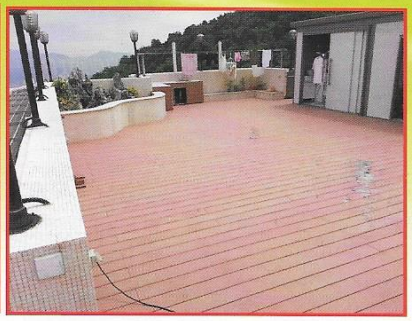
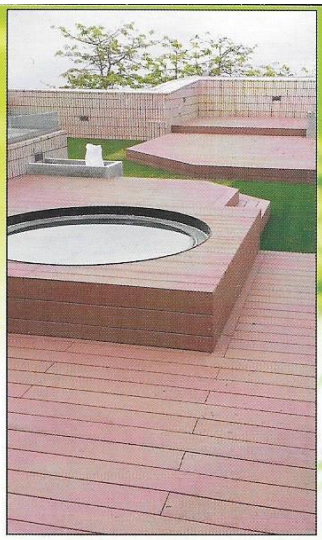
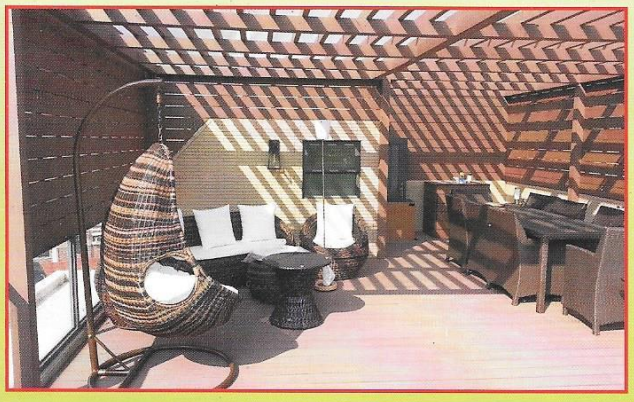


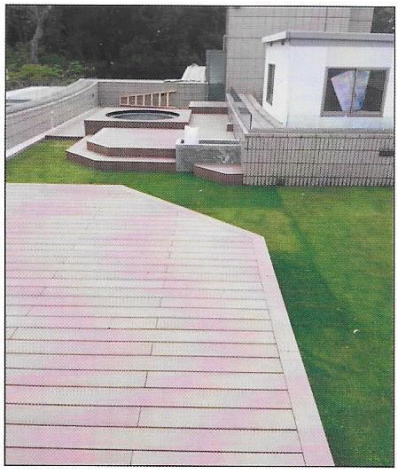
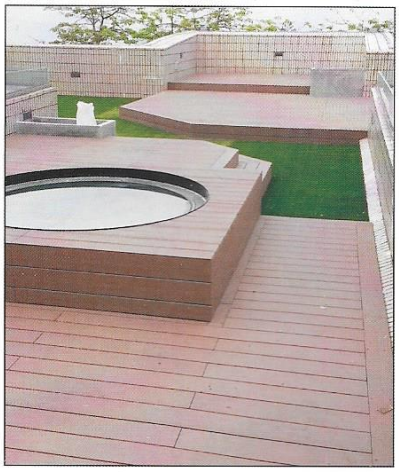
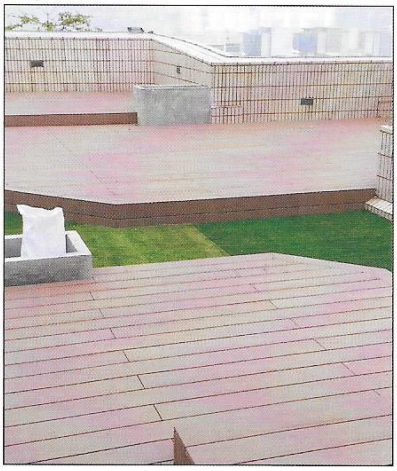
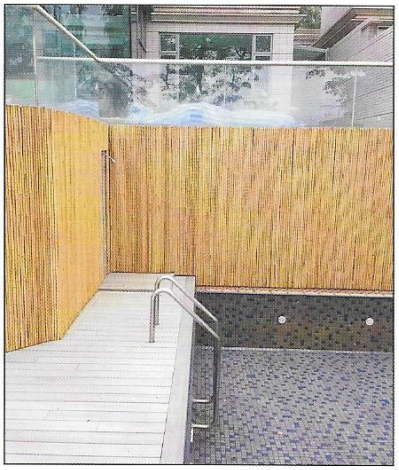
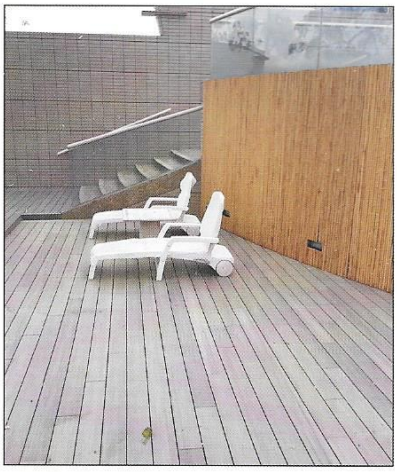




Mamu-Wood Korea

Korea Mamu-Wood Korea

Korea Mamu-Wood Korea

Deehill Bay Outdoor Wood Project

An outdoor building material made 100% from recyclable raw material. Quality proven by reel usage.

