



BiPv

**BYGNINGSINTEGRERTE
SOLCELLEPANELER**

FOR FASADER

Chem-Con as

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Solcellepaneler for fasader

Ønsker og krav til flere miljøvennlige og strømproduserende fasadematerialer har gitt mange nye produkter og løsninger.

Vi kan nå tilby solcellepaneler spesielt utviklet for fasader, både for nybygg og for renovering og oppgradering av eksisterende fasader.

Våre rammeløse PV-paneler kan designes iht kundens og arkitektens ønsker. Panelene blir dermed en integrert del av byggets arkitektur.

The nZEB Directive

Buildings account for approximately 40% of worldwide CO₂ emissions, which contributes to the impact on climate change. In order to effectively reduce greenhouse emissions, the EU has proposed a Nearly Zero Energy Buildings (nZEBs) directive, requiring member states to develop and implement the policy by 2020. According to the directive, the new and refurbished buildings must be in compliance with nZEBs. As a result, the integration of renewable energy and architectural design has become the inevitable trend.

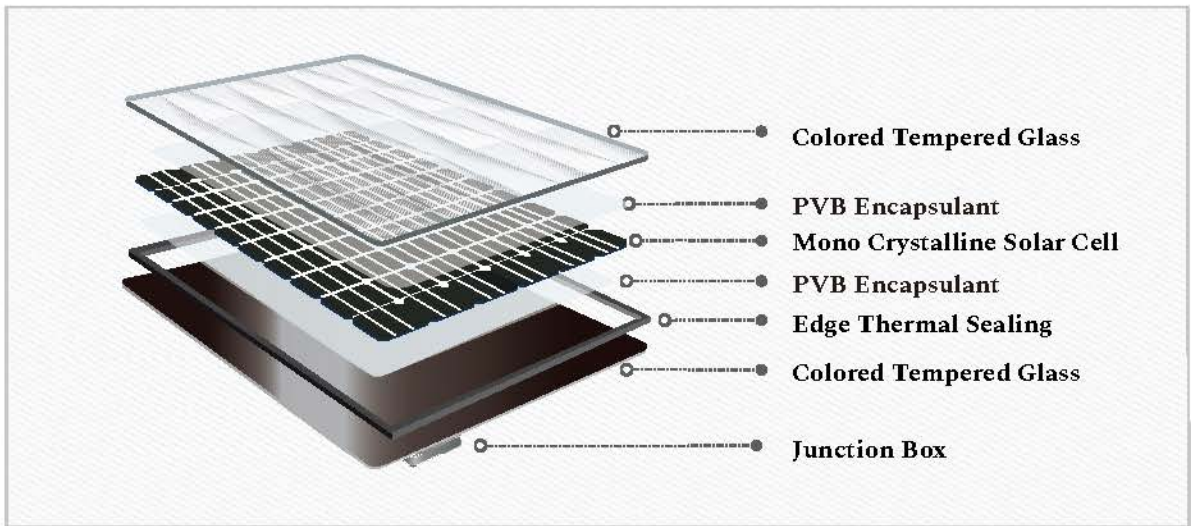


Aesthetic Energy Panel

The Energy Panel reduces the extra materials and labor cost in comparison to the traditional add-on solar system. It not only has the architectural functionality, but also realizes any creativities from the architects. Most of all, it is capable of generating clean energy and payback for itself.

