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NBEC
TRANSPARENCIES

Products

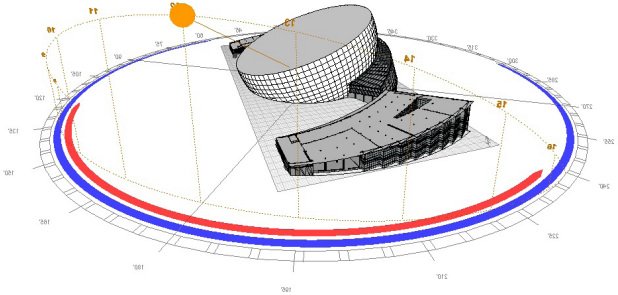
NBEC production line, is created based on the related industrial standards. NBEC offers high quality products that meet the customers' needs and provides downstream construction industries with the much needed translucent products. The company's products spectrum can be subdivided to the .following categories

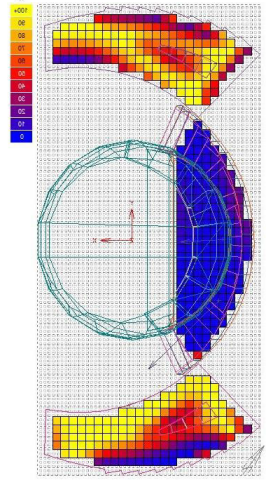
Structural	Insulating glass units
	Tempered and heat strengthened glass
	Laminated glass
	Energy-efficient glass
	Decorative glass
	Spandrel glass
	Sand blasted glass
	Bent glass
	Laminated and tempered curved glass
	Energy efficient low emissivity glass
Security	Attack resistant glass
	Bulletproof glass
	Blast resistant glass
Transportation Vehicles	Car glass
	Electric heated glass for train and metro
	Bus and commercial vehicles glass
Special Products	Chemically strengthened glass

Design, Engineering and Consultation Services

In recent years, the engineering designer network of the department has analyzed the effective parameters of the translucent skin systems. Additionally, the department's glass experts can provide the following services for the would be :clients

- Strength analysis, and glass structure design
- Lighting, sound, heat and energy analysis
- Structure analysis of building skins
- Optimization of thermal comfort components in the buildings
- Design and modeling of glass domes and surfaces
- Design of Curtain wall systems and glass surfaces with spider fittings
- Project implementations in line with the latest world standards

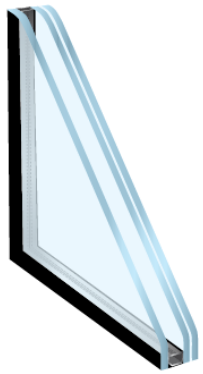




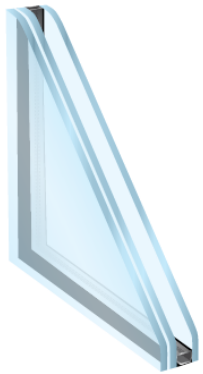
Insulating glass units

(sound and heat insulating glass)

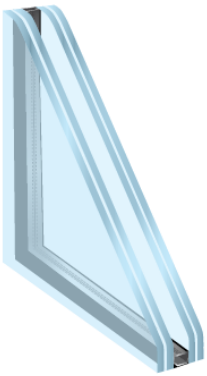
These glasses consist of two or more layers of glass that are placed at a certain distance from each other by a spacer. In this case, the space between the glasses is completely sealed. Additionally, desiccant is used inside the spacer to remove the moisture from the space between the layers. The type of gas between the glasses can be changed depending on the desired insulation. Special gases such as argon, krypton, and xenon that replace the air can improve the functionality of this type of glasses. Combining multi-layered glass with gas in the space between makes insulating glass units a suitable tool for energy conservation and use in buildings' windows. In the manufacture of insulating glass, various types of float, reflective, tempered, low emissivity and laminated glass can be used according to the customer's request.



