



COURTESY PURPLE LEAF DESIGN STUDIOS



1. Glass helps make a building green and full of light and in turn energy-efficient.

2. Kamlesh Kriplani, Director and Principal Architect, Purple Leaf Design Studios

3. When compared with other building materials, glass clearly stands out as an eco-friendly alternative.

4. Since we are in a tropical climate, glass should be used to maximise natural lighting and views of the outdoors while minimising heat gain.

A GLASS APART

GLASS BUILDINGS ARE BECOMING POPULAR IN CONSTRUCTION DUE TO THEIR ABILITY TO BE TRANSPARENT, RECYCLABLE AND ENERGY EFFICIENT.

BY BINDU GOPAL RAO

When compared with other building materials, glass clearly stands out as an eco-friendly alternative and this is probably why the material is finding favour with architects and interiors alike.

NOVEL NUANCES

The use of glass in buildings is often dictated by the type of climate around the building. In warmer climatic conditions, high-performance glazing is used which keeps the temperature cool and helps minimise the use of air conditioning. During winters, coated glasses are handy as they retain the heat inside the building, thus protecting against chilly weather. In the past few decades, the use of glass in buildings has remarkably increased. As a result, several transparent buildings have been constructed, in which the materials have almost disappeared. Ar. Kamlesh Kriplani, Director and Principal Architect, Purple Leaf Design Studios Pvt. Ltd, says, “Despite high standards,

construction costs must not get out of hand. Large expanses of glass façades provide enormous possibilities because glass combined with steel allows filigree shapes in building skins. In general, glass is considered a dominant construction material in modern architecture these days as it makes a visual statement, while offering multiple technical functionalities at the same time.” It may or may not be a coincidence that glass rhymes with class. All glass façades are synonymous with a clean, chic look, leaving viewers with a feeling of seeing something that is a cut above the rest.

STAY SAFE

For motivational reasons, most office complexes are increasingly going for oversized glasses and low iron glasses, which provide a clear outside view even from the edges of the windows. It instantly creates a connection between the residents/occupants and the outside environment. Husain Johar, Founder and Creative Head,



COURTESY DESIGN FOUNDATION INTERNATIONAL

4. The use of glass in buildings is more often than not, dictated by the type of climate around the building.

5. Husain Johar, Founder and Creative Head, Makemyhouse.com



COURTESY MAKEMYHOUSE.COM

Makemyhouse.com, says, "Safety measures are becoming very much non-negotiable for everyone, and this is where laminated glasses play an important role. If there is any breakage, the glass remains within the window frame and does not spill down on the road. These glass types play a big role in reducing noise pollution too, as any sounds coming from inside the building remain there. More than 95 per cent of UV rays are blocked when this glass type is used." When carrying out cleaning of such buildings, one should always use soft and non-abrasive cleaning cloth and an authentic glass cleaning liquid. Make sure all internal and external joints are well sealed. Double-check the measurements of such glass by proper fitting.

SELECTION CUES

Considering the prevalence of the material, it is imperative to understand its properties and be aware of available options. "Look for the material's Solar Heat Gain Coefficient (SHGC), which reflects the amount of direct heat that is let in. The lower the value, the lower the direct heat gain. Although solar control glass is more expensive than clear glass, sensible architecture with adequate shading of glass is a cost-effective alternative to prevent direct heat gain," says Kriplani. Another factor to look for while selecting glass is its U-Value, which reflects its insulating property. The lower the U-value, the better the insulation. Having said that, the U-value of glass (even double glass) is much higher than the U-value of any other wall material as the former is a poor insulator. "A good glass building should be contextually relevant, climatically

6. Amit Khanna, Design Principal, AKDA

7. Atrium tower's double glazed facade provides a high degree of thermal and acoustic comfort.

8. Materiality changes from stone cladding at the entry level to dichromatic glazing.



COURTESY AKDA



COURTESY AKDA



COURTESY DESIGN FORUM INTERNATIONAL



COURTESY AKDA

responsive and eco-conscious. Selective permeability is crucial and smart glass is already in steady use in modern buildings, which can alter its levels of translucency to allow sufficient daylight at different times of day or prevent rays from penetrating the surface to minimise overheating. This type of glass also allows for greater privacy, making it ideal for healthcare and hospitality architecture," says MK Leung, Director of Sustainability, Ronald Lu & Partners, and Chief Behaviourist for Behave.

