



SUN PROOF YOUR ABODE

A VARIETY OF SUN SHADES ARE HELPING HOMES ESCAPE THE HARSH RAYS OF THE SUN WHILE ADDING AN AESTHETIC ELEMENT TO BUILDING EXTERIORS

BY BINDU GOPAL RAO

Sun shades are basically used for protection from sun rays while ensuring the natural energy from the sun is used in the interiors. Shading devices can typically have a dramatic impact on building appearance and need to balance energy considerations with aesthetics.

DO IT RIGHT

Well-designed sun control and shading devices can balance light and heat requirements in a building. Projection

angle, depth, and placement of sun shades according to the orientation of the building affects the efficiency of the sun shades. Shading effects and daylighting should be considered simultaneously. The projection depth and considerable height have an impact on the continuous daylight typically received by the space.

Deekshali Anand, co-founder & principal architect, DIOC IN & CO, says, "Sun shade may also define a volume. Proportions play a huge role. A section of space studying the depth and height of shade is critical for human comfort.



1. Sun shades by Span Floors.

2. Satinder Chawla, MD, Span Floors.



Blindly copying a sun shade design from anywhere and applying it will not bring quality of space. Blindly putting a glass structure is thankfully now regarded as an insult to responsible designing. With technological and digital advancements, we can stimulate the building's response to conditions and use before synthesising the structure; thus, giving way to new design processes for architecture and design practice. Fractal architecture and parametric architecture are making sun shades a part of building envelop design."

PRODUCT MIX

Sun shading has always been a part of contemporary archi-

ture. Due to the increasing awareness of climate change and carbon footprint of buildings, most clients today prefer green-rated buildings with innovative design, be it an office or a residence.

"Technically, it is a double-skin façade system that consists of two skins placed in such a way that air flows in the intermediate cavity. The ventilation of the cavity can be natural or mechanical depending on the HVAC strategy. FunderMax sun shading systems are sustainable and specifically aimed at improving daylighting, glare mitigation and energy-efficiency, without compromising on occupant comfort. Some of the critical considerations



3. Storefront façade design of a furniture store in Delhi by DIOC IN & CO.

4. Deekshali Anand, co-founder & principal architect, DIOC IN & CO.

5. Ashwani Khanna, AVP marketing, FunderMax India.

6. Sunset streaks at Arogya Bhavan by FunderMax India.

7. Play of light and shadow with the louvers at Golconde House, Pondicherry, by DIOC IN & CO.



are sun path analysis and wind loading patterns, which bring out the best in functionality and aesthetics in such a façade design," says Ashwani Khanna, AVP marketing, FunderMax India.

Hunter Douglas is one of the leading manufacturers of custom window coverings, which are engineered to improve the quality of life at home by providing privacy, noise and climate control, using automated blind operation. "We also have an industry first green product for new age green buildings called GreenScreen, which is a 100% PVC-free product and is recommended for use in all climate conscious green buildings. We also have a revolutionary PowerView automation option, which does not involve any electrical wiring, but the blinds can still be controlled by remote or through a smart phone or a tablet. Consumers also have an option of operating the blinds through voice activation when PowerView is integrated with smart home systems such as Amazon Alexa or Google Assistant,"

explains Venkatesh V, executive director, WCP Business – India, Hunter Douglas India.

DESIGN DETAILS

As far as building design is concerned, sun shades are always incorporated as per the style of design. According to the design of the building and the façade, a call is taken to incorporate one from the myriad options available such as vertical shading including fins or louvers, horizontal shading including awnings, or a combination of these.

Prabhleen Singh Saggi, head of Architecture Division, Gulshan, says, "On southern elevations, cantilevered sun shades are effective; horizontal line sun shades are used on tall expanses of glass or on curtain walls; while vertical line sun shades are effective on east and west elevations."

Neelima Ronanki, associate vice president (design), Housejoy, adds, "Designing a shade system is more complex than just providing horizontal projections. The building's



8. Hunter Douglas India helps reduce energy loss and save on heating and cooling costs to create more energy-efficient and comfortable homes and offices.

9. The Grounds have Vulcan screening & sand decking as sun shades – made of Abodo wood – from Span Floors.

10. Venkatesh V, executive director, WCP Business – India, Hunter Douglas India.

11. Prabhleen Singh Saggi, head of Architecture Division, Gulshan.

12. Neelima Ronanki, associate VP (design), Housejoy.

13. Rimpay Pillania, an architect and interior designer.



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overall design, functional goal, as well as the end user's needs should be considered while designing sun shades. Sun shades can, overall, improve the aesthetic of building design."

