

# CHIEFWAY

SMART GLASS · WORLD CLASS



## SMART GLASS · SMART FILM

- INDUSTRY LEADER IN SMART GLASS & PDLC FILM -



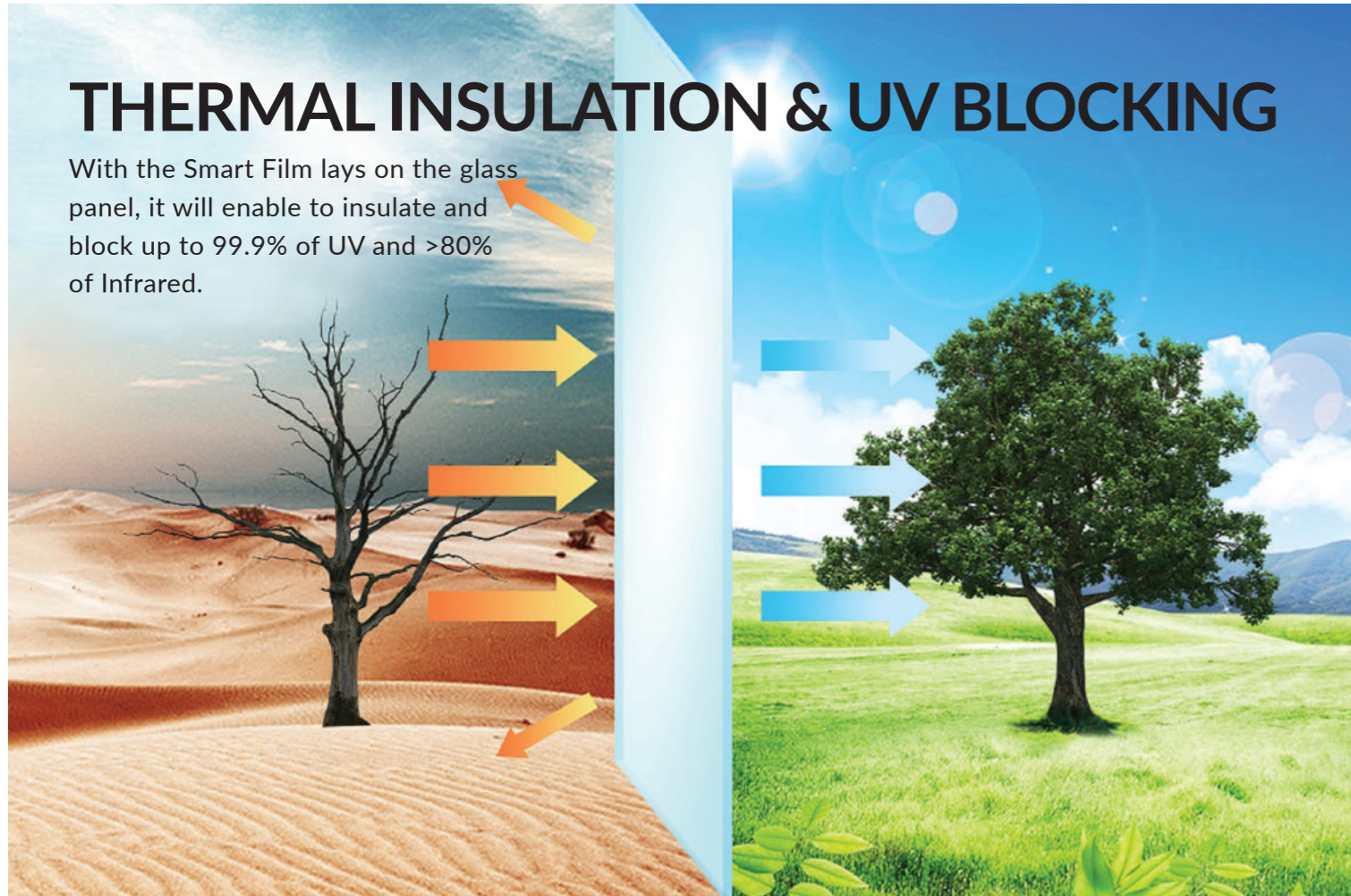
[www.chiefway.com.my](http://www.chiefway.com.my)