TREND CHECK

With more innovations and the novelty of glass being one of the only facade finish gradually wearing off and with

the way architecture in India is moving forward, there is a newfound realisation that buildings that are made for cosmopolitan India must be an amalgamation of the best that technology has to offer, while at the same time staying true to the context and materials that this country is uniquely known for. Amit Khanna, Design Principal, Amit Khanna Design Associates, says, "Usage of integrated photo-voltaic panels has presented new possibilities to harness solar energy in tall buildings. This provides for a terrace space for other activities and inherent shade to the building facade. Glass has made its way into photo-voltaic technology, integrated digital user-interface systems, structural glass for walls and floors and so on." Anand



11



COURTESY DESIGN FORUM INTERNATIONAL

9. Glass being used for its intended purpose, especially on facades, combined with innovative materials like slim tiles and wooden exterior cladding.

10. The design and the glass manufacturing fraternities have to take note to think about the quality of visions we design from the indoors.

11. Anand Sharma, Founder & Partner, Design Forum International



13

Sharma, Founder & Partner, Design Forum International, adds, "The trend we are seeing now is glass being used for its intended purpose, especially on facades, combined with innovative materials like slim tiles and wooden exterior cladding. Effectively, the newer facades being seen currently are more responsive to climate and context alike. We have usually witnessed glass being considered only with respect to how it will look from the outside. It is high time that while designing buildings, we also keep in mind what views we provide from the inside. Thus, both the design and the glass manufacturing fraternities must take note to think about the quality of visions we design from the indoors, while up until now, the embellishments on windows and facades have taken precedence over everything else."

SMART TAKE


Different types of glass are employed for various purposes that include ceramic glass on facades, lacquered glass for interior purposes, coloured glasses as partitions, and laminated glasses for floorings. "Glass is also getting smarter because incorporating glass in building networks allows for interactive facades that produce both indoor and outdoor effects. When connected to control technology systems, glass becomes the "media and control center" that can regulate a variety of functions in the building. Concepts like lift and slide systems and slim windows are becoming an increasing trend in today's homes in terms of glazing systems. Today, architectural trends have been moving more towards low-reflective and highly transparent, neutral-looking glasses. The trends noticed are the ability to convert flat glass to shapes that allow free-form dynamic surfaces with geometric complexity and the possibility of integrating other

elements like metal screens, LEDs, or Photovoltaics into a conventional flat glass. Methodologies such as unitised glazing have facilitated the easy execution of glass elements," says Sumit Dhawan, the Principal Architect of Cityspace' 82.

FUTURE PERFECT

Rapid development in glazing technology and its incorporation into structural glazing systems have resulted in huge steps forward in terms of the construction of glass buildings. It is not just that glass has a leading role to play in aesthetics, but it is also vital to a building's energy performance and user comfort. "Advanced glass technology has allowed architects to specify a range of high-performance products that enhance the building envelope, from triple-silver Low-e coatings that can be incorporated into triple-glazed insulating glass units (IGUs) that improve energy efficiency to interlayers that offer structural integrity, sound insulation, and security properties. As emerging technology continues to develop, this material might offer intriguing possibilities of functionalities and usage," adds Dhawan. A sensible and well thought out selection of glass for our buildings will not only keep us comfortable indoors, but also benefit the environment by reducing the need for air-conditioning.

WEBSITES

- Purple Leaf Design Studios Pvt. Ltd.: www.plds.co.in
- Make My House: www.makemyhouse.com
- Amit Khanna Design Associates: www.akda.in
- Design Forum International: www.designforuminternational.com
- Cityspace' 82: www.cityspace82.com
- Ronald Lu & Partners: www.rlp.asia/en 

12. Orientation of the building vis-a-vis the sun path movement should contribute to intelligent use of the material.

13. Sumit Dhawan, Principal Architect, Cityspace' 82