



Windows
uPVC & Aluminium



**Guide to your
DOORS AND WINDOWS**

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Asahi India Glass Ltd.

A Window to Your Dream!

Welcome to our guide to creating high-quality and aesthetically pleasing doors and windows for your dream home or office. The goal is to take you on a journey that gives you an understanding on different options available and what might be the best fit for your needs. In this process we want you to select the perfect door and window for your space.



Windows
uPVC & Aluminium

In the realm of architecture, it is commonly understood that doors and windows are the key design element that can greatly enhance the look and feel of the space. That's why we are here to provide you with the knowledge and expertise you need to make informed decisions about your doors and windows.

Our comprehensive guide covers a diverse array of topics, including an exploration of various materials and finishes, the advantages of distinct styles, and more. Catering to those constructing a new space or revamping an existing one, we are confident that our expert insights will assist you in achieving the right doors and windows for your space.

Windows Glossary

HARDWARE

- ◆ **3D Hinge in Casement Door**
A 3D hinge in casement doors allows the door to pivot in three dimensions (up, down, left, right).
- ◆ **Corner Drive in Tilt & Turn Hardware**
Corner drive refers to a component in tilt and turn window hardware. It allows the window to tilt inwards for ventilation and turn for full opening.
- ◆ **Deadbolt**
A separate lock with a strong bolt that slides into a receiver for secure locking, requiring a key to operate.
- ◆ **Espag in Casement Door**
An Espag (Espagnolette) is a locking mechanism used in casement doors and windows. It controls the locking points along the vertical length of the door or window sash.
- ◆ **Latch**
A simple mechanism typically using a spring-loaded bolt or lever, usually operated by a handle and engaging in a strike plate for basic closure.

- ◆ **Multipoint Locking System**
A system with multiple locking points around the door frame, activated simultaneously for enhanced security and often operated by a single key.
- ◆ **Sliding Roller**
A sliding roller is a component used in sliding door systems. It ensures smooth movement of the door along its track.

SOLUTION

- ◆ **Air Permeability**
The degree to which air can pass through a building envelope, commonly measured in Air Changes per Hour (ACH) or cubic meters per hour per square meter (m³/h·m²).
- ◆ **Burglar Resistance**
The ability of doors, windows, or security systems to resist unauthorized entry, typically assessed using standards and ratings specific to security products.
- ◆ **Emissivity (Thermal Radiation)**
The measure of a surface's ability to emit thermal radiation, expressed as a dimensionless value between 0 and 1.

- ◆ **Fire & Smoke Control**
The capacity of a material or system to resist the spread of fire and smoke, often assessed according to fire resistance classifications (e.g., fire resistance rating in minutes).
- ◆ **Resistance to Impact Load**
The capacity of a material or structure to withstand sudden impacts or loads, often specified in terms of load capacity (e.g., Pounds or Newtons).
- ◆ **Resistance to Wind Load**
The ability of a structure to withstand the forces exerted by wind, typically measured in Pascals (unit: Pa) or wind load design criteria specific to the location.
- ◆ **Solar Protection**
The ability of a material or system to block or reflect solar radiation, typically measured in Solar Reflectance (unit: SR) or Solar Heat Gain Coefficient (unit: SHGC).
- ◆ **Sound Insulation**
The capability of a structure or material to reduce the transmission of sound waves, usually measured in Sound Transmission Class (unit: STC) or Noise Reduction Coefficient (unit: NRC).

- ◆ **Thermal Insulation**
The capacity of a material or assembly to resist heat transfer, typically measured in Thermal Resistance (unit: R-value) or Thermal Conductivity (unit: W/m·K).
- ◆ **Water Tightness**
The ability of a building component to prevent the ingress of water, often assessed in terms of pressure, such as water resistance measured in Pascals (unit: Pa) or millimeters of water (unit: mm H₂O).

SPECIFICATION

- ◆ **Guarantee**
A guarantee is a commitment by the manufacturer or seller to repair or replace a product within a specified period, often measured in years, if it becomes defective due to manufacturing issues or normal use.
- ◆ **Warranty**
A warranty is a written or implied assurance that a product will perform as expected for a certain duration, typically measured in months or years, and if it doesn't, repairs or replacements will be provided at no extra cost.

Aluminium

F R A M E

- ◆ Lightweight and highly durable compared to other metals
- ◆ Sleek, refined, and easy to maintain
- ◆ A greener alternative, endlessly recyclable
- ◆ Weatherproof and rodent-resistant
- ◆ Highly customisable and available in a variety of shades to complement your décor



uPVC

F R A M E

- ◆ Easy to clean and virtually maintenance-free
- ◆ Thermally efficient materials provide superior heat insulation than aluminium and wooden doors and windows
- ◆ uPVC windows are UV-resistant, termite-resistant, do not fade, and they don't rot, corrode, or rust
- ◆ uPVC is a more cost-effective material compared to aluminium or wood
- ◆ By default, comes in white, and variety of shades



Different Typologies

Casement Windows

- ◆ Allows more control over the ventilation
- ◆ Available in outward and inward-opening options
- ◆ Provides excellent ventilation



Sliding Windows

- ◆ Opens by sliding horizontally or vertically along the top or bottom track of the window frame
- ◆ Available in multiple configurations
- ◆ Aesthetically pleasing and provides unobstructed views
- ◆ Easy to operate



Fixed Windows

- ◆ Fixed windows are often known as picture windows, which means they can't be opened or closed
- ◆ Maximise your view and light transmittance



French Windows

French windows are a beautiful addition to any space, providing a classic, elegant look. They also offer numerous benefits, including increased natural light, improved ventilation, and a wider opening for easy access.



Side Hung Windows

Side Hung windows are hinged at the side and swing outward like a door, providing easy access and efficient airflow control.