# OVERVIEW

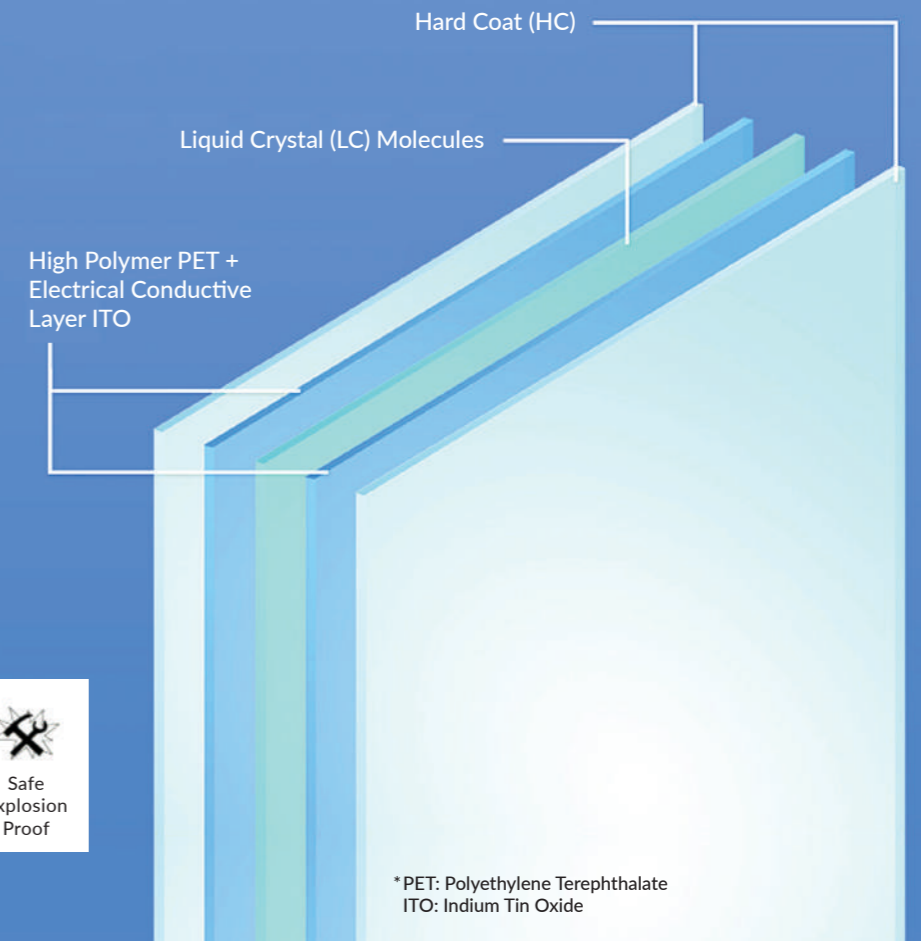
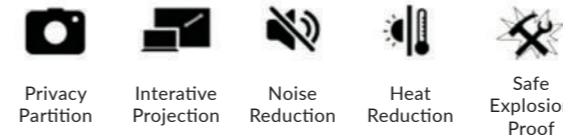
## THERMAL INSULATION & UV BLOCKING

With the Smart Film lays on the glass panel, it will enable to insulate and block up to 99.9% of UV and >80% of Infrared.