Source material of N-Wood

Mamu-Wood is made from waste wood discarded by construction, logging or manufacturing industries. By pulverizing decades-old wood, plaster board or coloured plywood into fine particles and blending them, a more stable solid substance can be synthesised. The resinous series consists mainly of products made with olefins or chloro - olefins. Meanwhile, products based on other forms of recycled plastics are being developed for wider usage.

Composition

The waste wood is pulverized into particles of only hundreds of microns in size (1 micron = 1/1000mm). It is then mixed and kneaded with plastic powders derived from thermoplastic resins. The mixture is then thermally molded. As the product contains 51% to 55% wood, it has the pliability of wood.

Multiple recycling

It is state policy to clarify and define the liability of waste recovery and recycling. Regulations are being made to implement mandatory recovery and recycling. The relevant laws and regulations have stipulated the re-use of substances, reduction of waste, incineration of waste and so on. However, either thermal recovery by incineration of chemical recovery by chemical reaction has its drawbacks. In contrast, the recovery, re-use and recycling of the material in Mamu-Wood tells a different story. One of the excellent features of Mamu-Wood is that after use it can be repulverized and recycled for indefinite number of times. Because of its ease of recycling, it is proven by facts that Mamu-Wood is friendly to the environment, it conserves natural resources and it is ahigh value-added product.

Jardines Lookout Mount Butler Garden Outdoor Wood Project

A token of contribution to the age of conversation

Aimed at arresting global warming and holding back the CO2 content on the surface of the Earth, the Kyoto Protocol has launched a campaign to promote the purchase of environment-friendly goods. As this 'green purchase' campaign spreads around the globe, people's awareness of environmental protection is heightened significantly. Upon this background, the new building material Mamu-Wood was born, bringing forth a new hope to the conversation of the Earth. Mamu-Wood's environmental value has gained high recognitions. It has been awarded the No.1 certificate of Renewable Organic Building Material and registered in the New Technology Information Supply System in Korea. As Mamu-Wood can help reduce the damage to the Earth in various ways, its status as a 'green' product is beyond doubt.

Sourcing

The source material of Mamu-Wood mainly consists of recycled wood and recycled plastics collected from construction sites, industrial plants etc, which amount to 90 to 100% of all inputs. No new scrap is generated in the sourcing process.

Production

No harmful substance is generated during the production stage. Moreover, due to the use of electricity in the production, Co2 emission is minimized. Nor is there any emission toxic to the earth or waters.

Recycling

Mamu-Wood is the perfect answer to the request for product recovery and renewal. It sustains 100% recovery. The high potential for recovery and renewal has been technologically recognized. By recycling from Mamu-Wood to Mamu-wood, our ultimate goal is zero waste.

Mamu-Wood production concept

Wooden wastes

These wooden waste from the demolition of houses and the wood used for pallets or wood from clearing woodlands are finally crushed and used by way of recycling at a 100% yield according to the evidence available until the present. This means that new wastes are used for the manufacture of the Mamu-Wood material.

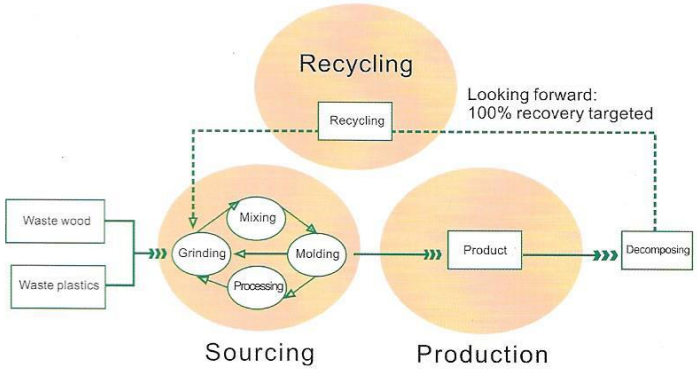
Other components

Only such pigments and additives are used as are generally available of the market for common olefin resins. These components are added in small proportions so that there is no need to worry about wastes being generated in the manufacturing process.

Plastic wastes

Plastic wastes, including discarded polypropylene trays from factories, and automobile bumpers, are purchased from intermediate waste treatment firms and crushed to aflaky consistency. These flakes are used as the raw material. As no materials are added or removed in this process, no new wastes are generated.

