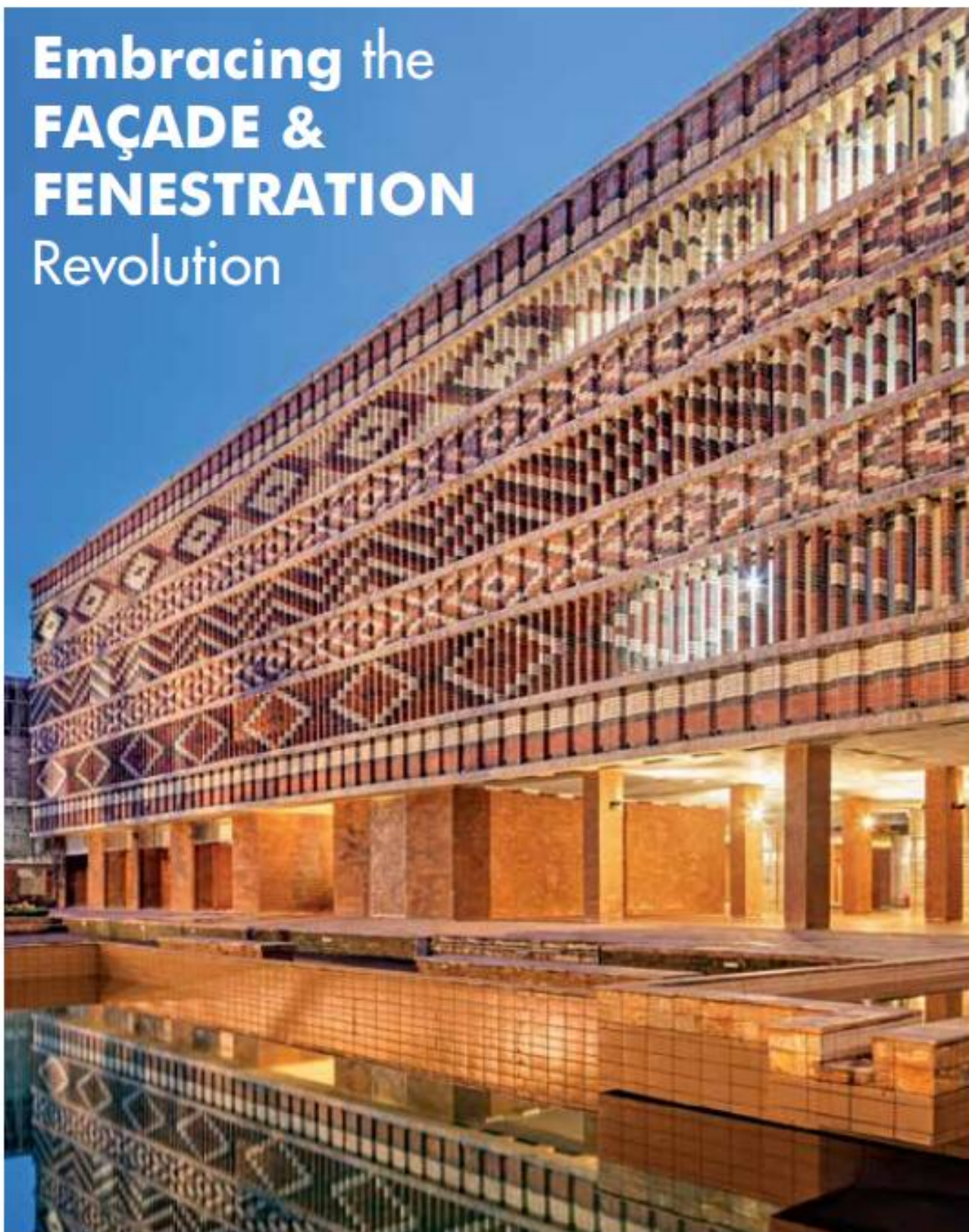


Embracing the FAÇADE & FENESTRATION Revolution



With the growth in commercial and residential real estate, the façade and fenestration industry is poised to witness an unabated growth. **Prajakta Karnik** takes a peek into the growth trends of the industry.

India's façade and fenestration industry is witnessing a significant shift both aesthetically and architecturally. The influence of developed economies is evident in the way the residential and commercial real estate projects are shaping today. Also, the rise in aspirational spending has transformed the aesthetics of the façade and fenestration industry.

