# SHIN YANG GROUP OF COMPANIES

## Woodbased Division

## MALAYSIA

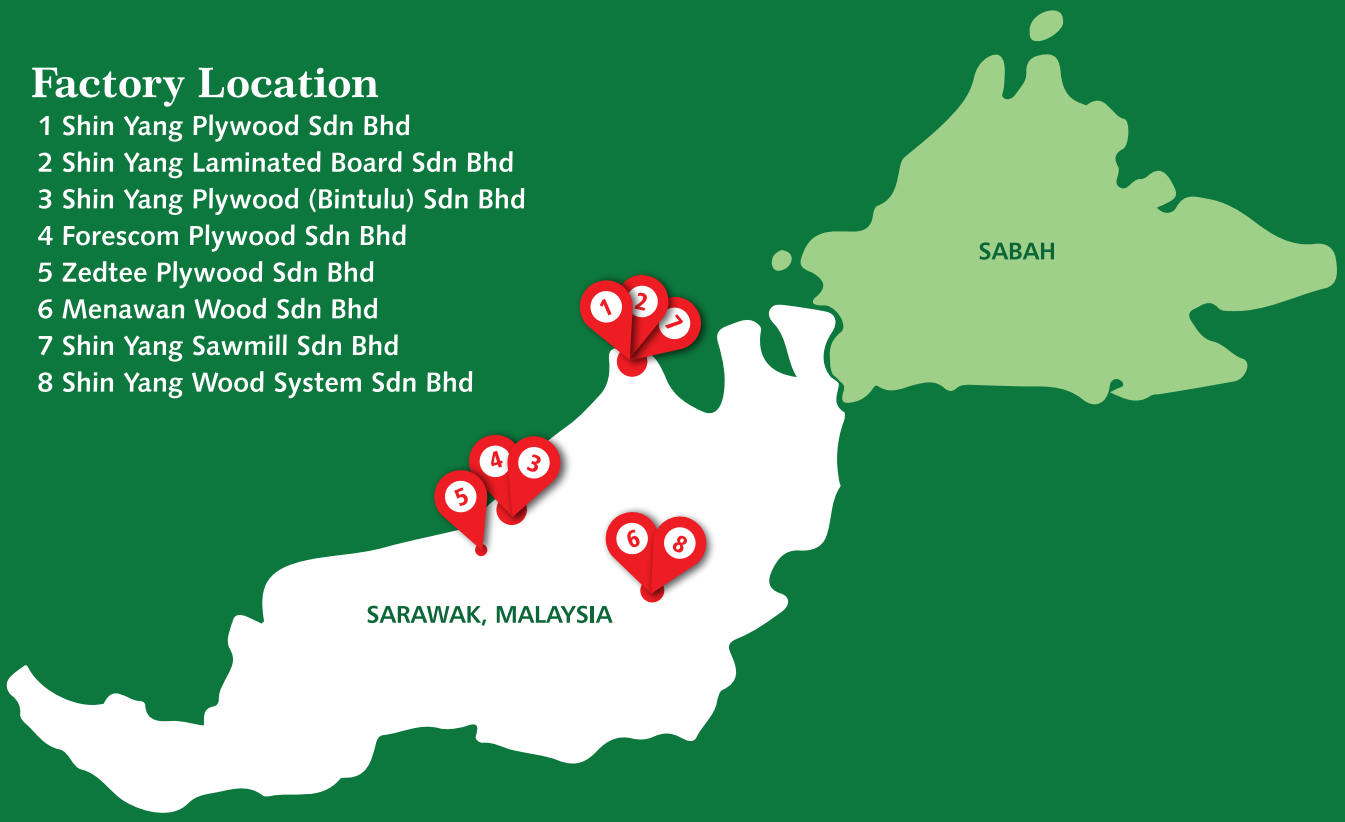


# Contents

# About

## Factory Location

1 Shin Yang Plywood Sdn Bhd
2 Shin Yang Laminated Board Sdn Bhd
3 Shin Yang Plywood (Bintulu) Sdn Bhd
4 Forescom Plywood Sdn Bhd
5 Zedtee Plywood Sdn Bhd
6 Menawan Wood Sdn Bhd
7 Shin Yang Sawmill Sdn Bhd
8 Shin Yang Wood System Sdn Bhd









## Shin Yang Group of Companies (SY)

Shin Yang Sdn Bhd (SY) was incorporated on the 24th February 1983. With the incorporation of SY, outcome the "birth" of many sister companies and subsidiaries. SY and its group of companies became a huge conglomerate of companies and has become a dynamic leading corporation with diversified business activities such as tree plantation, logging, timber processing, oil palm, construction, shipping (domestic and international), hotels, real estate, quarrying and other small businesses.

## Woodbased Division

Shin Yang Group of Companies (Woodbased Division) is a major manufacturer of timber related products.

It is comprises of the following companies:

- Shin Yang Plywood Sdn Bhd **(242712-T)**
- Shin Yang Laminated Board Sdn Bhd **(264319-H)**
- Shin Yang Plywood (Bintulu) Sdn Bhd **(257938-X)**
- Forescom Plywood Sdn Bhd **(023406-P)**
- Zedtee Plywood Sdn Bhd **(190653-D)**
- Menawan Wood Sdn Bhd **(673696-X)**
- Shin Yang Sawmill Sdn Bhd **(173224-A)**
- Shin Yang Wood System Sdn Bhd **(409166-X)**

# Our Global Market







## About Shin Yang Group of Companies (Woodbased Division)

Our mills' facilities are upgraded continuously to ensure our business is competitive and sustainable in the future. Our facilities are able to achieve accomplishment whereby producing zero wood waste, more environmental friendly and higher energy efficiency mill.

Besides the huge investment in high tech plywood machineries, our mills are also equipped with the state of the art secondary processing machineries that enable us to extend our products line up to more value added products such as Phenolic Film Plywood, Urethane Coated Plywood, Laminated Veneer Lumber, Wood Pellets and many more. The overall capacity of our plywood production is more than 100,000m$^3$ per month.

Shin Yang Group of Companies (Woodbased Division) is much more than just a plywood manufacturer. We strongly believe and emphasize towards Environmental and Social Responsibility from the very early stage.

Our timber products are always a better choice in green building industry as they are renewable, recyclable and environmental friendly.

While from the social perspective, the expanding of our products line up eventually creates more job opportunities and value added products from eco-friendly wood resources.

Moreover, we are also advanced in research and innovation to satisfy any relevant and appropriate requirements, as required by our customer.

# Shin Yang Group of Companies
(Woodbased Division)

# Fully **Committed** to **Preserve** the **Environment**

## Quality Assurance

We are the first plywood mill in Malaysia to receive the prestigious Japanese Agriculture Standard (JAS).

As high quality products are always the first priority to us, therefore every batch of our products will undergo a series of quality control by using the advanced testing equipment and most updated test methodologies by our well-trained personals.

The R&D team is continuously studying the latest and established test method to ensure our product quality.

