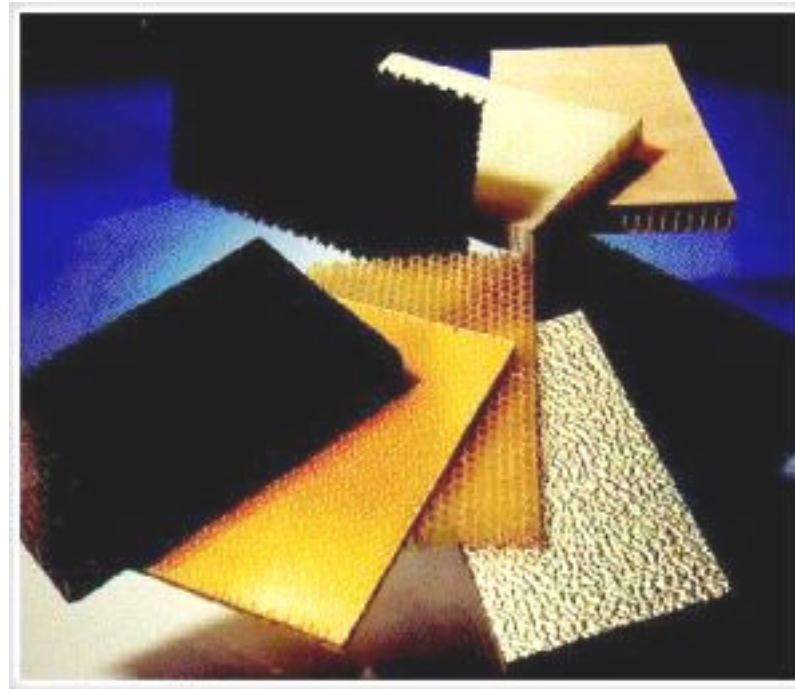


## POLYCORE Honeycomb Panels



THE NEW GENERATION OF CORE

## Product Overview

### **Proven Material, Breakthrough Technology**

POLYCORE polypropylene honeycomb is fast gaining popularity across many diverse industries as the world looks for new materials to improve performance, reduce weight and lower costs. Due to its superior all-round properties at competitive pricing, POLYCORE polypropylene honeycomb has been widely used in many applications that demand strength-to-weight performance.

### **Superior Core Material**

POLYCORE polypropylene honeycomb is typically used as a core material in sandwich constructions whereby it is sandwiched between strong facing skins such as aluminium, steel, wood, paper and fibreglass. The resulting construction behaves much like an I-beam, which benefits from increased strength and stiffness at reduced weight.

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### **Superior Quality**

POLYCORE polypropylene honeycomb cells are fused together rather than glued. Without the presence of glue as the "weakest link" in the honeycomb matrix, POLYCORE polypropylene honeycomb sheets are more resilient. Every cell in a POLYCORE polypropylene honeycomb is very stable. POLYCORE's manufacturing technology allows it to produce honeycomb cells that are extremely consistent regardless of any honeycomb sheet size.

POLYCORE polypropylene honeycomb can be used in virtually anywhere where high strength-to-weight performance is required. While definitely not exhaustive, POLYCORE products have been known to be well suited for the following applications:

### **Architectural & Building**

Laminated wall, Claddings, Suspended ceilings Floor panels  
Doors, Wall panels, Roof panels, Patios, Gazebos, Office  
dividers, Decks, Showers, Kitchens, Tanks, Indoor/Outdoor  
furniture, Specialized clean room wall panels, Sound deadening

### **Automotive and Rail**

Truck and trailer floors & Door panels, Floor panels, Roof  
panels, Pantech bodies, Horse floats, Race car transporters,  
Dividers, Partitions, Shock absorbers.

### **Aviation Industry**

Bulkheads, Floors, Lockers, Luggage compartments, Ultra light  
ultra strong freight containers, Ultra light aircraft.

### **Caravan and Trailer Industry**

Caravan construction, Floors, Roofs, Walls, Cupboards,  
Furniture, Lightweight trailers, Site offices, Transportable  
homes, Dongas.

### **Filter Systems**

Filter systems either air or fluid, In air as end plates with  
activated carbon in between or stacked as fluid filter plates,  
Any number of combinations are possible.