Interestingly, the transformation is not limited to tier 1 and 2 cities, but it has proliferated even in tier 3 cities as people are paying closer attention towards the look and feel of the buildings. At the same time, they are also consciously complying with energy efficiency standards.

As per industry estimates as of December 2018, the current market size of the façade industry in India is Rs 15,000 crore and witnessed an annual growth rate of 20% due to rapid urbanization and increased demand for office and other high-end glass façade buildings.

Similarly, the industry size for fenestration and curtain wall is around Rs 10,000 crore with 65% share held by fenestration and 35% by curtain walls.

CHANGING TRENDS

Over the last decade, there has been a noteworthy transformation in the urban skyline. These buildings have presented uncountable possibilities when it comes to design and the use of modern materials. This has led to designers paying closer attention to façade design and innovative façade systems.

"The last ten years have witnessed a surge in new material usage and façade treatments. Façades now are more of a functional element than an aesthetic requirement. Materials like glass, aluminium, dry cladding, sunscreens are seeing a considerable rise in demand in the market today. There is a higher use of architecturally exposed concrete or concrete moulded to the designs as current emerging trends. Integral materials like stone wools, glass and aluminium are being locally manufactured to offer value of money to the Indian Market. Architects, thus, are now coming up with innovative solutions to façade designs with a focus on materials like fabric, smart glass and wood polymer composites,"



Sumit Dhawan
Founder & Principal
Architect
Cityspace' 82 Architects

Sumit Dhawan, Founder & Principal Architect at Cityspace' 82 Architects said.

The organised construction market is thus creating a signature style element by exploring and experimenting with façade elements. The materials used are more durable & environmentally friendly while heavily incorporating the use of technology

initiates design scheme and construction. It not only helps builders completing a project faster but also on saving resources like time, manpower and money.



PV Varghese
CEO, Glazing & Metal Works
(GMW) Division, SOBHA

According to PV Varghese, CEO, Glazing & Metal Works (GMW) Division, SOBHA, in the recent years, windows have gained much more importance as people prefer better light and ventilation at their homes and offices. "Shaded glasses are recently used in the industry to control sunlight and heat penetration. To cut down the direct glare from the sun, light shading elements are used on the outside and horizontal shading elements (usually known as light shelf) from inside too. There are specialized glasses for noise reduction as well."

MATERIAL MATTERS GLASS



Anand Santhanam
National Head - Sales and
Marketing, Saint-Gobain
India - Glass Business

According to Anand Santhanam, National Head - Sales and Marketing, Saint-Gobain India - Glass Business, glass has been among the oldest building materials and yet, with each passing day, it continues to up its game and never ceases to amaze. Today, the sheer number of uses and applications that it has helped generate, is light years ahead from being just another building material.



▲
Glass can be as
classic as it can be
contemporary.

"The imminent use of science & technology has definitely contributed to the evolution of glass as well. Take SageGlass, for instance. SageGlass is pioneering the world's smartest dynamic glazing. An electronically tintable glass, it tints or clears on demand to control sunlight and prevents heat & glare without the need for blinds or shades. SageGlass dramatically reduces energy demand and the need for HVAC by blocking up to 91% of solar heat. It can be controlled manually via a mobile application or a switch, or linked to the building's centralized control system. With the latest development on integration of SageGlass with Alexa, you can now talk to your façade and have it change as per your instruction. Globally, SageGlass has already made its presence felt in 700+ projects, adding significant value with its innovative properties," he said.

Santhanam further said the Priva-Lite from Saint-Gobain allows occupants to choose between transparency or translucency at the touch of a switch and thereby control their privacy and can be installed either as interior glass, or as a façade or even as partitions, floors, doors, windows and walls. Graduating from plain mirrors, we now have LED Mirrors (SGG Aspira) that are clearly changing the way we look at glass. From greater precision, better reflection, dust and water resistance, to defogging and energy-efficiency, these mirrors are reflecting the new-age technology that has become a way of life for us.

ALUMINIUM

Apart from glass, aluminium is widely used by the façade industry. Windows and doors are made of glass in most of the buildings in both residential and commercial.

"Glass is being used by construction companies for ages. It is not only fascinating and adds beauty to the building, but allows ample amount of light and ventilation. Aluminium is a perfect trend in the façade and fenestration industry. It is known for its flexibility and durability. The maintenance is much easier and

lesser for aluminium based façade compared to steel and wood as it has much resistance to corrosion. Aluminium is widely used in the construction of high-rise buildings and bridges as well. It is also highly preferred by us because of its high recycling value," Varghese said.