Top Hung Windows

Top Hung windows are hinged at the top and open outward from the bottom, offering excellent ventilation without compromising interior space.



What is Plan, Section and Elevation?



Plan

In architectural drawings, a plan is known as the top view, top plan or horizontal representation of any space.



Section

The term “section” refers to a projection that makes an element appear as if it were meeting a plane vertically. Equivalent to a floor plan but shown vertically, is a section.



Elevation

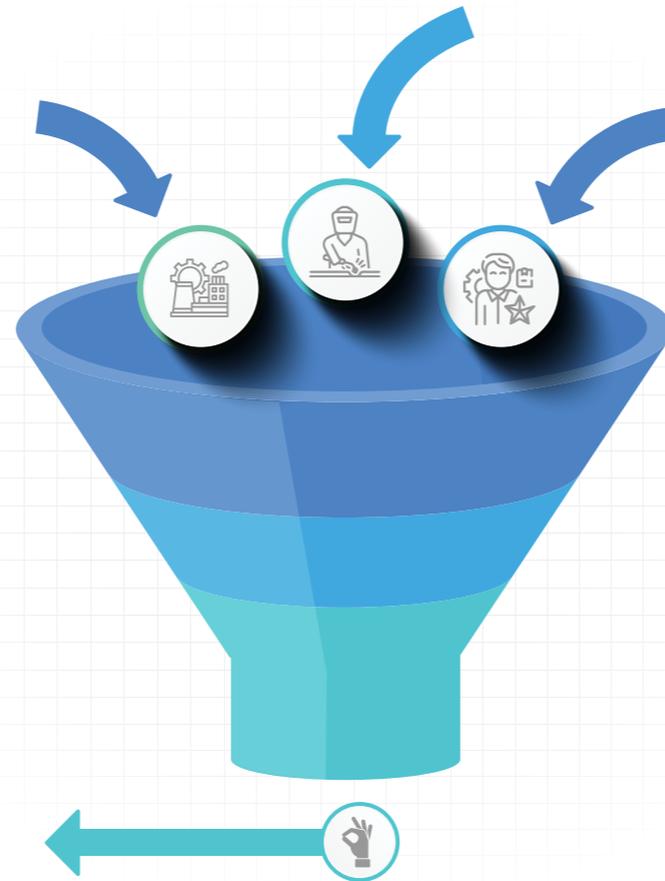
An elevation is a vertical representation of an element that appears on a picture plane. The elevation of a building is always depicted at a distance from the building, which must be kept in mind.



Types of Players in the Doors and Windows Industry

One-Stop Solution Providers

- One-stop solution providers end to end manufacturing, fabrication and installation of the windows.
- They streamline the entire process for clients, from selection to installation.
- These companies have in-house manufacturing and fabrication capabilities, ensuring quality control and after sales service.
- One-stop solution providers are convenient for clients who want a single point of contact for their needs.



Manufacturing, Fabrication, Installation, and One-Stop Solutions



System Manufacturing Companies

- These companies produce standardized door and window systems.
- Units are mass-produced in various sizes, styles, and materials.
- Quality control, efficiency, and cost-effectiveness are key focus areas.
- Products are sold to fabricators, distributors, or construction companies.



Fabricators

- Fabricators customise standardized door and window systems to fit project requirements.
- They modify size, shape, and design, and choose materials and finishes to match client preferences.
- Fabricators add value through attention to detail and customisation.
- They collaborate with architects, builders, and homeowners to meet design and performance specifications.
- They streamline the entire process for clients, from selection to installation.



Installers

- Installation entities are responsible for the installation of doors and windows in projects.
- They are experts in installing different types of doors and windows, ensuring proper sealing, insulation, and functionality.
- They may be contractors, subcontractors, or specialised firms.
- Their focus is on precise installation and functionality.

What is a System Window?

A system window in doors and windows refers to a comprehensive design approach where all components, including frames, sashes, hardware, and sealing mechanisms, are integrated and standardised for optimal performance, energy efficiency, and durability.



Hardware

This encompasses all other components making up the door or window, such as hinges, locks, handles, and seals.



Profiles

These are the main structural elements of the door or window, made from either uPVC or aluminium. Profiles come in various shapes and sizes and can be combined to create doors and windows of different dimensions.



Glazing

This refers to the glass filling the opening in the doors and windows. Glazing can be single or double-glazed and may be treated with various coatings to enhance thermal and acoustic performance.

System windows offer several advantages over traditional doors and windows :

Improved performance

System windows are designed to provide superior thermal and acoustic insulation, as well as better weather resistance.

Greater flexibility

System windows can be customised to meet a wide range of needs and can be used in various applications.

Easier installation

System windows are typically easier to install than traditional doors and windows because the components are prefabricated and designed to fit together easily.



Solutions for Better Life



Anti-Pollution Solution

Precision-manufactured and professionally installed uPVC and Aluminium anti-smog doors and windows block the particulate matter and smog entering your home. These smog-resistant doors and windows are intelligently engineered to prevent all types of pollutant leakage into the interiors when closed.



Acoustic Solution

Noise-cancelling doors and windows consist of two primary elements: the frame and the glass, both of which possess exceptional noise-cancelling features to reduce unwanted and unpleasant sounds. These high-quality soundproof glass solutions are available for residential or commercial spaces in various sizes and thicknesses, ensuring protection from intrusive noise that can disrupt the peace and comfort of one's living or working environment. Additionally, smart glass technology also enhances the aesthetic appeal and effortlessly blends with various architectural styles.



