

 WE BUILD WITH GLASS



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® 南興玻璃集團
NAM HENG GLASS GROUP
www.namhengglassgroup.com

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ABOUT US

關於我們



基於馬來西亞各地區的快速發展之下，**南興玻璃集團**為應對市場需求劇烈變化，于2017年第二季**南興玻璃集團**董事陳御康決定再投資數千萬馬幣在森美蘭州新那旺設立新廠房，新廠房面積約18,130平方米，同時也引進全新高科技玻璃加工設備，這包含一架雙式雙對流鋼化玻璃爐，同比舊式鋼化爐的生產量增加多50%生產量，此機也是馬來西亞目前最大架的鋼化爐，直徑高12米，寬徑3米。與其同時也引入全自動雙邊拋光磨邊機，這大大提高產能也同時確保玻璃的品質要求。

南興玻璃集團不止如此，也把最大型最先進的夾層生產線帶進了馬來西亞，最大

尺寸達8米高，3米寬的夾層玻璃，能讓廣大的顧客群不需引進外來支援就能把手上的項目做完，此生產線預期在2018年8月全面投入生產。

除此之外，2018**南興玻璃集團**位於在沙巴建立的新廠房也竣工，新廠除了供應玻璃原片之外，也添購了玻璃鋼化爐和玻璃夾層生產線，以便滿足東馬的顧客的需求。

南興玻璃集團目前在全馬供擁有4間批發玻璃廠，坐落於柔佛州，雪蘭莪州，檳城和沙巴州，供應著玻璃原片，鏡子和各種玻璃。各種各樣的玻璃庫存達到數百萬方尺。

與其同時，公司也一直在擴充玻璃加工業市場，從去年原本的二間廠房，增加到四間，已有7條鋼化玻璃生產線，5條夾膠玻璃生產線，兩條中空玻璃生產線和各類玻璃加工產品生產線，能供應全馬各種大行玻璃工程項目。

南興玻璃集團勇於自我突破，開創新天地，從批發玻璃到玻璃加工業，都勇於突破，希望把最先進，最高品質的玻璃帶入本地市場，提高本地玻璃市場的水平。

In 2017 in line with the rapid market expansion, Dato' Ten Lai Huan, the Chairman of **Nam Heng Glass Group** had invested in a new plant in Senawang in addition to the various existing branches in Malaysia. The investment costs of approximately RM50 millions of the new plant covered a land area of about 18,130 square meters. The plant is equipped with new innovative high-tech glass processing machineries which includes the largest frame tempering furnace in Malaysia, measuring 12 metres high and 3 metres wide. Currently, this double chamber with convection tempering furnace can produce 50% production volume more than the old tempering furnace. It is also equipped with a fully automatic double-edge polishing machine which greatly enhance the production capacity while also ensuring the quality requirements of the glass.

In addition, **Nam Heng Glass Group** also brought in the largest and most advanced laminated processing line into Malaysia. This production line has been fully operational since 2018. It can process the biggest laminated glass size of 8 metres high and 3 metres wide.

In 2018, **Nam Heng Glass Group** also completed the construction of its new plant in Sabah. Besides supplying float glass, the new plant also expanded into processed glass by investing in processing lines to cater to the market requirements in East Malaysia.



Currently, **Nam Heng Glass Group** has four wholesale factories located in Johor, Selangor, Penang and Sabah. They have the capacity to supply raw glass, mirrors and the glass inventory comprises of a variety of glass, totalling millions of square feet.

At the same time, the Company had also expanded the glass processing facilities from the original two factory buildings to four. Now **Nam Heng Glass Group** has seven tempered, five laminated and two insulated glass production lines in addition to the various types of glass processing lines to supply to all kinds of glass projects throughout Malaysia.

Nam Heng Glass Group continues to break through and create a new glass world, from the wholesale glass to the glass processing industry, inspiring to bring the most advanced and highest quality glass to improve the level of the local market.



Vision 愿景

- To be the Asia's Top leading premium in quality glass distributor of being reputable brand towards World's class Achievement.
- 缔造亚洲顶尖高品质的玻璃供应企业，成就亚洲一流品牌，向世界扬帆起航，共创辉煌。

Mission 使命

- Quality is fundamental principal ensure delivering value added customer service of eco-friendly environmental society.
- 品质为核心理念，给予顾客最大的价值，为社会创造绿色新环境。

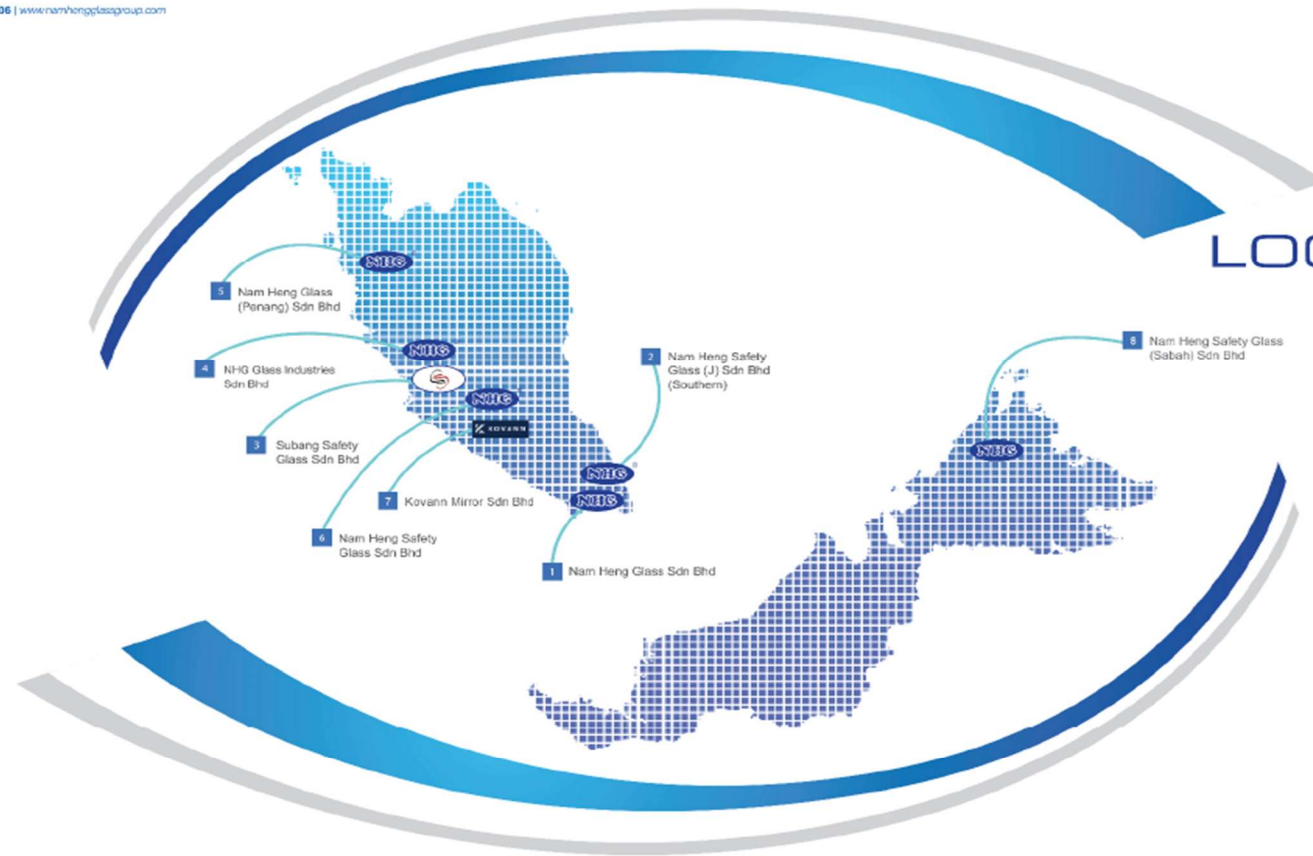
Value 价值

- Quality & Service 品质与服务
- Synergy 协同能量
- Accountability 担当
- Drive Innovation 创新元素
- Integrity 诚信
- Systematic & Efficiency 制度化与效率



OUR QUALITY ASSURANCE





LOCATIONS

1 Johor | Warehouse

NAM HENG GLASS SDN BHD (2009-02206)
 MLO 2476 (Lot 6925), Jalan Seelong Jaya 6,
 Kg. Seelong Jaya, 81300 Skudai, Johor Bahru, Johor.
 Telephone No : +607-599 3116 (Hunting Line) / +607-599 6268
 Facsimile No : +607-598 6163
 Email : namheng@namheng.my

2 Johor | Processing Factory

NAM HENG SAFETY GLASS (J) SDN BHD (2010-03006)
 PTD03890, Jalan Seelong Jaya, 81400 Senai, Johor.
 Telephone No : +607-599 5101
 Facsimile No : +607-599 6246
 Email : j.inquiry@namheng.my

