**GREEN PROCUREMENT FOR GREEN BUILDINGS**

In order to achieve the vision of a low-carbon and energy-efficient future, the environmental performance of each and everyday building product cannot be left to chance, as buildings are permanent structures in place for decades at a time. As such, the materials used in its construction play important roles in ensuring that the building’s footprint and impact on its surrounding environment is as small as possible. Green building materials certified for their environmental performance, coupled with sound green building design and technology along with an emphasis on sustainability, will definitely go towards creating buildings which are greener and healthier for both occupants and the environment.

**ASSESSING ENVIRONMENTAL PERFORMANCE**

So how does one determine if a particular green building product is indeed green? As a dedicated certification scheme for green building products and materials, the Singapore Green Building Product (SGBP) certification scheme – managed by the Singapore Green Building Council (SGBC) - provides a one-stop solution for the certification and subsequent selection of sustainable building materials. While the Buildings and Construction Authority’s (BCA) Green Mark Scheme certifies the complete building for its environmental performance, the SGBP does the same for the building materials that go into a building, helping to ensure that the final structure will be green, healthy and sustainable from inside-out.

Embracing a holistic assessment philosophy that closely mirrors the requirements outlined in the national Green Mark Scheme, products and materials certified by the SGBP can help green building projects obtain higher Green Mark ratings while also ensuring that the building is sustainable and healthy throughout its lifespan and beyond.

Certified green building products and materials are also good news for building occupants. No one would want to live, work or play in buildings that are "sick", with their harmful and detrimental effects on human health and productivity. For employers, having workers operate out of a sick building essentially translates to higher absenteeism rates, greater medical costs and needless work hours lost, which ultimately go towards diminishing the company’s bottom line. Therefore, green and healthy buildings make business sense as well.
A FRAMEWORK OF SUSTAINABILITY

The SGBP is structured on a holistic framework that covers energy efficiency, water efficiency, resource efficiency, health & environment protection as well as any other green features present in the product. In addition, the SGBP assesses products throughout their entire life cycle: from manufacturing to installation/operation and all the way to its end of life. Based on assessment of the product’s documentation and testing reports, it will be awarded a rating ranging from 1-tick to 4-ticks (Good to Leader), depending on the verified environmental qualities of the product. To date, more than 4000 building products across almost every conceivable category have been certified by the SGBP.

The SGBP certification covers a broad range of building products and materials, classified into six main categories. Individual product types are further classified into more than 80 sub-categories within these main categories, meaning that almost any building product can be certified for environmental performance. All certified products are contained in an easily-accessible online directory, where designers and consultants can easily source for and identify required green building products. For example, a consultant looking for certified paints can either type in a keyword or browse through all certified products of that particular category to locate a suitable choice.

Additionally, SGBP also maintains a directory of green building service providers who have a proven track record to work on green building projects through the Singapore Green Building Services (SGBS) certification scheme. These organisations are accredited based on their track record and emphasis on sustainability, allowing the industry a meaningful point of reference for their building projects.

Completing the value chain, SGBP has since April 2019 taken over the administration of Singapore’s Green Mark Accredited Professionals (SGBC-GMAs). The men and women behind the nation’s high-performance green buildings (previously known as Green Mark Managers and Professionals),

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Covering the full spectrum of the green building ecosystem, SGBP’s certification programmes complement the Green Mark Scheme, with certified products and services helping green building projects to secure higher ratings by accruing bonus points. The accredited professionals also help to ensure that green buildings are designed and constructed to qualified standards, imparting their knowledge and expertise to continually push the envelope for energy efficiency and built environment sustainability.

SGBC regularly engages with building owners, designers and consultants to spread awareness of SGBP certifications, through purpose-organised seminars, sharing at partner events or during green building conferences. Trade shows and exhibitions such as the annual Build Eco Xpo Asia event held virtually for the first time in September 2020.

The SGBP Green Mark Professional Qualification Scheme not only provides the green building community with a continuing education and development framework to stay abreast of key green building trends and developments, but will also allow for the meaningful sharing and transfer of knowledge with regional and international counterparts. In light of the current situation that restricts the organisation of in-person events, SGBP has organised more than 15 industry-focused webinars since April 2020 for SGBP-GMAs to continue their professional development.

AS COOLING SHOULD BE

Air-conditioning has become a regular part of daily lives, with most of our places and spaces equipped with air-conditioning systems to help cool the buildings. Air-conditioning alone can account for more than 50 percent of a building’s total energy consumption and with rising global temperatures, this figure may increase further. Striking a delicate balance between cooling requirements and energy efficiency will be key as the built environment strives to move into a low-carbon future.

