

Glass: A Dream Product for the Architects & Planners

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Abstract

Glass, a man made product, is generally seen as a non bio-degradable and harmful material; however the time has come to give re thought to this concept. With the help of latest technology and new manufacturing process, glass has become an eco-friendly and 'Green' Material, providing innumerable solutions in planning and design, henceforth not thought of or were not available, due to its rigidity and transparency. Transmission of large amount of heat in the interior of the building had also added to its existing problems of size, shape and brittleness.

Now, glass can be used as an external cladding material; solar heat absorbing panels, or heat retarding material, keeping the interiors cool and thereby saving the cost of air-conditioning. Can have innumerable solutions for the interior designs of any building, may it be a residential unit, a commercial complex or an office, a bar or a restaurant or simply a kiosk.

It can be used as a wall, ceiling, partition; a door, window. As a reflective material, it enlarges the size of the room, as a table top it adds grandeur to the interior. As a visual divider it not only adds privacy, but also adds to the transparency of the place and increases the visibility to the customer. The long ribbon glazed window frame gives the building a floating effect.

As a low maintenance product, it facilitates installation and longevity of its appearance, can be cut, drilled, notched, edge worked, beveled, screen-printed, toughened and laminated. Can also be used to create stunning aesthetic effects, diffusing light, emitting a certain purity of colour and light; and can be made to look like a satin finished surface to enhance its beauty.

Key Words: Structure, External facade, Interior Design, Floating Effect

1. Introduction

The oldest reliably dated glass vessel in history is a glass goblet from about 1450 BC bearing the name of the Egyptian Pharaoh Thutmose II. In its new 'avatar'; glass now has come a long way, for the Architect and Planner, to visualise everything they ever wanted to do, but couldn't, because of the inherent incompetency of the product. Now the time to start thinking more about what they can do with glass and less about how to get it done has come with the introduction of forward-thinking

interior glass solutions provided by the manufacturers that makes it easier to put the creativity into action. The technology based, performance driven products, now readily available in the market from high endurance and light control to corrosion resistance and security along with access to hundreds of combinations of performance benefits, colours, textures, and finishes are available for the architect planner for their projects in one place. The fire-rated glass and framing systems offers the protection and code compliance project demands; as well as the ability to bring inspired designs to life. Ratings of up to 180 minutes can be achieved with glass that is wireless, colorless, and distortion free. Thus ensures the design vision to come through.

2. Glass as a Structure Itself

Throughout the history of Architecture, we have been seeing a hard and ongoing struggle between the conflicting functions of supporting the roof above, and getting sufficient light inside. Walls were required to be as thick as possible or as long as required; this had a direct impact on the daylight, and much energy and cost was required for artificial lighting. The structural designers solved the problems of supporting the roof while Modern technology has provided the building with an exceptionally beautiful product that is glass. It allows total light penetration, passing through without any distortion, from inside the building, is as pure as a clear sky and that, from outside, provides distinct angles, a sense of flow, brilliance, and fluid movement and gives a sense of perfection.

The glass wall is available to all plastic creations with limitless variety. The introduction of glass into contemporary architecture, as a fundamental material, brings clarity, sharpness, a sort of absolute potential of architectural combinations that are realized for our pleasure and for purity. Purity, based on contemporary aesthetics! Thus the structure remains nothing but a glazed envelope.



Louvre Pyramid Gallery



Farnsworth house



Glass Houseboat



National Grand Theater
China



Glass Chapel
Mexico



Glass Pavilion

3. Glass as an Exterior Façade

Modern architecture is increasingly using large sizes of glass as a creative element in buildings and as a way of achieving greater transparency. Since the first century AD, when the Romans began to glaze the windows of the town houses of the upper classes, a lot has changed in the use of glass as a material. When glass was first used as a building material, practical considerations were paramount, while in the Middle Ages stained glass windows in churches portrayed religious motifs. Today, energy-related; aesthetic aspects influences the use of glass. The new manufacturing dimensions, enables complete façades to be constructed of glass. This glass not only ensures that heat doesn't get out of a building's interior, but also, at the same time uses the sun's rays as a source of energy.