Privacy Solution

Whether in a home or an office space, privacy is highly sought after. Imagine being able to achieve privacy with just the touch of a button, without obstructing natural light. This is made possible through smart glass utilising Polymer Dispersed Liquid Crystal (PDLC) technology. This innovative glass allows users to control its light and heat transmission properties on demand, simply by using a remote-control button. In addition to its functionality, this smart glass also enhances the aesthetic appeal of spaces, making it a perfect solution for modern living and working environments.



Energy Efficiency Solution

Utilising advanced technology, high-performance doors and windows equipped with energy-efficient glass offer excellent heat insulation. These products prevent heat from entering indoors during summer and escaping during winter, reducing the load on heating and cooling systems while still allowing daylight to fill your spaces. The combination of heat-insulating and solar-control properties not only saves money and energy but also ensures a comfortable indoor temperature throughout the year.



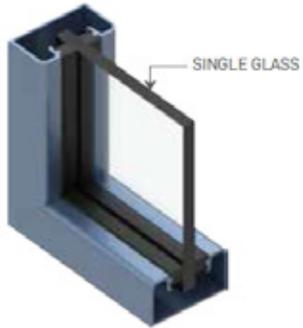
Safety & Security Solution

Prioritising the safety of your family, a wide range of premium-quality glasses are available, including tempered safety glass, PVB laminated glass, and heat-toughened safety glass. These high-quality options ensure injury-free interiors and unparalleled security, providing peace of mind and protection for your loved ones.

Use Cases

Solution	 Anti-pollution	 Acoustic	 Privacy solution	 Energy-efficient solution	 Safety & security solution
Best Suited Typology	<p>Best: Fixed windows Casement windows</p> <p>Good: Top-hung windows French windows, and Lift & slide doors</p> <p>Least: Slider windows</p>	<p>Best: Fixed windows, Casement windows, Double-glazed units</p> <p>Good: Top hung windows, Lift & slide doors</p> <p>Least: Slider windows, French windows</p>	<p>Best: Fixed windows, Frosted or patterned glass, Switchable glass</p> <p>Good: Top hung windows, Casement windows with blinds or curtains</p> <p>Least: Clear glass in slider windows, French windows</p>	<p>Best: Fixed windows, Double or triple-glazed units, Low-E coated glass</p> <p>Good: Casement windows with tight seals, Lift & slide doors with good thermal performance</p> <p>Least: Slider windows, Single-glazed windows</p>	<p>Best: Fixed windows, Laminated glass, Tempered glass, Doors with multi-point locking systems</p> <p>Good: Casement windows with secure locking mechanisms, Top hung windows with limited opening</p> <p>Least: Slider windows, French windows with single-point locks</p>
Profile	Aluminium/uPVC	Aluminium/uPVC	Aluminium/uPVC	Aluminium/uPVC	Aluminium/uPVC
Glass	<ul style="list-style-type: none"> • High-performance glazing • Self-cleaning glass 	<ul style="list-style-type: none"> • Laminated glass • Double-glazed units • Acoustic-rated glass 	<ul style="list-style-type: none"> • Obscured glass • Reflective glass • Switchable glass 	<ul style="list-style-type: none"> • Low-emissivity (Low-E) glass • Double-glazed or triple-glazed units • Spectrally selective glass 	<ul style="list-style-type: none"> • Laminated glass • Tempered glass • Wired glass
Benefit	Improves indoor air quality by filtering out pollutants, promoting a healthier environment.	Blocks outside noise, ensuring a peaceful environment indoors.	Maintains privacy without compromising natural light.	Reduces energy consumption for heating and cooling, leading to cost savings.	Enhances safety by providing resistance to forced entry and minimizing injury risk.

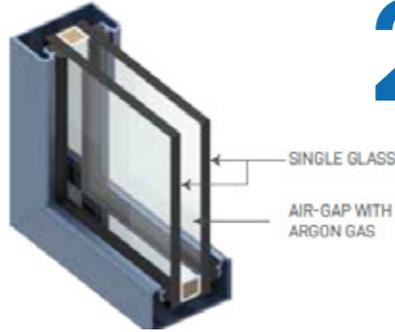
Glass Solutions



1

Single Glass (Toughened Glass)

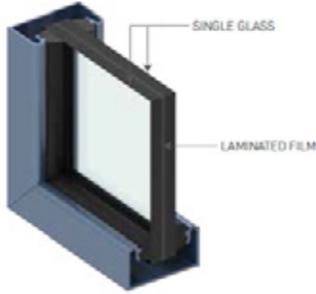
Toughened Glass is a safety glass that is four to five times stronger than annealed glass.



2

Insulated Glass (DGU)

Insulated Glass combines two or more glass panes that have an air gap with Argon gas and are sealed with a sealant to appear as a single unit.

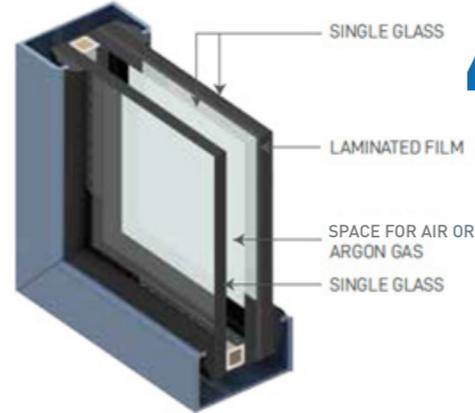


3

Laminated Glass

Laminated Glass is made from two pieces of tempered or annealed glass, with a transparent PVB* film sandwiched in between, and the whole unit is heat-sealed into one unit.

