

# Lightweight Composite Panels



## A lightweight decorative panel product solution for interior fit out.

The composite construction of STARlite® is made up of three main standard material elements: HPL, MDF, and a unique high density foam core. Each component of STARlite® has been individually tested by the relevant raw material manufacturers. Please find within, a generic technical overview of these component parts. If you require further information on a tailored construction please get in touch

### HPL & CPL

Decorative laminates consist of 70% natural cellulose and 30% resins and are virtually free of emissions. Any waste can be reused by being processed in approved incineration units. These factors ensure that HPL's are environmentally neutral, giving a good indication that they will fulfil future ecological demands. Major manufacturers now offer FSC® together with Greenguard - indoor air quality as standard.

### MF-MDF or MFC

Melamine infused surface technologies utilising either an MDF or Chipboard substrate for an economical colour matching solution. MF-MDF and MFC panels are sourced from high quality manufacturers using recycled wood content that is either FSC or PEFC certified as standard.

### Raw-Veneer (for finishing by others)

All pre-veneered products are sourced from FSC® and PEFC certified suppliers. The raw veneer is suitable for environmentally friendly lacquering finishing. (Specific details will depend on the species, please ask our team when quoting for more details).

### Thermoplastics

Kydex® impact abrasion and chemical resistant sheets can be incorporated on STARlite® for added durability, for example.

### Bespoke Foam Core

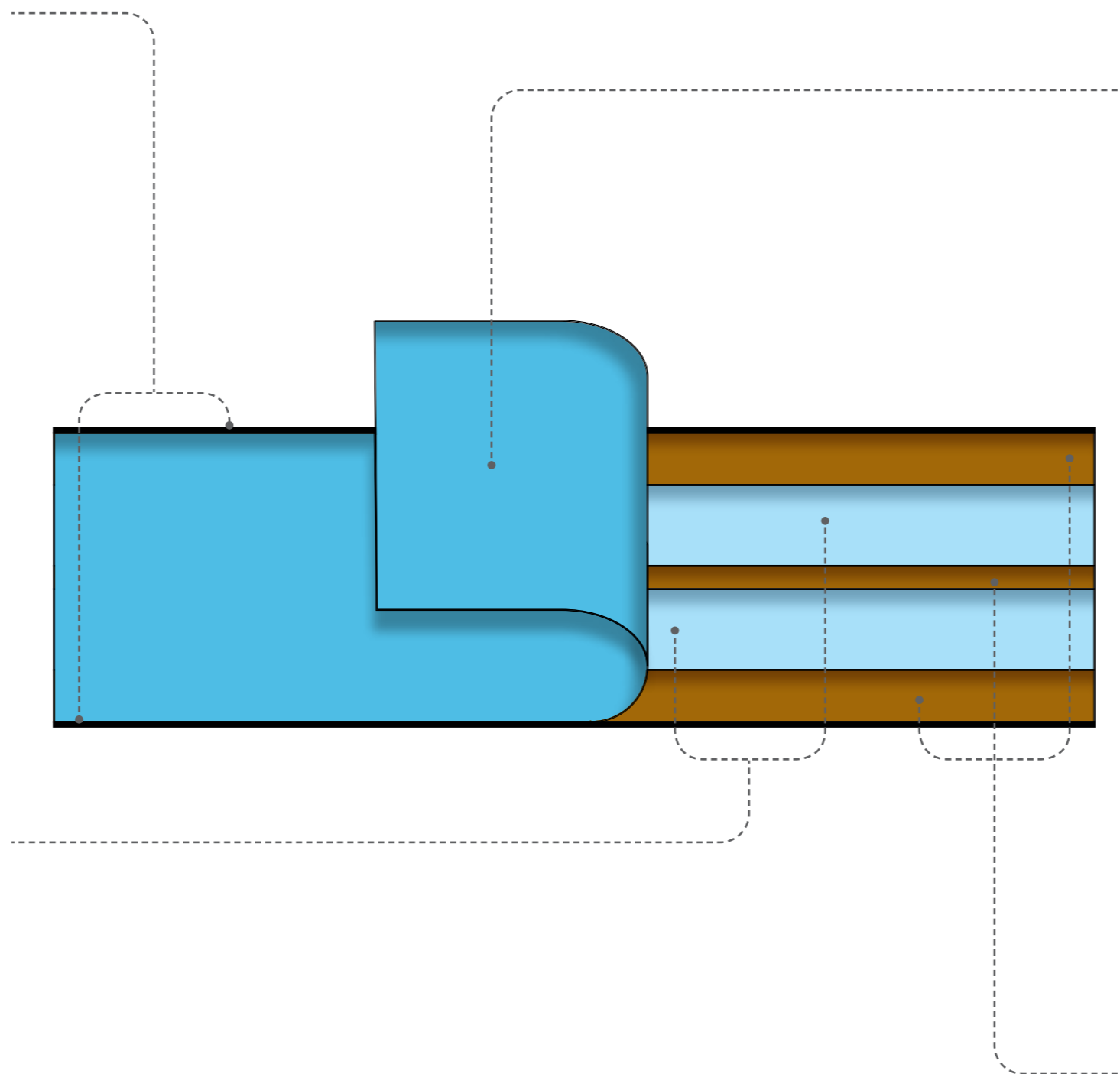
The bespoke foam core used in our STARlite® panels is hydro chlorofluorocarbon (HCFC) free and complies with the requirements of EC Regulation No: 2037/2000 on substances which deplete the Ozone layer. As carbon dioxide is used as the blowing agent, the Ozone Depleting Potential (ODP) is zero and the Global Warming Potential is less than 5. The foam is non biodegradable and does not pose a hazard to the environment. Where circumstances allow the foam can be recycled or incinerated to recover the energy content.