Use Mamu-Wood, welcome the recycling society



Mamu-Wood can help reduce the damage to the Earth in various ways, it is the product of recovery and recycling.

[Sourcing]
Recycled material of Mamu-Wood is up to 90 to 100% of all inputs, no new scrap is generated in the sourcing process.
[Production]
No harmful substance is generated during the production stage. Moreover, due to the use of electricity in the production, CO2 emission is minimized. Nor is there any emission toxic to the earth or waters.

Beacon Hill Outdoor Wood Project

Braemar Heights Shetland Outdoor Wood Project

Braemar Heights Shetland Outdoor Wood Project

Realisation of Resource-Recycling Society

Mamu-Wood is the material answer to the aspiration for a resource-recycling society

100% recycled material

Mamu-Wood is made of pulverized waste wood and waste plastics. In which 51 to 55% is wood. It withstands wear and tear as well as natural wood does. It can be recycled unlimited times.

Comfortable texture

It blends with the natural environment perfectly. It has no problem of splintering or chipping. Use it with perfect peace of mind.

Check global warming

Mamu-Wood curbs timber logging and carbon dioxide emission.

Rot-resistance

Tests by micro-organism have shown that Mamu-Wood is rot-resistance.
(No. 3 certificate form of Korea Timber Conservation Association)

Termite-proof

Tests by termites and ants have shown that Mamu-Wood is proof against termites and ants.
(No. 11 certificate form of Korea Timber Conservation Association)

Safety

Tests by food container method have shown that no heavy metals is released from Mamu-Wood.

100% Recycled material

Mamu-Wood

The Ecological Philosophy of Mamu-Wood

Mamu-Wood achieves 100% recycling of material. It realises the maximal use of resources. It can be recycled indefinitely. It effectively prevents greenhouse effect. Therefore, wherever and however used, it is beneficial to the environment.

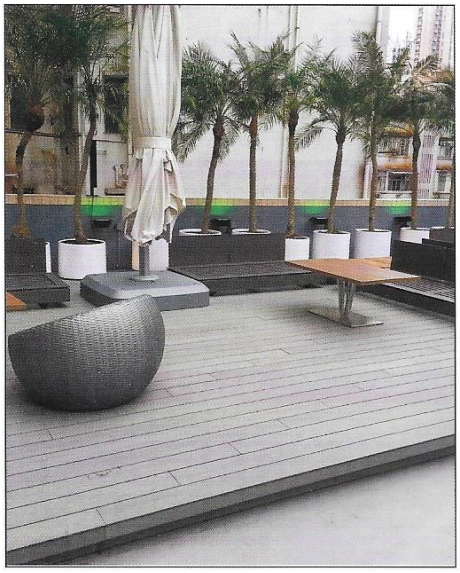
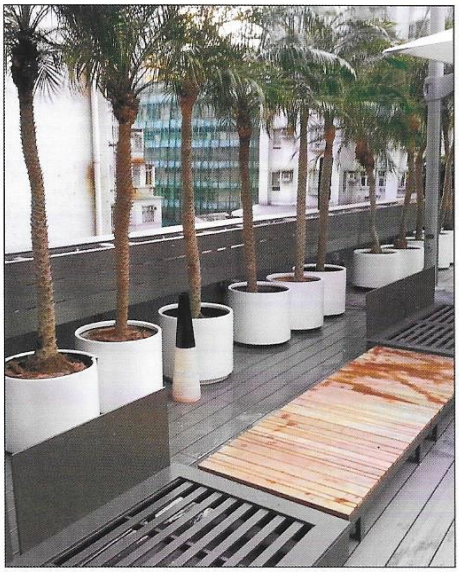
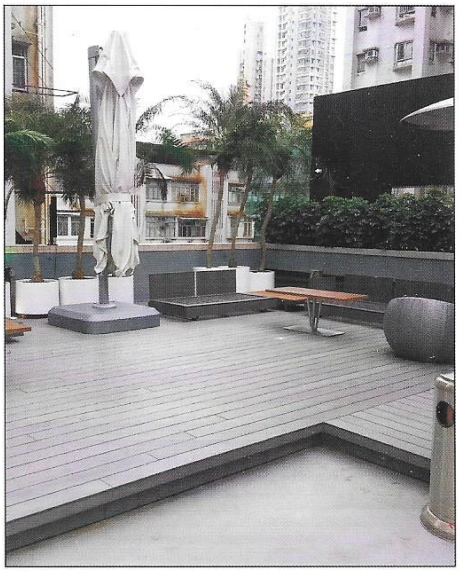
Due to its special quality, Mamu-Wood was selected to pave the main passage way of the Expo 2005 Aichi, Korea. It isalso paved on the arrival/departure platform of the Central Korea International Airport, which is renowned for its aspiration to be an 'environmental pioneer airport. Mamu-Wood meets the environmental demands around the world perfectly. It is internationally acclaimed.