CLAY

While glass and aluminium are being commonly used in both the façade and fenestration industries, clay façade solutions are widely used not just for its ethereal aesthetics but also because of its numerous functional benefits.

"The façade materials market in India is addressed by various product segments and categories. At Wienerberger India, have an exclusive range of façade products made of clay. Wienerberger's Aspect clay façade tiles are installed as ventilated façade system mechanically without any usage of mortar or adhesive. The ventilated system acts as a rainscreen and sunscreen offering excellent thermal insulation. Our glazing finish made with a double firing process,



Muthu Kumaran
Deputy General Manager
Head - Façade & Roof
Division, New market
development
Wienerberger India

can render any colour as per the design intent," said Muthu Kumaran, Deputy General Manager, Head - Façade & Roof Division, New market development, Wienerberger India.

GREEN WALLS

Another interesting change in the façade space is green walls. These green walls are a type of vertical garden installed on a building façade, exterior or interior, where the plants generally are held up by a support structure and are trained to grow upward.

"Commercial real estate now is putting a strong focus on incorporating green walls into their façade designs as along with serving a great aesthetic look to it, they also have several benefits. Plants on the wall filter toxins and convert carbon dioxide to oxygen, thereby creating a healthier environment for the users. Green walls also help absorb & reflect off sunlight, which ultimately cools the indoor air and offer better ambient temperatures. Moreover, they are known to approximately absorb about 41% of noise, thereby making indoors more acoustic friendly and thus allowing better work production," Dhawan added.

uPVC

The fenestration market in India is also witnessing a shift from the traditional hardwood and aluminium windows to uPVC windows. A report by property

consultant Anarock highlights that in India, the residential segment has observed a marked shift from the use of hardwood to aluminium and uPVC for windows. This is mainly because of the cost implications in sourcing good quality hardwood in requisite quantities. PVC and uPVC frame structures for doors and windows started coming into the picture from 2010 onwards and presently dominates the market.

"uPVC (un-plasticized PVC) is the new environmental standard in fenestration. This environmentally friendly variant currently accounts for only 10% market share, but it is a Rs 1,500 crore business. Developers across leading global cities have accepted the new environmental façade and fenestration prerogatives. In India, wood and steel are rapidly being replaced by uPVC - though not fast enough," the report stated.

EMPHASIS ON ENERGY EFFICIENCY

There is lot of emphasis on energy efficiency and sustainability. Façades designed for thermal efficiency and aesthetics; digital protocols such as energy modelling has helped achieve energy efficiency. Passive architectural elements such as sun shading systems are increasingly and optimally used to mitigate glare and heat. To ensure durability - the entire design of the exterior façade is now enhanced based on digitally researched environmental factors of wind and heat much before devising an installation system.

"Sustainability has become the buzzword for any building's façade system. A well-designed façade reduces the thermal bridges, condensation of water vapour, protects the building and increases sustainability. Tropical climate can sometimes be uncomfortable and therefore it is important to use the right façade system for optimizing temperature levels inside a building. The primary objective is

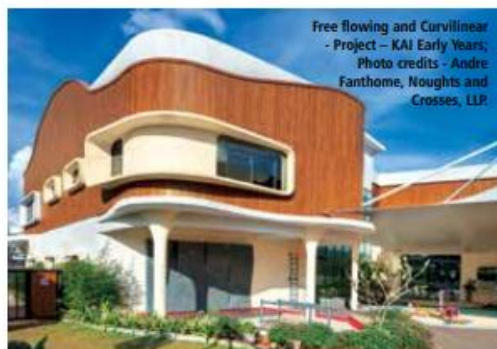


Ashwani Khanna
AVP Marketing
Fundermax India

to keep the heat at bay," Ashwani Khanna, AVP Marketing, Fundermax India said.

Elaborating further, he said the revolutionary rear ventilated façade system from Fundermax maintains a gap between the building envelope and cladding, and between cladding elements, which ensures there is sufficient flow of air behind the cladding.