Notes:

Please speak to our sales representatives for more technical and environmental information on any of the additional surface options available.

\*ABS and 3D Acrylic edge banding can be specified as Greenguard certified for indoor air quality.

\*\* Subject to manufacturer data.



### 3D Acrylic\*

The edging has been tested in accordance with UL 2821 test method to show compliance to emission limits in UL 28181.

This range of edgebanding offers the most striking designs available with: light, depth and 3D translucency effects. Metallics, woods, stone and even glass like finishes are possible from the most premium of edges to perfectly compliment or contrast with the face materials.

### ABS\*

ABS edging is one of the most environmentally friendly finishing solutions on the market, as it is both acid free and can be thermally recovered for energy under incineration. The edging has been tested in accordance with UL 2821 test method to show compliance to emission limits in UL 28181.

With the most comprehensive services available within the supply chain - almost any board and laminate can be perfectly matched with ABS - Plain Colours, Super Matt, Gloss, Woodgrains, Metallics and Stones - all with or without interesting textures.

### Solid Hardwood (exposed or concealed lipping)

All wood products used are sourced from fully FSC® and PEFC® certified suppliers. Specific details will depend on the species, please ask our team when quoting for more details.

### Real Wood Veneer

To compliment veneered faced boards we can also offer matching real wood veneer edgebanding. Latest technologies with adhesives, asymmetrical finger jointing and backing materials allows for straight or shaped veneered components to be fabricated with ease.

Please note that all real wood veneered products produce natural variations within the beauty of the timber species being specified. Client expectations must therefore be carefully managed to avoid any disappointment.

### Postformed\*\*

We can offer postformed edges, when using HPL, CPL or thermoplastics as the face material whether that is a single radiused edge or a full bullnose profile.

### MDF Core

All MDF core materials are made from recycled wood that is sourced from FSC certified forests. The core can be specified using Medite® Zero Formaldehyde compliant MDF (9mm only). CARB2 compliant MDF can then be specified for 4mm, 6mm and 9mm thicknesses.

## Delivery, Site Conditions & Storage

The use of suitable FLT machinery is recommended for the movement of STARlite. Ensure packs are placed down evenly and ideally with the forks tilted forward slightly to avoid the top board of the pack being crushed.

Skids or bearers should be equally spaced horizontally and vertically aligned if multi- stacking – this is crucial to avoid the boards from warping.