## ONE GLASS TWO VISIONS

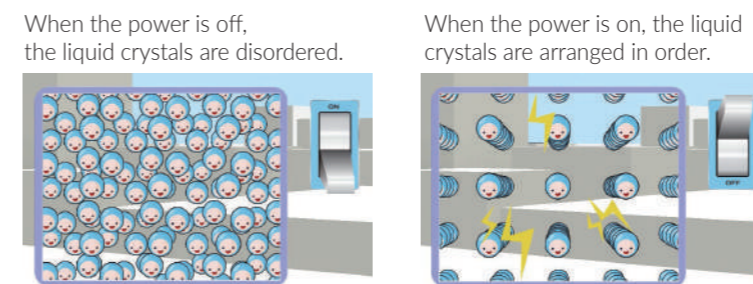
Chiefway intelligent dimming glass is a liquid crystal display functional glass. It uses polymer dispersed liquid crystal (PDLC) as the display structure. The two layer flexible ITO transparent conductive film is used as electrode. Under the regulation of external voltage, it instantly realizes transparent and opaque switching.



## WORKING PRINCIPLE

When the power is off, the disordered polymer liquid crystal materials in the smart film makes the light unable to penetrate the film. In this case, the smart film is opaque milky white.

When the power is on, the ordered polymer liquid crystal materials in the smart film makes the light able to penetrate the film. In this case, the smart film is colorless transparent.



## SMART GLASS • SMART PDLC FILM

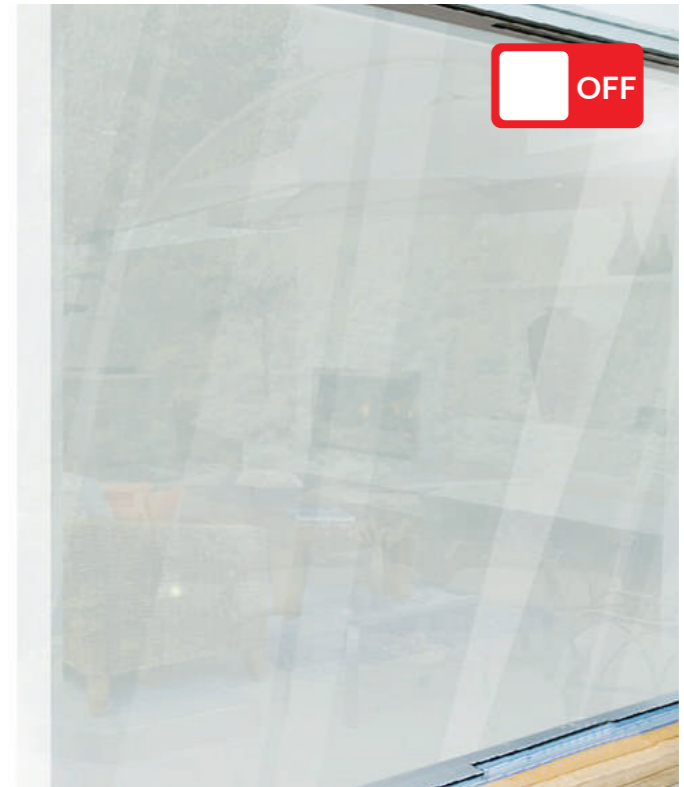
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Daylighting Design	Conference Projection	Commercial Buildings	Private Space	Washroom

### Power Consumption | 48V-60V (AC 50Hz) Low Voltage

Power	Visible Light Transmittance	Haze	Power Consumption	Lifespan
ON	>88%	<3%	2.5-4.0 W/m <sup>2</sup>	> 100,000 Hours
OFF	>65%	>95%	0 W/m <sup>2</sup>	



