



PROFILE

At Your Service:

Name Card Here



PROFILE



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Maica Laminates: WE MANUFACTURE



Maica is the place **Where Imagination Comes to Life**. Since we started in 1968, there is **Some things Never Change** in Maica, which elevated us into an international brand. maiFactory facilities and strict quality standards make Maica into a **1 Brand 1 Quality** manufacturer, and you can get Maica's product quality consistency no matter where you are. Our original quality raw materials and superior quality end products allow you to **Be Original** in your quest for the best. When you use Maica for your home or office interiors, you bring out your individual characteristics and sentiments, because we are **The Diamond Standard of Laminate Industry... the Maica Standard**. Ultimately, we are focused on **Making Life Better, Everyday**.



Mak Mandin

The name **Maica** is familiar in the building and construction industry.

- Carpenters and contractors associate our products with superior quality, and they enjoy great savings with the maintenance of their carbide or diamond tip saw due to the quality of maiProducts that we offer.
- Interior Designers associate **Maica** with everlasting trends and designs, with its fine collection of designs; not fancy, but designs that stay trendy for generations.
- Architects and Developers associate Maica with trusted quality, as **Maica** delivers products to help establish and maintain the superior quality reputation of our architects and developers in the industry.

maiFactory started since 1968, and is one of the first local-foreign joint-venture companies in

Penang. maiFactory is also one of the pioneer factories in Mak Mandin Industrial Estate.

In 1995, maiFactory received its first ISO9002 for excellent management. Over the years, the steadfast management of maiFactory conserved maiBalance, which allowed maiFactory to stay loyal to customers through global economic crisis. The first challenge had been the second oil crisis in the 1980s.

After the ISO accreditation, the demand for maiProducts continued to increase. An additional production plant was built in Kulim as Maica's second manufacturing plant. Even during the midst of the 1997-1998 global financial crisis, maiFactory continued to thrive with increasing demands from the worldwide market. In year 2003, maiFactory upgraded its ISO9002 to ISO9001.



Lunas

*"Maybe we are not the best,
but we always give the best
that we have."*

-maimai

maicaTM

Brand
Quality

Where
Imagination
Comes
to Life

Something
Never
Change

maica Mission

maica Vision

Our Vision is to be known as the most preferred and most reliable laminate manufacturer in the world.

Our Mission is to ensure high quality standards compliance of our ecologically-friendly products and delivering them to our customers, ensuring total customer satisfaction. We build meaningful relationships with our customers and suppliers to enable continuity of our efforts in the present and future generations.

maica Values

We believe in Quality and Equality, Honesty and Integrity.

maiTM Manufacturing

Maica believes in **Responsible Manufacturing**. As we are a manufacturer, we understand that what we do and produce will play a vital role of leadership to our community, the society and to the environment.

RESPONSIBLE MANUFACTURING



FSC Sources

Forest Stewardship Council (FSC) is an international non-profit, multi-stakeholder organization established in 1993 to promote responsible management of the world's forests. FSC is the gold standard in forest certification, and it is supported by groups such as WWF, Sierra Club, Greenpeace, Natural Resources Defense Council and National Wildlife Federation. As part of Maica's awareness to the importance of forest preservations, we undertake the commitment of certification by FSC, abiding by their requirements as we ensure that all our raw paper sources are eligible for FSC certified products. It is our way to protect the forestry around the world.

Melamine Resin

Melamine resin is a thermosetting resin. It has a low molecular weight and is water soluble. Melamine resin also has excellent dielectric properties, which means it has good dielectric strength which gives the material a high maximum electric field strength to withstand without breaking down. There are many uses for melamine resin, and Maica uses melamine resin for the production of both mailaminate and maiCompact product range.

Maica strongly opposes the use of urea formaldehyde resin as it greatly compromises the quality of laminate products and the environment.

With our persistence on the use of quality resin, our products are able to comply with the GREENGUARD and GREENGUARD GOLD certifications for minimal VOC emissions.

Waste Material Handling

Maica appoints specialized waste handling companies to collect and dispose off the waste materials in our manufacturing plant. For manufactured defective products, we will also grind the products into powder and resold to manufacturers of MDF boards as fillers. Vehicle manufacturers also purchase our defective panels to grind them into powder and reformed as their vehicle dashboards, only made possible as our products are made from virgin pulp. This will ensure minimal waste materials being released for disposal from our manufacturing.

BEFORE DURING AFTER

māi māi



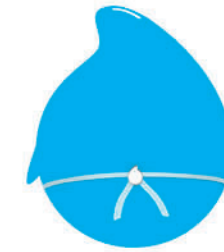
maiTM Ambassador

In year 2011, maiAmbassador was created. The name is maimai, and the name consists of two parts. The letter "m" represents "mother". It means maternal, or even Mother Nature. "ai" represents "love", a word with shared pronunciation in both Chinese and Japanese. This means maimai is the embodiment of love from Mother Nature.

maimai is Maica's representative for advocacy, for environmental causes and for the health of our planet Earth's children. The friendly maimai also carries the image of our services, as a caring and friendly partner for maiCustomers' home and office interiors.



Front



Back



Left



Right

maiTM Biodata

Name	: maimai
DOB	: 11.1.11 (11 January 2011)
Blood type	: O positive
Hobbies	: Renovating homes and offices, traveling, making new friends on Facebook, house-keeping, eating.
Personality	: Happy, friendly, vibrant, full of ideas, helpful, caring, polite, eager to learn new things.

maimai loves being with people. There is never a dull moment with maimai, and her favorite philosophy is "Making Life Better, Everyday".

The maiCSR efforts may require a lot of planning and execution, but it is a worthy activity as it brings forth a feeling of goodness and satisfaction once done. The smiles on the faces of the recipients are most rewarding.



maiTM Memberships

Maica supports local sustainability efforts. We are a member of Malaysia Green Building Confederation and Singapore Green Building Council.

maiLaminate & maiCompact

APPLICABLE GBI CREDITS	
NRNC	EQ4, EQ5, MR4
RNC	EQ2, EQ3, MR4
INC	EQ4, EQ5, MR4
NREB	EQ4, EQ5, MR3
IEB	EQ4, EQ5, MR3
INTERIORS	EQ2, EQ5, MR5



maiTM Products

maiProducts originate from maiFactory based on the most basic requirements of EN438. All product characteristics are based on mai4C:



maiTM Laminate
maiTM Top maiTM Compact
maiTM Concept
maiTM Concept maiTM Top
maiTM Lab Chem
maiTM Lab Bio maiTM Lab Bio
maiTM Radiance
maiTM Laminate maiTM Metal
maiTM Colour Core
maiTM Metal maiTM Invisible-T
maiTM Modesty
maiTM Laminate
maiTM Concept maiTM Lab Chem
maiTM Radiance maiTM Metal
maiTM Colour Core
maiTM Modesty maiTM Compact

maiTM Products

- maiLaminate • maiCompact • maiConcept • maiTop
- maiLab Chem • maiLab Bio • maiRadiance • maiMetal
- maiColour Core • maiInvisible-T • maiModesty



maLaminate

What it is...

maLaminate is commonly known as HPL (high pressure decorative laminates) and some furniture shops may refer to it publicly as "melamine". Maica's **maLaminate** is manufactured based on the requirements of the European Standard, EN438 Part 3, for "Classification and specifications for laminates less than 2mm thick intended for bonding to supporting substrates".

