DESIGN AND SELECTION OF ENERGY EFFICIENT GLASS FOR BUILDINGS

Jakarta, INDONESIA
What is Xinyi +
GROUP PROFILE

EST. SINCE 1988
信义玻璃成立于1988
全球领先的综合玻璃制造商

GLASS
NEW
ENERGY
FLOAT GLASS
BUILDING GLASS
AUTO GLASS
SOLAR GLASS
SOLAR FARM
WIND POWER
LI BATTERY
MICROGRID
SYSTEM,
STAND-ALONE

SCOPE ELECTRONIC GLASS
Xinyi Group has 4 listed companies in Hong Kong Stock Exchange

- **Xinyi Glass** (0868.HK)
  High-quality float glass, automotive glass and architectural glass.

- **Xinyi Solar** (0968.HK)
  Solar glass production, Back-glass,

- **Xinyi HK** (8328.HK)
  Lithium battery production and development, battery module structure design, Energy storage systems

- **Xinyi Energy** (3868.HK)
  Large scale of Solar farm investment, design, operation and EPC service
The largest low-e energy saving glass manufacturers and glass industry leaders of architectural glass in China, reflective coated glass; single-silver Low-E glass; high-end double and triple-silver Low-E glass; combination product of laminated, insulated, tempered and Ceramic;
IN YI FACILITIES IN CHINA

- Jiangmen
- Jiangsu
- Deyang
- Wuhan
- Tianjin
- Yingkou
- Zhangjiagang
- Dongguan
- Shenzhen
- Beihai
- Shenzhen
- Western Sichuan Economic Belt
- Pearl River Delta
- Yangtze River Delta
- Beijing-Tianjin-Hebei
- Northeast China
Overseas Facility

Xinyi Glass, Malaysia

Total: 400,000 M2

Product: Premium Float Glass, Building Glass, Solar Glass
Greenhouse works mostly by reducing airflow, thus retaining warm air inside the structure.

- Tinted glass does stop some direct solar energy but in-direct heat can still partially pass through by re-radiation inwards.
By combination of insulating structure, incorporated with Low E coated glass, we can greatly reduce direct + indirect energy transmission.
Solar energy spectrum &
Regulated Solar Patterns by Coatings
PASSIVE LOW-E COATING ALLOWS LARGE PORTION OF NIR TO PASS THROUGH THE WINDOW TO HEAT THE BUILDING INTERIOR which reradiates in the form of FIR being then reflected back inside (heat retention).
SOLAR CONTROL LOW-E COATING ALLOWS ONLY VISIBLE LIGHT TO PASS THROUGH WHILE BLOCKING MOST OF THE NIR, KEEPING OUTSIDE FIR OUTSIDE (HEAT BLOCKING)
• Passive low-E coating suitable for heating dominated climate zones

• Solar control type low-E suitable for cooling dominated climate zones
HOW DOES A LOW-E COATED TINTED GLASS WORK?

Down conversion – low NIR reflection, high absorption
HOW DOES A LOW-E COATED ULTRA CLEAR GLASS WORK?

TOTAL REFLECTION – high NIR reflection, low absorption
DIFFERENT GLASS SOLAR SPECTRUM CURVES

OVERALL LOW

HIGH LT, LOW NIR

OVERALL HIGH
SUPER HEAT-ABSORBING GLASS

Low E coating
In general, to achieve solar shading, there are two types of units:
- high NIR reflection, low absorption
- low NIR reflection, high absorption

Low-e on clear glass is more efficient in terms of keeping heat outside than on tinted glass.

Selection depends on façade geometric shape and surrounding buildings.
The concave shape of the skyscraper means that a large amount of sunlight is reflected into a small area.

This effect currently lasts for around two hours per day, and is suggested to be present for approximately two to three weeks, due to the changing position of the sun in the sky.
London Walkie Talkie tower

Street of Heat

Mirrored glass reflects the sun's rays onto the ground. The concave surface focuses all the light onto a small area.
AESTHETICS ISSUES
Polarized light may affect appearance
Some designs may affect appearance

Glass, Stone, Aluminum

Partial polarized

Normal Light

Further polarized

Glass Curtain Wall
In bright sunlight
VIEWING ANGLE CHANGES HUES
MOIRE INTERFERENCE

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INNOVATIVE PRODUCTS
SWITCHABLE GLAZING - PDLC!
DIMMABLE GLASS

SC value changeable, LT switchable from 68% down to 5%

Suitable for exterior glazing as shadeless windows
LED Display Wall
LED Display Wall

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On surface 1#, a nano-sized material is coated to gain the easy cleaning effect, which fills up the roughness of the raw glass surface to make it much more smooth.
Hydrophobic Protective Coating Measurement #1:

Contact Angle

- Contact Angle = 100°
- Contact Angle = 15°

UNPROTECTED SURFACE

PROTECTED SURFACE

HIGHER CONTACT ANGLE MEANS:
- Surfaces are more repellent to water and other substances
- Resulting in reduced staining
- Needing less cleaning and maintenance
MANY THANKS FOR YOUR ATTENTION