# SMART FILM

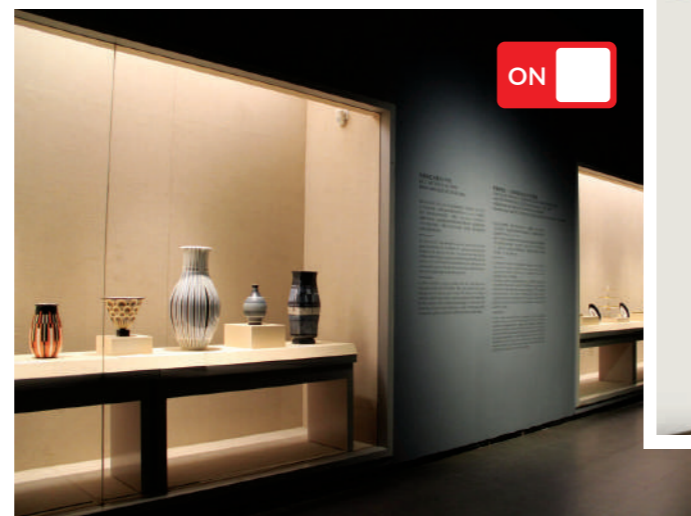


- ENERGY SAVING
- GREEN ENERGY
- INTELLIGENCE

## DAYTIME SAVING ENERGY; NIGHTTIME BEING INTELLIGENT

### PRODUCT FEATURES

- Electronic curtain with green energy materials: Transparent when being energized; frosted and having good shadowing effects when being not energized.
- Green building with energy saving materials: Can effectively reject up to 74% of the total solar energy (Heat Resistant) in the opaque state to save energy when transmitting light but not heat.
- Multimedia display window with intelligent materials: Users can switch arbitrarily between multimedia creative materials, transparent display windows, and TV screens modes.
- The glass combined with "smart film" is no longer a simple glass, but a new material of intelligence, green energy, and energy saving in real life.



- MUSEUM
- RETAIL STORE FRONT



- HEALTHCARE
- HOSPITALITY



- WORKING SPACE
- CORPORATE OFFICE
- CO-OFFICE SPACE

### TECHNICAL SPECIFICATIONS & PARAMETERS

OPTICAL PERFORMANCE		
Visible Light Transmittance	ON > 88%	OFF > 65%
Directional Light Transmittance	ON > 76%	OFF < 3%
Haze	ON < 3%	OFF > 95%
Viewing Angle	ON > 160°c	
UV Blocking	OFF 99.9%	
Switching Speed (Response Time)	ON < 45ms	OFF < 200ms
Sound Insulation	> 25-30dB	
Power Voltage	Input Voltage	AC 110V / 220V ±20% 50Hz ±5%
	Output Voltage	AC 48V - 60V ±5%
Power Consumption	ON 2.5-4.0 w/m <sup>2</sup>	OFF 0w/m <sup>2</sup>
Heat Resistance (Total Blocking Rate)	ON ~ 64%	OFF ~ 74%

PHYSICAL PARAMETERS			
		Self-Adhesive	Non-Adhesive
PDLC Smart Film Thickness		0.45mm	0.36mm
Factory Standard Size	Width (mm)	Max 1,800	Max 2,000
	Length (mm)	Max 3,600	
Color		Milky White & Dark Grey	
Operating Temperature		-20°c to +80°c	
Lifespan (ON Mode)		>100,000 Hours	



# SMART GLASS



- BUILDING FACADE  
- SKYLIGHT

- CORPORATE BUILDING



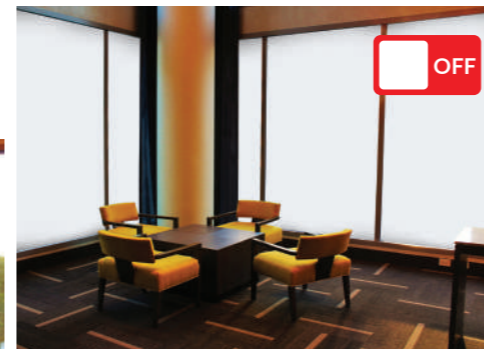
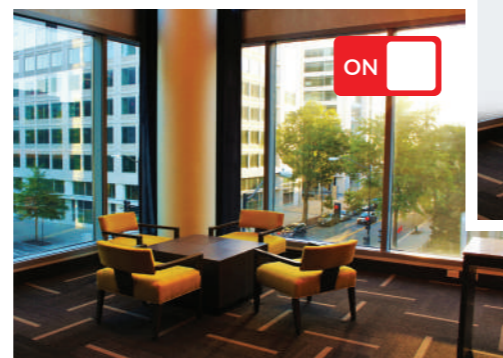
- WORKING SPACE