### **Industrial Construction**

Floating roofs, Floating docks, scaffolding planks, lightweight  
form work, bridges, platforms, chemical tanks, filtration.

### **Landscaping**

Gravel and sand stabilization, Erosion control.

### **Marine**

Hulls, Bulkheads, Decks, Superstructures, Furniture, Soles,  
Lockers, Engine room sound insulation, Dingys.

### **Packaging**

Reinforced casings, Pallets.

### **Recreational**

Surfboards, Kayaks, Canoes, Fibreglass swimming pool  
construction.

### **Signage**

Display panels and Exhibits.

### **Theatrical Industry**

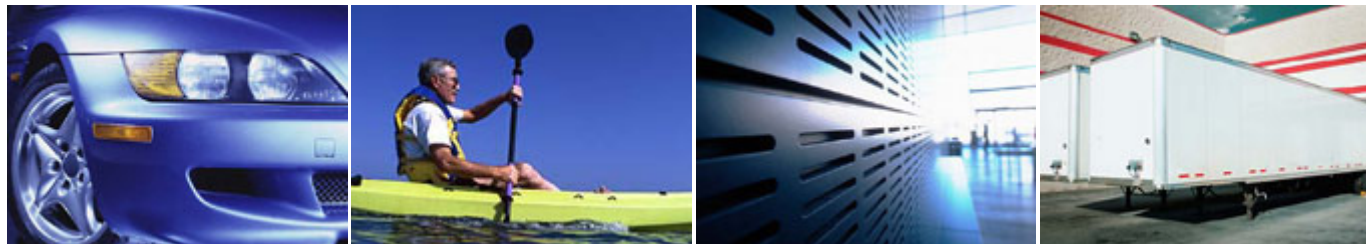
Props, Scenery, Noise reduction barriers, Lightweight stage  
construction.

### **Wind Energy**

Blades, Housings, Spinners.

It's economical, ultra light, ultra strong, environmentally friendly for it's recyclable! Products are currently undergoing certification by the major classification societies!

According to your requirements, our Polypropylene Honeycomb core products can be processed into various sandwich panels. POLYCORE clients can choose a Polypropylene Honeycomb or Polycarbonate Honeycomb for the core. Also different surface materials are available, such as steel, aluminium, wood, reinforced fiber glass, etc. POLYCORE HONEYCOMBS with small pressure losses are widely used when it comes to sound reduction and air guidance in ventilating applications. Most of the thermoplastic air guidance systems for commercial show case application are based on the technology developed in the technical headquarters in Germany. Features like corrosion resistance, fungi resistance, small pressure losses and the free choice in colors give these products their unique position in the market. The uniform collapsing of the tubes in the honeycomb system leads to an outstanding energy absorption behavior.



## Properties of POLYCORE

**Good shear strength.** For higher shear strength, check out our High Strength Series that offers one of the highest shear strengths in the market

**Extremely light:** POLYCORE polypropylene honeycomb is at least 10 times lighter than water, giving it excellent buoyancy in water and fluids. Excellent Strength-to-Weight Ratio

**Large operating temperature range:** -30 Deg C to 80 Deg C (-22 Deg F to 176 Deg F)

**Does not absorb water:** Polypropylene's water absorption is negligible, which makes POLYCORE Polypropylene Honeycomb an excellent core material for constructions that are constantly exposed to water and moisture.

**Excellent corrosion resistance:** POLYCORE Polypropylene Honeycomb is extremely resistant to corrosion by most chemicals, salt water, fungi, decay and weather.

**Superior shock absorption and impact resistance:** POLYCORE Polypropylene Honeycomb is an excellent constant force absorber. Once the honeycomb has exceeded its compressive yield strength, it will crush at a uniform and predictable rate. Excellent compressive strength

**Superior Fatigue Resistance:** POLYCORE Polypropylene Honeycomb is resilient. Unlike metallic honeycomb, it has "mechanical memory" which allows it to snap back to its original form. It is also able to withstand bending without breaking like certain stiff foam materials.

**Excellent sound insulation:** Polypropylene has a natural low harmonic of 125-150 Hz, which makes POLYCORE Polypropylene Honeycomb an effective core material for vibration damping and noise absorption. If greater sound insulation is required we can supply foam filled honeycombs.