Product Structure

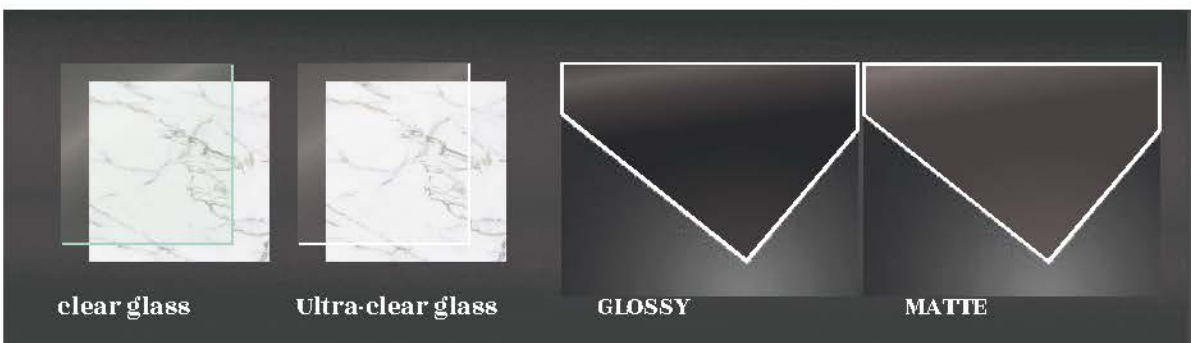
Energy Panel utilizes the high-efficiency non-perc monocrystalline solar cells. They string together with special circuit design maximizing the electricity output as well as reducing the shadow impact from surroundings. The solar layer is sandwiched between double tempered glass and laminated with PVB films to enhance the safety, stability and noise abatement. Moreover, the edge of the module sealed by a special thermal material provides excellent proof against air and humidity to ensure the functionality and durability.



Ultra-clear Glass

Energy Panel uses ultra-clear glass as the front glass to enhance aesthetics and brightness. It reduces the green tint and allows for an authentic color performance when observed through the glass. Another benefit is that the light transmission is much higher than clear glass, most notably with heavy thickness. This means more solar irradiations can be transferred to energy supply.

The matte surface as an alternative can be installed to building façade where reflected light causes an obstruction. It significantly reduces the glare from daylight while keeping the color clarity. This finish also has great resistance to scratching and staining.



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Standard Dimensions



To be consistent with the common measurement unit in construction industry, the mainstream product series have their width and length in the multiple of 30 cm. This way can minimize the amount of dummy panels and utilize the maximum façade space especially on building retrofit projects.

For the customized product, we are capable of fabricating glass ranging from 60cm-300cm for length, 60cm-150cm for width and 3+3mm to 10+10mm for thickness. Dummy panels can also be available for decorating the edges or small area.

Specification Data

Mechanical Description	
Length	600 mm - 2000 mm 600 mm - 3000 mm(2020)
Width	600 mm - 1200 mm 600 mm - 1500 mm(2020)
Weight	28 Kg / Sqm (5+5mm)
Front glass	4 mm - 8 mm tempered glass 3 mm - 10 mm tempered glass(2020)
Rear glass	4 mm - 8 mm tempered glass 3 mm - 10 mm tempered glass(2020)
Coloring layer	Ceramic inks fused on the inner side of front glass
Encapsulation	PVB film
Edge	Thermal sealing material
Structure	Frameless

Technical Specification			
Cell Type	Mono c-Si solar cell		
Power (after coloring)	100 - 150 Wp / Sqm		
Module Operating Temp.	-40 °C to +85 °C		
Junction Box	IP67, rear side		
Cable Size & Plugs	4mm ² /Original MC4		
Warranty	10 years product warranty 25 years linear power performance at 80%		
Temperature Coefficient	Isc	Voc	Power
	+ 0.039 %/K	- 0.30 %/K	- 0.41 %/K

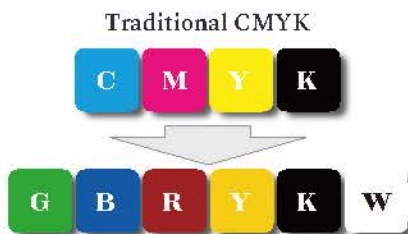
Digital Coloring Treatment

Energy Panel utilizes the most advanced digital printing technology, therefore avoiding the limitations of traditional screen printing process, such as fixed size, low printing precision and minimum quantity to cover the cost of silk screens. In contrast, digital coloring is capable of printing wide range of sizes without minimum quantity. With full control over coloring layer uniformity and dot placement, we also have the ability to balance the passing irradiation on the solar cell string to minimize the power loss and damage from the hotspot issue.