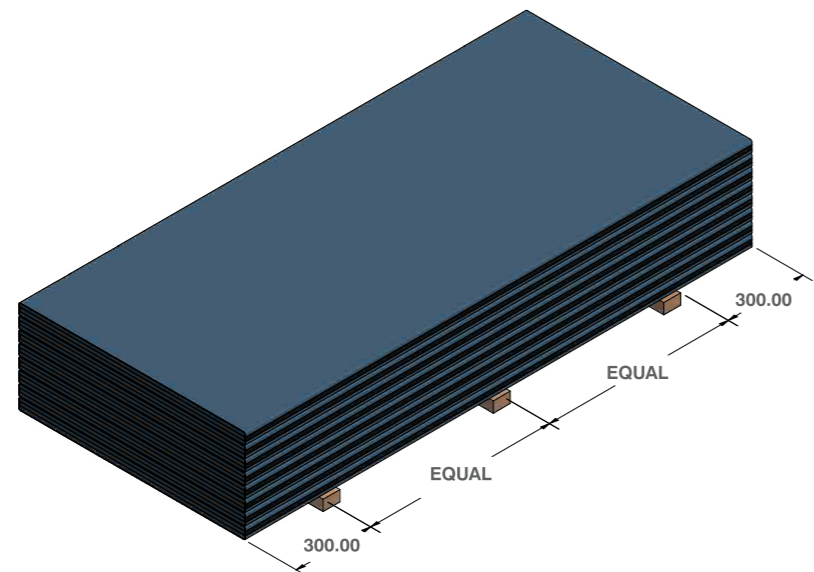
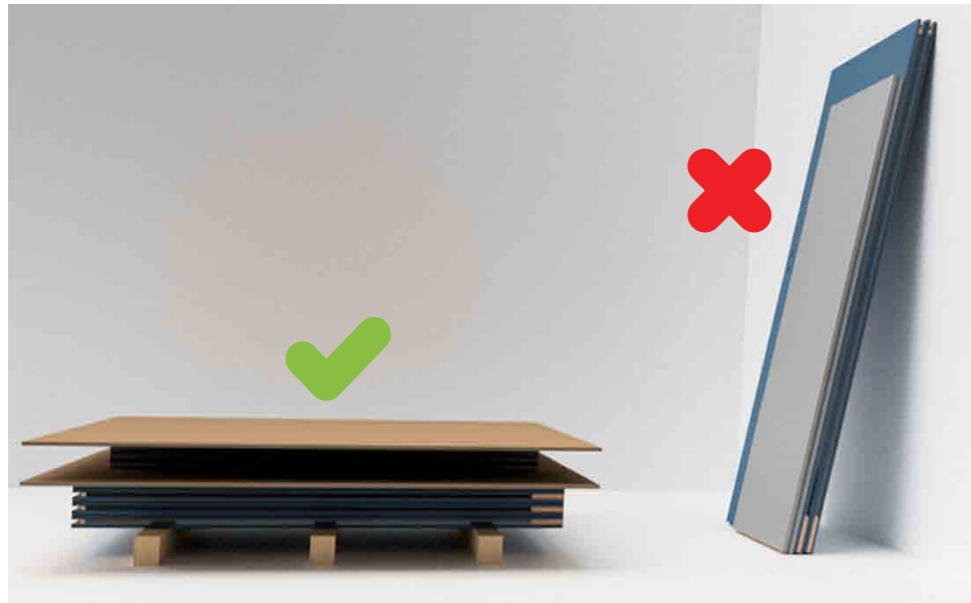
STARlite is to be stored on dry straight flooring, in a heated, closed and draught free environment to avoid problems. Ideal storage conditions are 40-75% Relative Humidity and 15-20 Degrees Celsius.

**DO NOT** store STARlite in open air storage, under lean to roofs or exposed to the weather under any circumstances.

Your own lamination of HPL, PVC or Veneers onto the MDF surface of RAW STARlite requires reference to your own standard operating procedure's for that process. This will involve suitable adhesive and machinery requirements. (Your own test evidence for this is always recommended).

