

Dekton® energy efficiency guide



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Index

Dekton energy efficiency guide

1

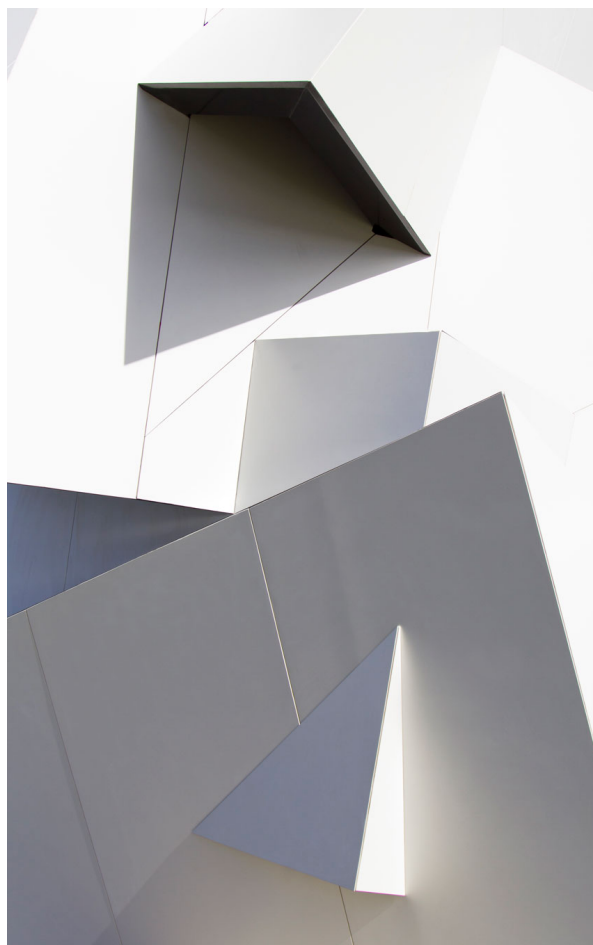
INTRODUCTION

2

DEKTON FEATURES

3

COSENTINO'S CONTRIBUTION
TO THE ACHIEVEMENT OF
LEED CREDITS



4

COSENTINO'S CONTRIBUTION TO
THE ACHIEVEMENT OF BREEAM
CERTIFICATION

5

CASE STUDIES – EXAMPLES

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INTRODUCTION

A trend that aspires to become the standard

The sustainability of architectural projects has gone from being an interesting and desirable addition, to representing a real need that must be considered from the very beginning of the design stage.

A building or infrastructure will be sustainable as long as it complies with different criteria, from its impact on the environment where it is located, to the origin of the materials used in its construction. One of the most important aspects when it comes to sustainability is also the reason behind this guide: the assessment of energy efficiency.

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INTRODUCTION

The added value of energy efficiency in construction

A building is energy efficient when it is designed to minimise the amount of conventional energy used on a daily basis. It is not just about saving on the energy bill. There are many other benefits to this approach: easier fitting of materials, lower maintenance costs and reduced obsolescence and material degradation.

In order to undertake the construction of a sustainable energy building, two types of strategies must be developed: passive design strategies, focused on taking advantage of the climate and the environment in which the building is located; and active design strategies, such as the use of different renewable energy sources to supply the building.

The purpose of this guide is to explain the use of Dekton, a state-of-the-art material in construction, to ensure that every architectural project will easily comply with the most vital energy certifications.

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Dekton: the ultra-compact surface at the forefront of the industry

Cosentino's ultra-compact surface, Dekton, is the result of an ambitious R&D project designed to produce a material that responds to the needs of both architects and designers: resistant, versatile surfaces, with a wide range of colours and capable of meeting today's sustainability and energy efficiency challenges.

Dekton uses exclusive TSP Technology (Sinterized Particle Technology), a high tech process which represents an accelerated version of the

metamorphic change that natural stone undergoes when subjected to high temperatures and pressure over thousands of years.

TSP technology synthesises truly innovative procedures from the most advanced technology industries. This evolution represents a technological and industrial leap capable of generating a new process, a revolutionary material and a leading product.



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Technical features that make Dekton unique

Resistance and sustainability together in one material



Dekton has a series of technical features that make it the perfect material for architectural projects focused on design, durability and sustainability.