**Good Thermal insulation:** POLYCORE Polypropylene Honeycomb has good thermal insulation properties due to the polypropylene cell walls and the dead air space in between. If greater thermal insulation is required we can supply foam filled honeycombs.

**Environmentally Friendly:** POLYCORE Polypropylene Honeycomb is 100% recyclable.

**Ease of Application:** POLYCORE Polypropylene Honeycomb is easily thermoformed in large sheets and contours easily to the required curvature.

POLYCORE Polypropylene Honeycomb is compatible with most resin systems and the majority of composite manufacturing processes

POLYCORE Polypropylene Honeycomb can be easily glued, welded or cut to shape.

POLYCORE Polypropylene Honeycomb can be easily laminated with a large variety of facing materials.

**Technical Specifications PP8H**

Properties	Tests	PP - 8H
Cell Size		8 mm
Density	ISO 845	80 -90 kg/m3
Compressive Strength *	ISO 844	2.2 MPa (319lbs sq ft)
Compressive Modulus *	ISO 844	92 MPa (13,343 psi)
Shear Strength	ISO 1922	0.8 Mpa (109 psi)
Shear Modulus	ISO 1922	19 Mpa (2756 psi)
Tensile Strength	ASTM C297	0.7 MPa (102 psi)

\* Check our competitors compressive strength - POLYCORE is 2.2Mpa

**Operating Properties**

Effective Temperature Range	-30 Deg C to 80 Deg C
Thermal Conductivity	(at 10 Deg C or 50 Deg F) 0.102 W/mK
Thermal Conductivity (by Fourier Law)	k=0.03

Heat Insulation (20mm)	R = Approx 0.3m <sup>2</sup> C/W
Sound Attenuation	(50 to 4000 Hz) >22 db
Water Absorption	< 0.1%
Flammability (DIN 4102-1)	Normal Inflammable (B2)
Peel Strength	Excellent
Fatigue	Excellent
Impact Resistance	Excellent

**Product Dimensions**

<b>Thickness</b>	4mm to 600mm (0.16" to 23.62")	<b>Tolerance</b>	±0.2 mm (0.008")
<b>Length and Width of standard sheet</b>	2400mm x 1200mm (7.86' x 3.93')	<b>Tolerance</b>	±4 mm (0.16")
<b>Other customs sheet sizes up to</b>	11900mm x 2500mm (38.97' x 8.5') are available upon request.		

## POLYCORE HONEYCOMB CORE PANELS

→ ARE MANUFACTURED IN AN ISO 9001/2000 CERTIFIED FACTORY.