Ceramic Inks

The vivid and vibrant color of the ceramic inks is capable of simulating the conventional textures, such as different types of wood, bricks, marble...etc. It can also realistically print full-color photography and vector graphics. Through the high tempering treatment, the ceramic inks are hardened and firmly adhered to the inner side of the front glass.

Following lamination process prevents the inks from scratch damage and weathering process. The resulting printed glass is highly fade-resistant, easier to clean and much more durable than glass created by UV cured in the traditional glass industry.



6 Ceramic Coloring Methodology CMYK

Coloring Characteristics

The ceramic coloring using the combination of 6 colors of inks differs from the traditional 4-color CMYK methodology. The 6-Color Methodology provides better contrast and grey scales, which results in better vividness of output.

Mounting System

The installation of Energy Panel is similar to conventional glass façade in the construction industry. Hence, most of the components are easily accessible in the local market at reasonable prices. Spider fitting system, another customary curtain wall mounting system, can be realized through Energy Panel Special Fixing(SF) model with the hole remained at each corner of the module. We are also open to discussing any possible alternatives to fully integrate the Energy Panel into the building structure.



Facade Clamp

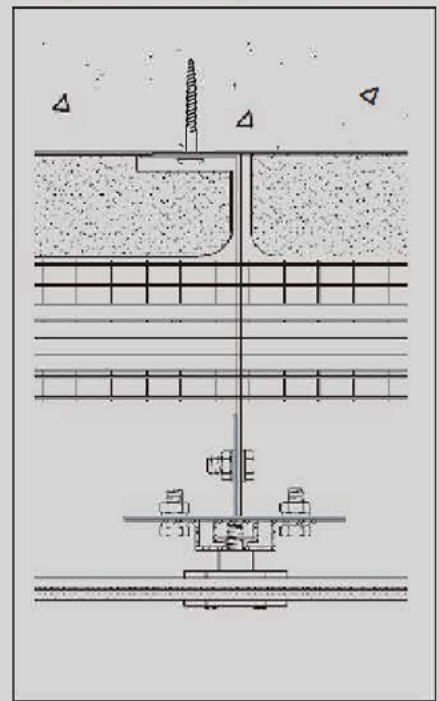


Spider Clamp



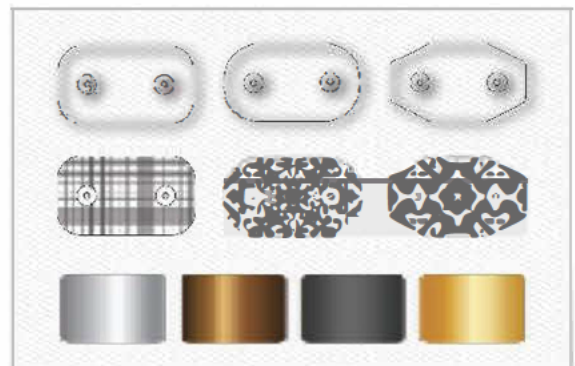
Prefab Frame

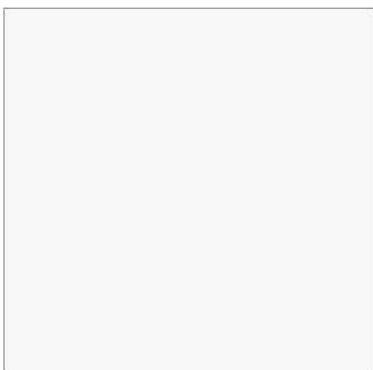
Façade Clamp Section



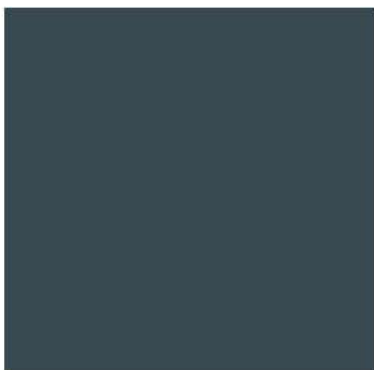
Tailor-made Clamp

The shining metallic clamps on the building façade can sometimes be irritating and distracting. To achieve coordination in color and pattern between Energy Panel and its clamps, We have developed an extensive selection of clamps with different shapes, patterns, and colors. You can always find the pattern and color matching up with the panel.