The glue that we used in our products manufacturing is supplied by our subsidiary or associate-related resin plants, namely Shin Yang Chemical Sdn Bhd and Hikmal Chemical Sdn Bhd. With the advanced innovation and research skill at our said two resin plants, we are able to produce the ultra low formaldehyde panels and assure the quality of the glue used in our wood products.


## Eco-friendly Material

We have our own tree plantation, which is known as "e-forest". Till the end of 2015, we are proudly to announce that there is a total of 278 millions of trees being planted.

In order to show our commitment in legality and protecting the environment, our forestry operation is being accredited by numerous reputable third party's certification bodies in the following certification:

Environmental Management System Standard ISO 14001:2004, Certificate for Forest Management (Forest Plantation) MC&I (Forest Plantation) under the MTCS, Certificate for Chain of Custody - PEFC ST 2002:2013 and GFS Wood Tracking Programme.

## Green Manufacture

Investment in latest technology helps us to pursue further our goal towards becoming an environmental-friendly asset to the world.

We generate our own clean, renewable electricity from wood biomass, reducing the green-house gas emission.

Owing to the state of the art greater efficiency power plant, we are utilizing less wood to generate the same amount of energy that are needed. The excess wood wastes could be converted into Wood Pellet, which is an Environmental Friendly Bioenergy Fuel.


Unlike fossil fuel, wood pellet is considered as a carbon neutral fuel because during the crops grow, it will absorb carbon dioxide, and releasing it back to the atmosphere when burnt. As for fossil fuel, it will only release carbon dioxide when burnt. Making full use of our resources is the key for us to success and sustainable.

With the innovative breakthrough of our Rotary Peeling Machine, the recovery rate can be increased significantly. We are now able to utilize optimally all kinds of logs from as small as 10cm in diameter. While, the left over core lumber is only approximately 1cm in diameter. Credit to all of these greater efficiency machineries, we are able to decrease the green house gas emissions and thus, is contributing to a better environment.

## Innovative & Research

Investment for R&D abroad and having our own advisors from Japan, Korea, Taiwan and China is able to develop new and high quality products specifically required for foreign markets. This encourage in setting new benchmarks in timber industry through a long-term exploratory nature.

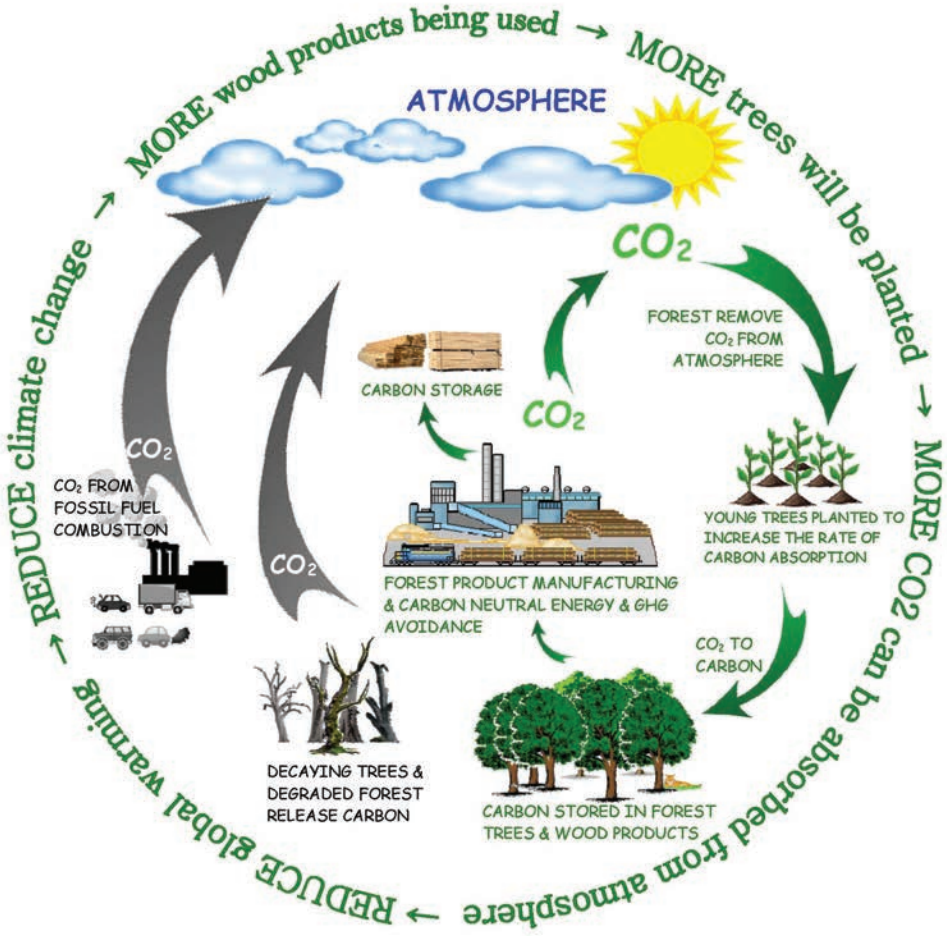
We also do research and collaboration with universities and government agencies such as University Putra Malaysia, Curtin University Sarawak, Universiti Institut Teknologi MARA and Sarawak Forestry Corporation (SFC). Occasionally, we also communicate and are doing collaboration with our existing resin, raw material and machinery suppliers, to give assurance and enhancement on our product qualities.

## Trained & Efficient Staff

Each individual member of our team are very committed in producing high quality products to our valued customers. Training on management, maintenance of machineries, relevant research in raw materials and resin, as well as various products developments are being conducted by local and foreign professional trainers at appropriated time.

With highly efficient and knowledgeable staff, we are able to give assurance on our products' quality and ensured on time delivery. We can also produce various wood products as customized by the end users.

# Why Wood?




## Carbon Storage

Lungs play an important role in our body system while in the universe, forests are the lungs for our mother earth. During photosynthesis process, trees will absorb the carbon dioxide ($CO_2$) from the atmosphere while releases oxygen for living things and stores carbon simultaneously. Our planted trees are fast growing species, so they can absorb more cabon dioxide in a shorter time. By continuously converting the tree into wood product and reforestation in short cycle, we are able to get an efficient carbon sequestration by fixing the $CO_2$ through the tree into a wood product.

## Reduce Global Warming and Climate Change

Through competence of trees, carbon will remain stored even after harvested and manufactured into wood products.

**"WOOD is a Better Environmental Choice for Building. It is Renewable, Recyclable and Sustainable"**

## Renewable and Biodegradable

The significant characteristic of wood compared to other building materials is the ability of replanted and regrowth. These remarkable ablities are unable to be found in concrete, metal and tiles. While by comparing other building materials to wood, wood takes shorter time to decompose which is more environmental friendly. This indicates that wood sources are renewable and biodegradable.