maTechnology...

maLaminate is produced by Maica's manufacturing facility with high temperature and high pressure using our hotpress machine, calibrated with precision to ensure that the quality of our **maLaminate** products meet the requirements of international certifications that we are tested for:

- EN438 Part 3
- GREENGUARD & GREENGUARD GOLD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maAnti-Bacteria
- maAnti-Fungi
- maFood Contact Safety
- maAnti-Scuffing for high gloss finish

maApplication:

Both horizontal and vertical application. May be used as wall panel with backing structure also. For home and office interiors.





mai Compact

What it is...

maiCompact is commonly known as Compact board or Phenolic board. Maica's **maiCompact** panels are exported worldwide, besides its extensive use in local development projects. In Malaysia, the panels are usually used as toilet cubicle panels, while overseas, the panels are also used extensively as table tops and lockers due to its flat panel surface.

maiTechnology...

maiCompact is produced by Maica's manufacturing facility with high temperature and high pressure using our hotpress machine, calibrated with precision to ensure that the quality of our **maiCompact** products meet the requirements of international certifications that we are tested for:

- EN438 Part 4
- GREENGUARD & GREENGUARD GOLD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maiAnti-Bacteria
- maiAnti-Fungi
- maiFood Contact Safety
- maiTermite Resistance

maiApplication:

Both horizontal and vertical application. Flatness makes table tops possible. Commonly used as toilet cubicle system panels and wall cladding system panels. May also be made into lockers for sports centres use.



maiConcept

What it is...

maiConcept is a custom print laminate. You may use the ready designs in our **maiConcept** catalogue, or you may create your own designs and send it to us for print. As opposed to stickers, **maiConcept**'s designs do not peel off from the surface of the laminate, thus cleaning and maintenance becomes so much easier.

maiTechnology...

maiConcept's print is done with a large format printer onto specialized industrial paper that protects the quality of print during the high temperature and high pressure process of making HPL and Compact in the hotpress machine. The paper is delicate and requires extra care in handling at every step of the production. The final product of **maiConcept** is a highly durable product that is often used as doors for toilet cubicle systems in high traffic areas, such as airports, hospitals and child-care facilities. **maiCompact** complies with the following standards requirements:

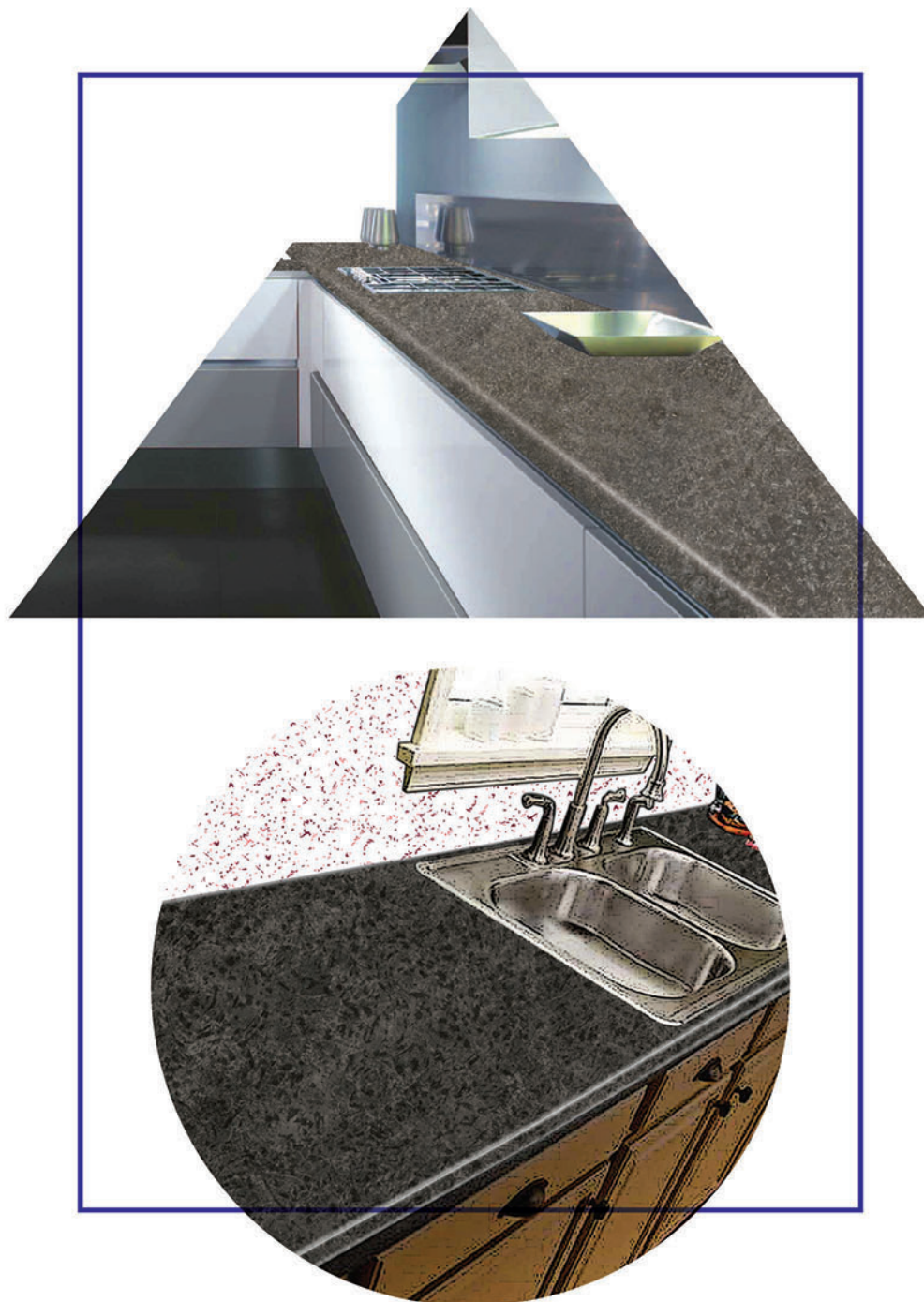
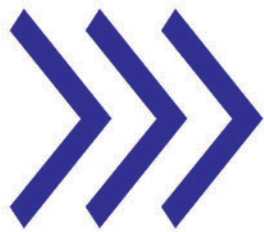
- EN438 Part 3 or Part 4 (can be made into both maiLaminate or maiCompact)
- GREENGUARD & GREENGUARD GOLD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maiAnti-Bacteria

- maiAnti-Fungi
- maiFood Contact Safety
- maiTermite Resistance (for maiConcept made into compact panels)
- maiAnti-Scuffing (for maiConcept made into high gloss surface finish HPL)

maiApplication:

Both horizontal and vertical application. Commonly used as doors for toilet cubicle systems, table tops, wall panels and wall cladding panels, reception counters and many other interior applications.





maica TOP

What it is...

maica TOP is the best kitchen top solution for small apartments and office pantries. It is easy to maintain, and comes in a selection of simple, timeless designs.

maica Technology...

maica TOP is a combination of post-forming grade maicaLaminate and a moisture-resistant imported particle board. To ensure that **maica** TOP is able to withstand moisture imbalances from contacts in the kitchen area, the reverse side of **maica** TOP is attached with a backer sheet with similar characteristics as the maicaLaminate sheet on the surface of **maica** TOP. The most important thing? The laminate surface originating from maicaLaminate had been tested safe for use in kitchen and food preparation table surfaces provided that local hygiene regulations are adhered to:

- EN438 Part 3 for HPL
- GREENGUARD & GREENGUARD GOLD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maicaAnti-Bacteria
- maicaAnti-Fungi
- maicaFood Contact Safety

maica Application:

Kitchen, Pantry, or as a table top with wall backing. Comes in R5 and R12 corner radius to prevent sharp edges that may be dangerous for young children and the elderly.



maica Lab Chem

What it is...