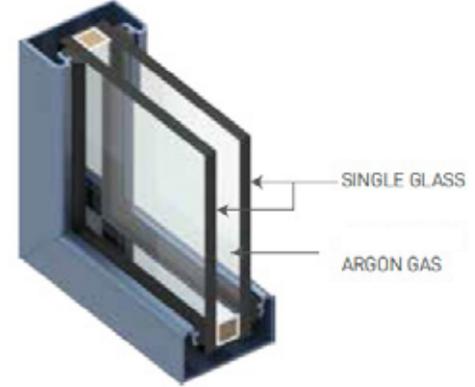
*Polyvinyl Butyral



4

DG-Lam (A Combination of Insulated Glass and Laminated Glass)

Laminated Insulating Glass is an insulating glass unit with laminated glass.



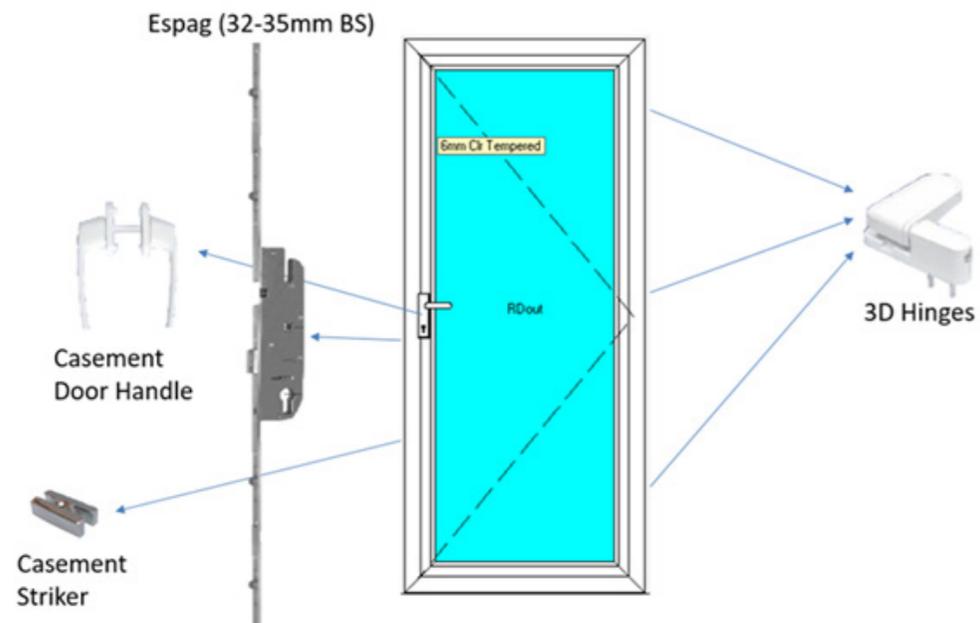
5

Laminated DGU Glass

A Laminated Double-Glazing Unit (DGU) consists of two glass panes separated by a spacer, with argon gas filling the gap between them. One pane is laminated, providing additional acoustic and thermal insulation along with enhanced security.

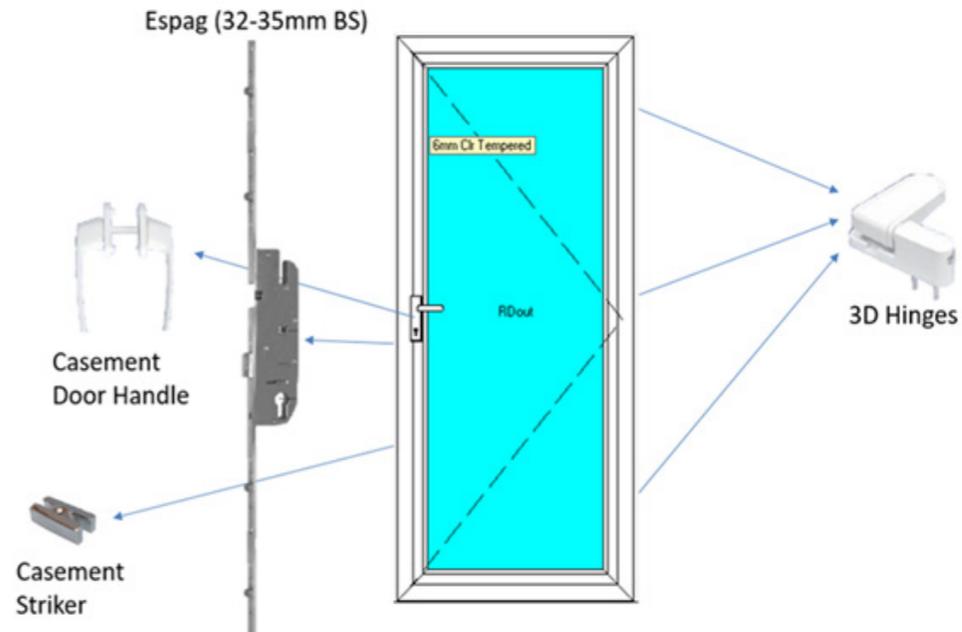
Hardware Solutions

Casement Door



Only for visual representation, actual size of doors and windows may vary.