## Low Energy Consumption

Wood releases low carbon footprints during its production as low embodied energy consumption. Moreover, the pros of wood by-product such as trees bark, sawdust and wood chips is able to convert into biofuel. Thus, reducing the demand of fossil fuel.

| *Material* | *Carbon Released (kg/m³)* | *Carbon Stored (kg/m³)* |
|---|---|---|
| *Timber Products* | 15 | 250 |
| *Concrete* | 120 | 0 |
| *Steel* | 5,320 | 0 |
| *Aluminium* | 22,000 | 0 |

Source: "Environmental Properties of Timber Summary Report", Forest and Wood Products Research and Development Corporation.

## Excellent Building Material

Due to the astounding of cellular structure of wood, it is a good insulator for home and building construction as compared to masonry and steel. Wood constucted building is able to prevent the sudden temperature change in the interior room. Therefore, wood can reduce the energy consumption in the building.

## Economy

The increasing demand of wood products eventually creates plenty job opportunities in both upstream and downstream.

The opportunities from different sectors such as from seedling planter to tree harvester, from plywood manufacturer to furniture designer, and from product promoter to end-user.

**"Tree not only provides us Air to breathe but also gives 'Oxygen' to our Economy through our wood products"**

# Plywood

is made up of three or more layers of wood veneer bonded together with an adhesive. Most of the veneered layer is being oriented with its grain running at right angles to the adjacent layer to produce a strong, mechanically balanced and stable panel.

# Hardwood Plywood

- Hardwood Plywood can be used as an exterior and interior plywood for construction and non construction usage.
- Hardwood Plywood is dimensionally stable, easy to work and environmental friendly.
- Interior plywood is designed for use in applications under dry conditions, minor exposed to weather or wet or damp environments.
- Exterior plywood is designed for use in application which are fully or semi-exposed to weather or wet or damp environments.

## *Applications*

- Construction & non construction usage
- Fascia & soffits
- Furniture
- Vehicle internal body work
- Musical instruments
- Exterior usage - Non structural cladding, exterior door skin, hoarding, signs & etc
- Interior usage - Internal wall paneling furniture & fitments, interior door skin, ceiling linings, flooring & etc

## *Advantages*

- ✓ Low Formaldehyde Emission Level
- ✓ Weather & boil-proof bonding
- ✓ High strength
- ✓ High stiffness to weight ratio
- ✓ Dimensional stability
- ✓ Impact resistance
- ✓ Easily work with conventional wood working tools & can be nailed close to the edge without fear of splitting
- ✓ Strong, economical & environmentally responsible to its solid wood counterparts

Product Name: **SY e-panel**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 2.4mm - 32.0mm | |
| *Sheet Size* | Width: Up to 4 feet ; Length: Up to 10 feet | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★★/ F★★★/ F★★/ F★<br>Class E1 / Class E2<br>Class Super E0 / E0 / E1<br>CARB Phase II<br>Super E0 / E0 / E1 / E2 | JAS for Plywood<br>EN636 (EN717-2)<br>AS/NZS 2098.11<br>CARB |
| *Resistance to Water* | Type Special / Type 1 / Type 2<br>Class 1 / Class 2 / Class 3<br>Type A Bond / Type B Bond / Type C Bond / Type D Bond<br>WBP / T1MR / T2MR | JAS for Plywood<br>EN636 (EN314-2)<br>AS/NZS 2098.2 |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request


# Structural Plywood

Structural Plywood, as suggested by its name is used for structural purposes. Usually applied in permanent structures where high strength is needed because it is a very strong, stable and workable type of plywood.
Structural Plywood is widely used in buildings construction, shopfitting and cabinet making industries.

## *Applications*

- Building construction
- Beams and bracing panels
- Structural application
- Framework
- Roof structural
- Interior & exterior cladding
- Industrial Flooring
- Pallet & boxes
- Storage decks
- Truck bodies & floors
- Cabinetry & furniture

## *Advantages*

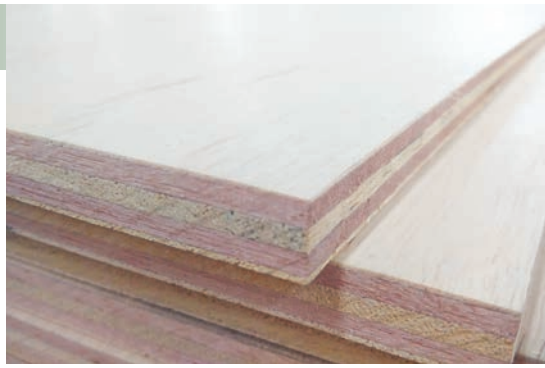
- ✓ High stiffness & bending strength
- ✓ Excellent impact & damage resistance
- ✓ High dimensional stability
- ✓ High panel shear strength
- ✓ Can be nailed or screwed at the edge without afraid of splitting
- ✓ Versatile material, does not require special tools and skills to work

Product Name: **SY e-SP**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 9mm - 32mm | |
| *Sheet Size* | Width: Up to 4 feet ; Length: Up to 10 feet | |
| *Glue Type* | Phenol Formaldehyde Resin (PF)<br>Melamine Urea Formaldehyde Resin (MUF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★★/ F★★★/ F★★/ F★<br>Class E1 / Class E2<br>Class Super E0 / E0 / E1<br>CARB Phase II<br>Super E0 / E0 / E1 / E2 | JAS for Plywood<br>EN636 (EN717-2)<br>AS/NZS 2098.11<br>CARB |
| *Bending Strength* | Class 1 / Class 2<br>Design based on request | JAS for Plywood |
| *Resistance to Water* | Type Special / Type 1<br>Class 1 / Class 2<br>Type A Bond<br>WBP / T1MR | JAS for Plywood<br>EN636 (EN314-2)<br>AS/NZS 2098.2 |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Concrete Forming Plywood



Concrete Forming Plywood is the plywood that can be directly used for concrete forming or used as a base for surface processing concrete formwork plywood, which includes film lamination, plastic lamination and paint coating.

### *Applications*

- Formwork
- Inner & outer walls
- Bridges & bridge footing
- Columns

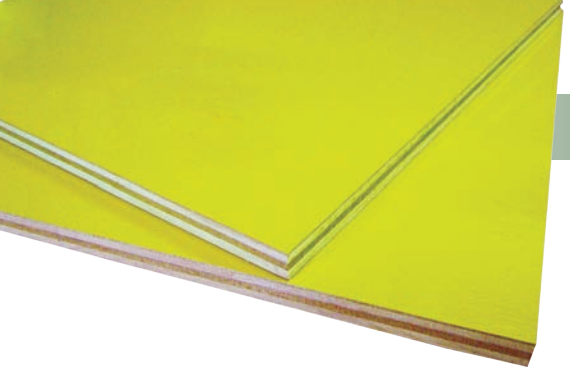
### *Advantages:*
### *Plywood is an ideal material for concrete formwork*

- ✓ Environmental friendly, renewable and recyclable
- ✓ Excellent stiffness minimizes deflection during pouring
- ✓ The natural insulating qualities improves more consistent curing conditions
- ✓ The thinner panels can be bent easily for curved forms & liners
- ✓ High strength
- ✓ Weather & boil-proof bonding
- ✓ Dimensional stability
- ✓ Ease of working
- ✓ Impact resistance

Product Name: **SY e-CP**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 12mm / 15mm / 18mm / 21mm | |
| *Sheet Size* | 2x6 ft / 2x8 ft / 3x6 ft / 3x8 ft / 4x6 ft / 4x8 ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF)<br>Melamine Urea Formaldehyde Resin (MUF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★/ F★★/ F★ | JAS for Plywood |
| *Resistance to Water* | Type 1<br>Class 1 / Class 2<br>Type A Bond / Type B Bond<br>WBP / T1MR | JAS for Plywood<br>EN636 (EN314-2)<br>AS/NZS 2098.2 |
| *Bending Strength* | JAS Certified<br>Design based on request | JAS for Plywood |

*Relevant and appropriate products requirement is available upon request



# Urethane Coated Plywood (UCP)

UCP is a formply that is manufactured from concrete forming plywood and coated with urethane paint on the surface in order to increase the panel durability and is reusable.

