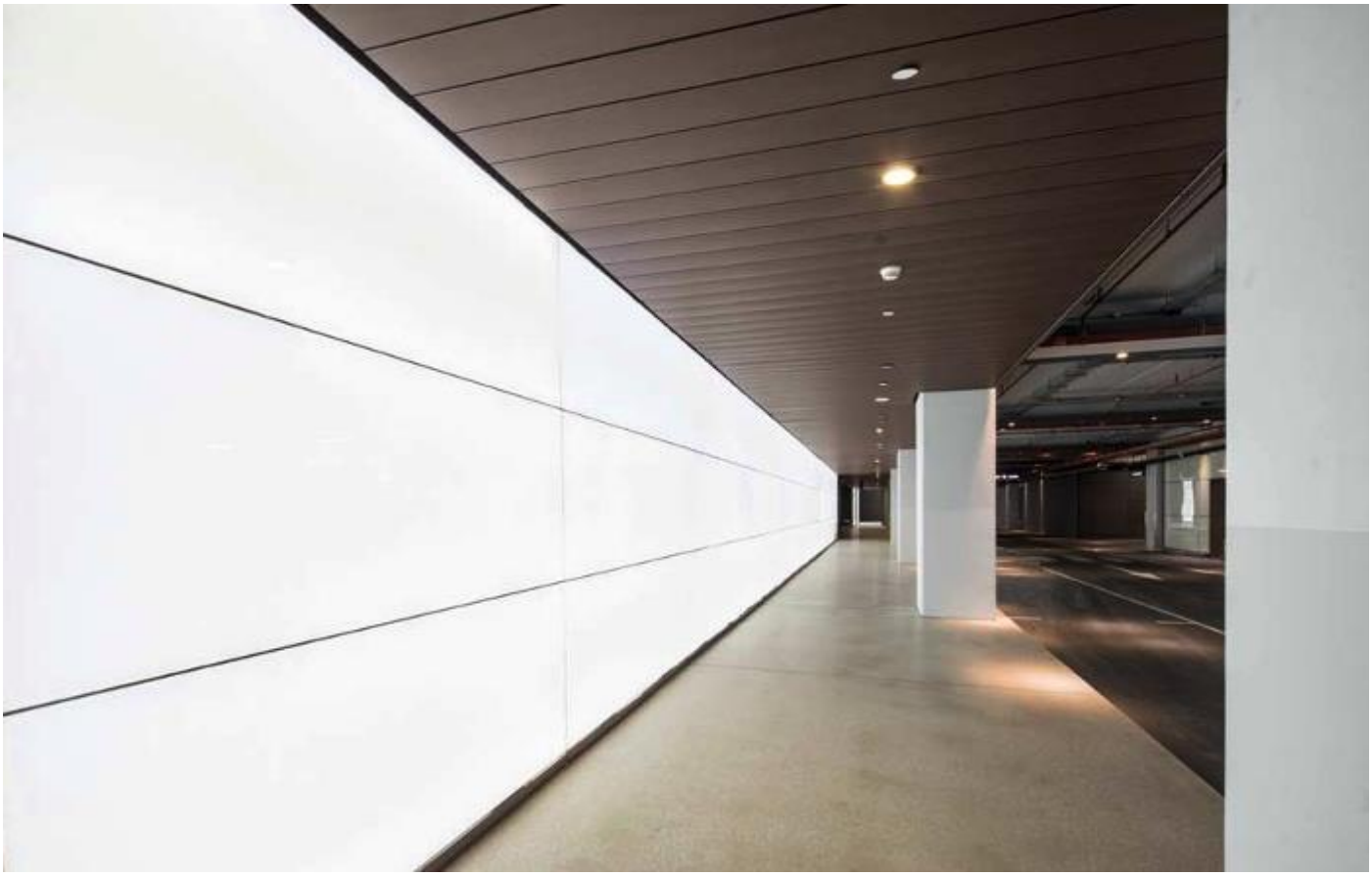

MAGNA.
GLASKERAMIK

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WORLD ALLIANCE for EFFICIENT SOLUTIONS | by SOLARIMPULSE FOUNDATION

MAGNA GLASKERAMIK REFERENCE LIGHTWALL – Masdar PRT Stations

Foster and Partners Architects + GPI Design, Ohio.