Tin Shui Wai Kwon Tseng Tsuen Outdoor Wood Project

American Society for Testing and Materials (ASTM)

Report No.: GZCCM 130700458

No.	Test Item	Test Method	Test Condition	Test Result	
	Shore Hardness	ASTM D2240-05(2010)	Specimen Thickness: 25.8mm	D/70/1 *70 is hardness value	
	Moisture Content	ASTM D7031-11 Section 5.15 ASTM D4442-07 Method A	Drying Condition: 103±2°C, dry to constant mass	0.38%	
	Static Coefficients of Friction	ASTM D7031-11 Section 5.16	Testing Speed: 1.27mm/min	0.47	
	Sliding Coefficients of Friction	ASTM D2394-05(2011) Section 33-37	Testing Speed: 51mm/min	0.23	
	Flexural Strength after Freeze-Thaw Resistance	ASTM D7031-11 Section 5.20	Freeze-thaw procedure: (i)Submerge under water,24h (ii)Freeze at-29°C, 24h (iii)Room temperature, 24h(repeat (i)-(iii)twice)	21.3MPa	
	Flexural Stiffness after Freeze-Thaw Resistance	ASTM D6109-10 Method A	Testing Speed: 12.3mm/min Load Span: 139mm Support Span: 416mm	3230MPa	
	Moisture Absorption	ASTM D7031-11 Section 5.19 ASTM D1037-12 Section 23 Method B	Submersion Condition: 20±1°C, 24h, vertical submersion	0.77% (change in weight)	
	Thermal Expansion	ASTM D7031-11 Section 5.18	Condition: 20±3°C, 50±2% RH to Constant mass- 20±3°C, 90±2% RH to	X-Direction	0.00%
		ASTM D1037-12 Section 24	Condition: 20±3°C, 50±2% RH to Constant mass- 20±3°C, 90±2% RH to	Y-Direction	-0.01%
	Flame Spread Index	ASTM E84-12a	Condition: 23±2.8°C, 90±2% RH to	FSI:50 SDI:300	Class B

Hung Hom SAV Hotel Outdoor Wood Project

Product Characteristics

Standard format

No need for paint. Same colour and same tone throughout each piece. Brown (Br) or sandy brown (Sb). Scratches will not be conspicuous. It is easy to maintain.

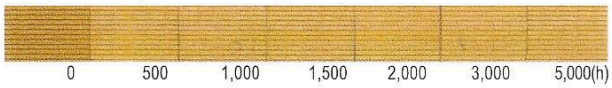
Brown (Br) Silvery brown (Sb)

Erosion -proof

No need for anti--erosion agent even after several years' use. Most suitable for humid, rainy or windy places like parks and seaside.

Climate-resistant

Subject to discolouration by ultraviolet ray at the initial stage, the colour Mamu-Wood is stable over long periods of time. In comparison with natural wood, it has less problem of curling or shrinking.



0 500 1,000 1,500 2,000 3,000 5,000(h)

Outcome after solar shine tests (specimen: Brown colour Mamu-Wood).
Approx. 500h equals 1 year, subject to geographical variation.

Natural wear and tear

Because recycled material forms the basis of Mamu-Wood, it has moderate variation in colour and appearance of natural wear and tear.

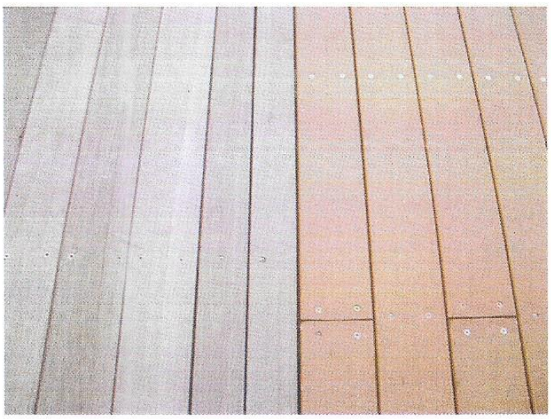
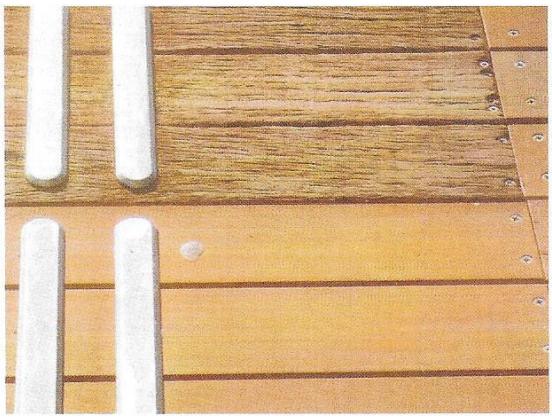
Maintenance