*Cement Slurry Repellent!*

*Droplet of water & alkaline solution on the Panel Edge*

## *Advantages*

- ✓ Strong & rigid panels
- ✓ Easy to clean & reusable
- ✓ Easy to repair
- ✓ Resistant to alkalinity & heat generation in concrete forming
- ✓ Environmental friendly
- ✓ Reduce construction waste & $CO_2$ emission
- ✓ Biodegradable material
- ✓ User friendly

*NOTE!*

Always apply form oil on your formwork surface. It will decrease water permeability & penetration significantly. Hence, increase the reusable cycle of the formwork.

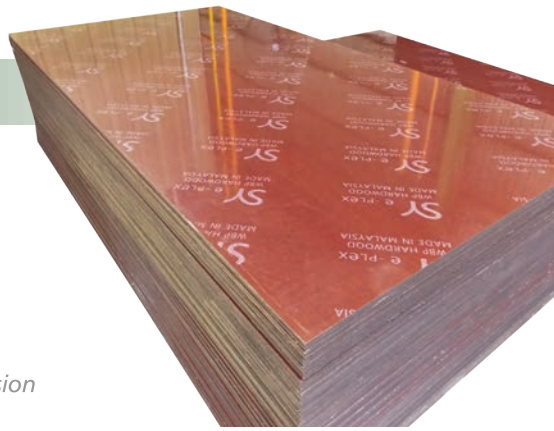
If the product is trimmed at the work site, it is recommended that the edges are to seal with waterproof paint to avoid panel damage caused by capillary penetration of moisture.

Product Name: **SY e-Coat**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 12mm / 15mm | |
| *Sheet Size* | 600 x 1,800mm / 900 x 1,800mm | |
| *Glue Type* | Melamine Urea Formaldehyde Resin (MUF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Bending Strength* | JAS Certified | JAS for Plywood |
| *Resistance to Water* | Type 1 | JAS for Plywood |
| *Edge Sealing* | Fully sealed with 3 layers of water repellent sealant to minimize moisture intake | |
| *Reuse Time* | Capable of reusable for more than 10 cycles depending on its material and good site formwork practice** | |

*Relevant and appropriate products requirement is available upon request **Subject to Conditions

# Film Face Plywood



Film Face Plywood is a formply that is manufactured from concrete forming plywood and overlaid with phenolic film. The phenolic film increases the panel durability, resisance to alkalinity, abrasion and the number of reused cycle.

## *Applications*

- Form-work (concrete shuttering panel)
- Shuttering systems manufacture, Euroform
- Industrial & agricultural building & flooring
- Transport industry: Truck / Trailer bodies & flooring
- Special packaging
- Temporarily partitioning
- Road sign

## *Advantages*

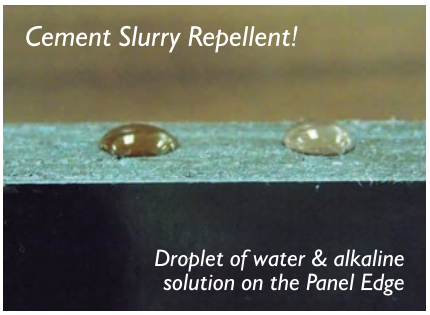
- ✓ Environmental friendly
  *Reduce construction waste & $CO_2$ emission*
- ✓ Can be used repeatedly
  *Reduce the material cost, transportation cost & also waste disposal cost*
- ✓ Flexible, which can be easily shaped to fit applications where custom sized panel are required
- ✓ User friendly
  *Easy to clean & repair*

## *Features*

- Strong & rigid panels
- Smooth durable overlays
- High hardness & scratch resistance
- Weather & boil-proof bonding
- Good chemical resistance
- Fire retardant

## *Additional Services*

- + Cut to custom size
- + Film marking to client's logo
- + Insecticide treatment
- + Edge marking to client or country requirement




*NOTE!*

Always apply form oil on your formwork surface. It will decrease water permeability & penetration significantly. Hence, increase the reusable cycle of the formwork.

If the product is trimmed at the work site, it is recommended that the edges are to seal with waterproof paint to avoid panel damage caused by capillary penetration of moisture.

Product Name: **SY e-PLeX**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 9mm - 21mm | |
| *Sheet Size* | 1,200 x 1,800mm / 1,200 x 2,400mm / 1,220 x 2,440mm / 1,250 x 2,500mm / 3 x 6 ft / 4 x 8 ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) / Melamine Urea Formaldehyde Resin (MUF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Off-form Finish* | Capable to Class 2 off-form finish depending on its material & good site formwork practice** | AS 3610 |
| *Bond Quality* | Type A Bond WBP / Type 1 / Type B Bond / Type C Bond / T1MR | AS 6669 |
| *Stress Grade* | F17 / F17 (parallel & perpendicular direction to the grain) Design based on request | AS 6669 |
| *Formaldehyde Level* | Super E0 / F★★★★ / CARB Phase II | |
| *Overlay* | Single Side Overlay / Double Side Overlay | |
| *Film Logo* | Logo or Non-logo film | |
| *Edge Sealing* | Fully Sealed with 3 layers of water repellent sealant to minimize moisture intake | |
| *Reuse Time* | Capable of reusable for more than 15 times depending on its material & good site form-work practice** | |

*Relevant and appropriate products requirement is available upon request **Subject to Conditions

# Bending Plywood

Bending Plywood is manufactured from specially treated veneers, usually with a thinner central core veneer and two thicker 'tenderized' outer veneers.