Maica has many specialty products, and **maica Lab Chem** is one of them. Maica's **maica Lab Chem** enjoys a reputation of reliability in the international market, attributed to both the chemical resistance and the physical stability of the product, making it the most preferred product for laboratory table tops worldwide.

maica Technology...

Electron Beam Curing (EBC) is one of the most powerful industrial curing technologies commercially available today. The specialty of EBC is the ability of the EBC to penetrate the surface to fully cure and close the surface of the very thick, multiple Acrylic coating layers, which makes it possible for the high chemical resistance surface of **maica Lab Chem**, characterized by high performance surface finish.



Maica's **maica Lab Chem** utilizes the advantages of the EBC technology with acrylic resin. **maica Lab Chem** has not a single, but double-coating of acrylic combination for better surface performance, reduced VOCs and low carbon footprint since the EBC process does not produce CO₂. **maica Lab Chem**'s EBC surface layer is combined with phenolic treated virgin-pulp kraft paper, processed under high temperature and high pressure to ensure compliance with the EN438 standards for its physical properties. This process requires special calibration to the temperature, pressure and duration of production. The end result is **maica Lab Chem** with a flat surface, complete with chemical resistance suitable for professional laboratory use.

The careful planning and processes for the production of **maica Lab Chem** at Maica results in a product that has been tested and certified for compliance for the following properties:

- **European Standard EN438** – Physical endurance based on the EN438 Part 4, as **maica Lab Chem** has a build-up similar to that of a compact laminate with the exception of an EBC chemical resistant product surface. The EN438 also includes the criteria for "Surface Flatness". The careful control of temperature, pressure and duration of the production, coupled with the EBC cured surface and virgin-pulp phenolic resin impregnated kraft paper ensures the compliance for **maica Lab Chem** with high stability and flatness value.



- **GREENGUARD / GREENGUARD GOLD** – Low VOC emission, due to the use of the acrylic resin and the EBC process, making the product suitable for indoor applications such as closed-laboratory environment.
- **Singapore Green Label** – An ecolabel certificate testifying the use of sustainable materials made from virgin-pulp.
- **SEFA 8 and Selected 91 Chemicals Tests** – A most important attribute of the product for its chemical resistance, **maica Lab Chem** has been tested for 91 most common chemicals used in laboratories worldwide, including the 49 chemicals specified by SEFA. All tests are done for a duration of 24 hours by a third-party internationally accredited laboratory, TUV SÜV PSB Laboratory in Singapore.
- **maica Termite Resistance** – Termites thrive in an environment where microbes are present. These microbes help to break down the cellulose of wood materials into food sources that can be digested by termites. **maica Lab Chem** is a product of high temperature and high pressure, with a high density of at least 1.35g/cm³. There is no air pocket or moisture trap in the product core, making it a non-conductive environment for microbes, especially fungi, to grow. The absence of these microbes makes **maica Lab Chem** unattractive for the survival of even the most dangerous termite for buildings, the Subterranean termite.



mai Application:

Laboratories using harsh chemicals, such as hospitals, university laboratories for science-based specialisations, dental laboratories, veterinary laboratories, and laboratories specialising in:

- Tests for foodstuff
- Autopsy and post-mortem works
- Research and development of new medications
- Research of new diseases and microbe species
- Health diagnostics
- Archaeological tests
- Research of flora and fauna
- Bio-medical research
- Forensic science
- Dental and oral science

plus a diverse range of laboratories worldwide.

Notes:

1. While **maiLab Chem** has not been tested for electrostatic behaviors, the general attribute of HPL product based on the release by the International Committee of the Decorative Laminates Industry (ICDLI) is that HPL are "like anti-static materials and therefore need not be earthed. Their surface resistance lies between 10^5 and 10^{12} Ohm." However, this is dependent on various factors including the surrounding climatic conditions, colour and pigmentation.
2. **maiLab Chem** has been tested based on chemical exposure of 24 hours. However, the guidelines for safe laboratory practices requires that any spilled chemicals must be cleaned immediately. This practice is for the safety of the persons in the laboratory and will also help to prolong the lifespan of **maiLab Chem**.



maiTM Lab Chem





maiLab Bio

What it is...

Some laboratories need not use harsh chemicals and may require more durability instead. **maiLab Bio** is created to cater to the needs of these users.

maiTechnology...

maiLab Bio is manufactured with a similar process as maiCompact, except that this specialized product is added with an additional film that gives it the extra durability and chemical resistance that is needed to make this product possible. The chemical resistance of this product is not as high as maiLab Chem, hence the product is advised for the use of non-chemical laboratories. However, being a product of Maica Laminates, **maiLab Bio** will comply with the tests standards and requirements to qualify as a Maica product.

- EN438 Part 4
- GREENGUARD & GREENGUARD GOLD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maiAnti-Bacteria
- maiAnti-Fungi
- maiFood Contact Safety
- maiTermite Resistance

maiApplication:

Non-chemical based laboratories, for example:

- Mechanical / Electrical / Electronics laboratories
- Sports laboratories
- Mechanical / Electrical / Electronics workshops
- Technical skills workshops or laboratories (such as fabrication laboratories working with wood and metal materials)
- Vehicle repair workshops
- Computer repair workshops
- Optical laboratories and workshops
- Music laboratories, workshops and studios
- Local clinics and veterinary

plus a diverse range of laboratories and workshops worldwide.

Note:

1. While **maiLab Bio** has not been tested for electrostatic behaviors, the general attribute of HPL product based on the release by the International Committee of the Decorative Laminates Industry (ICDLI) is that HPL are "like anti-static materials and therefore need not be earthed. Their surface resistance lies between 10^5 and 10^{12} Ohm." However, this is dependent on various factors including the surrounding climatic conditions, colour and pigmentation.





mai[™]Radiance

What it is...

Glittering stars are out of our reach, but glittering surfaces are not. **maiRadiance** is Maica's range of glittering panels, classy and subtle, that can be used even at the most impressive six-star hotels.

- maiAnti-Fungi
- maiFood Contact Safety
- maiTermite Resistance (for maiRadiance made into compact panels)
- maiAnti-Scuffing (for maiRadiance made into high gloss surface finish HPL)

maiTechnology...

maiRadiance is available as both HPL and Compact, which means that it carries the best of both worlds.

