# FAÇADES & FENESTRATIONS: OF AESTHETICS & FUNCTIONALITY

WITH GREAT INNOVATIONS TAKING PLACE IN THE CONSTRUCTION INDUSTRY TODAY, THE SKY IS THE LIMIT WHEN IT COMES TO THE MATERIAL, DESIGN AND TECHNOLOGY BEING USED FOR FAÇADES AND FENESTRATIONS TODAY.

BY BINDU GOPAL RAO

It is clearly the façades that set the context of a project. Façades and fenestrations play a very important role in connecting the exterior and interior functions of a building.

**A BALANCE OF AESTHETICS & PRACTICALITY**

While the functionally inclined, small-scale structures favour cost-effective fenestrations and their tasteful composition, the aesthetically inclined, towering structures seek a compelling façade to stand out amongst the mass of modern cityscape. "Yet, both façades and fenestration root for a harmonious balance of the aesthetic and practical interpretations, where the sensible spatial shell, quality framework, energy-efficient skin, fine-sourced materials and stimulative composition coexist. In the function-to-form sequence of design, the functionalities are first worked with, leading to

1. Today the word façade has replaced the age-old word elevation in many ways courtesy Parag V Singal

2. Parag Singal, Principal Architect, Parag Singal Architects


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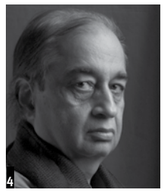

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3. The character of a façade maybe a glazed composition that gives a peek into the stunning interiors or a blinding envelope that wraps an array of intriguing panels around itself courtesy RMDK

4. Deepak Kalra, Principal Architect, RMDK

5. Ram Raheja, Director, S Raheja Realty.

6. The façade of a building is much more than a barrier against the weather; it is an expression of the designer's creativity and sets the tone for the building's owner and occupants courtesy S Raheja Realty.

the envisioning of the enveloping aesthetic," says Deepak Kalra, Principal Architect, RMDK. The right balance of solid and voids on the façade could be a better way to tackle our kind of tropical climate. Parag Singal, Principal Architect, Parag Singal Architects, says, "Aesthetics can very well be achieved even with this kind of approach. Contrary to this is the concept of second skin, more suited to a west facing façade, where the solar ingress is minimised through a second skin façade which helps in filtering the heat. At times, the gap between the two skins also acts like an insulation barrier, thus creating a micro-climate in that zone, which again helps in further reducing the heat inside the building."

**TECHNOLOGY TAKE**

Façade and fenestration are a technology-driven industry, where innovations keep happening. In today's time, making sustainable buildings is the topmost trend in the construction segment, which is increasing the demand for sustainable and environmentally friendly façade and fenestration solutions and technologies. "Automation is another trend that has revolutionised the industry. The façade of a building is much more than a barrier against the weather; it is an expression of the designer's creativity and sets the tone for the building's owner and its occupants. In an environmentally conscious world, the building façade can also help to cut energy usage by using the suitable resources," says Ram Raheja, Director, S Raheja Realty.

**MATERIAL MATTERS**

Façades are changing inside-out as materials, and design innovations support the environment. Amongst the engineered systems available, UPVC, aluminium and wood are currently in use. Thermal break and fiber windows are the new materials that have entered the façade and fenestration industry of late. Planning fenestrations in different ways can help in transforming spaces. Nikhil Agrawal, Founder & Principal Architect, Design Atelier, says, "There are so many different façade options available for builders and architects these days through which they can balance with many different finish options. A key benefit of perforated façades is that they allow ventilation and light into a building without compromising on privacy. They have the unique ability to allow light into the building, while reducing the heat produced by sun exposure." Perforated façades provide a way to create a unique and innovative building aesthetic.