## *Applications*

- Used in curved columns, arches, cabinetry, furniture & shop fitting, whenever curves are desirable
- For structural or exterior used

## *Advantages*

- ✓ More convenient & much lower cost than premade wooden forms
- ✓ This flexibility will hold its shape once it is glued, laminated or veneered
- ✓ Time saving, as curves & circular designs can be produced using flexible plywood without the need for structural skeleton or special support
- ✓ Reduce labor cost & material cost
- ✓ Ability to flex in long grain or cross grain direction makes it a versatile panel for complex design

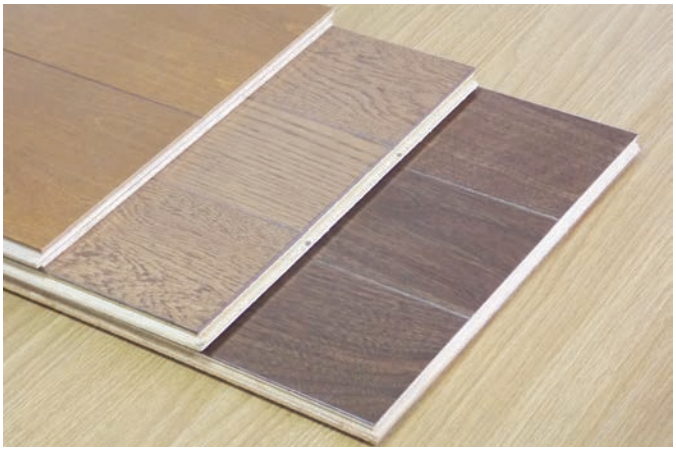
Product Name: **SY e-panel**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 4.6mm / 5.0mm / 8.0mm / 10.0mm | |
| *Sheet Size* | 3 x 6 ft / 4 x 8 ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★★ / F★★★ / F★★ / F★<br>Class E1 / Class E2<br>Class E0 / E1<br>CARB Phase II<br>Super E0 / E0 / E1 / E2 | JAS for Plywood<br>EN636 (EN717-2)<br>AS/NZS 2098.11<br>CARB |
| *Resistance to Water* | Type Special / Type 1 / Type 2<br>Class 1 / Class 2 / Class 3<br>Type A Bond / Type B Bond / Type C Bond / Type D Bond<br>WBP / T1MR / T2MR | JAS for Plywood<br>EN636 (EN314-2)<br>AS/NZS 2098.2 |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Floor Base

Floor Base Plywood is the material that used to make engineered hardwood flooring. Engineered wood flooring is constructed from multiple layers of wood, bonded together with adhesives under intense heat and pressure. This process makes the flooring more resistant to any changes in temperature and humidity, as compared to solid wood flooring. It is resistant to cupping and warping.



*Floor Base Plywood is suitable for any existing flooring...*

- The cross layers of plywood offer a myriad of benefits. They reduce splitting, reduce expansion & contraction & reduce warping.
- A Floor Base Plywood cross layers will increase the collective dimensional stability of the foundation.

*Advantages*

- ✓ Low Formaldehyde Emission Level
- ✓ Good dimensional stability
- ✓ Reduce splitting
- ✓ Reduce warping
- ✓ Reduce expansion & contraction
- ✓ Moisture resistance
- ✓ Easy & quick installation
- ✓ Easy to cut into any preferred size (rectangle / square)
- ✓ More durable & cost effective either in solid sheets, cut panels or planks.

Product Name: **SY e-Floor / SY e-Base Floor**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 7mm - 12mm | |
| *Sheet Size* | 945 x 1,840mm / 1,840 x 945mm / 3 x 6 ft / 4 x 8 ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★★ / F★★★<br>Class E1<br>Class Super E0 / E0<br>CARB Phase II<br>Super E0 / E0 | JAS for Plywood<br>EN636 (EN717-2)<br>AS/NZS 2098.11<br>CARB |
| *Resistance to Water* | Type Special / Type 1 / Type 2<br>Class 1 / Class 2 / Class 3<br>Type A Bond / Type B Bond / Type C Bond / Type D Bond<br>WBP / T1.5 | JAS for Plywood<br>EN636 (EN314-2)<br>AS/NZS 2098.2 |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Marine Plywood

Marine Plywood, an excellent and respected material of extensive aquatic usage is composed of several face and core veneer. It has to be very durable and the size and gaps between sheets need to be very minimum to ensure no water can be trapped and ensured so the such plywood can withstand a prolonged humid and wet conditions. Structurally, marine plywood can resist bending, warping or delaminating as well as fungal attacks which usually resulted from exposure to too much moisture. It uses an exterior Weather and Boil Proof (WBP) glue similar to most exterior plywood.

## *Applications*

Marine-grade plywood is the only type of plywood approved for constant immersion in water. It is perfectly for usage in applications such as piers, docks, boat building and any other projects which can withstand spray and moisture related to either saltwater or freshwater. For indoor applications, moisture prone area such as kitchen and bathroom can also use marine plywood for walls and subflooring.

## *Advantages*

- ✓ Weather and boil-proof bonding
- ✓ Stronger and has consistent mechanical properties

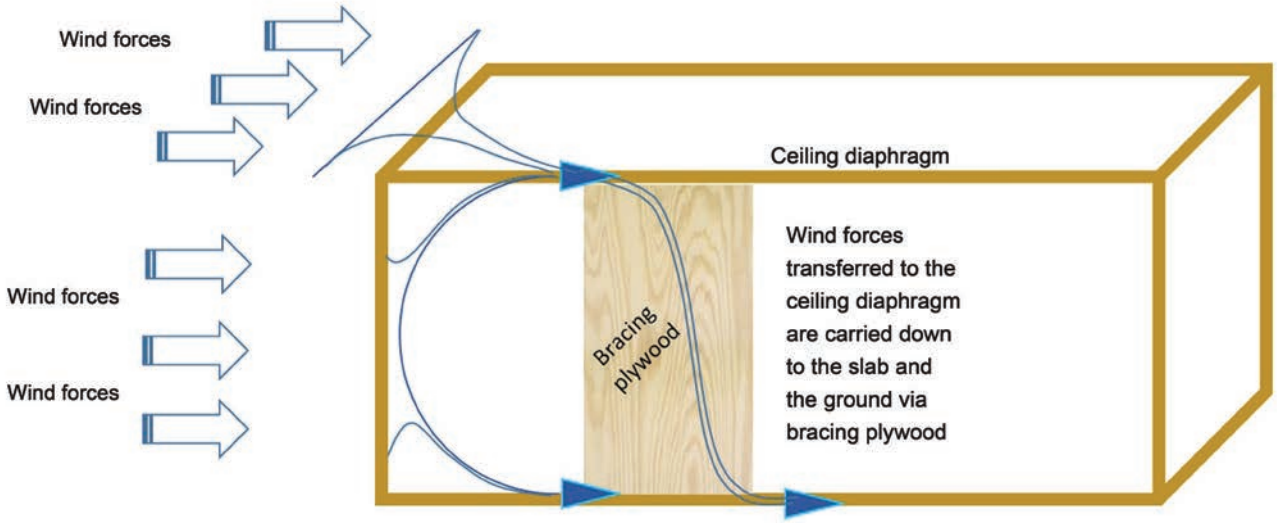
Product Name: **SY e-panel**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 2.4mm - 32mm | |
| *Sheet Size* | Width: Up to 4ft, Length: Up to 10ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) | |
| *Wood Material* | Hardwood Species | |
| *Formaldehyde Level* | F★★★★<br>Class E1<br>Class Super E0 / E0<br>CARB Phase II<br>Super E0 / E0 | JAS for Plywood<br>EN636 (EN717-2)<br>AS/NZS 2098.11<br>CARB |
| *Bending Strength* | Design based on request | |
| *Resistance to Water* | Type Special<br>Class 1<br>Type A Bond<br>WBP | JAS for Plywood<br>EN636 (EN314-2)<br>AS/NZS 2098.2 |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Structural Bracing Plywood

Special structural plywood which performs both structural and decorative function is known as bracing plywood. Used as framework for walls, roof and floor in both internal and external application, to resist horizontal forces (racking forces) applied to the building. Bracing is important to withstand the lateral load that was caused by wind and seismic events (earthquake).