3 Selangor | Processing Factory

SUBANG SAFETY GLASS SDN BHD (2010-03001)
 Lot 10244, Jln Subang 6, Tmn Perindustrian Subang
 47600 Subang Jaya, Selangor Darul Ehsan, Malaysia.
 Telephone No : +603-8081 8161 / 8162
 Facsimile No : +603-8081 5098
 Email : enquiry@subangsafety.com.my

4 Selangor | Marketing Headquarter & Warehouse

NHG GLASS INDUSTRIES SDN BHD (2010-03001)
 Lot 990, Jalan Subang 9, Tmn Industri Sg. Penang,
 47620 Subang Jaya, Selangor Darul Ehsan, Malaysia.
 Telephone No : +603 8021 6188 (Hunting Line)
 Facsimile No : +603-8024 8788
 Email : order@namheng.my

5 Penang | Warehouse

NAM HENG GLASS (PENANG) SDN BHD (2014-01046)
 No. 868, Jalan Kebun Baru, Kaw. Industri Ringan Juru,
 14100 Simpang Ampat, Pulau Pinang.
 Telephone No : +604-507 5557
 Mobile No : +6011-2186 4880
 Facsimile No : +604-507 5559
 Email : nhgpenang-sales@namheng.my

6 Sabah | Processing Factory

NAM HENG SAFETY GLASS (SABAH) SDN BHD (2009-03006)
 Lot S3, Lorong 1H, KKIP Selatan, EOZ Phase 2,
 Kota Kinabalu Industrial Park, 88450 Kota Kinabalu, Sabah.
 Telephone No : +6088-415 827 / 819
 Facsimile No : +6088-415 829
 Email : sabahnhg@namheng.my

7 Seremban | Mirror Plant

KOVANN MIRROR SDN BHD
 Pt. 12698, Kawasan Perindustrian Tuanku Jaafar,
 71450 Seremban, Negeri Sembilan
 Telephone No : +606-671 5881
 Email : marketing@kovannmirror.com

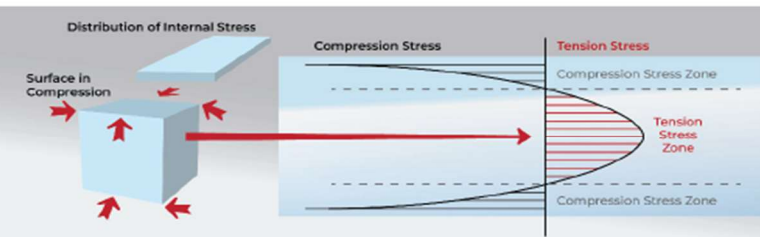
8 Seremban | Processing Factory (Headquarter)

NAM HENG SAFETY GLASS SDN BHD (2009-03001)
 Lot 32482, Jalan TJ 2/7, Kaw. Perindustrian Tuanku Jaafar,
 71450 Sugai Gadut, Seremban DK, Malaysia.
 Telephone No : +606-675 0618/ 619, +606 -671 7331
 Facsimile No : +606-6750 788
 Email : order@namheng.my

TEMPERED GLASS

NAM HENG (NHG) TEMPERED GLASS is In consequence, the impact applied to the glass will be overcome by the compressional stress on the surfaces to assure safety of use. We are able to supply tempered glass from 4mm to 19mm on normal clear glass, tinted glass and Super Low-E with the size of up to 3m x 12m.

A latest technology of Tamglass-RC350 tempering line thanks to Tamglass Vortex Plus Full Force Convection System which make us able to produce all kinds of safety glass that requires heat treatment for building application with excellent quality.



APPLICATION

- Suitable where safety glazing required by building codes or Design specifications
- Fire knock-out panels
- All glass entrances and storefronts
- Extreme load resistance
- Fireplace enclosures

PRODUCT APPLICATION

- Curtain Walls
- Balustrades
- Shop Fronts
- Windows
- Flameless Glass Doors
- Showcases
- Greenhouses
- Escalator Side Panels

CHARACTERISTICS

WHAT

A type of safety glass created with controlled chemical or thermal treatments to increase its strength when compared to annealed or "normal" glass.

WHY

Nam Heng (NHG) Tempered glass is four to five times stronger than annealed glass which makes it desirable in transportation, architectural and a variety of other applications. In addition, its balanced internal stresses enable the glass, when broken, to crumble into small, harmless "chunks" instead of splintering into sharp, jagged shards.

HOW

Flat glass is heated to 2050 degrees Celsius and then cooled rapidly, or "quenched," with concentrated air currents manipulating temperature and pressure (at times greater than 10,000 psi) to achieve the desired properties. The cooling differential created between the surface and central layers of the glass creates surface compression and internal stresses which underlay the enhanced strength.

The industry standard specification requirements for heat strengthened and tempered glass are set forth in ASTM C1048 "Standard Specification for Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass."

- Heat strengthened glass is defined as having a surface compression of 3,500 to 7,500 psi (24 to 52 Mpa); no requirement for edge compression is specified.
- Tempered glass is defined as having a minimum surface compression of 10,000psi (69 Mpa), an edge compression of not less than 9,700 psi (67 Mpa), or meet ANSI Standard Z97.1 or CPSC Standard 16CFR1201.

NOTE

As Tempered Glass is well balanced in tension and compression stress, it cannot be cut, sanded or bent. All dimensions and specifications must be determined precisely before the tempering process.

Tempered Glass is not cracked or weakened if it is slightly damaged, but may be broken if deep scratches are made with a hard material. In such a case, the glass may not break immediately, but will only break after several times of usage.

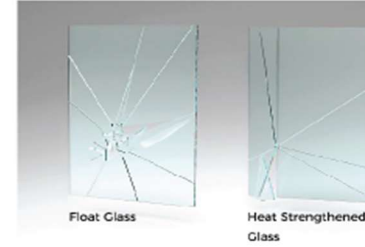
The center of the glass creates surface compression and internal stresses which underlay the enhanced strength.

HEAT STRENGTHENED GLASS

NAM HENG (NHG) HEATSTRENGTHENED GLASS

To produce heat strengthened glass, the cooling is slower and the resultant compression in the glass is lower than fully tempered glass yet still higher than annealed float.

Proper heat Strengthened Glass will not have spontaneous breakages by nickel sulfide inclusion. It is the product of choice, with the exception of instances where tempered glass or laminated glass is required by law, wind load, local or national building codes.



APPLICATION

- Suitable for use in spandrel and/or vision areas where added resistance to wind load and thermal stress is required
- Laminated Solariums
- High Wind Load Areas
- Laminated Skylights

CHARACTERISTICS

- Approximately twice the mechanical and thermal strength of annealed glass of equal thickness
- Greater resistance to thermal loads than annealed glass
- Heat-strengthened glass is not a safety glazing glass product

NHG HEAT TREATED GLASS

| SPECIFICATION | PRODUCTION SIZE (WxH mm) | | PRODUCTION THICKNESS (mm) | |
|-----------------------------|--------------------------|--------------|---------------------------|---------|
| | Minimum | Maximum | Minimum | Maximum |
| NHG Tempered Glass | 300 X 300 | 3000 X 10000 | 4 | 19 |
| NHG Heat Strengthened Glass | 300 X 300 | 3000 X 6000 | 4 | 10 |

AVAILABILITY

- Clear, Ultra-Clear, Various Tinted Glass, Various Solar Control and Low E Glass
- Other glass thicknesses may be available on request

PRODUCT APPLICATIONS

- Windows
- Shop Fronts
- Curtain Walls
- Balustrades



HEAT SOAKED GLASS

There are instances, after installation, of tempered glass breaking due to no apparent cause. In these cases of "spontaneous breakage", it is most often determined that the glass broken due to existing surface or edge damage that severely compromised the ability of the glass to withstand anticipated wind loads, or normal building movements, or that glass to metal contact combined with movement under wind load initiated the break. In relatively rare instances, the breakage has been traced to the presence of nickel sulfide stones in the center tension zone of the tempered glass.

The concept of heat soaking glass to reduce or eliminate spontaneous breakage due to stone inclusions has been around for decades. Heat soaking involves exposing the tempered glass to elevated temperatures for some period of time.

The exposure temperature and time is not a constant, but varies according to the belief of the heat-soaking proponent. Some believe that lower temperatures for longer times are more appropriate; others believe that higher temperatures for shorter times are appropriate. A typical heat soak process elevates the glass temperature to holding 260°C ±10°C for two hours.

Nam Heng offers Heat Soaked Test Service which are in accordance to BS EN 14179 - 2016.