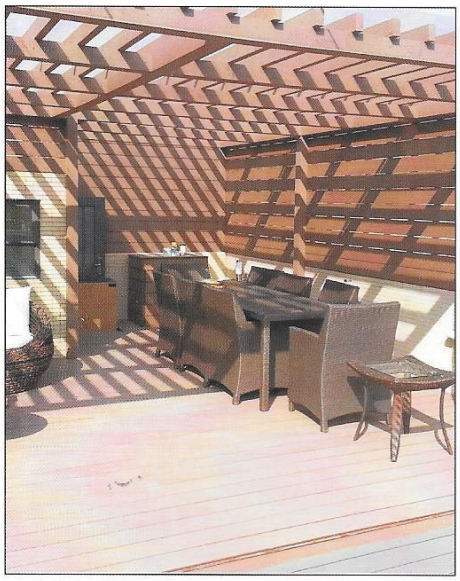
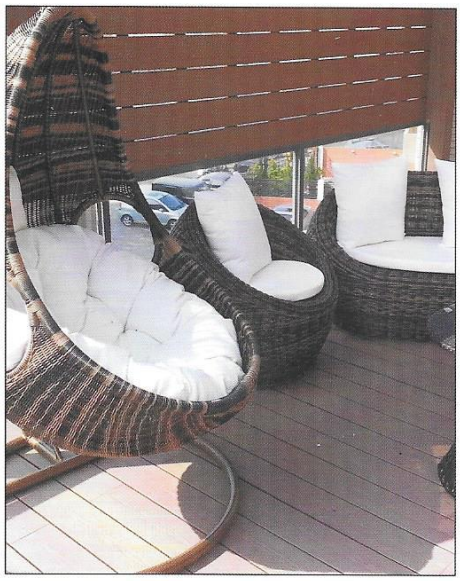
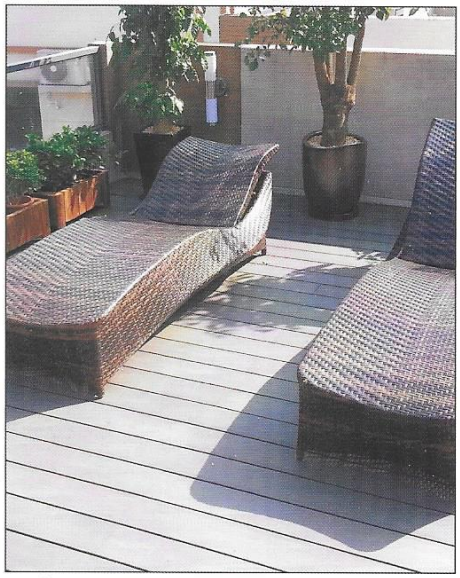
1.Removal of pollutants from surface
Dilute neutral detergent with water according to prescription, scrub lengthwise along the Mamu-Wood strip, finally rinse with water.
2.Remedy to scratches and burns
Brush away any dirt from the damaged part with a soft cloth, rub a #40- 60 sand- paper lengthwise against the damaged part until the mark is erased, finally clear out the dust.

Cigarette burn, felt pen mark Sand-paper Finish

- Oil stains can be removed in the same way
- The texture of the surface after the action may vary according to manner of rubbing

After several years of natural weathering, Mamu-Wood and anti-erosion wood in comparison

Yuen Long Shan Pui Tsuen Outdoor Wood Project

Mamu-Wood not only enables the efficient use of resources, but also protects the environment. Nevertheless, what Mamu-Wood has to offer you is not corfined to this. Mamu-Wood is wonderfully durable. Its colour keeps and it is proof against most forms of hazards. No preservative is needed. Costs of maintenance are minimal.

Qualified by these excellent features, Mamu-Wood has been stamped with approval by leading Korea engineering projects, including the Korea International Airport which aspires to be an environmental pioneer airport Namu-Wood not only relieves the burden on natural resources but also comes with eight special features These features open up unimaginable possibilities to your design and project.

8 Salient Features of Mamu-Wood

Rot--resistance

Under tests by consuming micro-organism, Mamu-Wood does not lose weight. With the pliability of natural wood but without the vulnerability to biological decay, Mamu-Wood is the ideal material for making various outdoor structures.
(No. 3 certificate form of Korea Timber Conservation Association)

Safe

Tests by food container method have shown that Mamu-Wood is free of hervy metals. Moreover, it does not contain any harmful substance like Formaldehyde.

Environment--friendly

Mamu-Wood is a homogeneous solid. No worry aboutdecay, fatigue or reduced strength. Hence, unlike natural wood, there is no need for periodic painting or preservative treatment.

Reliable

Mamu-Wood is made of particles of hundreds of microns in size. Therefore, unlike natural wood, it has no problem of splintering or cracking.

Termite--proof

Under termite tests, only negligible damage is detected on Mamu-Wood. Hence no worry about termite bites. This is attributable to the special structure of Mamu-Wood: as wood molecules are surrounded by resin, termites are inhibited.

Climate--resistant

Mamu-Wood is hardly affected by water. It is suitable for places subject to sea breeze or humidity, such as parks and seaside. In comparison with natural wood, is is much more durable.