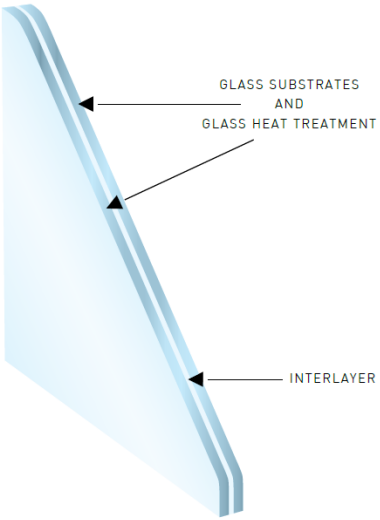
INSULATING LAMINATED



LAMINATED INSULATING

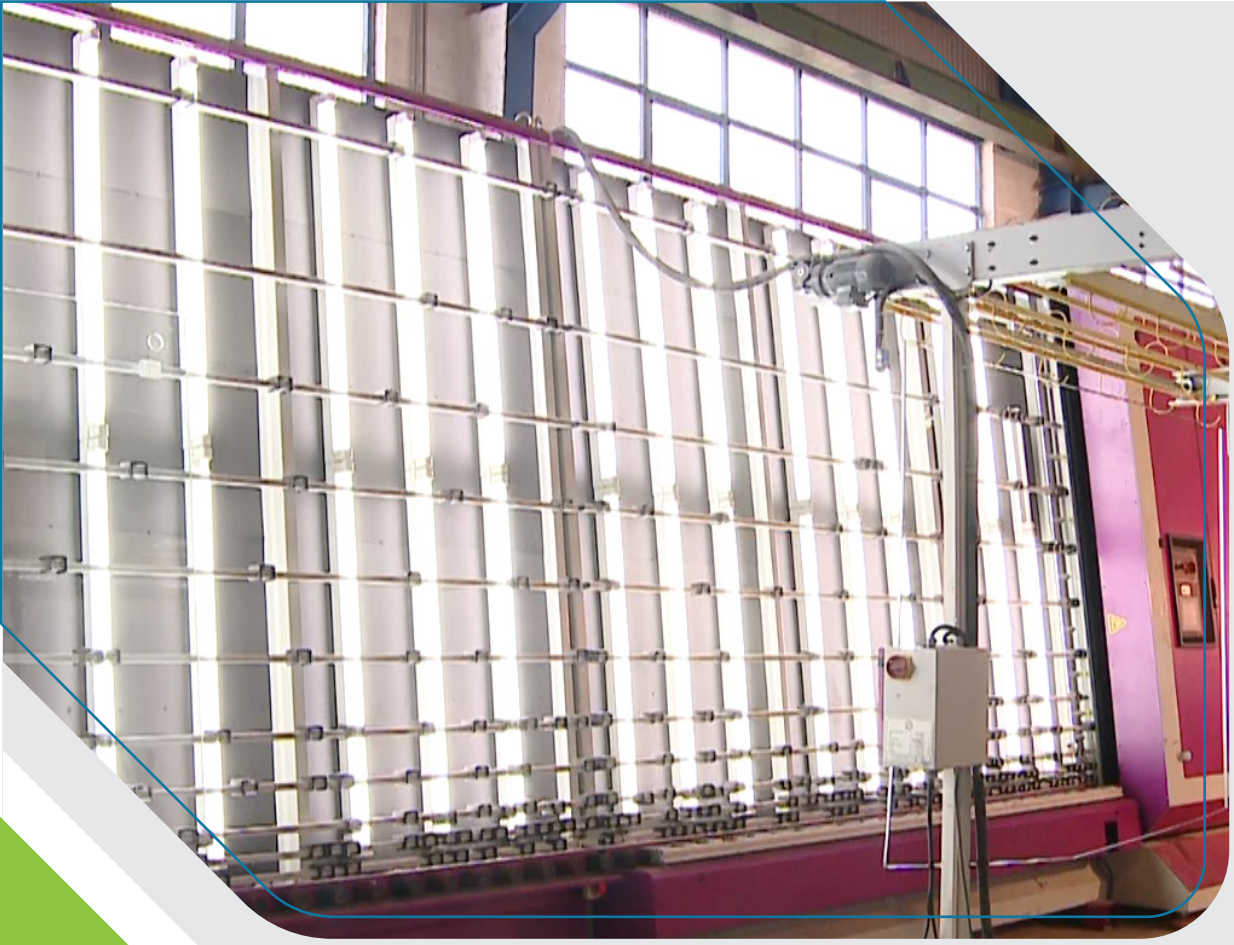


DOUBLE LAMINATED INSULATING



Laminated glass (laminated safety glass)