HARVESTING ENERGY

The primary purpose of a sun shade is to adequately con-

trol the amount of direct sunlight naturally coming through the building's windows. Apart from undoubtedly playing an important role in reducing heat gain and preventing water ingress, the sun shade also plays an important role in providing aesthetic to the façade. It is also an important part of energy-efficient buildings, particularly buildings that implement passive solar cooling or daylighting, as they often depend on well-designed sun control and shading devices.

"Shading devices can typically have a dramatic impact on building appearance. When designing a building, we keep in mind all the key aspects of energy efficiency. Accordingly, various kinds of sun shades like horizontal, vertical, or retractable are provided. These sun shades are not just architectural features that typically define the façade of the building, but also increase the efficiency of the building," says Rimpay Pillania, an architect and interior designer.

Kiran Kapadia, founder director, Kapadia Associates Design, and architect, Pelican Grove - MAIA Estates, states, "While sun shades are a design feature, they importantly need to be functional elements incorporated into the design after a thorough climatic study and help to regulate the micro-climate within the buildings. Along with aesthetic benefits, in the long run, they can result in immense energy savings, which are not only in sync with the sustainability narrative, but also provide economic benefits for the residents. The design and material selection are critical to ensure ease of maintenance and longevity."

SUN DIRECTION

Various roof forms with clerestory window arrangements act as effective sun shades, allowing sunlight far deeper into living areas. Additionally, this arrangement allows the hot air to escape from the roof. The roof forms allow a dramatic play of light on surfaces throughout the day.

Pune-based architect Narendra Sardeshpande of NSA Architects says, "We analyse the orientation of buildings against the sun path and location of spaces that are receiving direct sun rays. We workout the architectural programme in such a way that functional spaces, which receive direct sun rays, can spill out into ancillary open or semi-open spaces. These ancillary spaces allow us to think of using a variety of sun shades based on the amount of light we have to receive and how the harshness of sun rays is to be cut. Glass coverings providing UV protection, pergolas enabling shadow patterns, awnings allowing diffused lights, are the options that can be appropriately used."

In situations where spillover spaces are not possible, sunken openings, continuous *chajjas* in various forms, act as useful sun shades giving a uniform look to the building façade. Homogeneity of building appearance should be maintained, and sun shades should not look patchy on building surfaces. If the sun shade material is different from that of the building structure, then the joinery detail between two materials needs to be critically worked out. Otherwise, the gap between two materials always leads to water seepage.

TREND CHECK

Various kinds of screen walls (glazing, *jaalis*) allowing filtered sunlight, awnings, transparent or translucent materials with UV protection, and aluminium cladding, are the latest trends in the market. Satinder Chawla, managing director, Span Floors, adds, "Timber is being used extensively around the world for creating a sun screening system. Not only does a wood screen provide a beautiful aesthetic, it makes



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the building inviting, and yet prevents it from unnecessary heat gain and harsh glare from sunlight."

Ajaay Srinivas Thambi, founding director, Nuance Studio, says, "Some of the most commonly used materials for sun shades are wood, aluminum and cast in situ concrete. The new age materials are UHPC, wood composites and various HPL boards. Reusability, low latent carbon for manufacturing and low reflection to its immediate environment with longevity of the material used, is trending."

The most standard material typically used for sun shades is RCC. However, alternate materials such as metal, wood, bamboo and glass are used, in addition. Tensile structures are also gaining considerable popularity as shading devices. Metal sun shades have also become a big part of the modern industry as they are more manageable and add on to modern aesthetics. These typically come in manual, motorised, and automatic forms. Moreover, retractable shading devices are a possibility today. 'Smart' sun shades are the future. Automated and operable sun shades, rather than fixed ones, are available.

Manasi Risaldar, founder director, MnM Architects, says, "In smaller buildings or homes, a manually-operated system can be feasible. But in larger buildings with more number of occupants, a system which integrates façade operations, lighting and HVAC, works better in order to have a reliable, automated control system. They are integrated with sensors to create energy-efficient, healthy, productive environments. There are retractable awnings, which open or close as needed. There are fins that can change angle as per the angle of the sun to give enough shading inside, and there can be roller screens to cover or uncover the openings."

With sustainable design in focus and a genuine global concern, sun shading features need to become an intrinsic part of design rather than an optional cosmetic treatment. ■



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14. Sun shades by Nuance Studio include new age materials such as UHPC, wood composites and various HPL boards.

15. Ajaay Srinivas Thambi, founding director, Nuance Studio.

16. Pergola for protection of a parking area at a bungalow project by MnM Architects.

17. Sun shading pergolas above dining deck in a bungalow by MnM Architects.

18. Manasi Risaldar, founder director, MnM Architects.