Arctic
CR01



Deep space
CR02



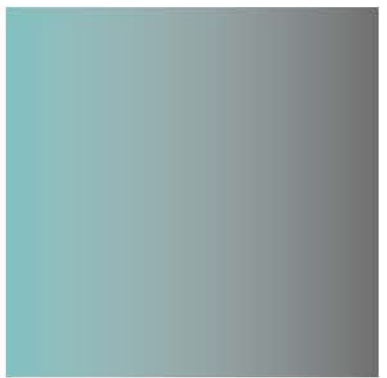
Tropics
CR03



Concrete grey
CR04

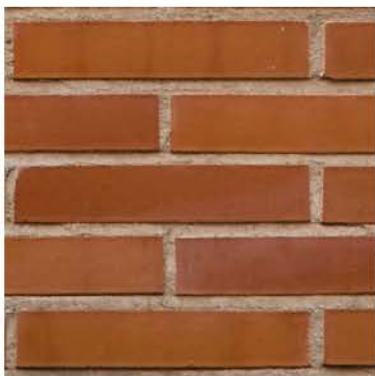


Avalon teal
CR05



Intuition
CR06

Brick



Urban weathered
BK01



Stoneware
BK02



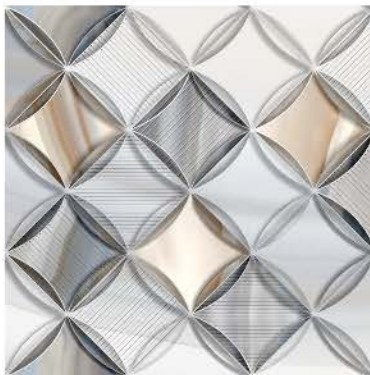
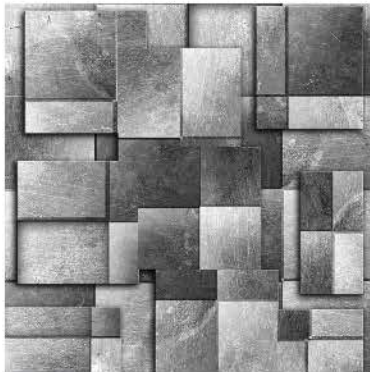
Garden stone
BK03