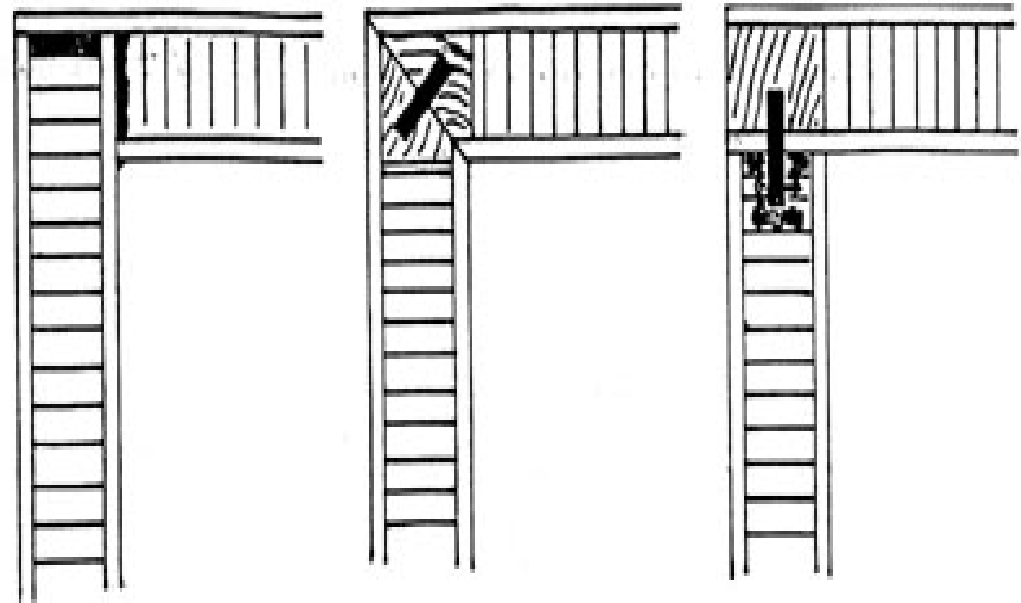
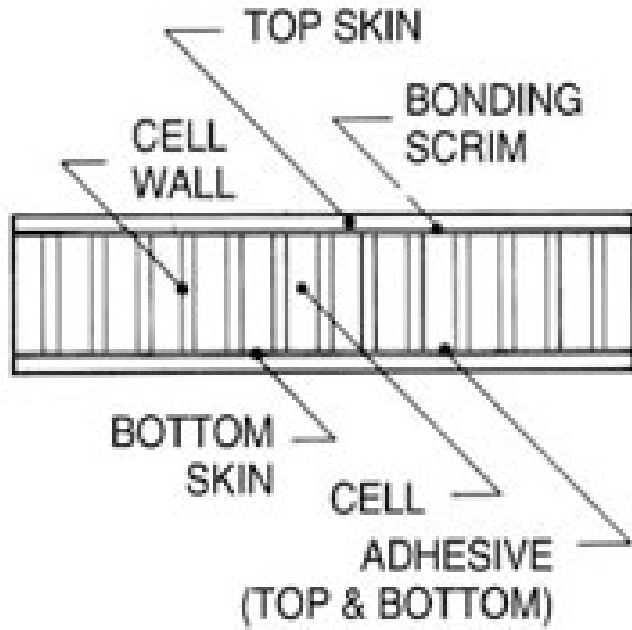
→ ENDORSEMENT BY SPACE AGENCY (The only thermoplastic honeycomb core material to be approved for use by the