



The future starts here



Application In Use
Concrete Shuttering
 for the Formwork Trade



Uber Engineering Pte Ltd
 15 Neythal Road Singapore 628580
 Tel : 65-62657930
 Fax : 65-65150084
 Email : info@uber-eng.com.sg
 Website: www.uber-eng.com.sg

Authorised Distributor:



Problems with Concrete Shuttering Boards?

- Low recycle rate of conventional shuttering boards?
- Difficulties in stripping of shuttering board from concrete surface?
- Poor concrete finish?
- High and frequent procurement and disposal costs?
- Additional costs in repairing unacceptable concrete surfaces?

Typical Everyday Problems

- Surface film wears off after repeated cycles due to reactions from harsh concrete admixtures.
- Inadequate formoil causes early destruction of wood-based shutter boards.
- Veneer delamination from wood expansion.
- Edge chipping of veneers.
- Constant board replacement high labour costs & downtime.

Tuffply

TUFFPLY is an engineered plastic board and extremely suitable for concrete shuttering use. It is a drop-in replacement to plywood in formwork systems and is designed to work in the same way as plywood shuttering boards.

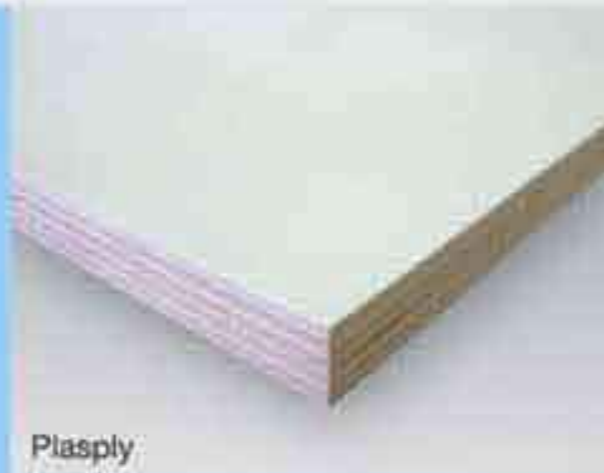
The construction of solid lightweight plastic reinforced with reinforcement plates provides superior strength as compared with conventional concrete shutter boards and other general plastic boards.



There's a Solution!

With in-depth research into the formwork industry's requirement for concrete shuttering, we have developed a range of composite boards, specifically designed to the harsh requirement of shuttering boards.

Either in an all-plastic or wood-core version, the products come with a repairable but non-stick proprietary polyolefin that allows for easier formwork stripping and a near perfect concrete finish without the constant need for board replacement.



Plasply



Tuffply



*No Moisture Absorption...
Mechanically Stable...*

TUFFPLY does not absorb water, crack or rot over time. It has a bi-directional, consistent high strength to weight ratio with a density similar to typical hardwood and its mechanical strength will not alter over time.



*Tough, Repairable but Non-stick
surface...*

TUFFPLY's UV resistant surface is tough and robust. Its impact & abrasion resistant surface resists scratches & concrete vibrator knocks. Despite its hardness, it can be easily sawn, nailed, screwed and machined like a wood product. An exposed hole after nailing can be leveled flat again with a hammer or will be covered by the next concrete pour.



Consistent Fair-Faced Finishing...

The thick plastic coating prevents surface wear-off and a consistent concrete finish can be achieved at every pour. The non-stick feature also means a thin layer of form oil is required.



After 200 Cycles

Long Lifespan... Simple Maintenance... Huge Savings...

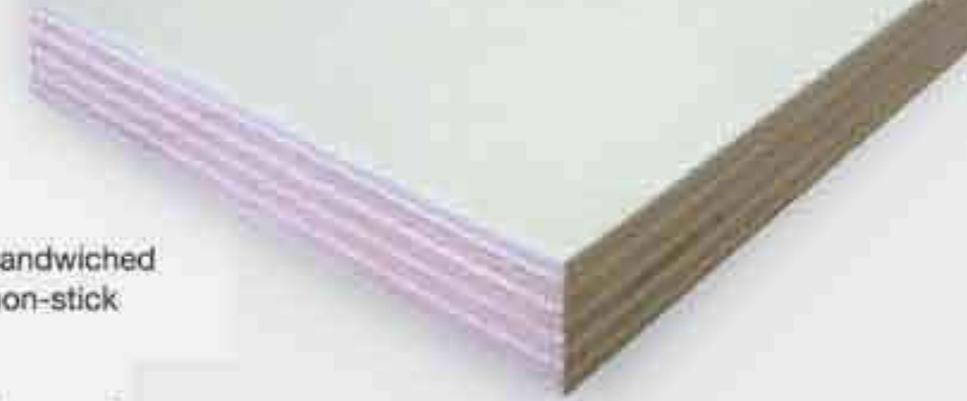
With a combination of material attributes suited for concrete shuttering, the all weather, easy to clean TUFFPLY has a long lifespan and can be used for a few hundred cycles.