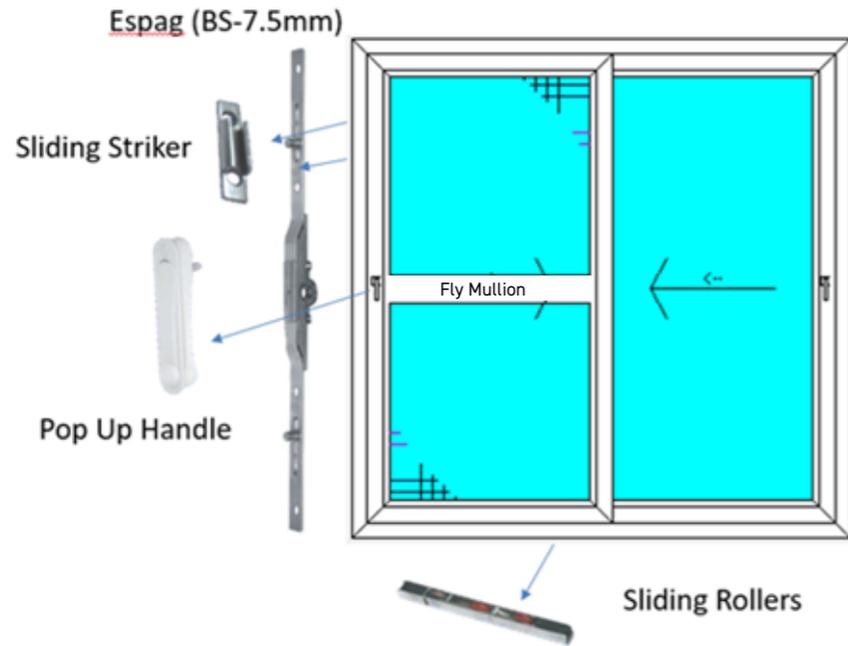
Casement Window



*Espag: Locking mechanism
**3D Hinges: Facilitates movement of door panels

Only for visual representation, actual size of doors and windows may vary.

Sliding Window

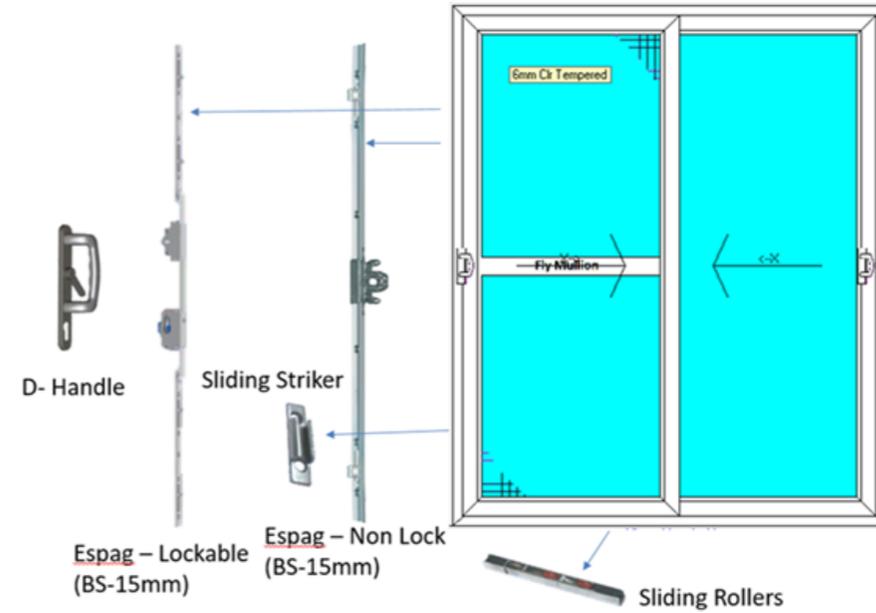


*Espag: Locking mechanism

**3D Hinges: Facilitates movement of door panels

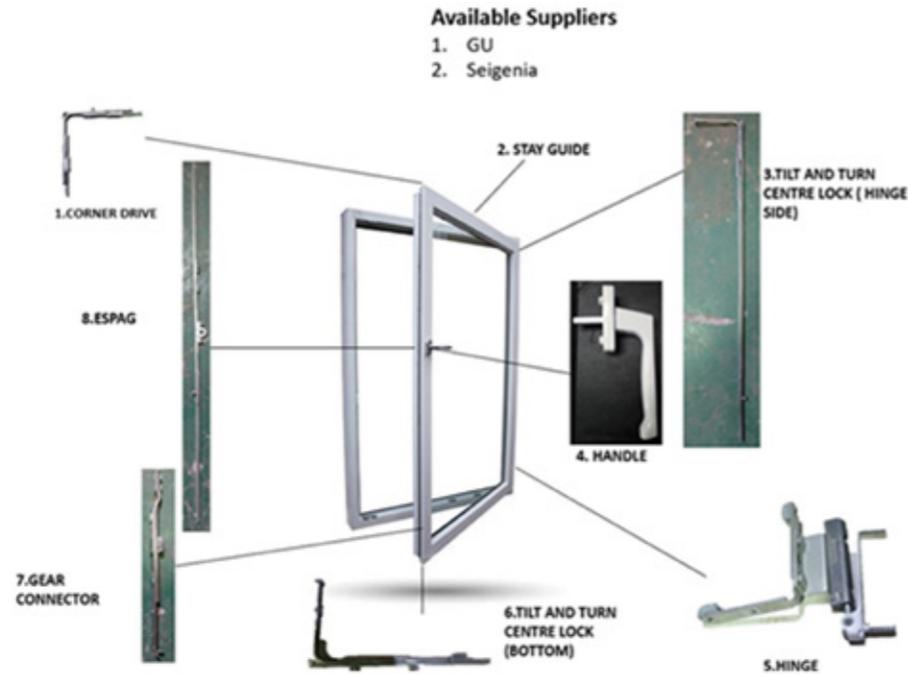
Only for visual representation, actual size of doors and windows may vary.