China National Space Administration)

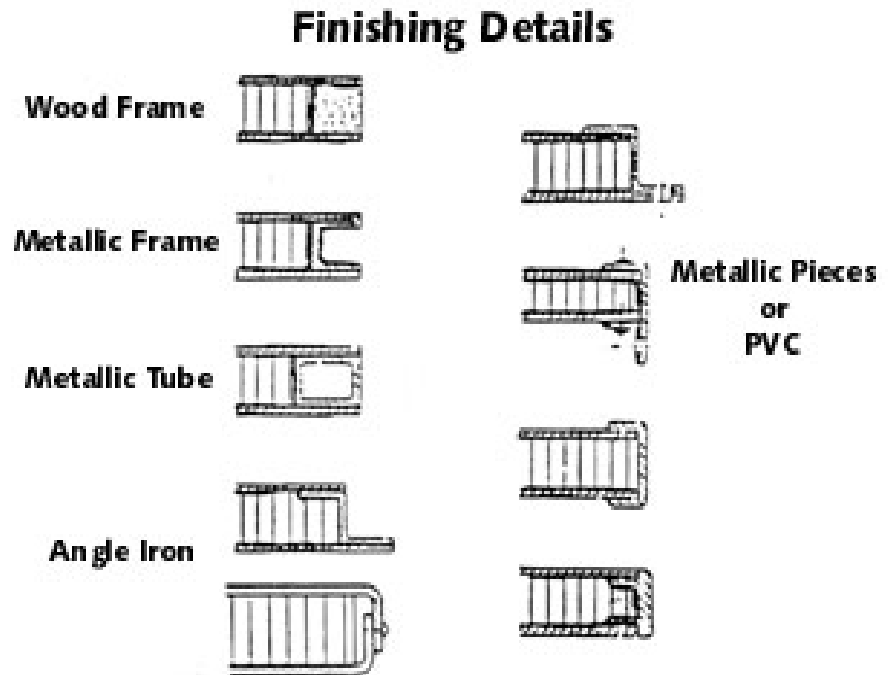
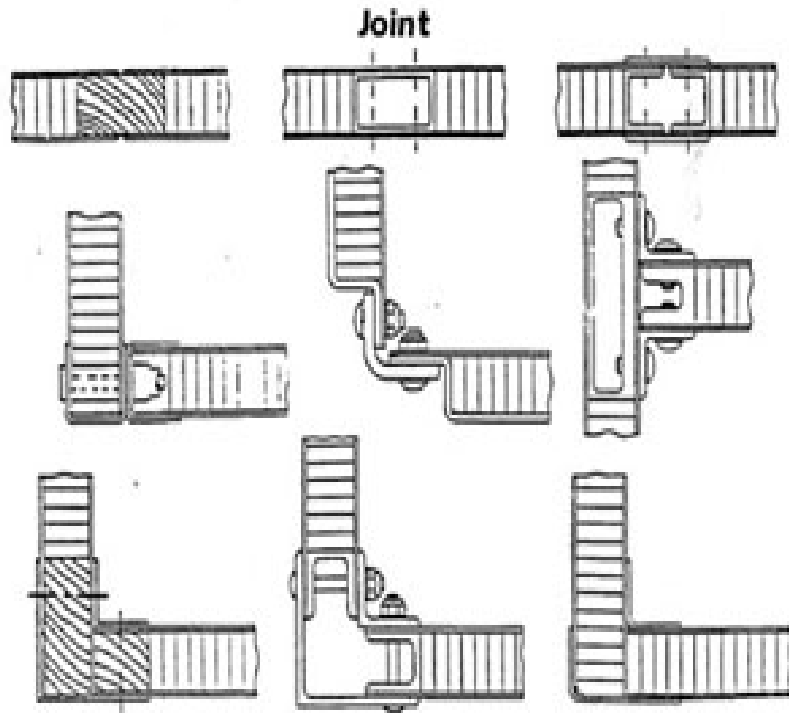
If you want quality then you want POLYCORE THE strongest in the market.