## *Applications*

It may be both a bracing and a wind barrier, and both a bracing and a cladding.

## *Advantages*

- ✓ Provide bracing resistance for light timber framed buildings under wind and earthquake loading
- ✓ Cost effective

Product Name: **SY e-panel**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 4mm / 6mm | |
| *Sheet Size* | Width: Up to 4ft, Length: Up to 10ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) | |
| *Wood Material* | Keruing / Alan / High Density Hardwood | |
| *Formaldehyde Level* | Class Super E0 / E0 / E1 | AS/NZS 2098.11 |
| *Resistance to Water* | Type A Bond | AS/NZS 2098.2 |
| *Stress Grades* | Design based on requirement | AS/NZS 2269 |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

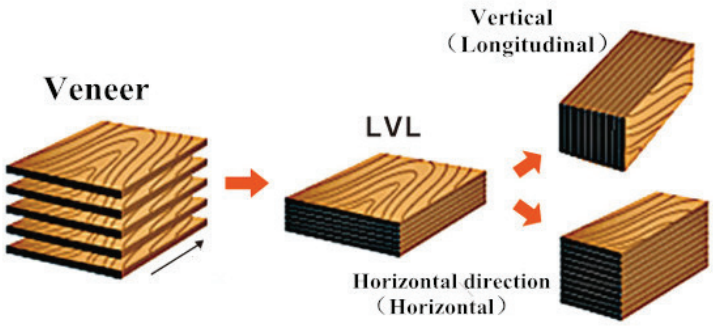
*Relevant and appropriate products requirement is available upon request

# Laminated Veneer Lumber (LVL)

is an assembly of veneers laminated with adhesive, in which the grains direction of the other veneers are in the longitudinal direction.

# Laminated Veneer Lumber (LVL)

Laminated Veneer Lumber is an assembly of veneers laminated with adhesive, in which most of the veneer grains direction is in the longitudinal direction.




*LVL Strip*

## *Applications*

- Frame and truss application
- As lintels and beams
- Ideal alternative to solid lumber when used for highload applications such as headers, beams, rails, rimboards and edge-forming material
- Door component
- Cabinet components
- Furniture industry
- Structural framing for residential and commercial construction
- Pitched rafters
- Floors Joists
- LVL Strip

## *Advantages*

- ✓ The numerous veneers result in LVL being a very stable product with excellent bending resistance and mean that the natural defects of solid section timber. eg: twisting, bowing & splitting are minimized
- ✓ Stronger, straighter and more uniform than solid timber, less prone to shrinking or warping, can support heavier loads and span longer distances than normal timber
- ✓ Cost effective and sustainable building material, delivering high structural reliability and strength

Product Name: **SY e-lumber**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 3.6mm - 80mm | |
| *Sheet Size* | Width: 25mm - 1250mm, Length: Up to 12m | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★★ / F★★★<br>Super E0 / E0 / E1 | JAS for LVL<br>AS/NZS 4357 |
| *Density* | High Density: 750-850kg/m³<br>Medium Density: 500-600kg/m³ | |
| *Surface Grades* | G1 / G2 / G3 | JAS for LVL |
| *Resistance to Water* | Type 2<br>Type A Bond<br>WBP / T1MR / T2MR | JAS for LVL<br>AS/NZS 4357 |
| *Bending Strength* | Design based on request | |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Structural Laminated Veneer Lumber

Structural Laminated Veneer Lumber (LVL) (or Structural Laminated Veneer Board, LVB) is used in structural applications to carry heavy loads. It is produced by binding thin wood veneers together in which most of the grain of veneer is parallel to the long direction and a small number of veneers laid perpendicularly (cross banded).

## *Applications*

- Headers
- Beams
- Columns
- Hip
- Valley rafters
- Scaffold planking
- Flange material for prefabricated wood I-joists
- Windows
- Doors frame panel and scantling
- Furniture structural panel
- Packaging

## *Advantages*

- ✓ High strength-to-weight ratio - stronger than solid sawn products
- ✓ High design values for bending, stiffness and shear strength
- ✓ Resists shrinking, warping, splitting and checking
- ✓ Straighter, stronger and more uniform as compared to milled lumber
- ✓ No defects to cut out and less waste on the job
- ✓ Available in length far beyond conventional lumber length
- ✓ Ordinary nail assembly - install as easy as ordinary lumber

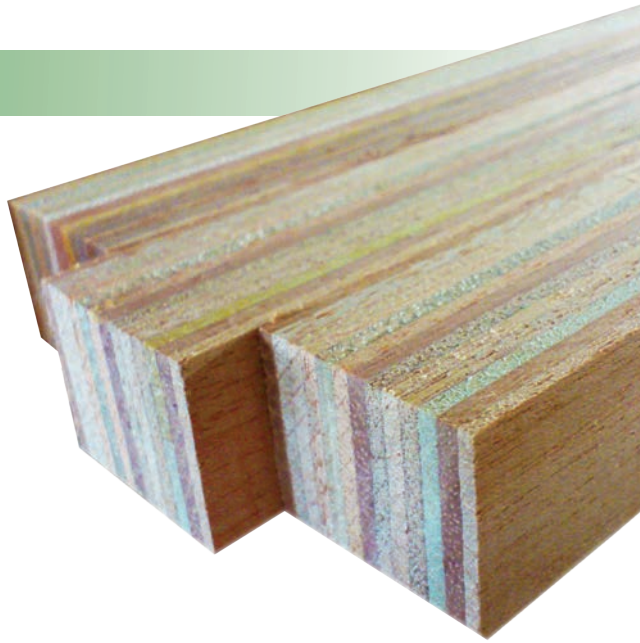
Product Name: **SY e-lumber**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 35mm / 45mm / 50mm / 65mm / 80mm | |
| *Sheet Size* | Width: Up to 1200mm, Length: Up to 12m | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) | |
| *Wood Material* | All Keruing / Mixed Light Hardwood / Mixed Heavy Hardwood | |
| *Formaldehyde Level* | Super E0 / JAS F★★★★ | |
| *Resistance to Water* | Type A Bond<br>WBP | AS/NZS 4357 |
| *Stress Grades* | Design based on request | |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Wall Studs (Mabashira 間柱)

Wallstuds (Mabashira) are placed between the structural posts and are used primarily for attaching sheetrock to the walls. The studs are added to strengthen the framework of a building, mainly for Japanese Market only.



