

Roof & Facade

ASEAN Edition

Asia

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Stone-age

“As travertine stones are generally soft, the process of cutting the slabs need to be done very carefully and meticulously.”

Centrally located along the bustling Orchard Road is Hotel Jen Orchard Gateway. Boasting subtle architecture and aesthetics, the hotel is one-of-its-kind. Marble stones which adorn the interiors of the hotel form one of the key features of the hotel. Supplied by Polybuilding (s) Pte Ltd, the marble stones were carefully selected to accentuate the look of the entire hotel.

Wall space

Silver Travertine marble stones from Italy – unfilled and honed – adorn the internal walls of the hotel. They were used to clad the passage way and lift lobby walls. These stones are strong in character with linear veins that flow horizontally. As these veins can seem very distinct with layers that range from being dark to light if cut individually, the sizes that were installed had to be cut specifically to fit the walls seamlessly.

Floor flow

Baltic grey marble polished finished has been used as flooring. Especially imported from Turkey, the marble which flows through the hotel is pretty unique with wild variation, which effortlessly highlights the natural beauty of the stones.

The architect have specially mixed the stone sizes – 900 x 900 x 20mm, 1800 x 600 x 20mm and 900 x 300 x 20mm – to create a pattern. This provides ensures that the area looks more quirky and vibrant. What's more? The translucent Vanilla Venato Onyx marble from Turkey, which allows light to penetrate through it gives the reception counter top a stunning look!

Key challenge

As travertine stones are generally soft, the process of cutting the slabs need to be done very carefully and meticulously. The challenge is to ensure that the veins match each other seamlessly to ensure the flow of space and design. Hence, the slabs need to be marked carefully, layer by layer.

The stones are then subsequently transported to the site, where a dry-lay process takes place on the site. Layer by layer and row by row, close to the markings, the stones are placed together. Moreover, during installation, care must be taken that each of the marble stones are huge in size, the installation needs to be done skillfully. Any damage to any of the pieces would affect the overall design!



➤ Baltic grey marble polished finished has been used as flooring.



➤ Silver travertine marble stones adorn the internal walls of the hotel.

▶ Porcelaingres's new Quartz_Stone collection

Stone is a key material in architectural tradition, an archetype of strength and resistance over the centuries. Choosing natural stone as the reference in an architectural project means attributing to it meanings going beyond the specific features of the building and the aesthetic and cultural styles of a given time in history. For these reasons, the indoor and outdoor surfaces inspired by the strength of stone and the masses of compact rock formed of natural mineral substances 'accompany man on his way' and testify to 'the tenacity of nature'.

Nature that bursts forcefully onto the architectural scene and defines the iden-

tity of spaces, making it possible for exterior surfaces to ensure visual continuity with the landscape around them or to add an important natural element to the urban context. This is the reference for the design of Porcelaingres's new Quartz_Stone collection, a line of porcelain tiles featured at Cersaie 2015. Quartz_Stone porcelain tiles feature the distinguishing signs and precision of the latest new Porcelaingres technology, capable of creating and defining intense, exclusive spaces. For example, the dynamism of black, already laden with its own innate elegance, may be seen in the tiles in the Quartz_Stone collection as under-

lining sensations of energy and strength in indoor and outdoor spaces.

In the other colours in the series, featuring the light effects created by different hues of grey - beige, grey and light grey- spaces are characterised by a 'vital authenticity'. Perfect for responding to the multiple demands of contemporary architecture, porcelain tiles are particularly ideal for spaces where their simplicity underlines sober, clean design. The final result is a room in which the indoor and outdoor floors appear brightly lit and spacious thanks to the warm hues of natural stone.

▶ Exploring the Monolithic Stone Lalibela Churches

Lalibela is a town located in the heart of the Ethiopian plateau, about 700 km north of Addis Ababa. The magnificent rock hewn Lalibela churches have turned this mountain town into a place of pride and pilgrimage for worshipers of the Ethiopian Orthodox Church, attracting 80,000 to 100,000 visitors every year.

Lalibela churches have the most impressive architectural designs in Ethiopia and they are included in the UNESCO list of World Heritage sites. These churches are a group of eleven monolithic and semi-monolithic structures that were built by carving a single huge block of rock, without adding any external building materials like bricks or concrete about 800 years ago.

These famous churches were built in a variety of styles. Some were chiseled into the face of the rock, others stand as isolated blocks, like the iconic church of Saint George, constructed in the shape of the cross.

▶ Old stone pagoda to be restored

Archaeologists have begun the restoration of the seventh-century Baekje-era stone pagoda at the UNESCO-registered Mireuksa Temple site in Iksan, North Jeolla Province. Its architecture composes a rare mix of features of wooden and stone pagodas, offering understanding in the transition of Buddhist pagodas in terms of materials and styles.

The secret behind the durability of the stone pagoda, composed of thousands of pieces of sculpted stone, was the thin layers of soil between stone blocks. The layers acted like cushions, dividing the weight from top to bottom. Based on this ancient construction technique, modern scientists and engineers came up with a new method - mixing soil with minerals - to make the effect last longer.

The restoration team is using as many old stone pieces as possible and new stones only when necessary. Some old pieces are used in whole and some are cut and incorporated with new materials for enhanced durability.

