# FASCINATING FENESTRATIONS

Windows are evolving from functional components to dynamic, multi-purpose design elements that enhance the user experience and the architectural narrative.

**By Bindu Gopal Rao**

PHOTO COURTESY: ALUK INDIA.

Resistance to corrosion, extreme temperatures, and the effect of wind and rain makes aluminium a reliable choice for buildings exposed to challenging environments.

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New age aluminium windows and doors are embedded with upgraded features which include a sleek and attractive finish, smooth operation, great energy efficiency, better insulation, and improved customer experience.

Kushal Bajaj, Executive Director, Geeta Aluminium Company Pvt Ltd.

Subhendu Ganguly, Managing Director, AluK India

In the ever-evolving architecture and interior design landscape, window systems are at the forefront of innovation. By blending advanced technologies, sustainable materials, and aesthetic considerations, they are reshaping how spaces are illuminated, ventilated, and experienced.

## MATERIAL MATTERS

Aluminium has emerged as a leading choice of material in the current fenestration market, as it fulfils sustainability, durability, and low maintenance requirements. Minimalist designs are gaining popularity in aluminium fenestration, with a focus on clean lines, slim profiles, and large glass areas. “The added benefit of switching to an aluminium window system with a high-performance thermal barrier is that they are built to last and require little or no maintenance throughout their life span. This durability of aluminium windows can be further enhanced by powder coating, which also enables new windows to be colour-matched to any existing fenestration systems that are to remain in place,” says Kushal Bajaj, Executive Director, Geeta Aluminium Company Pvt Ltd. It can support much larger areas of glass within narrower frames, offering a slim sightline with the maximum benefit of natural light. It enables the creation of bespoke glazing solutions comprising high-quality, low-cost, safe and versatile designs. Aluminium fenestration systems are safe and secure, even with a slim profile.

## EFFICIENCY CUES

The new-age aluminium windows and doors are embedded with upgraded features which include a sleek and attractive finish, smooth operation, great energy efficiency, better insulation, and improved customer experience. Aluminium fenestration solutions provide both style and sustainability thanks to these attributes. If you choose aluminium doors and windows for your house, you have a vast choice of colour, style, and design options to match your taste. Subhendu Ganguly, Managing Director, AluK India, says, “Aluminium is the material of choice in fenestration due to its durability, lightweight nature, and ability to create ultra-slim frames for larger glass panes. Its resistance to corrosion, extreme temperatures, and the effect of wind and rain makes aluminium a reliable choice for tall buildings exposed to challenging environments. Thermally broken aluminium systems, which prevent heat transfer, are becoming a new trend, providing excellent energy efficiency. The glazing itself plays a critical role — double or triple-glazed windows with low-E coatings, laminated glass for safety, and acoustic

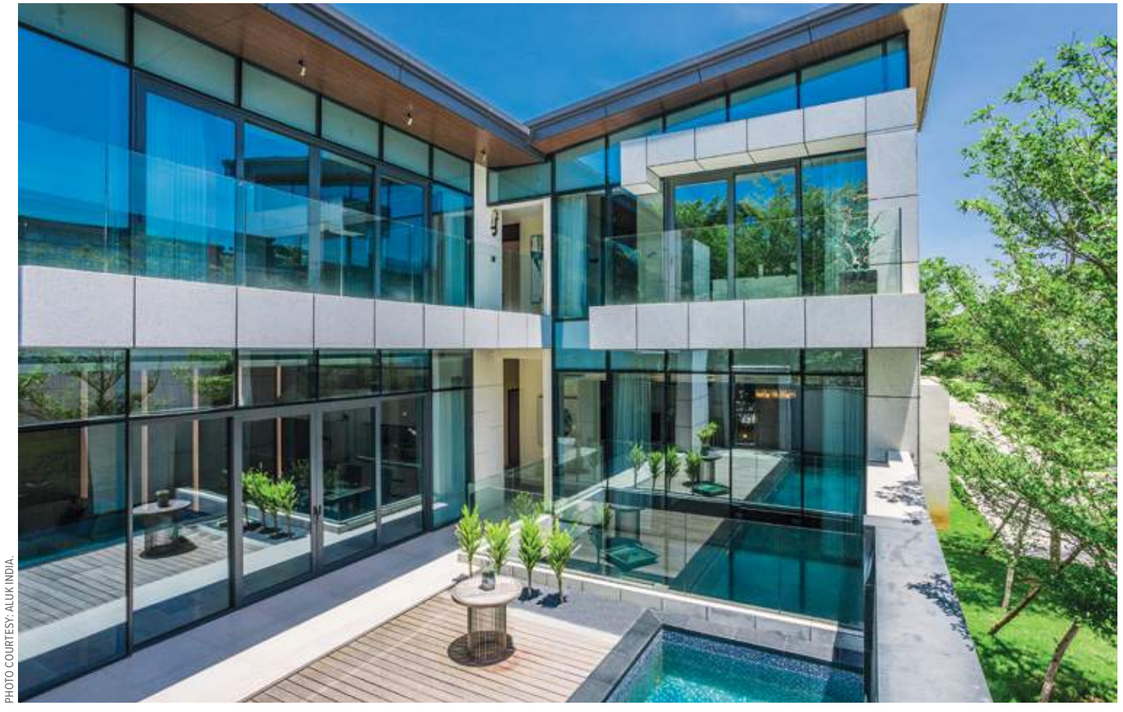

PHOTO COURTESY: ALUK INDIA.