- EN438 Part 8
- GREENGUARD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maiAnti-Bacteria

maiApplication:

Both vertical and horizontal surface, the glittering effect of **maiRadiance** will not wear off even with regular cleaning. Suitable for classy projects, such as hotels, commercial centres, corporate offices and homes, and high traffic areas.



mai[™]Metal

What it is...

maiMetal consists of real metal sheet on the surface of the HPL. This is a specialized product, specified under the EN438 Part 8. **maiMetal** is good to use for furniture surfaces in place of metals when combined with plywood or wood-based board structures.

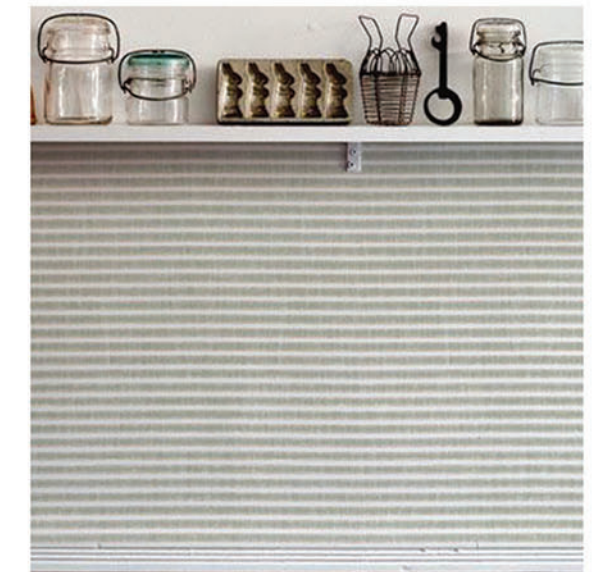
maiTechnology...

The combination of a metal foil and the build-up of HPL requires special calibration of the hotpress machine. As it is partly metal, there may be some exclusions in the technical standards. However, Maica maintains some of the most basic standards for **maiMetal**, unless there is no such category for specifications by the international standards or unless the specific technology to achieve some of the standards is not available to Maica at this moment.

- EN438 Part 8
- GREENGUARD and GREENGUARD GOLD

maiApplication:

Reception counters, wall paneling, furniture lining, and other creative uses.



maiTMColour Core

What it is...

Modern designs may pose a challenge to traditional furniture edging, and **maiColour Core** is here to solve this problem. Broad edges for table tops, especially, may make it difficult to find the suitable edging to support a beautifully designed table top. **maiColour Core** with homogeneous core colour which is the same as the surface design colour will be able to cater to this need, complete with 4 different colours and 3 surface finishes.

maiTechnology...

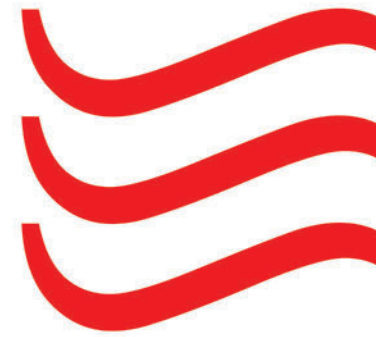
The core of **maiColour Core** is different from the normal HPL core. It requires the use of coloured kraft paper which has a different characteristics compared to the general kraft paper, and handling is also different. The whole piece of **maiColour Core** uses Melamine resin, which makes it slightly less flexible than normal HPL.

maiColour Core adheres to the international standards of the industry.

- EN438 Part 9
- GREENGUARD
- Singapore Green Label for "Made from Renewable / Sustainable Materials"
- maiAnti-Bacteria
- maiAnti-Fungi
- maiFood Contact Safety
- maiAnti-Scuffing for high gloss finish

maiApplication:

Designer furniture tables and flat surfaces without the need for edging support.



ma Invisible-T

What it is...

Black is a colour that has a love-hate relationship with interior designers. While black is a powerful colour that brings out the strongest characters in the simplest manner, it is also a colour that brings a lot of headache to carpenters. The most common headache is the grease and sweaty finger prints making their marks on a black colour surface.

However, all these headaches are gone with **ma Invisible-T**. Maica selectively uses **ma Invisible-T** technology solely for black colour to solve the issues for our designers, carpenters, dealers and users. In this time and age, who has time to overwork on cleaning and maintenance?

ma Technology...

ma Invisible-T is created using a special electron-beam curing technology that requires multi-layer coating of electron beam curing resin applied to the surface decorative paper. The curing of the resin is done with a precisely controlled electron beam, causing the cross-linkage of the resin molecules to create a perfectly closed surface structure. This results in a product that is:

- **Anti-Finger Print** – just wipe off with a damp cloth.

- **Extremely easy to maintain** – you can basically clean off grease and almost every kind of dirt marks using a damp cloth.
- **Highly resistant to water** – it has to be, because most maintenance are done with water and cloth.
- **Scuff resistance** – if you encounter any scuffing, just put water on the scuffed area, cover with a piece of cloth and put a hot object on top of the cloth to perform a heat transfer process for about 30 seconds. The hot object may be an iron, or a hot pot of water. After 30 seconds, remove the hot object and the cloth from the surface and allow the water to evaporate from the surface. Once the water evaporated, the scuffing lines will not be visible anymore.

**Note: scuffing force up until 4N.*

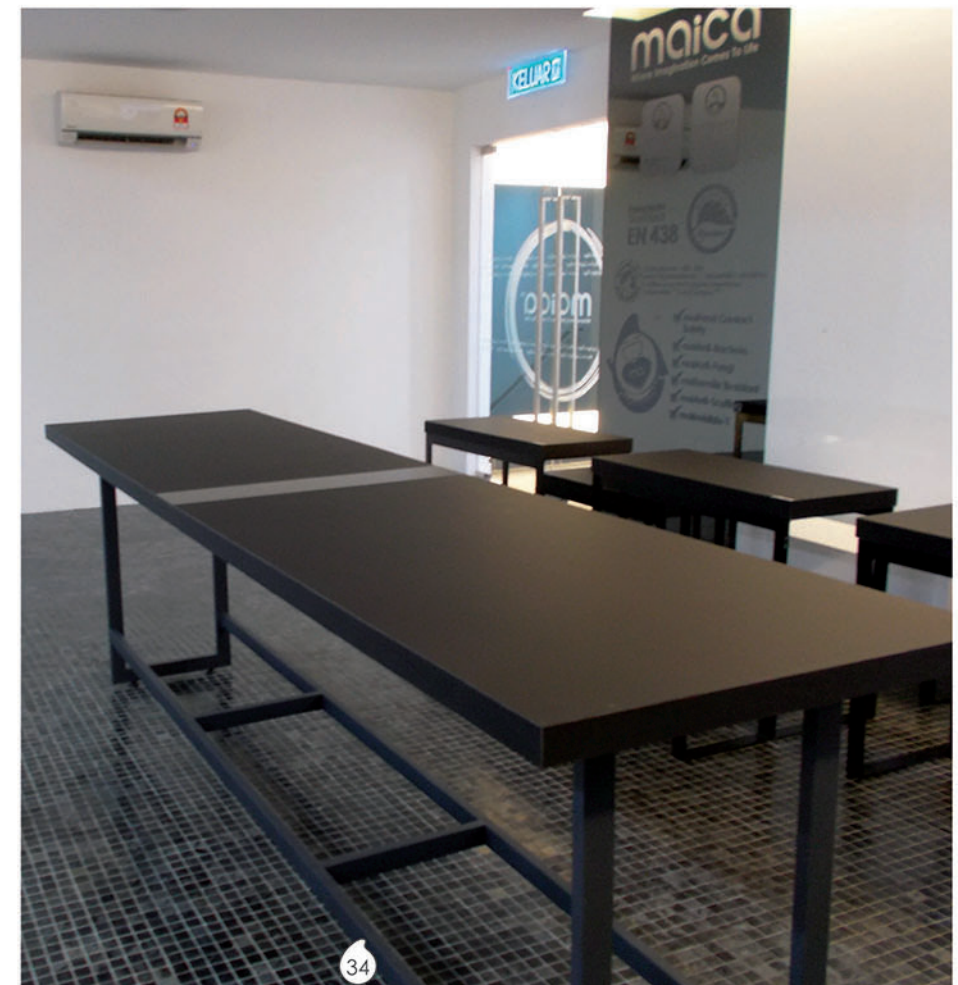
ma Application:

Both horizontal and vertical application. Most suitable for high-traffic areas where there is frequent contact with grease and fingerprints such as F&B, dining, pantry and kitchen areas.