Venation
TE01

Frost
TE04



Silver box
TE02

Agate
TE05



Porcelain glaze
TE03

Tuscan tile
TE06





Rolling hills
WD01



Peaceful garden
WD02



Warm sun glow
WD03



Plantation
WD04





Marble



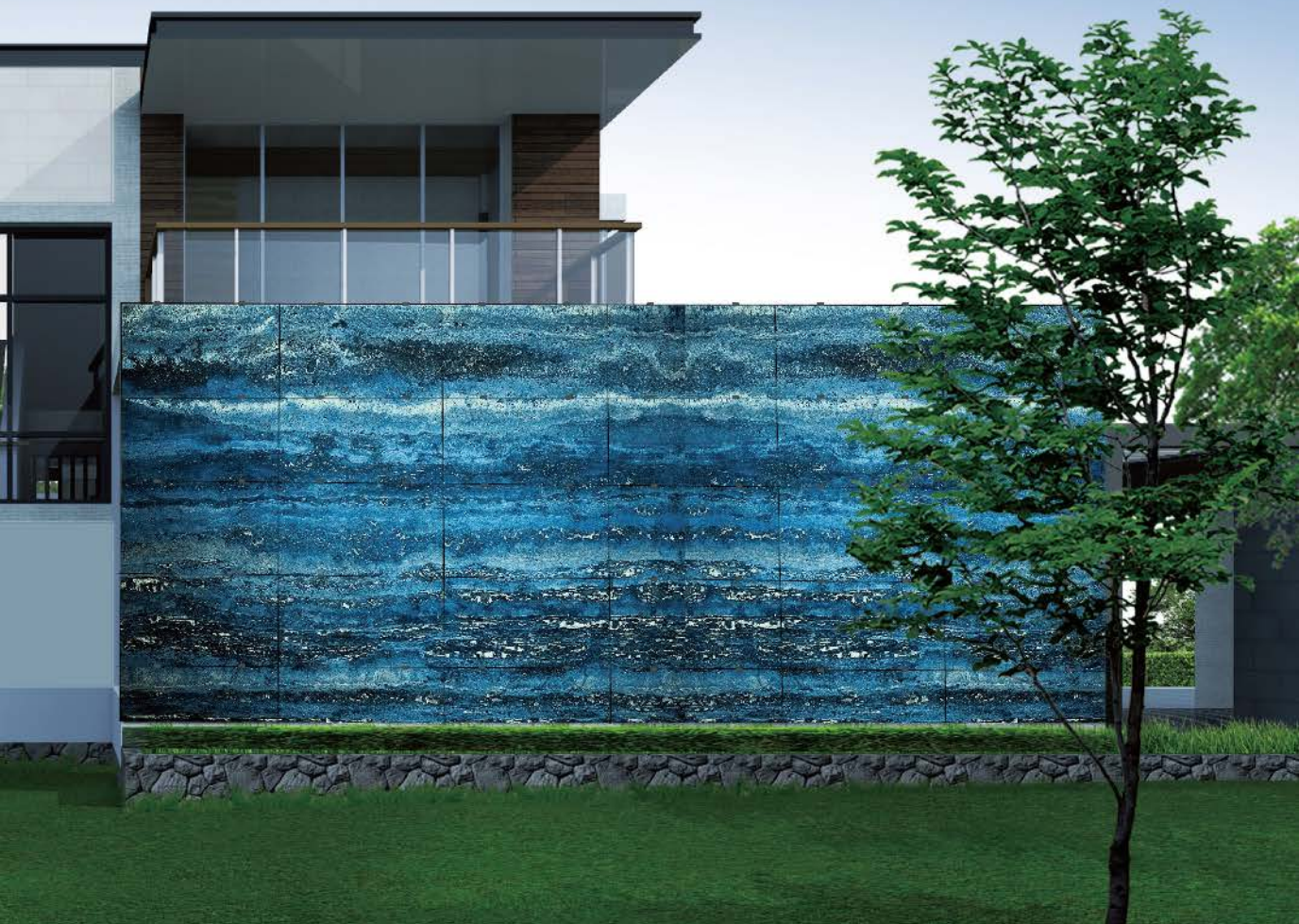
Carrara
MB01



Jade
MB02



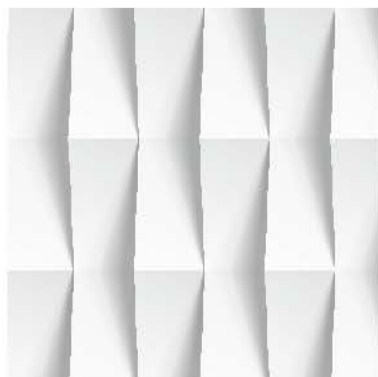
Ocean yonder
MB03



Heirloom
MB04



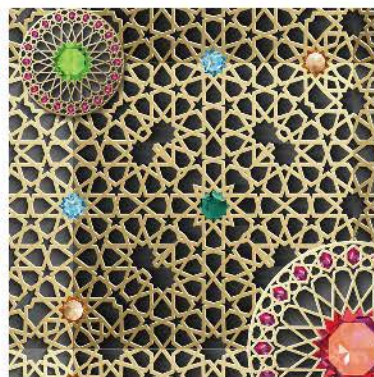
Sapphire
MB05



Glaciers
AR01



Paper lantern
AR02



Golden thread
AR03





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