High UV resistance

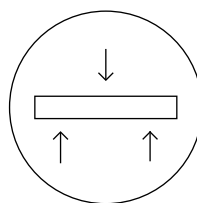
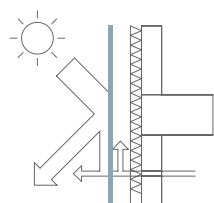
Cosentino's ultra-compact surface is highly resistant to ultraviolet (UV) rays and its colour does not fade over time, making it the perfect choice for both indoor and outdoor applications.

Mechanical resistance

Dekton has a flexural strength of $\geq 45\text{N/m}^2$. Therefore, it is the best choice compared to ceramic materials, such as extruded ceramics (A1b) or dry pressing ceramics (B1a), which have values up to twice as low.

Highly resistant to scratches

Dekton is a surface with high resistance to scratches. This feature is crucial for high traffic flooring and exposed areas in the lower parts of the façade.



Chicago 444 – United States – 235m² of Dekton Aura
15 Bookmatch cladding

A surface designed to withstand the elements



Colour stability

Dekton's manufacturing process allows for control of both pigmentation and aesthetics of the material. The result is a long-lasting product that does not fade over time. The surface will maintain the same appearance as the day of installation.

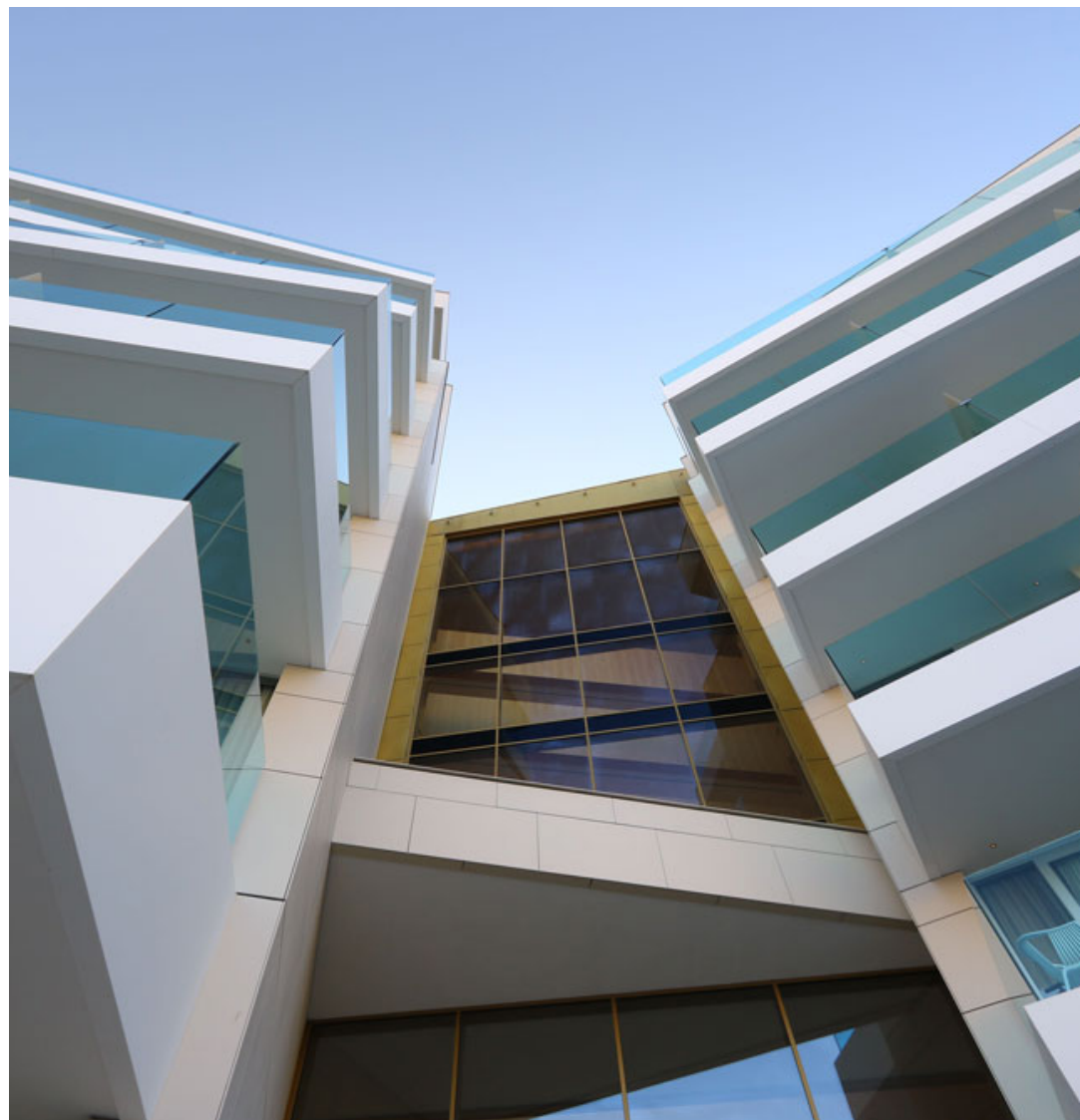
Abrasion resistant

Dekton is even more resistant to abrasion than ceramic, making it the ideal surface for commercial applications and high traffic areas such as flooring. While other surfaces show wear over time, Dekton's finish will last the life of the product, with no need for replacements or repairs.

Ice and thaw-resistant

Resistance to ice/thaw cycles is a key feature for outdoor applications. Dekton's low porosity and low coefficient of thermal expansion ensure exceptional performance even in the most extreme temperatures and environments.

Dekton Blanc
Concrete closeup



Hipotels-Spain - 74,440 m2 of Dekton
cladding, assorted colours

Maintenance made easy

Dekton has been designed to ensure simple daily maintenance both in outdoor spaces –exposed to dirt and aggressive elements–, and indoors –where daily use and high traffic damage the surfaces–.

Non-porous material

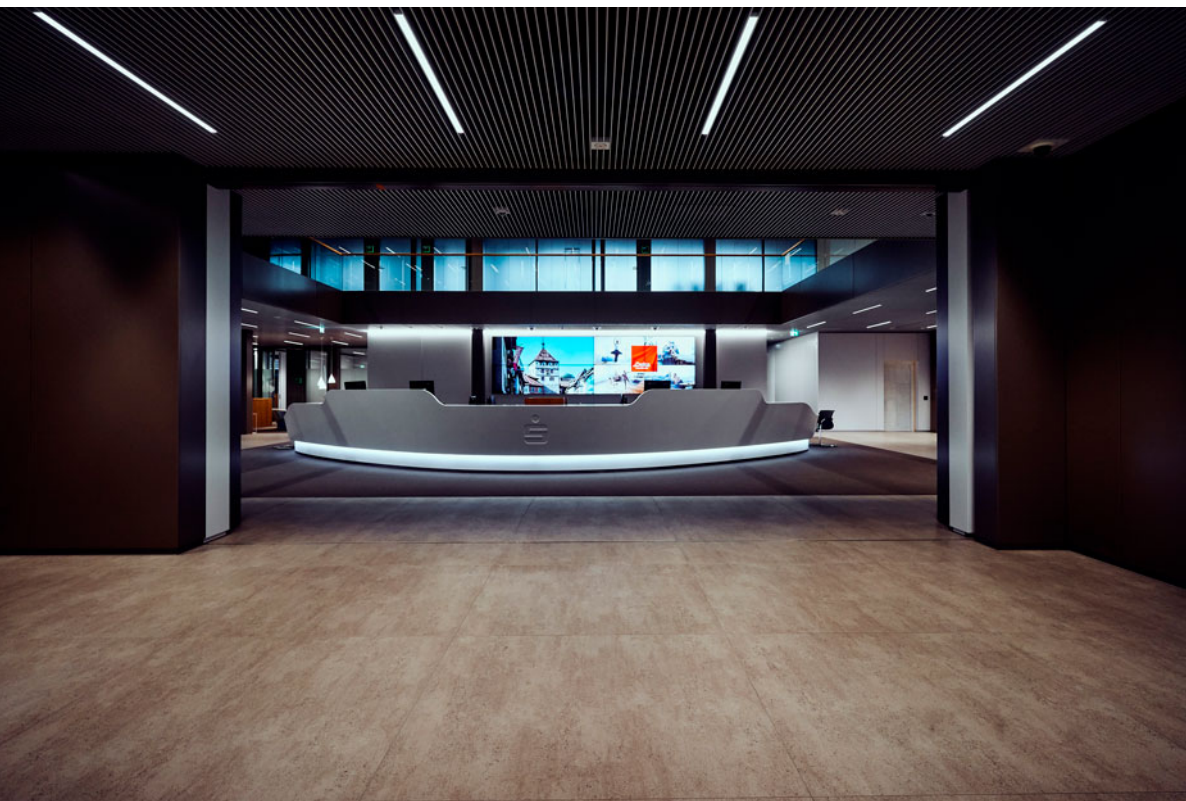
Dekton's porosity is virtually zero and does not need to be sealed. It repels liquids so that they do not penetrate the surface, thus facilitating maintenance and cleaning tasks.