Sliding Door



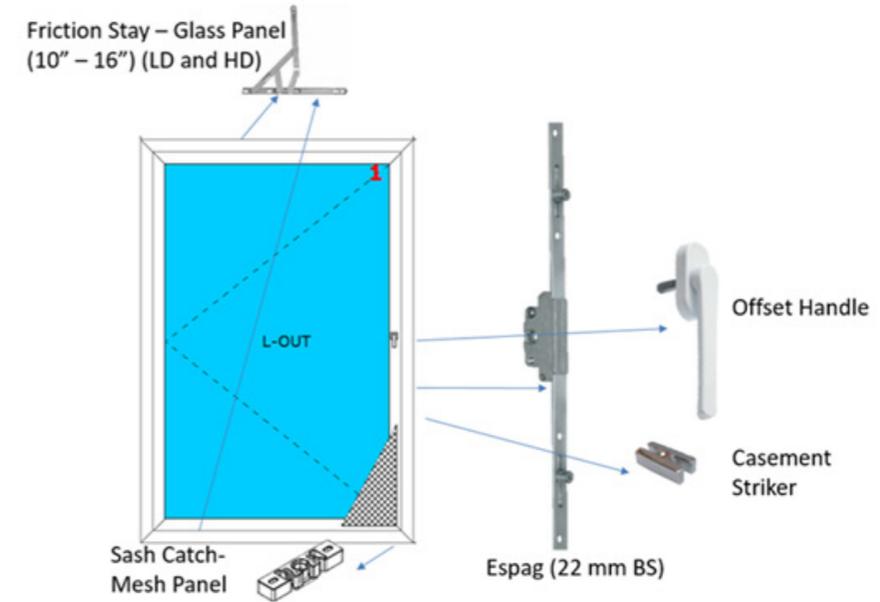
Only for visual representation, actual size of doors and windows may vary.

Tilt & Turn



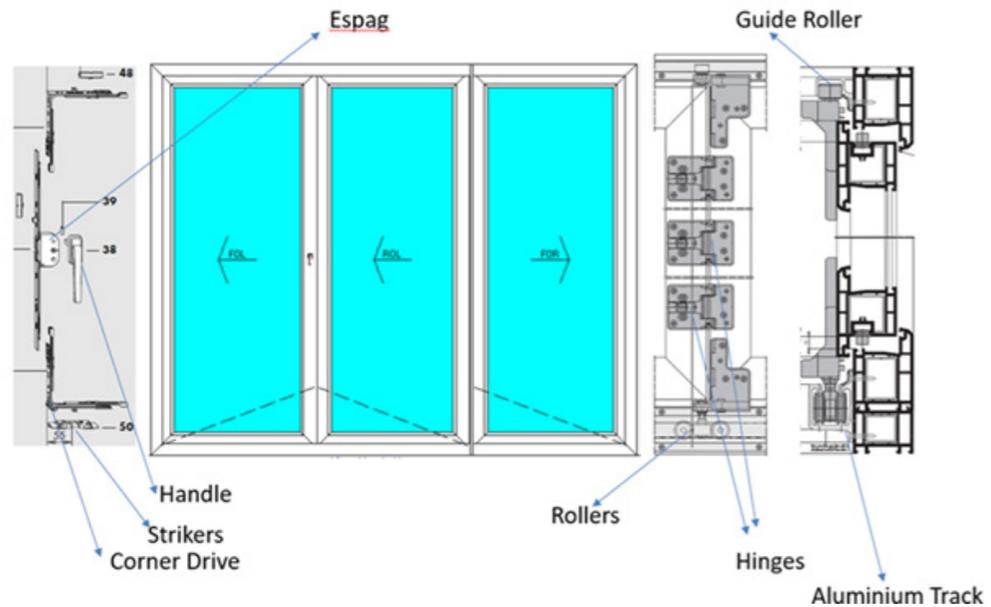
Only for visual representation, actual size of doors and windows may vary.

Twin Sash



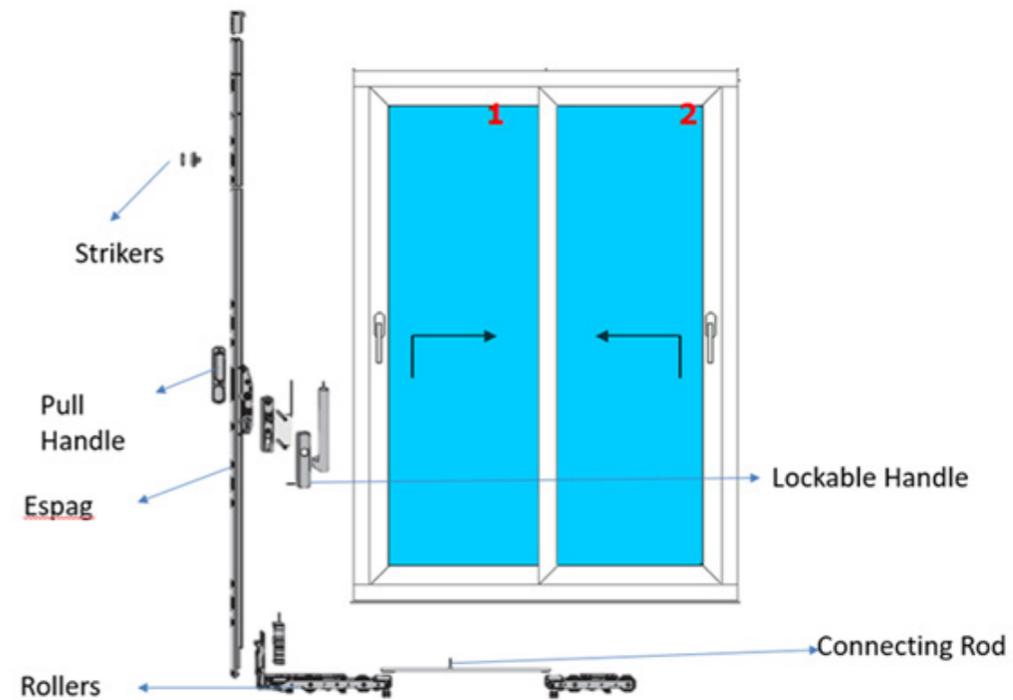
Only for visual representation, actual size of doors and windows may vary.