Sustainable Cities: Masdar City is one of many attempts around the world to contribute to knowledge of sustainable city-making. A few have made notable strides toward reducing carbon emissions, conserving water and reducing waste. Stockholm's ability built up over decades, to capture its waste and turn it into energy is exemplary. Dutch cities have long used careful planning to allow the most densely populated country in Europe to maximize preservation of farmlands. Copenhagen's EnergyLab Nordhavn focuses on managing complex, decentralized energy flows, and its emphasis on heating rather than cooling makes it a kind of northern counterpart to Masdar.

All of the more advanced cities share one or more increasingly common practices:

- Diverse, decentralized sources of energy production
- District-based systems for heating and cooling (as opposed to building-by-building systems)
- Advances in energy storage to allocate energy where needed in an open "energy market"
- Water conservation
- Regulation and tax incentives that favour energy efficiency in buildings, materials and design strategies
- Varied, integrated transportation systems that encourage mass transit, bicycles and walking

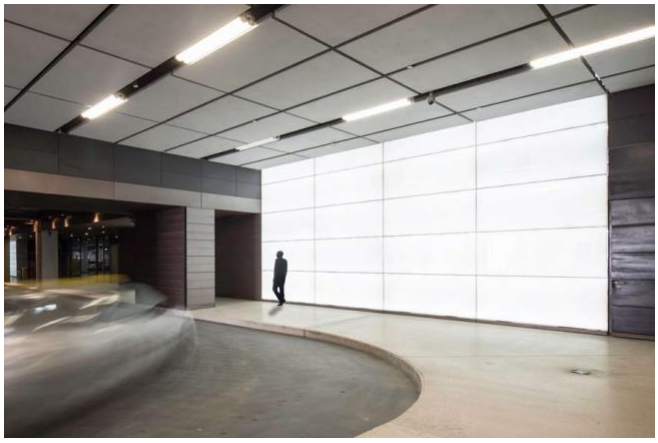
Masdar City in Abu Dhabi, designed by Foster and Partners, is developing into the world's first carbon neutral and zero-waste city. In its first phase, GPI Design showcased its sustainable feature wall design when commissioned to create, engineer, fabricate and install nearly 3,000 square feet of backlit glass feature

walls throughout the city's Personal Rapid Transit Station.

To meet the ambitious environmental considerations demanded by the project, GPI supplied a moveable/reusable illuminated wall with 100% upcycled Magna Glaskeramik illuminated by custom LED panels. The streamlined backlit wall design, coupled with sleek recycled glass surfaces made from low-E solar glass waste stream and energy-efficient lighting with an extended life span, allowed the stringent sustainability requirements to be met.