▶ Sultan Palace uses coral stones

Sultan Palace Development Limited is using coral stone to construct its family holiday resort at the coast, greatly reducing its construction budget and giving a natural look to its Swahili Arabic designed villas, condos and beach houses.

The use of locally available building materials, instead of importing or transporting them from other regions, can offer a significant reduction in construction costs, saving builders the financial strain that comes with high construction budgets.

"We are making use of coral stones in our development as it is an ample resource on our plot and is very suitable for crafting and sculpturing the Swahili Arabic designs in the buildings," said Liu Tiancai, General Manager, Sultan Palace Development Limited.

"Using corals for the exterior wall coating, alone, saves us close to Sh8m worth of paint," he said.

Coral stones stand out as building material because they reduce maintenance costs, are hazard resistant, and are durable. As a result, natural coral is used in buildings in coastal settlements throughout the Indian Ocean, Persian Gulf and Red Sea, further favoured for its availability, pricing and decorative characteristics.

It is even a high status addition in some regions, used in some of the most glam-

orous mansions and hotels in the US, including Coconut Grove and West Palm Beach, which have brought coral in from areas like the Caribbean Islands and Florida's southern coastal strip.

In Kenya, the use of coral stones in construction is less common, based on the widespread assumption that the stone is soft, and with many developers and home owners believing that the most expensive materials are the most durable, which is not always the case.

In fact, while freshly cut coral stones are naturally moist, making them soft, exposure to the atmosphere through a six to twelve month process called seasoning makes them hard and compact. The seasoning additionally sees the stones form a crystalline film on their exterior, which makes them water resistant, making them friendly for rain prone areas.

"Low cost development is done by proper management of resources, deploying often ancient techniques and know how, together with modern science, to draw the maximum gains for locally available building materials," said Liu.

Sultan Palace was also attracted to the use of the coral stones' by their aesthetic and natural properties. The structure and colour of corals are a designers dream, creating great contrast with other materials, such as timber, floors and furniture.

"Coral stone heats more slowly and retains less heat than concrete blocks, and cools more quickly in the evenings, keeping the walls of buildings cool when we use it as a facing on the outer side of concrete walls. The coral is therefore hugely beneficial in creating a naturally cool environment even during the highest temperatures experienced at the coast," said Leo.

The Chinese developers are also using coral in the development's landscaping to create paths that give the resort a natural touch, carving intricate Swahili designs into flower pots, and adding additional decorations in their 15.5 acre flower garden and indigenous trees nursery, and saving the developers a further Sh1m in costs compared to the cost of using other materials such as concrete for paving.

Sultan Palace is also building its swimming pool area with coral stone, making use of its anti-slipping and easy to clean properties.

"It is an extraordinary multiple gain to eliminate much of the concrete, which is anyway aesthetically unpopular, from the environment, while gaining cost savings and extra utility, all by switching to local materials," said Liu.

The first phase of the Sultan Palace retreat will be completed in December 2016.

▶ International Stone, Marble and Ceramic Show 2015 by Expotim

Expotim International Fair Organizations launched the first-ever International Stone, Marble and Ceramic Show 2015 in Singapore. Authorised by the Turkish Ministry of Economy to organise exhibitions internationally, Expotim's mission is to bring leading international sector-specific fairs to the world's business hubs for companies worldwide to meet.

The opening was witnessed by His Excellency Hakki Taner Seben, Ambassador of the Republic of Turkey, Ahmet Ilihan Calikoglu, Chief Commercial Counsellor and Hurok Karli, Commercial Counsellor, Turkish Embassy in Singapore and leaders and key players from the property, building and construction industries in Singapore and the region. Also present were members of the Istanbul Mineral Exporters' Association (IMIB), a professional non-profit association founded in 1976, which deals with all export activities in minerals sector.

The show was made up of exhibitors from Turkey who form the largest country pavilion, international exhibitors from China, India, Italy, Portugal, Oman and Vietnam along with Singapore-based companies. The exhibitors showcased



their natural stone, marble and ceramic products for the building industry till December 11, 2015. International Stone, Marble and Ceramic Show 2015 is Expotim's first show to Singapore following the recent successfully concluded negotiations for the Turkey-Singapore Free Trade Agreement (TRSFTA) which will boost greater economic cooperation between both sides (see fact sheet for more information on TRSFTA).

Visitors to the show discovered an amazing range of exquisite and durable products in natural stone, marble and ceramics and accessories and be the first to see the latest in tomorrow's trends. The show promises to be a meeting place

for experts and industry players from the segments of natural stone, natural stone technology and accessories. Visitors will also learn new ways of increasing the attractiveness and the market share of natural stones.

Natural stones are admired worldwide as a premium construction material and the choice of builders, architects and designers. Technology and advanced processing techniques have made these eco-friendly creations of Earth more accessible to the industry and also to home owners.

Turkey, situated on the Alpine Belt, where the world's richest marble deposits are found, is among the world's oldest natural stone producers. Turkey's importance as a world producer of natural stone producers is reinforced by the fact that it is renowned for its developing industry, production technology, its richness in variety and reserves, sector experience, abundance of raw materials, ease of shipment in sea transportation, its dynamic sector structure, the new technologies being utilized and its broad colour spectrum.

The show presenter, Expotim has organised four business networking ses-

sions for the leaders and players of the property, building and construction industries in Singapore and the region to meet with the exhibitors and to facilitate initial business discussions.

