

STARFON™

PRODUCT DATA SHEET

Trade Name

Starfon™ Wood Range

Manufacturer

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Summary

Starfon™ wood range is an environmental friendly building material that has characteristics of generating no scraps and inducing no negative consequences to the environment. Being a building material, we do not compromise environmental ideals with aesthetic value and superior performance. Starfon™ wood range has color tones and texture bearing a similar look to real wood. The material can be used as external and internal of a building, a structural and non-structural building component. It is fully customizable in size, shape, finishing and color to suit all customers' requests.

Detailed Description

In many aspects, wood has always played a vital part in construction and architecture for contemporary design. There is no doubt that the process and outcomes for cutting trees generate lots of scraps and even gradually deteriorate the environment, such as well known desertification and greenhouse effects. It results in discouraging the use of wood as building materials.



However, use of wood has always been the trend and the preferred building material for architects and designers; it lends warmth, beauty and character to any projects. Wood interiors demonstrate natural, warm and soft feelings while wood exteriors blend more naturally with the surrounding landscape. Indeed, architects and designers just want to use wood appearance and texture to explore their designs. Therefore, Starfon™ Wood Range can provide an extraordinarily effective solution.

Our Starfon™ Wood Range offers high quality and a wide range of colors, forms and textures, authentically implemented exclusive timbers, unique looks from natural wood. The dimensions of every single piece of our products can be fully customized according to client's requests. They can be treated with different finishes, varnish, satin and even grain texture. As a result, the whole design creates an amazing array of visual effects.

Regardless of the choice of finishes and dimensions, our wood range is characterized by the particular durability and long lasting color. Compared to natural wood, our products avoid the deterioration and destruction issues. Some mold fungi, bacteria and insects can digest, drill holes and hollow out wood. Even more dangerously, fungi cause the wood to decay partially and even completely. In addition, our products also offer a good compromise between strength and flexibility, and perform well under compression. As such, it is well-suited for making a building frame like floor tiles, wall covering and partitions.

Technical Data

Below is the list of standard for Starfon™ board.

BS EN 12467:2004

Dimension Variations
Density
Bending Strength
Water Impermeability
Water Permeability
Warm Water
Soak-dry
Freeze-thaw
Heat Rain
Reaction to Fire
Release of Dangerous Substance

ASTM C1185-08

Flexural Strength (Section 5)
Density (Section 6)
Dimension (Section 7)
Moisture Movement (Section 8)
Water Absorption (Section 9)
Moisture Content (Section 10)
Water Tightness (Section 11)
Warm Water Resistance (Section 13)
Heat/Rain Resistance (Section 14)

Refer to the following standards for the coating tests on **Starfon™ Board**.

BS 3900: Part E6: 1992 Cross-cut Test of Paints
ASTM D 3363 – 05 Determinate of Film Hardness by Pencil Test
BS EN ISO 11507:2007 & BS3900-F16:2007 Accelerated Weathering Test of Paints
JIS K 5400-1900 clause 8.19 Water Resistance Test of Paint
JIS K 5400-1900 clause 8.22 Acid Resistance Test of Paints
JIS K 5400-1900 clause 8.21 Alkali Resistance Test of Paints
BS EN ISO 4628-2: 2003 & BS 3900-H2: 2003 Examination of Degree of Blistering of Paint Film
BS EN ISO 4628-4: 2003 & BS 3900-H4: 2003 Examination of Degree of Cracking of Paint Film
BS EN ISO 4628-7: 2003 & BS 3900-H7: 2003 Examination of Degree of Chalking by Velvet Method of Paint Film
BS EN ISO 4628-5: 2003 & BS 3900-H5: 2003 Examination of Degree of Flaking of Paint Film
BS EN ISO 4628-8: 2005 & BS 3900-H8: 2005 Degree of Delamination and Corrosion
ASTM D2486 – 96 Determination of Scrub Resistance of Paints

Physical and Mechanical Properties

Starfon™ Image is a composite of high strength cement reinforced with hardwood fiber and PVA fiber. The substrate of Starfon™ board is compliance with ASTM and BS EN standard. The printed images are protected by colorless coating to ensure proper aging characteristics. In addition, it is precision ground to ensure optimum product size and color. Throughout the manufacturing process, our products are subjected to strict inspections and testing to guarantee its high level of quality.

Category	Floor/Wall
Product Code:	SF-03 (B/G) ,SW-03 (B/G)
Density:	1850 -1890kg/m ³
Length:	300-1200mm
Width	300-2400mm
Thickness:	12-25mm
Gloss	High Gloss/ Matt
Finish	Anti-scratch top coat

Testing Results of Substrate BS EN 12467:2004

Standard	Results
Dimension Variations	Within the tolerances
Density	1.85 g/cm ³
Bending Strength	18MPa [Class 4]
Water Impermeability	No visual formation of water droplets
Water Permeability	No presence of water droplets
Warm Water	R _L = 0.86
Soak-Dry	R _L = 0.86
Freeze-thaw	R _L = 0.79
Heat Rain	- No visual cracks , delamination, warping, bowing or other defects - No visual formation of water drops
Reaction to fire	A1
Release of dangerous substance	SVHC ≤ 0.1 %

Testing Results of Substrate ASTM C1185-08

Standard	Results
Flexural Strength (Section 5)	24.5MPa [Grade IV]
Density (Section 6)	1.93 g/cm ³
Dimension and Tolerances (Section 7)	Within the tolerances
Moisture Movement (Section 8)	0%
Water Absorption (Section 9)	0.2%
Moisture Content (Section 10)	0.77%
Water Tightness (Section 11)	No visual formation of water droplets
Warm Water Resistance (Section 13)	R _L = 0.92
Heat Rain Resistance (Section 14)	- No visual cracks , delaminating, warping, bowing or other defects - No visual formation of water droplets