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The new age is inclined towards overlapping highly sophisticated technological tools and an architect's interpretation of spaces. The idea today and in the future is to give design solutions that cater to the use of new/innovative materials that also respond positively to the environment. "Currently, the Indian context of designing façades and fenestrations still falls on historical takeaways. Ideas and solutions that are provided by orientation and alignment

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in Vastu still establish a strong relationship between the architect and the occupants," says Ridhima Khanna, Architect & Interior Designer. Siddhartha Srivastava & Rohit Sharma, Design Principal, Headlight Design, aver, "Fenestrations have a million possibilities of rendering beauty to any structure or space, from framing our views of the world outside, to playing with the form of light flowing out of a building. Essentially, buildings have similar functions, and with the local building norms, the floor plates are mostly similar. It is the façade, the skin, and the face that give them an identity, both inside out."

**DO THE NEW**

Leading fenestration brands have given an innovative stimulus to traditional sliding doors that were otherwise limited to a lateral sliding mechanism, one such being the Lift and Slide system. "Lift-sliding doors have frameless side



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7. A key benefit of perforated façades is that they allow ventilation and light into a building without compromising on privacy courtesy Design Atelier

8 Perforated façades provide a way to create a unique and innovative building aesthetic. courtesy Design Atelier

9. SAGA, a Michelin star chef led restaurant in Gurgaon was not designed as space design rather we just designed the enclosing surfaces as building façades and the restaurant was just furniture kept in between two façades courtesy Headlight Design

10. A façade is a language of dialogue between a building with the surroundings and vice versa rather than a monologue courtesy Headlight Design

11. Nikhil Agrawal, Founder & Principal Architect, Design Atelier

12 & 13 Siddhartha Srivastava & Rohit Sharma, Design Principal, Headlight Design


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14. Façades are changing inside out as materials, and design innovations support the environment courtesy ALCOI

15. The façade of Nirlon Knowledge Park, Mumbai by Aluk

16. Nitin Mehta, Executive Director, ALCOI

17. Wienerberger India, have an exclusive range of façade products made of clay under the brand name of Aspect courtesy Wienerberger India

18. Smart cladding systems are used for optimizing temperature levels inside a building courtesy Fundermax India

elements, and their extra-large sizes extend the room beyond its natural borders, thus creating a new sense of space. The extremely low thresholds ensure a barrier-free connection to the outside to maximise clear view with minimal interference for large span openings. Another type is the unitised curtain system containing large units that are assembled in the factory, shipped to the site, and erected on the building. Since there is no on-site glazing, a significant benefit of using a unitised system is the speed of installation," says Nitin Mehta, Executive Director, ALCOI.

Clay ventilated façade systems when combined with steel, glass and wood offer subtlety, symmetry, natural elegance, and timeless perfection. ASPECT by Wienerberger has recently launched new 3D printing technology on façade tiles and new metallic finishes which can offer limitless designs and surface textures to the façade. Muthukumaran, Deputy General Manager, Head – Façade & Roof Division, New Market Development, Wienerberger India, says, "New shapes in terracotta louvers is a perfect illustration of this trend. Aspect by Wienerberger louvers can be customised in various shapes and profiles, including squares, ovals, triangles, and circular cross-sections. Terracotta louvers can thus create a unique visual effect on the building's façade in conjunction with the shadows they cast on the façade. Louvers can be integrated seamlessly in corners, parapets, eaves, balcony, and parking building, achieving a harmonious and integral façade."

## GREEN GOALS

One solution that shows promise is designing façades as living environments with habitable spaces. Eco friendly products consider ecology in the entire product life cycle. The material is from sustainable sources, and does not have any adverse effects on the environment due to the mining of its raw materials. "Façade materials and systems are expected to carry out a number of functions and perform in a variety of ways. There are no harmful VOCs that are released from the panels during its use, thus making it perfect for use as interiors also," says Prashanth Reddy, Managing Director, Fundermax India. Architect Nilanjan Bhowal adds, "With research, along with experiments with different materials and exploring sustainable and flexible alternatives, one comes to terms with new and creative ways to play with a building's façade and its fenestrations. Often inspiration from little details found in traditional buildings result in modern adaptations. And, little details found in nature inspire one with a highly functioned and unique solution for a building envelope."