### *Applications*

- Door scantlings
- Structural Post

### *Advantages*

- ✓ Stable and high quality
- ✓ Accurate size tolerance to match the market needs

Product Name: **SY e-lumber**

| *Property* | *Common Specification* | *Applicable Standards* |
|---|---|---|
| *Thickness* | 29.5mm / 25.9mm | |
| *Sheet Size* | Width: 25.9mm / 29.5mm, Length: Up to 8ft | |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) | |
| *Wood Material* | Hardwood Species / Planted Tree Material / PEFC Certified Material | |
| *Formaldehyde Level* | F★★★★ | JAS for LVL |
| *Resistance to Water* | Type 2 | JAS for LVL |
| *Surface Grades* | G1 / G2 / G3 | JAS for LVL |
| *Preservative Treatment (Glue Line / Pressure Treatment)* | 1. Cyphenothrin Treatment<br>2. Cypermethrin Treatment<br>3. Bifenthrin Treatment<br>4. ACQ Treatment (Alkaline Copper Quaternary) | |

*Relevant and appropriate products requirement is available upon request

# Laminated Board

is made from wood strips jointed, laminated with veneer and compressed together.

# Bare Core

Bare Core is made up from solid blocks and bonded edge to edge by adhesive. It is manufactured by using the same method with block boards, except that it is not slotted between 2 layers of veneers.

### *Applications*

- For interior usage in making doors, tables, shelves, panelling and partitions
- Furniture component

### *Advantages*

- ✓ Economic
- ✓ Environmental friendly
- ✓ Light weight-easy to transport

Product Name: **SY e-panel**

| *Property* | *Common Specification* |
|---|---|
| *Thickness* | 9mm - 25mm |
| *Sheet Size* | Width: Up to 4ft; Length: Up to 8ft |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) |
| *Wood Material* | Hardwood Species /<br>Planted Tree Material /<br>PEFC Certified Material /<br>All Falcata |
| *Formaldehyde Level* | Super E0 / E0 / E1 / E2 |
| *Plywood Surface Grades* | Grade A / Grade B / Grade C |
| *Resistance to Water* | WBP / T1MR / T2MR |

*Relevant and appropriate products requirement is available upon request

# Block Board

Block Board is made up from a core of solid rectangular elongated blocks, bonded edge to edge. Careful attention is to be taken care of to avoid any gaps between the individual blocks. The blocks are then sandwiched by a layer of veneer and glued under pressure and temperature.

Block Board is preferred when longer pieces of wood is required in furniture such as for long tables, shelves and for benches which will have to bear some load.

## *Applications*

- Interior usage
- Doors
- Tables
- Shelves
- Panelling and Partitions
- Furniture

## *Advantages*

- ✓ Light weight-easy to transport
- ✓ Economy Panel
- ✓ Warp Resistant
- ✓ High Screw Holding Strength

Product Name: **SY e-panel**

| *Property* | *Common Specification* |
|---|---|
| *Thickness* | 9mm - 25mm |
| *Sheet Size* | 3x6ft / 4x8ft |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) |
| *Wood Material* | Hardwood Species /<br>Planted Tree Material /<br>PEFC Certified Material /<br>Falcata Core |
| *Surface Grades* | BB / CC |
| *Resistance to Water* | WBP / T1MR / T2MR |

*Relevant and appropriate products requirement is available upon request

# Multi Plywood

Multi Plywood is made up of cores of plywood strips. The strips are bonded edge to edge (vertically or horizontally) and sandwiched with veneer.

## *Applications*

- Interior Usage
- Doors
- Tables
- Shelves
- Panelling and Partitions
- Furniture

## *Advantages*

- ✓ Economy Panel
- ✓ Warp Resistant
- ✓ High Screw Holding Strength
- ✓ Environmental Friendly

Product Name: **SY e-panel**

| *Property* | *Common Specification* |
|---|---|
| *Thickness* | 9mm - 25mm |
| *Sheet Size* | 3x6ft / 4x8ft |
| *Glue Type* | Phenol Formaldehyde Resin (PF) /<br>Melamine Urea Formaldehyde Resin (MUF) /<br>Urea Formaldehyde Resin (UF) |
| *Wood Material* | Hardwood Species |
| *Surface Grades* | BB / CC |
| *Resistance to Water* | T2MR |

*Relevant and appropriate products requirement is available upon request

# Sawn Timber is a timber that is cut from logs into rectangular shapes with varied size.

# Hardwood Sawn Timber

We classified our hardwood sawn timber into 2 main categories: Heavy Density Hardwood and Medium Density Hardwood.

## *Applications*

- Heavy density hardwood timber is suitable for heavy construction, marine and wharf construction, piling, boat building, parquets and heavy duty flooring, fence posts, telegraph and power transmission posts and cross arms, column, beams, posts, joists, rafters, joinery, cabinet making, heavy duty furniture, benches, pallets, door and window frames, tools handles, staircase.
- Medium density hardwood sawn timber is suitable for decorative work such as interior finishing, panelling, doors, joinery, furniture, flooring and cabinet making, light construction, boxes, crates, pallets. Also used as Ginseng Stick for Korea Market.

## *Advantages*

- ✓ Less cupping and warp
- ✓ Low width shrinkage on drying

Product Name: **SY e-lumber**

| *Property* | *Common Specification* |
|---|---|
| *Width* | 1-½" - 11-½" |
| *Length* | 8' - 20' |
| *Thickness* | ¾" / 1" / 1-½" / 2" / 2-⅛" / 3" |
| *Density* | Heavy Density : 750 - 850kg/ $m^3$<br>Medium Density : 500 - 600kg/ $m^3$ |
| *Grade* | Better / B / C / PHND |
| *Quality and Finished* | KD / S4S / E2E / E4E |
| *Wood Material* | Hardwood Species |

*Relevant and appropriate products requirement is available upon request

# Moulding

Timber Moulding is a wood strips that are factory-shaped to commercially available pattern. It is functioning as the perfect finishing touch of any wood designs for decoration or to hide gaps, rough joints and edges.

## *Applications*

- For wall Panelling
- Window Scantling
- Fascia Board
- Cupboard Frame
- Ceiling Cove Moulding
- Skid (packaging material)
- Truck Body
- Frame Architraves
- Skirting
- Dentil Cornices
- Hand Rails
- Picture Rails
- Door Casings
- Beading
- Dado Rails

## *Advantages*

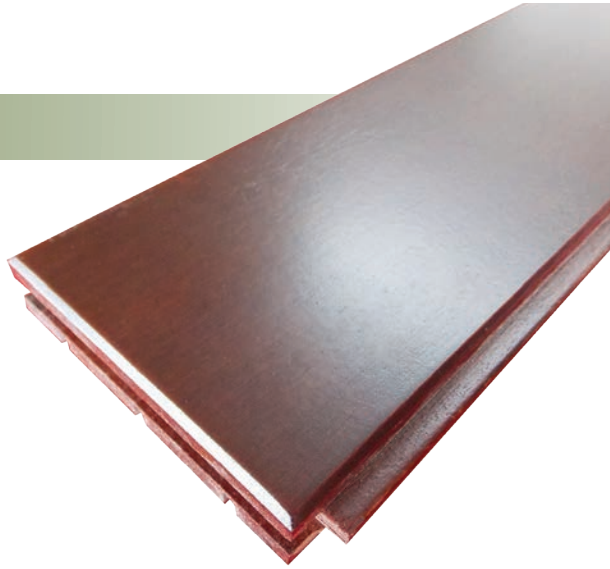
- ✓ Extremely versatile and durable
- ✓ Enhancing the beauty and quality of the room
- ✓ Renewable Resource

