for the shop fitting and furniture industry. It is very stiff, making it more brittle than the HI board, can be painted and laminated with much tighter tolerances. With the advent of self-adhesive "car wrap" material any surface look is achievable. The wraps such as Di-Noc and Coverstyl, do not require a laminating press, and can be applied to one side only. Some of these wraps have a fire rating too.

SF has a skin made from polystyrene (old coat hangers), which make it black, and if used outdoors needs a coating, as it is not UV stable.

SF Applications:

- Counters, furniture carcass
- Cubicles, changing rooms
- Pillar cladding
- Signage
- Shelving
- Shop window
- Office tables & desks

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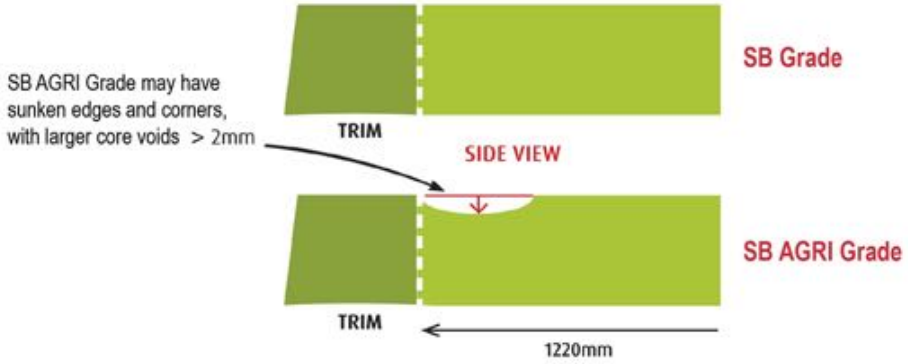
Storm Board sizes

Oversize	This is the standard format direct from the moulding machine (at 20 ºC ambient temperature): HI 2471 x 1235 mm - SF 2506 x 1258 mm
Cut-to-size	2440 x 1220 x 19 mm
Tolerance	+/- 2mm standard or for AGRI Board +/- 5 mm
Oversize benefits	The skin on the side adds to the board's overall strength and protection during transport.

Storm Board grades – AGRI is a "B" grade material



SB AGRI Grade has a wider tolerance range of +- 5mm

Storm Board core

The core is a non-perfect recycled waste material, which is not compounded or prepared. Voids in the core will occur (<4 cm Ø), which helps make the panel light and stiff.

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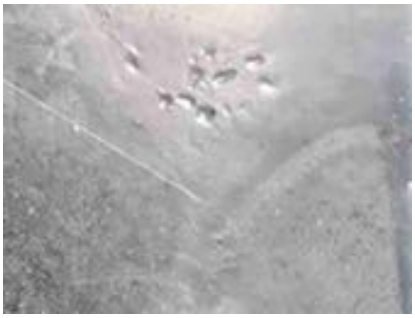
Possible Agri Board surface:

Voids causing dimples in surface
Sunken edges & corners, making these boards “B” Grade



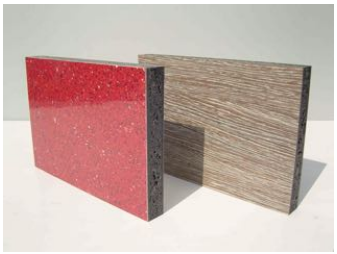
Suitability for Use and Warranty

Nothing herein constitutes a warranty express or implied, including any warranty of merchantability or fitness for use, nor is protection from any law or patent to be inferred. The exclusive remedy for all claims is replacement of materials. Contact the sales office for a copy of the complete Kedel Limited Terms and Conditions of Sale.

Information provided is for guidance only, the customer is solely responsible for making sure Storm Board is fit for purpose. All information is based on tests carried out on panels made in the UK. Using recycled mixed waste material in manufacturing will always account for variation.