Slide & Fold



Only for visual representation, actual size of doors and windows may vary.

Lift & Slide



Only for visual representation, actual size of doors and windows may vary.

Most Popular Colour Options



*Colour shown here is for representation purpose only.
Please refer to the actual colour sample before finalising.

Silicon in Doors and Windows

In the door and window industry, the use of colour silicon holds significant importance. AIS Windows colour silicon serves as a versatile and essential component in various aspects of installations, offering a range of benefits that contribute to both aesthetic appeal and functional performance. Silicon offers durability, flexibility, and weather resistance in various colours and matching architectural styles.

Key Benefits:

Aesthetic: Colour silicon seamlessly blends with surfaces, enhancing visual appeal.

Weatherproof: The silicone seal resists rain, wind, and UV exposure, ensuring durability.

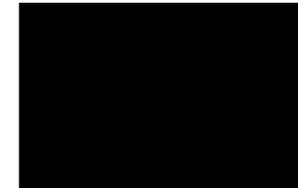
Flexible: Colour silicon adapts to frame movement, maintaining seal integrity.

Waterproof: Prevents water damage, mould, and mildew by sealing tightly.

Colours Available:



White



Black



Dark Grey



Champagne Gold



What is a Site Survey

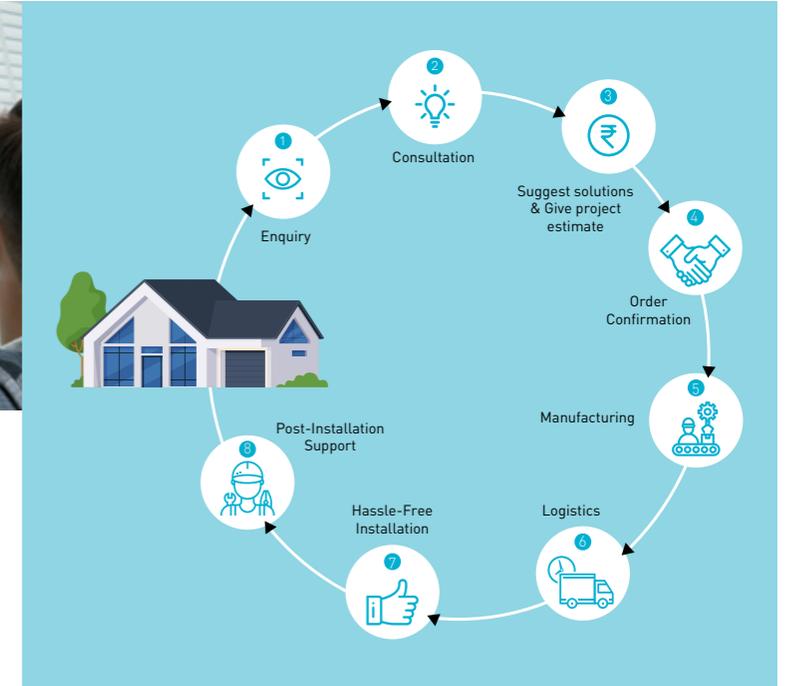
Examining an area or spot to gather data or information is known as a site survey. A feasibility report and an estimate of the expense and time necessary to complete a particular task are included. Depending on the kind of plan that needs to be carried out at the site, a site survey will include a variety of approaches and considerations.

A site survey is of utmost importance as it gives precise information for a proposal.



What is Lead Time?

Typically, the lead time for the supply and installation of doors and windows is between 45 and 60 days from the date of the final measurement at the site. However, it is always best to check with the representative for the current lead time, as it may vary depending on the volume of orders in the system. To ensure timely delivery of your order, it is important to have all apertures ready for measurement at least 45 days before your desired delivery date.





What is a Level & plumb ?

Level: Refers to the horizontal flatness of an element, ensuring it's parallel to the horizon. Imagine placing a spirit level on the surface; if the bubble is centred, it's level.

Plumb: Refers to the vertical straightness of an element, ensuring it's perfectly straight up and down. Imagine dropping a plumb bob; if the string perfectly aligns with the corner of the element, it's plumb. The level and plumb of the cavity during door and window installation in uPVC and aluminium are absolutely critical for several reasons.

Impact on Functionality

Uneven door/window: If not level and plumb, doors may not close or open properly, leading to gaps, drafts, and difficulty locking. Windows may not operate smoothly, potentially jamming or becoming misaligned.

Drainage issues: Improperly levelled cavities can affect the drainage of rainwater, potentially leading to leaks and water damage.

Stress on seals, glass, and hardware: Uneven installation puts undue stress on seals, glass, and hardware, leading to premature wear and tear and potential failure.

Impact on Aesthetics

Visually unappealing: An unevenly installed door or window will be visually noticeable and detract from the overall appearance of the building.

Alignment issues: Misaligned frames can look unprofessional and may not fit trim or surrounding features properly.

Impact on Long-Term Performance

Structural problems: Over time, a door or window that is not level and plumb can put stress on the surrounding structure, potentially leading to cracks and other damage.

Security concerns: Gaps and misalignments can create security vulnerabilities, making it easier for someone to break in.

Comprehensive Warranty for Doors and Windows

When you are investing in new doors and windows, it's important to ensure that you are protected against issues. Checking for a comprehensive warranty that covers manufacturing or quality flaws, hardware, and gasket or weather stripping, cracking, and discolouration is an important step. Keep in mind that any breakage that occurs after the handover is not covered by the warranty, so proper care of your doors and windows is essential for their longevity.

Pro Tip: For more information on warranty, give us a test call.