Brand
Quality

Where
Imagination
Comes
To Life

Something
Never
Change





maiModesty

- maiAnti-Finger Print
- High Scratch Resistance
- maiAnti-Microbial properties

New

maiModesty

What it is...

maiModesty is a maiLaminate product. It is a product that requires minimal maintenance, and it will be your favorite product in the near future.

It is also an anti-finger print product. This special product also exhibits wear resistant of 2x stronger compared to the normal standard grade product based on the EN438 requirements.

maiTechnology...

maiModesty is made possible using a specialised technology. As a manufacturing with our own Technology Research & Development section, we experimented and developed our own protective foil that gives added values to **maiModesty**.

- **maiAnti-Finger Print** – the protective foil has a specialized structure that minimizes the microscopic contact area of the fingers to the actual surface, which allows for the anti-finger print properties.
- **High Wear Resistance** – up to 2x more wear resistant compared to the normal standard grade product based on the EN438 requirements.
- **maiAnti-Microbial properties** – **maiModesty** comes with anti-microbial additives that do not migrate out of surfaces and do not lead to allergies and environmental influences. The additive is embedded into the product, hence it lasts for the lifetime of **maiModesty**.

maiApplication:

Both horizontal and vertical application. Most suitable for high-traffic areas where there is frequent contact with grease and fingerprints such as F&B, dining, pantry and kitchen areas.

maiTM Quality

- maiTM Anti-Bacteria
- maiTM Anti-Fungi
- maiTM Termite Resistant
- maiTM Food Contact Safety

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- GREENGUARD & GOLD
- Singapore Green Label
- maiTM Anti-Scuffing
- maiTM Chemical Resistance
- maiTM Anti-Finger Print
- Forest Stewardship Council (FSC)
- MyHUAU

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EN438

The European Standard, EN438, is Maica's most basic guidelines for standard requirements for all products manufactured in the company. It is a standard recognized by all CEN members, who are bound to comply with CEN/CENELEC Internal Regulations. CEN and CENELEC are the business catalysts in Europe, and they provide platforms for the development of European Standards and other technical specs, taking into consideration the European economy in global trading, the welfare of European citizens and the environment.

- EN438 sets stringent limits to ensure that products are manufactured to protect the consumer for quality assurance and responsible manufacturing.
- Priorities on product quality, not only aesthetics.
- Full compliance to EN438 clearly states that HPL does not contain dangerous substances, specifically pentachlorophenol, asbestos, halogens or heavy metals (Antimony, Barium, Cadmium, Chromium III and IV, Lead, Mercury, Selenium). Maica's products are fully compliant to EN438 thanks to the use of virgin pulp raw materials.

European Standard EN 438

Compulsory standard delivery since 1968

Notes:

CEN: European Committee for Standardization

CENELEC: European Committee for Electrotechnical Standardization

CEN Member Countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom.



maiAnti-Bacteria



Maica's maiProducts are endowed with maiAnti-Bacterial qualities with on-demand delivery since 1968 and standard delivery since 2012.

Bacteria exist everywhere. Scientists say that our body alone has trillions of bacteria and other microorganisms. The number of bacteria outnumbers our human cells 10 to one. This means that our human body itself is a universe, one so diverse and complex, yet complete and functioning on its own without our conscious knowledge.

Maica's **maiAnti-Bacteria** is achieved through Silver Ion Technology, the same technology used by hospitals and in clinical settings. In laboratory settings, we are able to achieve 99% reduction of bacterial activities, while in live settings in daily applications, we experience a constant 95% reduction of bacterial activities in real live environment.

Tests are done by independent third-party laboratories using the Japanese Industrial Standard JIS Z2801:2012 standard for 5 types of bacteria:

- *Staphylococcus aureus*
- *Escherichia coli*
- *Salmonella choleraesuis*
- *Methicillin-resistant Staphylococcus aureus (MRSA)*
- *Pseudomonas aeruginosa*





maiAnti-Fungi

Fungi can be more dangerous than bacteria, because it is airborne from the moment it starts traveling in the air as vegetative spores. Fungi will grow on organic, moisture surface.

However, Fungi does not grow on Maica's laminates, even if our products are organic by nature. This anti-fungi property is attributed by the Silver-Ion Anti-Microbial technology and also by the process of high temperature and high pressure on our products which makes the panels truly compact and dry (no air and no moisture inside the panels), making it not conducive for fungi to grow.

Fungi elimination means minimization of chances for respiratory contact with fungi vegetative spores, and no need to worry about the emission of mycotoxin from fungi. There is also no chance for the decay of maiLaminate and maiCompact due to fungi.

Tested based on the ASTM G21 standards by an independent third-party laboratory, Maica's products shows 99% reduction in microbial activities of these 5 representative fungi:

- *Aspergillus niger*
- *Penicillium pinophilum*
- *Chaetomium globosum*
- *Gliocladium virens*
- *Aureobasidium pullulans*

Advantages of Applications:

- Hospitals
- Clinics
- Laboratories
- Schools
- Healthcare centres
- Public facilities
- Furniture
- Kitchen
- Toilet cubicles and doors
- Sports centres
- Enclosed and air-conditioned area

Products Applicable:



maiTermite Resistant

Termite is building's worst enemies! In the US alone, residents spend an estimated USD5 billion annually to control termites and repair termite damage. According to the United States Department of Agriculture (USDA), US residents spend at least USD1 billion on Formosan termite control and repairs each year. Meanwhile, Subterranean termites are the most dangerous termites for buildings.

While some claim that termites only chew on wood-based materials, they have been known to chew through plaster, plastics, asphalt and even thin sheets of soft metals like lead and copper, according to some pest control experts.

It is a common misconception that termites are eating wood. In reality, they are eating the cellulose materials that the wood is made of. But while they do consume cellulosic materials, termites cannot retrieve any nutrition without the assistance of bacteria, fungi and protozoa to break down the cellulose and release the nutrients that can be absorbed by the host termite. In other words, bacteria, fungi and termites are good friends with each other. Since maiCompact is anti-microbial, termites have no benefits or interest to chew into the product.

Termites are also capable of emitting methane, one of the most important non-CO₂ greenhouse gases, and is responsible for nearly as much global warming as all other non-CO₂ greenhouse gases put together.