Using P2 Storm Board

Coating	For the rendered look, non-slip and UV protection, we recommend CorkSol coating. www.corksoluk.com Wrap with Di-Noc or Coverstyl



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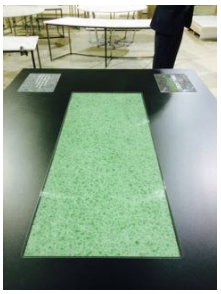
Fire Retardancy	Only the HI FR board has a Class 3 rating, (see above) to BS 476 part 7. The standard boards are not fire rated, however fire-retardant coatings can be applied to the surface. For walls – CorkSol cork coating certified to Euroclass Bs2D0 or CorkSol stone coating certified to Euroclass Bs1D0. We can also supply a board produced with a skin made from certified flame-retardant plastic. This material has been certified in accordance with UL94 at grade V0
Cutting	You can cut Storm Board with a hand saw, jigsaw, router, bench saw, and skill saw. We suggest running saws at slower speeds to avoid melt and with blades recommended for plastic cutting.
Drilling	Storm Board drills well with wood drill-bits and can be countersunk.
Routing/ CNC	Storm Board can be CNC routed; we suggest using tungsten carbide tooling. We have seen the best results at slow speed with 2 flute bits. CNC messages make Storm Board stand out.   
Gluing	Wood glues don't work. We suggest Novaseal Signfix Ultrabond adhesive or alternatively 2-part polymer glues.
Fillers	Wood filler doesn't work. We suggest Epoxy fillers.
Painting/Printing	Storm Board comes in black/dark grey speckled skin colour. We can colour the skin in manufacturing at an extra cost for large volume. As standard, HI has an anti-graffiti finish, so paint has difficulty finding purchase, but Vinyl graphics adhere well. It is also possible to UV print the boards, a great alternative to Aluminum composite materials on site hoardings. SF board is paintable and printable.   

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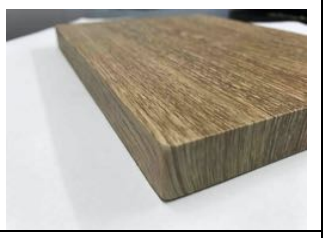
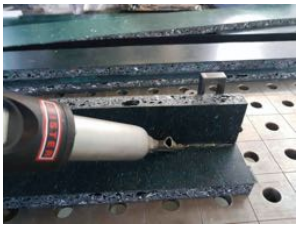
Edge Banding	Edge banding can be applied using standard glue fixing, or mechanically by routing into the core and using a T edge. Use adhesive wraps to wrap over the edge.The current trend is to show off the recycled core leaving it exposed or painted. The edge can also be plastic welded.   
Screwing	Screws fix well in Storm Board as its elasticity means it stretches and grips the screw's thread. And expansion gap must be allowed when being used outdoors.
Nailing	As Storm Board expands and contracts, we don't recommend nails, as the only fixing method.
Welding	Storm Board HI can be plastic or vibration welded.   
Forming	Storm Board HI can be heat formed.   
Cleaning	Storm Board can be jet washed at low pressure, with min. 100 mm nozzle distance from board.

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APPENDIX – mechanical testing

Mechanical Test results, (Swansea University)			
Property	Storm Board GF (foam and fibre core)	Storm Board HI (foam core)	Plywood (F10 / E5)
Density	695 kg/m^3	589 kg/m^3	500 – 600 kg/m^3
Thermal conductivity	0.259 W/mK	0.193 W/mK	0.13 W/mK
Thermal expansion	128 x 10^{-6} /°C	151 x 10^{-6} /°C	5 x 10^{-6} /°C
Bending stiffness at 23°C	0.39 GPa	0.35 GPa	0.5 GPa
Bending stiffness at 40°C	0.28 GPa	0.2 GPa	
Bending stiffness at 60°C	0.16 GPa	0.11 GPa	
Bending stiffness after 2 weeks water immersion	0.46 GPa	0.41 GPa	0.25 – 0.35 GPa
Bending stiffness after 4 weeks UV exposure	0.45 GPa	0.37 GPa	0.4 GPa
Bending strength at 23°C	12.9 MPa	13.0 MPa	15 MPa
Bending strength at 40°C	10.8 MPa	9.7 MPa	
Bending strength at 60°C	7.7 MPa	7.7 MPa	
Bending strength after 2 weeks water immersion	14.1 MPa	14.6 MPa	~6 - 8 MPa
Bending strength after 4 weeks UV exposure	13.3 MPa	14.2 MPa	12 – 14 MPa
Compressive stiffness at 23°C	0.42 GPa	0.28 GPa	0.4 GPa
Force to buckle panel edgeways	13.5 kN	8.5 kN	12.6 kN
Force to buckle panel lengthways	1.7 kN	1.1 kN	1.6 kN