

# Glass in Buildings - Layman's Guide



## Glass Type (forms) Vs Key Functions

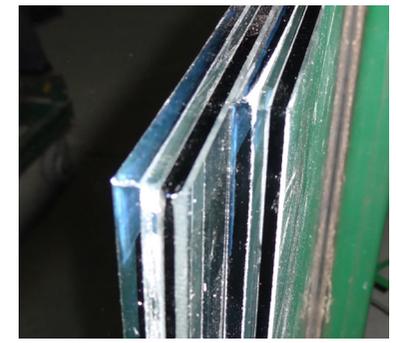
	Basic (Transparency)	Thermal Comfort	Safety/Impact	Noise/Sound Reductions
<b>Single Glass</b>	✓	✗	✗	✗
<b>Laminated Single</b>	✓	✗	✓	✓
<b>DGU/ Insulated</b>	✓	✓	✗	✗ <sup>^</sup>
<b>Laminated DGU</b>	✓	✓	✓	✓

Building glass application has various functional requirements, primary purposes are as illustrated in the table.

Glass type illustrated is based on its forms of application

Image : Laminated Single Glazing

Image : Double Glazed/ Insulated



<sup>^</sup>Marginally Helps

### Single Glass:

Glass in a single monolithic form with primary function of visual transparency and to bring daylight from exterior to interior spaces.

### Double Glazing:

Two Glass panes sandwiched with airspace and made for the purpose of thermal insulation and to enhance the thermal comfort to occupants.

### Laminated Glazing:

Two Glass panes sandwiched with the PVB interlayer for enhanced safety applications and provide impact safety. Glass expected to stay in its position in the event of breakages.

### Laminated DGU Glazing:

Combination of Thermal performance and safety application requirements. Minimum 3 glass lites are sandwiched to provide additional functions.

## Glass Types (based on strength Characters)

Following classified based on strengths and characters, all these types are used in any of the above forms.

**Annealed (AN) :** Glass with basic strength, used under limited strength requirements.

**Heat Strengthened (HS) :** Glass with enhanced strength achieved by heat treating process, used widely for building glazing applications

**Tempered / Toughened :** Glass with higher strength used for structural applications.

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## Myths Vs Facts

Various contradicting information, perceptions floating around the industry, quite often designers and users unaware of reality. We try to bring some clarity on few of these key issues

### Myth

Toughened Glass is a safety glass, ie., shall be used wherever occupant safety against falling from heights are required such as Balcony glasses

### Myth

Toughened glass will never break, safe among any other glass types.

### Fact

Though toughened glass is stronger however subject to failure due to various reasons such as surface damages, Nis etc.

### Myth

Tall Buildings require DGU/IGU instead of Single glass. In other words DGU is stronger than Single Glass

### Fact

Strength of single glass is same as effective glass thickness of DGU (thickness of both lites), hence Tall buildings shall use Single glass provided other aspects of design comply

### Fact

Majority of International standards does not accept Toughened glass as a safety Glass, very few Intl standards accept provided the toughened glass passes prescribed impact test. **Hence high risks areas are recommended to use laminated safety glass**

### Myth

Glass with Film applied, equivalent to Laminated safety glass, ie., film applied glass is considered as safety glass.

### Fact

Films are considered to reduce risks of post breakage conditions, however it may not be considered as a safety glazing in most general conditions.

### Myth

DGU Recommended whenever better noise insulation required

Laminated Single glass has better noise reduction capability than DGU/IGU, due to PVB interlayer

### Fact

### Myth

Glass breakages are due to poor quality and manufacturing defects.

### Fact

Glass breaks for many reasons, including manufacturing, detailing and installation defects.