Maica's maiCompact had been sent to the Forest Research Institute of Malaysia (FRIM) to determine the durability of maiCompact against Subterranean Termites compared to softwood, hardwood and particle boards. The tests include:

- Laboratory tests using the standard ASTM D3345-08
- Field test using FRIM Working Procedure PK A1 test

The conclusion is as follows:

1. maiCompact was highly resistant to both termite and fungi attack based on both laboratory and field test and may be used for exterior application* and at high humidity area.
2. In this test, maiCompact was found to be most durable against termite attack, followed by pinewood (softwood), rubberwood and particleboard under the local condition.

Note: *While the test concludes that maiCompact may be used for exterior application, Maica recommends the use of maiCompact for interior use, unless stated otherwise in the catalogues.

Advantages of Applications:

- Toilet cubicle panels
- Sports facilities cubicles and lockers
- F&B table tops
- Kitchen tops
- Hospitals and health care facilities
- Public facilities
- Remote area facilities

Products Applicable:





maiFood Contact Safety

Food sustains life. Therefore, it is important to ensure that foods are not contaminated with any foreign particles that may endanger our health. When foods are prepared and placed on the table for consumption, many people merely think about the hygiene of the cutlery and assume that the tables are safe just because our eyes cannot see anything dirty on the surface.

However, have you ever thought about the possibility of the materials from the surface of the table transferring into foods without your realization? For example, you may have a spray-painted table to serve your dinner. When you pass your child an apple, she puts it on the table top to go wash her hands. When she picks up the apple again, will there be paint particles too small to be seen with the naked eye that gets transferred to the apple?

Nobody can be too sure about this, unless the table top material goes through a series of tests to validate the transfer of the materials to food stuff. Maica sends our products to ISEGA, a laboratory in Germany, to complete a series of tests to determine the transfer of our laminate materials to different food stuff to ensure that there is no transfer or a minimal transfer that does not harm our human health. This leads to a Certificate of Conformity that is renewed every 2 years with follow up tests just to make sure that our products are not going to endanger the human body.

The tests include the migration behavior of overall materials and specific materials including:

- a. Melamine
- b. Formaldehyde
- c. Silver (Ag)
- d. Toluene Sulphonic Acid
- e. Colour / Paint

The Certificate of Conformity confirms that:

"Thus, on the coated workplates maiCompact and maiLaminate according to the sample material submitted all kinds of foodstuffs may safely be prepared and treated, provided that hygiene regulations are not violated."

Advantages of Applications:

- F&B outlets
- Hospitals canteen
- Factories canteen
- Kitchen
- Healthcare facilities
- Schools and colleges canteen
- Pantries
- Nursery and kindergarten

Products Applicable:



GREENGUARD & GREENGUARD GOLD

There is a definition by the California Department of Pesticide Regulation which states that Volatile Organic Compounds (VOC) means "any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmosphere photochemical reactions". VOC may come from the environment itself, or may come from activities or products created by human beings. Very often, VOC is a contributor of the "Sick Building Syndrome".

Maica realizes the importance of healthy indoor air quality to ensure that people stay healthy. While the products are manufactured with care, we send our products to the United Laboratories (UL) for tests and

verifications for VOC emissions based on the requirements of GREENGUARD and GREENGUARD GOLD.

- Products with GREENGUARD are suitable for use in office, shopping malls and other general public places. This is the most basic level of requirements that Maica conforms to for all products we manufacture.
- Products with GREENGUARD GOLD are suitable for use in environment where there are children and the elderly. This is a higher level of compliance where the maximum allowable limit is lowered even further to ensure that the VOC levels are very minimal. Maica's products are also able to conform to GREENGUARD GOLD.

Advantages of Applications:

- Green building projects
- Healthcare facilities
- Kindergarten and schools
- Old folks homes
- Nursery
- Hospitals
- Nursing homes
- Offices
- Bedrooms
- Any confined areas

Products Applicable:

Singapore Green Label



Certification No. : 035 - 034
MADE FROM RENEWABLE / SUSTAINABLE MATERIALS
Certified under the Singapore GreenLabel
mailaminate™ & maiCompact™

The most effective way to know that Maica's products are made from superior raw materials require a first-hand experience during fabrication works. However, if you do not have the advantage of direct experience with the panels and machines, how can you be sure about the quality of raw materials of the panels?

Maica makes the identification simple by using the Singapore Green Label, based on the category of "Made from Renewable / Sustainable Materials", with certificate number 035/034. The number 035 is the unit number of this category, while 034 means Maica is the 34th company to be certified under this 035 category. Maica is the only manufacturer of high pressure decorative laminates to have Singapore Green Label under this "Made from Renewable / Sustainable Materials" category.

The significance of this certificate is the assurance that Maica's products are:

- Made from virgin pulp materials from non-virgin plantations / forestry.
- Does not contain halogenated solvents
- Does not contain aromatic solvents
- No heavy metal contents (Pb, Cd, Hg, Cr)

The Singapore Green Label is applicable to all Maica's products, except for maiMetal because there is no category for metal product under this certification.

Advantages of Applications:

- Green building projects
- Industrial and commercial projects
- Any horizontal or vertical application, depending on products used

Products Applicable:



maiAnti-Scuffing For High-Gloss Finishes



Maica's **maiAnti-Scuffing** is a proprietary technology developed by Maica's R&D team, especially for Maica's high gloss surface products. The technology used for this is the "micro-solid particles" technology; in molecular view the molecules of this micro-solid particles layer is much smaller compared to the normal molecules of normal gloss surface laminate products in the market.

Scuff lines are created when there is surface tension. This surface tension is caused by the grip of the external object's molecular structure between the molecules of the laminates surface. Friction is created in the microscopic level, which results in scuff lines that can be seen with our naked eyes. Since **maiAnti-Scuffing** technology uses micro-solid particles, the space between the molecules has become so much smaller, to the extent that there is a certain slipperiness upon contact of an object surface to Maica's high gloss surface that refuses a friction, hence the scuffing lines cannot be created.

Advantages of Applications:

- High gloss surface for vertical applications
- High gloss surface for low traffic usage of horizontal applications

Products Applicable:





maiChemical Resistance

For maiLab Chem

The maiChemical Resistance feature of Maica products belongs solely to maiLab Chem as it is a specialized product that requires this unique technology (please refer to maiLab Chem on page 23) for the sole purpose of usage in laboratories.

The technology employed to enable the chemical resistance feature is the electron beam curing technology. This technology has grown rapidly in recent years and showed huge potential in many applications.

There are many advantages of this technology. In terms of raw materials, the energy of the electron beam is very high, thus shortening the curing process. The high energy efficiency is advantageous to the environment because there is no solvent used in the process and low pollution is also anticipated.

The electron beam has three dimensional cross-linked structure. Therefore, it creates a non-porous surface even at a microscopic level, allowing the chemical resistance property on the product when used together with the acrylic resin for the process of creating maiLab Chem's surface.

However, more may not necessarily mean better when it comes to electron beam curing. There is a certain deterioration of the paper's mechanical strength when it goes through the electron beam irradiation. There are many other factors affecting the decline, such as the moisture and kind of paper itself, but this is an unavoidable side-effect of the process. Hence, the acrylic resin will be cured with low dose of beam to prevent the decline of paper strength.



maiAnti-Finger Print

Maica has two types of maiAnti-Finger Print technology. The first is an adopted technology, while the second is Maica's specially selected technology.

