

PART 2 - MANUFACTURING  
AND DISTRIBUTION

# ROLE OF CERAMIC TILES IN SUSTAINABLE DEVELOPMENT

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The concept of environmental sustainability and its applications in the ceramic industry has been raised due to the environmental issues related to the construction sector that is why Sustainability certificates are being obtained and it is a practical way to minimize environmental damage as well as social and economic.

They include selection criteria for the building's land, building materials, construction, use, and demolition stage. In continuation to our previous blog, we will be talking about how SGLS Certification can be processed and how does tile manufacturers contributes to Singapore's recently launched Green Project.

## THE GREEN PROJECT

Cities are needing more buildings than ever. But buildings produce a third of global carbon emissions and the climate emergency demands a swift transition to green buildings.

Building Sustainable Cities is a series sharing insights on how individuals and businesses can take action to forge a cleaner, greener tomorrow.

Green Building Council launches the Singapore Green Building Masterplan and Singapore Green Plan 2030 cements the island-state's convictions on sustainability, with a whole-of-nation effort designed to inculcate sustainability in every aspect of the industry and the community.

More recently, Singapore has raised its climate ambitions to reach net zero emissions by 2050, a major step up from the previous long-term goal to achieve net zero in the second half of the century.

As the built environment is responsible for more than 20% of the country's carbon emissions, there is immense opportunity and potential for green building to make a positive difference.

This is a nationwide movement to advance Singapore's national agenda on sustainable development and features five key pillars: **City in Nature, Sustainable Living, Energy Reset, Green Economy and Resilient Future.**

In order to achieve these pillars, the Singapore government will be introducing an array of new initiatives and targets in the areas of green finance, sustainability, solar, electric vehicles (EVs) and innovation.

It is likely that incentives may be provided to promote the development and deployment of technologies in solar power, EVs and certain aspects of green finance.

Incentives provided by the Singapore government could provide the impetus needed for Singaporean companies to enter into joint ventures with established global players or emerge as market leaders in the years to come.

## ➔ SINGAPORE'S 2030 GREEN BUILDING GOALS

1. To Green 80% of Buildings

2. 80% of new buildings to be Super Low Energy ones

3. 80% improvement in energy efficiency (from 2005 levels) for best-in-class green buildings

## ➔ WHAT IS SINGAPORE DOING?

Here, buildings make up over 20 percent of carbon emissions.

The government aims to green 80 percent of Singapore's buildings (by gross floor area) by 2030.

As at end-2020, 43 percent were deemed green.

Greenness is set out under the Building and Construction Authority's (BCA) Green Mark ratings scheme which stresses energy efficiency, but also considers how a building uses greenery, manages waste and water and maintains indoor air quality.

Currently, the Green Mark standards certify that buildings are 30-60 percent more energy-efficient than 2005 levels.

But the government says new buildings must now meet a stricter requirement of being 50 percent more energy-efficient.

In fact, BCA aims for 80 percent of new builds to be Super Low Energy ones that boast best-in-class energy efficiency, run on renewable energy and deploy intelligent energy management systems.



## ➔ WHAT ROLE DO TILE MANUFACTURER PLAY?

### 1. MANUFACTURING

#### • Input and Output of Materials

The consumption of raw materials, fuel and water, as well as the generation of emissions and waste products and their treatment, has been analyzed in relevance to sustainability.

In general, data on the consumption and production (including cogeneration) of electrical and thermal energy have been included in the inventory and assessment for the green mark certification.

For material and energy inputs all the impacts generated upstream (extraction, production and transport) were analyzed and for outputs all the impacts generated downstream were considered.

#### • Waste Management

Once a building has been demolished, it is assumed that 83% of the tiles are dumped at landfills and the remaining 17% are assigned to other uses.

#### • Water Consumption

The total amount of fresh water consumed by the system. It is calculated by adding up the total amount of water consumed throughout the life cycle of the product.

#### • Tile Weight

Variation in tile weight affects the amount of raw material used for their manufacture, influencing the primary energy which is required, atmospheric emissions, the amount of material that needs to be transported, etc.

To investigate the effect of this variable, an analysis was performed which indicates that to obtain a significant variation (higher than 10%) in the abiotic resource depletion and global warming potential categories a weight reduction of about 50% is required.

## 2. DISTRIBUTION

- **Transport or Distribution of the Product**

Fuel consumption as a result of transport and the emissions associated with it have been taken into account.

- **Management of Packaging Waste**

The management of packaging waste has been regarded as different, depending on the geographical area in each case taking the average data for different types of management (incineration, recycling or the dumping of waste at rubbish tips).

- **Installation of the Product**

The use of mortar adhesive during the installation of all types of ceramic tiles has been analyzed and considered.

- **Consumption of Materials**

Water and detergent consumption over a period of 50 years has been calculated, depending on their use (domestic, commercial or health care).

- **Impact**

During its use phase the product is regarded as being inert, consuming no energy and producing no significant impact on the environment (it emits no volatile compounds and does not make compounds soluble in water, etc.).

On average, energy consumption of ceramic tiles account for less than 1% of the total weight of buildings, we can regard the energy consumption associated with dismantling them as insignificant.

- **Primary Energy Consumption**

The total gross amount of calorific energy, derived from renewable and non-renewable sources, which is consumed by the system, taking into account both the direct consumption required to manufacture the product and indirect consumption derived from activities performed to obtain direct energy.

The porcelain and ceramic tile industry understand that ecology is not just good intentions but a practical issue of our industry and our global community.

At Heritage Ceramics we are committed to the environment and recognize that sustainability is an important and ongoing mission.

We, as manufacturers ensure that all the material, we supply meets our sustainability standards. Ceramic and porcelain tile are made using 100% plentiful, natural materials.

We are producing our material on merge technological expertise, innovative design and a commitment to environmental sustainability to produce trendsetting tiles in a zero-waste manufacturing process.



Heritage Ceramics will be participating in this year's SME Centre Conference 2022: Navigating the Future of Sustainability.

Jointly organised by SME Centres and supported by Enterprise Singapore, the SME Centre Conference is an annual event that aims to address some of the challenges faced by the SMEs.

This year, the conference seeks to highlight current trends in sustainability, and how businesses can leverage opportunities to grow and stay ahead of the sustainability curve.

Stay tuned for more updates, coming soon. If you have any questions or concerns about your project, please feel free to get in touch! Email us [info@heritageceramics.com](mailto:info@heritageceramics.com).



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