This product is made of two or more pieces of glass, with layers of flexible polymers (PVB) placed between them. In this product, the glass and the interlayers are bonded through heating under pressure in the autoclave which gives rise to a flawless translucence. The main function of this type of safety glasses is to increase the sound insulation and prevent the glass fall if shattered.

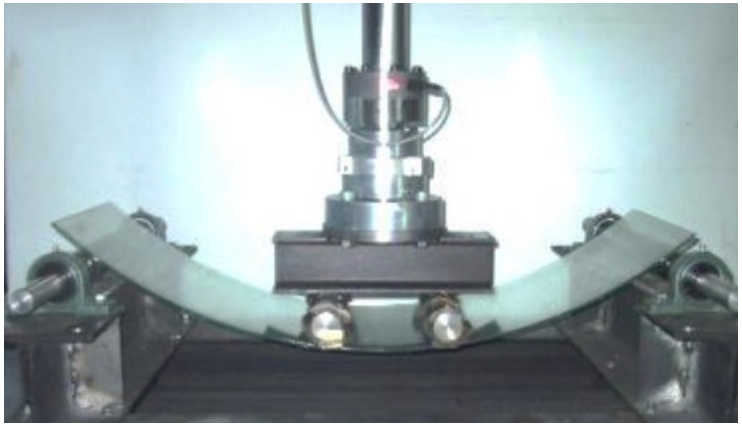


Architectural glass

This company as one of the most prominent manufacturers and processors of structural glass in Iran, has produced structural glasses for use in Interior decoration and exterior façade by utilizing modern state-of-the-art machinery in the field of insulated, laminated and .tempered glass

Security glass (fully tempered – semi tempered)

Full tempered glass is produced by heating the float glass and rapid cooling of the glass surface. Rapid cooling creates compressive stress on the glass surface, so this type of glass posses high resistance to temperature shocks, bending and pressure. In semi tempered glass, the glass cools at a slower rate, which reduces the amount of generated compressive stress in comparison with the fully tempered glass and leads to a coarser pattern of break down in these glasses.

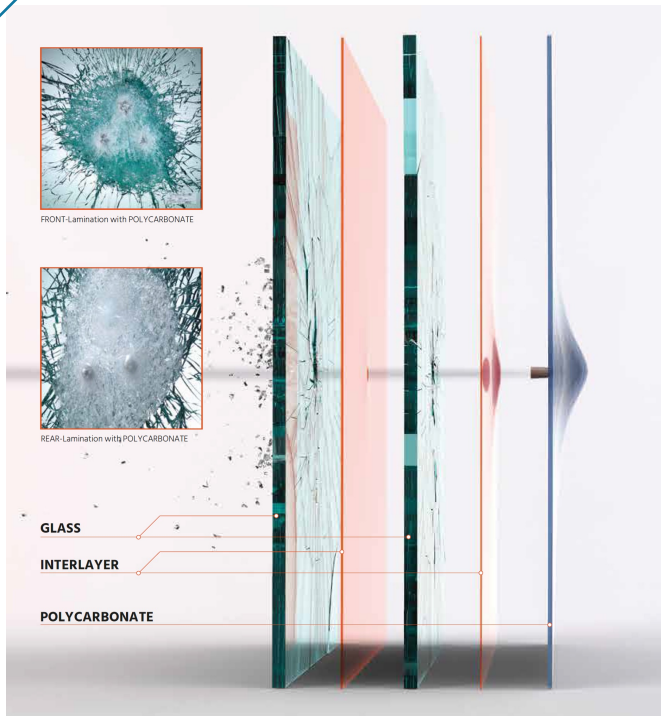


Bulletproof glass

Bulletproof glasses consist of glass and interlayer structure resistant to bullets at the designed threat level.