Recyclable... Environmentally Friendly...

From non-biodegradable plastic RECYCLED into a TUFFPLY and back to Tuffply again after long REUSES, a sustainable product model REDUCES the constant need of procurement and replacement. How much have you done to help the environment?

Plasply



PlasPly consists of a hardwood core sandwiched between 2 thick layers of proprietary non-stick polyolefin sheet.

This combination of plastic surface with wood core increases the lifespan and enhances the users experience in concrete shuttering which reduces the overall costs of ownership.

TUFFPLY Models

Tuffply is available in 3 models which are all suited for concrete shuttering.

XL - Lightweight and suited for extremely corrosive environment. Designed as strong as plywood.

SL - High strength board for extended usage lifespan. Not recommended for prolonged lifespan in saltwater condition.

GS - Extremely high strength board which has approx 2 times the stiffness of plywood. Not recommended for prolonged lifespan in saltwater condition.

About TuffPLY - GS Model

The GS model has an increased stiffness and bending strength over the XL & SL models without a substantial increase in weight. A 6mm thickness difference can be achieved in comparison between GS and plywood.

With the increase in flexural rigidity, a 12mm thick GS can be used in replacement of 18mm thick plywood for an overall reduction in your cost of shuttering.

When using with the same thickness of plywood (i.e 18mm TP-GS & 18mm Plywood), the support spans can be increased proportionally which reduces the material and installation cost of formwork.

Thickness Comparison of Tuffply & Plywood

Plywood	TP-XL	TP-SL	TP-GS
9	9	9	-
12	12	12	-
15	15	15	9
18	18	18	12
21	21	21	15
24	24	24	18

Dimensions are in mm



Features

- Non-stick & repairable plastic surface on both sides
- Impact & abrasion resistant surface which resists hard & concrete vibrator knocks
- Board de-bonds from concrete easily due to specially formulated non-stick surface – easy to strip formwork - little formoil required
- Surface is easily cleaned with water – Easy maintenance
- Surface will not chip off unlike plywood veneers
- In cases where the wood veneer layers delaminates through repeated use, PlasPly can be screwed or nailed down back into the core to maintain a flat surface due to presence of the thick plastic surfaces

Technical Specifications

Product	TuffPly			PlasPly
Model	XL	SL	GS	
Material Specification				
Core Material	All Plastic			Full Birch, HardWood, WBP Glue
Face	2 Sided Tuff Plastic			2 Sided Tuff Plastic
Surface Finishing	Smooth			Smooth
Surface Color	Light Grey			Light Grey
Metal Reinforcement	Yes			No
Repairable	Yes			Yes, Surface Only
Color Selection	Available			Available
Technical Values				
Density, Kg/m ³	680 - 950	720 - 1050	850 - 1220	620 - 660
Bending Modulus, Mpa	4700 - 5500	5300 - 9500	8300 - 21200	6500 - 7500
Bending Strength, Yield, Mpa	18.5	17	25 - 48	42
Bending Strength, Ultimate, Mpa	33	48	48 - 60	68
Operating Temperature °C	-20 to +75			-20 to +75
Working Conditions				
Saving	Similar To Wood			Similar To Wood
Cutting				
Nailing / Screw				
UV Resistance	Yes			Yes
Product Dimension				
Max. Width, mm	1500			1500
Max. Length, mm	5000			3600
Thickness, mm	9 - 30			12 - 30
Dimension Tolerance, mm	LW +/- 1.5 Diagonal +/- 3			LW +/- 1.5 Diagonal +/- 3
Thickness Tolerance, mm	+/- 0.4			+/- 0.4

Strength Requirements Can Be Customized On Request

Recommended Arrangement

In cases where the boards are not used in frames, it is recommended to surround the formwork element panels with plywood infills to prolong the lifespan of the board from site handling conditions.

Vertical Formwork



Horizontal Formwork



Surface Renewal Guide

The board surface can be easily renewed by unskilled personnel with conventional plastic welding tools and our plastic welding rods.

Steps as follows:

Step 1: Clean Damaged Area.

Step 2: Pre-Heat damaged area and inject hot plastic over the damaged area.

Step 3: Leave to cool for 3-5 seconds.

Step 4: Scrap off excess with a metal scrapper very quickly using a fast moving action.

Step 5: Surface is repaired with immaculate results.

Edge Protector

To further protect the edges of the boards, an all plastic edge protector can be fixed and replaced easily on and off site with screws.



Services

Your solution will not be complete without customized cutting, drilling or even panel fixing. With advanced cutting, drilling, machines facilities with a competent and motivated workforce that focuses on quality, we would be able to satisfy most of your requirements.