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Rupesh Baid, Principal Interior Architect, And Design Co

PHOTO COURTESY: GEETA ALUMINIUM

Availability of a variety of glass types, coatings, and frames for use in window systems has created an opportunity to fine-tune and optimize window selection on a project-by-project basis.

insulation are highly preferred in modern-day buildings. Good quality glazing also helps reduce heat gain, cutting down on energy consumption while maintaining indoor comfort. Furthermore, we see greater interest in using composite materials and eco-friendly products that align with green building practices."

**NEW TRENDS**

Smart technology is making significant strides in the market, introducing features such as automated blinds, on-demand tinting smart glass, and integrated weather sensors. These innovations are designed to improve convenience, security, and energy efficiency, offering a futuristic approach to window and door solutions. "To further enhance thermal performance, triple-glazed windows have emerged as a significant improvement over traditional double-glazed options. These windows offer superior insulation by incorporating three panes of glass, dramatically reducing heat loss. It is becoming standard in many modern window systems," says Kushal.

**GOING GREEN**

While the push for sustainability in construction accelerates, the window industry is embracing innovative materials and production methods. "A push for green design with recyclable materials like aluminium with low-carbon finishes leads the charge, aligning fenestration with circular economy principles. Floor-to-ceiling windows transform spaces into panoramic experiences, where every view becomes part of the interior. Minimalistic designs, with ultra-slim sightlines, are increasingly popular. Expansive glass walls amplify natural light and blur the lines between indoors and outdoors, creating a harmonious dialogue with the environment. Smart customisable fenestration with integrated shading systems and dynamic glass that adjusts tint based on sunlight, further elevates the user experience, making windows an integral part of intelligent building systems. With a renewed focus on recyclability and



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PHOTO COURTESY: GEETA ALUMINIUM.

Low-E Glass has a special coating that reflects infrared light, helping to keep buildings warmer in winter and cooler in summer.

cradle-to-cradle certified materials, the future of fenestration reflects both customisable aesthetic refinement and environmental responsibility," explains Subhendu.

**MINIMALIST AESTHETICS**

Modern designs, window systems with thinner frames and larger glass surfaces are gaining popularity. These systems often feature structural glazing where the frame is less visible, enhancing the exterior appearance. Window systems now come with a variety of frame colours and finishes to better match modern design aesthetics, adding more flexibility to building design. Rupesh Baid, Principal Interior Architect, And Design Co, says, "Windows are more than just openings, they are integral to the architectural narrative, shaping aesthetics, ambience, and functionality. By harnessing sunlight, windows bring life to interiors, accentuating textures and colours while reducing reliance on artificial lighting. Strategically placed windows foster a connection with nature, aligning with biophilic design principles to enhance well-being. From Gothic stained glass to minimalist glazing, windows reflect cultural, historical, and stylistic identities, enriching a building's character. Thoughtful placement and advanced materials regulate temperature, optimise ventilation, and reduce energy consumption."

PHOTO COURTESY: GEETA ALUMINIUM.

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**IN CONCLUSION**

Innovative window systems transcend their conventional role, becoming versatile tools for redefining architecture and lifestyle. Expansive fenestration can create fluid transitions with frameless sliding doors, blurring the line between nature and living spaces. "Skylights and clerestory windows channel sunlight into areas untouched by conventional windows, enhancing spaces into bright sanctuaries while maintaining privacy. Beyond aesthetics, floor-to-ceiling glazing reinvents urban apartments, offering expansive views and a sense of boundless space. For energy efficiency, dual-aspect or operable systems maximise natural ventilation, reducing dependency on mechanical cooling. In creative interiors, switchable smart glass serves as adaptable partitions, offering both transparency and privacy on demand," says Subhendu.

Window systems are widely used in architecture and construction due to their strength, durability, and aesthetic appeal. They can be adapted to a variety of applications, each serving different functional and design needs. "In recent years, windows have undergone a technological revolution. High-performance, energy-efficient window and glazing systems are now available that can dramatically cut energy consumption and pollution sources; they have lower heat loss, less air leakage, and warmer window surfaces that improve comfort and minimize condensation. Availability of a variety of glass types, coatings, and frames for use in window systems has created an opportunity to fine-tune and optimise window selection on a project-by-project basis," says Kushal.

By integrating cutting-edge technologies, sustainable materials, and thoughtful design, modern window systems are shaping brighter, more efficient, and aesthetically rich spaces for the future. A&I