STARlite is manufactured in a controlled environment to moisture content levels around 4-8% for the MDF substrate layers. Rapid changes in moisture content levels can affect the product during delivery or extended storage therefore it is vital to precondition for 48 hours prior to further processing.

## Board Storage: Correct Vs Incorrect

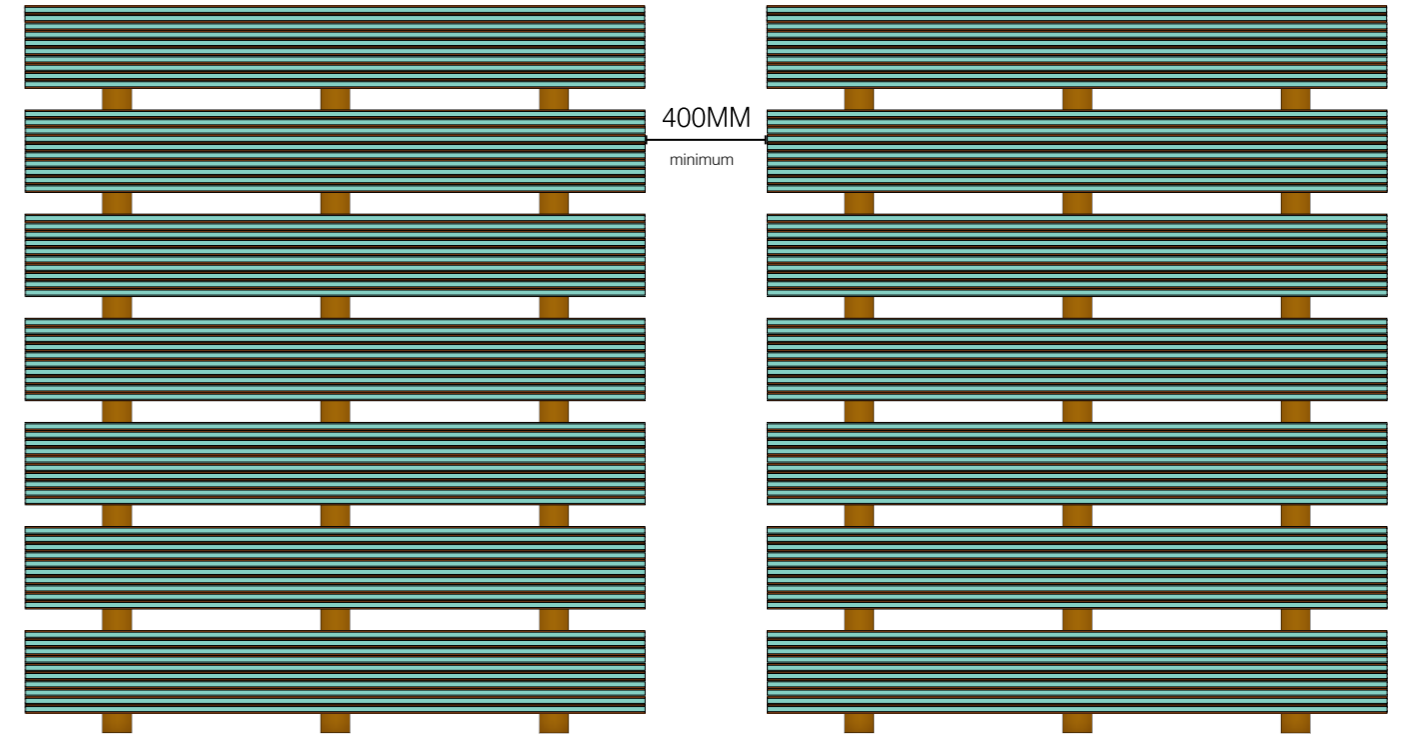


## Block Storage

Distance between the packs should be at least 400mm to allow sufficient airflow.

The maximum number of packs stored on top of each other should be limited to 7no. Maximum number of boards per pack in storage should not exceed 8-10, depending on the thickness of the STARlite panels.

Special attention to aligned skids / bearers essential.



## Cantilever Racking Storage

Industrial racking designed for wood based panel storage is ideal for STARlite. Ensure arm centres and lengths are configured for the panel weight and size.