EBC Technology

The EBC Technology is an adopted technology, using the electron beam curing technology similar to our chemical resistant product. The EBC technology has other advantages, resulting in remarkable product properties such as anti-finger print, high scuff resistance (up until 4N) and the characteristics of visual "recovery".

This technology is employed in our mailInvisible-T product. The EBC technology allowed the use of plain water and a piece of cloth to clean off the finger prints generated from sweat, grease and grime. Water and cloth will also clean off any oil on the surface caused by food, cosmetics or machines. Hence, carpenters and fabricators need not worry about the cleaning of the black laminate surface right before handover of the projects. Meanwhile, owners will do only minimal maintenance with water and cloth, especially when there are a lot of little children running around with oily fingers after a fulfilling meal.

The mailInvisible-T product will also allow a visual "recovery" of the product surface if there is any light scuffing lines via wet-heat treatment. The logic behind this recovery is the triggering of the molecules to move together and redistribute themselves with heat to close the gap created by the scuffing lines, hence closing the lines which makes the lines "disappear". This is done by dripping some water on the scuffed spot, place a piece of cloth on the surface and then putting a hot surface such as iron or a pot of hot water on the cloth, for approximately 30 seconds. After that, remove the hot item and the piece of cloth. Once the water evaporates from the surface, the scuff lines will no longer be visible.

Maica's maiModesty anti-finger print

Maica's very own maiModesty Anti-Finger Print product is a product similar to the EBC Technology mailInvisible-T, minus the visual "recovery" properties. However, compared to the EN438 requirements for abrasion, it can withstand more than 2x the wear resistance requirements of this international standard. Being highly wear resistant, maiModesty becomes a new favorite for heavy duty usage with the easiest maintenance for end users.

maiModesty can be applied to any designs, whether solid or woodgrain. It carries Maica's standard of anti-microbial in its products, hence there is every possibility of using this product in high risk and traffic areas such as hospitals and children facilities.



Forest Stewardship Council (FSC)



The mark of
responsible forestry

FSC was officiated since 1994. Its aim is to ensure that there are enough forests in this world for all our future generations. It is a global not-for-profit organization that sets the standards for what is a responsibly managed forest, both environmentally and socially.

The FSC has a global network of environmental, social and economic members to ensure that the considerations of environmental standards for forestry will represent the needs of all parties, including the Indigenous Peoples and endangered animal species, environmental groups, social organisations, forest owners, businesses, campaigners and individuals. FSC itself is also a member of the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance, a global association of social and environmental standards systems.

There are several FSC Labels. It can be found on millions of products worldwide. Here is a summary of the 3 types of FSC on-product labels:

FSC 100%

The FSC 100% label means that the wood within the product is produced solely from FSC-certified forests.

FSC Recycled

This label means that all the wood or paper in the product comes from reused material.

FSC Mix

The FSC Mix label means the wood within the product is from FSC-certified material, recycled material or controlled wood. Meanwhile, controlled wood shall adhere to the following criteria, in which it shall not be:

- Illegally harvested.
- Harvested in violation of traditional and civil rights.
- Harvested in forests where high conservation values (HCVs) are threatened.
- Harvested in forests being converted to plantations or non-forest use.
- Harvested in forests where genetically modified trees are planted.

Maica's FSC Compliance

Any company that wants to add the FSC label to any products will need to receive the Chain of Custody (CoC) Certification. Maica received the FSC CoC certificate with FSC License Code of FSC® C126725 since 2015. This CoC certificate is valid for both Maica's plants in Butterworth and Lunas.

Maica is also able to produce FSC Mix label products upon request by customers. This is possible for both maiLaminate and maiCompact products.

For more information about FSC, please see <http://ic.fsc.org>.

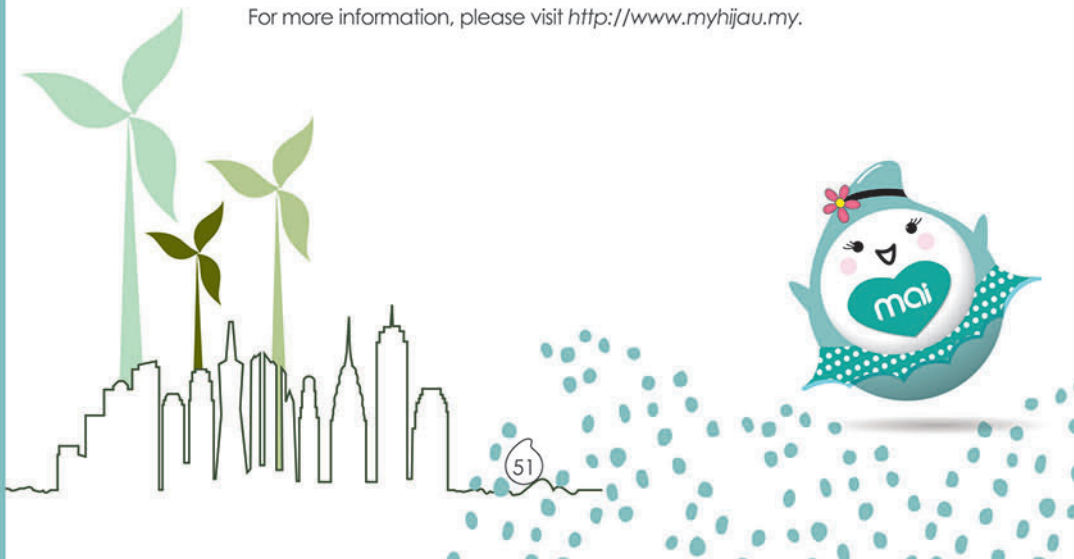


MyHIJAU

MyHIJAU is a Green recognition scheme that is created to help business and consumers identify which products are considered green products in all types of industries. It may be a building and construction material, or a consumer product. In an era where 'green' is an overkill with products claiming to be environmentally friendly but without the valid certifications and tests verifications, the MyHIJAU mark is able to provide a quick and easy identification and recognition.

MyHIJAU provides the MyHIJAU Mark to products that are verified to have valid green certificates. The products that are verified with MyHIJAU Mark are also listed in their website to allow for easy search by both businesses and consumers. In addition to that, businesses may also enjoy the benefits of tax exemption for the use of green products via the Green Investment Tax Allowances (GITA) for the purchase of green technology equipment or assets and Green Income Tax Exemption (GITE) for green technology service providers.

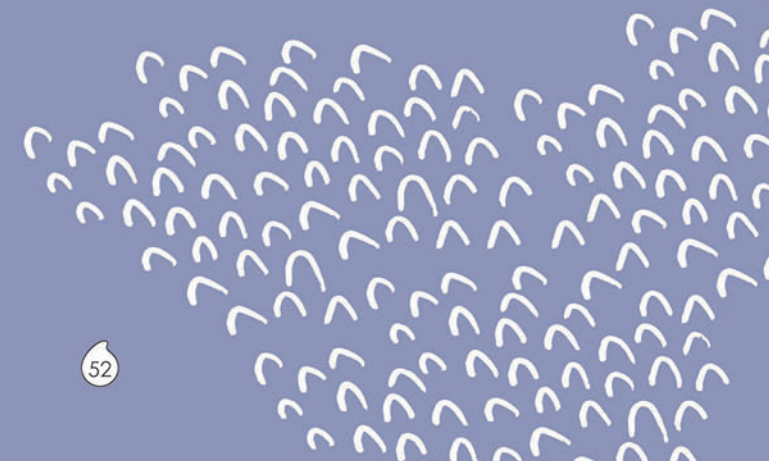
For more information, please visit <http://www.myhijau.my>.