Fire and heat resistant

Dekton has the highest classification in terms of fire re-



Dekton Keon closeup



sistance: A1. It is not affected by sudden changes in temperature, as it is resistant to thermal shock.

Dimensional stability

Dekton's geometric characteristics provide excellent dimensional stability. Its flatness, thickness, straightness of the edges and orthogonality, among others, facilitate the fitting, preventing installation errors such as gaps or size differences between joints.

Moisture and saltpetre resistant

Dekton has been designed to resist high moisture and marine environments, where saltpetre and atmospheric conditions are aggressive factors that can be very damaging to other materials.



Leed Credits

About LEED Certification

LEED (Leadership in Energy and Environmental Design) is the most widely used sustainable building rating system in the world.

LEED provides a framework for classifying eco-friendly and highly energy-efficient buildings, and is available for almost all types of architectural projects.

When constructing a building, taking into consideration LEED certification is key to reducing costs before, during and after the project.



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Leed Credits

Cosentino's contribution to the achievement of Leed Credits

Cosentino designs its products to help designers and architects meet the requirements of LEED certification.

From the materials manufacturing to the improvement and refinement of their technical features, the entire production process is focused on providing maximum energy efficiency for each project.

Dekton ultra-compact surface is at the forefront of the industry both technically and in offering opportunities to develop sustainable projects.

Lagasca 99- Spain - 180 large format assorted slabs - Dekton, Silestone and Natural Stone



Sustainable Sites

Heat Island Effect



Materials and resources

Construction and Optimization
- Environmental Product Declaration

Building product disclosure and optimisation - Sourcing of raw materials



Indoor environmental quality

Low-emitting materials

Thermal comfort



Innovation

Innovation



Regional priority

Regional priority



Leed Credits



Sustainable sites

Cosentino's contribution to the achievement of Leed Credits

Heat Island Effect

Objective

To minimise effects on microclimates and human and wildlife habitats by reducing heat islands.

Requirements

Non-Roof measures

- a) Using devices with $RS \geq 0.33$ to provide shade
- b) Using paving materials with $RS \geq 0.33$

Roof measures

Using roofing materials with $RSI \geq 82$ or $RSI \geq 39$ (depending on the slope)



+2 LEED credits

Solar Reflectance Values

SR= 0.462 grey colours
SR=0.674 cream colours
SR=0.79 white colours

SRI= 52 grey colours
SRI= 81 cream colours
SRI= 98 white colours

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designed by **COSENTINO**

Leonardo Tower - South Africa - 24,000
m2 of Dekton Gada cladding

Dekton Keon closeup



Leed Credits

Cosentino's contribution to the achievement of Leed Credits



Materials
and resources

Building product disclosure and
optimisation - Environmental
Product Declaration



+1 LEED
credit

Dekton is EPD certified

The carbon footprint
reduction plan is under
development

Objective

To encourage the use of products and materials for which life-cycle information is available and that has environmentally, economically, and socially preferable life-cycle impacts.

Requirements

1. Environmental Product Declaration
2. Multiple Optimisation

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Gunni&Trentino - Spain- 700m2
Popular Warm customised colour



Leed Credits

Cosentino's contribution to the achievement of LEED credits



Resources and materials

Building product disclosure and optimisation – Sourcing of raw materials



+1 LEED credit

Reused material:
- Dekton Trillium and Radium, up to 80%
- Dekton Eter, up to 30%
- White range, various percentages

Objective

To encourage the use of products and materials for which life-cycle information is available and that has environmentally, economically, and socially preferable life-cycle impacts.

Requirements

To use products from at least five different manufacturers that meet, at least, one of the following responsible sourcing and extraction criteria. The total value of the construction products used in the project that meet these criteria must represent, at least, 40% of the total value of construction products permanently installed in the project.