"In other words, when the building gets heated, the hot air between the cladding and building envelope rises to the top and escapes, and cold air from the bottom flows in to occupy its space. This way there is continuous air movement and the



Free flowing and Curvilinear
- Project - KAI Early Years;
Photo credits - Andre
Fanthome, Noughts and
Crosses, LUT

building is able to sustain a comfortable temperature. This unique and innovative façade system by Fundermax is a sustainable model and is compliant with green building technologies," Khanna added.

According to Varghese, the major advancement in façade industry is the approach towards the green building norms. "Apart from selecting and processing the performance glass for the required 'U' value and shading factor, consultants are very proactive in designing and proposing shading elements in the form of vertical fins, horizontal fins and even light shelves inside the façade to bring more light but to cut glare. Integrated façade cleaning mechanism with more features is another improvement. Now a days the façade of the building is becoming more vibrant at night due to advanced lighting solution using latest LED techniques," he added.

Santhanam opined that glass is a recyclable material and it also cuts down heat ingress and helps save on energy as well as energy bills. "Therefore, it is a material that perfectly syncs in with our own sustainability initiatives. On our way to achieving carbon-neutrality by the year 2050, we at Saint-Gobain, are invested in making the world a better home. It is not just our purpose but an objective that is getting translated into scores of our customers' lives as they make the shift to sustainable lifestyles. Whether it is about being a sustainable raw material or an eco-friendly end-product, glass ticks all the boxes when it comes to walking the talk of sustainability."

He further said that the company's entire suite of interior and exterior solutions - branded under the Inspire and Infinity range, respectively - hinges on how living and working spaces can be made more sustainable even while adapting to modern day lifestyles.

CHALLENGES

Despite the growing popularity of facade and fenestration and their rising acceptance globally, the markets in India are still divided and averse to the introduction of such products. There are several

impediments for the sector when they endeavour to scale up. While the industry is striving to popularise and publicize the benefits, the buyers are yet to stake a claim for their implementation.

Additionally, the absence of industry standards and regulatory bodies and lack of skilled resources are also playing a spoilsport in the growth story of the façade and fenestration industry.

COVID IMPACT

Construction industry members, including developers, contractors, subcontractors, and supply chain vendors have experienced varying degrees of impact because of Covid-19. The nature of the impacts and extent of the ramifications are in large part dependent upon the location of both the respective businesses and underlying projects, opined Rounaq Choudhary, Director, Glass Wall System (I).



Rounaq Choudhary
Director
Glass Wall System (I)

"We are no different when it comes to the post Covid impacts. We have multiple manufacturing units producing façades across the country, and to serve them during the pandemic with ample amounts of raw materials to serve the projects was challenging. Lockdown restricted the use of ancillary units thereby delaying and disrupting the entire supply chain process. The sourcing of raw material is now not as easy as it was before. Concurrently demands are higher than supply in the real estate market, and to keep up with the pace we as a team have reinvented ourselves to adapt to this new world and at the same time meet our client's expectations. There is no doubt that Covid-19 has changed our industry forever," he noted.



World's largest smart glass project,
Bagmane Rio-Google HQ currently
in Bengaluru.

Fundermax

OFFERINGS: Rear ventilated façade system is the popular standard offering for exterior cladding. These are made of Max Exterior panels from Fundermax which are durable and versatile.

One of the new solutions from Fundermax, the Max Lato series aims at providing better visual comfort to occupants. These shading systems come in different sizes and configurations and can be used to mitigate the effects of glare and heat ingress in different kind of buildings located across the country.

FUTURE PLANS: We are preparing to expand into new cities to cater to this new demand. We will continue to add more than 50% value within India supporting the Atmanirbhar initiative in terms of the fixing systems, milling and CNC, the entire workforce etc.

SOBHA

OFFERINGS: The Metal and Glazing Division of SOBHA manufactures aluminium doors, windows, structural glazing, SS cladding, architectural metal works and pre-engineered buildings.

FUTURE PLANS: After the Vardah (cyclone) related damages in Chennai, we are working on designing a window system capable of withstanding very high wind loads and we are in the final testing of the same. Apart from this we have plans for investing on the fire door and fire barrier manufacturing units. The above elements became more important after the latest code revisions, pertaining to the capacity enhancement, we have 3 manufacturing units which can work for second shift which can augment for another 50% demand from the current levels.

Echoing similar views, Varghese noted that the pandemic and the subsequent lockdowns have put a halt to the construction sector in India. Even after the lockdown, the increased price and unavailability of raw materials were a challenge to the industry.

