

SELECTING FENESTRATION SOLUTIONS



Ar. Rahul Ajeet Kadam
Regional Head & Director
Edifice

“At the core of every design is functionality supported by objectives, requirements and possibilities.

While some spaces are content being functional, others evolve into aspirational art forms. The difference is not in technology – the difference is DESIGN...”

About Author:

The author is an architect and has over 18 years of professional experience and 13 years with Edifice alone. He has participation in over 50 projects from various sectors and is currently the Regional Head and Director at Edifice and head of operations for the Pune and South Maharashtra region. He has been formally trained at the University of Pune and the South Bank University in London, respectively and has travelled to over 15 countries understand architectural trends, spaces and their effect on human senses.

Designs should be sensitive to context, client, environment and business processes and the same principle goes in designing a beautiful yet functional façade. In fact, the first gesture of an architect is to draw a perimeter; this perimeter which separates the microclimate from the macro space outside, yet is an ode to the communication between finite and infinite.

Conveying this idea, there are various factors which

are considered important while designing, specifying and selecting a window or a façade solution. Presented hereafter is some of our best architectural work that represents factors that architects need to consider while selecting window/ façade systems.

■ **Framing views:**

Referring to the strategic positioning of the windows in order to visually connect the inside with the outside, this is an important consideration creating an inside-outside experience. For instance we removed an industrial bay and a gable wall of an industrial building and replaced it with glass (fig. 1), this brought in the light to the office interiors and also created a “respite space” between two gable elevations thus adding a lot of value. Evidence mapping indicated that the spatial effect contributed to 15% increase in the efficiency of the occupants over 6 months after occupying the space.

Thus, strategically positioned windows in a building façade enhanced the aesthetic and functional value of the building in a big way.



Fig 1

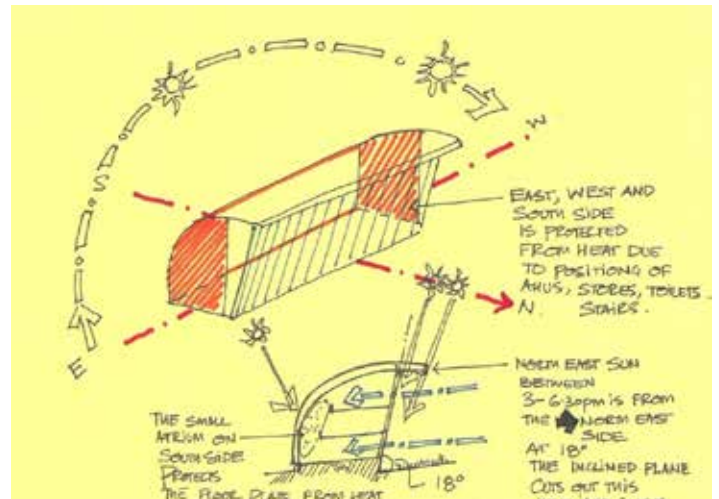


Fig 2

■ Responding to the Climate:

Contextual climatic considerations are very important for positioning of windows as optimal heat gain, sound privacy, zero water egress, etc., all need to be planned for while selecting a suitable window or façade solution. Local sun path, incidental solar angle during various times of the day and during different seasons, relative humidity prevailing all through the year and at particular times, rainfall etc. play a crucial role when an architect is conceptualizing the façade design.

For instance, in this project sun path diagram was analyzed and the façade was given an 5 degrees slant (fig.2) which cut the incidental solar radiation of the north – west, evening sun between 3 to 6:30 PM, which comes at an 18 degree angle in Hyderabad. The small atrium on the south side protects the floor plate from heat gain and the east and west side is protected from heat gain by positioning of buffer spaces stores, toilets and stair cases.

■ Articulating Fenestration: Respecting the architectural language and theme

The window solutions need to keep up with the architectural vocabulary and theme of the project, as windows are an important fenestration module. The building façade has to gel with the theme of the building design, giving the building an architectural character through its architectural vocabulary depending on the form of the building, the



Fig 2a



Fig 2b

fenestration can be articulated to linear or horizontal or natural forms emulating natural elements (fig 3&4), by deploying sophisticated digital architectural techniques, as presented in this case wherein the façade is also the structural skin of the building thereby giving clear spans in the interior space to make it extremely flexible and free of structural columns.



Fig 3 & 4



Fig 5

■ Accentuating Scale and creating openness

The window as a module plays an integral role in creating the visual impressions. They can accentuate the scale horizontally and vertically. Smaller spaces if adorned with long double heighted windows can give a feeling of scale to the same space (fig.5). On the other hand strip windows can be used to accentuate the length of built form (fig. 6).



Fig 6

■ Modular Planning :

A modular planning can also develop an interesting façade design, vis-à-vis using a stone panel grid to create a façade elevation with discreetly positioned windows. Cladding with various alternate materials can be used to create a visual and functional treat (fig.7).



Fig 7

■ Planning for Disaster :

Safety considerations are of utmost importance and can't be overlooked for other details. Disaster situations like fire, earthquake, terrorist attack, suicide, etc need be planned for and behavioral patterns need to be understood. Particularly for public buildings hospitals, hotel auditoriums, convention centers, commercial spaces etc.

Windows have to be designed for fire safety and seismic tolerances. Testing should be done before approval ensuring the window or façade component shall withstand all the natural or manmade disasters.

Apart from above, basic safety concerns like raising the sill height to prevent accidental falls and ensuring the right opening and closing when required, having restrictors to prevent banging and breaking of glass are some of the other lesser but significant factors to be considered when conceptualizing the window elements for a building or a facade system.

■ Responding to Human senses :

The window has a direct relationship with the sense of Sight and smell. Many sensitively designed projects have demonstrated that if windows are well planned and positioned they can positively respond to human sensibilities. For instance framing views articulately in hospital windows can add a lot of warmth and character to the space (Fig. 8). This in many ways reduces the psychological feeling that one is sick and helps respond to the circadian rhythm in tropical countries, as people in the tropics are physiologically designed to see/ live with sun light.



Fig 8

■ Maintenance:

A complete topic in itself, suitable maintenance considerations need to be undertaken while selecting and designing a window solution for a given project. As this has a direct relationship with the cost of ownership.

While there are endless means by which an architect articulates the building fenestration, above are the

few which holds the fancy of most of us and makes the list of key factors influencing the fenestration design and selection of solution henceforth. We believe if planned right, understanding the specific needs of a particular project, any façade or fenestration can be executed right.

In conclusion I would urge and request to the fraternity to think sensitively and practically while selecting, integrating and installing façade and window solutions to create a better future....

The author can be contacted on rahul.k@edifice.co.in

■ Few snapshots of the author presenting at Zak World of Windows, Pune