## REDEFINE PRIVACY & GREEN TECHNOLOGY

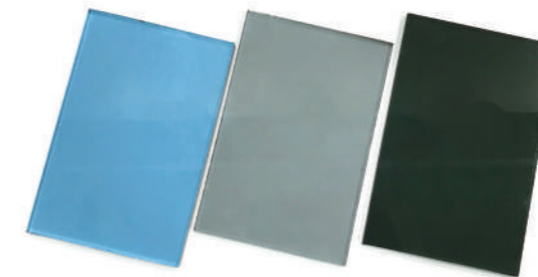
- The Smart Film is being laminated onto glass uses a low-voltage electrical current to arrange liquid crystal molecules into pattern that makes glass transparent when turned power on. When being turned power off, the liquid crystal molecules revert to a random pattern, diffusing the light and causing the glass to become opaque.
- Green building with energy saving materials:  
Can effectively reject up to 74% of the total solar energy (Heat Resistant) in the opaque state to save energy when transmitting light but not heat.
- Multimedia display window or glass panel with intelligent materials:  
User can switch arbitrarily between multimedia creative materials, transparent display windows, and TV screen modes.
- The glass combined with "Smart Film" is no longer a simple glass, but a new material of intelligence, green energy, privacy control, display application, security, and energy saving in real life.
- Safety and security operate off of ordinary AC Voltage (220VAC/110VAC), require very little power (<5 watts per square meter).
- Smart glass offers thermal, solar and sound insulation benefits, helping to keep rooms cool, comfortable and quiet.

- CONFERENCE ROOM  
- MEETING ROOM



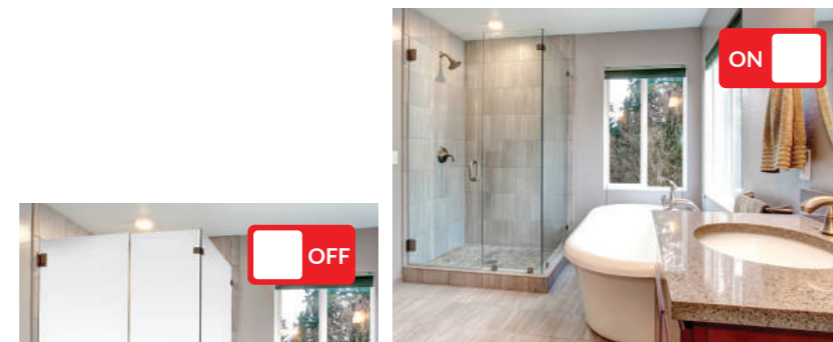
### CHOICE OF COLOURS

- Float Clear Glass Laminated
- Extra Clear Glass Laminated
- Euro Grey Glass Laminated
- Dark Grey Glass Laminated
- Dark Blue Glass Laminated



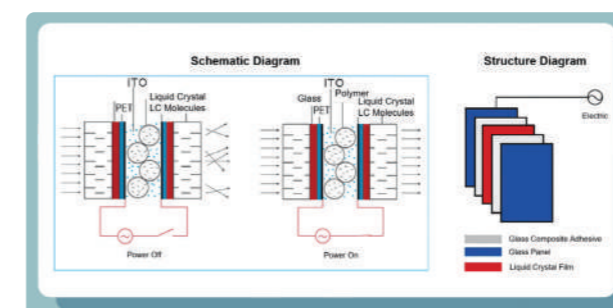
### TECHNICAL SPECIFICATIONS & PARAMETERS