NAM HENG TEMPERED HEAT SOAKED GLASS is 3 - 5 times stronger than annealed glass and is very safe. However, after installation, tempered glass may shatter spontaneously for no apparent reason, sometimes even after being used for many years. These rare incidences of breakage cause damage to cars and people. To reduce the frequency of such instances, tempered glass should specify the heat soak test during design.

APPLICATION

- All tempered glass should undergo heat soak test
- Frameless Tempered Glass Doors
- Curtain Walls
- Windows
- Showcase
- Escalator Side Plates
- Shop Fronts
- Balustrades
- Elevators Panels

BENEFITS

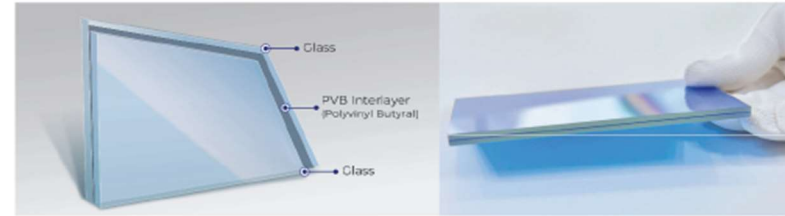
- Computerized Control System, Guaranteed Quality.
- Reduces Risks of Spontaneous Breakage of Tempered Glass.
- Increases Strength and Safety

NAM HENG TEMPERED HEAT SOAKED

| PRODUCTION SIZE (WXH mm) | | PRODUCTION THICKNESS (mm) | |
|--------------------------|-------------|---------------------------|---------|
| Minimum | Maximum | Minimum | Maximum |
| 300 X 300 | 3000 X 8000 | 6 | 80 |



LAMINATED GLASS



LAMINATED GLASS has almost the same strength as ordinary annealed glass of the same thickness. Laminated Glass is a safety glazing material made by bonding layers of glass, using heat and pressure, with one or more interlayers of tough polyvinyl butyral film (PVB / SGP Interlayer/ DG41-Structural PVB or etc). The glass sheets may be of the same or different thickness.

APPLICATION

- Skylights
- Greenhouse
- Large Aquarium
- Anti Bandit
- Bullet Resistant Glass
- Windows
- Balustrades
- Curtain Walls
- Slope Glazing
- Anti Thief Show Case



SAFETY

Laminated Glass can withstand high impact. The PVB interlayer absorbs the energy of the impact, resisting penetration, and although glass may break, glass fragments remain firmly bonded to the PVB interlayer, minimizing the risk of injuries.



SECURITY

Laminated Glass offers high resistance against penetration from objects. When broken, the interlayer continues to safeguard the building until the glass is replaced.



UV CONTROL

The major cause of fading and deterioration of furnishing and artworks is caused by UV radiation. Laminated Glass can screen out almost 99% of damaging rays, due to the UV absorbing additive in the PVD interlayer.



VARIETY

Laminated Glass can be made with sheets of an annealed, heat strengthened, tempered, reflective or Low E Glass, depending on design needs.



SOUND REDUCTION

Laminated Glass has proved to be an excellent barrier to noise, having a higher sound reduction index than monolithic glass of equal thickness.

FEATURES

SGP INTERLAYER THICKNESS

0.76MM (ROLL)
0.89MM (ROLL)
1.52MM (SHEET)
2.28MM (SHEET)

PVB THICKNESS

0.30mm (15mil)
0.76mm (30mil)
1.14 mm (45mil)
1.52mm (60mil)

LAMINATED, SAFETY & SECURITY GLASS



When safety and security are a must, a wide array of performance glass products can meet your needs. Laminated - From windows and curtain walls, to aquariums and display cases, laminated glass is the perfect safety solution. Two or more panes of glass are bonded together by a durable plastic interlayer, which enables the glass to strongly resist penetration by impacting objects. However, if it should break the glass will tend to remain in its frame, minimizing the risk of injury from sharp edges and flying or falling glass particles. Because of its strength and safety features, laminated glass is preferred when any of the following are required:

- A laminated glass is an assembly comprising at least two panes of glass, bonded together across their entire surface by an interlayer. For laminated safety glass, the most widely used interlayer is a plastic PVB (polyvinyl butyral) film.
- In the event of breakage, the bond between the glass and the interlayer ensures that the broken pieces remain in place (at least for a certain period or up to a specified load level).
- Laminated glass with PVB has its own system to denote composition. This takes the form of two (or more) figures indicating the thickness of the different panes of glass in mm, followed by a further figure separated from the rest by a dot giving the number (rather than the thickness) of the PVB films between each pane of glass.
- Thermally tempered or heat-strengthened glasses are used to manufacture laminated glass. In specific applications requiring a high level of compressive, a laminated glass made up of thermally tempered and heat-strengthened glass is sometimes used; the former provides mechanical strength while the latter gives adequate residual stability if the glass breaks until it is replaced.
- Heat-strengthened laminated glass is sometimes used when a higher level of bending resistance is required than that offered by float glass or to prevent the risk of breakage due to thermal shock.
- Protection against forced entry
- Glass floors or stairs
- Protection from fallout of broken glass from building facades
- Earthquake Resistance
- Protection from "smash and grab" thefts from storefront window displays

MACHINERY OF PROCESSING PLANT CERAMIC FRIT GLASS

SILK-SCREENED CERAMIC FRIT GLASS for architecture and commercial use. The process involves screen printing ceramic frit paint onto the glass and permanently fusing it onto the surface during Heat Treated process. Design Ceramic frit is screen printed glass with a pattern or design.

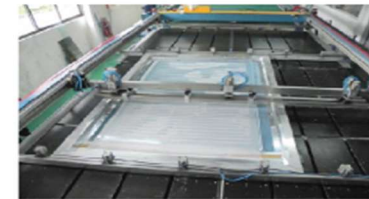
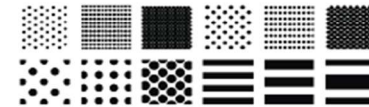
This decorative process allows the designer flexibility in selecting cladding materials where colour and pattern design are important for visual impact. It also offers creative solutions for controlling solar heat gain and glare and providing privacy.

NAM HENG (NHG) CERAMIC COATED GLASS is produced by applying ceramic paint on the glass surface and by melting the colorant into glass surface in a tempering furnace. A wide range of designs and colours are available to suit customers need. It can be used Heat Treated Glass, laminated or double glazed



APPLICATION

- Facade
- Auto Glass
- Stepping Glass
- Furniture or art glass
- Graphics Glass For
- Interior Partition



FEATURES



Scratch Resistant

After heat treated process by tempering furnace, the coating is fused to the glass and cannot be scratched off.



Fade Resistant

The colour of the coating is highly durable and will not fade even in harsh climates.



Energy Saving

Ceramic coated glass can reduce air conditioning cost by insulating solar heat.



Wide Range Of Colours & Patterns

A wide range of standard colours & patterns are available. Custom colour is available upon special request.



Reduce Solar Transmission

Ceramic coated glass can also be designed to reduce solar transmission.



Light Weighted Building Materials

Ceramic coated glass serves as substitute for stone, tile, metal plate and reduce structural load on the external wall and glazing is also easy.

INSULATING GLASS UNIT



Insulating glass unit is made of two or more layer glass panels, bonded with spacer bar filled with desiccant and sealed with butyl sealant and secondary sealant to create insulated space.

With combining Low E coatings, standard and high performance tinted glass, solar control glass, silk screen ceramic glass, laminated glass and more, a wide variety of insulating glass unit makeups are available to satisfy a wide range of performance and aesthetic requirements.

Insulating glass unit's lite can be annealed, Heat Strengthened, Tempered or Laminated.

NAM HENG (NHG) INSULATING GLASS

Our IG machine line is able to produce or assembly of double and triple (as an option) insulating glass unit with the height up to 2.7 m and total length of 5000 mm on all kind of flat glass (Common Clear, Tinted, Wired, Laminated, Tempered and Super Low-E glass).

APPLICATION

- Suitable for commercial and residential glazing. In dual-seal insulating glass units the primary seal is polyisobutylene (butyl). The secondary seal is polysulfide or silicone.
- For all structural glazing applications a secondary seal of silicone must be specified.

CHARACTERISTICS

- Saves on heating and cooling by reducing air-to-air heat transfer.
- Reduces sound transmission.
- Increases personal comfort and aids in energy conservation.
- Increases strength to withstand wind loads.
- No condensation.



CURVED TEMPERED GLASS

Curved Tempered Glass also called bent glass, commonly use for architectural buildings and industrial applications. Curved Tempered Glass always gives natural feeling to structures and aesthetic looks with a characteristic of solidity and stability.

Performance: Safety, impact strength and thermal stability are the same as flat tempered glass.

The curved tempered glass can be used as glass facade, partition, wall finishing and so much more! It can be customized and combined with different glass techniques, such as laminated glass, digital printing glass, frosted glass, pattern glass etc.