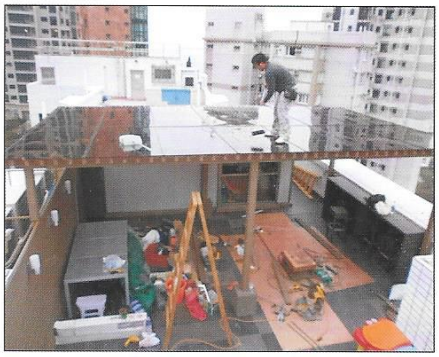
Easy to maintain

Owing to its excellent nature, scratches and dirts on Mamu-Wood are easily erasable. In comparison wiht natural wood, is is much more economical and convenient to Maintain.

Shaped to your choice

Mamu-Wood can be molded into all cross-sectional shapes, from natural wood atrip shape to composite polygonal shapes. It can make what natural like wood cannot. Throw Mamu-Wood and metallic substance like Aluminium into your recipe, you will experience unprecedented freedom of design.



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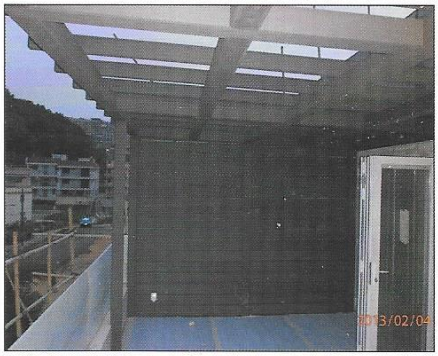
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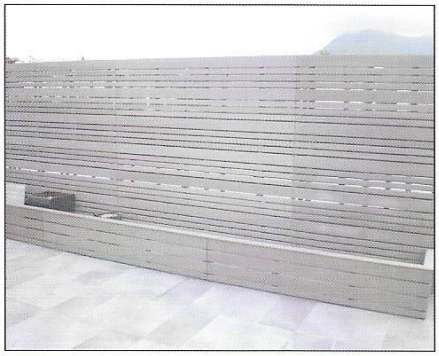



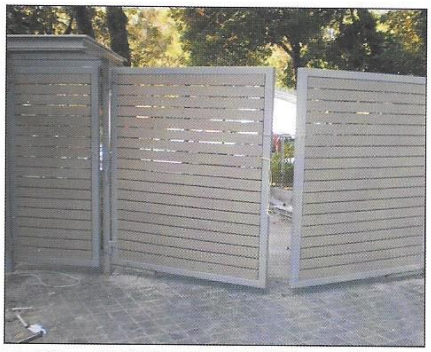





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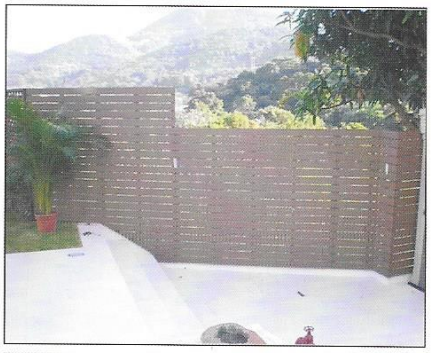