Why Should You Visit an Experience Centre?

doors and windows not only provide functionality but also contribute greatly to the overall aesthetic of a space. It can be challenging to choose the right product for your dream home or office. This is why it is highly recommended to visit an experience centre where you can get a firsthand feel of the products offered. By visiting an experience centre, you can see the quality, look, and feel of products and how they will fit and accentuate your space and make an informed decision. Don't miss out on this opportunity to create the perfect space you have always wanted!

Pro Tip: A visit to Experience Centre is highly recommended before finalising the choice of doors and windows.

What Information in the Quotations Received From Suppliers Must Be **Verified?**

- ◆ **Confirm the inclusions in the quote**
Understand the scope of the price, covering materials, labour, and additional services.
- ◆ **Check the high performance glass specifications**
Clarify details about the glass used, such as thickness, type (e.g., double-glazed, coated/high performance glazing vs. clear), and any special features.
- ◆ **Understand opening and closing mechanisms**
Ensure clarity on how windows or doors will open and close to meet your requirements.
- ◆ **Verify locking mechanisms**
Insist on the vendor supplying multi-point locking mechanism for optimum security.
- ◆ **Check the guarantee or warranty**
Understand the coverage, duration, and what is included in the supplier's guarantee or warranty.
- ◆ **Request drawings or diagrams**
Obtain visual representations of the final product to align expectations and confirm design details.



Maximising the Lifespan and Performance of Doors and Windows

A Comprehensive Guide to Operation and Maintenance

Operation

Opening and Closing

Doors and windows should operate smoothly. If you notice any resistance or difficulty, investigate and address the issue promptly. Ensure that handles, knobs, or levers are used correctly to avoid excessive force.



Locking Mechanisms

Secure doors and windows properly when not in use. Familiarise yourself with the locking mechanisms, whether it's a deadbolt, latch, or multipoint locking system. Ensure they are engaged to enhance security.



Ventilation

Casement and awning windows can be used for controlled ventilation. Open them partially to allow fresh air while maintaining security. Tilt and turn windows provide multiple options for ventilation.



Cleaning

Regularly clean glass and frame surfaces. Use non-abrasive cleaners and soft materials to avoid scratching. Clean and lubricate hardware components, such as hinges and handles, as needed.



Screens and Mosquito Nets

If your doors or windows have screens or mosquito nets, ensure they are in good condition. Repair or replace torn screens promptly.



Sliding Doors and Windows

Sliding elements should slide smoothly along their tracks. Keep tracks clean from debris and lubricate them as per manufacturer recommendations.



Maintenance

Inspect Regularly

Periodically inspect doors and windows for signs of wear, damage, or deterioration. Pay attention to seals, weather stripping, and joints for gaps or leaks.



Seals

Check the seals around the perimeter of doors and windows. Replace damaged or deteriorated seals to prevent air and water leaks.



Hardware Maintenance

Lubricate hinges, locks, handles, and other moving parts as recommended by the manufacturer. Tighten loose screws and bolts.



Glass Maintenance

Inspect glass for cracks or damage. Replace broken or compromised glass promptly. Clean glass regularly to maintain clarity.



Security

Ensure that security features, such as locks are in working order. Update security systems if necessary to maintain safety.



Professional Inspection

Consider taking an AMC contract that will provide periodic professional inspections with Professionals can identify and address potential issues early.



User Manuals

Keep and refer to the product manuals provided by the manufacturer for specific maintenance recommendations.



Conclusion Note

Proper operation and maintenance of doors and windows not only enhance their performance but also contribute to the energy efficiency and safety of the building. Following manufacturer guidelines and addressing issues promptly can extend the lifespan of these essential building components.



Asahi India Glass Ltd.

About AIS

Asahi India Glass Ltd. (AIS) is India's leading integrated glass and window solutions company and a dominant player both in the automotive and building & construction segments. Our product solutions, spanning the entire breadth of automotive, building & construction, are designed to deliver aesthetic and functional benefits.



Windows
uPVC & Aluminium

About AIS Windows

AIS Windows offers a premium range of doors & windows in uPVC & Aluminium. Featuring exceptional quality and a comprehensive range, AIS Windows has options to suit a host of door and window preferences. We offer end-to-end solutions, from recommendations on our high-performance glass and variety of stylish doors & windows to easy and hassle-free installation and after-sales service.

AIS Windows' lead time for supply and installation is typically 45-60 days from the day the final measurement is taken from the site. Additionally, AIS Windows provides comprehensive warranties that last 10 years for manufacturing or quality defects for profiles, 1 year for hardware, and 5 years against gasket or weather stripping, cracking, and discolouration.

Why AIS Windows?

Our designs offer superior thermal, acoustic, and mechanical properties, specifically for Indian weather conditions. Giving you the perfect blend of aesthetics, quality, and convenience throughout the year with the complete door and window solutions from AIS Windows.

Ideal Window Features

-  Solar Protection
-  Thermal Insulation
-  Sound Insulation
-  Water Tightness
-  Air Permeability
-  Emissivity (Thermal Radiation)
-  Resistance to Wind Load
-  Resistance to Impact Load
-  Burglar Resistance

Gallery





Windows

uPVC & Aluminium

Office Address

17F, New Industrial Town, Industrial Area, Rajiv Gandhi Colony,
New Industrial Township, Faridabad, Haryana, 121001

AIS Experience Centres

Delhi : B - 86 First Floor, South Extension, Block B, Defence Colony,
New Delhi, Delhi 110 024

Bengaluru : Ground Floor, HMG Ambassador, 137, Residency Rd,
Shanthala Nagar, Ashok Nagar, Bengaluru, Karnataka 560025

 ais-windows@aisglass.com  www.aiswindows.com

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Visualize AIS Doors & Windows in AR (Augmented Reality) through '**AIS Virtual Studio App**'



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