SPECIFICATIONS

Glass Thickness
5mm-19mm

Size
500mm x 500mm (Min),
3000mm (Q) x 6000mm (H)

Radius
1000mm (Min) subject glass thickness
and glass type

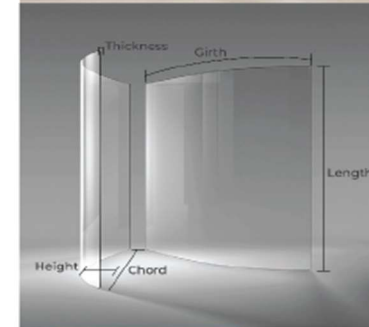
Color Options
Clear, Extra Clear, Green, Blue, Bronze,
Grey, etc.

Product Variety
Float glass, Coated glass and Low-E,
laminated and Security Glass products.

APPLICATION

Interior
shower door, glass display, windows, partition,
glass door, aquarium, lighting ceiling, furniture,
shelf and etc.

Exterior
Glass skylight, glass curtain wall, fence,
windows, glass door, glass façade and etc.



PATTERNED GLASS

Nam Heng Patterned Glass is ideal for interior decorative glass surface application.

The single decorative pattern on the glass provides translucency and privacy.

Ideally for doors, shower area, and partitions where natural light flow is desired while maintaining privacy.

Available in a wide range of patterns, thicknesses and sizes.

Nam Heng Patterned Glass can be also be tempered and laminated for application as safety glass.

SIZES

1800 X 2400

THICKNESS 5mm | 6mm



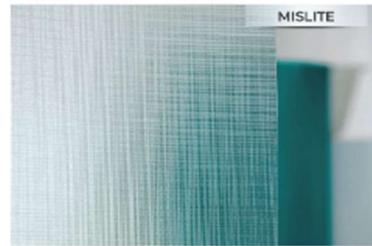
RAIN



KASUMI



MORGAN



MISLITE



MORU



NASHIJI

MET 1 RESIDENCES @ KL METROPOLIS

GLASS TYPE

Glass Type:

Tower A / B

- 6mm NHG Gold Solar Control#2 Tempered Heat Soaked Glass
+ 12mm Air Space + 6mm NHG Clear Solar Control#3 Tempered
Heat Soaked Glass - 24mm thk

- 6mm NHG Dark Blue Low-E#4 Tempered Heat Soaked Glass
+ 12mm Air Space + 6mm NHG Dark Blue Tempered Heat Soaked
Glass - 24mm thk

Tower C

- 5mm NHG Clear Annealed Glass + 0.38mm Grey PVB
+ 5mm NHG Clear Annealed Glass - 10.38mm thk

- 12mm NHG Euro Grey Tempered Heat Soaked Glass

- 12mm NHG Clear Tempered Glass



PUTRAJAYA 2C5

GLASS TYPE



Glass Type:

~13.52mm NHG Clear Tempered Heat Soaked Laminated C/W 50% Coverage Opaque White Ceramic Frit In Songket Design Pattern On Surface #2:
(6mm NHG Clear tempered Heat Soaked C/W 50% Coverage Opaque White Ceramic Frit In Songket Design Pattern On Surface #2 + 1.52mm Clear PVB + 6mm NHG Clear Tempered Heat Soaked Glass)

QTY -24000m2

HCK CORPORATE HQ TOWER @ EMPIRE CITY

GLASS TYPE

Glass Type:

- 6mm NHG Blue Reflective#2 + 0.38mm Clear PVB
- + 5mm NHG Clear Annealed Glass - 11.38mm thk



TROPICANA GARDEN

GLASS TYPE

Glass Type:

Condo:

- 11.38mm NHG Cool Grey Low E#4 Laminated Glass
- 10mm NHG Clear Tempered Heat Soaked Glass
- 10mm NHG Clear Tempered Heat Soaked Glass With Full Super White Ceramic Glass

Office Tower:

- 6mm NHG Euro Grey Tinted Glass + 0.76mm Clear PVB + 6mm NHC SN Clear Low-E#4

Shopping Mall:

- 6mm NHG Euro Grey Tinted Glass + 0.38mm Clear PVB + 6mm NHC PG Clear Low-E#4

MID VALLEY SOUTHKEY JOHOR



GLASS TYPE

Glass Type:

- 6mm NHG Blue Grey 88048 Coating#2
Heat Strengthened Glass + 1.52mm
Clear PVB + 5mm NHG Clear Low-E#4
Heat Strengthened Glass+ 12mm A
+ 8mm NHG Clear Heat Strengthened
Glass - 32.52mm thk
- 6mm NHG Blue Grey 88048 Coating#2
Heat Strengthened Glass + 1.52mm
Clear PVB + 5mm NHG Clear
Strengthened Glass - 12.52mm thk



MAIWP TOWER KLCC

GLASS TYPE

Glass Type:

- 6mm NHG Crystal Grey Tempered Heat Soaked Glass
- 6mm NHG Euro Grey Tempered Heat Soaked Glass
- 6mm NHG Dark Blue Tempered Heat Soaked Glass
- 5mm NHG Crystal Grey Tinted Glass + 0.38mm Clear PVB + 5mm NHG Clear Low-E#4
- 5mm NHG Euro Grey Tinted Glass + 0.38mm Clear PVB + 5mm NHG Clear Low-E#4
- 5mm NHG Dark Blue Tinted Glass + 0.38mm Clear PVB + 5mm NHG Clear Low-E#4

The Colony Condominium KL

GLASS TYPE

Glass Type:

- 6mm NHG Blue Tinted Glass + 0.38mm Clear PVB + 6mm NHG Clear Annealed Glass - 12.38mm Laminated
- 10mm NHG Clear Tempered Glass





Cluster C TRX KL

GLASS TYPE

Glass Type:

- 5mm NHG Grey 868005 Coating#2 Glass + 0.76mm Clear PVB + 5mm NHG PG Clear Low-E#4 - 10.76mm Laminated
- 6mm NHG Grey Coating Tempered Heat Soaked Glass
- 5mm NHG Grey 868005 Coating#2 Glass + 0.76mm Clear PVB + 5mm NHG Clear Annealed Glass - 10.76mm Laminated



Royce Residence KLCC

GLASS TYPE

Glass Type:

Residence Tower

- 5mm NHG SN Cool Low-E#2 Glass + 1.52mm Clear PVB + 5mm NHG Euro Grey Tinted Glass - 11.52mm Laminated
- 5mm NHG SN Cool Low-E#2 Glass + 0.38mm Clear PVB + 4mm NHG Euro Grey Tinted Glass - 9.38mm thk

Astoria Ampang

GLASS TYPE

Glass Type:

- 5mm NHG Grey Tinted Glass + 0.38mm Clear PVB + 4mm NHG Clear Annealed Glass - 9.38mm Laminated
- 6mm NHG Grey Tinted Glass + 0.38mm Clear PVB + 6mm NHG Clear Annealed Glass - 12.38mm Laminated
- 10mm NHG Clear Tempered Glass



BBCC Parcel 2 & 3 & 5



GLASS TYPE

Glass Type:

Parcel 2

- 5mm NHG Clear Solar Control #2 Glass+ 0.38mm Clear PVB
+ 5mm NHG Clear Low-E#4 Glass - 10.38mm Laminated

Parcel 3

- 5mm NHG Crystal Grey Tinted Glass + 0.38mm Clear PVB
+ 5mm NHG Clear Low-E#4 Glass - 10.38mm Laminated

Parcel 5

5mm NHG Clear Solar Control KST144#2 Glass + 0.38mm Clear PVB
+ 5mm NHG Clear Low-E#4 Glass - 10.38mm Laminated



SS15 Condo @ Subang Jaya

GLASS TYPE

Glass Type:

- 3mm NHG Light Green Tinted Glass + 0.38mm Clear PVB + 3mm NHG Light Green Tinted Glass - 6.38mm Laminated
- 6mm NHG Clear Tempered Glass + 1.52mm Clear PVB + 6mm NHG Clear Tempered Glass - 13.52mm Laminated
- 8mm NHG Light Green Tempered Glass



Astetica Serviced Residence

GLASS TYPE

Glass Type:

- 4mm NHG Clear Annealed Glass + 0.38mm Clear PVB + 5mm NHG Grey Tinted Glass - 9.38mm Laminated
- 6mm NHG Grey Tinted Glass + 0.38mm Clear PVB + 6mm NHG Clear Annealed Glass - 12.38mm Laminated
- 10mm NHG Clear Tempered Glass

Sunway Velocity Two KLCC



GLASS TYPE

Glass Type:

Residence Tower

- 6mm NHG Euro Grey Tempered Heat Soaked Glass
- 5mm NHG Clear Annealed Glass + 0.38mm Clear PVB + 5mm NHG Clear Annealed Glass - 10.38mm Laminated
- 10mm NHG Clear Tempered Glass

Office Tower

- 6mm NHG Gold Reflective Tempered Heat Soaked Glass
- 11.52mm Thk - NHG Gold Reflective Laminated Glass
- 8mm NHG Blue Solar Control Tempered Heat Soaked Glass
- 11.52mm Laminated NHG Blue Solar Control Laminated Glass



Pavillion Embassy - KLCC Tower C

GLASS TYPE

Glass Type:

- 5mm NHG Bronze Heat Strengthened Glass + 1.52mm Clear PVB + 5mm NHG Clear Low-E#4 Heat Strengthened Glass - 11.52mm Laminated



Hikmah Exchange Sarawak Kuching

GLASS TYPE

Class Type:

- 6mm NHC SNS Blue Green Low-E#2 Heat Strengthened Glass
- + 1.52mm Clear PVB
- + 5mm NHC SN Clear Low-E#4 Heat Strengthened Glass - 12.52mm Laminated



K Avenue Condo @ Sabah

GLASS TYPE

Class Type:

- 4mm NHC Grey Tinted Glass + 0.38mm Clear PVB
- + 4mm NHC Clear Annealed Glass - 8.38mm Laminated



Axon Bukit Bintang

GLASS TYPE

Glass Type:

- ~ 4mm NHG Euro Grey Tinted Glass + 0.38mm Clear PVB + 4mm NHG Clear Annealed Glass - 8.38mm thk

Trion@KL



GLASS TYPE

Glass Type:

- ~ 6mm NHG Euro Grey Tempered Heat Soaked Glass
- ~ 8mm NHG Euro Grey Tempered Heat Soaked Glass
- ~ 10mm NHG Euro Grey Tempered Heat Soaked Glass
- ~ 12mm NHG Euro Grey Tempered Heat Soaked Glass
- ~ 6mm NHG Euro Grey Tempered Heat Soaked Glass + 1.52mm Clear PVB + 6mm NHG Clear Tempered Heat Soaked Glass - 13.52mm thk
- ~ 10mm NHG Clear Tempered Glass



Sabah Jesselton Twin Tower

GLASS TYPE

Glass Type:

- ~ 5mm NHG Crystal Grey Glass + 0.76mm Clear PVB + 5mm NHG Clear Annealed Glass - 10.76mm thk
- ~ 5mm NHG Crystal Grey Heat Strengthened Glass + 1.52mm Clear PVB + 5mm NHG Clear Heat Strengthened Glass - 11.52mm thk
- ~ 5mm NHG Crystal Grey + 0.38mm Clear PVB + 0.38mm White Translucent PVB + 5mm NHG Clear Annealed Glass - 10.76mm thk



Greenfield Sunway

GLASS TYPE

Class Type:

- 8mm NHC Green Tempered Glass
- 5mm NHG Green Tempered Glass + 1.52mm Clear PVB + 5mm NHG Clear Tempered Glass - 11.52mm Laminated
- 6mm NHG Green Tempered Glass + 1.52mm Clear PVB + 6mm NHG Clear Tempered Glass - 13.52mm Laminated
- 6mm NHG Clear Tempered Glass + 1.52mm Clear PVB + 6mm NHG Clear Tempered Glass - 13.52mm Laminated

Capri Hotel Jalan Imbi KL

GLASS TYPE

Class Type:

- 6mm NHG T-Sunlux 130#2 + 0.38mm Clear PVB + 4mm NHG Clear Annealed Glass - 10.38mm Laminated



Aria KLCC

GLASS TYPE

Class Type:

- 5mm Crystal Grey Tinted Glass + 0.76mm Clear PVB + 5mm Sunergy Cool Low-E#4 Glass - 10.76mm Laminated

Shower Screen

- 10mm Clear Tempered Glass

PJ Midtower

GLASS TYPE

Class Type:

- 6mm NHG Sunergy Sigma Dark Blue Low-E#2 Tempered Glass
- 10mm NHG Clear Tempered Glass
- 13.52mm Laminated NHG Clear Tempered Laminated Glass
- 12mm NHG Dark Blue Tempered Glass
- 12.38mm Laminated NHG Clear Annealed Laminated Glass



The Grand Zenith Putrajaya



GLASS TYPE

Class Type:

- 8mm NHG Dark Blue Tempered Glass
- 12mm NHG Dark Blue Tempered Glass
- 10mm NHG Clear Tempered With Super White Ceramic Pattern Glass (Shower Screen)

Dorsett Bukit Bintang

GLASS TYPE

Class Type:

- 5mm NHG Clear Float Glass + 0.38mm Grey PVB + 0.38mm Clear PVB + 0.38mm Grey PVB + 5mm NHG Clear Float Glass 10.76mm Laminated
- 6mm NHG SNGY Clear Hard Coated Low-E#2 Annealed Glass + 0.38mm Grey PVB + 0.38mm Clear PVB + 6mm NHG Clear Annealed Glass - 12.76mm Laminated
- 13.52mm NHG Clear Tempered Heat Soaked Laminated Glass





Media City Phase 2

GLASS TYPE

Class Type:

~ 5mm NHC T-Sunlux 120#2 + 0.38mm Clear PVB
+ 5mm NHG PG Clear Low-E#4 - 10.38mm Laminated



Sunway GEO

GLASS TYPE

Glass Type:

- 6mm NHG Dark Blue T-CS514 Reflective#2 Tempered Heat Soaked Glass
- 6mm NHG Dark Blue T-CS514 Reflective#2 heat Strengthened Glass + 1.52mm Clear PVB + 5mm NHG Clear Heat Strengthened Glass - 12.52mm Laminated
- 12mm Clear Tempered Heat Soaked Glass (Door)



Setia SKY 88 (Johor)

GLASS TYPE

Glass Type:

- 5mm Euro Grey Annealed Glass + 0.38mm Clear PVB + 5mm Planibel C Clear Low-E #4) - 10.38mm Laminated
- 5mm Clear Annealed Float - 0.38mm Grey PVB + 6mm NHG Solar-E Clear Annealed Hard Coated#4 - 11.38mm Laminated
- NHG Clear Tempered Heat Soaked Glass - 12mm
- 5mm NHG Clear Float Glass + 0.38mm White Translucent PVB + 5mm NHG Clear Float Glass - 10.38mm Laminated

Symphony Square

GLASS TYPE

Glass Type:

- 5mm NHG Clear Annealed Glass + 0.38mm Grey PVB + 5mm NHG Clear Annealed Glass - 10.38mm Laminated
- 10mm NHG Clear Tempered Glass
- 12mm NHG Clear Tempered Glass
- 15mm NHG Clear Tempered Heat Soaked Glass
- 19mm NHG Clear Tempered Heat Soaked Glass
- 5mm NHG Blue Tinted Glass + 0.38mm White Translucent PVB + 5mm NHG Clear Annealed Glass - 10.38mm Laminated



The Ruma Hotel & Residences @ (Jalan Kia Peng, Kuala Lumpur)

GLASS TYPE

Glass Type:

- 5mm NHG Euro Grey Annealed Glass + 0.38mm Clear PVB + 5mm NHG Sunergy Cool Clear Annealed Hard Coated Low-E Glass - 10.38mm Laminated



Puteri Cove

GLASS TYPE

Class Type:

- 5mm Light Green Annealed Glass + 0.38mm Clear PVB + 4mm Clear Annealed Glass - 9.38mm Laminated
- 15mm NHG Clear Tempered Heat Soaked Glass
- 12mm NHG Clear Tempered Heat Soaked Glass
- 8mm NHG Light Green Tinted Glass

East Parc Menjalara

GLASS TYPE

Class Type:

- 4mm NHG Clear Annealed Glass + 0.38mm Light Blue Green PVB + 4mm NHG Clear Annealed Glass - 8.38mm Laminated



Medini 9 - Iskandar Johor



GLASS TYPE

Glass Type:

- 5mm NHG Euro Grey Tempered Glass + 1.52mm Clear PVB + 6mm NHG Sunergy Cool Hard Coated Low-E#4 Heat Strengthened Glass - 11.52mm Laminated
- 6mm NHG Euro Grey Tempered Heat Soaked



Anjali @ North Kiara

GLASS TYPE

Glass Type:

- 10mm NHG Clear Tempered Glass (Shower Screen)
- 6mm NHG Euro Grey Tempered Glass
- 8mm NHG Euro Grey Tempered Glass
- 10mm NHG Euro Grey Tempered Glass

D'Latour@DK City, Bandar Sunway

GLASS TYPE

Glass Type:

- 6mm NHG Euro Grey Heat Strengthened Glass
- 6mm NHG Euro Grey Heat Strengthened Glass + 1.52mm Clear PVB + 6mm NHG Clear Heat Strengthened Glass - 13.52mm Laminated