- a) Reuse of materials
- b) Recycled content

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designed by **COSENTINO**

University of Missouri – Dekton Domoos and Spectra ventilated façade



Leed Credits

Cosentino's contribution to the achievement of LEED credits



Indoor
environmental
quality

Thermal comfort



+1 LEED
credit

Dekton is certified for façade systems

 **DEKTON**[®]
designed by **COSENTINO**

Objective

To provide a comfortable thermal environment that supports and promotes occupant productivity and well-being

Requirements

To meet all requirements for both design and technical comfort control.

To design the building envelope in order to meet either ASHRAE Standard 55-2017 or ISO 7730:2005 requirements

Toha building – Israel – 25,500m²
Dekton customised colours

Dekton Soke, one of the colours used in Toha

Leed Credits

Certification for façades

ETA 14/0413



European Technical Evaluation
Certificate issued in accordance with
EU Regulation 305/2011 for Dekton as
exterior cladding in ventilated façades.

NOA



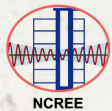
Certificate issued for the Dekton
ultra-compact façade system in
accordance with the applicable
regulations on construction materials
inspected by Miami-Dade County.

BBA



Technical certificate issued for
Dekton ventilated façade cladding
panels for their use in the façades
of new or existing buildings.

NCREE Earthquakes



Reports on seismic testing
issued by the National Center
for Research on Earthquake
Engineering in Taiwan (NCREE),
a seismic simulation laboratory.

DGNB



Product characteristics labelling for
façade application issued with the
German Institute for Sustainable
Construction, DGNB according
to its acronym in German.

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Leed Credits

Cosentino's contribution to the achievement of LEED credits



Indoor
environmental
quality

Low-emitting materials



+1 LEED
credit

VOC GREENGUARD GOLD

Requirements

To use materials inside the building (and within the waterproofing membrane) to meet the low emission criteria listed below.

- a. FLOORING: At least 90% of the flooring -of the installed area total cost- to meet the VOC content requirements.
- b. WALLS: At least 75% of the walls -of the installed area total cost- to meet the VOC content requirements.

 **DEKTON**[®]
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Toha building – Israel – 25,500m2
Dekton customised colours

Dekton Soke, one of the colours used
in Toha

Leed Credits



Innovation

Cosentino's contribution to the achievement of LEED credits

Innovation

Objective: To encourage building teams to achieve exceptional and innovative efficiency

Requirements: To excel in innovation beyond the elements listed in the LEED guide.



+1 - 5 LEED credits

Innovation is part of Cosentino's DNA. As a leading company, Cosentino innovates and anticipates, together with its clients and partners, solutions that offer design and value, and inspire the lives of many people.



Regional priority

Regional priority

Objective: Regional priority credits (RP) are those existing LEED credits that help project teams focus on their local priorities in terms of environment, social equity and public health.

Requirements: One credit is awarded for each Regional Priority credit achieved, up to a maximum of four.



+1 - 4 LEED credits

Archway Tower – United Kingdom –
3,000 m2 of Dekton Danae façade
cladding
Dekton Danae closeup



Cosentino is a company with a growing global presence. It currently distributes its products and brands in more than 80 countries, using its own distribution channel in 37 of them. This is key to understanding and meeting the regional priorities for each project.



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Breem Credits

About BREEAM Certification

BREEAM is one of the most important and recognised sustainability certifications in the world. It focuses on assessing the environmental impact of all types of architectural projects.

BREEAM assesses impacts in ten different categories ranging from ecological land-use to the use of sustainable materials and infrastructures and buildings energy efficiency.

BREAM encourages the development of projects from a sustainable approach that generates economic, environmental and social benefits for all those involved in the construction and subsequent use of the building or infrastructure.



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Breeam Credits

Cosentino's contribution to the achievement of BREEAM credits

Cosentino designs its materials from an innovative and sustainable approach that helps architects and designers to meet the requirements of the BREEAM evaluation system.

Both the design of the products and the materials used in their manufacture are focused on guaranteeing the lowest environmental impact on each architectural project. In this sense, the energy efficiency of buildings using Cosentino materials in their construction is particularly relevant.

Dekton ultra-compact surface is at the forefront of the industry both technically and in offering opportunities to develop sustainable projects.



Innovation



Materials



Health and well-being

The Charles - United States -
façade with more than 1,100m²
Dekton slabs



Breeam Credits



Health and well-being

Cosentino's contribution to the achievement of BREEAM credits

HEA 02 Indoor air quality

Objective: To encourage a healthy internal environment through the specification and installation of appropriate ventilation, equipment and finishes.

Requirements: Volatile Organic Compound (VOC) emission levels.