Testing Results of Coating on Starfon™ board:

Standard	Results
Cross-cut Test of Paints	Classification(0)
Film Hardness (1B – 6H)	>6H
Accelerated Weathering Test of Paints	No cracking or blistering of paint film
Water Resistance Test of Paints	No observable change
Acid Resistance Test of Paints	No abnormality
Alkali Resistance Test of Paints	No abnormality
Examination of Degree of Blistering of Paint Film	Degree of Blistering 2 (S2)
Examination of Degree of Cracking of Paint Film	Degree of Cracking 0 (S0)
Examination of Degree of Chalking by Velvet Method of Paint Film	Degree of Chalking 0
Examination of Degree of Flaking of Paint Film	Degree of Flaking 0 (S0)
Degree of Delamination and Corrosion	Delamination (Very Slightly) Corrosion(Very Slightly)
Determination of Scrub Resistance of Paints	No defects >1600 cycles

Classification and Approval

In accordance to BS EN 12467:2004, ASTM C1185-08 and all coating tests, our products prove that they have good mechanical properties, good durability, resistance to fire, chemical and dangerous substance.

Mechanical Properties:

Conducting flexural/bending test is to ensure the integrity and safety of our products. In addition, our products scores at highest in the film hardness by pencil test. Scratch hardness is used for measuring how resistant of our products are to fracture due to friction from different sharpness of pencils. Except scratch, abrasion is another important undesirable effect for normal use. Abrasion is the process of scuffing, scratching, wearing down, marring, or rubbing away. After 1600 cycles, there are no defects on coating surface.

Resistance to Chemical and Dangerous Substances:

Our products are controlled and pose no threat to human life and the environment.

Resistance to Fire:

Testing the fire resistance of a building element involves determining its behavior when exposed to a particular temperature. Starfon™ is classified as "A1" in accordance to the European Standard EN 13501-1. A1 is the highest classification that it is non-combustible material. Starfon™ will not contribute in any stage of the fire including the fully developed fire.

Durability Test:

Our products scores at highest in the cross-cut test, best rated in degree of blistering, cracking and flaking examination and proven be to water, acid, alkaline and corrosion resistance without visual changes before and after tests.

Accelerated weather test uses aggravated conditions of heat, oxygen, sunlight and condensation in order to speed up the normal aging processes of our products. This test is used to help determine the long term effects of expected levels of color and outcomes within a shorter period.

In addition, our products are put into environmental chambers, such as conducting heat-rain, soak-dry and freeze-thaw tests. These tests are mainly demonstrated the extreme weather at outdoor environment. After conducting these cycling tests, flexural test is carried out for further analysis. It results in ensuring the products still have good mechanical properties even putting at extreme weathering in a period of times.

Delivery, Storage and Handling

Although the wooden Starfon™ boards are impact resistance, handle with care is highly recommended. Do not apply excessive weight on the top or impact force to the side of packing. If any damaged on the packaging is spotted, inspect immediately and further contact our sales representative.

The wooden Starfon™ boards shall be protected from direct hail, tornado and job site damage. It also recommended keep the wrapping on and store in a clean and dry environment until installation.

Preparatory Work

Site conditions:

Review the site conditions before installation. Any unsatisfactory conditions must be correct prior to installation, such as no hidden electrical wires and no gas/electric pipelines.

Field measurements are to be taken to verify the images and dimensions.

Substrates:

The wall structure must sufficient to handle the wooden Starfon™ boards and supporting structure's weight and thick enough for theirs expanding bolts. The wall should be flat and no moisture/debris trap between substrates and supporting structure.

Installation Procedure

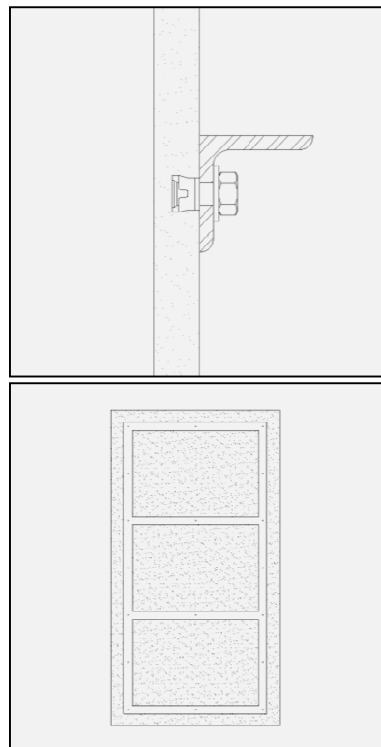
Starfon™ Substrate

A. Wet Fix – Contact Adhesive Method

- A continuous 4-5mm diameter "zig-zag" bead of Liquid Nails™ is applied along the length of the framing member.
- -Surfaces are immediately pressed together to ensure adequate "wetting out" or spreading of the adhesive.
- The two surfaces are then pulled apart and held apart for 2-5 minutes to allow the adhesive to become tacky.
- The joint will continue to gain strength for a further 2-3 days and must not be stressed until after this time.

B. Dry Fix – Undercut Anchor

- Drill hole on the rear face of Starfon™ for undercut anchor by drilling machine.
- Undercut anchor is inserted into the hole.
- Place and align the backing frame onto Starfon™.
- Starfon™ is fixed onto the backing frame by tightening the undercut anchor to a positive fit using a screw



Applications

Starfon™ Wood Range application:



Samples Available

Samples can be requested by e-mail to either your local Starfon™ representative.