Paradigm

GLASS TYPE

Glass Type:

- 6mm NHG Light Green Tempered Heat Soaked Glass
- 6mm NHG Clear Tempered Heat Soaked Glass
- 12mm NHG Clear Tempered Glass
- 10mm NHG Clear Tempered Heat Soaked Glass + 1.52mm Clear PVB + 10mm NHG Clear Tempered Heat Soaked Glass - 21.52mm Laminated
- 6mm NHG Light Green Heat Strengthened Glass + 1.52mm Clear PVB + 6mm NHG Clear Heat Strengthened Glass - 13.52mm Laminated

GLASS TYPE

Glass Type:

- 6mm NHG Stopsol Classic Green Reflective #2 Annealed Glass + 0.38mm Clear PVB + 4mm NHG Clear Annealed Glass - 10.38mm Laminated
- 6mm NHG Stopsol Classic Green Reflective #2 Tempered With Heat Soaked Glass
- 8mm NHG Clear Tempered Heat Soaked Glass + 1.52mm Clear PVB + 8mm NHG Clear Tempered Heat Soaked Glass - 17.52mm Laminated

The Atria Shopping



Imperio @ Hatten City - Melaka



GLASS TYPE

Glass Type:

Level LG - Level 14

- ~ 6mm NHG Clear Tempered Glass
- ~ 8mm NHG Clear Tempered Glass
- ~ 10mm NHG Clear Tempered Glass
- ~ NHG Clear Tempered Glass
- ~ 5mm NHG Clear Annealed Glass + 0.38 Clear PVB + 5mm NHG Clear Annealed Glass - 10.38mm Laminated

Level 15 - Level 30

- ~ 6mm NHG Euro Grey Tempered Glass
- ~ 8mm NHG Euro Grey Tempered Glass



THE LINK 2 @ BUKIT JALIL

GLASS TYPE

Glass Type:

- ~ 5mm NHG Dark Blue Annealed Glass + 0.38mm Clear PVB + 4mm NHG Clear Annealed Glass) - 9.38mm Laminated
- ~ 5mm NHG Clear Annealed Glass + 0.38mm Clear PVB + 4mm NHG Clear Annealed Glass) - 9.38mm Laminated

Evo Soho Suites (Bangi)



GLASS TYPE

Glass Type:

- 5mm NHG Light Green Float Glass
+ 0.38mm Clear PVB + 5mm NHG Clear Float Glass - 10.38mm Laminated
- 6mm NHG Light Green Tempered Glass



BLOOMSVALE @ Old Klang Road

GLASS TYPE

Glass Type:

- 6mm NHG Light Green Tempered Glass
- 8mm NHG Light Green Tempered Glass
- 6mm NHG Clear Annealed Glass + 0.38mm White Translucent PVB + 6mm NHG Clear Annealed Glass - 12.38mm thk
- 10mm NHG Clear Tempered Glass



Anggun Residences

GLASS TYPE

Glass Type:

- 6mm NHG Euro Grey Annealed Glass + 0.38mm Clear PVB
- + 6mm NHG Clear Annealed Glass - 12.38mm Laminated
- 10mm NHG Clear Tempered Glass



Hop Hup Sabah

GLASS TYPE

Glass Type:

- 6mm NHG Clear Heat Strengthened Glass + 1.52mm Clear PVB
- + 6mm NHG Clear Low-E#4 Heat Strengthened Glass + 12mm Air
- + 6mm NHG Clear Heat Strengthened Glass - 31.52mm thk

AWARD CEREMONY



PERFORMANCE DATA



| Item | Total Thickness (mm) | Glass Description | Visible Light | | | Solar Energy (%) | | | Shading Coefficient | SHGC | U-Value (W/m ² /K) Summer |
|------|----------------------|--|---------------|------------|----------|------------------|----------|----------|---------------------|------|--------------------------------------|
| | | | Transmittance | Reflection | Out. In. | Transmittance | Out. In. | Out. In. | | | |
| 1 | 6 | Clear | 89 | 8 | 8 | 82 | 7 | 11 | 0.97 | 0.84 | 5.60 |
| 2 | 10 | Clear | 88 | 8 | 8 | 77 | 7 | 16 | 0.93 | 0.81 | 5.60 |
| 3 | 12 | Clear | 87 | 8 | 8 | 73 | 7 | 21 | 0.89 | 0.78 | 5.50 |
| 4 | 6 | Euro Grey | 45 | 5 | 5 | 45 | 5 | 49 | 0.65 | 0.57 | 5.60 |
| 5 | 8 | Euro Grey | 36 | 5 | 5 | 36 | 5 | 59 | 0.58 | 0.50 | 5.60 |
| 6 | 12 | Euro Grey | 22 | 5 | 5 | 23 | 5 | 72 | 0.46 | 0.40 | 5.50 |
| 7 | 12.38 | 6mm Clear Annealed Glass + 0.38mm Clear PVB + 6mm Clear Annealed Glass | 87 | 8 | 8 | 67 | 7 | 26 | 0.84 | 0.73 | 5.50 |
| 8 | 12.38 | 6mm Clear 019#2 Annealed Glass + 0.38mm Clear PVB + 6mm Clear Annealed Glass | 22 | 25 | 25 | 17 | 20 | 63 | 0.37 | 0.32 | 5.00 |
| 9 | 12.38 | 6mm Clear Annealed Glass + 0.38mm Clear PVB + 6mm Greyish On Clear Low-#4 Annealed Glass | 67 | 9 | 11 | 46 | 7 | 46 | 0.62 | 0.54 | 4.00 |
| 10 | 12.52 | 6mm Euro Grey Tempered Glass + 1.52mm Clear PVB + 6mm Clear | 44 | 5 | 5 | 37 | 5 | 58 | 0.58 | 0.50 | 5.30 |
| 11 | 12.52 | 6mm Crystal Grey Tempered Glass + 1.52mm Clear PVB + 6mm Optic Clear #4 Tempered Glass | 52 | 11 | 16 | 38 | 9 | 40 | 0.56 | 0.48 | 2.79 |
| 12 | 12.52 | 6mm Euro Grey Tempered Glass + 1.52mm Clear PVB + 6mm Optic Clear #4 Tempered Glass | 40 | 6 | 8 | 31 | 5 | 64 | 0.47 | 0.41 | 3.50 |
| 13 | 32.52 | 6mm Crystal Grey (On Blue) 8800#8 Solar Control #2 Heat Strengthened Glass + 1.52mm Clear PVB + 5mm Optic Clear #4 Heat Strengthened Glass + A12 + 8mm Clear Heat Strengthened Glass | 34 | 22 | 23 | 22 | 16 | 48 | 0.36 | 0.32 | 1.89 |
| 14 | 28 | 8mm 885133 on Clear #2 Low-E #2-Heat Strengthened Glass + A12 + 8mm Clear Tempered Glass | 49 | 25 | 17 | 27 | 28 | 45 | 0.37 | 0.32 | 1.60 |

Specification, technical and other data are based on information available at the time of preparation of this document and are subject to change without notice. Nam Heng Safety Glass Sdn. Bhd. cannot be held responsible for any deviation between the data introduced and the conditions on site. This document is only informative, in no way it implies an acceptance of the order by Nam Heng Safety Glass Sdn. Bhd.

ACOUSTIC COMFORT

The table below shows the maximum acoustic pressure levels depending on the type of area or activity performed here.

Maximum levels of acoustic pressure in rooms

| Area | Level of Acoustic Pressure (dB) |
|---|---------------------------------|
| Bedrooms, Libraries | 20 to 30 |
| Apartments, Living Areas | 20 to 40 |
| Schools | 25 to 40 |
| Cinemas and Conference Rooms | 30 to 40 |
| Individual Offices | 30 to 45 |
| Shared Office | 40 to 50 |
| Office with People Typing, Large Shops, Restaurants | 45 to 55 |