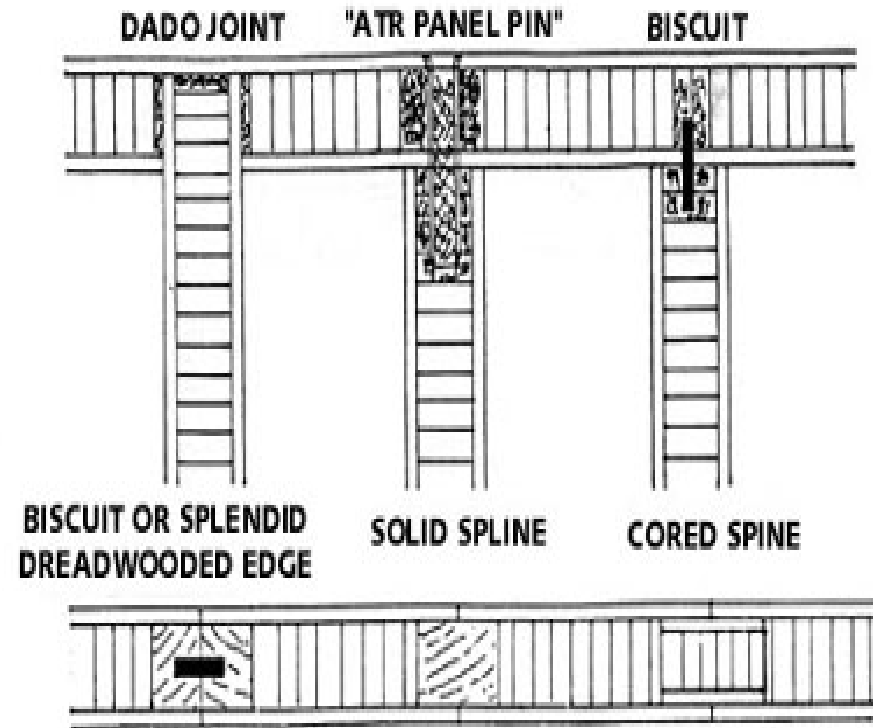
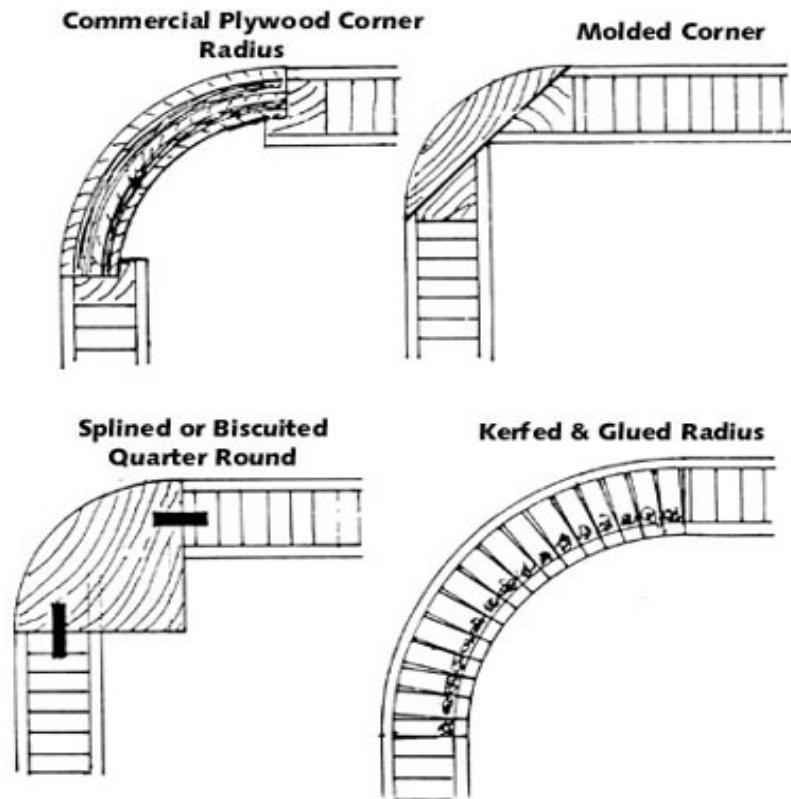
- Thinnest in the market.
- Most technologically advanced.
- Honeycomb panels are manufactured as a single sheet and not by joining small sheets together and can be made to order in extra long lengths.
- Low resin wastage.
- 100% Recyclable.
- 100% water proof.
- 100% Rot proof.
- 99% nil resin intrusion with PP8H core (new re-engineered scrim) - only a minimal 45gsm resin uptake into the scrim.
- POLYCORE sound deadens and insulates.
- Skin facings are strongly fused onto the honeycomb core, hence no known delamination issues.
- Available in different grades of strength.
- Available in 4mm up to 600mm thickness in 1mm increments
- Fire Resistant treatment also available