**DO NOT** store other solid panel products or materials on top of STARlite.

## Handling Automation / Robotics

Please ensure suitable end of arm tooling is in place to handle STARlite with special care taken around the XPS Foam Core to avoid damage in its raw state prior to lamination and edgebanding.

# Technical Data

Each component of our STARlite composite lightweight panels have been individually tested under the manufacturers requirements to meet industry standards. Raw STARlite has been tested at FIRA to BS 6222 with no failures and has also undergone successful deflection testing - copies of the data contained in the report are available upon request.

## High Pressure Laminates - Generic Overview

	Decor / Finish	Plain Colours, Woods & Standard Patterns as per manufacturers ranges	High Gloss and specialised surface technologies such as pearlescents	Digital Print HPL
	Thickness	0.8 mm approx		
	Grade	Standard, PF & FR Grades		Standard
	Classification	HGP - HGS - HGF	VGP - VGS - VGF	HGS - HGF - VGS - VGF
Typical Characteristics	Standard	Units		
Physical & Dimensional Properties				
Typical Density	EN ISO 1183-1	g/cm <sup>3</sup>	≥ 1.35	≥ 1.35
Thickness tolerance	EN 438-2-5	mm	±0.1	±0.1
Length & width tolerances	EN 438-2-6	mm	-0/+10	-0/+10
Straightness tolerance	EN 438-2-7	mm/m	≤ 1.5	≤ 1.5
Squareness tolerance	EN 438-2-8	mm/m	≤ 1.5	≤ 1.5
Flatness tolerance	EN 438-2-9	mm/m	60	60
Dimensional stability at high temperature - Longitude - Transverse	EN 438-2-17	%	≤ 0.55 ≤ 1.05	≤ 0.75 ≤ 1.25
Mechanical Properties				
Resistance to boiling water	EN 438-2-12	Class <sup>(a)</sup>	Gloss: 3/ Others: 4	Gloss: 3/ Others: 4
Impact resistance (small diameter ball)	EN 438-2-20	N	≥ 20	≥ 15
Impact resistance (large diameter ball) <small>(Drop height for ≤ 10mm diameter imprint)</small>	EN 438-2-21	mm	≥ 800	≥ 600
Resistance to cracking	EN 438-2-23	Class <sup>(a)</sup>	4	4
Minimum bending radius (convex/ concave)		cm	HGP:10/ HGS - HGF:20	VGP:10/ VGS - VGF: 20
Surface Properties				
Surface defects - Spots - Linear	EN 438-2-4	mm <sup>2</sup> /m <sup>2</sup> mm <sup>2</sup> /m <sup>2</sup>	≤ 1 ≤ 10	≤ 1 ≤ 10
Abrasion resistance (initial point)	EN 438-2-10	No. of revolutions	Gloss: ≥ 450/ Others: ≥ 150	Gloss: ≥ 100/ Others: ≥ 50
Resistance to steam	EN 438-2-14	Class <sup>(a)</sup>	Gloss: 3/ Others: 4	Gloss: 3/ Others: 4
Dry heat resistance 180°C	EN 438-2-16	Class <sup>(a)</sup>	Gloss: 3/ Others: 4	Gloss: 3/ Others: 4
Resistance to humidity	EN 12721	Class <sup>(a)</sup>	Gloss: 3/ Others: 4	Gloss: 3/ Others: 4
Scratch resistance	EN 438-2-25	Grade <sup>(b)</sup>	Gloss: 2/ Others: 3	Gloss: 2/ Others: 3
Stain resistance - Groups 1 & 2 - Group 3	EN 438-2-26	Class <sup>(a)</sup>	5 4	5 4
Colour fastness under artificial light	EN 438-2-27	Grey scale	4 to 5	4 to 5
Resistance to cigarette burns	EN 438-2-30	Class <sup>(a)</sup>	3	3
Postforming Properties (Postforming HPL only)				
Minimum postforming radius	EN 438-2-31 or 32	mm	Th. 0.8mm ≥ 8mm	Th. 0.8mm ≥ 8mm
Blister resistance	EN 438-2-33 or 34	Second	≥ 15	≥ 15
Fire Performance				
Fire rating	NFP 92-501	M classification	Fire retardant: M1 Others: M3	Fire retardant: M1 Others: M3
Calorific value	EN ISO 1716	MJ/Kg	18 - 20	18 - 20
Health & environmental characteristics				
Food safe	EN 13130-1		Yes	Yes
Formaldehyde emission	EN 717-2	Class	E1	E1
Volatile organic compounds (VOC) emission	ISO 16000-9	Class	A	A
Antibacterial properties	JIS Z 2801	Reduction in %	>99.9	>99.9