ACOUSTIC DATA

| | | Acoustic Data Frequency In Hertz (Hz) | | | | | | | | | | | | | | | | | | | |
|---------------|---------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|-----|----|
| Glass Make Up | | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1000 | 1250 | 1600 | 2000 | 2500 | 3150 | 4000 | 5000 | STC | |
| | | Sound Transmission Loss (dB) | | | | | | | | | | | | | | | | | | | |
| 6mm | | 23 | 25 | 25 | 24 | 28 | 26 | 29 | 31 | 33 | 34 | 34 | 35 | 34 | 30 | 27 | 32 | 37 | 31 | 31 | |
| 12mm | | 26 | 30 | 26 | 30 | 33 | 33 | 34 | 36 | 37 | 35 | 32 | 32 | 36 | 40 | 43 | 46 | 50 | 51 | 36 | |
| Glass | PVB | Glass (mm) | | | | | | | | | | | | | | | | | | | |
| 3 | 0.38 | 3 | 27 | 23 | 27 | 24 | 27 | 28 | 29 | 31 | 33 | 35 | 35 | 35 | 33 | 31 | 32 | 37 | 41 | 45 | 33 |
| 3 | 0.76 | 3 | 25 | 26 | 28 | 27 | 29 | 29 | 30 | 32 | 34 | 35 | 35 | 36 | 35 | 35 | 38 | 43 | 46 | 35 | |
| 6 | 0.76 | 3 | 27 | 28 | 26 | 30 | 31 | 31 | 32 | 34 | 35 | 36 | 36 | 35 | 35 | 36 | 40 | 44 | 48 | 51 | 36 |
| 6 | 1.52 | 3 | 27 | 28 | 27 | 30 | 31 | 31 | 33 | 35 | 36 | 37 | 37 | 36 | 37 | 41 | 44 | 48 | 51 | 37 | |
| 6 | 0.38 | 6 | 25 | 25 | 27 | 30 | 32 | 32 | 34 | 35 | 35 | 35 | 32 | 33 | 35 | 40 | 43 | 46 | 49 | 51 | 36 |
| 6 | 2.285CP | 6 | 31 | 30 | 29 | 31 | 32 | 33 | 33 | 34 | 35 | 36 | 34 | 32 | 34 | 37 | 40 | 42 | 44 | 47 | 36 |
| Glass | Space | Glass (mm) | | | | | | | | | | | | | | | | | | | |
| 6 | 12 | 6 | 27 | 24 | 27 | 22 | 22 | 25 | 30 | 33 | 35 | 38 | 40 | 42 | 42 | 37 | 37 | 43 | 46 | 49 | 35 |
| 6 | 12 | 6 | 27 | 23 | 28 | 21 | 27 | 29 | 34 | 35 | 37 | 41 | 43 | 45 | 44 | 39 | 39 | 46 | 49 | 52 | 38 |

GENERAL PROPERTIES

PHYSICAL & MECHANICAL PROPERTIES OF GLASS

| | |
|----------------------------------|--|
| Refractive Index | 1.52 |
| Reflectance (Vertical Incidence) | 4% at Each Surface |
| Specific Heat | 0.2 kcal/kg (0° - 50°C) |
| Softening Temperature | 720° - 730°C |
| Thermal Conductivity | 0.68 kcal/mh°C |
| Coefficient of Linear Expansion | 8.5 x 10 ⁻⁶ /°C (25-350°C) |
| Specific Gravity | 2.5 |
| Hardness | 6.5° (Mohs' Scale) |
| | 548kg/mm ² (Vickers' Scale) |
| Compressive Strength | 6,000 - 12,000kg/cm ² |
| Young's Modulus | 720,000 kg/cm ² |
| Poisson's Ratio | 0.25 |
| Average Breaking Stress | Approx 500 kg/cm ² |

MAIN COMPONENTS OF FLAT GLASSES

| Component | Content | Remarks |
|--------------------------------|--------------------------------------|---------------------------------------|
| SiO ₂ | 74% / Al ₂ O ₃ | Main Component |
| Al ₂ O ₃ | 0-3% | Increasing Elastic Modulus & Hardness |
| CaO | 6-12% | Making Glass Less Soluble In Water |
| MgO | 0-4% | |
| Na ₂ O | 12 - 16% | Lowering Melting Point |

PHYSICAL & MECHANICAL PROPERTIES OF GLASS

| | *1 Winter | *2 Summer |
|-----------------------|--------------------------|----------------------------|
| Outdoor Temperature | -18°C (0°F) | 32°C (89°F) |
| Room Temperature | 21 °C (70°F) | 24°C (75°F) |
| Outdoor Wind Velocity | 6.7 m/s (15mph) | 3.3 m/s (7.5mph) |
| Indoor Air Velocity | 0 m/s (0mph) | 0 m/s (0mph) |
| Solar Intensity | 0 Kcal/m ² hr | 672 Kcal/m ² hr |

Shading Coefficient (SC) is the ratio of heat gain through a glass to the heat gain through 3mm clear sheet glass under the same set of condition. The SC of 3mm clear glass is equivalent to 1.0. A lower SC indicates better solar control glass performance.

U-Value is the heat gain or loss conducted through the glass due to the temperature difference between the indoor and the outdoor environment. A lower U-Value indicates a better glass insulation.

Visible Light (VL) - The visible radiation wavelength falls between the range of 380 to 780 nanometer (nm)

Reflection (REF) - the values in the column "Out" indicates reflection towards outdoor, and column "in" for the reflection indoor.



TECHNICAL INFORMATION

RISK OF NICKEL SULFIDE PRESENCE IN GLASS

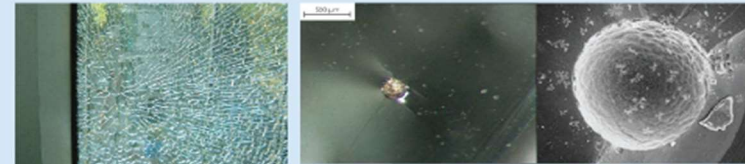
ORIGIN

Glass can contain inclusions of various natures, coming from the raw materials, cullet or from the production facilities themselves. Among these, we find the Nickel Sulfide (NIS). These inclusions have a size of about 60 µm to 500 µm. They have the distinction of having a different crystalline structure at low and high temperature so that their volume is greater at low temperature. The presence of such inclusion does not render the glass defective, and normally does not impair the appearance or technical performance of the glass.

PHENOMENON

During annealing process, all particles of NIS have the time to reach their structure at low temperature (as annealed glass). The change in volume of inclusions can be absorbed by the still "soft" glass and they do not present a danger to the glass. But, in the case of thermally tempered glasses, NIS reaches its stable structure at high temperature at the beginning of the operation of tempering when temperature of the glass is about 650°C. The quenching process (rapid cooling) which follows does not leave time for NIS to reach its stable structure since the glass temperature rapidly reduce to room temperature (glass have solidified). Its transformation will therefore continue at the temperature of service of the glass and the related increase in volume can cause spontaneous breakage of the glass sheet.

In this case, we find a characteristic breakage in the shape of butterfly. Many articles and publications exist on the subject. The phenomenon is inherent to thermally toughened glass, and can therefore not be considered a hidden defect of the product.



Typical breakage starting from NIS inclusion

Zoom on NIS inclusion

These ruptures remain not very frequent, but can affect a certain number of thermally toughened glazings of a building.

PREVENTION

In order to reduce the risks of spontaneous breakage, two solutions exist.

- 1) If the thermally tempered glass is necessary for your application, we can opt to choose heat strengthened glass instead of tempered glass which can reduce the risk of spontaneous breakage. However, please mind that heat strengthened glass has also possibility of spontaneous breakage.
- 2) If the tempered glass is necessary, a process called "heat soak" treatment should be strongly recommended.

This one consists in placing glass in a furnace at a stage of temperature, during a determined time, in order to enable and accelerate the transformation of NIS. The breakage due to the possible presence of critical particles of NIS will partially occur during this treatment. Please mind that "heat soak" treatment cannot fully eliminate the risk of spontaneous breakage. The "heat soak" treatment methods are described in several standards such as EN 14179 and ASTM.

When using thermally tempered glass, a risk of spontaneous breakage due to the presence of nickel sulfide particles is possible. And it is not possible to eliminate nickel sulfide in glass composition, in terms of characteristics of raw material of glass and current technology. But this problem can be minimized using heat strengthened glass or tempered glass with "heat soak" treatment.

Under this condition, Nam Heng Group do not guarantee spontaneous breakage and strongly recommend applying "heat soak" treatment for tempered glass.