OPTICAL PERFORMANCE		
Visible Light Transmittance	ON > 88%	OFF > 65%
Directional Light Transmittance	ON > 76%	OFF < 3%
Haze	ON < 3%	OFF > 95%
Viewing Angle	ON > 160°c	
UV Blocking	OFF 99.9%	
Switching Speed (Response Time)	ON < 45ms	OFF < 200ms
Sound Insulation	≥ 35dB	
Power Voltage	Input Voltage	AC 110V / 220V ±20% 50Hz ±5%
	Output Voltage	AC 48V - 60V ±5%
Power Consumption	ON 2.5-4.0 w/m²	OFF 0w/m²
Heat Resistance (Total Blocking Rate)	ON ~ 64%	OFF ~ 74%



- HOTEL  
- RESIDENTIAL  
- BATHROOM

### TECHNICAL PRINCIPLES OF SMART GLASS



### PHYSICAL PARAMETERS

Laminated Glass	4+4mm / 5+5mm / 6+6mm / 8+8mm / 10+10mm / 12+12mm	
Factory Standard Size	Width (mm)	Max 2,000
	Length (mm)	Max 3,600
Operating Temperature	-20°c to +100°c	
Lifespan (ON Mode)	>100,000 Hours	
Switching Times	>2 million	



# DOUBLE GLAZED, ACOUSTIC SMART GLASS



Double Glazed Acoustic Smart Glass mainly for Building Façade, Partition for better Sound Proof with STC value 40-45

Designed for exterior walls of buildings, high-performance sound and heat insulation, energy-saving and environment friendly construction safety smart glass. Various Color available.

### Main Application:

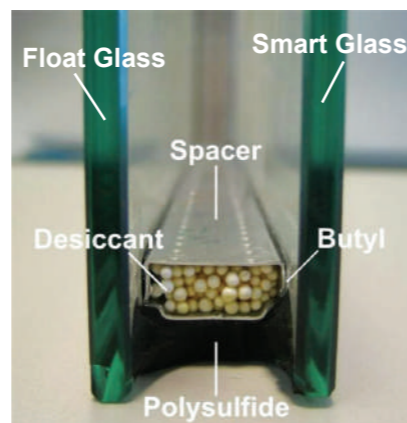
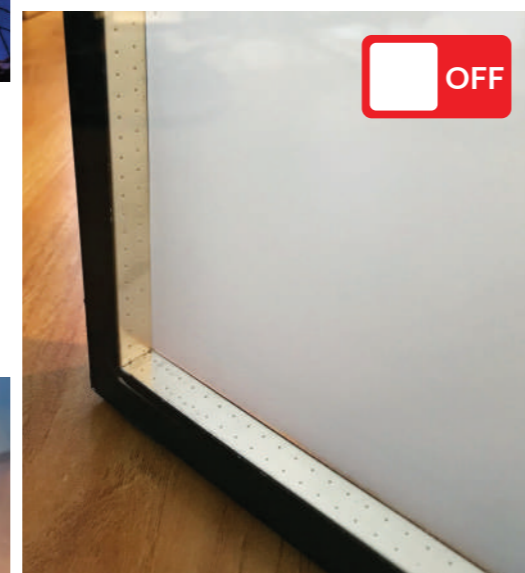
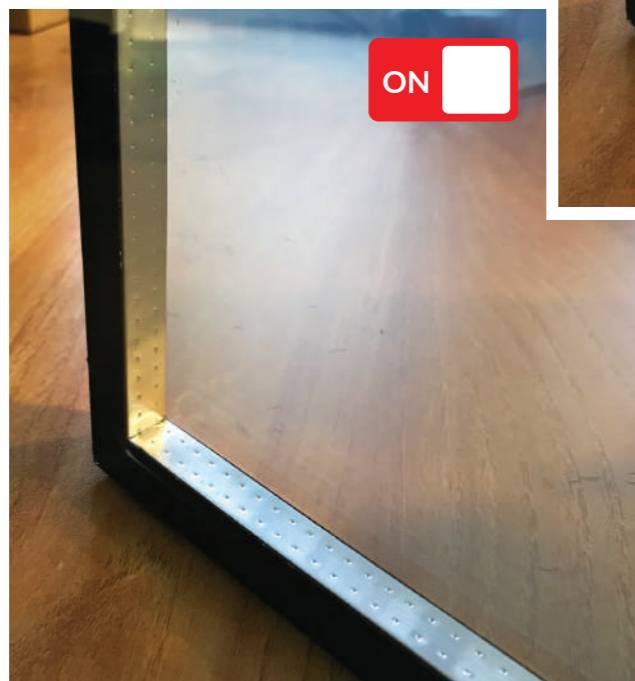
- Door and Window
- Skylight Dome / Pavilion
- Exterior Walls of Buildings
- Laboratory
- Interrogation