Homegrown enterprise and SGBP Member Ecoline Solar Pte Ltd has developed a solar-thermal hybrid air-conditioning system that leverages harnessing sustainable solar and ambient thermal heat energy to reduce the energy required for cooling. The Therm-Aire system (SGBP ✓✓) is essentially a conventional air-conditioning system paired with an evacuated-tube thermal collector filled with a novel medium designed by a team from the National University of Singapore (NUS). To ensure long-term sustainability of this system, the thermal collector uses biodegradable materials and medium. When in operation, the collector absorbs solar energy and ambient heat to heat up the refrigerant in the system, reducing reliance on the air-conditioning unit’s compressor to pump refrigerant through the system which drastically lowers energy consumption and heat emitted. This hybrid cooling system has consistently helped to reduce energy consumption by 30-50 percent. The return on investment is typically two years, making it a very attractive option for many who are passionate about reducing their carbon footprint.

By harnessing surrounding heat, this system also helps reduce Urban Heat Island effect and potentially resulting in a lower outdoor temperature if more of such systems are deployed. Ecoline is also seeking experts in this area to help study the impact of this and have reached out to some research institutes for collaboration discussions.

As with common inverter systems, Ecoline Solar’s technology can be applied to commercial, industrial and residential buildings, with a number of local buildings already making use of the system to generate cost savings. The JOULES Smart Lab @ Bukit View Secondary School – a community-industry cross collaboration project catalysed by SGBP – has a Therm-Aire system in place to not only help to sustainably cool the one-of-a-kind green classroom but also to serve as a learning feature for the students.

In line with global paradigm shifts towards greater environmental sustainability, greener and more sustainable cooling systems will help to bolster the energy efficiency of the built environment and lower global carbon footprint, just as cooling should be. ✗
CREATING BETTER LIVING SPACES

Over the past decade or so, the building and construction landscape has undergone a shift towards greener, more climate-resilient building materials to address the challenges of global warming and climate change. More recently in the wake of the global pandemic, the emphasis on health and wellbeing has never been greater, and the built environment is in a prime position to deliver healthy, equitable, resilient spaces and places for people to live, work and play in the new normal.

The industry has been responding to the call for better ways to design, construct and maintain a growing number of buildings. With materials continuing to play key roles in any type of building, organisations have been fervently developing new products and solutions to create better living spaces.

One such company is SGBC Member Tasblock Composite Pte Ltd. With over 30 years of experience in composite material manufacturing, Tasblock pioneered the innovation, engineering and development of next-generation renewable composite urban furniture and infrastructure products. With a wide range of solutions that can be deployed to almost every building type from residential apartments to disaster relief facilities, Tasblock’s products are stronger, lighter, healthier and more resistant to impact, weathering, termites and fungi.

In fact, the TAS SC001 Stadium Chair is the first-ever building product in its object category to achieve the highest-possible SGBP Leader 4-tick rating, a sound testament to the emphasis on sustainability that went into such a common and humble product. The chair has almost no volatile organic compound (TVOC) and formaldehyde emissions and incorporates recycled materials in its manufacture. When used in the thousands in sports stadiums or other similar facilities, these chairs will be able to help keep emissions low and create a better indoor environment for occupants and patrons.

As the world moves into a new business as normal, companies such as Tasblock will continue to develop cutting-edge solutions to help create a greener, healthier and more resilient built environment.
Optimising the Thermal Zone

**OPTIMISING THE THERMAL ZONE**

Insulation is one of the most important building features for comfort and energy efficiency. Proper insulation helps the building to remain comfortable and energy efficient without the need for extremely costly heating and/or cooling machinery that excessively consume energy. In the modern built environment where aluminium windows, doors and facades are commonplace, ensuring adequate and appropriate insulation can lead to tremendous energy – and cost – savings.

A market leader in multiple industries with a suite of innovative and market-oriented solutions, Technoform specialises in the optimisation of the thermal zone in windows/doors/facades, creating a comfortable indoor environment and keeping energy costs low. This results in improved thermal performance of the building envelope, a better energy footprint and a considerable reduction in carbon emissions.

One of its core solutions, the Thermal Break (SGBP✓✓✓), improves the thermal performance of windows, doors and facades. Connecting the exterior and interior aluminium profiles, while keeping mechanical performance at the highest level, the solution prevents direct exchange of heat and cold – and create what is known as the “thermal break”. The result: minimised thermal conductivity, optimised building efficiency, and a better energy footprint.

Technoform's solutions have shown to be able to reduce energy consumption due to façade heat gain by more than 25 percent, considerably reducing carbon emissions. All these translate to energy and cost savings which can then be spent on other areas of the building, knowing that the building’s insulation is well taken care of.

With more than 50 years in the industry, Technoform works closely with its partners to develop thermal insulation solutions for the building façade. From consultation on design and optimisation of the thermal zone in facade systems to the support and documentation for the specification of Thermal break and Warm Edge Spacer solutions, Technoform stands ready to optimise your thermal zone.