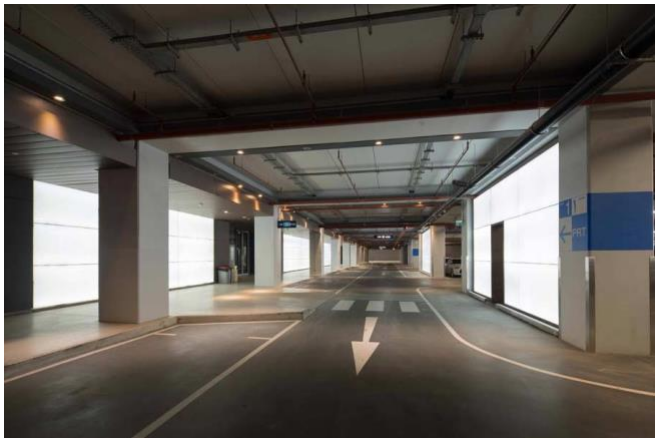
Polar White Polished Type Glaskeramik

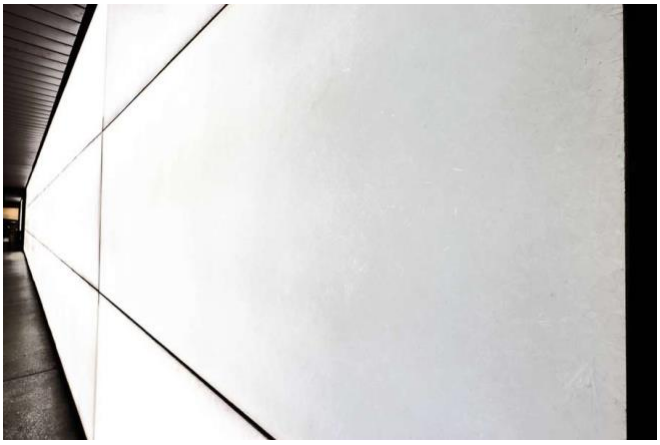
Magna manufacture the material from glass industry waste-stream, in this case from Solar PhotoVoltaic Glass producers, these industries forming flat glass or bottle glasses, the waste is then reprocessed in a controlled way without additives and the outcome reflects the input material. Green beer bottle source will produce a dark green and low iron glass from solar panels can provide a very white coloured Glaskeramik as seen here, it is also translucent. This material is circular as it has no additives (such as a resin bond which many companies resort to reduce the issue of tension) and is categorized as crystallized glass ceramic in its nature and character much as a tested ceramic slab.



The technology allows for the growth of these strong crystals and deals with the air bubbles captured by the sintering process whilst also removing the tension in the sheet formation. This means that the true advantage against cast glass types is that the material slabs (of both 2780x1260mm but also 3500x1500mm maximum sizes) can be premade and stocked in quantity affording a swift processing for projects. The material thus covers the glass, ceramic, cast glass and the natural stone market but offers light translucency and randomized interior details.

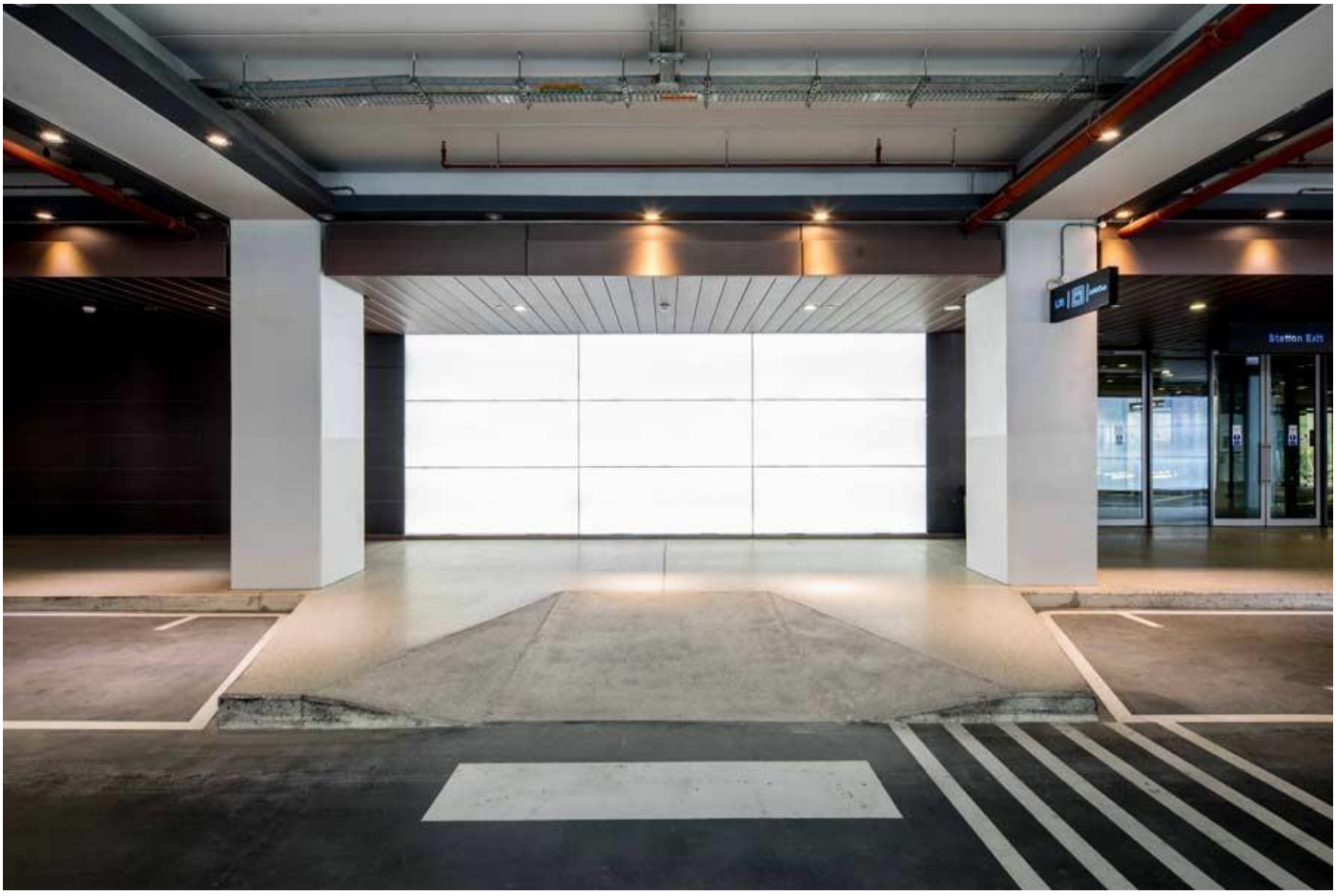
The patinated, natural surface offers an unusual textural and aesthetic effect in the changing light and weather conditions which makes it stand out amongst the usual façade solutions.