Product Name: **SY e-lumber**

| *Property* | *Common Specification* |
|---|---|
| *Width* | 50mm - 205mm |
| *Length* | 600mm - 4,200mm |
| *Thickness* | 18mm - 50mm |
| *Grade* | B / Better |
| *Quality and Finished* | KD / S4S / Moulded / Pressure Impregnated / Grooved / AD |
| *Wood Material* | Hardwood Species |

*Relevant and appropriate products requirement is available upon request

# Timber Flooring



Timber flooring is a solid piece of wood from top to bottom. It has been machine milled to have tongue on one edge and a matching groove on the opposite allowing individual in one board to be interlocked when installed.
Hardwood timber flooring has many benefits over other types of flooring. It offers the natural beauty of timber, it is durable and hard wearing, and will complement furniture and cabinetry. Overall, it will instantly increase the value of your home.

## *Applications*

- House Flooring
- Truck Flooring
- Container Flooring
- Timber Decking for Container Van Decking, Footbridges, Broadwalks, Screens, Seating, Gates & Fences.

## *Advantages*

- ✓ Easy to clean, does not trap dirt, dust and debris
- ✓ Elegant, high-end easthetic, offer the warmth, beauty and value of wood
- ✓ Tough, hard-wearing, have long term durability
- ✓ A great long-term investment
- ✓ Variety - offer a wide range of appearance in color, styles, stains and species
- ✓ Better acoustics (never gave hollow sounds or vibrations)
- ✓ Healthy indoor air quality (has no fibers, grout lines, or embossing that can trap dust, pollen, particles, animal dander, and allergens that can occur with carpets)
- ✓ Ageless quality (can be refinished than replaced when needs an update)

Product Name: **SY e-lumber**

| *Property* | *Common Specification* |
|---|---|
| *Width* | 65mm - 195mm |
| *Length* | 910mm - 6,500mm or longer |
| *Thickness* | 14mm - 26.5mm |
| *Grade* | Better / A / B / C / PHND |
| *Quality and Finished* | KD / S4S / Moulded / T&G / Reeded Moulding |
| *Wood Material* | Hardwood Species |

*Relevant and appropriate products requirement is available upon request

# Wood Pellet

is a green biofuel made from compressed biomass.

# Wood Pellet

## A Green Choice for Energy

In order to achieve zero waste, we are fully utilizing our wood resources. Tree will be converted into wood products, where $CO_2$ is stored, by further processing forestry residues into by-product and compressed into a biomass product, so called as "Wood Pellet".

Wood Pellet is a renewable energy source, as compared to fossil fuel. The difference between wood pellet to fossil fuel is the extraordinary ability of the carbon capture and storage. Unlike fossil fuel, wood pellet is considered a carbon neutral fuel because during the crops grow, it will absorb carbon dioxide, and releasing it back to the atmosphere when burnt. As for fossil fuel, it will only release carbon dioxide when burnt. A case study shows that, every ton of pellets used as compared to fossil fuel is significantly able to reduce carbon dioxide emissions by approximate 1.5 tons. Thus, replacing wood pellet to fossil fuel as energy source is vital in minimizing the amount of carbon dioxide in the atmosphere.

### *Applications*

- As green energy fuel (substitute for fossil fuel - coal, gasoline and natural gas)
- Industrial steam supply
- Power plant for electricity supply
- Household heating system and hot water supply

### *Advantages:*

- ✓ Green energy
- ✓ Environmental friendly
- ✓ Reduce carbon footprint
- ✓ Renewable fuel
- ✓ Convenient and easy to use, can be bulk stored as is occupying less space than other biomass fuel
- ✓ Pricing is stable as compared to fossil fuels

Product Name: **SY e-pellet**

| *Property* | *Common Specification* |
|---|---|
| *Appearance* | Light to dark colour cylinders |
| *Wood Species* | Mixed Hardwood / Planted Tree Material |
| *Diameter* | 8mm |
| *Length* | 25-35mm |
| *Gross Calorific Value* | 4,100 - 4,200 kcal/kg |
| *Net Calorific Value* | 4,000 - 4,100 kcal/kg |
| *Bulk Density* | min 550kg/$m^3$ |
| *Ash Content* | <2.0% |
| *Moisture* | <10% |

*Relevant and appropriate products requirement is available upon request

## Annex

| | |
|---|---|
| AS | Australian Standard |
| AS 3610 | Formwork for concrete |
| AS 6669 | Plywood - Formwork |
| AS/NZS | Australian / New Zealand Standard |
| AS/NZS 2098.2 | Methods of test for veneer and plywood - Method 2: Bond quality of plywood (chisel test) |
| AS/NZS 2098.11 | Methods of test for veneer and plywood - Method 11: Determination of formaldehyde emissions for plywood |
| AS/NZS 2269.0 | Plywood - Structural - Part 0: Specifications |
| AS/NZS 4357.0 | Structural laminated veneer lumber - Part 0: Specifications |
| AS/NZS 4357.4 | Structural laminated veneer lumber - Part 4: Determination of formaldehyde emissions |
| BMH | Benchmark Holding (Third party certification body) |
| BS EN | British Standard European Standard (English) / British Standard Europäische Norm (German) |
| BS EN 314-1 | Plywood - Bonding quality - Part 1: Test methods |
| BS EN 314-2 | Plywood - Bonding quality - Part 2: Requirements |
| BS EN 636 | Plywood - Specifications |
| BS EN 717-2 | Wood-based panels - Determination of formaldehyde release-Part 2: Formaldehyde release by the gas analysis method |
| CARB | California Air Resources Board |
| CE | European Conformity (English) / Conformité Européene (French) |
| GFS | Global Forestry Services |
| HWPW-VC | Hardwood Plywood with a veneer core |
| IAS | International Accreditation Service |
| ISO | International Organization for Standardization |
| ISPM 15 | International Standards For Phytosanitary Measures No.15 Regulation of Wood Packing Material in International Trade |
| JAS | Japanese Agriculture Standard |
| JPIC | Japan Plywood Inspection Corporation |
| MC&I | Malaysian Criteria and Indicator |
| MTCC | Malaysian Timber Certification Council |
| MTCS | Malaysian Timber Certification Scheme |
| PEFC | Programme for the Endorsement of Forest Certification |
| PHND | Pin Holes No Defect |
| S4S / E2E / E4E / T&G | Surfaced Four Sides / Eased Two Edges / Eased Four Edges / Tongued and Grooved |
| SIRIM | Scientific and Industrial Research Institute of Malaysia |
| UKAS | United Kingdom Accreditation Service |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