Site context and function of a building drive the design for façades and fenestrations, and it helps balance the local weather conditions along with interior functions to create practical, and aesthetically pleasing designs. AI

## HN SAFAL CORPORATE OFFICE FAÇADE BY SCHEUCO

**PROJECT DETAILS**

- **Architect:** Blocher Partners India Pvt Ltd.
- **Façade Consultant:** Mitul Gajjar (FES, Thane)
- **Façade Contractor:** Pavvan Iyengar( Facaade, Surat)

Given the building's complexity, it was critical to have a system that would be pre-fabricated at the factory under control supervision and match the building's high-performance requirements. To address this, Schueco offered a tried-and-tested unitised façade system UC 65 SG.NI, which was customised to meet the building glass line requirements of 200 mm by designing the profiles to have a basic depth of 130 mm while still ensuring structural adequacy for the given project wind load of 1.8 kPa.

UC 65 SG.NI is a three barrier male-female unitised façade system, tested for 2.75 kPa wind load, 600 Pa airtightness and 720 Pa of watertightness, in accordance with ASTM / AAMA standards.

**Big fins with LED integration:** The design intended to incorporate 500 mm deep vertical and horizontal fins with the glass façade to offer sufficient solar shade while also adding aesthetic appeal to the building. The structure has 4000 RMTs of fins, with LED integration planned. The fins were designed to be modular with no visible hardware and accessories, allowing for easier installation and removal in the event of broken glass.

**Sleek double / triple-height façades:** The double-height region on the ground level and the director's floor reaches a height of 6300 mm and is enclosed by slimmer façade elements with a face width of 30 mm. For the top floor, Schueco has also offered a system that spans 9000 mm in height without any intermediate supports.

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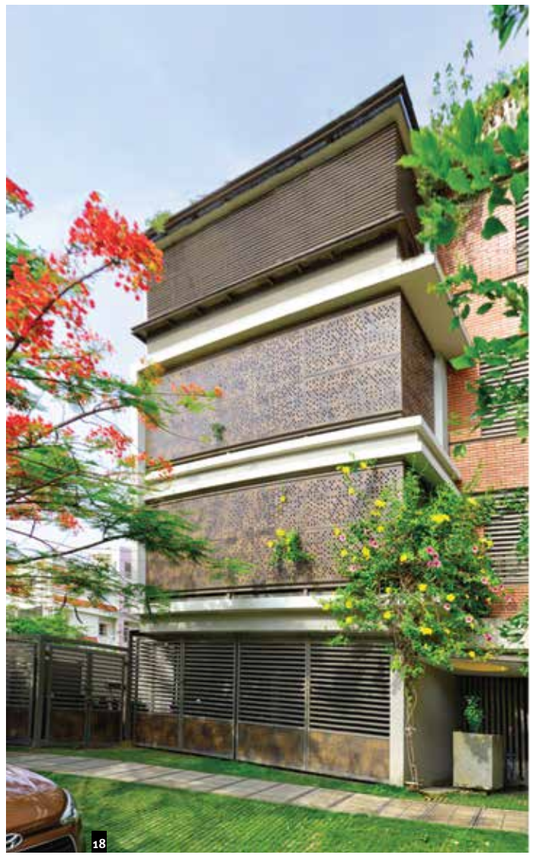
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19. Façade materials and systems help in structural integrity, durability, weather – resistance, acoustic insulation, thermal insulation, as safety and security barriers courtesy Fundermax India


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20. Muthukumaran, Deputy General Manager, Head – Façade & Roof Division, New market development, Wienerberger India


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21. Prashanth Reddy, Managing Director, Fundermax India

**WEBSITES:**

- **RMDK:** www.rmdk.in
- **S Raheja Realty:** www.sraheja.com
- **Design Atelier:** www.design-atelier.co.in
- **Zero Energy Design Lab:** www.zeroenergydesignlab.com
- **Fundermax India:** www.fundermax.in
- **ALCOI:** www.alcoi.in
- **Parag Singal Architects:** www.paragsingalarchitects.com
- **Headlight Design:** www.facebook.com/headlightdesign
- **Wienerberger India:** www.wienerberger.in
- **Nilanjan Bhowal:** www.nilanjanbhowal.com