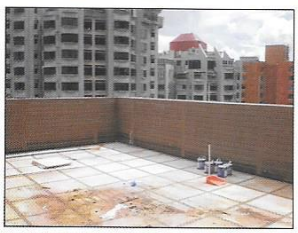


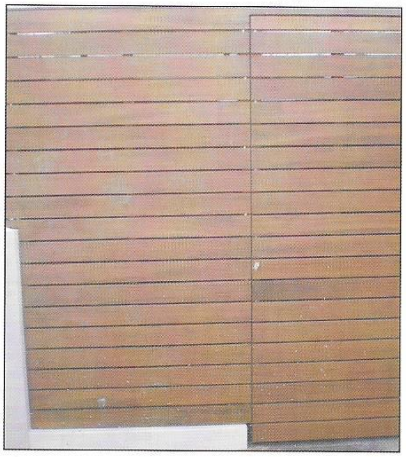







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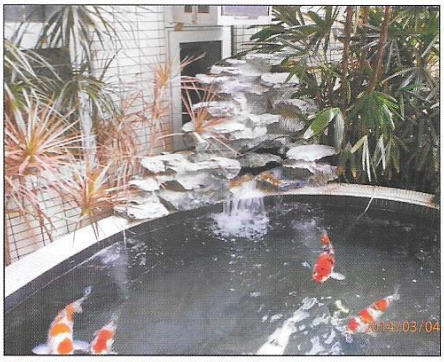
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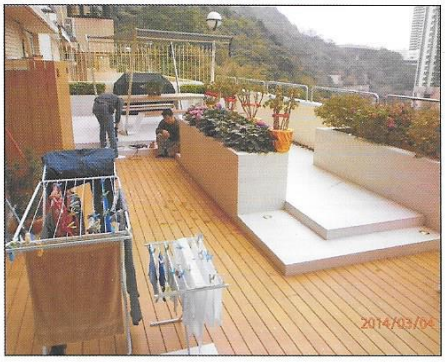
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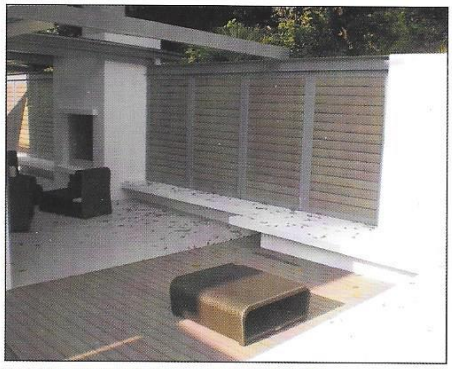

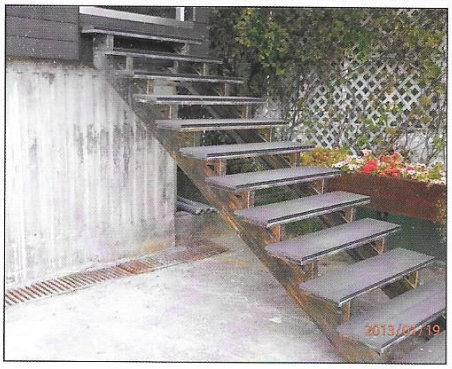

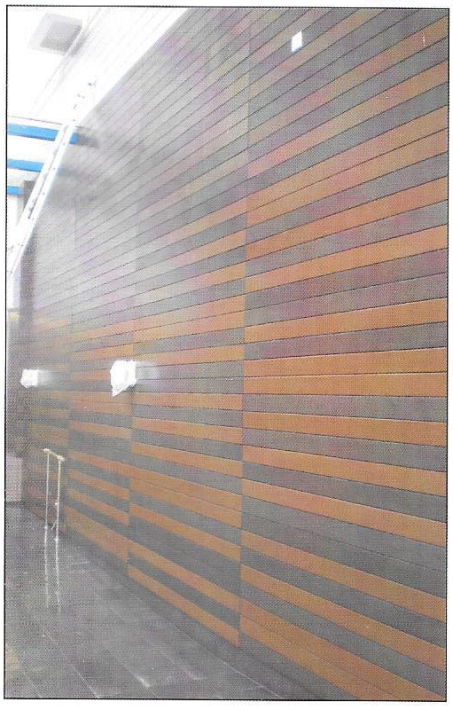

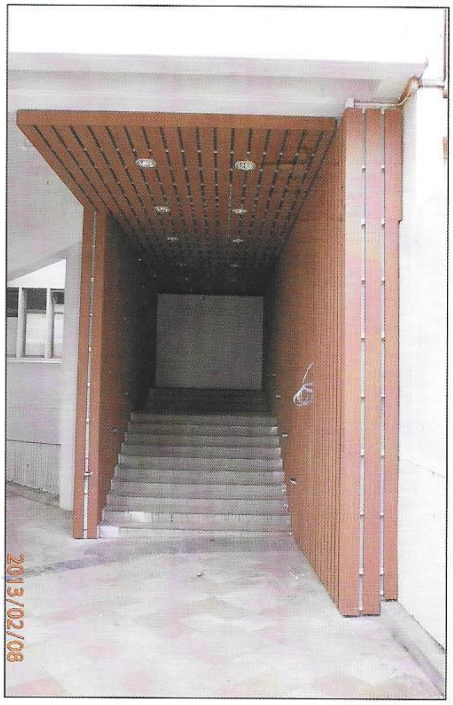
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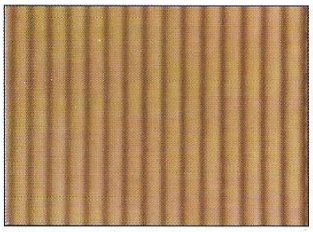
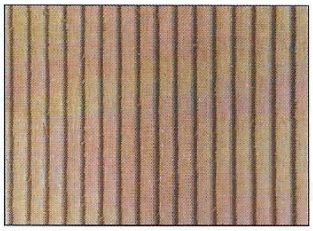
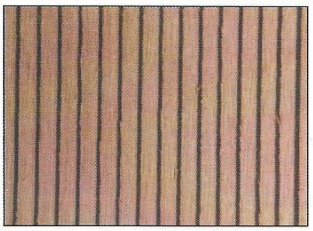
More examples of use

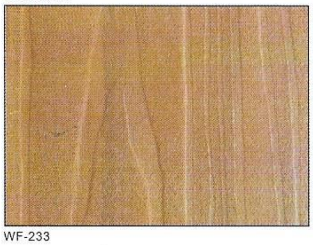
Please visit our website to discover more possibilities