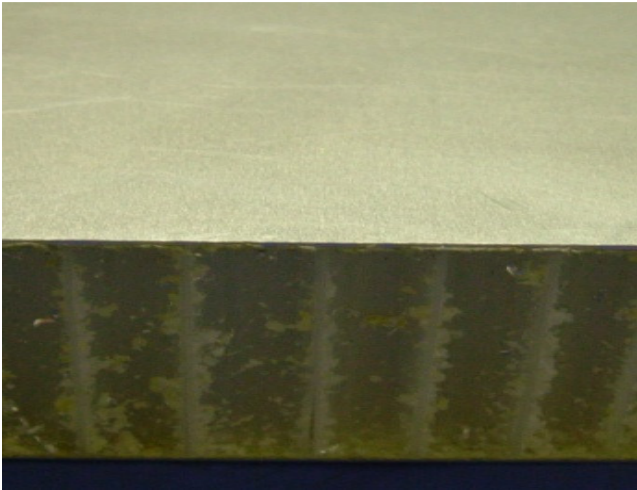
# POLYCORE JOINING TECHNIQUES







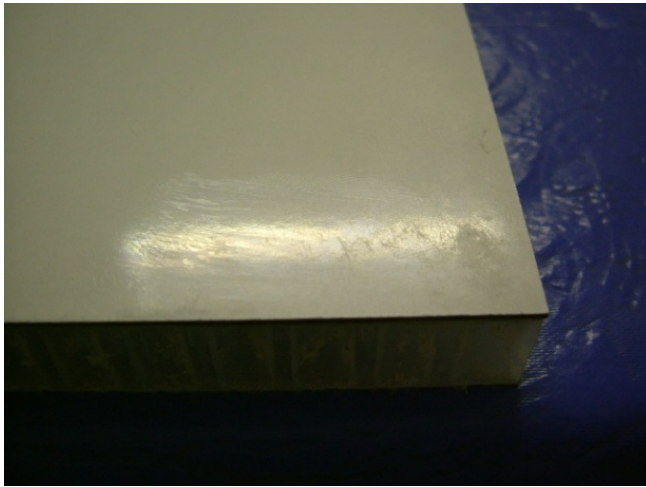
# POLYCORE Finishes



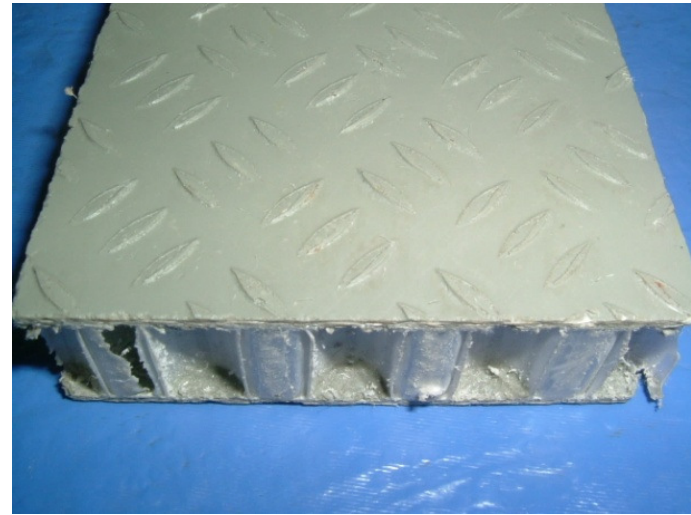
Aluminium Laminate



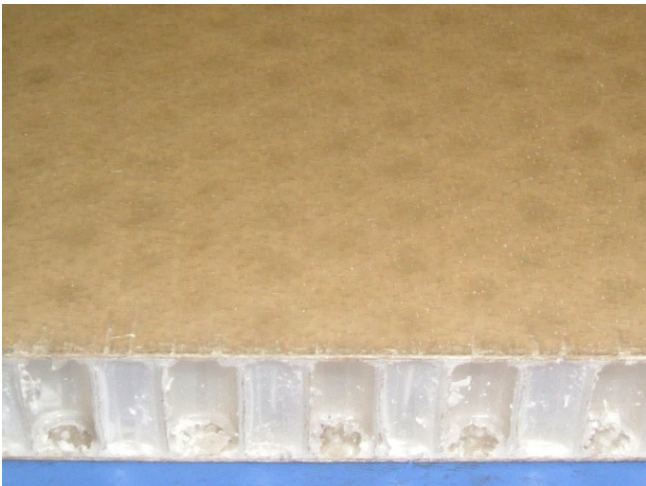
Glass and Acrylic Laminate



Glass and Gelcoat Laminate



Light Weight Anti-Slip Tread (corrosive areas & scaffolding)



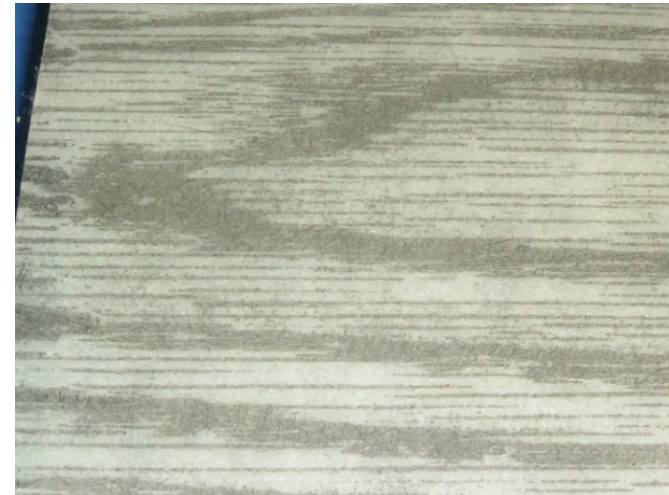
Glass Laminates - Epoxy



Granite Laminate



Man Made Marble Laminate



Textured/Coloured Laminates



Plain Cores (No Laminate)