4. Glass for Interior Design

Glass as a building material is a fixed part of every interior designer's perspective; whether screen-printed, body tinted or classically transparent. It is used in interior design to brighten up rooms. Its subtle, classic qualities work perfectly in combination with other materials such as wood, brick, concrete and metal. It is not simply present in the form of glass vessels such as vases, pitchers and drinking glasses, but throughout the house. Nothing adds stylish texture to interior applications with decorative glass. Ultra-transparent glass creates unique, distinctive patterns with varying degrees of privacy and diffusion while producing a virtually colorless appearance and is ideal for interior commercial and residential applications such as translucent doors and windows, shower enclosures, glass railings, and more. Back-painted glass brings one's imagination to vivid, colorful life, and for all interior applications, it adds new dimensions of emotion and beauty to the designs.



Glass for partition

Glass for ceiling

Glass as a wall surface

Glass stands for brightness in the rooms; in combination with lighting it creates different moods and impressions, and communicates a feeling of space; the use of glass in interiors opens up a multitude of possibilities. Horizontal sliding walls and glass doors often distinguish

representative entrance halls and coloured glass represents reception counters. Apart from elegance and functionality, low-maintenance and Hygiene are needed for interior use. The homogenous surface of glass makes it both hygienic and low maintenance. It's easy to clean and disinfect. The glass can be additionally sealed to make the surface water repellent and noticeably smoother. Safety plays an important role in interior design. To avoid accidents, furniture, staircases and normal or swing doors must be resistant to shocks and impact and hence custom solutions for special applications can be fitted with additional glass bracing to meet the challenges and demands throughout the interior and can even be applied to both the flat and curved glass.

4.1. Innovative use of glass with sensor technology

Glass provides an elegant replacement for normal switches, for example on electrical sockets and light switches, as dimmers, controls for window shades or as a push-button switch. A special electronic sensor is integrated into the glass panel of the switch. Only a light touch of the hand is required to set off pre-defined functions and operations. Without any moving parts and with the easily-cleaned and disinfected homogenous surface of premium quality safety glass, is suitable not only for medical practices, clinics and sanitation facilities, but also for areas of the daily life such as the office or the living room. The panel can be customized to match the company logo, the corporate colours or the colour scheme in the living room.

5. Glass as an element of link



Glass Elevator

Glass bridge

Glass staircase

6. Glass for Floating Effect

The possibilities of glass in contemporary architecture are almost limitless. In our built environment it appeals to the senses, stimulates the mind and encourages reaction and engagement – in other words, it evokes a physical, intellectual and emotional response.



Le Corbusier – “Like all works that embody human lyricism (poetry, music, sculpture, and painting), we find a symphony of plastic elements that play against each other by their similarities and contrasts, according to mathematical laws that govern human creation as they govern natural creation, real checks and balances in power

relations. Let's not mince our words: architecture is a manifestation of human lyricism; this occurs only by the quality of the intention and the purity of the relationships that have been brought into combination. There is no need for unnecessary or superfluous display, no need for the usual academic additions: pediments, statues, friezes, etc. The architectural spirit is manifested by the mass of prisms that rise up into the light, and the quality of the relationships between them. A home can be a palace just as I can say that a palace should be a home; that is to say, a palace should first serve specific functions and only then respond to the final aim of architecture: to move or provoke.”

7. Conclusion

Without glass, our modern daily life is unimaginable. Within our own four walls, at the office, or at the surgery: glass can be found everywhere where elegance and functionality are required. Glass production has changed substantially over the past 4,000 years; from small batch operations to today's float technology, characterized by continuous production and the capability of producing a wide range of glass thicknesses, sizes, and colors. Fabricated glass products further expand the use of glass for a variety of purposes, including safety, security, sound control, and energy efficiency. Glass is a dynamic and important part of residential and commercial building design. Its increased use in windows, doors, skylights, curtain walls and double glass facades illustrates the importance of glass in today's construction environment as a medium for natural lighting and energy conservation. From breathtaking nature scenes, to remarkable landmarks, to unique corporate logos, anything can be captured and produced with images for Signage, Way finding components, Screens mounted in the walls, Exhibit features etc.

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