Yellow Brow


Dark Brow


Cherry


WF-250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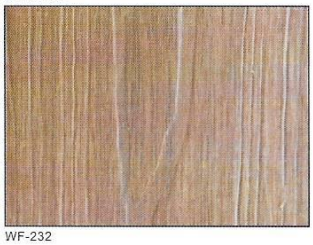
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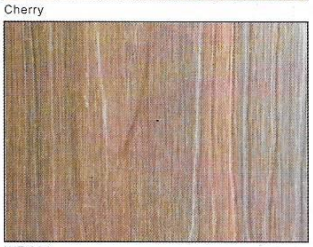
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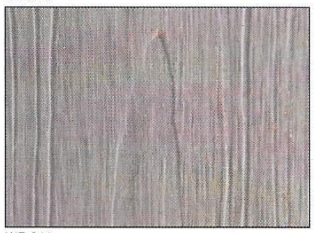
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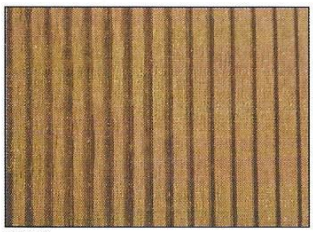
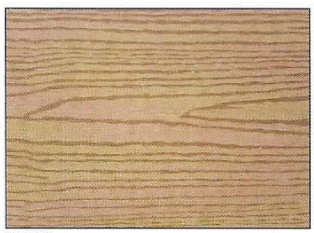

WF-009


WF-003


WF-002


WF-001

Important Information

Must be obeyed for safe use of the product

Product characteristics

- Under normal circumstances, this product can be used for over 10 years without any deterioration in strength. Prior consultation is necessary for usage in special environment.
- This product will show gradual wear and tear with the passage of time and if there is any change of use. As each piece is homogeneous in colour, there will not be any significant change in colour. If the surface is scratched, some dust may come off.
- As this product is made from recycled material, the tone of colour may vary between different categories of product.
- This product has the characteristics of both wood and plastic, so it will expand/shrink or curl due to changes in natural conditions like temperature or humidity.
- This product is mainly made of wood. Some wooden tissue may surface following scouring, for example, by rain.

Points to note at works

- Due to the possibility of deformation, this product should be stored horizontally on flat floor away from rain, water or sunlight.
- Do not install this product on rough ground, otherwise cracks or deformation may result.
- Be careful in nailing, screwing or drilling, as these actions will make irreparable changes in the oroduct.
- As this product expands or shrinks due to changes in temperature or humidity, gaps should be allowed in installation in order to prevent damage. A 5mm gap is recommended at the interface with structures of this product or similar products; a 10mm gap is recommended at the interface with other structures.
- Do not drop tools on this product, otherwise damage may result to this product.
- After installation, stiff hair brushes may be used for cleaning out dust.
- If there appear strong dirty marks, water poodles or water stains on this product, neutral detergent diluted to prescribed concentration may be used to swipe away the marks or stains. Do not leave detergent on the product after swiping. Rinse with clear water and dry it with cloth.
- Do not use concentrated acid, concentrated alkaline, thinner, petrol solvent or other organic solvents or petrol chemicals on this product, otherwise deformation and cracks may result.
- For routine upkeep and cleaning, use soft objects like cloth or sponge. Do not use caustic powder, metallic brush, metallic blade, metallic thread scrubber etc.
- Light scratches can be erased as follows: clean the surface with soft cloth, rub #40 - 60 sand- paper against the scratched part lengthwise along the strip.
- Remove stones or grits from the sudace before sweeping or swiping this product, otherwise scratches may result.

Points to note in use

- Do not jump down from high onto this product or deal powerful blows to this product, otherwise injury may occur to the person and damage may result to the product.
- This product may be hot under strong sunlight. If so, wear socks or shoes before stepping on it. Pay special attention to infants and children.
- The sudace may be slippery under rain.
- Do not put this product into mouth. Although it is made of safe material, it may be hannful to health.
- Be careful about the use of burner in the vicinity of this product. Do not place high heat objects like BBQ stoves around this product, otherwise deformation, discolouration or damage may result.
- Do not perform burning or cooking on this product, otherwise this product may catch flame or deform.
- Do not place laundry, bed sheets etc on this product directly, otherwise the laundry etc may pick up dirts.
- Diesel, petrol or other organic solvents must be swiped off this product immediately.
- Do not leave iron objects like empty tin-cans on this product for long, otherwise stains may result.
- Perform a test on this product once a year, by stepping or running on the product, to check whether the installation remains intact. Also inspect the overall shape ot the structure, the joints, interfaces, screws and caps. In case of peculiar parts where self-repair is difiicult, stop using and call the installation contractor to repair.
- Perform an inspection on the product after unusual geographical events like storms and earthquakes.
- This product contains plastic. Actions on it like walfting may give rise to static electricity.

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