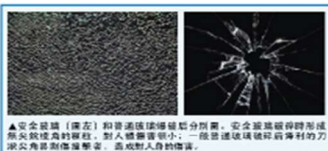
◎2019年12月31日 星期二

◎市場情報 中國報

勿讓一片玻璃成為生活安全隱患... 南興玻璃集團 安全玻璃倡導者



▲南興玻璃集團，自始至終堅持「品質至上、安全第一」的理念。



▲安全玻璃(左)和普通玻璃破裂時所呈現的裂紋及碎片狀態。安全玻璃破碎時碎片裂紋及碎片較小，對人體傷害小；一般普通玻璃破碎時碎片力較大易造成傷害，造成人身財產損失。



▲南興玻璃集團設有全自動玻璃化驗設備。



▲南興玻璃集團的钢化玻璃，可能承受風速達每秒100公里，承受風壓達1萬Psi，達到1萬4000psi。

我們常聽聞有關“不小心撞破玻璃，遭碎片割破傷亡”的意外新聞，最近一宗的事故就發生在今年10月，一名15歲少年與友人在教室嬉鬧時，不慎撞到玻璃門，被玻璃碎片割破頭動脈，因失血過多身亡，引起各方關注，無不令閱者感到痛心和惋惜。

其實，人家有否想過，類似這種不幸事故是可以避免的，如果那是“安全玻璃”……

“不小心撞破玻璃，遭碎片割破傷亡”雖屬小概率事件，但一旦發生了，後果極其嚴重，分分鐘送上寶貴的生命。作為安全玻璃倡導者的南興玻璃集團(Nam Heng Glass Group)，可說是領先大馬安全玻璃業的佼佼者，致力宣導安全玻璃的重要性。

南興玻璃集團專人奉辦玻璃銷售指出，許多消費者對玻璃的認識和瞭解可能只限於美觀，忽視了玻璃安全性的指標要求，而導致日常生活中存在很多安全隱患。

據例黑白16歲開始與玻璃“打交道”，至今已有一36年經驗的他，自始至終堅持“品質至上、安全第一”的理念。

他強調，若家中或公眾場所，如學校或商場等擁有大量玻璃的場所，對天生好動的小孩來說是個安全隱患。若用上安全玻璃，特別是鋼化玻璃或夾層玻璃，東家就可省心多了。

“有別於一般玻璃在被裂後，碎片有鋒利邊緣，可能易割傷人，安全玻璃更耐撞擊，不易破

碎，即使在破後，雖然會出現裂紋，但仍持續保持原本形狀，確保玻璃碎片不會割傷人。”

“由此可見，安全玻璃與普通玻璃之間，對於杜絕安全事件發生具有十分重要的意義！”

他補充，在國家方面，我們都會得花大錢購置數十萬至上百萬的漂亮房子，卻不願意花點小錢選購安全玻璃，為居家環境帶來更大的安全保障。

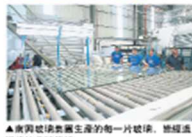
“其實，安全玻璃和普通玻璃的售價不會太過，一般掛單單位只需額外投資幾千令吉或不到一合冷氣機的價錢，就可為居住提供完美的安全保障。讓自己和家人住得舒適又安心，再說，有什麼是比生命更為寶貴。”

“因此，為了自家的家庭安全、減少門窗意外事件的發生，建議消費者慎選有品質、質量和認證的安全玻璃。莫勿為了一時的省錢和抱著侥幸心理，而把人身安全捨棄去，最後得不償失。”

欲知更多詳情，請瀏覽：
www.namhengglassgroup.com



▲南興玻璃集團在生產過程中嚴格控制每片玻璃的質量。



▲南興玻璃集團生產的每一片玻璃，均經過嚴格的品質控制。

2019年7月4日 星期四

新聞資訊 | 東方日報 | A5

南興玻璃集團宣導安全玻璃重要性

南興玻璃集團發展從即日起至本月6日(星期六)在吉隆坡會展中心(KLCC)舉行的「馬來西亞國際建築、室內設計及建材展覽會」(ARCHIDEX)，向民眾展示該公司旗下不同類型的玻璃及各用途，宣導安全玻璃的重要性。

南興玻璃集團主席李國強表示，早期大眾普遍採用普通玻璃，然而普通玻璃其實存有安全隱患。一旦不小心撞擊可能導致意外發生，因此該公司常從並此機會，透過展覽向民眾宣傳各類別玻璃的資訊。

他舉例，玻璃可分為3類，即普通玻璃、鋼化玻璃及夾層玻璃。而該公司則採用海外進口及本地玻璃，其供應來自美國、日本及中國等。

「如今吉隆坡建築物大多採用鋼化玻璃，鋼化玻璃的強度比普通玻璃的強度強數倍，且價廉物美，惟缺點是容易受熱脹冷縮而導致「龜裂」的現象，玻璃破裂時，必須馬上尋找「醫生」更新。」

他表示，夾層玻璃是最高級別及最安全的玻璃，新舊高度允許，玻璃破裂後加以夾層則可承受外來至少4倍至5倍的撞擊壓力。尤其其材料從國外引進，其特殊材料不易打碎，可大幅度提升安全度，即使碎了也不會飛上飛下，避免意外發生導致傷亡。

他續說，由於新加坡早期已開始使用鋼化玻璃，加上如今玻璃成本逐漸降低，因此於政府不管理理住宅或商場，即可使用鋼化玻璃，達到保障人民安全，再話當年。

生產水準獲認證

值得一提的是，該公司旗下的產品皆獲得馬來西亞綠色建築聯盟、+建築師公會、品質管理

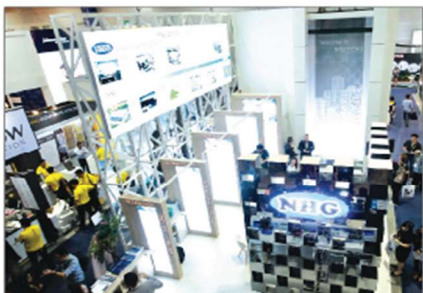
系(ISO 9001:2015)所頒發的認證證書，足以證明該公司所生產的夾層玻璃達到安全及最高的生產水準，符合及滿足市場的需求。

該公司及未來發展，統研安全玻璃有限公司董事王文海指出，考慮未來可以持續擴充業務，同時與政府相配合，以推行工家4.0的趨勢，逐漸轉向自動化的工廠。

隨著人民安全意識提升，該集團專注供應材料與安全玻璃，如鋼化玻璃、夾層玻璃、中空玻璃及保潔玻璃等。該公司亦出口玻璃至海外，如美國、柬埔寨、孟加拉及新加坡等。所生產的玻璃應用在各類型的建築物、酒店及家庭等。另外該公司主要客戶來自

檳城，在全馬包括東馬共有2000個代理商，更有多達600個員工。

截至目前，該集團在全馬各地擁有4間批發玻璃廠，分別坐落於芙蓉、雪蘭莪、檳城及沙巴；新山、芙蓉、沙巴及檳城再設於加工廠工廠，分別供應玻璃零件、鏡子及各種玻璃。各式玻璃的總庫存量以達數百萬方呎。



南興玻璃集團於「馬來西亞國際建築、室內設計及建材展覽會」，展示各類型的安全玻璃。

耗資設立廠房 引進全新科技

專業知識與水準發展

1996年，陳劍傑在武吉知馬成立南興玻璃集團，從事建築玻璃的製作與安裝工程。大約5年後，即2001年3月，公司與各商號組建南興玻璃私人有限公司，開始經營玻璃、鋁窗及安全玻璃的強大實力。該集團2003年將業務擴展至全馬，2008年成功淨進佔沙巴、新加坡及淡申市場；2015年，再擴展至北馬，包括檳城、亞羅士打和怡保，甚至擴展至海外的開戶。

基於馬來西亞地區的快速發展，該公司為應對市場需求劇烈的變化，積極籌劃於2017年第二季投資數千萬令吉，於芙蓉新莊設立面積約1萬8130平方呎新廠房，同時引進全新科技於安全玻璃生產設備，包括一體式雙面鋼化玻璃爐及全自動雙邊光潔處理機。

該集團使用的新雙面鋼化玻璃爐是馬來西亞目前最大型的鋼化爐，直徑高12米、寬3米，其鋼化爐爐化爐，能增加50%的生產量。全新自動雙邊光潔處理機能在大大改善產能的前提下，確保玻璃的品質要求。

該集團以客戶為導向通過樹立高標準的優質產品品質，爭取市場領先地位。截止今日，不僅發展成為馬來西亞市場的玻璃貿易商，同時也成為領先的安全玻璃製造商，提高本地玻璃市場的水平。

欲知更多詳情，可親臨展會位2N201(早上10時至晚上7時)或瀏覽www.namhengglassgroup.com 查詢或撥打03-8024 6188。

HISTORY TIMELINE

1996

Established of Nam Heng Glass Sdn Bhd in Johor Bahru.



2003

Penetrated to Central Region & set up N.H.G. Marketing Sdn Bhd



2012

Partnership with Subang Safety Glass Sdn Bhd



2014

Nam Heng Safety Glass (J) Sdn Bhd was established and focused on process glass business.



2017

Invested a new plant in Senawang for downstream process



2021

2021 LARGEST GLASS FACTORY PROCESSOR



Expanded & moved to new factory in Seelong Jaya.

2001



SB Glass Sabab-Began Serving East Malaysia Market.

2008



Launches of Nam Heng Glass (Penang) Sdn Bhd. At the same time, N.H.G. Marketing Sdn Bhd rename as Nam Heng Safety Glass Sdn Bhd.

2015



Evolution of SB Glass Sabah become Nam Heng Safety Glass (Sabah) Sdn Bhd

2018



南興玻璃集團
NAM HENG GLASS GROUP