Additional Notes:

Sick Building Syndrome: A condition where a healthy person may temporarily experience sickness, such as watery eyes, nausea, stuffed nose, itchy throat, or general uneasiness, upon entering a building. Usually symptoms are more profound in enclosed areas where air do not travel freely, probably due to the lack of ventilation when windows and doors are shut. The cause of sick building syndrome includes VOC from building materials (paints, carpets, surfaces etc), vehicle exhaust carbon monoxide from attached garage, mold or fungi, cigarette, animal hair and dander, pollution from the outside, chemical fumes from paints and solvents, chemicals from cleaning products, bacteria, combustion gases from fireplaces and woodburning stove and gases including radon seeping through foundation.

Volatile Organic Compounds (VOC): VOC is not limited to building materials. VOCs are also present in nature and an ingredient in many household products, such as cleaning agents and even cosmetics and nail polishes. VOC may have adverse effects against the human health, but the use of VOC is common. There is always a background level of VOC around us, as long as it does not exceed the maximum allowable limit there is no immediate dangers to our human body, unless the person's body already has a certain health condition that results in low tolerance to VOC.

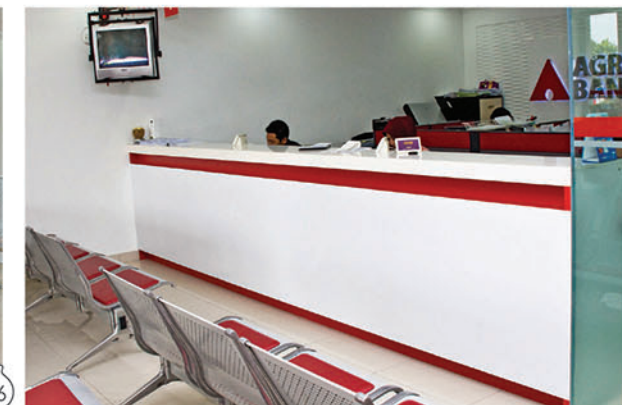


maiTMGallery



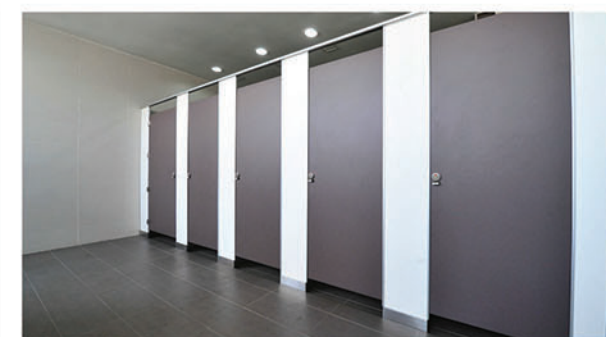
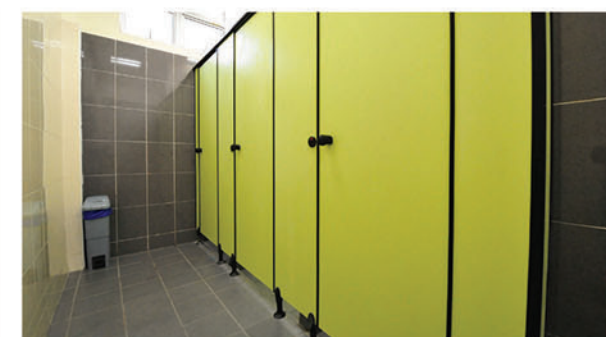


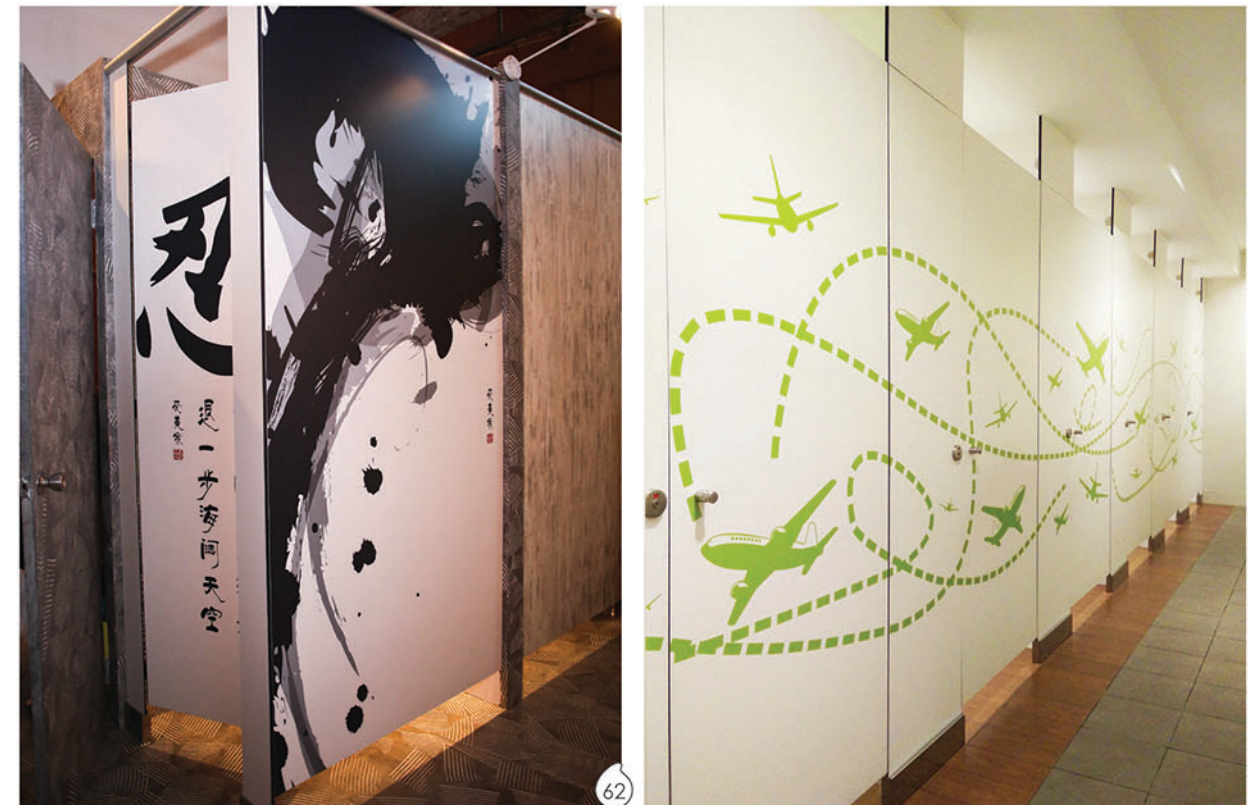
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