"But at SOBHA, we manufacture materials that are required for the construction. SOBHA is the only company in India to manufacture all the required construction components from concrete products to aluminum windows, in-house. This has made us an 'Atmanirbhar' company and the Backward Integration Division of SOBHA has also helped perform well even during the pandemic. The in-house manufactured materials of SOBHA are of high quality and this makes us one of the most reliable and trustworthy construction companies in the country in terms of quality and on-time delivery," he added.

Glass Wall Systems (I)

OFFERINGS: We specialize in various ranges of façades such as unitized curtain wall, stick-type curtain wall, ACP panel with the system. Our expertise also lies in diversified technological advancements in executing projects with curved unitized panels, articulated unitized panels, dynamic façade lighting, curved ACP panel, perforated aluminium screens, diagrid and free flowing façade.

FUTURE PLANS: We are executing the world's largest smart glass project, Bagmane Bio-Google HQ currently in Bengaluru. Thereby our investments are also more focused in that part of the market and we look forward to our expansion and growth from here on in the South.

Saint-Gobain India

OFFERINGS: Our 'Infinity' range of products and solutions are specifically designed to meet the glazing needs of the exteriors, including the facade space. These high-performance offerings are made from cutting-edge Magnetron sputtering technology to create nano layers of coating on glass.

FUTURE PLANS: We recently announced investment of Rs 1000-1200 crore in the existing World Glass Complex, Bhiwadi for float glass and allied products to more than double the production capacity. This is the 2nd Float line for Bhiwadi and 6th for Saint-Gobain in India. The investment will enable direct and indirect employment of around 300 people. We will soon be coming up with our windows range.

Weinerberger India

OFFERINGS: Wienerberger's Aspect clay façade tiles are installed as ventilated façade system mechanically without any usage of mortar or adhesive. Its terracotta louvers from Aspect can be extruded in various shapes and profiles, including squares, elliptical, triangles and circular cross-sections and can also be customized to other irregular shapes as well. Terracotta louvers can create a unique visual effect on the building's façade in conjunction with the shadows they cast on to the facade.

FUTURE PLANS: Our façade products are imported, and we cater to markets pan India in partnership with a network of trained installers.

Khanna noted that amid the pandemic, the demand in western world improved. "Due to this demand, there is severe shortage of raw materials and delay in shipments. Initially there were container shortages, then the Suez Canal blockade, and now

the freight rates have gone up over 70% in last few months. We see big upward trend in costs of important materials like aluminium, steel and cement. We have been impacted by rise in cost of resins, unavailability of paper and also higher freight costs," he said.

Khanna opined that it would be encouraging if construction activities are allowed at sites by creating bio-bubble. Also, its not only manufacturing which needs to be up and running but also retail has to open up for critical supplies related to construction sector.

Kumaran, however, noted that as the market evolves, we see a huge potential in the cladding as the market preferences are changing post Covid. Cladding segment is witnessing growth albeit at a slower pace, considering the slowdown in commercial construction.

"However, aesthetics plays a vital role in façade design. The widespread adoption of natural cladding materials not just in commercial spaces but also IT parks, public utilities and hospitality would be the key drivers for growth. The renovation market also holds promise in cladding as we have seen an uptick where existing structures with ACP are moving towards cladding them with clay façade tiles," he added.

Echoing similar views, Varghese said most of the fabricators in the country are looking forward for a higher demand to cover up the Covid period.

WAY FORWARD

The major components fueling the growth of this industry are real estate & construction industry. The Indian real estate market itself is expected to reach USD 1 trillion by 2030 from USD 120 billion in 2017.

Additionally, higher usage of eco-friendly construction materials, changing building construction practices and a rise in office space demand as well as the growth of retail real estate development, will drive the façade and fenestration industry in India.

Khanna opined that due to the pandemic, a new trend of hybrid working is witnessed which is resulting in slow down of office space in main cities and also shift in residential demand to Tier II, III & IV cities. "Additionally, there is a demand for bigger homes to accommodate working / online classes for all family members. This itself is driving the demand in these cities as well as new ecosystem including demand for office spaces in these cities are going to come up," he said.

As per industry estimates, the global facade market size is expected to reach USD 340 billion by 2024.

As Dhawan sums up, "On the way forward, we are looking at buildings to be sustainable and energy-efficient with each architectural design offering a benefit. When it comes to smart cities, it is imperative that the buildings too display a sense of smart design, abiding by the overall city planning."