The selected products must comply with the emission limits specified in the guide.



+1 BREEAM credit

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designed by **COSENTINO**

VOC GREENGUARD GOLD

HEA 04 Thermal comfort

Objective: To ensure, through design, both the achievement of comfortable temperature and the necessary control devices to maintain a thermally comfortable environment for the building's occupants.



+1 BREEAM credit

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Dekton is certified for façade systems

Origo Shopping Centre- Latvia - Flooring and cladding adapted to high pedestrian traffic

Dekton Sirius closeup



Breeam Credits



Materials

Cosentino's contribution to the achievement of BREEAM credits

MAT 01 Life cycle impact

Objective: To encourage the use of construction materials with a low environmental impact over the full life cycle of the building.

Requirements: At least five products specified at Design Stage (DS1) and installed by the Post-Construction Stage (PCS 2) are covered by verified Environmental Product Declaration.



+1 BREEAM credit

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designed by **COSENTINO**

Dekton is EPD certified

MAT 06 Material efficiency

Objective: To recognise and encourage measures to optimise material efficiency
Material efficiency "...This includes using fewer materials, reusing existing demolition and strip-out materials and, where appropriate, procuring materials with higher levels of recycled content..."



+1 BREEAM credit

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designed by **COSENTINO**

Dekton uses different percentages of recovered materials in some of its colours:

- Dekton Trillium and Radium, up to 80%
- Dekton Eter, up to 30%
- White range, various percentages

Dekton Trillium SPA cladding

Dekton Trillium closeup



Breeam Credits

Cosentino's contribution to the achievement of BREEAM credits



Innovation

INN 01 Innovation

Objective

To support innovation within the construction industry through the recognition of sustainability related benefits which are not rewarded by standard BREEAM issues.



+2 BREEAM credits

Requirements

Up to a maximum of 10 credits are available, with the total BREEAM score capped at 100%, in aggregate from a combination of the following:

- a) 1.c Indoor air quality: All product types comply with the emission limits, test requirements and additional requirements listed in the guide. (1 CREDIT)
- b) 1.g At least 10 products specified at DS and installed by the Post Construction Stage (PCS) are covered by the manufacturer's verified Environmental Product Declaration (1 CREDIT)

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VOC GREENGUARD GOLD

Dekton is EPD certified



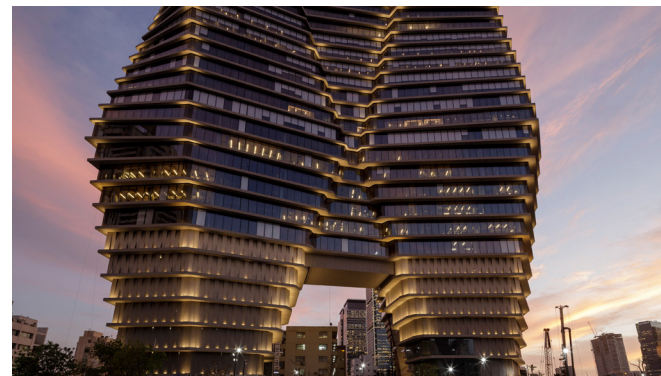
Case Study

Toha: efficiency starts with the first sketch

The Toha tower, in Tel Aviv is an example of avant-garde design whose key element is not only the aesthetics but also energy efficiency and sustainability, which is characteristic of the 21st century urban planning.

Designed by the prestigious architect Ron Arad, the 29-storey tower features a Dekton customised colour ventilated façade.

Façade panels are angled in a criss-cross pattern. This allows air to circulate between the large format plates (320 x 70 cm) and to create a continuous air flow that acts as a natural ventilation system and facilitates the thermal comfort of the interior space throughout the year.



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Case Study

Leonardo Tower: Africa's ceiling is sustainable

The tallest building in Africa, Leonardo Tower, is a 55-storey mixed-use skyscraper with both housing and commercial areas. Despite its attractive design, Leonardo's real appeal lies in its reduced environmental impact, considering the large dimensions of the project.

For this purpose, more than 24,000m² of Dekton Gada has been used in its ventilated façade. Gada is a very light shade, which reduces the heat on the façade.

Furthermore, Dekton is both EPD and carbon footprint certified, which ensure that the project will meet the main requirements of the major certifying organisations.



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Visit **pro.cosentino.com** and discover all
Dekton's advantages and possibilities