Features:

- Tested in keeping with the accepted world standards
- The highest amount of light transmission and the lowest amount of aberration and distortion
- Possibility of protecting the edges of the glass to increase the life of the glass in humid weather conditions
- Possibility of designing and production in different sizes and shapes
- Possibility of producing curved and flat glasses according to the consumer needs
- Possibility of producing bulletproof glass using very clear crystal glass for jewelry stores and currency exchanges



Technical Specifications:

EN 1063 Standard Level	Gun type	Bullet type	projectile	velocity	Thickness
BR4 - S		9mm	124 gr.	427 mps	22 mm
BR5 - S		7.62*39 mm / AK47	123 gr.	715 mps	33 mm
BR6 - S		7.62*51 mm /M80 308 Winchester FMJ 5.56*45mm/M-16/193	149 gr. 150 gr. 45 gr.	838 mps 838 mps 919 mps	45 mm

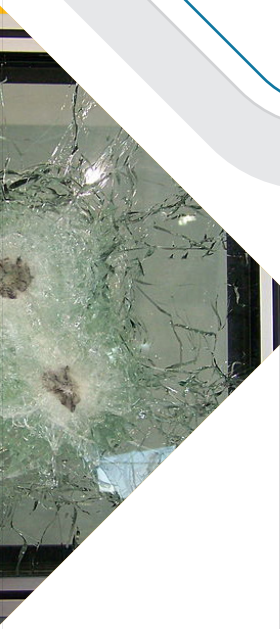
Applications:

- Jewelry stores
- Banks and currency exchanges
- Important and highly sensitive centers
- Museums

Attack resistant glass

Features:

- Tested by an axe test device
- Possibility of making glass in various dimensions
- Clear vision without aberration and distortion
- Possibility of production in flat and curved shapes



Technical Specifications:

Specifications of produced attack resistant glass are in accordance with the table below.

Number of axe strokes	Thickness (mm)	Weight (kg/m2)
Up to 30 strokes	21 – 27	48 – 63
30 to 50 strokes	37 – 31	66 – 76
50 to 70 strokes	35	82

Applications:

- Sensitive centers with a high level of security
- Commercial centers
- Banks, jewelry store and hotels
- Prisons and detention centers
- Replacement of metal railings in a variety of applications

Heated glass

Heated glass is a type of laminated glass in which the micro elements that are invisibly inserted in the two glasses cause the glass to heat up. These glasses have various applications in transportation vehicles such as airplanes, city and intercity trains, heavy vehicles and passenger cars. The heat generated on the surface of these glasses prevents the glass .from steaming and freezing

Features:

- Quick demisting and defrosting
- Possibility of designing and producing in different shapes
- Possibility of designing for heating the whole or part of the glass
- Excellent vision in all environmental conditions and different seasons of the year
- Possibility of using micro elements with sinusoidal or linear design

Applications:

- Train and subway heated windows
- Heated windows in front of buses and heavy vehicles
- Heated windows in front of passenger cars

Technical Specifications:

- Possibility of designing with different powers from 1 to 80 watts per square meter
- Using micro elements with a thickness of 20 microns or less
- Possibility of designing glass with a voltage of 12 volts or more
- Possibility of increasing the glass surface temperature up to 50 degrees Centigrade
- In accordance with international standards

Blast resistant glass

Blast resistant glasses can resist against wave energy and can damaged blasting energy. During the blast glass remain in the frame and prevent of spalling glass pieaces around it also decreases defect of blast

Features:

- Tested in keeping according standards
- Not spalling
- Imposible to pass
- Stable against more than 200Kpa pressure in 20msec
- Tested against more than 12Kg TNT

Applications

- Control ofice of gas station
- Refinery Control ofice

Technical Specifications:

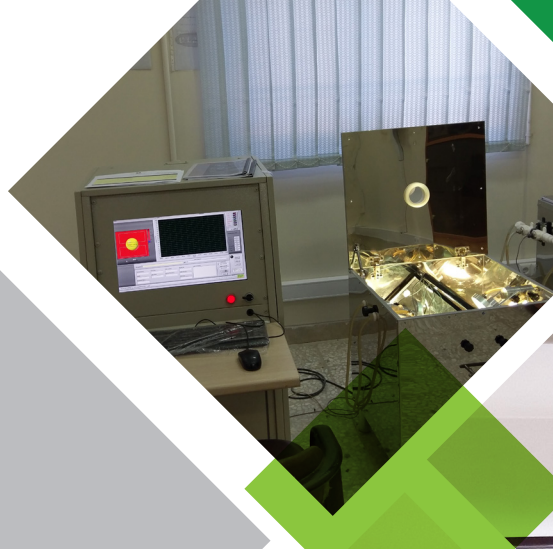
Blast resistant glasses designed and manufactuerd according to diemension of building. Reaching to a suitable application of the glass is depend on the quality and designing of the frame and type of adhasive

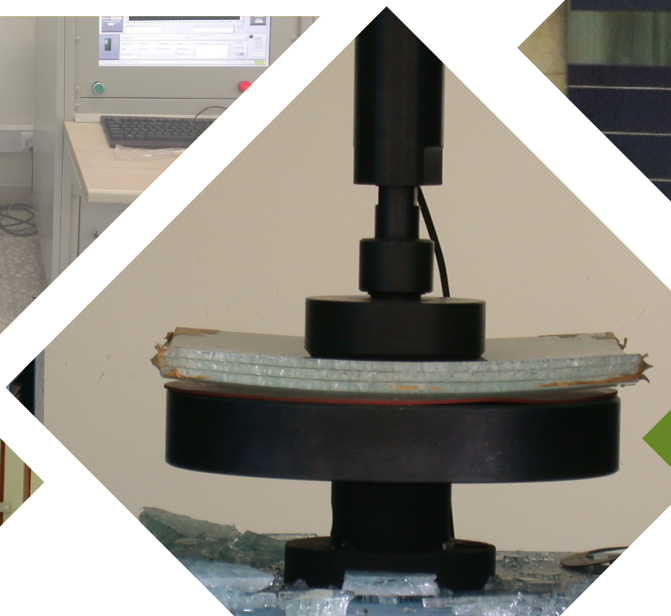
Maximom diemension of glass fragment and glass thickness identify dy threat level

Laboratory services

Establishment of quality management system based on close participation and cooperation of all managers and employees at all levels of the complex and the company's policy in order to meet quality requirements and customer satisfaction in the framework of contracts and technical standards based on ISO reliable .versions provide the possibility of presenting different testing services

- Pendulum test
- High temperature test
- Visual light haze test
- Projectile collision test
- Steel ball drop test
- Laminated glass frosting test
- Laminated glass high humidity test
- Laminated glass fog test
- Glass deviation and distortion test
- Visual light transmission test





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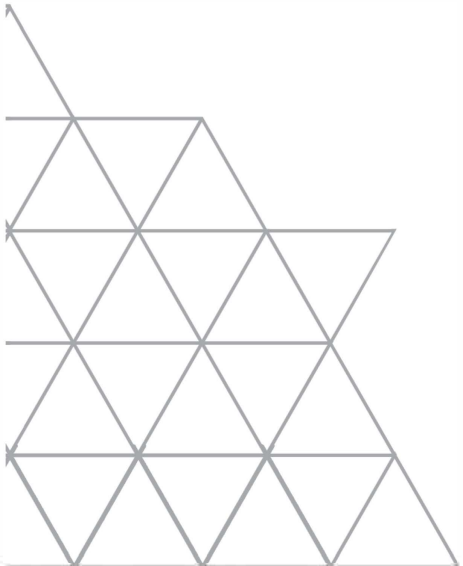

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