### Features:

- Heat insulation
- Sound insulation / Acoustic
- Light transmission
- Energy saving
- Environmental friendly

### Thickness & Air Space:

- 5+12A/25A+5mm
- 6+12A/25A+6mm



# PATTERN BLINDS SMART GLASS



Control your smart glass like a venetian blind, but better! Users can activate different strips to control the amount of privacy needed instantly.

Our pattern blinds smart glass can be controlled in variable widths in large format. It allows users to customize a given matrix design by either choosing a predetermined design or creating a custom one.

### Features:

- Custom width and length
- Specific areas of glass surface can be set to be switched ON/OFF
- Reprogrammable to offer alternative operating areas





# SMART GLASS WATER BUBBLE FEATURE WALL



Smart Glass Water Bubble Feature Wall (SGWB) is a self-contained water wall that emits variant colour using the latest LED technology & also the Smart Glass Technology.

It designed to suits your required size and offer a visual enhancement to any commercial property, private home or sensory environment. Their ability to be part of Feng Shui element, creates calm therapeutic experience and privacy environment. Our SGWB uniquely in the market where the enhance feature wall with smart privacy and acoustic control.

## What do you mean privacy?

Meaning Chiefway SGWB, not only provides the effects that normal bubble wall possess, but with added Smart Glass Privacy Protection to users. Leaving the choice to transparent or opaque mode while still enjoying the bubble and LED Light effects.

SGWB is applicable to offices, residential, restaurants, hotel & commercial building lobby, retails, hospitality and places that requires calm feature.

With the current tense and stress environment, we can apply this Smart Glass Water Bubble Feature Wall to enhance your environment and to enhance a more relax & healthier lifestyle.