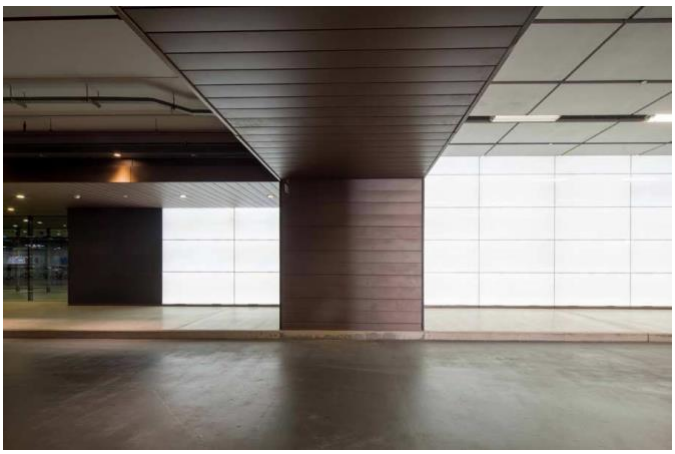


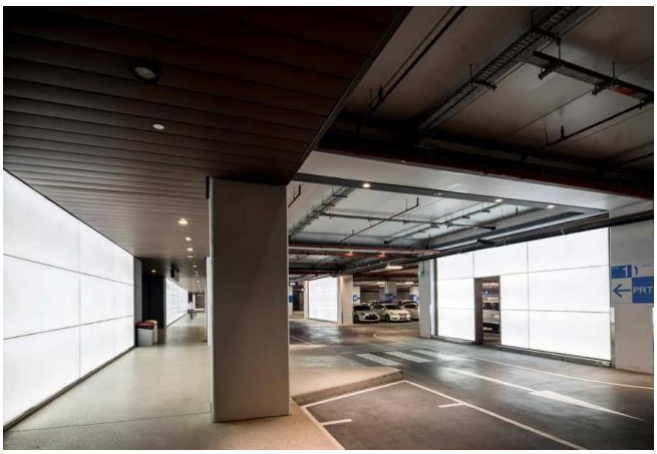


The material is made in Germany with a wealth of leading glass consultancy and technical advice in order to create a stable tension-free outcome. If you would like to know more about this exciting new material or require technical advice, please contact the author or via the manufacturers website.

www.magna-glaskeramik.com







Magna Glaskeramik GmbH is pioneering the circular economy in its production of 100% recycled and 100% recyclable façade material which is being taken up by global accreditation and test data, the water use is also circulated within the plant and the energy use is offset by a large solar array on the roofscape.

European Test Approval for Anchored Rainscreen, Environmental Product Declaration, ISO 9001, EN 12600, Cradle2Cradle Gold Cert. Independent Label Details www.solarimpulse.com

Photo Credits: Terry Wier

Author and architectural consulting: Andrew Savile ARB, Low Impact Ltd.