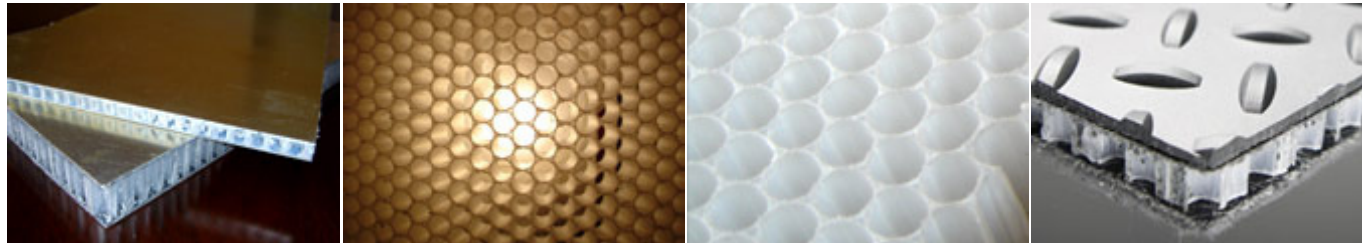


Raw Glass/Carbon/Kevlar Laminates

## Value Added Services

### **Laminated Sandwich Panels.**

Robot Building Supplies also supplies honeycomb laminated with a large variety of different surface & decorative materials. Customers can choose! Some of our most common materials are listed below.



### **Aluminum**

Aluminum panels are very popular because of their lightweight and strength. Ideal for applications requiring movement or portability, they are very resistant to moisture, fungi, corrosion, and cleaning agents. Aluminum is noncombustible and comes in a wide variety of decorative finishes.

### **Steel**

Steel panels are ideal for applications requiring excellent strength and impact resistance. They are used extensively in the construction of plants & offices for this reason. Steel can also be painted or finished easily and is available in corrosion resistant stainless variety.

### **Laminates & Compact Laminates**

Laminates have an endless range of colors and finishes to cater for all tastes and designs. Compact laminates are a new generation of surface(ranging from 3 to 35mm) adding even more strength and style to your POLYCORE panels.

### **Plastic Sheet**

There is numerous plastic materials that can be used as panel surface materials. Plastic materials are lightweight and have excellent resistance to impact, corrosion, and moisture. They can also come in a wide variety of textures and colors. Common plastic materials include PE, ABS, polypropylene, acrylic.

### **FRP (Fiberglass Reinforced Plastic)**

Ideal for outdoor and marine applications that require moisture and corrosion control. FRP panels are stronger than plastic sheet and come in a variety of colors.

### **Wood & Wood Veneers**

Standard building materials like plywood, MDF, veneer, and hardboard can also be used as a surface material. Wood panels are typically decorative, very cost effective and strong.

### **Engineered Stones & Acrylics Solid surfaces**

Reconstituted stones and Acrylic Surfaces are and ideal finish for benchtops and cabinets. Teamed up in with the lightweight advantage of the Polycore it is now possible to use a luxurious finish in caravans, portable homes, boats...

All POLYCORE laminated products can be supplied CNC cut to size as per customer specifications.



## Warning!!!

Please be aware there are companies in the market place selling product and calling it POLYCORE this product may not be our ADVANCED HIGH QUALITY CORE!

We have been made aware by people who have gone to suppliers, and have asked for POLYCORE by name, and have, it seems, been sold other manufacturers products, these people have been assured that these products are POLYCORE, these practices are disreputable to say the least, if you ask for POLYCORE then you should be supplied POLYCORE!

If you want the best core in the marketplace, then be sure to ascertain it is genuine POLYCORE Australia Product. Our product is stamped as POLYCORE Honeycomb and will have the grade of the core stamped on it as well, this grade marking will be S for standard H for High Strength F for flexible SF for super flexible, SF is not for structural use, but is used to form complex non structural shapes. If you are uncertain of the product that you are intending to purchase, then please call us to so that we can try and verify whether it is our core or not, be safe not sorry!

For the Marine Industry a DNV certified panel is going through the final approval procedure and should be available in Australia in the near future.