## MDF: Medium Density Fibreboard - Typical Results

Typical Properties	Test Method	Unit	Specification
Thickness	EN 324-1	mm	±0.2 (> 18mm: ± 0.3)
Length & width	EN 324-1	mm/m	±2 (max ± 5)
Edge straightness tolerance	EN 324-2	mm/m	1.5
Squareness tolerance	EN 324-2	mm/m	2
Formaldehyde Class E1	EN 120	mg/100g	≤ 8
Tolerance on mean density with a board	EN 323	%	± 7%
Moisture content	EN 323	%	4 to 11

## Bespoke STARlite® Foam Core

Typical Properties	Standard	Unit	Foam
Thermal Conductivity			
Declared (1) 30-60 mm	BS EN 13164	W/m-k	0.029
Declared (2) </=50mm >50mm	BS EN 13164 BS EN 13164	W/m-k W/m-k	0.028 0.027
10°C/ 60 days	BS EN 12667	W/m-k	
All thicknesses	/BS EN 12939		0.027
Mechanical Properties			
Compressive strength - vertical at 10% or break (90)days	BS EN 826	kPa	300
Design compressive strength 2% max deflection (50 yrs)	BS EN 1606	kPa	110
Compressive modulus	BS EN 826	MPa	12
Tensile strength	BS EN 1607	MPa	0.5
Tensile modulus	BS EN 1607	MPa	12
Shear strength	BS EN 12090	kPa	250
Shear modulus	BS EN 12090	MPa	8
Water absorption by immersion (28 days)	BS EN 12087	vol %	1.5 max
Water vapour diffusion resistance factor	BS EN 12086	μ	100
Dimensional Stability			
48 hrs at 70°C & 90% RH	BE EN 1605	%	2 max
168 hrs at 40 kPa & 70°C	BS EN 1605	%	5 max
Dimension thickness, width & length		mm	On request
Dimensions: tolerances			
Thickness	BS EN 823	mm	-0.5 to +0.5
Width < 700mm > / = 700mm	BS EN 822 BS EN 822	mm mm	0 to +3 0 to +5
Length	BS EN 822	mm	0 to +10
Edge Profile	-	-	Butt
Surface finish	-	-	Planed
Density	BS EN 1602	kg/m <sup>3</sup>	35
Coefficient of linear expansion	BS 4370: Method 13	mm/m-K	0.07
Temperature limits	-	°C	-50/+75
Reaction to fire	BS EN 13501	EUROCLASS	E

## Edging Options

Edging Type
ABS
3D Acrylic
Decorative Hardwood
HPL Postformed
Real Wood Veneer

## Tolerances

Raw Materials & Composition
Nominal plus or minus 0.5mm to 0.75mm subject to raw materials and panel composition - for example 3 layer vs 7 layer construction. For critical finished component thicknesses we can offer and would recommend a fully calibrated board.

Notes:  
1: Although STARlite® can be specified with FR Grade materials it does not carry any third party fire certification at this time.  
2: This guide is intended to give a generic overview of component parts - we can assist further with any specific requests  
\* Please speak to our sales representatives for more technical and environmental information on any of the additional surface options available.



Starbank Panel Products Ltd  
Sankey Valley Ind Est  
Newton-le-Willows  
Merseyside  
WA12 8DN

01925 223 965  
[sales@starbank-uk.com](mailto:sales@starbank-uk.com)  
[www.starbank-uk.com](http://www.starbank-uk.com)

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