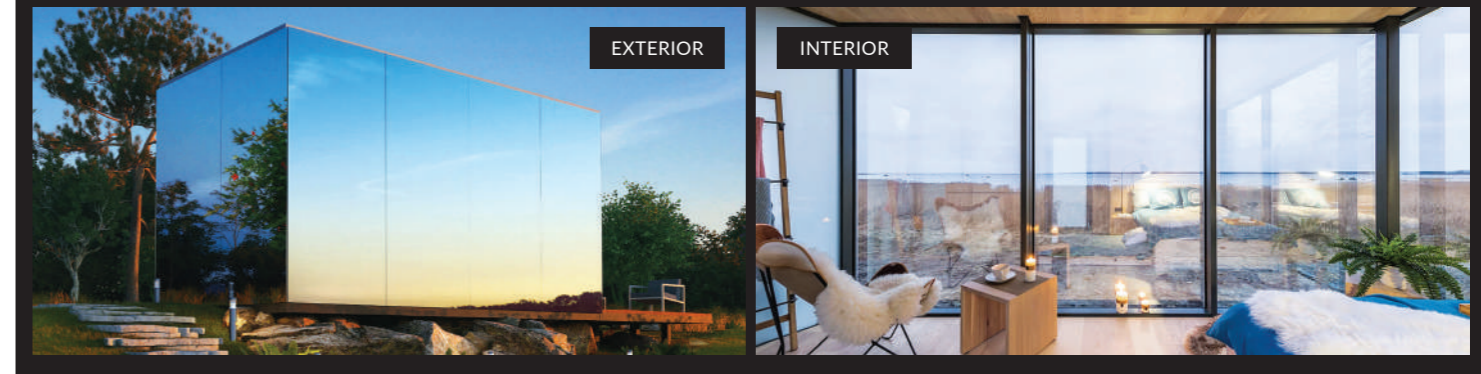


- Sensory Environment
- Privacy Control
- Feng Shui Element
- Acoustic Sound

SGWB TECHNICAL SPECIFICATIONS	
Material	Laminated Extra Clear Tempered Smart Glass
Size	1,200 (W) x 2,400 (H) x 42 (D) mm 1,200 (W) x 2,700 (H) x 42 (D) mm
LED Light	RGB
Visible Light Transmittance	ON > 88% OFF > 65%
Haze	ON < 3% OFF > 95%
UV Blocking	OFF ≥ 99.9%
Sound Insulation	≥ 45dB
Power Consumption	ON < 6w/m <sup>2</sup> OFF < 2w/m <sup>2</sup>
Heat Resistance (Total Blocking Rate)	ON ~ 64% OFF ~ 74%
Lifespan (ON Mode)	>100,000 Hours



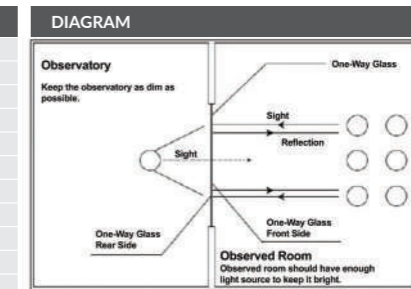
# ONE-WAY SMART GLASS



One-Way Smart Glass is developed using One-Way glass & standard smart glass with special technology.

TYPE	PRODUCT SIZES	SUITABLE USED FOR
Single Frame Type	4mm, 5mm, 6mm, 8mm, 10mm, 12mm	Privacy control observatory
Safety Type	5mm + 0.76pvb + 5mm	Bank, Police Station, Supermarket
Sound-Proof Type	5mm + 12A + 5mm	Special environment that requires sound proof
Blast-Resistant Type	5mm+1, 14pvb+12mm, 1.14pvb+5mm	Special environment that requires absolute safety

TECHNICAL SPECIFICATIONS		
	Front	Rear
Glass Thickness	6mm	6mm
Transmittance	UV	2
	Visible Light	5
	Total Solar Energy	16
Reflectivity	Visible Light	87
	Total Solar Energy	30
	Winter Night	10.9
U	Summer Night	1.11
	Winter Night	6.19
K	Summer Night	6.28
	Winter Night	6.28
Shielding Factor	0.93	0.93
Solar Thermal Energy Accumulation Coefficient	0.31	0.31



- Features:**
- High Transparency
  - Clarity Transparency
  - Strong Reflection

- Applications:**
- Interrogation Room
  - Psychiatric Ward
  - University Lab
  - Conference Hall
  - Office
  - Psychiatric Clinic
  - Observation
  - Classroom
  - Nuclear Plant
  - Jail
  - Army restricted area

# SKYLIGHT & AWNING SMART GLASS

Smart Glass Skylight is ideal for hard to reach places within buildings and allows turning a skylight from clear to opaque within a click.

Smart Glass skylight can be applicable in offices, museums and galleries. It helps in reducing electricity bills, improving one's well-being, productivity, reducing stress, reducing damage on artwork and creating a warm and inviting atmosphere.

## Main Application:

- Commercial Office Building Entrance
- Museums
- Galleries
- Hotels





# CHIEFWAY

SMART GLASS • WORLD CLASS

- AWARDS -



亚洲诚信企业大奖



亚洲诚信产品大奖



- CERTIFICATIONS -



ISO 9050:2003



MS 1498:2017

- PRODUCT COLLABORATION -



- AUTHORISED DISTRIBUTOR -



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- ASSOCIATED COMPANIES -



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